

## 

V@ Ajæ\*^Ajæ\*^Ajæ\*) @ Aj\æj\È

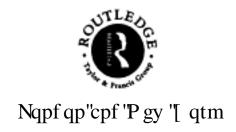
# TQWNGFI G'GPE[ ENQRGFKC'QH' VTCPUNCVKQP'UVWFKGU

 $Gf \ kygf \ 'd\{$ 

O QP C'DCMGT

 $cuukuvgf \, "d\{$ 

MKTUVGP'O CNO MLÒ T



Hktuv'r wdrkuj gf '3; ; : 'd{ "Tqwrgf i g'33"P gy "Hgwgt "Ncpg."Nqpf qp'GE6R'6GG

Uko wncpgqwun{ "r wdrkuj gf "kp" i g"WUC"cpf "Ecpcf c"d{ "Tqwrgf i g'4; "Y guv'57 i "Uvtggv "P gy "[ qtm"P [ "32223 Hktuv'r wdrkuj gf "kp" r cr gtdcem'4223

Tqwngf i g'ku'cp'ko rtkpv'qh'vj g'Vc{nqt'( 'Htcpeku'I tqwr
Vj ku'gf kkqp'r wdnkuj gf 'kp'vj g'Vc{nqt'( 'Htcpeku'g/Nkdtct{.'42270
Vq'r wtej cug''{qwt''qy p''eqr { ''qh'vj ku''qt''cp{ ''qh''Vc{nqt'( ''Htcpeku''qt''Tqwngf i gou''eqngevkqp''qh'vj qwucpf u''qh''gDqqmu'r ngcug''
i q''vq''y y y QgDqqmnqtg0cpf heq0xn0

Í '3; ; : . '4223'O qpc'Dengt

Cm'tki j wi'tgugtxgf 0P q'r ctv'qh'vj ku'dqqm'o c{"dg"tgr tkpvgf "qt"tgr tqf wegf "qt"wkrk gf "kp"cp{"hqto "qt"d{"cp{"grgevtqpke." o gej cpkecn"qt"qvj gt"o gcpu."pqy "mpqy p"qt"j gtgchvgt "kpxgpvgf."kpenwf kpi "r j qvqeqr {kpi "cpf "tgeqtf kpi ."qt "kp"cp{" kphqto cvkqp"uvqtci g"qt"tgvtkgxcn'u{uvgo ."y kvj qwv'r gto kuukqp"kp"y tkkkpi "htqo "vj g'r wdrkuj gtu0

Dt kıkıj "Nkdt ct { "Ecvc rqi vkpi "kp" Rvdrkecvkqp" Fcvc" C "ecvc rqi vg" tgeqtf "hqt" yj ku" dqqm'ku" cxckrcdrg 'htqo "yj g" Dt kıkıj "Nkdt ct {

Nkdt ct { "qh'Eqpi t guu'Ec w nqi kpi /kp/Rwdnkec vkqp'F c w 'T qwngf i g"gpe { emr gf kc "qh'\tcpurc\kqp"uwvf kgulgf kgf "d { 'O qpc" Dcngt 0 Kpenwf gu "dkdnkqi tcr j kecn't ghgt gpegu "cpf "kpf gz 0 30 Vtcpurc\kpi "cpf "kpvgtr t g\kpi ô Gpe { emr gf kcu0 K0 Dcngt . 'O qpc 0 'R5280 G79 "63: \$\delta 24\delta 25\delta\$ f e43"; 86667: 8 "E KR

KUDP '2/425/57; 9; /: 'O cuygt 'g/dqqm'KUDP

KUDP '2/425/59877/4'\*QGD'Hqto cv+ KUDP '2/637/2; 5: 2/7'\*j dm+ KUDP '2/637/47739/3'\*r dm+

# Eqpwgpw

| Nkw'qh'hki wt gu'cpf '\cdrgu   | <u>xkk</u>  |
|--|-------------|
| Nkw'qh'eqpumcpv'gf kqt u   | <u>k</u> z  |
| Nkw'qh'eqpvt kdwvqt u  | <u>z</u>    |
| Kort af werkap   | <u>zkk</u>  |
| Rgt o kukqpu'c empqy ngf i go gpw  | <u>zk</u> z |
| Retv'K'I gpgten  |             |
| '" <u>Cevkqp''*vjgqt{"qh'∹vtcpurcvqtkcn'cevkqpø</u> + <i>Ejtkukpc"Uej®hpgt</i> | <u>5</u>    |
| '" <u>Cfcrvcvkqp</u> I gqti gu'NObcuskp  | <u>7</u>    |
| '"Cpcn{ vkecn'r j knquqr j { ''cpf ''vtcpurcvkqpMkt wgp'O cro mlâ t            | <u>:</u>    |
| '" <u>Cpyj qrqi kgu''qh'\tcpurc\kqp</u> Cto kp''Rcwd'Htcpm                     | <u>35</u>   |
| "Cuuqekcvkqp'kpvgtpcvkqpcrg'fgu'kpvgtrt³vgu'fg'eqphgtgpeg'*CKKE+Lcpgv'Cnocp    | <u>38</u>   |
| "Cwq/vtcpurcvkqpTckpkgt'I two cp   | <u>39</u>   |
| "Dedgn'\qy gt'\qhFqwi rcu'Tqdkpuqp   | <u>43</u>   |
| "Dkdrg'\tepure\kqpGwi gpg'CPlf c   | <u>44</u>   |
| "Eqo o wplecvkxglhwpevkqpcn'crrtqcej guKcp'Ocuqp                               | <u>4;</u>   |
| "Eqo o wpk\{ 'kpvgtrtgvkpi_Egekrkc'Y cf gpul³/4                                | <u>55</u>   |
| "EqorgpuckqpMgky "I ctxg{  | <u>59</u>   |
| "Eqphetepee"cpf 'uko wncpeqwu'kpvetrtevkpi_Fcpken'I kne                        | <u>62</u>   |
| "Eqpvtcuvkxg"cpcn{ uku"cpf "\tcpurcvkqpOkej cgn'J qg{ "cpf "Fkcpg"J qwi j vqp  | <u>67</u>   |
| "Eqtrqtc'kp''vtcpurcvkqp''uvwfkguFqtqvj{''Mgpp{                                | <u>72</u>   |
| "Eqwtv'kpvgtrtgvkpi Owj co o cf 'I co cn                                       | <u>75</u>   |
| "F gekukqp"o cmkpi 'kp"tcpurcvkqpY qntco 'Y knuu                               | <u>79</u>   |
| '" <u>Fkfcevkeu''qh''vtcpurcvkqp</u> Jcpu'LOXgtoggt                            | <u>82</u>   |
| "Fktgevkqp"qh"\tcpurcvkqp"+Crrkuqp"Dggd{"Nqpufcrg                              | <u>85</u>   |
| "F kueqwtug"cpcn{ uku"cpf "\tcpurc\kqpDcukrl'I cvko                            | <u>89</u>   |
| "Ftco c'\tcpurc\tqpI wpknc'Cpf gto cp  | <u>93</u>   |
| "F wddkpi O qpc 'Dengt 'epf 'Dt e q'I qej gn                                   | <u>96</u>   |
| "Gs wkxcrgpegFqtqvj {'Mgpp{  | <u>99</u>   |
| "Czr dekcycpMkpi c'Mrcwf {   | <u>: 2</u>  |
| "He f2 tcvkqp"kpvgtpcvkqpcng"f gu"vtcf wevgwtu"*HKV+Lgcp/Htcp±qku"Lqn(         | <u>: 7</u>  |
| "Htgg"\tcpurc\kqpFqwi rcu'Tqdkpuqp   | <u>: 9</u>  |
| "I cog'yjgqt{"cpf"\tcpurc\kqpOkejcgrlEtqpkp                                    | <u>;3</u>   |
| " <u>I gpf gt"o gvcr j qtkeu'kp"vtcpurcvkqp</u> Nqtk'Ej co dgtrckp             | <u>; 5</u>  |
| " <mark>J gto gpgwke"o qvkqp</mark> Fqwi rcu'Tqdkpuqp                          | <u>; 9</u>  |

|  | Rci g'xk    |
|--|-------------|
| "" <u>I kuvqt { "qh" \tepure \kqp</u> Lwf kj "Y qqf uy qt vj                     | <u>322</u>  |
| '" <u>K gqmi { "cpf "\tcpurc\kqp</u> Rgvgt "Hcy egw                              | <u>328</u>  |
| "Kokcykap F qwi rcu'T qdkpuqp  | <u>333</u>  |
| ""Kovgtrtgvkxg"crrtqcej O{tkco "Ucroc/Ectt                                       | <u>334</u>  |
| "Kovgtvgo r qtcn'vtcpurcvkqpFqwi rcu'Tqdkpuqp                                    | <u>336</u>  |
| "Ncpi wci g'\gcej kpi .'wug'qh'\tcpurc\kqp'\kpI w{ 'Eqqm                         | <u>339</u>  |
| "Nepi wkrke"crrtqcej guRgvgt 'Hcy egw  | <u>342</u>  |
| "Nkgtcn'crrtqcej guFqwi ncu'Tqdkpuqp   | <u>347</u>  |
| "Nkgtct{"\tcpurc\kqp."rtce\keguRgvgt"Dwij  | <u>349</u>  |
| "Nkgtct{"\tcpurc\kqp."tgugctej 'knuwguLqu² 'Nco dgtv                             | <u>352</u>  |
| "O cej kpg/ckf gf "\tcpurc\kqpMctn/J gkp/ 'Htgki cpi                             | <u>356</u>  |
| "O cej kpg"\tcpurc\kqp."crrrkec\kqpuJ ctqrf"\NUqo gtu                            | <u>358</u>  |
| "O cej kpg'\tcpurc\kqp."j kıvqt{J ctqnf "NUqo gtu                                | <u>362</u>  |
| "O cej kpg'\tcpurc\kqp."o gyj qf qmj { J ctqrf 'NUqo gtu                         | <u>365</u>  |
| "Ogver j qt "qh" vtcpurc vkqp Twj 'Gxcpu   | <u>36;</u>  |
| " <u>O gwr j teug</u> F qwi re u'T qdkpuqp                                       | <u>375</u>  |
| "Oqfgnu'qh'\tcpurc\kqpVjgq'Jgtocpu   | <u>376</u>  |
| "O wnkrkpi werkuo "epf "tepuredap Tekpkgt" I two ep                              | <u>379</u>  |
| "" <u>P qto cvkxg"o qf gr</u> F qwi rcu'Tqdkpuqp                                 | <u>383</u>  |
| ""Pqto uOqpc'Dcngt   | <u>385</u>  |
| "" <u>Reter j teug</u> F qwi neu'T qdkpuqp                                       | <u>388</u>  |
| "Ragskeu'qh'stcpurcskapGf y kp'I gpv/ngt   | <u>389</u>  |
| "Ragyt { "tepure skap Fexkf "Eappand"  | <u>392</u>  |
| "Ran{u{uvgo "vj gqt{OctniUj wwngy qtvj   | <u>398</u>  |
| ""Rtci o cykeu"cpf "ytcpurcykqpDcukrl" cyko                                      | <u>39;</u>  |
| "" <u>Rugwf qvtcpurcvkqp</u> F qwi rcu'T qdkpuqp                                 | <u>3: 5</u> |
| ""Ru{ejqrkpiwkuvke leqipkvkxg"crrtqcejguTqigt"VDgm                               | <u>3: 7</u> |
| ""Rwdrkuj kpi "uvtevgi kguVgtt{"I eng  | <u>3; 2</u> |
| ""Rwtg"hepi wei gRgvgt 'Dwuj   | <u>3; 6</u> |
| ""S workv{ "qh'\tcpurc\kqpLwrkcpg"J qwug   | <u>3; 9</u> |
| "S wto p"Matep+"tepure waap"" Jeunep'Ownerje"                                    | <u>422</u>  |
| "Tgxkgy kpi "cpf "etkkekno EctqnlOckgt   | 427         |
| "" <u>Uetkr v'kp''\tcpurc\kqp</u> I qtf qp'Dt qvj gt u\qp                        | 433         |
| "'Ugo kqvke''crrtqcej guWo dgtvq'Geq''cpf''Uttk'Pgti cctf                        | 43:         |
| "U cngur gctg" tcpurc kqpFktmlFgrcdcuskc   | 444         |
| ""Uj khwi'qh'\tepure\kqpOcwj klu'Demgt.'Eggu'Mquvgt"epf 'Mkw('xep'Ngwxgp/\ y ctv | 448         |
| ""Uki pgf 'hcpi wci g'kpygtr tgykpi Y kn/kco 'ROKij co                           | 453         |
| "" <u>Ungrau''s gat</u> {Ej t kakpc 'Uej ®hpgt                                   | <u>457</u>  |
| ""Ur gewicykxg"cr r tqcej guO ct kn(p"I cff ku'Tqug                              | 45:         |
| ""Utcvgi kgu"qh"tcpurcvkqpNcy t gpeg"Xgpwk                                       | 462         |
| "Uwdykyłpi J gpt km'l gwrkgd   | 466         |
| ""Vgto 'dcpmuDrckug'Pmy gpvk/C/gj  | 46;         |
| ""Vgto kpqmi {."crrnkecvkqpuLwcp"EUci gt   | 473         |
| "Vgto kpqnqi {.''uvcpf ctf k  cvkqpLwcp'EUci gt                                  | 477         |
| "Vgto kpqmi {."vj gqt{Lucp'EUci gt   | <u>47:</u>  |
| "Vgzv'nkpi wkukeu'cpf '\tcpurc\kqpDcukn'J cvko                                   | 484         |
| "Vj kpm/cmwf 'r tawaean Tkwc 'L® myr®pgp   | 487         |
| "Vqtcj '\tcpurc\kqpOkej c grl'Crr gt v   | 48;         |
| ""Vtcpurevcdkrkv{ Cpvj qp{ 'R{o ''cpf ''J qtuv'Vvvtm                             | 495         |
| ""Vtcpurcvkqp"uwf kguO qpc 'Dcngt  | 499         |
|  |             |
| '"Vtcpurcvqt/vtckpkpi 'kpurkvwkqpuOqpkswg'Ecokpcfg'cpf'Cpvjqp{'R{o               | <u>4: 2</u> |

|   | Rci g'xkk                 |
|---|---------------------------|
| '"' <u>Wpk''qh''\tepurc\kqp</u> Mkt uvgp''O ero mlâ t   | <u>4: 8</u>               |
| '" <u>Wpkxgtucni'qh'\tepure\kqp</u> Ucte'Ncxkque/Dtekj y ekg                                    | <u>4: :</u>               |
| /KK: J kwqt { 'cpf 'Vtcf kwqpu  |                           |
| "Chtkecp" \tefkkqpRcwdDcpfkc  | <u>4; 7</u>               |
| "Cogtkecp"tcfkkqpNcytgpeg"Xgpwk   | <u>527</u>                |
| "Ctcdle"\tcf kkqpOqpc'Dcngt   | <u>538</u>                |
| "Dtc  krkep" tef krkqpJ grqkue" qp ±crxgu" Det dque" epf "Nke" Y { rgt                          | <u>548</u>                |
| '" <u>Dtkkuj ''tcfkkqp</u> Tqi gt'Gnku''cpf'Nk  ''Qcmg{/Dtqy p                                  | <u>555</u>                |
| "Dwi ctkep"tef kkqpCppc 'Nkqxc  | <u>569</u>                |
| "Ecpcf kep"tcf kkqpLgcp'F grkurg  | <u>578</u>                |
| "Ej kpgug'\tcf kkqpGxc''J wpi ''cpf'Fcxkf'Rqmctf  | <u>587</u>                |
| "E   gej '' $tcf kkqp \setminus ncw' Mwhpgt qx^a$ ''cpf 'Gy crf 'Qugt u                         | <u>598</u>                |
| "Fepkuj "epf 'P qty gi kep" tef kkqpuXki i q"J lãt pei gt 'Rgf gt ugp" epf 'Rgt 'S xeng         | <u>5: 6</u>               |
| " <u>F wej ''tcf kkqp</u> Vj gq'J gto cpu   | <u>5; 4</u>               |
| "Hppkij "tcf kkqpCpf t gy 'Ej gwgt o cp   | <u>623</u>                |
| "" <u>Htgpej '\tcf kkqp</u> O{tkco 'Ucrooc/Ectt   | <u>62;</u>                |
| "I gto cp'\tcfkkqpJctcnf'Mkwgn'cpf'Cpftgcu'Rqngtocpp  | <u>63:</u>                |
| "I tggm'vtcf kvkqpFcxkf 'Eqppqm("cpf 'Cnkmk'Dceqrqwnqw/J cmu                                    | <u>64:</u>                |
| "J gdtgy "tcf kkqpI kf gqp"Vqwt{  | <u>65;</u>                |
| "J wpi ctkep" tef kkqpI {3/4i {'Tef »   | <u>66:</u>                |
| "" Kegrepf ke ''tef kkqpMgpgxc'Mwp/   | <u>678</u>                |
| "" <mark>Kof kep"\tef kkqp</mark> Tco guj 'Mt kuj pco wt vj {                                   | <u>686</u>                |
| "" <mark>Kerkep"\tef kkqp</mark> Tkeectf q'F wt cp\k  | <u>696</u>                |
| "" <u>Ler epgug'\tef kkqp</u> O eueqo k'Mqpf q"epf 'Lwf { 'Y enede { cuj k                      | <u>6: 7</u>               |
| "" <u>Nevkp''vtef kskqp</u> Nqwku'I OMgm(   | <u>6; 7</u>               |
| "" <u>Nevkp'Cogtkecp''ttcfkkqp</u> I gqtigu'NDcukp  | <u>727</u>                |
| ""Rgtukep"\tef kkqpCj o cf "Met ko k/J cmmem  | <u>735</u>                |
| ""Rarkuj "tef kkap Gn dkgve "Vedenay ume  | <u>745</u>                |
| "Tqo cpkep"\tef kkqpLapqu'Mqj p   | <u>755</u>                |
| ""Twukep'ktefkkqpXkrgp'P0Mqo kuuctqx  | <u>763</u>                |
| "" Unaxem'vtef kvlap $\setminus mvc'$ Mwlpgt $qx^a$ . 'Gy enf' Qugt u''epf' Dt $c = q'J$ qej gn | <u>772</u>                |
| ""Ur cpkuj "ttcf kkqpCpvj qp{ 'R{o  | <u>774</u>                |
| "" <u>Uy gf kuj ''ttcf kkqp</u> Nctu'Y qnkp   | <u>785</u>                |
| ""Vwtnkuj "tcf kkqp Ucnkj c'Rcngt   | <u>793</u>                |
| nkqi terj {   | <u>7: 5</u>               |
|   | <u>7. 3</u><br><u>85;</u> |
| <u>87.</u>  | <u>os,</u>                |

# Nkw'qh'hki wt gu'cpf 'vcdrgu

## Hi wt gu

| Hki wt g'3 <informal graph="" history="" machine="" of="" showing="" th="" the="" translation<=""><th><u>365</u></th></informal>                                      | <u>365</u>  |
|---|-------------|
| Hki wt g'4 <the (1968)<="" by="" diagram,="" first="" probably="" pyramid="" td="" used="" vauquois=""><td><u>367</u></td></the>                                      | <u>367</u>  |
| Hki wt g'5<'A framework for mechanical translation' from Yngve (1957)   | <u>368</u>  |
| Hki wt g'6 <two be="" for="" linguistic="" machine="" on<="" possible="" representations="" sentence="" should="" td="" the="" turned=""><td><u>368</u></td></two>    | <u>368</u>  |
| Hki wt g'7 <hieroglyphic and="" animals="" at="" copan,="" d="" forms="" honduras<="" humans="" of="" on="" stela="" td=""><td>436</td></hieroglyphic>                | 436         |
| Hki wt g'8<'La Colombe poignardée et le jet d'eau' by Guillaume Apollinaire   | <u>438</u>  |
| Hki wt g'9<'Il pleut' by Guillaume Apollinaire  | <u>439</u>  |
| Hki wt g": <terminology< td=""><td><u>47;</u></td></terminology<>   | <u>47;</u>  |
| Hki wt g"; <holmes' map="" of="" studies<="" td="" translation=""><td><u>49:</u></td></holmes'>   | <u>49:</u>  |
| Hki wt g'32 <toury's and="" applied="" between="" extensions<="" its="" map="" of="" relation="" studies="" td="" the="" translation=""><td><u>49:</u></td></toury's> | <u>49:</u>  |
| Hki wt g'33 <translator-training creation="" five-year="" frequency="" institutions:="" of="" over="" periods<="" td=""><td><u>4: 6</u></td></translator-training>    | <u>4: 6</u> |
|   |             |

## Vcdrgu

| Vcdrg'3< Typology of translation              | <u>468</u> |
|---|------------|
| Vcdm'4< Translated works published in Iceland | 683        |

## Eqpumvcpv'gf kqt u

#### Gwi gpg'C(Plf c

 $\label{thm:continuity:continuit$ 

#### Octke(p'I cffku'Tqug

Fkrkpi vkuj gf "Ugtxleg''Rtqhguuqt.'Egpvtg'hqt'Tgugctej 'kp''Vtcpurcvkqp.'Uvcvg'Wpkxgtukv{ ''qh'P gy ''[ qtm'cv'' Dkpi j co vqp.''WUC

#### F qwi ncu'T qdkpuqp

Wpkxgtukv{ ''qh'O kuukuukr r k ''WUC

#### Rgvgt 'Hcy egw

F gr ctvo gpv'qh'O qf gtp''Ncpi wci gu.''Wpkxgtukx{ ''qh''Dtcf hqtf.''WM

#### O kej cgnlJ qg{

 $Rtqhguuqt"qh"Gpi~rkuj~."Wplxgtukv{ "qh"Nkxgtr~qqn"WM}\\$ 

#### I If gqp'Vqwt {

 $O\ Dgtpuvgkp'Ej\ ckt''qh''Vtcpurcvkqp''Vj\ gqt \{..''Vgn'Cxkx''Wpkxgtukv\\ \{..''Kntcgn''Vgn'Cxkx''Wpkxgtukv\}.''Kntcgn''Vgn'Cxkx''Wpkxgtukv$ 

#### Uwicp'Dcuipgw

Rtqhguuqt.'I tcf wcvg''Uej qqri'qh'Eqo r ctcvlxg''Nkgtct{''Vj gqt{''cpf''Nkgtct{''Vtcpurcvlqp.''Wplxgtukv{''qh'' Y cty kem''WM

## Eqpvtkdwvqt u

O lej cgrlCrr gt v

Wpkxgtukv{ "qh"Y guvo kpuvgt. "Nqpf qp. "WM

Lcpgv'Cno cp

Eqphgtgpeg'kpvgtrtgvgt='WM

I wpkmc'Cpf gto cp

Wpkxgtukv{ ''qh''Uwttg{ .''WM

CrknkDceqr qwqw/J cmi

Wpkxgtukv{ ''qh'C yi gpu.''I tggeg

O qpc 'Dengt

WO KUV. 'O cpej guvgt. 'WM

O cwj llu'Dcmgt

Wpkxgtukgk/xcp'Co uvgtf co ."Vj g'P gyj gtrcpf u

RcwiDcpf kc

Oct skpks wg

J grqkrc'I qp±crkgu'Dctdquc

Hgf gtcn'Wpkxgtukv{ "qh'Tkq'f g'Lcpgktq. "Dtc| kn

I gqt i gu'NDcushp

Wpkxgtuk2 'f g'O qpvtgcn'S wgdge. 'Ecpcf c

Cnluqp'Dggd{ 'Nqpuf cng

Wpkxgtukcv'Cwqp¹/o c'f g'Dctegmpc

Tqi gt 'KDgm

Wpkxgtukv{ ''qh''Ncpecuvgt.''WM

I qtf qp'Dt qvj gt uvqp

 $\label{thm:conditional} Wpkxgtukv{\ ''qh''Guugz.''}WM.''cpf$ 

Kpf kcpc'Wpkxgtukv{."Dmqo kpi vqp."WUC

Rgvgt 'Dwuj

Olffgugz'Wpkxgtukv{.'WM

O qpks wg'Eco kpcf g

Ecrcegkyg."Ur ckp

Nqt kEj co dgt nckp

Ecrkhqtpkc."WUC

Cpf tgy 'Ej guvgto cp

Wpkxgtukv{ ''qh'J gnukpnk''Hkpncpf

Fcxlf 'Eqppqm(

Kqpkcp''Wpkxgtukv{.'Eqthw.'I tggeg

I w{ 'Eqqm

Kpurkwyg'qh'Gf wecvkqp.

Wpkxgtukv{ ''qh'!Nqpf qp.''WM

O lej cgdEt qplp

Fwdrkp'Ekv{''Wpkxgtukv{.''Ktgrcpf

Flt mF gredeukse

Hcewn² u'Wpkxgtukscktgu'P qvtg/F co g'f g'hc'Rckz.'P co wt.'Dgri kwo

Lgcp'Fgrkurg

Wpkxgtuk²'fø'Qwcyc.'Ecpcfc

Theectf q'F wt cpwk

Wpkxgtukx<'fk'Tqoc''÷Nc''Ucrkgp|cø''Kkcn{

Wo dgt vq'Geq

Wpkxgtukv{ ''qh'Dqmi pc.''Kcn{

Tqi gt 'Gnku

Wpkxgtukv{ ''qh''Y crgu'Ectf khh ''WM

Twyj 'Gxcpu

Wpkxgtukv{ ''qh''Y crgu'Ectf khh ''WM

Rgvgt 'Hcy egw

Wpkxgtukv{ ''qh''Dtcf hqtf .''WM

Cto lp'RcwiHtcpm

I gqti/Cwi wuv Wpkxgtuks® 1 3/4 kpi gp. "I gto cp{"

Mctn/J glp | 'Htgli cpi

Wpkxgtuks®'f gu'Ucctrcpf gu.''UcctdtÃengp.'I gto cp{

Octkn(p'I cffku'Tqug

Ucvg'Wpkxgtukv{ ''qh'P gy ''[ qtm'cv'Dkpi j co vqp.''WUC

O wj co o cf 'I co cn

ENVT. "Wpkxgtukv{ "qh'S wggpurcpf." 'C wuxtchc

Gf y kp'I gpy ngt

Wpkxgtukv{ "qh"O cuucej wugwu. "Co j gtuv." WUC

FcplgriI kg

Wpkxgtuk² 'Nwo k² tg'N{qp''KK''Htcpeg

J gpt kml qwrkgd

Wpkxgtukv{ ''qh'Eqr gpj ci gp. 'F gpo ctm

Tclplgt'I two cp

Wpkxgtukv{ ''qh'Qwcy c.'Ecpcf c

Vgtt{'J crg

Dtkkuj 'Egpvtg'hqt'Nkvgtct{''Vtcpurcvkqp'cv'vj g'Wpkxgtukv{''qh'Gcuv'Cpi rkc.'Pqty kej.''WM

Mgkyj 'J ctxg{

Wpkxgtukv{ ''qh''Gcuv'Cpi nkc.''P qty kej .''WM

DcukiJ cvlo

J gtkq√Y cw'Wpkxgtuk√{. 'Gf kpdwtij.'WM

Vj gq'J gto cpu

Wpkxgtukv{ 'Eqngi g'Nqpf qp.'WM

Dtc q'J qej gn

Eqo gpkwu'Wpkxgtukv{ 'Dtcvkurcxc.''Urqxcrkc

O lej cgrlJ qg{

Wpkxgtukv{ ''qh''Nkxgtrqqn''WM

Fkpg'J qwi j wqp

Wpkxgtukv{ ''qh''Dkto kpi j co .''WM

Lwdcpg'J qwug

Wpkxgtuk®/J co dwti .'I gto cp{

Gxc'J wpi

Vj g'Ej kpgug'Wpkxgtukx{ "qh'J qpi "Mqpi ."J qpi "Mqpi

Y knko 'R(Kij co

Wpkxgtukv{ ''qh'P gy 'O gzkeq.''WUC

Tlkwc'L®@mgr@pgp

Wpkxgtukv{ ''qh'Iqgpuww.''Hkprcpf

Lgcp/Htcp±qku'Lqn(

S wgdge. 'Ecpcf c

Cj o cf 'Mctho kJ cmmcm

Wpkxgtukv{ ''qh''Y cuj kpi vqp.''WUC

Nqwku'I (Mgm(

Fcty kp'Eqmgi g.'Eco dtkf i g

Fqtqvj { 'Mgpp{

Fwdrkp'Ekx{''Wpkxgtukx{.'Fwdrkp

J ctcf 'Mkwgn

I gqti/Cwi wuv/Wpkxgtuk/®/I ¾wkpi gp.'I gto cp{

Mpi c'Mrcwf {

Wpkxgtukv{ ''qh'Dwf cr guv.''J wpi ct {

La pqu'Mqj p

Vgcej gt "Vtckpkpi 'Eqmgi g.

U qo dcyj gn{.'J wpi ct{

Xkgp'P(Mqo kuctqx

O queqy "Ucvg"Nkpi wkuke"Wpkxgtukx{."Twuukc

O cucqo kMqpf q

 $F\,ckq'Dwpnc''Wpkxgtukv\{\,.'Lcr\,cp$ 

Eggu'Mquvgt

Wpkxgtukgk/xcp'Co uvgtf co ."Vj g'P gyj gtrcpf u

Tco guj 'Mtkuj pco wtyj {

EQDWKNF. "Wpkxgtukx{"qh"Dkto kpi j co."WM

\ ncwc'Mwhpgtqxa

Nkgtct{''tcpurcvqt.'Rtci wg.'E| gej 'Tgr wdrke

Mgpgxc'Mwp|

Wpkxgtukv{ "qh"Kegrepf ."Tg{ mlcxkm"Kegrepf

Lqu² 'Nco dgt v

Meyj qrkgng' Wpkx gtuksgkv. 'Ngwx gp. 'Dgri kwo

Ucte'Nexkque/Dtekj y ekg

Wpkxgtukv{ ''qh''Dkto kpi j co ''cpf ''WO KUV.''WM

Cppc'Nkmxc

Nkgtct{''tcpurcvqt.'Dwi ctkc

Ect qnO clgt

Mgpv'Ucvg'Wpkxgtukv{.'WUC

Mktuvgp'O cro mlå t

Wpkxgtukv{ ''qh'Eco dtkf i g.''WM

Kep'O cuqp

J gtkq√Y cw'Wpkxgtuk√{.'Gf kpdwtij.'WM

J curep'O wwerj c

Uwncp'S cdqqu'Wpkxgtukv{.''Qo cp''cpf 'Wpkxgtukv{''qh''Ucnhqtf.''WM

Ut KP gti cctf

Dqqqi pc. 'Kcn{

Gwi gpg'C(Plf c

Co gtkecp'Dkdrg'Uqekgv{.'Rgppu{nxcpkc.'WUC

Dnckig'P my gpvk(C| gj

WO KJV. 'O cpej guvgt. 'WM

Nk 'Qcmg{/Dt qy p

Wpkxgtukv{ ''qh''Y crgu'Ectf khh ''WM

Gy crf 'Qugt u

Nkgtct{"\tcpurc\qt.\Tgcf\kpi.\"\WM

Ucılj c'Rengt

Dq c| k±k'Wpkxgtukv{.''Krvcpdwn'''Vwtng{

Xki i q'J lãt pci gt 'Rgf gt ugp

Wpkxgtuk/{ ''qh'Eqr gpj ci gp.'F gpo ctm

Fcxlf 'Rqmctf

Vjg'Ejkpgug''Wpkxgtukx{''qh'Jqpi'Mqpi.

J qpi 'Mqpi

Cpf tgcu'Rqngto cpp

I gqti/Cwi wuv Wpkxgtuks®'I ¾wkpi gp.'I gto cp{

Cpyj qp{ 'R{ o

Wpkxgtukev'Tqxkte'k'Xkti krk''Vcttci qpc.''Ur ckp

Rgt 'S xcrg

Nkgtct{"tcpurcvqt."Pqty c{

ÄI {3/ti{"Tcf»

J wpi ct {

F qwi ncu'T qdlpuqp

Wpkxgtukv{ ''qh''O kuukuukrrk''WUC

Lwcp'E@ci gt

WO KUV. 'O cpej guvgt. 'WM

O{tko 'Ucro c/Ectt

Wpkxgtukv{ ''qh''Ucrhqtf .''WM

Ej tkmpc'Uej @hpgt

Cuvqp''Wpkxgtukv{.''WM

Oct mUj wwngy qt vj

Wpkxgtukv{ ''qh''Nggf u.''WM

J ctqrf 'NOUqo gtu

WO KUV. 'O cpej guvgt. 'WM

Gn dlgw 'Vcdcmyy umc

Mtcmqy .'Rqrcpf

I If gqp'Vqwt{

Vgn'Cxkx'Wpkxgtukv{.'Kutcgn

J qtuv'Vwtm

I gqti/Cwi ww/Wpkxgtuk®/I ¾wkpi gp.'I gto cp{

Maw{ 'xcp'Ngwxgp/\ y ctv

Wpkxgtukgk/xcp'Co uvgtf co ."Vj g'P gyj gtrcpf u

Ncy t gpeg'Xgpwk

Vgo r ng'Wpkxgtukv{.'Rj kncf gnr j kc.'WUC

J cpu'L(Kgt o ggt

Koukwi'hĀt''©dgtugv| gp''wpf''F qno gwej gp.

J gkf gmlgti .'I gto cp{

Egekkc'Y cf gpul¾

Nkpn¾ kpi 'Wpkxgtukv{.''Uy gf gp

Lwf { 'Y cmcdc { cuj k

Vj g''Wpkxgtukv{ ''qh'S wggpurcpf . 'Cwuntcrkc

Y qrlt co 'Y knu

Wpkxgtuk®/f gu'Ucctrcpf gu.''UcctdtÄengp.'I gto cp{

Nctu'Y qnlp

Koukwakappp 'hat 'patf kunc'ur t°m''Wr rucrc.''Uy gf gp

Lwf kyj 'Y qqf uy qt yj

Eqpeqtf kc''Wpkxgtukv{.'Oqpvtgcn'Ecpcf c

Nk'Y { rgt

Wpksgtukf cf g'f g'U q'Rewrq.'Dtc| kn

## Kpvt qf wevkqp

P gy "f kuck rhpgu."f kuck rhpgu"-kp"y g"o crhpi o'cu'k'y gtg."ctg"r ctvkewctn( "gzekkpi "hqt"y g'tkej "tgugctej "r qvgpvkcn" y g("j qrf"cpf"y g'uj ggt"kpvgngewcn'gpgti { "vj g{"ctg"ecr cdrg"qhi'i gpgtcvkpi 0Vj ku'kpvgngewcn'gpgti { "ecp"cwtcevô cu'kv'j cu'f qpg"kp"y g"ecug"qhi'vtcpurcvkqp"uwf kguô y g"kpvgtguv'qhi'uej qrctu'y qtrhpi "y ky kp"o qtg"vtcf kklqpcn" f kuckr rhpgu. "dgecwug"kv'ecp"tgxkcrkl g"c"uvckf "ttco gy qtrniy ky "pgy "ej crngpi gu."pgy "cxgpwgu"qh"gps wkt { ."cpf "pgy " r gtur gevkxgu"qp"r wtuwkpi "uwej "gps wkt { 0U gpeg"y g"ewttgpv'kpvgtguv'kp"vtcpurcvkqp"cetquu"c"xctkgv{ "qh'f kuckr rhpgu." htqo "rhpi wkurkeu"vq"gyi pqi tcr j { "cpf "htqo "ewnwtcriiuwf kgu"vq"rul ej qrqi { ."vq"pco g"qpn("c"hgy 0 Vj g"xkxcek{ "cpf "f kxgtukv{"y cv'y g"htpf "uq"cwtcevkxg"kp"pgy "f kuckr rhpgu"ctg"c"eqpugs wgpeg"qh'y g"revcy"qh'y g" r qvgpvkcriku"cu"{ gv'wptgcrkl gf ."qt 'ku'kp"y g"r tqeguu"qh'dgkpi "tgcrkl gf 0Cpf "y ku'ku'r tgekugn("y j { "vj g"+uvcy"qh'y g" ctvolqh'cp"go gti kpi "f kuckr rhpg"uwej "cu'vtcpurcvkqp"uwrf kgu'ku'pqvqtkqwun("f khlkevnv'q"ecr wtg"lp"c"y qtrniqh" tghgtgpeg0Cm'gpe{ernr gf kcu."y ku'qpg"kpernf gf ."ctg"kpgxkxcdn("qw'qh'f cyg"dghtg"y g{"j kv'y g'r tguuo uwej "ku'y g" pcwtg"cpf "ur ggf "qh'kpvgngewcriir tqi tguu"kp"cp{ "hkgrf" "qh'uwrf {0C"r kqpggtkpi "y qtrniqh'tghgtgpeg"y j kej "ugwi'qw" vq"ej ctv'c"vgttkqt{"y cv'j cu'j ky gtvq"pqv'dggp"ej ctvgf ."vq"ecr wtg'y g"eqtg"eqpegtpu"qh'c"tkuchr rhpg'hp"c"uvcvg'qh''hrwz."ecppqv'j qr g"vq"dg"vqcm("eqo r tgj gpukxg0'Dw'kv'ecp"cpf "uj qwrf"cko "vq"qhhgt"c"dcrepegf ."pqp/r ctvkucp" xkgy "qh'y g"f kuckr rhpg0

Vtcpurcvkqp"uwf kgu"ku"cv"c"uwci g"qh"ku"f gxgmqr o gpv"y j gp"y g"r nwtcrkx{"qh"crrtqcej gu"y cv"kphqto "kv"qt"ctg" ecr cdng"qh"kphqto kpi "kv"ecp"dg"qxgty j gno kpi ."cpf "y g"yo r vcvkqp"hqt"o cp{"j cu"dggp"vq"r tqo qvg"qpg"crrtqcej " y kyj "y j kej "y g{ "hggn"r ctvkewctn{"eqo hqtvcdng"cpf "f kuo kuu"y g"tguv0"Vj tqwi j qw"y g"gf kskpi "qh"y ku" "Gpe{enqrgf kc."Kj cxg"vtkgf "vq"nggr "cp"qr gp"o kpf "qp"y j cv"eqpuvkwwgu"c"xkcdng"r gtur gevkxg"qp"y g"uwf {"qh" vtcpurcvkqp"cpf "y j cv"o ki j v"ngi ksko cvgn{"dg"uggp"cu"c"tgngxcpv"ctgc"qh"eqpegtp"qt"o gyj qf "qh"tgugctej "kp" vtcpurcvkqp"uwf kgu0Cp"gpe{emqrgf kc"qh"c"uej qnctn{"uwdlgev"j cu"c"f wx{"vq"qrgp"wr"tcyj gt"y cp"wpf wn{"tguvtkev"y g" ueqrg"qh"y g"f kuekrnkpg"kv"ugvu"qw"vq"f guetkdg0"Vj wu."kp"cf f kskqp"vq"vtcf kskqpcnkuuwgu"uwej "cu"GS WXXCNGP EG." UJ KHVU'QH"VTCP UNCVKQP "cpf"VTCP UNCVCDKNKV[."y g"tgcf gt"y km"cnuq"hpf "uwduvcpvkcn"gpvtkgu"y j kej "f kuewuu"nguu"vtcf kskqpcn"dw"kpetgcukpi n{"rqrwct"kuuwgu."kpenxf kpi "vtcpurcvkqp"cu"c"o gvcr j qt"hqt"

tgrcvlqpu'y j kej "gzkuv'dgwy ggp"qdlgewi'qwukf g'rcpi wci g'\*O GVCRJ QT"QH"VTCP UNCVKQP +:'yj g'o gvcr j qtkeu" qh'i gpf gt "cpf "ugz wcrkv{ "kp"f kuewuukqpu'qh'vtcpurcvkqp"\*I GP F GT "O GVCRJ QT KEU"KP "VTCP UNCVKQP +:'yj g" cr r rkecvkqp"qh'o qf gn'yj gqt { "vq"yj g'uwxf { "qh'vtcpurcvkqp"\*O QF GNU'QH"VTCP UNCVKQP +:'yj g'r tqeguu'd{ "y j kej " dqqmu'ctg"ej qugp"vq"dg"vtcpurcvgf "cpf "r wdrkuj gf "kp"qyj gt "rcpi wci gu"\*RWDNKUJ KP I "UVTCVGI KGU+"cpf "yj g" wug"qh'eqo r wygtkl gf "eqtr qtc"kp"uwxf { kpi "wpkxgtucnu"qh'vtcpurcvkqp"\*EQTRQTC"KP "VTCP UNCVKQP" UVWF KGU+0

Uq"o wej "hqt" Rctv" 10 Rctv' 11 Ku | Gpe{enqrgf kc" qhhgtu | c"xgt{"dtkgh | qxgtxkgy "qh | pcvkqpcn | ku qtkgu | qh | vtcpurcvkqp" cpf "kpvgtrtgvkpi "kp"uqog"vjktv{ "rkpi wkurke"cpf "ewnwtcn'eqoowpkkgu0"Vjgug"gpvtkgu"ctg"kpgxkcdn{ "tguvtkevgf "kp" vgto u'qh'ur ceg"cpf "ecp"qpn( "qhhgt"c"i nko r ug"qh'y j cv'c "hwm/uecng"j kuvqt { "qh'gcej "ttcf kukqp"o ki j v'j cxg"vq"qhhgt0" Y j gp'y g'r rcp'hqt'y g'Gpe{enqrgf kc''y cu'hktuv'f tcy p'kp'3; ; 3.'pq'uki pkhecpv'kpkkcvkxgu'j cf 'dggp'cppqwpegf 'kp'' vgto u'qh'c'i gpgtcn'j kuvqt{"qh'vtcpuncvkqp="pqvj kpi "j cf "vj gp"crrgctgf "qp"vj g"HKV"J kuvqt{"qh"Vtcpuncvkqp"\*Fgnkung" cpf "Y qqf uy qtyj "3; ; 7+"pqt"qp" y g'hqtyj eqo kpi "f g"I tw{ vgt 'Gpe{emr gf kc. "cpf "Ky cu'pqv'cy ctg"cv'y cv'uvci g" y cv' yj gug"r tqlgevu"y gtg"dgkpi "r ncppgf 0"Vj g"tcvkqpcng"hqt"kpenvf kpi "c"j kuvqtkecn'ugevkqp"cpf "hqt"eqxgtkpi "cu"o cp{" vtcfkkqpu'cu'r quukdrg. 'crdgkv'xgt { 'dtkghn{.'y cu'vq'uvko wrcvg'kpvgtguv'kp'y j cv'Kvj gp'hgnv'y cu'c'ugtkqwun( 'pgi rgevgf'' ctgc"qh"tcpurcvkqp"uwvfkgu0Kpgxkxcdn("hqt"c"tgrcvkxgn("uj qtv'ugevkqp"qh'vj ku"v(rg."pqv'cm'vtcfkxkqpu"eqwrf"dg" tgrtgugpvgf."cpf "vjg"fkxkukqpu"kp"vgto u"qh"hkpi wkurke"cpf lqt"i gqitcrjkecn"eqo o wpkkgu"ctg"kpjgtgpvn("ctdkxtct{" vq"c"rcti g"gzvgpv0"Ktgur gevkxg"qh"r quukdrg"o gyj qf qrqi kecn"y gcmpguugu"cpf "wpcxqkf cdrg"dtgxkv{ "qh"vtgcvo gpv."c" tgcfkpi "qh"vj gug"j kuvqtkgu"ecp"ngcf "vq"kpvgtguvkpi "kpuki j vu"qp"uvej "kuuvgu"cu"vj g"qxgtcm"r tqhkng"qh"vtcpuncvqtu"cpf" kpvgtrtgvgtu'f wtkpi 'f khhgtgpv'j kuvqtkecn'r gtkqfu. 'vj g'tqng''qh''vj g''vtcpuncvqt''cpflqt''kpvgtrtgvgt''cu''kv'j cu''dggp'' eqpegkxgf "d{"fkhhgtgpv"eqo o wpkkgu. "vj g"tcpi g"qh"kpegpvkxgu"vj cv"j cxg"ngf "vq"r gtkqf u"qh"kpvgpukxg"vtcpuncvkqp" cevlxkv{"cetquu"yj g"ci gu."yj g"co c| kpi "xctkgv{"qh"cevlxkklgu"yj cv"j cxg"dggp"uwduwo gf "cv"f khhgtgpv"vko gu"wpf gt"yj g" i gpgtcn'j gcf kpi "qh'-xtcpurcvkqpø"cpf "vj g"mkpf u"qh'eqpvgz vu'kp"y j kej "vtcpurcvqtu"cpf "kpvgtr tgvgtu"j cxg"uqo gvko gu" j cf "\q"qr gtcvg0"Vj gug": i mqdcnø'kpuki j vu"y qwnf "dg"f khhkewn/kh"pqv"ko r quukdng"\q"f tcy "htqo "c"uo cm"pwo dgt"qh" o qtg"f gvckrgf "j kuvqtkgu0C"dtkgh"qwvrkpg"qh"c"pwo dgt"qh"vj gug"i rqdcn'r cwgtpu"o c{ "dg"wughwrlcv"vj ku'r qkpv0

#### Rt qhkg'qh'st cpurc vqt u'cpf 'kpvgt r t gvgt u

Qpg"qh"yi g"o quv"kpvgtguvkpi "cpf "r qvgpvkcm("r tqf wevkxg"ctgcu"qh"tgugctej "vq"go gti g"htqo "yi g"j kuvqtkecn'ugevkqp" qh"yi ku"gpe{emr gf kc"eqpegtpu"yi g"mkpf "qh"uqekcn'qt"gyi pke"i tqwr u"yi cv"vtcpuncvqtu"cpf "kpvgtr tgvgtu"j cxg"v{r kecm(" dgmpi gf "vq"f wtkpi "xctkqwu"r gtkqf u0

Vtcpurcvqtu'cpf 'kpvgtrtgvgtu.''qp"vjg"yjqrg.''uggo "vq"jcxg"jkuvqtkecm{ ''dgmpigf ''vq''okpqtkx{ ''itqwru''qh''qpg''v{rg'' qt"cpqyi gt0Hqt"gzco r ng."o cp{ 'kpvgtr tgvgtu'kp"yi g"P gy "Y qtnf ."f wtkpi "yi g"gctn( "gzr gf kkkqpu."y gtg"pcvkxg" kpfkcpu."qhvgp"ugtxcpvu"cpf "yjg"nkng<"c"okpqtkv{"itqwr"pqv"kp"vgtou"qh"pwodgtu"cv"yjku"uvcig"dwv"kp"vgtou"qh" r qrkklecri'cpf "geqpqo ke'r qy gt0'kp'hcev." y g'hktuv'i gpgtcklqp"qh'lpvgtr tgvgtu'lp'' y g'P gy "Y qtrf 'y gtg'hcti gn{" pcvkxgu'y j q'y gtg"ecr wtgf "cpf "tckpgf "cu"kpvgtr tgvgtu'd { "gzr mtgtu'uwej "cu"Lees wgu 'Ectvkgt 'kp' Ecpcf c "cpf " Ej tkurqrj gt 'Eqnwo dwu'kp' Ncvkp' Co gtkec 0 Kp'' yj g' Wpkgf "Uvcvgu. 'Us wcpvqô c''r tqo kpgpv'kpf kcp' kpvgtrtgvgtô y cu'' kp'dqi 'Gwtqrgcp'cpf'pqp/Gwtqrgcp'eqwpvtkgu0Kp''Vwtmg{ 'f wtkpi 'y g'hkhvggpi 'cpf'ukzvggpi 'egpwtkgu." vtcpurcvqtu'cpf 'kpvgtrtgvgtu'y gtg'ej qugp'htqo 'I tggm'Kvcrkcp.'I gto cp.'I wpi ctkcp'cpf 'Rqrkuj 'eqpxgtvu'vq'Kurco 0' Kp'Gi {r v'kp''y g''gctn(''pkpgvggpyi ''egpwt{.''y g''dguv'mpqy p''rksgtct{''tcpurcvqtu''y gtg'Ej tkuvkcpu.''qh''qpg'' f gpqo kpcvkqp"qt"cpqvj gt"\*Rtqvguvcpv."Qtvj qf qz."O ctqpkg+:"cpf "qhvgp"qh"Ngdcpgug"qt"U{tkcp"qtki kp0"kp"vj g" qh'Gpi rkuj + "d{ "Igy kuj "uwtxkxqtu"qh"eqpegpvtcvkqp"eco r u'\*kp'vj g'ecug"qh'I gto cp+. "cpf "d{ "ugeqpf/i gpgtcvkqp" Twudep'2 o ki t2 u'\*kp''yi g'ecug''qh'Twudep+0'Vj gug'etg'em'o kpqtkv{ ''i tqwr u'epf ''o ki tepvu0'Kv'ku''s wkxg''r quukdrg''yi ev'e'' uko krct "r tqhkrg"gzkuvu "hqt"eqo o wpkx{ "cpf"eqwtv"kpvgtr tgvgtu "vqf c { "kp"eqwpvtkgu "uwej "cu "Dtksckp. "Uy gf gp. "vj g"WU" cpf 'Cwurtcrkc<'y g'o clqtkx{ 'o c{ 'y gmlr tqxg'\q'dg'ugeqpf / i gpgtc\qp'ko o ki tcpwl'dgmqpi kpi '\q'gyj pke'o kpqtkx{ '' i tqwr u0

Vj g"r cwgtp"ku"pqv'vqvcm( "eqpukuvgpv'qh"eqwtug."dw'vj gp"r cwgtpu"pgxgt"ctg0fb"Clitlec. 'hqt"kpuvcpeg. 'kp"xgt { "gctn(" wo gu."kpvgtr tgvkpi "y cu"c"j gtgf kct { "cpf" j ki j n( "tgxgtgf"r tqhguulqp. 'r gthqto gf "d { "÷y kug"o gpø'dqtp"vq"qvj gt" -y kug"o gpø'lfb"Ej kpc. "y g"o quv'cevkxg"cpf "r tqo kpgpv'vtcpurcvqtu"kp"gctn("vko gu"y gtg"o ckpn("Dwf f j knv'o qpmu0" Vj gug"i tqwr u"ecppqv'dg"vj qwi j v'qh"cu"o kpqtkklgu"kp"vj g"r qrkxlecn'qt "geqpqo ke"ugpug. "pqt"kp"vgto u"qh"r qy gt0Cpf" qh"eqwtug"dgkpi "o go dgtu"qh"o kpqtkx{"i tqwr u"f qgu"pqv'pgeguuctkn("o gcp"vj cv'vtcpurcvqtu"cpf "kpvgtr tgvgtu"f kf "pqv" cej kgxg"c"j ki j "uncwu0ffp"Vwtng{. 'hqt"kpuvcpeg." f tci qo cpuø'y gtg" j gf" kp" j ki j "guvggo "cpf "gctpgf" xgt { "j ki j " kpeqo gu"dgw ggp"vj g"hknggpvj "cpf"pkpgvggy "egpwtkgu="vj gtg"y cu"gxgp"c"Vtcpurcvqtuø'O qus wg"dwknvlp"Kncpdwrl kp"vj g"ukzvggpvj "egpwt{."y j kej "ku"uvtgn("c"uki p"qh"tgur gev'nqt"vj g'r tqhguukqp0Cnq. "vtcpurcvqtu"cpf "kpvgtr tgvgtu" y j q"dgnqpi gf "vq"tgrki kqwu"o kpqtkkgu"gplq { gf "i tgcv"r tkxkgi gu~y gf "y gtg"gzgo r v'htqo "vj g"ecr kcvkqp"vcz"hgxkgf" qp"pqp/O wurko u"kp"vj g"Kurco ke"y qtrf"kp"i gpgtcn'cpf"y gtg"cmqy gf "c"y kf g"tcpi g"qh'r tkxkgi gu"vj cv'eqwrf" pqto cm("qpn("dg"gplq{ gf "d { "O wurko u=hqt"gzco r ng"c"pqp/O wurko "vtcpurcvqt"y cu"cmqy gf "vq"i tqy "c"dgctf"cpf" tkf g"c"j qtug0

Vj gtg"ctg"cmq"r cwgtpu"y ky kp"r cwgtpu0Cu"bct"cu"kpvgtr tgygtu"kp"y g"eqmpkcn"eqpvgzv"ctg"eqpegtpgf "hqt"kpuvcpeg." yj g"r tqhkg"ku"o kzgf <'vj gtg"ctg"guugpvkcm( "wyq"i tqwr u0Qpg"i tqwr "eqpukuvu"qh"pcvkxg"kpvgtr tgygtu"cpf "cpqvj gt" eqpukuvu"qh"o go dgtu"qh"y g"eqmpkcn"ewnwtgô kp"Ncvkp"Co gtkec. "Ecpcf c"cpf "vj g"Wpkygf "Uvcygu."dqvj "ctg" r tqo kpgpv0Vj g"tqrg"qh"pcvkxg"kpvgtr tgygtu"ku"qh"eqwtug"uqekcm( "cpf "r u{ej qmi kecm( "o qtg"eqo r rgz"cpf "o cp{" y gtg"qhypp"dtcpf gf "cu"vtckqtu"d{ "vj gkt"r gqr rg0\*O\*crkpej kwc"ku"c"ygto "qh"cdwug"kp"O gzkeq"cpf "co qpi "vj g" Ej kecpq"eqo o wpkx{ "kp"Co gtkec<kv"ku"wugf "vq"tghgt"vq"uqo gqpg"y j q"ugmu"qw"qt"dgytc{u"c"ecwug."dgecwug" O crkpej g"\*F q° c"O ctkpc+"y j q"kpvgtr tgygf "hqt"J gtpa p"Eqtv2\*u"kp"vj g"gctn( "ukz yggpvj "egpwt{."y cu"j gcxkn( "ko r rhecvgf "kp"j ku"eqmpkcn"uej go gu."cevkpi "cu"j ku"kphqto cpv"cpf "y ctpkpi "j ko "qh"co dwuj gu"d{ "j gt"r gqr rg0\*Vj g" uvcwu"qh"pcvkxg"kpvgtr tgygtu"kp"vj gug"eqpygz wi'y cu"pqv"r ctvkewctn( "j ki j ."wprkng"vj gkt"eqmpkcn'ueqwygtr ctvu."cpf" y g"ugg"kp"Chtkec"hqt"kpuvcpeg"c"f knkpevff gygtkqtcvkqp"kp"urcwu'y ksj "vj g"cttkxcn'qh"eqmpkcn'uo 0 Y qo gp."cp"ko r qtvcpv'o kpqtkx{ "i tqwr ."y gtg"qhygp"pqv'cmqy gf "vq"y qtm'cu"vtcpurcvqtu=hqt"gzco r rg."vj g" r tqhguukqp"qh"uy qtp"vtcpurcvqt"kp"Dtc| kn'y cu"tgi wrcvgf "d{ "Tq{cn'F getgg"kp"3: 73."cpf"y qo gp"y gtg"gzr rhekn(" dcttgf "htqo "yj g"r tqhguukqp0

#### Tqıg'cpf 'linc vuu'qh'it cpurc vqt u'cpf 'lipvgt r t gvgt u

Kp"y g"eqmpkcn'eqpvgzv."y g"hlpf "vtcpurcvqtu"cpf "kpvgtrtgvgtu."dw/rctvkewrctn( "kpvgtrtgvgtu."vcmkpi "qp"cp"coc| kpi" tcpi g"qh'tgurqpukdkkkgu"y j kej "i q"hct"dg{qpf "rkpi wkuke"o gf kcvkqp0Kpvgtrtgvgtu"kp"y g"eqmpkcn'eqpvgzv'cevgf "cu" i wkf gu. "gzr mtgtu."dtqngtu. "f kr mocvu. "codeuucf qtu"cpf "cf xkugtu"qp"kpf kcp"qt "meen'chhcktu="yj cv'ku'y j { "y gtg"uqogskogu"dtcpf gf "cu'vtckqtu."dgecwug"yj g{ "y gtg"kpf kurgpucdng"vq"yj g"eqmpkcn'cwj qtkkgu0Kp"qvj gt" eqpvgzvu. "vqq. "vtcpurcvqtu"cpf "kpvgtrtgvgtu"y gtg"gzrgevgf "vq"rgthqto"c"y kfg"xctkgv{ "qh'vcumu0Vtcpurcvqtu."qt" o qtg"urgekhecm{"kpvgtrtgvgtu."kp"qtcn'vtcf kkqpu"uwej "cu"yj g"Chtkecp"vtcf kkqp"y gtg"gzrgevgf "vq"cev'cu" urqnguogp"hqt"yj gkt"eqoowpkkgu. "pqv'lwuv'cu'nkpi wkuke"ogf kcvqtu0Kp"yj g"gki j vggpyj "egpwt{"kp"Vvtmg{."yj g"fwf "qh'yj g"P cxcn'Ftci qocp"kpenwfgf "yj g"uwrgtxkukqp"qh'yj g"eqmgevkqp"qh'vczgu'htqo"pqp/O wurko"uwdlgevu." yj qwi j "rcvgt"qp"yj g"3:5; "Vcp| kocv'rkokgf"j ku'tgurqpukdkrkv{"vq"kpvgtrtgvkpi "cickp."kQ0'uxtkevn{"rkpi wkuke" ogf kcvkqp0

Kp''vgto u''qh''uvcwu. "vj g''j ki j guv''uvcwu''cvckpgf "d{"\tcpurcvqtu''cpf 'kpvgtr tgvgtu''uggo u''vq''j cxg''dggp''nkpngf ''vq''y g'' r tqhguukqp''dgkpi 'j gtgf kct{."cu'kp''y g''ecug''qh''y g''-y kug''o gpø'kp''y g''qtcn'\tcf kkqp''qh''Chtkec. "y j q''r cuugf ''qp''y gkt'' unkmu'vq''y gkt ''uqpu0'Qy gt ''gzco r ngu''kpenwf g''y g''uwdku''kp''Lcr cp. "y j q''gzgtekugf 'hco kn( "o qpqr qnkgu''qp'' kpvgtr tgvkpi ''kp''y ku''ctgc''htqo ''y g''ugxgpvggpyj ''egpwt{''wpvkn''y g''gpf ''qh'Lcr cpøu''kuqncvkqp''kp''y g''ugeqpf ''j cnh'qh''y g'' pkpgvggpyj ''egpwt{0'Vj gtg''ctg''cnuq''y g''I tggm'Rj cpctkqvu''kp''Vwtng{''kp''y g''ugxgpvggpyj ''cpf ''gki j vggpyj ''egpwtkgu.'' y j q''uko knctn( "j cf ''uqng''eqpvtqn'qh''y g''r tqhguukqp0'Cm'y gug''i tqwr u'y gtg''j ki j n( ''tgi ctf gf ''d{''y gkt''eqo o wpkkgu'' cpf ''gctpgf ''c''xgt{''tgur gevcdng''hxkpi 0

#### Y qt mpi 'eqpvgz vu

Cpqyi gt'kpvgtguvkpi "ctgc'y qtyi 'kpxguvki cvkpi "

eqpegtpu'yi g'wug'qh'kpvgtrtgvgtu'kp''eqpvgzvu'y j gtg'y g''xgt { 'tctgn( 'ugg''yi go 'wugf 'vqfc { 0'V j g'tqng''qh'kpvgtrtgvgtu'' kp''gf wecvkqpcn'eqpvgzvu'ku''qh''r ctvkewrct'kpvgtguv'j gtg0'V j ku''uggo u'vq''j cxg''dggp''hcktn( 'eqo o qp''cv'xctkqwu'' r gtkqf u.''yi qwi j 'kv'ku'j ctf n( 'gxgt''f kuewuugf 'kp''yi g''nkvgtcwtg.''gzegr v'r gtj cr u'y kyi 'tghgtgpeg''vq''uki p''rcpi wci g'' kpvgtrtgvkpi 'hqt''f gch'ej knftgp0

 $\label{eq:big_continuous} \begin{tikzpicture} For the point of the p$ 

#### Kpegpvkxgu'hqt 'vt cpurcvkqp'cevkxkv{

Vj g'lpegp\kxgu'y j kej 'i cxg'tkug'\q'r gtkqf u'qh'lpvgpukxg'\tcpurc\kqp''ce\kxk\{ 'lp'f khgtgp\r'r ctwi'qh'\j g''y qtrf 'j cxg'' xctkgf 'c'i tgc\r'f gcn'qxgt'\j g''egpwtkgu0\Qpg''uwej 'lpegp\kxg''y cu'\j g''ur tgcf 'qh'Dwf f j kuo 'lp'Ej kpc='\j g''pggf '\q'' \tcpurc\kqp''Ej kpcgug.''uvct\kpi ''ctqwpf''\j g''o kf/ugeqpf ''egpwt\{.''uwr r qt\gf ''c''o cuukxg''tcpurc\kqp'' o qxgo gpv.''qh\gp''ur qpuqtgf ''d\{ ''\j g''i qxgtpo gpv.''rcu\kpi ''hqt''uqo g''pkpg''egpwtkgu0\Q\j gt''kpegp\kxgu''kpen\f g'\j g'' o cuukxg''eco r cki pu'\q'\tcpurc\g''j g''Dklng''kp''o quv'qh'Gwtqr g.''cu'y gm'cu'I tggm'ercuukeu''cpf ''rgctpkpi ''kp'' gpgtcn'' kp'\j g''Knrco ke''Y qtrf ''cpf ''rc\gt''kp''Gwtqr g0'Vj g''S \two p.''wprkng''\j g''Dklng.''j cu''pgxgt''uwr r qt\gf ''c''ugtkqwu'' \tcpurc\q''pg qxgo gpv''cp\{y j gtg''kp'\j g''y qtrf .''dgecwug''qh'\j g''dgrkgh'kp''ku''wp\tcpurc\cdrk\k\\''\"\gg''<u>S WT\osepp\texture\graphy P''' \tmoore\graphy \texture\graphy \text</u>

O quv'qh'wu'\gpf '\q'\cmg'\uwej '\pegp\kxgu'\nqt'\i tcp\gf .''dgecwug'\j g{ "ctg''qh\gp''\qq''enqug'\q''j qo g'\nqt'\wu'\q'\tgcn\t g'' \\
\[
\text{if cy'\j g{ "ctg''e\text{e\text{wi}} \text{gf | '\text{if gel\text{he}} \text{Uq'y g''o ki j v'\pqv'\j kpn'\j cv'\j gtg'\ku'\cp{\text{ip i'' i'r gel\cn''cdqw'\uc\text{kpi "\j cv'}} \\
\[
\text{if g''o wej ''qh'\Gwtqr g'\ukpeg'\iy g''dkt\j "qh'' \\
\[
\text{Ej tkn\kcpk\left\text{0'K'\ku''qpn\left\text{i'q} i'\j g''o clp'\ko' r gww'\nqt''\text{y cu''j cr' r gp\kpi '\kp''q\j gt''r ctw''qh'\j g''y qtrf .''cpf ''cv'f \text{kh\gtgpv''} \\
\[
\text{r gt\kqf u'qh'\ko g.'\j cv'y g'ecp'\ugg'y j cv'\ki'\ur gel\he''cdqw'\j ki''r c\wgtp\text{0'Hqt'\kpu\cpeg.''y j g''y g''eqo g'\q''\nq\m'cv'\j g'' \\
\[
\text{j kn\qt\left\text{i'qh'\kopeg.''y g''\text{bpf ''\j cv'\j gtg'\ku''cp''cm qun'\q\ch'\text{purc\kqp'\kp''\text{tcpurc\kqp''hq''\text{i'qh'\kopeg.''y g''\text{bpf ''\j cv'\j gtg'\ku''cp''cm qun'\q\ch'\text{purc\kqp''\kp''\text{tcpurc\kqp''\kp''\text{tcpurc\kqp''\kp''\text{tgel\kgn\left\text{g''}} g''\y q''o clp'\kpegp\kxgu''\q''\gctn\left\text{y kp\h\phi\text{i'} i'' g''\text{purc\kqp''\kp''\text{tgel\kgn\left\text{g''}} g''\text{purc\kqp''\kp''\text{g''\text{purc\kqp''\kp''\text{g''\text{purc\kqp''\kp''\text{g''}}} g''\text{y g''\text{purc\kqp''\kp''\text{g''\text{g''\text{g''}}} g''\text{y g''\text{purc\kqp''\kp''\text{g''}}} g''\text{y g''\text{purc\kqp''\kp''\text{g''\text{g''}}} g''\text{y g''\text{purc\kqp''\kp''\text{g''\text{g''}}} g''\text{y g''\text{g''\text{purc\kqp''\text{p''\text{g''}}}} g''\text{y g''\text{purc\kqp''\text{q''}}} g''\text{y g''\text{purc\kqp''\text{q''\text{g''\text{g''}}}} g''\text{y g''\text{g''\text{g''\text{g''\text{g''}}}} g''\text{y g''\text{g''\text{g''\text{g''\text{g''}}}}} g''\text{y g''\text{g''\tex

Cpqyi gt "o clqt "kpegpvkxg" hqt "o cuulxg" vtcpurcvkqp" cevkxk\{ ."o qtg" v\{r kecn'qh' vj g"pkpgvggpvj "cpf" vy gpvkgvj " egpwtkgu. "ku' vj g"guvcdnkuj o gpv'qh' qhhkekcn'dknkpi wcnkuo "kp" eqwpvtkgu' uwej "cu' Ecpcf c. "Hkpropf" cpf "Dgni kwo." y j kej "vgpf u' vq' uwr r qt v'ncti g/uecng' r tqi tco o gu"qh' cf o kpkuntcvkxg" cpf "ngi cn' vtcpurcvkqp" vqh' tcvj gt "vj cp" vtcpurcvkqp" qh' tgnki kqwu"qt "cecf go ke "vgz vu+." cpf "qh' eqwtug" uko wncpgqwu "kpvgtr tgvkpi "kp" uwej "eqpvgz vu" cu' r ctnkco gpvct {" uguukqpu0Cpf" hkproff" vq" vj ku' v{r g"qh' kpegpvkxg" ku' vj g"qhhkekcn' tgeqi pkkqp" qh' vj g" tki j wu"qh' hkpi wkurke "cpf" gvj pke" o kpqtkkgu "vq" dg" r tqxkf gf "y kyj "kpvgtr tgvgtu "kp" eqwt vu" cpf" uko krct "ukwcvkqpu. "cu' y gm' cu' qhhkekcn' f qewo gpvu "kp" vj gkt" qy p" rcpi wci gu0Vqf c { ."kv' y qwrf" uggo ." vj g" o ckp' ko r gwu "hqt "vtcpurcvkqp" ku' pq "nqpi gt "ur gekhke "tgnki kqwu" o qxgo gpwu" qt"

kpvgtguv'kp'vj g'encuukeu'dwv'tcvj gt ''qhhkekcn'r qnkekgu'y j kej ''tgeqi pk g''cpf ''uwr r qtv'nkpi wkunke''j gvgtqi gpgkv{ .'' kpenwf kpi ''qhhkekcn'dkn'pi wcnkuo .''tgeqi pkkqp''qh''o kpqtkv{ ''tki j vu.''vj g''guvcdnkuj o gpv''qh''r qnkkecn'cpf ''geqpqo ke'' wpkqpu''\*uwej ''cu''vj g''GW+.''cpf ''uq''qp0Ci ckp.''vj ku''nkpf ''qh''uvcvgo gpv''uggo u''tcvj gt''dcpcn'wpvkn'qpg''r ncegu''kv'ci ckpuv'' y g''dcenf tqr ''qh''qvj gt''kpegpvkxgu''f wtkpi ''f khhgtgpv'j kunqtkecn'r gtkqf u0

### $V \{\, r\, gu'qh' tt\, c\, purc\, vlqp\, 1\!\!\!Ipvgt\, r\, t\, gvlpi$

Qpg"qh"y g"o quv'hcuekpcvkpi "y kpi u"cdqw"gzr mtkpi "y g"j kurqt {"qh"vtcpurcvkqp"ku"y cv'kv'tgxgcni"j qy "pcttqy "cpf" tgurtkevkxg"y g"j cxg"dggp"kp"f ghkpkpi "qwt"qdlgev'qh'uwf {."gxgp"y ky "y g"o quv'hrgzkdrg"qh"f ghkpkkqpu0"Y j gp"y g" tgcf "cdqw"j qy "Chtkecp"kpytr tgygtu"tgi wrctn ("vtcpurcvgf" Chtkecp"f two "rcpi wci g"kpvq"cewcn'y qtf u. "hqt"kpurcpeg." y g"dgi kp"vq"tgcnk g"y cv'y g"ewttgpv'hkytcwtg"qp"vtcpurcvkqp"j cu"j ctf n ("uvctvgf" "vq"uetcvej "y g"uwthceg"qh'y ku" o wnkhcegvgf "cpf "cm'r gtxcukxg"r j gpqo gpqp0"Uo krctn ("kpvtcnkpi wcn'vtcpurcvkqp"ku"pqv'uwej "c"o kpqt"kuwg"cu"y g" gzkuvkpi "hkytcwtg"qp"vtcpurcvkqp"o ki j v'uwi i guv0"Kpvtcnkpi wcn'vtcpurcvkqp"hki wtgu"hct"o qtg"r tqo kpgpvn ("kp"y g" gzkuvkpi "hkytcrkpi wcn'vtcpurcvkqp"ky"l tggeg"j cu"dggp"y ky "vtcpurcvkpi " cpekgpv"I tggm"vg cp"kpvtrnkpi wcn'vtcpurcvkqp<"y g"o clqt"r tgqeewr cvkqp"kp"I tggeg"j cu"dggp"y ky "vtcpurcvkpi " cpekgpv"I tggm"vg wu"kpvq"y g"o qf gtp"kf kqo 0"Knpqy "qh"pq"tgugctej "y cv'nqqmu"ur gekhkecm ("cv'y g"r j gpqo gpc"qh" kpvtcnkpi wcn'qt"kpvgtugo kqvke"vtcpurcvkqp0"Y g"f q"j cxg"ercuukhkecvkqpu"uwej "cu"Lcmqduqpøu."y j kej "cngtv'wu"q"y g" r quukdkrkv ("qh"uwej "y kpi u"cu"kpvgtugo kqvke"cpf "kpvtcnkpi wcn'vtcpurcvkqp."dw"y g"f q"pqv'o cng"cp {"i gpwkpg"wug"qh" uwej "ercuukhkecvkqpu"kp"qwt"tgugctej 0

Cp"kpi gpkqwu"cppqvcvkqp"u{uvgo "y cu'wugf "kp"Lcr cp"ctqwpf "y g"pkpyi "egpwt {="y ku'y cu'mpqy p"cu'mco dwp" mwpf qmw."qt "kpvgtr tgvkxg"tgcf kpi "qh"Ej kpgug0Vj g"u{uvgo "y cu'wugf "vq"gpcdrg"yi g"Lcr cpgug"vq"tgcf "Ej kpgug"vgz vu" y kyi qwv"÷vtcpurcvkqpø0Ur gekcn'o ctmu"y gtg"r rcegf "cmpi ukf g"yi g"ej ctcevgtu"qh"Ej kpgug"vgz vu"vq"kpf kecvg"j qy "yi g{" ecp"dg"tgcf "kp"ceeqtf cpeg"y kyi "Lcr cpgug"y qtf "qtf gt. "cpf "c"u{uvgo "qh"i tco o cvkecn'kpf kecvqtu"y cu'wugf "vq"uj qy "kphrgevkqpu0Vj ku"f ktgevn( "eqpxgtvgf "yi g"Ej kpgug"vgz vu"kpvq"wpf gtuvcpf cdrg. "kh"wppcwtcn"Lcr cpgug0Dw'y cu'kv" vtcpurcvkqpA'KV'uggo u"vq"dg"uqo gyi kpi "kp"dgw ggp"kpvtcnkpi wcn'cpf "kpvgt"hpi wcn'vtcpurcvkqp."cpf "Kf q"pqv'dgnkgxg" y g"j cxg"cp{"yi gqtkgu"yi cv'ecp"ceeqwpv'hqt"yi ku'v{ r g"qh'r tcevkeg"gkyi gt0

Y j cv'y g'j kuvqtkecn't gugctej "f qpg'hqt''y g"*Gpel enqr gf kc* "uggo u'vq'uwi i guv'ku'y cv'y g'uvkm'npqy "xgt { "rkwrg''cdqw'' y g"j kuvqt { "qh'qwt "qy p"r tqhguukqp. "y cv'y g"npqy "qh'kv'kpf kecvgu''y cv'kuu'r tqhkrg'j cu'xctkgf "v go gpf qwun( "htqo "qpg"gtc"vq"cpqy gt. "cpf ô gs wcm( "ko r qtvcpvô y cv'y g"cevkxkkgu"qh'vtcpurcvkqp"cpf "kpvgtr tgvkpi "j cxg"vcmgp" uwej "c'y kf g'xctkgv( "qh'hqto u'cpf "j cxg"qeewttgf "kp'uwej "c'o wnkwf g"qh'eqpvgzwu'qxgt"y g"{ gctu'y cv'y g"ctg" qdrki gf "vq'nqqn'cv'y g"j kuvqtkecn'hcevu'dghqtg'y g"ecp"gxgp"dgi kp'vq"f gxgmr "y gqtgvkecn'ceeqwpwu'hqt'y ku" eqo r ngz"r j gpqo gpqp0

#### Cempqy rgf i go gpw

Vj ku''*Gpe{enqr gf kc*''j cu''dggp''ukz''{ gctu''kp''y g''o cnkpi ."f wtkpi 'y j kej ''ko g'c''i tgcv'o cp{'r gqr ng''j cxg''y qtngf ''j ctf '' vq''gpuwtg''y cv''y g''gpf ''tguwn''ku''cu''tgr tgugpvc\kxg''qh''y g''f kuekr nkpg''cpf ''cu''gttqt/htgg''cu''ku''j wo cpn{'r quukdng0'Kp'' cf f kkqp''vq''y g''pkpgv{/hqwt''eqpvtkdwqtu''y j q''o cf g''kv'r quukdng''vq''r wv''y ku''uwduvcpvkcn'xqnwo g''vqi gyi gt''kp''y g''hktuv'' r nceg''cpf ''y g''ugxgp''eqpuwncpv''gf kvqtu''y j q''r cvkgpvn{''ej gengf ''gxgt{''gpvt{''chvgt''Kgf kvgf ''kv''vq''y ggf ''qww'uqo g''qh'' y g''tgo ckpkpi ''gttqtu''cpf ''kphgnkekkgu.''Ko wuv''y cpnn'y g''uvchh''cv'Tqwngf i g''hqt''y gkt''uwr r qtv'qxgt''cp''gz vgpf gf '' r gtkqf ''qh''y o g0'Uko qp''Dgml'cpf ''Nqwkuc''Ugo n{ gp''kp''r ctvkewct''j cxg''dggp''gzegr vkqpcm{''r cvkgpv'cpf ''uwr r qtvkxg0' J gngp''Eqy ctf .''Crkuqp''Hq{ng.''J gngp''O eEwtf { .''Encktg''Vtqeo 2 .''Uctcj ''Hqwnngu''cpf ''Uctcj ''J cml'cml'j gnr gf ''cv'' xctkqwu''uvci gu''qh'y g''r tqlgev''cpf ''j cxg''dggp''c''r ngcuwtg''q'y qtmly kyj 0

Kco "i tcvghwn'vq"c"pwo dgt "qh'eqmgci wgu"hqt "xcnwcdng"cf xkeg"qp"uqo g"qh'vj g"nguu"÷tcf kkqpcnø'vqr keu'vj cv'y gtg" gxgpwcm( "kpenwf gf "kp"<u>Rctv'K'</u>cpf "hqt"r wwkpi "o g"kp"vqwej "y kyj "uwkcdng"eqpvtkdwqtu'hqt "gpvtkgu'kp"dqyj "<u>Rctv'K'</u>cpf "hqt"r wwkpi "o g"kp"vqwej "y kyj "uwkcdng"eqpvtkdwqtu'hqt "gpvtkgu'kp"dqyj "<u>Rctv'K'</u>cpf "<u>Rctv'K'</u>cpf "hqt"r wwkpi "o g"kp"vqwej "y kyj "uwkcdng"eqpvtkdwqtu'hqt "gpvtkgu'kp"dqyj "<u>Rctv'K'</u>cpf "<u>Rctv'K'</u>cpf "hqt"r ctvkewrct. "Ky kuj "vq"cempqy ngf i g"o { "f gdv'vq"Ncy tgpeg"Xgpwk "F qwi ncu'Tqdkpuqp. "Cpvj qp{ " R{o ."F ktm'F gredcukce."Vj gq"J gto cpu. "O ctkn{p"I cf f ku'Tqug"cpf "Uwucp"Dcuupgw0F ktm'F gredcukce"nkpf n{ " ur gpv'o cp{ "j qwtu'ej gemkpi "vj g"dkdnkqi tcr j { 'hqt"o kuukpi "ceegpvu"cpf "qvj gt"gttqtu0Vj gq"J gto cpu. "Enkxg"J qngu." O {tkco "Ucroo c/Ectt. 'O cgxg'Qnqj cp. "Rgvgt"Hcy egw'cpf "Rcwn'

Dgppgw'\qqm'\qp"\y g"f khhkewn'\cum'\qh"\;gf kklpi "\y g"gf kqtø"r tqxkf kpi "f gvckrgf "eqo o gpw'\qp"o { "qy p" eqpvtkdwklqpu'\q"\y ku'xqnwo g"cpf "ucxkpi "o g"uqo g"r qvgpvkcn'go dcttcuuo gpv'\qp"\y g"r tqeguu\0 Mkpi c"Mrcwf { "tgxkugf "\y g"hkpcn'ugevkqp"qh'\y g"gpvt { "qp"\y g"J wpi ctkcp"\tcf kklqp"\q"dtkpi "kv'wr "\q"f cvg."\qqmy kpi " y g"wphqtwpcvg"f gcyj "qh'Ft"I { 3/4 i { "Tcf » "kp"3; ; 60'Uctc"NcxkqucDtckyj y ckxg"r tqxkf gf "kpxcnwcdrg"uwr r qtv'cu"o { "Tgugctej "Cuukuvcpv'\qt"r tcevkecm{ "\y g"\y j qrg"qh'3; ; 70'Lwcp"Uci gt"j grr gf "o g"gf kv'c"pwo dgt"\qh"gpvtkgu'y j gp"K' uvctvgf "\q"twp"qw'\qh"gpgti { "kp"\y g"uwo o gt"\qh"3; ; 8."cpf "Mktuvgp"O cm mlâ t"uvgr r gf "kp"rcvgt"\y cv'uwo o gt"\q"i kxg" y g"gf kklpi "c"hkpcn'r wuj 0

Gxgp'y ky ''uq'o wej 'i qqf'y km'cpf'i gpgtqwu''cuukucpeg'htqo ''c'ncti g''pwo dgt''qh''r gqr ng.''y gtg''ctg''dqwpf''vq''dg'' uqo g''gttqtu''cpf''kphgrkekkgu''nghv'kp''y ku''xqnwo g.''i kxgp''y g''ueqr g''qh''y g''gpvgtr tkug0'Hqt''y gug''Kj cxg''vq''vcng'hwm'' tgur qpukdkrkx{0

O QP C'DCMGT'CRTKN'3; ; 9"

## Rgto kukqpu'cempqy ngf i go gpw

Gz vtcev'qp''r 0465'htqo " $\div$ C''Mpki j v'Y cu'y ky "J ku'Ncf { 'Hqpf n{ 'N{kpi ø' 'vtcpu0P qto cp'T0Uj cr ktq.'htqo ''vj g''} O qf gtp''Nkdtct{ "eqmgevkqp" Cp' Cpvj qrqi { "qh'O gf kgxcrl'N{ t keu. "gf 0C0Hqtgu. "P gy "[ qtm'Tcpf qo "J qwug."3; 840 Í "P qto cp'T0Uj cr ktq'3; 840

Gz vtcev'qp''r 0465'htqo ''Rcwn'Drcendwtpøu''vtcpurcvkqp''qh'':\\Wu''ecxcrkgtu''uk'lc| kcø''htqo ''Rtqgpuc <'Cp''Cpvj qrqi { ''qh'' \\Vtqwdcf qwt ''Rqgvt \{ .''gf 0'cpf ''vtcpu0'R\Drcendwtp.''Dgtngrg \{ ''cpf ''Nqu''Cpi grgu<'\Wpkxgtukv\{ ''qh''Ecrkhqtpkc''Rtguu0 \\ Í ''Iqcp''Drcendwtp''3; 9: 0'

V@m/Ajat^Ajat^Ajat^Ajat)\È

# RCTV'KI GPGTCN

V@ Ajæ\*^Ajæ\*^Ajæ\*) @ Aj\æj\È

C

## Cevkqp

#### \*vj gqt { 'qh' \; vt cpurc vqt kcn'cevkqpø+

 $\label{thm:percentage} Vj\ g''j\ gqt\ \{''qh''\div tcpurc vqt\ kvej\ gu''\ J\ cpf\ grp+''y\ j\ kej\ ''tgr\ tgugpw''c'hwpevkqp/qtkgpvgf\ ''crr\ tqcej\ ''vg''j\ g''y\ gqt\ \{''cpf\ ''r\ tcevkeg''qh''vtcpurc vkqp.''y\ cu''f\ gxgqqr\ gf\ ''d\ \{''Lwuvc''\ qq^{\prime}/O\ @pw@k'*3;\ :\ 6+0'Vtcpurc vkqp''ku''j\ gtg''\ eqpegkxgf\ ''r\ tko\ ctkn\ ''cu''c''r\ tqeguu''qh''kpvgtewnwtcn'eqo\ o\ wpkecvkqp.''y\ j\ qug''gpf\ ''r\ tqf\ wev'ku''c''vgzv''y\ j\ kej\ ''ku''ecr\ cdrg''\ qh''hwpevkqpkpi\ ''crr\ tqr\ tkcvgn\ ''kp''ur\ gekhke''ukwcvkqpu''cpf\ ''eqpvgzw''qh''wug0'Kp''y\ ku''eqpegr\ vkqp.''pgkyj\ gt''uqwteg/cpf\ ''vti\ gv'vgzv''eqo\ r\ ctkuqp.''pqt''nkpi\ wkuvkeu.''j\ cu''cp\ ''uki\ pkhkecpv''tqrg''vq''r\ rc\ .''cpf''vtcpurc vkqp''ku''ukwcvgf''y\ kyj\ kp''yj\ g''\ y\ kf\ gt''eqpvgzv''qh''eqqr\ gtcvkxg''kpvgtcevkqp''dgwy\ ggp''r\ tqhguukqpcnu''*gzr\ gtw+''cpf''erkgpw0$ 

J qn/O @pw@køu'cko 'ku'vq'r tqxkf g'c'vj gqtgvkecn'dcuku'cpf 'eqpegr wcn'htco gy qtm'htqo 'y j kej 'i wkf gnkpgu'hqt'' r tqhguukqpcn'vtcpurcvqtu'o c{ 'dg'f tcy p='cpf 'kp'f gxgmr kpi 'j gt 'crrtqcej .'uj g'f tcy u'qp''eqo o wpkecvkqp''y gqt{ 'cpf 'qp''cevkqp''y gqt{ 'gpcdngu'j gt''vq'j ki j nki j v'yj g'eqo r qpgpwu'kpxqnxgf 'kp''c'r tqeguu''qh'' eqo o wpkecvkqp''cetquu'ewnwtcn'dcttkgtu.'y j kng''cevkqp''y gqt{ 'r tqxkf gu'yj g'dcuku'hqt''c'f gnkpgcvkqp''qh'yj g'ur gekhke'' ej ctcevgtkunkeu''qh''vtcpurcvqtkcn'cevkqp0

Vjg"rtkoct{"rwtrqug"qh"vtcpurcvqtkcn"cevkqp"ku"vq"gpcdng"eqqrgtcvkxg."hwpevkqpcm{"cfgswcvg"eqoowpkecvkqp"vq" wng"r rceg"cetquu'ewnwtcn'dcttkgtu0'Vj ku'kpxqnxgu'c"i qqf "f gcn'o qtg'y cp'y j cv'ku'ytcf kkqpcm{ 'eqpegkxgf 'cu'y g' vtcpurcvkqp"qh"vgzvu. "cpf "kp"qtf gt"vq"ugv"j gt"vj gqt { "crctv"htqo "o qtg"vtcf kxkqpcn"crrtqcej gu. "J qn O @pw@tk" f gxgmr u."kp"I gto cp."c"f kurkpevkxg"cpf "j ki j n{ "cdurtcev"vgto kpqmi {."cv"vko gu"guej gy kpi "gxgp"vj g"vgto " -tcpurcvkqpø'\*© dgt ugv/ wpi + "kp" qtf gt" \q" cxqkf" \q geqppq \cvkqpu" cpf "gzr gevcvkqpu" \tcf kkqpcm( "cvcej gf "\q" \q v cv" vgto 0'Uj g'cti wgu''yj cv'dgecwug''yj g'xgtd": \*tcpurcvgø' \*\*Adgtugv/gp+'tgs wktgu''c''i tco o cvkecn'qdlgev.''kv'vgpf u'vq'f ktgev' qtkgpvcvkqp'y j kej 'uj g'hkpf u'r ctvkewrctn( 'wpj grr hwrl\*J qrl/O @pvc@k'3; : 8577+0'kp'j gt'o qf gn'uqwteg/vgzv'  $cpcn(uku'ku''tgf wegf ''vq''cp''\div cpcn(uku''qh''eqpuvt wevkqp''cpf ''hwpevkqp\phi'*3; : 6 \lessdot 5; hh0 + ''kp''y j kej ''vj g''cewcn''r ctv''r rc \{gf''', uku''ku''tgf wegf''vq''cp''+ cpcn(uku''qh''eqpuvt wevkqp''cpf''hwpevkqp\phi'*3; : 6 \lessdot 5; hh0 + ''kp''y j kej ''vj g''cewcn''r ctv''r rc \{gf''', uku''ku''tgf wegf''vq''cp'''+ cpcn(uku''qh''eqpuvt wevkqp''cpf''hwpevkqp\phi'*3; : 6 \lessdot 5; hh0 + ''kp''y j kej ''vj g''cewcn''r ctv''r rc \{gf''', uku''qh''eqpuvt wevkqp''cpf'''hwpevkqpo''s cpcn(uku''qh''eqpuvt wevkqp''cpf'''hwpevkqpo''s cpcn(uku''qh''eqpuvt wevkqp''cpf'''hwpevkqpo''s cpcn(uku''qh''eqpuvt wevkqp''cpf''') rc (uku''qh''eqpuvt wevkqp''cpf''') rc (uku''qh''eqpuvt wevkqp''') rc (uku''qh''') rc (uku''qh''') rc (uku''qh''') rc (uku''') rc (uku'''') rc (uku''') rc (uku'''') rc (uku''') rc (uku'''')$ d{"yi g"uqwteg"\gzv'ku"gzvtgo gn{"rko ksgf 0"Vj g"uqwteg"\gzv'ku"xkgy gf "cu"c"o gtg"\qqn'hqt"\j g"tgcnk cvkqp"qh" eqo o wpkecvkxg"hwpevkqpu="kv"ku"vqvcm{"uwdqtfkpcvg"vq"kxu"rwtrqug."ku"chhqtfgf"pq"kpvtkpuke"xcnwg."cpf"oc{" wpf gti q'tcf lecn'o qf lthecvlqp'lp''y g'lpvgtguv'qh'y g'vcti gv'tgcf gt0'Vj g'vtcpurcvqt''ku'wpkrcvgtcm('eqo o kwgf'vq''y g'' vcti gy'ukwcykqp"dgecwug"ky'ku'r tho cthn{ ''y g'o guuci g'cpf ''y g'eqo o kuukqp. 'tcy gt ''y cp ''y g'yzy'kugrh ''y cy'j cxg''y" dg'tgpf gtgf 'hqt'y g'enkgpwkk'ku'o ckpn{ 'dgecwug'y g'uqwteg'\gzv'o c{ 'dg'y wu''-f gy tqpgf ø'\*P gy o ctm'3; ; 3d⊲28+" yj cv<sup>1</sup>J qn<sup>1</sup>/O @pw@køu'yj gqt{"j cu'o gv'y kyj ''qdlgevkqpu''qt'tgugtxcvkqpu."gxgp''d{ ''yj gqtkuvu'y j q''yj go ugnxgu''crrn(''c'' hwpevkqpcn'crrtqcej "vq" vtcpurcvkqp" "ugg" hqt" gzcorng" Pqtf" 3;; 3c4: +0 Pgyoctm'cnuq hkpfu'hcwn ykj "vjg" ÷o qf gtpkuke "cduxtcev" lcti qp"qh" eqpvgo rqtct { "Rwdrke" Tgrcvkqpuø'cpf "vjg" ÷dwukpguurkng "o cppgt "qh" y tkklpiø" y j kej ."j g'dgnkgxgu."qduewtg"÷yj g'tgcn'kuuwgu'kp"\tcpuncvkqpø'\*3;; 3d-328+0J qy gxgt."kp"J qn¦ O ®pw®køu"o qf gn" vtcpurcvkqp"cpf "qvj gt"hqto u"qh" hqtgki p"rcpi wci g+"vgzv'r tqf wevkqp"ctg"eqpegkxgf "cu'r ctv'qh "tcvj gt"vj cp" eqpurkwwkxg"qh "tcpurcyqtkcn'cevkqp0Qpg"r wtr qug"qh"yj g"tcpurcyqtkcn'vgzv'qr gtcvkqpu"ku'vq"guvcdrkuj "y j gyj gt"yj g" eqpvgpv'cpf 'hqto 'eqo r qpgpvu'qh'vj g'uqwteg'vgzv'ctg'hwpevkqpcm{ 'uwkxcdrg'hqt'vj g'vcti gv'vgzv0'kp'o cmkpi 'vj ku' f gekukqp. 'y g'tcpurcvqt "ecppqv'dg" i wkf gf "d{" y g'tuqwteg" vgzv'cmpg. "dw'o wuv't gugctej. "kp" cf f kkqp. 'y g'vcti gv' ewnwtgøu'eqpegr vkqp''qh''y g''uwdlgev'o cwgt. "qh''vgzv''

encungu'cpf "qh'i gptgu0'Vj g'\gz wcn'r tqhkrg''qh'\j g'\cti gv'\gz v'ku'f gvgto kpgf "d{ 'ku'hwpevkqp."cpf 'y j gyj gt''y ku'ku''qt'' ku'pqv'uko krct'\q''y g'\gz wcn'r tqhkrg''qh'\j g'\uqwteg'\gz v'ecp''qpn{ "dg''guvcdrkuj gf ''y tqwi j "u{ uvgo cvke'\tcpurcvqtkcn'' cpcn{ uku0'Vj g'\tcpurcvqt."cu''cp''gzr gtv'eqo o wpkecvqt."ku''cv'\y g''etwekcn'egpvtg''qh''c''nqpi "ej ckp''qh''eqo o wpkecvqp'' htqo "y g''qtki kpcn'kpkkcvqt''q''y g''wnko cvg''tgegkxgt''qh''c''o guuci g."cpf 'ku''y wu''ukwcvgf ''y kyj kp''y g''y kf gt''uqekcn'' eqpvgz v0'Vj g''o qf gn'\cngu''ceeqwpv''qh''y g''tgrcvkqpuj kr "dgwy ggp''tcpurcvqt''cpf ''enkgpv''cu'y gm''cu'y gm'cu''y g''tgrcvkqpuj kr '' dgwy ggp''tcpurcvqt''cpf ''tgcf gt0'Vj g''gy kecn'tgur qpukdktx{ ''qh''y g'' vtcpurcvqt''ku''uggp''q' f gtkxg''htqo "j ku''qt''j gt''uvcwu''cu''cp''gzr gtv'kp''y g''hkgrf "qh''tcpuewnwtcn'o guuci g''tcpuhgt." dgecwug''qpn{ "tcpurcvqt''y kyj "y g''tgs vkukyg''gzr gtvkug''ecp''uveeggf ''kp''rtqf wekpi "c''hwpevkqpcm{ "cf gs wcvg''yzz'' \*rtqhguukqpcn'rtqhkrgu''ctg''f kuewuugf ''kp''J qn' /O @pw@k'3; : 8<585hh00'Vj ku'j cu''ergct''eqpugs wgpegu''hqt''y g''tckpkpi "qh''tcpurcvqtu0

J qn/O @ w@løu'o ckp''cko 'ku''vq''ur gelh{ ''y g'hcevqtu''y cv'i wlf g''tcpurcvqtkcn'cevkqp.''eqpegkxgf ''cu''r tqhguukqpcn'vgzv'' r tqf wevkqp0Cp''cevkqp''ku'f gvgto kpgf ''d{ ''ku'hwpevkqp''cpf ''r wtr qug.''cpf ''kw''qweqo g.''vqq.''o wuv'dg''lwf i gf ''d{ ''y gug'' etkgtkc0'Vj g''r wtr qug''qh'y g''tcpurcvqtkcn'cevkqp''r tqeguu''ku''vq''r tqf weg''c''o **guuci g''tt cpuro kvgt** ''\*Dqwej chuut @ gt +'' y cv'ecp''dg''wkrk gf ''kp''uwr gtqtf kpcvg''**eqphi wt cvkqpu'qh'cevkqpu**''\*J cpf mpi ui ghÃi g+''y j qug'hwpevkqp''ku''vq''i wlf g'' cpf ''eqqtf kpcvg''eqo o wpkecvkxg.''eqqr gtcvkxg''cevkqp''\*J cpf mpi ui ghÃi g+''y j qug'hwpevkqp''ku''vq''i wlf g'' cpf ''eqqtf kpcvg''eqo o wpkecvkxg.''eqqr gtcvkxg''cevkqp''\*J cpf mpi ui ghÃi g+''

Kp"yj g"r tqeguu"qh"tcpurcytkcn'cevkqp."\gzwu"cev'cu"o gunci g/vtcpuo kwgt 'eqo r qwpf u'\*Dqwej chwut ® gt 'ko "

Xgt dwpf +"qh"eqpvgpv"\*Vgmqpkm+"uvtwewtgf "ceeqtf kpi "vq"hwpevkqp"cpf "tgr tgugpvgf "d{ "hqto cn'grgo gpwu"\*Vgzwut +0"

C"uqwteg"\gzv"ku"c"\gzv"vq"y j kej "c"vtcpurcvkqp"kpkkc vqt."c"erkgpv."j cu"cuuki pgf."r tko ctkn{ "qt"ugeqpf ctkn{ ."vj g"

hwpevkqp"qh"ugtxkpi "cu"uqwteg"o cvgtkcn'hqt"vtcpurcvqtkcn'cevkqp0"C"vcti gv'vgzv."vq"dg"vugf "gkvj gt"d{ "vj g"vtcpurcvkqp"

kpkkcvqt"qt"d{ "uqo g"qvj gt"vugt."ku"vj g"qweqo g"qh"c"vtcpurcvkqp"gzr gtvxu"vtcpurcvqtkcn'cevkqp0

Vj g'pq\kqp"qh'h\pekqp"\ku'egp\tcn'\kp'\y q'\tgur ge\u0\Qp'\y g'\qpg'\j cpf .'\k\'h\qtegu'\y g'\tcpurc\qt'\q''go dgf '\y g'r tqf \tev' qh'\tcpurc\qt\kcn'\ce\kqp'\kp'\c''eqo r ngz '\ukwc\kqp''qh'\j wo cp''pggf u0\Qp''\y g''q\y gt'\j cpf .'\k\'h\qtegu'\y g'\tcpurc\qt'\q'' go dgf '\tcpurc\qt\kcn'\ce\kqp''\kp''c''\uqe\kg\\{ '\qti cp\k gf '\d\{ '\c'\f kxkukqp''qh'\rcdq\to ckp'\tqngu'' kp''c''\tcpurc\qt\kg\\p''\c''\tcpurc\qt\g''\tqngu''\kpen\kqp''\c''\tcpurc\qt''\y g'\tcpurc\qt''\y g

Vj g'tcpurcyt'ku''y g''gzr gtv'y j qug''cum'kv'ku''y rtqf weg'o guuci g''tcpuo kvgtu'hqt''wug'kp''tcpuewnwtcn'o guuci g'' vtcpuhgt0'Vq''f q''y ku.''y g''tcpurcyqt''o wuv.''cv'c''r ctvkewrct''r rceg''cpf ''cv'c''r ctvkewrct''ko g.''r tqf weg''c''r ctvkewrct'' rtqf weg''c''r ctvkewrct'' rv tqug0'Vj g''tcpurcyqtøu''cevkqpu''o wuv'dg''kphqto gf ''d{ ''uwkcdng''f cvc.''cpf ''o wuv'dg'' ecttkgf ''qw''ceeqtf kpi ''yq''ur gekhkecm{ ''pgi qvkcygf ''eqpf kkqpu0'Hkpcm{ .''yj g''r tqeguu''o wuv'dg''eqo r ngvgf ''d{ ''c'' f gcf nkpg0'Vtcpurcyqtkcn'cevkqp''yj gtghqtg''kpxqnxgu''pqv'qpn{ ''yj g''vtcpurcyqt''cu''vtcpurcydp''gzr gtv.''dw''cnuq''yj g''enkgpv'' eqo o kuukqpgt''y kyj ''y j qo ''yj g''vtcpurcyqt''o wuv'pgi qvkcyg''eqqr gtcvkxgn{ 0

Uq. '\tcpurc\kqp'\ku'go dgf f gf '\kp'\j g'r wtr qughwieqphki wtc\kqp'\qh'ce\kqpu'\y j kej '\ku'\tcpurc\qtkcn'ce\kqp."cpf '\j ku. '\kp'' wtp. '\ku'go dgf f gf '\kp'c''j kgtctej { 'qh'eqo r rgz 'ce\kqpu'cpf 'uwdqtf kpc\g'\q''j g'i rqdcn'cko 'qh'\tcpue\wnwtcn' eqo o wpkec\kqp0'Vj gtghqtg. 'c'f ghkpkkqp'qh'\tcpurc\kqp''ecppq\'dg''dcugf 'r wtgn\{ 'qp''c'eqphki wtc\kqp''qh'grgo gpw'' uwej ''cu'WP KV'QH'VTCP UNC VKQP . 'uqwteg'\gz\v."qt''i gptg0'Tc\j gt. 'c'\j gqtg\kecm\{ 'uqwpf 'f ghkpkkqp''qh'' tcpurc\qtkcn'ce\kqp''o wuv'\cng''ceeqwpv'qh''cm'\j g''grgo gpw'\kpxqnxgf '\kp''j wo cp''eqo o wpkec\kxg''ce\kqp''cetquu'' ewwttgu='\kp''r ct\ke\wrct. '\k'o wuv'\cng'\kp\q''eqpukf gtc\kqp''\j g''en\kgp\pu\u''ewnwtg. '\j g''r tqeguu'\qh'\gz\v'r tqf we\kqp'\kp''\ku'' y kf guv'ugpug. ''cpf '\j g''eqpegr v'\qh''gzr gt\v'ce\kqp0

Dgecwug''ewnwtgu''o c{''j cxg''f khhgtgpv'eqpxgpvkqpu.''tcpuewnwtcn'\gzv'r tqf wevkqp''o c{''tgs wktg''uwdurkwwkqp''qh'' grgo gpwu''qh''y g''uqwteg''\gzv'd{''grgo gpwu''lwf i gf ''o qtg''crrtqrtkcvg''\q''y g''hwpevkqp''y g''vcti gv'\gzv'ku''\q''ugtxg0'Vj ku'' hwpevkqp''ku''f gvgto kpgf ''d{''y g''r wtrqug''qh''y g''eqo o wpkecvkxg''cevkqp''kp''y j kej ''y g''yzv'ku''\q''r nc{''c''r ctv'cu''c'' o guuci g''tcpuo kwgt0

Vgz v'r tqf wevlqp''ku''y g''r wtr qug''qh''vtcpurcvqtkcn''cevlqp.''cpf ''y g''vgz wi'r tqf wegf ''y kni'dg''wugf ''d{ ''enkgpvu''cu'' o guuci g''vtcpuo kwgtu''kp''eqo dkpcvlqp''y ky ''qvj gtu''hqt''vtcpuewnwtcn'o guuci g''vtcpuhgt0'Vj g''r wtr qug''qh'' o guuci g''vtcpuhgt''ku''y g''eqqtf kpcvlqp''qtkgpvgf .''eqo o wpkecvlxg''eqqr gtcvlqp0'Vj g''r wtr qug''qh''

y g'eqqtf kpcvkqp'ku'y g'f ktgevkqp'qh'eqqr gtcvkqp'vqy ctf u'cp'qxgtcm'cko 0'Y j gp'eqo o wpkecvkqp'ku'vq'vcmg'r nceg'' vtcpuewnwtcm{.'y ku'cko 'ecp'qpn{ 'dg'o gv'kh'o gcuwtgu'ctg'vcmgp'vq'qxgteqo g'ewnwtcn'dcttkgtu0'Kp'qy gt'y qtf u.'' ewnwtg/ur gekhle'ektewo uvcpegu'r tgf gvgto kpg'vq'c'i tgcv'gzvgpv'y g'vgzv'vq'dg'r tqf wegf .''cpf 'y g'o gcuwtgu'vcmgp'' vq'qxgteqo g'ewnwtcn'dcttkgtu'eqpuvkwwg'c'uki pkhlecpv'r ctv'qh'gzr gtv'cevkqp0

Kp"guvcdrkuj kpi "c"**r t qf wev'ir geltlec vlqp**"\*\*Rt qf wmur g/ Whar vlqp+"/y cv'ku."c"f guetkr vlqp"qh"/y g"r t qr gt vlgu"cpf" hgcwt gu'tgs wlt gf "qh"/y g"vcti gv'vgz v gz vgt pcrlhce vqt u"r gt vlg kpi "vq"/y g"eqo o kuulqplopi "qh"/y g"vcti gv'vgz v" kphrwgpeg"vq"c"i tgcv'gz vgpv'/y g"htco gy qtm'y ky kp"y j kej "cm'/y g"vgz wcn'qr gt cvlqpu"|kpxqrx gf "kp"vt cpurc vqt kcn" cevlqp"ctg"vq"vcng"r reeg0"Vj gug"hcevqt u"kpenwf g"/y g"cko "qh"/y g"cevlqp."y g"o qf g"kp"y j kej "kv'ku'vq"dg"t gcrk gf ."y g" hgg"vq"dg"r ckf "cpf "y g"f gcf rlpg"hqt"f grkx gt {."cm'qh'y j kej "ctg"pgi qvkc vgf "y ky "y g"erllepv'y j q"j cu'eqo o kuulqpgf" y g"cevlqp0"Vj g"t qrgu"qh"cm'cevqt u"kpxqrx gf ."y g"qxgt cm'cko "qh'y g"cevlqp."y g"r wtr qugu"qh"kpf kxkf wcn'cevlqpu" y ky ky "y g"eqph'ki wtcvlqp"qh"cevlqpu"kp"y j kej "y g"vgz v'vq"dg"r t qf wegf "y km'dg"wugf ."y g"ektewo uvcpegu"kp"y j kej "y gug"cevlqpu"y km'vcng"r reeg. "cpf "y g"hwpevlqpu"qh"o guuci g"vtcpuo kwgt u"ctg"cm'uwdlgevgf "vq"ectghwn'cpcn{uku"cpf " gxcnwcvlqp0"

Cu'gzr gt wi'kp 'ktcpurc klapcn'ce klap. 'ktcpurc y tu'ctg't gur apuklag' hat 'ectt { kpi 'qw'c'eqo o kuklap 'kp'uwej 'c'y c { 'vj cv' c'hwpe klapcm{ 'cr r tar tkc ye'y z v'ku'r taf wegf 0'V j g{ 'ctg't gur apuklag' hat 'f gekf kpi 'y j gy gt. 'y j gp'cpf 'j ay 'c' wtcpurc klap'ecp''dg't genk gf 0'Y j gy gt 'c'eqo o kuklap'ecp''dg't genk gf 'f gr gpf u'ap''y g''ektewo uvcpegu'aph'y g''etti gv' ewnwtg. 'cpf ''y g''t cpurc y t'o wnv'pgi qwc ye'y ky ''y g''erkgpv'kp''apt f gt ''a 'guvcdrkuj ''y j cv''nkpf ''aph'ar wo cn't cpurc y ap''ecp''dg''i wtccp y ggf. 'I kxgp''c'ur gekthe 'ugv'aph'ektewo uvcpegu'0'V j g''t cpurc y tken'y z v'ar gtc y apu''c g''dcugf ''ap'' cpen'y gwnwt gw''y gy gwnwt gu''y g''t krepurc y tken'y g''y gwnwt o cy''r wtr qug''aph'y g''y z v'ap''dg'' r taf wegf ''cpf ''aph'cur gewi'aph'f khigt gpv'ewnwt gu''kp''af gt ''y cv'y g''f kncpegu''dgw ggp''y go ''o c { ''dg''axgteqo g0 J qn' /O @pw@kou''eapegr v'aph''t cpurc y tken'ce y apt''aph''t cpurc y tken'ce y ty g''y gyt { ''f geknkap''aph''a g''y g''y g''t cpurc y to''y tepurc y tken'ce y ky''y g''y gyt { ''y g''t cpurc y to''y cy''y g''t y g''y gyt { ''y g''y gyt { ''y g''y gyt cpurc y tken'ce y gy''y gyt { ''y g''y gyt { ''y g''y g''y gyt { ''y gyt { ''y g''y gyt { ''y g''y gyt { ''y gyt {

Ugg'cnuq<

EQO O WP KECVKXGIHWP EVKQP CN'CRRT QCEJ GU"UMQRQU'VJ GQT[ 0

#### Hwt yj gt 't gcf kpi

J qn/O @pw@k'3;: 6.'3;: 8.'3;::.'3;; 4="P gy o ctm'3;; 3d="P qtf '3;::.'3;; 3c.'3;; 90

EJ TKVKP C''UEJ £ HHP GT

## Cf cr wwqp

Cf cr wkqp"o c{"dg"wpf gtuvqqf "cu"c"ugv'qh'vtcpurckxg"qr gtckqpu"y j kej "tguwwlp"c"yzv'y cv'ku'pqv'ceegr wf "cu"c" vtcpurckqp"dw'ku'pgxgtyj grguu'tgeqi pkł gf "cu"tgr tgugpvkpi "c"uqwteg"\wzv'qh'cdqww'y g"uco g"ngpi y 0Cu'uwej ."y g" wto "o c{"go dtceg"pwo gtqwu'xci wg"pqkqpu'uwej "cu"ko kckqp."tgy tkkpi ."cpf "uq"qp0Uvtkevn{"ur gcmkpi ."y g" eqpegr v'qh'cf cr wkqp"tgs wktgu'tgeqi pkkqp"qh'vtcpurckqp"cu"pqp/cf cr wkqp."cu"c"uqo gj qy "o qtg"eqpuvtckpgf" o qf g"qh'vtcpuhgt0Hqt"y ku'tgcuqp."y g"j kuvqt{"qh'cf cr wkqp"ku'r ctcukke"qp"j kuvqtkecn'eqpegr w"qh'vtcpurckqp0 Vj g"kpkkcn'f kukf g"dgw ggp"cf cr wkqp"cpf "vtcpurckqp"o ki j v'dg"f cvgf "htqo "EÆGTQ"cpf "J qtceg"\wgg"\wVP" \\
\text{VTCF KWQP} + "dqyj "qh'y j qo "tghgttgf" 'vq"y g"\wy vtrt gu'\wtcpurcvqt + "cu"y qtmkpi "y qtf /hqt/y qtf "cpf" fkwlpi wkuj gf "y ku'o gyj qf 'htqo "y j cv'y g{"ucy "cu'htggt"dw'gpvktgn("nji kko cvg'tguwnu'qh'vtcpuhgt"qr gtcvkqpu0' Vj g"fkhtgtgpv'kpvgtrtgwkqpu'i kxgp"vq"y g"J qtcvkcp"xgtug."\wgg"xgt dwo "xgtdq"ewt cdku't gf gt g"hf wu'kpvgtrt gu'\wcpf" "ci ckpuv'y g"y qtf/hqt/y qtf "htq/y qtf" "htmg"c\_hcky hwi'vtcpurcvqtø+\delta ktgur gevkxg"qh'y j gyj gt"y gtg'hqt"qt" ci ckpuv'y g"y qtf/hqt/y qtf "rtgegr vô ghhgevkxgn("tgrtqf wegf "y g"mi ke'd{"y j kej "cf cr wkqpu"eqwf"dg" tgeqi pkl gf 0

Vj g''i qrf gp''ci g''qh''cf cr vcvlqp''y cu'llp''y g''ugxgpvggpyj ''cpf ''gki j vggpyj ''egpwtkgu.''y g''gr qej ''qh''y g''dgngu'kphkf ³ ngu.'' y j kej ''uvctvgf ''kp''Htcpeg''cpf ''y gp''ur tgcf ''vq''y g'tguv'qh''y g'y qtrf '\*vugg''HTGPEJ ''VTCF KVQP +0'Vj g''xgt { 'htgg'' vcpurcvlqpu''ecttkgf ''qw''f wtkpi ''y ku'r gtkqf ''y gtg''lwuvkhkgf ''kp''vgto u''qh''y g'pggf ''hqt''hqtgki p''vgzw''

I gpgtcm{ "ur gcmkpi ."j kuvqtkcpu"cpf "uej qrctu"qh"\tcpurc\kqp"\cmg"c"pgi c\kxg"xkgy "qh"cf cr vc\kqp."f kuo kuulpi "\j g" r j gpqo gpqp"cu"f kuvqt\kqp. "hcnukhec\kqp"qt"egpuqtuj kr ."dw\k\"ku"tctg"\q"hkpf "ergct"f ghkpk\kqpu"qh"\j g"\gto kpqrqi { "wugf "kp"f kuewuulpi "\j ku"eqp\tqxgtukcn'eqpegr \0

#### O clp'f ghlpkkqpu

Ki'ku'r quukdrg''\q'ercuukh\ "f ghlpkklqpu'qh'cf cr vcklqp''wpf gt 'ur gekhke''y go gu'\*\tcpurcklqp''\gej pks wg. "i gptg." o gwcrpi wci g. 'hckj hwpguu+. 'y qwi j 'kpgxkwcdn\ "y gug'f ghlpkklqpu'\gpf '\q'qxgtrcr 0

Cu''c '\t cpurcklqp' \tgej pks wg. "cf cr vcklqp''ecp''dg'f ghkpgf 'kp''c''\gej pkecn'cpf ''qdlgekxg''y c\ 0'Vj g''dguv'npqy p'' f ghkpkklqp''ku''y cv'qh'Xkpc\ "cpf 'F ctdgrpgv'\s3; 7: +"y j q''nkuv'cf cr vcklqp''cu''y gkt''ugxgpyj ''\tcpurcklqp''r tqegf wtg\" cf cr vcklqp''ku''c''r tqegf wtg''y j kej ''ecp''dg''wugf ''y j gpgxgt''y g''eqpvgzv'tghgttgf ''\q''kp''y g''qtki kpcn'\gzv'f qgu''pqv''gzkuv'' kp''y g''ewnwtg''qh''y g''\cti gv'\gzv.''y gtgd\ ''pgeguukxckpi ''uqo g''hqto ''qh'tg/etgcklqp0'Vj ku''y kf gn\ "ceegr vgf ''f ghlpkklqp'' xkgy u''cf cr vcklqp''cu''c''r tqegf wtg''go r nq\ gf ''\q''cej kgxg''cp''gs wkxcrgpeg''qh''ukwcklqpu'y j gtgxgt''ewnwtcn'' o kuo cvej gu''ctg''gpeqwpytgf 0

Cf cr wwqp'ku'uqo gwo gu'tgi ctf gf 'cu'c'hqto 'qh'vtcpurcwqp''y j kej 'ku'ej ctcevgtkurke'qh'r ctwewrct'i gptgu.'o quv' pqwdn( 'f tco c0'kpf ggf .'kv'ku'kp'tgrcwqp''qr'F TCO C'VTCP UNCVKQP ''y ev'cf cr wwqp'j cu'dggp'o quv'htgs wgpvn( "uwwf kgf 0'Dtkuugv'\*3; : 8<2+'xkgy u''cf cr wwqp''cu''c''+tgvgttkqtkcrk cwqpø'qh''y g''qtki kpcri'y qtm'cpf ''cp''+cppgzcwqpø' kp''y g''pco g''qh''y g''cwf kgpeg''qh''y g''pgy ''xgtukqp0'Ucpvq{q'\*3; : ; <26+'uko krctn( 'f ghkpgu''cf cr wwqp''cu''c'hqto ''qh'' +pcwtcrk kpi ø'y g''r rc{ 'hqt''c'pgy ''o krkgw.''y g''cko ''dgkpi ''vq''cej kgxg''y g'uco g''ghhgev'y cv'y g'y qtm'qtki kpcm( 'j cf .'' dw'y ky ''cp''cwf kgpeg''htqo ''c'f khhgtgpv'ewrwtcn'dcemi tqwpf 0

Cf cr wwkqp"ku"cnuq"cuuqekcvgf "y ky "y g"i gptgu"qh"cf xgtvkukpi "cpf "UWDVKVNKP I 0"Vj g"go r j cuku"j gtg"ku"qp" r tgugtxkpi "y g"ej ctcevgt"cpf "hwpevkqp"qh"yi g"qtki kpcn"vgzv."kp"r tghgtgpeg"vq"r tgugtxkpi "y g"hqto "qt"gxgp"yi g" ugo cpvke"o gcpkpi ."gur gekcm{ "y j gtg"ceqwurke"cpf lqt"xkuwcn"hcevqtu"j cxg"vq"dg"vcngp"kpvq"ceeqwpv0Qyi gt"i gptgu." uwej "cu"ej krf tgpøu"hkgtcwxtg."tgs wktg"yi g"tg/etgcvkqp"qh"yi g"o guuci g"ceeqtf kpi "vq"yi g"uqekqrkpi wkurke"pggf u"qh"c" f khgtgpv"tgcf gtuj kr "%Rwwtvkpgp"3;; 7+0"Vj g"o ckp"hgcwxtgu"qh"yi ku"v{r g"qh"cf cr wvkqp"ctg"yi g"wug"qh"uwo o ctk kpi " vgej pks wgu."r ctcr j tcug"cpf "qo kuukqp0

Cfer wkqp'ku.'r gtj cru 'o quv'gcukn' 'lwukhgf 'y j gp''y g''qtki kpen'yzv'ku'qh'e''o gwehpi wkuke''pewstg.''y ev'ku 'y j gp''
y g'iwdlgev'o ewgt'qh'y g''yzv'ku''mpi wei g'kught)'Vj ku''ku''gur gekem( 'uq'y ky 'f kfeeke''y qtmu'qp''mpi wei g''
i gpgtem(.''qt''qp''ur gekhe''mpi wei gu0P gy o etml\*3; : 3+'r qkpuu''qwv'y ev'kp''y gug''eeugu''y g''efer wkqp''j eu''q''dg''
deugf ''qp''y g''stepurevqtøu''lwf i go gpv'edqwi'j kul'j gt'tgef gtuø'mpqy rgf i g0Equgtkw'\*3; 99+'eti wgu'y ev'y ku''nkpf ''qh''
efer wkqp''i kxgu''r tgegf gpeg''q''y g''mpekqp''qxgt''y g''nqto .'y ky ''e''xkgy ''q''r tqf wekpi ''y g''uco g''ghhgev'eu'y g''
qtki kpen'yzv0J qy gxgt.''y j krg''uwej ''y tkgtu''uxetv'htqo ''y g''r tkpekr rg''y ev'pqy kpi ''ku''wptepurevedrg.''qy gtu''kng''
Dgto ep'\*3; : 7+'emko ''y ev'y g''efer wkqp''qh'o gwmpi wei g''ku''ep''wppgeguuct { ''nqto ''qh''gzqvkekuo 0
F ghkpkkqpu''qh'efer wkqp''tghrgev'y kf gn( ''xet {kpi ''xkgy u''cdqwv'y g''eqpegr v'xkw «/xku'y g''kunwg''qh'tgo ekpkpi ''
-'heky hwno'vq''y g''qtki kpen'yzv0'Uqo g''eti wg''y ev'efer wkqp''ku''pgeguuct { ''t tgekugn( ''kp''qtf gt 'vq''mggr ''y g''o guuci g''
kpwev'\*ev'rgeuv'qp''y g'' g''g guuce''y g''y gu''ugg''ky''eu''e''dgvte { en'qh''y g''qtf gt 'vq''mggr ''y g'' qt''y g''
tghwucn'vq''efer v'eqphkpgu'y g''tgef gt 'vq''ep''etwlkeken'y qtn''qh''+hqtgki ppguuø+hqt''y g''rwgt.''efer wkqp''ku''
epveo qwpv'vq''y g'' guwekqp''epf ''xkqrevkqp''qh'y g''qtki kpen'yzv0'Gxgp''y qug'y j q''tgeqi pk g''y g''y g''y g''y g''y swe''pqp''
efer wkqp''kp''egtvekp''ekewo uvepegu''etg''qdrki gf ''q''efo kv'y ev''kh'tgo ekpkpi 'heky hwn'vq''y g''gzv'ku''e''ukpg''s we''pqp''
efer wkqp''kp''egtvekp''ekewo uvepegu''etg''qdrki gf ''q''efo kv'y ev''kh'tgo ekpkpi 'heky hwn'vq''y g''y gy''y swe''pqp''
efer wkqp''kp''egtvekp''ekewo uvepegu''etg''qdrki gf ''q''efo kv'y ev''kh'tgo ekpkpi 'heky hwn'vq''y g''y gy''y ku''e''ukpg''s we''pqp''
efer wkqp''kp''egtvekp''ekewo uvepegu''etg''qdrki gf ''q'efo kv'y ev''kh''tgo'''y g''y tky hwn'vq''y g''y gy''y kw'''e''y g''y gy''y tky e'''y g''y

#### O qf gu.'eqpf kkqpu'cpf 't guxt levkqpu

D{"eqorctkpi"cfcrvcvkqpu"y kj "'y g'\gzvu'qp"y j kej "'y g{"ctg"dcugf."kv"ku"r quukdrg'\q"grcdqtcvg"

c'r tqxkukqpcn'nkuv'qh'vj g'y c{u'\*qt'o qf gu+'kp'y j kej ''cf cr vcvkqpu''ctg''ecttkgf ''qwx.''vj g'o qvkxcvkqpu'\*qt''eqpf kukqpu+'' hqt''vj g'f gekukqp''vq''cf cr v.''cpf ''vj g''nko kxcvkqpu'\*qt''tguvtkevkqpu+''qp''vj g'y qtm'qh'vj g''cf cr vgt0 Kp''vgto u''qh'o qf g''qh''cf cr vcvkqp.''vj g''r tqegf wtgu''wugf ''d{ ''vj g''cf cr vgt''ecp''dg''encuukhkgf ''cu'hqmqy u<

"'ut c puet kr ukqp" qh'i y g"qt ki kpc n<'y qtf /hqt/y qtf 'tgr tqf weukqp" qh'r ctv'qh'i y g'\gz v'kp'' y g''qt ki kpc n'rcpi wci g." wuwcm{ "ceeqo r cpkgf "d{ "c'nksgtcn' tcpurcukqp

"qo kukqp<'y g'gnko kpcvkqp"qt"tgf wevkqp"qh'r ctv'qh'y g'vgzv

"gzrcpukqp<"o cnkpi "gzrnkek/kphqto cvkqp'yi cv'ku'ko rnkek/kp'yi g''qtki kpcn''gkyi gt'kp''yi g''o ckp''dqf { ''qt''kp'' hqqvpqvgu''qt''c''i mquuct {

"gzqwkekwo <'vj g''uwduwkwwkqp''qh''untgwej gu''qh''uncpi .'f kengev.''pqpugpug''y qtf u.''gve0kp''vj g''qtki kpen''vgzv''d{ ''tqwi j '' gs wkxengpwi'kp''vj g''vcti gv''ncpi wei g''\*uqo gvko gu''o etngf ''d{ ''kvenkeu''qt''wpf gtnkpkpi +

 $"wrf\ cvkpi" < \ 'y\ g''tgr\ rcego\ gpv'qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv'qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv'qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ cvgf\ ''qt''qduewtg'' \ kphqto\ cvkqp''d \{ \ ''o\ qf\ gtp''gs\ wkxcrgpwu\ rcego\ gpv''qh''qwf\ rcego\ gpv''qh''qwf$ 

"ukwc vkqpcn'gs wkxcngpeg<"yi g"kpugt vkqp"qh'c"o qtg"hoo krkct "eqpvgzv'yi cp"yi g"qpg"wugf "kp"yi g"qtki kpcn

"et gc klap <'c'o qtg'i mdcn'tgr ncego gpv'qh'vj g''qtki kpcn'vgz v'y ksj ''c''vgz v'vj cv'r tgugtxgu''qpn(''vj g''guugp vkcn'' o guuci glkf gcullnwpevkqpu''qh'vj g''qtki kpcn')

Vj g'o quv'eqo o qp'hcevqtu'\*k@0'eqpf kskqpu+'y j kej 'ecwug'\tcpurcvqtu'\q'tguqtv'\q'cfcrvcvkqp''ctg<

"et quw eqf g'dt gcmf qy p<'y j gtg''y gtg''ctg''uko r n( ''pq''ngzkecn'gs wkxcngpvu''kp''y g''vcti gv''ncpi wci g''\*gur gekcm( "
eqo o qp''kp''y g''ecug''qh''vtcpurcvkpi ''o gvcmpi wci g+

"ukwcvkqpcr/kpcfgswce{<"y j gtg" y g"eqpvgzv" tghgttgf "vq" kp" y g"qtki kpcn'vgzv" f qgu'pqv'gzkuv'kp" y g"vcti gv" ewnwtg

"i gpt g"lvy kvej kpi <c"ej cpi g'htqo "qpg'f kveqwtug' $\$  q'vq'cpq $\dot$  gt'\*g0 0htqo "cf  $\$  wn/'vq''ej krf  $\$  tgp $\$  u'nkvgtcwtg+" qhvgp "gpvckru'c'i  $\$  ndcn'tg/etgcvkqp''qh' $\dot$  y g''qt ki  $\$  kpcn' $\$  vgv

"If kut wr vkqp"qh" y g"eqo o wpkecvkqp" rt qeguu<" y g"go gti gpeg"qh" c"pgy "gr qej "qt" cr rt qcej "qt" y g"pggf "vq" cf ftguu'c "fkhgtgpv" {r g"qh" tgcf gtuj kr "qhvgp" tgs wktgu" o qfkhlecvkqpu" kp"uv{ rg. "eqpvgpv" qt" rt gugpvcvkqp0

Vj gug"eqpf kkqpu" y j kej "kp"r tcevkeg" o c{ "gzkuv'uko wncpgqwun{ +"ecp"ngcf "vq" y q"o clqt" v{ r gu"qh" cf cr w kqp<"mecn' cf cr w kqp." ecwugf "d{ "r tqdrgo u"ctkukpi "htqo "vj g"qtki kpcn'vgzv'kugnh" cpf "nko kgf "vq" egtwkp" r ctvu"qh" kv" cu" kp" vj g" htuv' y q"eqpf kkqpu+." cpf "i mqdcn'cf cr w kqp." y j kej "ku"f gvgto kpgf "d{ "hcevqtu" qwukf g" vj g"qtki kpcn'vgzv' cpf " y j kej "kpxqnxgu" c" o qtg" y kf g/tcpi kpi "tgxkukqp0

Cu'c'inecnir tqegf wtg. "cf cr wwkqp" o c{"dg"cr r nkgf "\q'kuqrwyf" r ctwi'qh'\j g'\yzv'\p''qtf gt "\q''f gcn'y kj "ur gekhe" fkhgtgpegu'dgw ggp"\j g'rcpi wci g''qt "ewnwtg''qh'\j g''uqwteg'\yzv'\cu'c''y j qrg. "r tqxkf gf "\j g''yzv'\ta''y j kn''ecug. "\j g''wug''qh'' of cr wwkqp"cu'c''yej pks wg''y kn'j cxg'c''nko kygf "ghhgev'qp"\j g''yzv'cu'c''y j qrg. "r tqxkf gf "\j g''qxgtcmleqj gtgpeg''qh'' y g''uqwteg''yzv'ku''r tgugtxgf 0'Vj ku'\{r g'qh'cf cr wwkqp"ku''yo r qtct {"cpf "nqecn\text{ gf ="k\text{ f qgu''pq\text{ tgugp\text{ tgugp\text{ cpmc}' cm'} go dtcekpi "cr r tqcej "\q''y g''tcpurc\text{ tgugp\text{ cr wwkqp"ku'' word f "c'' theker rgu''qh''ghlge\text{ sgpguu''cpf "ghhekepe {"cpf "uggmu'\text{ tgugp\text{ cpi "tqegf wtg''y j kej "ku'' wkf gf "d{"r t\text{ tpeker rgu''qh''ghlge\text{ sgpguu''cpf "ghhekepe {"cpf "uggmu'\text{ text{ purc\text{ tqegf wtg''y j kej "ku'' wkf gf "d{"r t\text{ tpeker rgu''qh''ghlge\text{ sgpguu''cpf "ghhekepe {"cpf "uggmu'\text{ cej kexg''c''dcrcpeg''dgw ggp''y j cv'ku'\text{ "dg''tcpuhqto gf "cpf "j ki j nki j vgf "cpf "y j cv'ku'\text{ "dg''rgh\text{ hyee} rgi gf 0 Cu''c'' nqdcn''r tqegf wtg. "cf cr vc\text{ "qw'c'' nqdcn''r ty g''y g''yzv'cu''c''y j qrg0'Vj g'' gekukqp"\text{ "qw'c'' nqdcn'' cf cr vc\text{ "qw'c'' nqdcn'' c {"dg''crr rhgf "\q''y g''yzv'cu''c''y j qrg0'Vj g'' gekukqp"\text{ "qw'c'' nqdcn'' cr vc\text{ "qw'c'' nqdcn'' c {"dg''crr phy''y g''\text{ text{ "gw'c'' nqdcn'' ty j kej "clo u'\text{ "y j kej "clo u'\text{ "y j kej "clo u'\text{ "y j kej "clo u'\text{ "ty j kej "clo u'\text{ "y j kej "clo u'\text{

Cu'lp''y g'ecug''qh''tcpurculqp."cf cr vculqp''ku'ecttlgf ''qwi'wpf gt''egtvclp''t gunt levlqpu ''y g''o quv''qdxlqwu''qh'y j kej ''ctg<

"'y g''npqy ngf i g''cpf ''gzr gew kapu''qh'y g''ct i gv't gcf gt ''y g''cf cr vgt ''j cu''vq''gxcnwcvg''y g''gzvgpv'vq''y j kej ''y g''eqpvyv'qh'y g''qtki kpcn'vgzv'eqpuvkwwgu''pgy ''qt''uj ctgf ''kphqto cvkqp''hqt''y g''r qvgpvkcn'cwf kgpeg ''y g''ct i gv'ncpi wci g''y g''ct cr vgt ''o wuv'hkpf ''cp''cr r tqr tkcvg''o cvej ''kp''y g''vct i gv'ncpi wci g''hqt''y g''f kueqwtug'' uv{ ng''qh'y g''qtki kpcn'vgzv'cpf ''nqqm'hqt''eqj gtgpeg''qh''cf cr vkpi ''o qf gu

#### Vj gqt gweendqwpf et lgu'dgwy ggp'ef er w wlqp'epf 'tt epurcwlqp

Uqo g'uej qretu'r tghgt "pqv'q'wug''y g''ygto "÷ef cr wkqpø'cv'cm "dgrkgxkpi "'y cv'y g''eqpegr v'qh''xtcpurckqp''ecp''dg" untgwej gf "'q''eqxgt "cm''\{r gu''qh''xtcpuhqto cvkqp "cu''nqpi "cu''y g''o ckp''hwpevkqp''qh''y g''cevkxk\{ "ku''r tgugtxgf 0Qvj gtu" xkgy "'y g''y q''eqpegr w''cu''tgr tgugpvkpi "guugpvkcm\{ "f khhgtgpv'r tcevkegu0O kej grl ctpgcw."S wgdge''r qgv'cpf " tcpurcvqt."eqkpgf "'y g''y to "vtcf cr vcvkqp''vq''gzr tguu''y g''eqnug''tgrcvkqpuj kr "dgw ggp"'y g''y q''cevkxkkgu''\*F grkurg" 3; : 8+0'Vj g''xgt { 'hgy "uej qrctu'y j q''j cxg''cwgo r vgf "c''ugtkqwu''cpcn\{ uku''qh''y g'' j gpqo gpqp''qh''cf cr vcvkqp''cpf "ku'' tgrcvkqp''vq''tcpurcvkqp''kpukuv'qp''y g''ygwqwu''pcwtg''qh'y g''dqtf gtrkpg'y j kej "ugr ctcvgu''y g''y q''eqpegr vu0 Vj g''eqpvtqxgtu{ 'unttqwpf kpi "'y g''wr r qugf "qr r qukkqp''dgwy ggp"cf cr vcvkqp''cpf "tcpurcvkqp''ku''qhrgp''hwgngf "d{ "kf gqmi kecn'kuwgu0'Vj ku''dgeqo gu''gxkf gpv'y j gp''qpg''eqpukf gtu''y g''j gcvgf "f gdcvgu''y cv'j cxg''tci gf "qxgt''y g'' vtcpurcvkqp''h''y g''Dkdrg''gxgt''ukpeg''y g''htvv'xgtukqpu''dgi cp''vq''cr r gct0'Ki'ku''y kn''cr r ctgpv'rceni'qh''qdlgevkxk\{ ''cdqw'' y g''cf cr vcvkqp''r tqeguu''y cv'j cu''r tqo r vgf "I co dkgt'\*3; ; 4-646+'vq'y ctp''ci ckpuv'y j cv'j g''ecmu'y g''-hgvkuj k| cvkqpø'' qh''y g''qtk kpcn'vgzv0'Chxgt''cm "kv'ku''qhrgp''cti wgf "y cv'c'uweeguuhwri'tcpurcvkqp''ku''gzr gevgf "vq''kpvgtxgpg''cevkxgn\{ "\*lQ0'' cf cr v-v'vq''gpuwtg''y cv'y ku''k gcn'ku''cp kgxgf 0

Vj g'twwf {"qh'cf cr w.kqp"gpeqwtci gu'yj g'yj gqtkuv'vq"nqqn'dg { qpf "r wtgn( "hpi wkuvke"kuuwgu'cpf "j grr u'uj gf "rki j v'qp" yj g'tqrg"qh'yj g''vtcpurcvqt "cu'o gf kcvqt."cu'c'etgcvkxg"r ct vkekr cpv'kp"c'r tqeguu'qh'xgtdcn'eqo o wpkecvkqp0'
Tgrgxcpeg. "tcvj gt'yj cp"ceewtce {.'dgeqo gu'yj g''ng{ "y qtf .''cpf "yj ku'gpvcknu'c'ectghwn'cpcn( uku'qh'yj tgg"o clqt" eqpegr vu'kp "vtcpurcvkqp"yj gqt {<o gcpkpi .''r wtr qug'\*qt 'hwpevkqp."qt"unqr qu<ugg"\underwedge\un

#### HWP EVIQP CN'CRRT QCEJ GUIO

Cf cr wkqp"j cu'cny c{u'dggp"f ghkpgf "kp'tgrckqp"vq"uqo gyj kpi "gnugô c'ur gekhle"uv{ng. "rkpi wkurke"eqpxgpkqpu"qt"c" eqo o wpkeckqp"o qf gn0Vj g"go gti gpeg"qh'rtcpurckqp"uwf kgu"cu'cp"kpf gr gpf gpv"f kuekr nkpg"pqy "gpcdngu'wu'vq" uwf {"cf cr wkqp"kp"ku"qy p"vgto u."cu"dqyj "c"nqecn'cpf "c"i nqdcn'r tqegf wtg0KVku'ko r gtcvkxg"yi cv'y g"cenpqy ngf i g" cf cr wkqp"cu"c"v{r g"qh'etgcvkxg"r tqeguu'y j kej "uggmu'vq"tguvqtg"yi g"dcncpeg"qh'eqo o wpkeckqp"yi cv'ku"qhvgp" f kut wr vgf "d{"vtcf kkqpcn'hqto u"qh'vtcpurcvkqp0'Qpn{"d{"vtgcvkpi "kv'cu"c"ngi kuko cvg"uvtcvgi {"ecp"y g"dgi kp"vq" wpf gtuvcpf "yi g"o qvkxcvkqp"hqt"wukpi "kv'cpf "vq"cr r tgekcvg"yi g"tgncvkqpuj kr "dgw ggp"kv'cpf "qyi gt"hqto u"qh" eqpxgpvkqpcn'vtcpurcvkqp0

#### Hwt vj gt 't gcf lpi

Dcurkp'3; ; 8="Dtknugv'3; ; 2="F grkurg'3; : 8="F qpcktg"gv'cn03; ; 3="Hcti j cn'3; ; 5="Hq| "3; : : ="I cknhctf "3; : : ="I co dkgt"3; ; 4=" O gtkpq'3; ; 4="P qtf "3; ; 3c="Ucpvq{q'3; : ; 0

I GQTI GU'NDCUVKP

Vtcpurcvgf 'htqo 'Urcpkuj 'd{ 'Octm'I tgi uqp

## Cpcn(wech'j knjugrj { 'cpf 'vt cpurcwqp

Vj g'r j gpqo gpqp"qh"\tcpurc\kqp."cpf "gur gekcm\" 'y g''pq\kqp"qh"\kpf gvgto kpce\" cxg"dgeqo g'\ko r qt\cpv'\hqecn' r qkp\u'\hqt"f kuewu\kqp"\kp"\y g'r j kquqr j \ "qh'\rcpi wci g''f \ukkpi "'y g''ugeqpf "j crh'qh'\y g''\u gp\kgy "egp\uk\\ 0O clqt" r ct\kekr cp\u'\kp"\y g''f gdc\ug'\kpen\uf g''Y knctf '\uxcp"\Qto cp'\under \ukkpg"\cpf '\under qpcnf '\under cxkf uqp="c'\tgr tg\ugp\uk\under g'\under ucu\under \under g'\under \under \under

S włogou'r qukrkap'y cu'atki kpcm ('r tgugpygf 'kp'y g'r j krauar j kecn'nkygtcwtg'kp'S włog'\*3; 796: +."

dwij cf."d{"y g"hqmy kpi "{gct" swkpg"3; 7; + 'hqwpf 'kwi'y c{ "kpvq'rksgtcwtg"f gxqvgf 'vq''tcpurcvkqp" Dtqy gt" 3; 7; +0J gtg. 'kv'gpi gpf gtgf 'uwej "eqpuvgtpcvkqp"co qpi 'uqo g'uej qrctu'y cv'kv'y cu'hqwpf 'pgeguuct { "vq"gzenxf g" mi kekcpu'cpf "+o gvcrkpi wkuvø'htqo "cv'rgcuv'qpg"eqphgtgpeg"+hqt"y g'ucng"qh'i qqf "eqpxgtucvkqp"cpf 'ugrh/ eqphlf gpegø' Cttqy uo ky "cpf "Uj cwwen'3; 83 Hqtgy qtf +0J qy gxgt. "Swkpgøu'uwi i guvkqp' v cv'vtcpurcvkqp'ku" tcf kecm{ 'kpf gvgto kpcvg'eqpvkpvgu'vq"gzekg'uqo g'y tkgtu'qp''vtcpurcvkqp. 'hqt'kpuvcpeg'Dgplco kp'\*3; :; +:'J lqtv' \*3; ; 2+'O cm mlâ t'\*3; ; 5+'cpf 'I gqti g'Uvgkpgt"\*3; 971'3; ; 4+ô pqv'uvtr tkukpi n{ .'kp''xkgy "qh''kxu''r qvgpvkcn' eqpugs wgpegu'hqt 'qvt "gpvgtr tkug0

Ceeqtf kpi "kq"S wkpg"\*3; 7; <393+."-kv"ku"qpn("tgrcvkxg"\q"cp"kp"rcti g"r ctv"ctdktct{"o cpwcn"qh"vtcpurcvkqp"\yi cv"o quv" hqtgki p"ugpwgpegu"o c{"dg"uckf" 'vq"uj ctg"\yi g"o gcpkpi "qh"Gpi rkuj "ugpvgpegu."cpf" 'yi gp"qpn("kp"c"xgt{"r ctqej kcn" ugpug"qh"o gcpkpi ."xk\ 0"wug/kp/Gpi rkuj \(\phi\)Ukpeg"3; 82."c"i tgcv"f gcn"qh"y tkkpi "qp"vtcpurcvkqp"\yi gqt{"cpf"r tcevkeg" j cu"kp"hcev'eqpegpvtcvgf "qp"wug."tcyj gt"\yi cp"o gcpkpi 0'Qh"eqwtug."\yi ku"vtgpf "ku"r ctvn("kpur ktgf"d{"\yi g" f gxgmqr o gpv"qh"\yi g"f kuekr rkpg"qh"RTCI O CVKEU0J qy gxgt."kv"ku"cnq"kphrwgpegf"d{"\yi g"kpetgcukpi "f gur ckt"hgm\" d{"o cp{"vtcpurcvkqp"uej qrctu"cv"\yi g"cr r ctgpv"kpcdkrkx{"qh"r j krquqr j gtu"cpf "hkpi wkuru"crkng"\q"r tqxkf g"cp{ yi kpi "cr r ttqcej kpi "c"ucvkuhcevqt{"\yi gqt {"qh"o gcpkpi "\*ugg."hqt"gzco r rg."I gqti g"Uvgkpgt"3; 9713; ; 4-4; 6+0"kp"hcev"kv"ku" uq"j ki j rki j v"yi g"r tqdrgo u"kpxqrxgf "kp"r tqxkf kpi "c"\yi gqt {"qh"o gcpkpi "\yi cv'S wkpg"cxckru"j ko ugrh"qh"\yi g"gzco r rg" qh"vtcpurcvkqp0

S wkpgøu'r qukkqp'ku'o quv'hwn{ 'grcdqtcvgf 'kp'Ej cr vgt'Kkqh''Y qtf 'cpf 'Qdlgev'\*S wkpg'3; 82+.'y j gtg'j g''gzr rckpu'' y cv'j g'ku'eqpegtpgf 'y kij 'tcf kecn't cpurc vkqp''+xtcpurc vkqp''qh''y g''rcpi wci g''qh'c'j kij gtvq''wpvqwej gf '' r gqr rgø'\*kdkf 0<'4: +0'Vj ku'ku'ergctn( ''pqv''y g''nkpf ''qh''tcpurc vkqp''y j kej ''eqpegtpu''o quv''tcpurc vqtu''qt''kpvgtr tgvgtu''kp'' y g''eqwtug''qh''y gkt ''gxgt {fc{ ''cevkxkkgu=kv'tgugo drgu''o qtg''erqugn( ''y g''cevkxkkgu''qh''hkgrf ''hkpi wkuw0'J qy gxgt.''y g'' gzco r rg''qh''tcf kecn''tcpurc vkqp''ku''wugf ''dgecwug'kv'ku''j grf ''vq''dg''y g''o quv''gzvtgo g'hqto ''qh''tcpurc vkqp.''y g'hqto ''kp'' y j kej ''y g''r tqdrgo u'kpxqrxgf 'kp''cp{ ''cev'qh''nkpi wkuvke''eqo o wpkecvkqp''uvcpf ''qw''o quv''ergctn(0'O qtgqxgt.''cu'' Fcxkf uqp''\*3; 951'3; : 6<347+'r wwu'kv

Vj g'r tqdrgo "qh'kpvgtr tgvcvkqp'ku'f qo guvke''cu'y gm'cu'hqtgki p<kv'uwthcegu'hqt''ur gcmgtu'qh''y g''uco g''
rcpi wci g'kp''y g'hqto "qh''y g''s wguvkqp."j qy "ecp'kv'dg''f gvgto kpgf ''y cv''y g''rcpi wci g'ku''y g''uco gA''
Ur gcmgtu'qh''y g''uco g''rcpi wci g''ecp''i q''qp''y g''cuuwo r vkqp''y cv'hqt''y go ''y g''uco g''gzr tguukqpu''ctg''vq''
dg''kpvgtr tgvgf ''kp''y g''uco g''y c{.''dwv''y ku''f qgu''pqv'kpf kecvg''y j cv''lwuvkhkgu''y g''cuuwo r vkqp0

Vj ku'ku'pqv'vq'uc{"vj cv'vj g'r j krquqr j kecn'f gdcvg''qp''vtcpurcvkqp''ku''qh''pq''tgrgxcpeg''vq''vtcpurcvkqp''uej qrctu0Hqt''kh" cu''vj g'r j krquqr j gtuø'vtgcvo gpv'uwi i guvu. "vtcpurcvkqp''f khhgtu''qpn{ 'kp''f gi tgg''cpf ''pqv'kp''nkpf 'htqo ''pqp/vtcpurcvkqpcn'hqto u''qh''nkpi vkuvke''kpvgtcevkqp. ''vj gp''vj g''tguvvnu''qh''vj g'r j krquqr j kecn'kpxguvki cvkqp''qh'o gcpkpi ''y km' dg''gs wcm{ ''tgrgxcpv'vq''dqvj 0

Kp'hcev.'ugxgtcni'r j knquqr j kecni'r gtur gevkxgu''qp''o gcplpi "j cxg''gzgtvgf "lphnwgpegu''qp''vtcpurcvlqp''uej qnctu0O quv'qhi' vj g''r gtur gevkxgu''j cxg.''ulpeg''ctqwpf "3; 82.''dggp''-r tci o cvleøk'yj g{ "cfftguu''s wguvlqpu''qhi'ncpi wci g'wug''cpff" hwpevlqp''lp''eqpvgzv0Dw''r tci o cvle''yj gqtkgu. "y kyj qw''gzegr vlqp. "vcng''hqt''i tcpvgf "cp''wpf gtn(kpi "vtwj /eqpfkvlqpcn" ugo cpvleu''kp''y j kej "yj g'tgncvlqpuj kr "dgwy ggp''ncpi wci g''cpf "yj g'y qtnf "ku''gzr nlecvgf "kp''vgto u''qh''pqvlqpu''nkng''vtwj " cpf "tghgtgpeg0Kl'ku''kp''f kuewuklqpu''kp''yj ku''r ctcfki o "yj cv'yj g''gzco r ng''qh''vtcpuncvlqp''ku''go r nq{gf."cpf "cp{" fkuwtdcpeg''kv'etgcvgu''yj gtg''ku''c'f kuwtdcpeg''qh'yj g''xgt{ "dcuku''qp''y j kej "r tci o cvle''yj gqtkgu''ctg''dwkn00 Y j cv'ku''cv'kuuwg''kp''ttwj /eqpfkklqpcn''ugo cpvleu'ku'pqv'y j cv'o cp{ "r gqr ng''tghgt''vq''kp''c''pqp/r j knquqr j kecn'ugpug'' \*N{qpu''3; 99<398+"cu''eqppqwvkxg'b gcplpi <'yj g'fkhrgtgpv'cuuqekcvlqpu''cpf "go qvkqpu''y j kej "gzr tguuklqpu''o c{" gxqng''kp''ncpi wci g'wugtu0Y j cv'ku''cv'kuuwg''ku.''tcyj gt.''yj g''dcuke''o gcplpi "qh''gzr tguuklqpu''qp''y j kej "y g''cuuwo g'y g'' ecp''cml'tgn("kp''guvcdnkij kpi "ci tggo gpv''cdqw''dcuke''hcevu''uwej "cu'y j gyj gt''qt''pqv'c''r ctvlewct''cpko cn'ku''c'tcddks''qt'' c''f qi .''qt''y j gyj gt''c''r ctvlewct''uwduvcpeg''ku''ej ggug0Y kyj qw''ci tggo gpv''cv'yj ku''dcuke''ngxgn''y g''eqwf''pqv''r tqeggf''q'o qtg''go qvkxgn("qtkgpvgf''f kuewuuklqpu''cdqw'yj g''

tgrcvkxg"o gtku"qh'tcddku"cpf "f qi u."qt"ej cm'cpf "ej ggug."qt"cdqw"y j cv'y g"cuuqekcvg"y kij "yj go "cpf "hggri'cdqw" yj go 0

C"egpvtcnif kthkewn{"kp"r tqxkf kpi "c"j gqt { "qh'gxgp"uwej "dcuke"o gcpkpi "ku"j ku0lfo"j g"r tqeguu"qh'cttkxkpi "cv'cp" wpf gtuvcpf kpi "qh'c"ur gcngtøu"wytcpeg."c"j gctgt "kpgxkxcdn{"cwtkdwgu"vq"j g"ur gcngt"j ki j n{"eqo r ngz "ugwu"qh" dgrlghti"cpf "kpvgpvkqpu0Vq"wug"F cxkf uqpøu"gzco r ng"\3; 951"3; : 6<347+"kp" j g"pqto cn'eqwtug"qh'gxgpvu"\600 y j gp"c"ur gcngt "ku"dgrkgxgf "vq"dg"t { kpi "vq"eqo o wpkecvg"cpf "pqv"vq"dg"tgekkpi ."r nc { cevkpi ."qt "kpucpg+"y j gp" Mwtv'wwgtu"Gu"t gi pgv."y g"cwtkdwg"vq"j ko "cv'ngcuv'y g"kpvgpvkqp"vq"uc { "yi cv'kv'ku"tckpkpi ."cpf "pqto cm{"cnuq"yi g" kpvgpvkqp"vq"uc { "yi cv'kv'ku"tckpkpi ."cpf "pqto cm{"cnuq"yi g" kpvgpvkqp"vq"uc { "yi gvg gt gy kyi "yi g"dgnkgh"yi cv'kv'ku"tckpkpi 0' kp"cwtkdwkpi "yi gug"o gpvcn'uvcygu"vq"Mwtv'qp"j gctkpi "j ku"wwgtcpeg."y g"engctn{"tgn{"qp"qwt"wpf gtuvcpf kpi "qh"j ku" wwgtcpeg0Dw'kp"yi g"yi gqt { "qh"o gcpkpi "y g"ctg"gpi ci gf "kp"f gxgnqr kpi ."y g"ctg"tt { kpi "vq"ceeqwpv'hqt"r tgekugn{" yi cv'wpf gtuvcpf kpi "cpf "ukpeg"y g"tgn{"qp"qwt"wpf gtuvcpf kpi "qh"yi g"wwgtcpeg"kp"o cmkpi "kphgtgpegu"cdqww'Mwtvau" o gpvcn'uvcygu."y g"ecppqv'cnuq"wug"qwt"cuuwo r vkqpu"cdqw'Mwtvau"o gpvcn'uvcygu"vq"ceeqwpv'hqt"qwt "wpf gtuvcpf kpi "qh"yi g"wwgtcpeg0Vq"f q"uq"y qwrf"o cng"qwt"cti wo gpv'ektewnct0

Uq'y j cv'qvj gt "gxkf gpeg"o ki j v'y g'tgn( "qpA'Ceeqtf kpi "vq'S wkpg"\*3; 8248+"y g"o ki j v'xt { "ugpuqt { "gxkf gpeg0'Hqt" +uxthceg"kttkcvkqpu"i gpgtcvg."vj tqwi j "ncpi wci g."qpgøu"npqy ngf i g"qh'y g"y qtnf 0'Qpg"ku"vcwi j v'uq"vq"cuuqekcvg" y qtf u"y kyj "y qtf u"cpf "qvj gt "uko wrcvkqpu"vj cv'yi gtg"go gti gu'uqo gyj kpi "tgeqi pk cdng"cu"vcmi'qh'yi kpi u. "cpf "pqv" vq"dg"f kuvkpi wkuj gf "htqo "vtwj "cdqwv'yi g"y qtnf ø0'J ku"r tqlgev'ku"vq"-eqpukf gt"j qy "o wej "qh'hcpi wci g"ecp"dg"o cf g" ugpug"qh'hp"vgto u"qh'kuu"uko wnwu"eqpf kkqpu. "cpf "y j cv'ueqr g"yj ku"ngcxgu"hqt"go r ktkecm( "wpeqpf kkqpgf "xctkcvkqp" kp"qpgøu"eqpegr wcn'uej go gø kdlxf 0c48+0D{ "-go r ktkecm( "wpeqpf kkqpgf "xctkcvkqpø"S wkpg"o gcpu"xctkcvkqp" y j kej "ecppqv'dg"gzr nckpgf "y kyj "tghgtgpeg"vq"xctkcvkqp"kp"ugpuqt { "gxkf gpeg0"Vj g"cpuy gt"vq"yj g"htuv's wguvkqp"ku" -pqv'o wej ø "cpf "vq"yj g"hgeqpf "-xgt { "o wej ø "cu"j ku"eqo o gpvu"qp"yj g"ukwcvkqp"f guetkdgf "kp"yj g"hqmy kpi " cpgef qy"o cng"engct0

Ko ci kpg"c"hkpi wkuv"gpi ci gf "kp"tcf kech'tcpurcvkqp. "klg0"tcpurcvkqp"qh"c"rcpi wci g"j kij gt vq"wpmpqy p0":C"tcddki" uewttkgu"d{. "vj g"pcvkxg"uc{u":H cxci ckø"cpf "vj g"hkpi wkuv"pqvgu"f qy p"vj g"ugpvgpeg":Tcddkø"\*qt":Nq. "c"tcddkø+"cu" vgpvcvkxg"tcpurcvkqp. "uwdlgev"vq"vguvkpi "kp"hwt yj gt"ecuguø"\*kdkf 0;"4; +0"S wkpgøu"uegr vkekuo "ku"f ktgevgf "cv"yj g"pqvkqp" vj cv"vj gtg"ecp"dg"cp{"vguv'y j kej "ecp"uj qy "y j cv"ugpug"vj g"pcvkxgøu"wwgtcpeg"j cu0"Y g"ecp"j gct"vj g"wwgtcpeg."y g" ecp"guvcdrkuj "vj g"qeecukqpu"qp"y j kej "vj g"pcvkxg"y km"cuugpv"vq"cpf "f kuugpv"htqo "I cxci ck"dw"y g"ecp"pgxgt"dg" uwtg"j qy "vj g"pcvkxg"eqpegr wcnk gu"vj gug"qeecukqpu0

Hqt."eqpulf gt"-i cxci clø0'Y j q'mpqy u'dw'y j cv'y g''qdlgewi'vq''y j kej "y ku'vgto "crrnkgu''ctg''pqv'tcddku'' chygt"cm"dw'o gtg'uvci gu. "qt "dtkgh''vgo r qtcn'ugi o gpw. "qh''tcddkwuA'Kp"gky gt "gxgpv'y g''uvko wnwu" ukwcwlqpu''y cv'r tqo r v'cuugpv'vq"-i cxci clø'y qwrf "dg''y g''uco g''cu'hqt"-i cddkwoOQt"r gtj cr u''y g'' qdlgewi'vq''y j kej "-i cxci clø'crrnkgu''ctg''cm''cpf "uwpf t { "wpf gwej gf "r ctwi'qh''tcddkwu="ci clp." y g'' uwko wnwu''o gcpkpi "y qwrf "tgi kuvgt "pq"f khhgtgpegOY j gp"htqo "y g''uco gpguu''qh''uvko wnwu''o gcpkpi u''qh'' -i cxci clø'cpf "-i cddkø'y g''nkpi wkuv'ngcr u''vq''y g''eqpenwukqp''y cv'c''i cxci ck'ku''c'y j qng''gpf wtkpi "tcddkw''j g''ku''lwuv''cmkpi "hqt"i tcpvgf "y cv'y g''pcvkxg''ku''gpqwi j "nkng''wu''vq''j cxg''c''dtkgh'i gpgtcn''vgto "hqt" tcddkwu''cpf "pq''dtkgh'i gpgtcn''vgto "hqt" tcddkwu''cpf "pq''tcddkwu''cpf "pq''tcddkwu''c

\*kdkf 0<7364+

Vj g'uko wnu'o gcpkpi 'hqt''÷Vj gtg'ku'c'tcddkø'ku''y g'uco g'cu'hqt<"c+"÷Cp''wpf gvcej gf 'r ctv'qh'c''

Vj g'lpf gvgto kpce{ ''qh'\tcpurcvlqp''ku'\j wu'i tqwpf gf. ''pqv'lp''\j g'\tcpukvlqp''htqo ''qpg''rcpi wci g''\q''cpq\j gt. ''dw'lp'' yj g'hlipmidgwy ggp 'gzr tguuliqp 'cpf 'eqpegr wicht cyliqp O'Ki'ku'r gthgevn( 'r quulidng. ''qp 'S wlipgøu'x ligy . ''vq ''cti wg 'vj cv' r gtukuvgpv'qdugtxcvkqp'qh'yi g'rkpi wkuvke''dgi cxkqwt''qh'o go dgtu''qh''yy q''ur ggej ''eqo o wpkxkgu''Iwuvkhkgu''yi g''encko '' yj cv. "qh"yj g"yy q"Gpi nkuj "y qtf u"*ej cm"*lcpf "*ej ggug. "ej ggug*"ku"yj g"dgwgt "\tcpurcvkqp"gs wkxcrgpv'hqt"yj g"Htgpej "y qtf" htqo ci go'Uwej "qdugtxcvkqpu." j qy gxgt. "ecp"pgxgt" lwuvkh{" y g"encko "y cv'cp{" w q"gzrtguukqpu" o gcp" y g"uco g0 Vjg"o gcpkpi u"qh"gzrtguukqpu"fgtkxg"rctvn{"htqo"yjgkt"tgncvkqpujkr"vq"yjgkt"tghgtgpegu≺'yjg"pqp/nkpiwkuvke" r j gpqo gpc."y j gyj gt "eqpetgyg"qt "cduvtcev."y j kej "yj g{ "f gpqyg0J qy gxgt."o gcpkpi u"cnuq"f gtkxg"kp"r ctv'htqo " y j cv'Htgi g'\gto gf '**\ugpug.**''÷y j gtgkp'\j g'o qf g'qh'r tgugpvc\kqp'ku'eqpvckpgf ø'\3:; 413; 99⊲79+0\Wpf gtuvcpf kpi " o gcpkpi. "vj gtghqtg." o gcpu'dqvj "wpf gtuvcpf kpi "y j cv'cp"gzr tguukqp"ku"wugf "vq"tghgt"vq"qp"c"r ctvkewrct "qeecukqp." cpf "wpf gtuvcpf kpi "yj g"o qf g"qh"r tgugpvc kqp. "qt "eqpegr wcrkt c kqp"qh"yj g"tghgtgpv. "y j kej "kv"gzr tguugu0Htgi g" vqqmlhqt"i tcpvgf "vj cv'dqvj "ugpug"cpf "tghgtgpeg"y gtg"o cf g"r wdrken( "cxckrcdrg"d { "rkpi wkurke"gzr tguukqpu. "cpf "vj cv" ÷yj g'uco g'ugpug'j cu'f khhgtgpv'gzr tguukqpu'kp'f khhgtgpv'rcpi wci gu'qt"gxgp'kp'yj g'uco g'rcpi wci gø'\*kdkf0₹7: +0' S włog'r quku'y g'r quukdkrkv{ "y cv'y g'uco g'gzr tguukqp."qt"cp"gzr tguukqp"cpf "kuu'tcpurcvkqp"gs wkx crgpv."eqwrf" i kxg'xqkeg'\q'tcfkecm('fkhhgtgpv'o qfgu'qh'rtgugpvc\kqp<'tcfkecm('fkhhgtgpv'yc{u'qh'eqpegrwcnk|kpi'c'tghgtgpeg0' Uwej 'tcf kecn'kpf gvgto kpce{ ''qh''ugpug'kphgevu''yj g''eqo o qpcnkv{ ''qh''tghgtgpeg''qp''y j kej ''y g''ctg'hqtegf ''vq''tgn{ ''kp'' guvcdrkuj kpi "c"yj gqt { "qh"o gcpkpi 0'Qwt "r tqlgev."yj gtghqtg. "hcku0

Kp'j ku'f ghgpeg''qh''y g''y gqt { ''qh'o gcpkpi .'F cxkf uqp'\*3; 9613; : 6+'s wguxkqpu'y j gyj gt''cp { ''ugpug''ecp''dg''o cf g''qh'' y g"pqvkqp"qh"tcf kecm( "f khhgtgpv'qpvqnqi kecn'eqo o ko gpvu0J g"tghtckpu. "kpkkcm( ."htqo "ugctej kpi "hqt"o gcpkpi u." ukpeg''y cv'ttcf kukqpcn'uvctvkpi 'r qkpv'j cu'uq'hct. 'r ctcf qzkecm(. 'hckngf 'vq''÷qkn'y g'y j ggnu'qh'y g'y gqt { 'qh' o gcplpi ø'\*3; 8913; : 642+0Kpurgcf. "I kxgp" y g'egpvtcrkv{ "kp" y g'y gqt { "qh" y g"pqvkqp" qh" o gpvcn'uvcvgu. "k0g0'dgrkghu" cpf "kpvgpvkqpu." j g"cwgo r wi'vq"guvcdrkuj "c"o gpvcn'uvcvg" y j kej "y g"o ki j v'dg"lwuvkhkgf "kp"cwtkdwkpi "vq"c"ur gengt" kpf gr gpf gpvn{ "qh"cp{"cuuwo r vkqpu"cdqw"y j cv"yj g"ur gcmgtøu"wwgtcpegu"o gcp0°C "nkmgn{ "ecpf kf cvg"o ki j v"dg"yj g"  $o\ gpvcn'uvcvg''qh''j\ qrf\ kpi\ ''cp\{''i\ kxgp''wwgtcpeg''twg''cv''j\ g''ko\ g''qh''wwgtkpi\ .''hqt''y\ g''\div o\ c\{''npqy\ ''j\ cv'c''r\ gtuqp''kpvgpf\ u''\}$ vq"gzrtguu"c"\twj "kp"\wwgtkpi "c"\ugpvgpeg"y kj qw\"j cxkpi "cp{"kf gc"y j cv\"\twj ø\"3; 951\"3; : 6⊲57+0 Ki'ku."j qy gxgt."cti wgf "qp"qeecukqp"'yj cv"yj g"r quukdkrkv{ "qh"f khhgtgpv'qpvqmi kecn'eqo o kvo gpw"gzvgpf u"vq"'yj g" pqvkqp"qh"j qrf kpi "vt wg0"Hqt "gzco r rg. "Ncnqhh"cpf "Iqj puqp" "3; : 2♂: 3+"j cxg"uwi i guvgf "vj cv" + gqr rg"y kj "xgt{" f kthgtgpv'eqpegr wcn'u{uvgo u'vj cp''qwt''qy pí o c{''j cxg'f kthgtgpv'etkgtkc'hqt''vtwj ''cpf 'tgcrkv{ø0'Kt'vj cv'ku'vj g'' ecug. "y gp"y gtg"ku"pq"o qtg"j qrg"hqt"y g"pqvkqp"qh"vtwy "kp"ugwkpi "wr "c"y gqt { "qh"o gcpkpi "y cp"hqt"y g"pqvkqp"qh" o gcpkpi "kugrh0'Dw'k/ku."kp'hcev."xgt { "f khhkewn/'vq"cuetkdg''vq"qvj gt "ur gcngtu"cp"cwkwf g"qh'j qnf kpi "'twg''y j kej "ku" tcf kecm( "f kthgtgpv'htqo "qwt"qy p"y j krg"tgvckpkpi "c"i tkr "qp"yj qug"ur gengtu"÷eu"tevkqpen "eu"j exkpi "dgnkghu. "qt "eu" uc{kpi "cp{yi kpi ø'\*F cxkf uqp"3; 9513; : 6<359+0'Vj ku'ku'dgecwug'kk'ku'ko r quukdrg''vq'tgvckp''yj g'dctg''pqvkqp''qh''÷c'' ur gengtø'y kij qw'ewtkdwkpi ''vq''yi ev'ur gengt''uqo g''ugv'qh''dgrkghu0'Vj gug''f gvgto kpg''y j ev''yi g''ur gengt''j qrf u''vtwg." cpf "y g"o c{"tghgt" 'vq" yi go "cu"c" eqpegr wcn'uej go g"cpf "cuuqekcvg" yi g"ncwgt" y kyi "yi g"ur gcngtøu 'ncpi wci g0" Vq" cti wg''y cv'uwej "c'ur gengtøu'hepi wei g'o ki j v'pqv'dg''tepunevedng'kpvq"qwt 'qy p'y qwrf .''y gp. 'dg''vq''eti wg''y ev'y g'' mpi wci g'y cu'twg. "dw/pqv'tcpumvcdmg0Dw."cu'Vctumk'\*3; 78+'uj qy u. 'kv'ku'pqv'r quukdmg'vq'o cmg'ugpug'qh'gkyj gt" qh'y gug'pqvkqpu"

kpf gr gpf gpvn( "qh"yj g"qyj gt" \*F cxkf uqp. "3; 961"3; : 6♂; 6ó7+<

Uq. 'kp'i tcpvkpi 'qwt'kpygtmewqtu'c'eqpegr wcn'uej go g'\*c'ugv'qh'dgrkghu. 'c'ugv'qh'vtwj u+. 'y g'i tcpv'yj go 'c'' vtcpurcvdng'hcpi wci g0kp'r tqxkf kpi 'yj g'ugeqpf 'vgto 'kp''j ku'V/ugpvgpegu. 'Vctunk'j gnr gf 'j ko ugrh'vq'yj gkt'' vtcpurcvdngu'kp''qtf gt''vq'enctkh{ 'yj g'pqvkqp'qh'vtwj 0F cxkf uqp''j gnr u''j ko ugrh'vq''yj g'pqvkqp'qh'j qnf kpi 'vtwg'kp''qtf gt'' vq''gzr nckp''vtcpurcvkqp0Vj ku'o qxg''ecp''dg'lwuvkhkgf ''d{ ''cti wkpi ''yj cv'vq''eqpukf gt''c''etgcwtgøu''dgj cxkqwt''vq''dg'' u{o dqnke''qt''ugo kqvke''kp''cp{ ''ugpug'y j cwuqgxgt'kpxqnxgu''yj g''cuuwo r vkqp''yj cv'yj g''dgj cxkqwt''gzr tguugu'uqo g'' o gpvcn'uvcyg''qt''qyj gt0Vq''eqpukf gt''nkpi wkuvke''dgj cxkqwt''quvgpukxg. ''yj cv'ku. ''vq''eqpukf gt''yj cv'kv'f kur nc{u''yj g'' etgcwtgøu''kpvgpvkqp''vq''eqo o wpkecyg''\*Ur gtdgt''cpf ''Y knuqp''3; : 8-6; +'ku''vq''cuuwo g''yj cv'yj g''etgcwtg''j qnf u''vtwg. ''qt'' dgrkgxgu. ''uqo gyj kpi ''y j kej ''kv'ku''vt {kpi ''vq''eqo o wpkecyg0Cf j gtgpvu''qh''ewnwtcn'tgncvkxkuo ''o ki j v'pqy ''qh'ngt''wu'' y q''r quukdng''uegpctkqu0

Ceeqtf kpi ''vq''y g'hktuv.''y j kej ''cr r gctu'\q'dg''y g'uegpctkq''Ncmqhh'cpf 'Iqj puqp'\*3; : 23: 3+'ko ci kpg.'y g'o c{'i tcpv' y cv''y g'etgcwtg'j qrf u'uqo gyi kpi ''twg'hp'ku'qy p''yto u.''dw''y gug''yto u'o ki j v'dg''cduqnwgn{ 'f khhgtgpv'htqo "qwtu0J qrf kpi ''twg'hqt''y g'etgcwtg'ku''pqyi kpi ''hkng''j qrf kpi ''twg'hqt''wu0Dw''y gp.''dgrkgxkpi 'hqt''y g'etgcwtg''ecp'' dg''pqyi kpi ''hkng''dgrkgxkpi 'hqt''wu'.''cpf ''gzr tguukpi ''dgrkgh''y gtghqtg.''ecp''dg''pqyi kpi ''rkng''gzr tguukpi ''dgrkgh'hqt''wu0' kp''y j kej ''ecug''quvgpukxg''dgj cxkqwt'hqt''y g''etgcwtg''ecp''dg''pqyi kpi ''rkng''quvgpukxg''dgj cxkqwt'hqt''wu0'Dw''kp''y cv'' ektewo uvcpeg.''y g''y qwrf ''pqv'tgeqi pk g''y g''etgcwtgøu''quvgpukxg''dgj cxkqwt.''cpf ''y g''s wgurkqp''qh''tcpurcvkqp'' y qwrf ''pgxgt''ctkug0

Ceeqtf kpi "\q"c"uqo gy j cv'rguu"gz vtgo g"uegpctkq."y g"o ki j v'i tcpv'vj cv'vj g"etgcwttg"uj ctgu"qwt"pqvkqp"qh"j qrf kpi "
vtwg."dwv'i tcpv'cnuq"vj cv'vj g"tguv'qh"vj g"etgcwttgøu"eqpegr wcn'u{ uvgo "ku'uq"f khhgtgpv'htqo "qwtu'vj cv'v j cv'kv'j qrf u"
vtwg"ku'kpeqo r cvkdrg"y ksj "y j cv'y g"j qrf "vtwg0Vj ku'tgs wktgu'vy q"wpceegr vcdrg"ugr ctcvkqpu0Vj g"hktuv'ku'vj g"
ugr ctcvkqp"qh"vtwyj "cpf "vtcpurcvkqp"f kuewuugf "cdqxg0"Vj g"ugeqpf "ku"c"-f wcnkuo "qh"uej go g"cpf "eqpvgpv."qh"
qti cpk kpi "u{ uvgo "cpf "uqo gyi kpi "y ckkpi "vq"dg"qti cpk gf ø\*F cxkf uqp."3; 9613; : 6<3: ; +0"Vj ku"f wcnkuo "ecppqv"
dg"uwuvckpgf. "dgecwug"vj g"kf gc"qh"c"eqpegr wcn'uej go g"cpf "ku"cuuqekcvgf "rcpi wci g"qti cpk kpi "qt"hkvkpi "
gzr gtkgpeg"cf f u"pqvj kpi "vq"vj g"eqpegr v'qh'vj g'uej go ghrcpi wci g"dgkpi "j grf "vtwg0"Y g"ctg'vj gtghqtg'hcegf."ci ckp."
y kyj "vj g"pqvkqp"qh"c"vtwg"dw'wpvtcpurcvcdrg"rcpi wci g"y j kej "tgs wktgu"vj g"wpceegr vcdrg"ugr ctcvkqp"qh'vtwyj "cpf"
vtcpurcvkqp0

Y g"ctg"pqy "htgg"\q"o qxg"htqo "Mwt vøu 'wwgtcpeg"Gu't gi pgv 'xkc"qdugtxcvkqp"qh"qyi gt"ur gcngtu. "\q"r quwwrcyg"yi cv"  $\div \delta Gu$ "tgi pgvö"ku"c"Vtwg"I gto cp"ugpvgpeg"wwgtgf "d{"U"cv'vko g"Vkh"cpf "qpn{"kh"kv'ku"tckpkpi "pgct"U"cv'v6\*I qqmy c{" 3; :: 389="eh0F cxkf uqp"3; 9513; : 6357+0Qt. "S wkpgøu'nkpi wkuv'ku'htgg'\q"o qxg'htqo "qdugtxcvkqp"qh'kphqto cpwu" vq"r quwwrcvg"yi cv' $\div \delta I$  cxci ckö"ku"c"Vtwg"cnkgp"ugpvgpeg'wwgtgf "d{"U"cv'vko g"v'kh"cpf "qpn{"kh"yi gtg"ku"c"tcddkv'pgct" U"cv'v6\*I qqmy c{"3; :: 38:  $\pm 0$ Kv'o wuv'dg'uxtguugf "cv'yi ku"r qkpv'yi cv'dqyi "S wkpg"cpf "F cxkf uqp"uggndc"yi gqt {" y j kej "ku"j qrkuvke"\*Gxpkpg'3; ; 3343+<

dgkpi "cdrg"\q"kpvgtrtgv"c"ugpvgpeg"ku"pqv"ukorn("mpqykpi"\j g"crrtqrtkcvg"V/ugpvgpeg="kv"ku"mpqykpi "\j cv"uqog" ugpvgpeg"ku"\twg"khh"]kh "cpf "qpn("kh\_"uqog"eqpfkkkqp"qdvckpu"cpf"\j cv"\j cv"\j cv"ugpvgpeg"ku"eqorqugf"qwv"qh"rctvu" y j kej "hgcwtg"kp"

qyj gt 'ugpvgpegu'y j kej ''ctg''vtwg'khh''qyj gt ''ur gekhkgf ''eqpf kxkqpu''qdvckp0

P qweg"y cv'y ku'ceeqwpv'f qgu'pqv'ugr ctcvg'r tci o cweu'htqo "ugo cpweu'kp"y g"vtcf kwqpcn'o cppgt0Hgcwtgu'qh'y g" gpxktqpo gpv'ctg'dwknv'kpvq"y g"ceeqwpv."cpf "vtwy "ku'tgrcwkxk gf "vq"cv'ngcuv'c"wo g."c"ur gcngt "cpf "c"r nceg0' O gcpkpi "ku'pqv'eqpegkxgf "cu'uqo g'uqtv'qh'r tqr gtv{ "qt"ej ctcevgtknvke"y j kej "ugpvgpegu"-j cxgø "dwv'tcy gt "cu'vj g" wpks wg"tgrcwlqpuj kr "y j kej "qdvckpu"o qo gpvctkn{ "dgw ggp"ur gcngtu"cpf "j gctgtu."i kxgp"c"eqpvgzv'\*ugg"hwty gt" F cxkf uqp"3; : 8+0K/ecppqv'dg"tgr nkecvgf "cpf ."kp"y cv'ugpug. "kv'ecppqv'dg"vtcpurcvgf 0J qy gxgt."y g"y gqt { "cmqy u" wu'vq"wpf gtuvcpf "qpg"cpqy gt "cv'uqo g"dcuke"ngxgr0Vj ku'ku'cm'y g"pggf "vq"lwuwh{ "vtcpurcvkqp"cpf "f kuewuukqpu" cdqw'y g"xctkqwu'o gtkuu'qh'eqo r gwpi "vtcpurcvkqpu"\*F cxkf uqp"3; 9513; : 6<5; +<

Y j gp"cm'y g"gxkf gpeg'ku'kp." y gtg'y km'tgo ckp. "cu'S wkpg'j cu'go r j cukugf. "y g'\tcf g/qhhu'dgw ggp" y g" dgrkghu'y g"cwtkdwg'\q"c"ur gcngt "cpf "y g'kpvgtr tgvcvkqpu'y g'i kxg" j ku'y qtf u0'Dw'y g"tgo ckpkpi "kpf gvgto kpce{ "ecppqv'dg"uq'i tgcv'dw'y cv'cp{ "y gqt{ "y cv'r cuugu'y g'vguv'y km'ugtxg'\q"{ kgrf "kpvgtr tgvcvkqpu0

Ugg'cnuq< VTCPUNCVCDKNKV[\_0

#### Hwt yj gt 't gcf kpi

Dgplco kp'3; : ; ='F cxkf uqp'3; 95.'3; 96='Gxpkpg'3; ; 3='J qqmy c{'3; : : ='O cm mlâ t'3; ; 5='S wkpg'3; 82='T co dgti '3; : ; 0 MKT UVGP 'O CNO MLÒ T

## Cpvj qrqi kgu'qh'tt cpurc vkqp

C"\tcpurc\kqp"cpyj qrqi { "ku'c"eqrrge\kqp"qh'\tcpu'rc\yf "\yz\vu."qh\yp"rk\ytct{0'Vtcpurc\kqp"cpyj qrqi kgu'ctg'\xgt{" eqo o qp'kp'o cp{ 'eqwpvtkgu.'cpf 'kpf kur gpucdrg'kp''y g''uwxf { ''qh''vtcpurcvkqp''cpf ''rkvgtct { ''ewnwtg.''gxgp''kp''eqwpvtkgu'' y j gtg'y g{ "ctg'nguu'kp"gxkf gpeg0'kp'ur kg'qh'y ku. "tcpurc kqp"cpy qmi kgu'y gtg. "wp kn's wkg'tgegp vn{. 'r ctv'qh'c" -uj cf qy "ewnwtgø"qxgtmqmgf."d{"cpf"ncti g."d{"ewnwtcn'etkkeu."nkgtct{"j kuvqtkcpu."cpf"\tcpuncvkqp"uej qnctu" crkng0°Cp{"cwgpvkqp" yj g{"o ki j v"j cxg"dggp"chhqtf gf "y cu"f guwnqt{"cpf 'tcyj gt 'wpuqr j kuvkecvgf 0 Kp"tgegpv"{gctu."j qy gxgt."rkvgtct{"j kuvqtkcpu"y kyj "cp"kpvgtguv"kp"ewnwtcn"kuuvgu"j cxg"dgi wp"\q"wtp"yj gkt"cwgpvkqp" vq'\tcpurc\kqpu0\Qpg'\qh'\j g'o quv'gprki j vgpkpi "cpf "o go qtcdrg'y c{u'qh'\tcpuo kwkpi "ewnwtg'y kij kp'c'eqwpvt{."qt" qh'tcpuhgttkpi 'kv'kpvgtpcvkqpcm{.'ku'd{ 'o gcpu'qh'eqphi wtcvgf 'eqtrqtc.''vj cv'ku.''eqtrqtc'y j qug'eqpuvkwgpv' grgo gpvu'uvcpf 'kp''uqo g'tgrcvkqp''vq''gcej ''qvj gt''gkvj gt''kp''ur ceg'\*kp''c''dqqm''qt''cp''gzj kdkvkqp''j cm'hqt''gzco r rg+''qt''kp'' www g'\*kp''c''ugtkgu''qh''dqqmu''qt''r gthqto cpegu+0'Vj g''cttcpi go gpv.''vj g''eqphki wtckqp.''etgcvgu''c''o gcpkpi ''cpf ''xcnvg'' i tgcvgt"yj cp"yj g"uwo "qh"o gcpkpi u"cpf "xcnwgu"qh"yj g"kpf kxkf wcn'kxgo u"vcngp"kp"kuqncvkqp."cpf "vtcpuncvkqp" cpyj qmi kgu"ctg"ko r qtvcpv'o cpkhguvcvkqpu"qh"vj ku'r j gpqo gpqp0Hqt"gzco r ng. "cp"cpyj qmi { "qh"y qtnf "r qgvt { " go dqf kgu"cpf "r tqlgewi'y g"eqo r krgtøu"ko ci g"qh"y g"y qtrf øu"dguv'r qgvt { ."qt"qh"y g"r qgvt { "o quv'ej ctcevgt kuvke"qh" gcej "eqwpvt { "tgr tgugpvgf "kp" y g"cpyj qmi { 0°Cpf "y qwi j "y g"ugngevkqp" ku'r ctvn{ "f gvgto kpgf "d{ "y g"cxckrcdkrkv{ "qh" vtcpurc klapu'kp''y g'hcpi wci g''qh''y g''cpyj ami { .''kv'\gpf u'\a''uvcdkrk g.'hat''c''y j krg.''y g''ugpug''co api ''y g''t gegr vqt'' eqwpvt { øu'lpvgtguvgf 'tgcf gtu'qh'y j cv'eqpuvkwvgu'vj g'tgrgxcpv'r qgvt { ''qh'vj g'y qtrf 0 Y j gp"cuuguukpi "cpyj qmi kuvuø'cej kgxgo gpvu."c"f kuvkpevkqp"o wuv'dg"f tcy p"dgvy ggp"cp"gf kvqtøu"cpyj qmi {."y j gtg"

y j gr cuuguuspi cpy qiqi kuus cej igxgo gpvu. c i kuupevaqp o vuvag i tcy p agyy ggp cp gi kaqtau cpy qiqi {. 'y j gtg y i g'tcpi g''qh'ugngevlap'ku'iko kxgf ''aq''tcpurcvlapu''y cv'cntgcf { "gzkuv."cpf "c''tcpurcvqtøu''cpyi qiqi {."y j gtg''y g'tcpi g'' qh'ugngevlap'ku'iko kxgf ''aq''tcpurcvlapu''y g''tcpurcvqt 'ku''qt''j cu''dggp''cdng''aq'o cng0Cnyi qwi j "gzco r ngu'qh'y g''y q'' v{r gu''qh'cpyi qiqi { "o c{ ''nqan'xgt { ''uko krct.''y g{ "o c{ .''kp''hcev.''ugtxg''}

s wkse"f kthgtgpv'r wtr qugu'kp"vj g'kpvgt/"qt"kpvtcrkvgtct{"f {pco keu0Cp"gf kqtøu"cpvj qrqi {"tgugo drgu"cp"ctv" gzj kdkkqp. 'r tgugpvkpi "cu'kk'f qgu"c"eqphki wtcvgf "ugngevkqp"htqo "vj g"vqvcn'tgugtxqkt"qh'r gtvkpgpv'vgzw'kp"c" repi wei g. "y j gyj gt "tepurevgf "qt "pqv. "y j gtgeu "c "tepurevqtøu" ep j qrqi { "ku 'dqyj "ep "gz j kdkkqp "ep f "e "xgj kerg 'qh" vtcpuhgt </kv'gpreti gu'y g'uvqtg'qh'gzvcpv'\tcpurcvkqpu."y j gy gt'r tgo kgt'qt'tgr gcv'r gthqto cpegu0 Cpyj qrqi kgu'o crig'wr 'c'xctkgi cvgf 'eqtr wu'qh'xctkqwun( ''kkrgf 'eqrigevkqpu''y cv'ugtxg'ugxgtcri'r wtr qugu0Qpg'rcti g'' i tqwr "eqpukuvu"qh" y go cyke "cpyj qrqi kgu<"r qgo u"cdqw/uckrkpi ."uvqtkgu"cdqw/ecvu."gve0"kpvgpfgf"hqt"tgcfgtu"yjq"  $gplq\{ \text{"ikkgtcwtg"cdqw''y gkt'hcxqwtkg"uwdlgev0I gpgtcn'ikkgtct} \{ \text{"cpyj qnqi kgu."qp''y g''qyj gt''j cpf.''vq''r tqlgev''c'' left for the statement of th$ eqo r cev. "eqj gtgpv"ko ci g"qh"qpg"qt"ugxgtcn"hqtgki p"nkygtcwtgu"qt"qh"r ctvu"vj gtgqh "uwej "cu"i gptgu"qt"gr qej u0" Vjg{"fq"uq"rtgekugn{"dgecwug" yjg{"eqorn{"y kaj" y g"rtkpekrng" qh"eqphkiwtcvgf" eqtrqtc<" yjg{"jcxg" dggp"eqorkngf" hqmqy kpi "rtkpekr ngu"qh"s wcrkx{. "tgrtgugpvcvkxgpguu. "gve0"cpf "cttcpi gf 'hqt"kphqto cvkxg"qt"cguvj gvke"r wtr qugu. "qt" dqyi 0'Uqo g"cnuq"eqpvckp"kpvtqf wevkqpu. "eqo o gpvctkgu. "cpf "qyi gt 'htqpv'qt "dcem'o cwgt. "dw'gxgp"cpyi qmi kgu" f gxqkf "qh'uwej "o cvgtkcn'qhhgt "cwgpvkxg"t gcf gtu"ceeguu'vq "vj g"gxcnwcvkqpu'qt "kpvgtr t gvcvkqpu'vj g{ "go dqf {0'Hktuv." y ký kp"cp"cpý qmi {."ý g"eqo r qpgpv"r ctvu"ctg"tg/eqpygzwcnk gf."ý cv"ku."dtqwi j v"kpyq"tgrcykqpuj kru"kp"y j kej " yj g{"fq"pqv'uvcpf."qt"kp"y j kej "yj g{"uvcpf" iguu'engctn{."kp"yj gkt"eqpvgzvu'qh'qtki kp0"Ugeqpf."cp"cpyj qnqi {" tgrtgugpvu'c'uwd/eqtrwu'ugrgevgf'htqo 'c'y kfgt'eqtrwu'qh'y qtmu'\*vjg'vqvcn'rqvgpvkcm{'tgrgxcpv'eqtrwu+.'cpf'vjku' uwd/eqtr wu'uvcpf u'kp"c'u{pgef qej ke'tgrcvkqpuj kr 'vq'vj g'y kf gt"eqtr wu0'Vj g'r tgekug'pcwxtg'qh'vj ku'tgrcvkqpuj kr .'K0g0' gzcevn("y j kej "r ct vu"j cxg"dggp"ugrgevgf "vq"uvcpf "hqt"vj g"y j qrg. "o crigu"c"xgt ("kpvgtguvkpi "qdlgev"qh"uvvf {0 Cp"cpyj qmi { "qh" +y qtrf 'rkvgtcwtgøô yj g"o wrukrcvgtcn'cpyj qmi { 'y kj "yj g"y kf guv'r quukdrg "tcpi gô qdxkqwun( "j cu" pq"eqwpvgtrctv"co qpi "cpvj qmi kgu"qh"pqp/vtcpurcvgf "rkvgtcwtg0"Dwv"gxgp"c"dkrcvgtcn"cpvj qmi {ô qpg"vj cv" eqpvckpu'\tcpurc\kqpu'htqo "c'ukpi rg'hqtgki p'hksgtcwtg"/ku'ergctn{ ":dtqcf gtø'yj cp'cp{ "o qpqrksgtct { "cpyj qrqi { .'kp'' uq'hct'cu'kv'gzvgpf u'cp'kpxkcvkqp. 'cv'ngcuv'vq''y g'kphqto gf 'tgcf gt''y j q'mpqy u''y g'hqtgki p'hcpi wci g. ''vq''o cmg'' eqo r ctkuqpu0Kp"cffkkqp." yi g"o qvkxgu"cpf "etkgtkc"hqt"cpyj qmi kt kpi "qpgøu"qy p"rkxgtcwxtg" wuwcm{ "fkhhgt"htqo " yj qug'hqt "cpyj qmi k kpi "c'hqtgki p'rkxgtcwtg." y j gyj gt'kp'\tcpurcvkqp"qt'pqv0Cpf "yj g'r gtegkxgf 'tgrcvkqpuj kr " dgwy ggp 'rkwgtcwwtgu'ku. "cu'c'twrg." o qtg'i tcr j kecm ("tgr tgugpvgf"kp"cpvj qrqi kgu'vj cp'kp"vj g"eqpvkpwqwu'vgzv'qh" nkvgtct{"j kuvqtkgu0

Y j gpgxgt "tcpurckqp"cpyj qmi kgu"ctg"kp"tgrckxgn("y kf g"ektewrckqp"kp"c"i kxgp"eqwpxt {"eqo r ctgf" 'vq"kxu"gpvktg" tgugtxqkt "qh"vtcpurckqpu." 'y g"ewnwtcn'etkke"qt "tcpurckqp"j knytkcp"j cu"c"r ctvkewrctn("i qqf"qr r qtwpkx{"vq"uwf {"cp"ko r qtvcpv"cur gev"qh" y g"eqwpxt { øu"vtcpurckqp"ewnwtg0D{"o qpkqtkpi"ej cpi gu"kp" y g"dcrcpeg"dgw ggp" y g" kpet gcukpi "vqvcn't gugt xqkt "cpf" gcej "kpf kxkf wcn't gr gt vqt { ."kv"ku"r quukdrg" vq"cuuguu" y g"ej cpi kpi "r qukkqpu"cuetkdgf" vq"kpf kxkf wcn'tkgtcwtgu."cwj qtu"cpf "y qtmu."kp"t grcvkqp" vq" y g"ikxgtcwtgu"qh' y g"y qtnf 0"Uwej "c"eqo r ctkuqp" tgs wkt gu"f khhgt gpv"cr r tqcej gu."f gr gpf kpi "qp"y j gy gt"cp"cpyj qmi {"qh"÷y qtnf" r qgxt { ø"hqt"gzco r ng."kpenxf gu" r qgxt { "kp" y g"vcti gv"hkgtcwtg"qt"pqv0

Cpý qmi kgu'ecp'dg'cpcn(ugf "cv'ý g'hgxgnu'qh-"c+l'eqwpt {.'hcpi wci g."qt'i gqi tcr j kecn'tgi kqp="\*d+l'i tqwr u'qh" cwj qtu. "gr qej u'qt'i gptgu="e+l'kpf kxkf wcn'cwj qtu="cpf "\*f +'ukpi rg'y qtmu'Vtcpurcvkqp'cpý qmi kgu'kpenxf g'kp" cf f kklqp''y g'r ctcmgn'hgxgnu<"e3+l'kpf kxkf wcn'tcpurcvqtu="cpf "\*f 3+'ukpi rg''x cpurcvkqpu'OC v'gcej 'hgxgn'kv'ku'r quukdng" cpf 'o gcpkpi hwn'vq 'cum's wguxlqpu'uwej "cu<'Y j cv'ku''y g'r wtr qug'wpf gtn(kpi "'y g'eqo r krcvkqpA'Ku'kx.'hqt''gzco r rg." f qewo gpvct {"qt'f kf cevkeA'Ki''y g'eqo r krcvkqp'kphqto gf 'd{ "c'tgeqi pk| cdng'hkytct {"o qf gnA'Ctg''y gtg'uki pu''qh'' cuuwo gf 'hco kkctkx{."qh'c'ugpug'qh'ewnwtcn'uwr gtkqtkx{."qh'c'r tko ctkn{ 'ko ci qmi kecn'kpytguvA'F q'y gug'uki pu'' eqpvtcf kev'gcej "qy gt."cpf 'kh'uq."y j {A'Vj g'cpcn(uku'u) qwrf 'cnuq."y j gtgxgt''r quukdng."dg'uwr r ngo gpvgf 'd{ "cp" gps wkt {"kpvq''y g'ektewo uvcpegu''qh''y g'o cmkpi 'qh'y g'cpy qmi {."ukpeg'gzenvukqpu."hqt 'kpuvcpeg."uqo gxko gu'' yuvkh{"pqv'uq''o wej 'vq''y g'cpy qmi kuxu'xcnxgu''qt''r gtegr vkqpu''qt''q'c''tcpurcvqt/cpy qmi kuxu'umknu."dw'vq'' eqpf kxlqpu''qh''eqr {tki j v.'cxckrcdng'hwpf u.'kpvgthgtgpeg'htqo 'vj g'r wdrkuj gt."qt''r qrkxkecn'egpuqtuj kr 0'Dw'y j gyj gt'' uwej 'kpukf g'kphqto cvkqp'ku'cxckrcdng''qt''pqvô cpf 'kk'ku''r ctvkewctn( 'j ctf 'vq''qdvckp''kp''y g'hkgrf 'qh'qrf gt''xcpurcvkqp'' cpyj qmi kguô yj g'tgugctej gt''ecp''cny c{u''

f grkpgcvg''y g'ko ci g''qh''qpg''qt''ugxgtcrl'rkgtcwtgu."eqpegpvtcvkpi "gkyj gt''qp''gcej ''rkgtcwtg''kp''kuqrcvkqp."qt''qp''y g'' tgrcvkqpuj kr u''kp''y j kej ''y g{ ''uvcpf ''q''gcej ''qy gt''cpf ''vq''y g''cti gv''rkgtcwtg0

Cpyj qrqi kgu. "o quvn{ "qh'pqp/tcpurcvgf "rkvgtcwtg."ctg"c"o ckpuvc{ "qh'f gdcvg"cdqw''vj g"ecpqp0'Eqpenwukqpu"ctg" pqto cm{ 'f tcy p'htqo ''y g'r ctu'r tq''qvq''\* ir ctv''q'y j qrgø+'tgrcvkqpuj kr ''dgwy ggp''ugrgevgf 'eqtr wu''cpf ''qvcn' tgrgxcpv'eqtr wu. 'y kij qw'tgi ctf "vq" i g'tgrcvkqpuj kr "dgw ggp" i g'ugrgevgf "eqtr wu'cpf "i g'tgo ckpkpi "r ctv0" Vj ku"  $tgnc wlqpuj kr.''j qy gxgt.''o c \{ ''dg''qh''qpg''qh''y tgg''v \{ r gu''htqo ''y j kej ''eqpenwukqpu''o c \{ ''cnuq''dg''f tcy p < ''y g''ugnge wgf'' \} \\$ eqtrwu'ku'o gcpv'\q'uwrrncpv'yj g'tgo ckpf gtô rctu'eqpvtc'tgukfwwo'\*÷yj g'rctv'ci ckpuv'yj g'tguvø⊨''yj g'ugngevgf'rctv' ku'o gcpv'\q''rgcf ''y g''tgcf gt''\q''cp''gplq{o gpv'qh''y g''tgo ckpf gtô \( rctu''cf ''t gukf wwo '\*\ddotsy g''r ctv'\qy ctf u''y g''tguvø\ddots'' yj g'tgrcvkqpuj kr ''dgwy ggp''yj g''ugrgevgf 'r ctv'cpf ''yj g'tgo ckpf gt''j cu''pqv''dggp''hkzgf ''c''r tkqtk0'C wgpvkqp''vq''yj g''rcwgt'' yj tgg'tgrcvkqpuj kr u'j grr u'vq'f kuvkpi wkuj 'cpyj qrqi k∤ kpi 'htqo 'f khhgtgpv'yj qwi j 'tgrcvgf 'cevkxkkgu'cu'hqrmqy u0 Vj g"-r ctv'ci ckpuv'vj g'tguvø'tgrcvkqp"ej ctcevgtk gu'vj g'vtwg"ecpqp0"Vj g"etkvgtkqp"hqt"kpenwukqp"ku'cwvj gpvke" kpur ktcvkqp"qh"y j cvgxgt"mkpf 0"Vj g"f kuvkpevkqp"ku"pqv"dcugf "qp"c"unkf kpi "uecng"qh"dgvvgt"cpf "dguv"qt"nguu"cpf "o qtg" tgrtgugpvcvkxg."dw/qp"c"ergctew/{gu'qt'pq"fgekukqp."kp"uwej 'hkgrfu"cu'tgrkikqp."\gzwcrletkkekuo."cpf"hqrmqtg< cnj qwi j "j g'J qn( "Dkdrg'hqqmu'hkng'cp"cpvj qmi { "qh'y tkkpi u'd { 'ugxgtcn'j cpf u'r tqf wegf 'cv'xctkqwu'\ko gu. 'kv'ku'c" ecpqp"qh"y tkklpi u"f kurkpi wkuj gf "htqo "vj qug"pqv"kpenwf gf "d{"vj g"etksgtkqp"qh"vtwg"kpur ktcvkqp0Cnj qwi j "vj g" dkdrkecn'ecpqp"xctkgu"urki j vn{ "kp" ko g"cpf "dgw ggp"f gpqo kpcvkqpu." vj gtg"ku"pq"s wguvkqp" vj cv"kv"eqpvckpu"cm" y tkłoji u'vj qwi j v'vq"dg"vj g"cwoj gpvle"Y qtf "qh"I qf 0'D{ "cpcmqi { ."vj g"cwoj gpvle"y qtm"qh"c"ugewrct "cwoj qt"ku"ecmgf ." hqt"gzco r ng."-yi g"Uj cmgur gctg"ecpqpø'cpf "v{r kecm{ "kpenvf gu"c"y tkxgtøu"eqo r ngvg"y qtmu0Kp"c"tgncvgf "ugpug." yj gtg'ku'yj g'':hqmmqtg''ecpqpø''eqortkukpi ''cm'y qtmu''eqpukf gtgf ''vq''dg''qh''cwyj gpvke''hqmmlkpurktcvkqp0'Kp''yj ku'' gzco r ng. 'y gt g'engt keu0

F kthgtgpv'kp'hqto cvkqp''dw'uko kret 'kp'tguwn'ku'y g'uq/ecmgf 'Cngzcpf tkpkcp''ecpqp<'y g''ugngevkqp''qh''÷ercuukecno'' y qtmu'kpvgpf gf ''vq''tckp''y g'tgcf gtøu'vcuvg''cpf ''vq''f grko kk'y g''hkgrf ''qh''ngi kko cvg''rkvgtcwtg0J kurqt { 'j cu'uj qy p'' y cv'kk'vcngu''cp''ghthekgpv''ci gpe {ô cp''cecf go { ''qt''c'uvcvg''dqctf ô vq''r qrkeg''y g''ecpqp''qh''rkvgtct { 'twrgu0'Uvej ''÷r ctv'' ci ckpur'y g''tguvo''tguvtkevkqpu''cnq''cr r n{ .''d { ''cpf ''rcti g.''vq''\*tcpurcvkqp+''cpy qmi kgu''wpf gt''vqvcrkctkcpkuo 0'Kp'' vqvcrkctkcp''tgi ko gu''cpf ''wpf gt''cwj qtkkctkcp''gf wecvkqpcn'u{ uvgo u.''y g''tguvtkevkqpu''ctg''gzvgpf gf ''vq''eqmgevkqpu''qh'' o qf gn''tcpurcvkqpu''cpf ''vq''cpy qmi kgu''hqto ''ugo u.''y g''tguvtkevkqpu''ctg''gzvgpf gf ''vq''eqmgevkqpu''qh'' o qf gn''tcpurcvkqpu''cpf ''vq''cpy qmi kgu''hqto ''ugo u.''y g'tguvtkevkqpu''ctg''gzvgpf gf ''vq''eqmgevkqpu''qh'' o qf gn''tcpurcvkqpu''cpf ''vq''cpy qmi kgu''hqto ''c''ugwf q''ecpqp''f wg''vq''y g''ho kkgf ''tgcf kpi ''y cv'ku'r quukdng''f wtkpi ''c''uguukqp.''cpf ''y g''kpurtwevqt''ku''rkngn( ''vq''wug'' y g''cpy qmi { ''kp''y c { u'y j kej ''y km'y j gv'y g''uwf gpwo''cr r grkvg''hqt''y g''y qtmu''y cv'f q''pqv'hqto ''r ctv'qh''y g'' ugrgevkqp.''y wu''cr r n{ kpi ''y g''t tkpekr ng''qh''÷r ctv'vqy ctf u'y g''tguvo'

Vj g'hcwgt''r tkpekr ng'j cu'dggp''gzr rlekn( 'hwduetkdgf ''vq''d{ 'hqo g'\*tcpurcvkqp+''cpvj qmi knu0'Vj g'hgrgevgf 'hnqy gtu." yj g{ 'hc{.'ctg'kpvgpf gf ''vq'ngcf 'yj g'tgcf gt''vq''yj g'i ctf gp'y j gtg''yj g{ 'j cxg''dggp''ewngf 0'Qvj gtu'uggo ''vq'j cxg'' cf j gtgf ''vq''k'ko r rlekn(0'Wpnguu''yj gtg'ku''gxkf gpeg''vq''yj g''eqpvtct{.'tgugctej gtu''ctg''y kug''vq''cuuwo g''cp''qr gp'' tgncvkqpuj kr ''dgwy ggp''yj g''ugngevgf ''eqtr wu''cpf''yj g'tgo ckpf gtô c''tgncvkqpuj kr ''yj cv'o c{ ''ej cpi g'htqo ''qpg''gf kkqp'' vq''yj g''pgzv0

Hlpf kpi u'ltqo "y g'lf qo ckp"y j kej "j cu'luq "hct "dggp"o quv'y qtqwi j n{ "tgugctej gf ."o wnkrcvgtcn'cpy qmi kgu'qh'xgtug" vtcpurcvlqpu'lp'I gto cp"\3: 7263; 37+. "hwt y gt "kpenwf g" y g'hcev'y cv'y g" \{ r g''cpf "kpvgpuk\{ "qh''cpy qmi k kpi " f gr gpf "qp" y g's wcnk\{ "cpf "uvcdkrk\{ "qh'lpvgtpcvkqpcn'eqpvcevu."cu'y gm'cu'qp"etquu/ewnwtcn'r gtegr vkqpu'cpf " gzr gevcvkqpu0\for r qtvcpv'hcevqtu'kpenwf g" y g'tgeqi pkkqp"qh'y g'ngcf kpi "tqrg"qh'c"eqwpvt \{ "kp"rksgtcwtg"cpf "ewnwtg=" ku'r qnkskecn'cpf "geqpqo ke" y gki j v='uj ctgf "r gtegr vkqp"qh" y pke"emugpguu'qt "f khrtgtgpeg="r qnkskecn'eqqr gtcvkqp"qt" tkxcrt \{='tgrki kqwu'chhlpkskgu'qt"f kurkngu="cpf "cp"cpy qmi knvou'rkpi wknke"cpf "ewnwtcn'eqo r gvgpeg0\text{Eqo r krgtu'qh" cpy qmi kgu'kpenwf g'uej qnctu."r tqhguukqpcn'cpy qmi knvou'rkpi wknke"cpf "r qgvu'\so quvn\{ "hqt "dkrcvgtcn'cpy qmi kgu+" vtcxgmgtu."ko o ki tcpvu."ur gengtu'qh'I gto cp"rkxkpi "cdtqcf."o quvn\{ "dw'pqv'gzenwukxgn\{ "o cng0 Vj g"f kxgtukx\{ "qh'hcevqtu'cpf "kpf kxkf wcnı'ceeqwpvu'hqt" y g'hcev'y cv'y j gtgcu'mpi /tcpi g'tgi wctkskgu" \*f gxgmr o gpv."r tqi tguu+'f q'pqv'"

gzkıv. 'kı'kı'r quukdıg' 'vq'f kuegtp'f kıvkpev' 'gpf gpekgu. 'dcugf. 'hqt' 'yj g'o quv'r ctv. 'qp'dkıcvgtcıle wınvıtcılır cwgtpu0'Hqt" gzco r ng. "d{ "3: 72." 'y g'hco krkctkv{ "qh'I gto cp"tgcf gtu'y ky "Dtkkuj "r qgvt { "y cu'uwej "cu'vq"r gto kv'cpyj qnqi kuvu'vq" tghrgev. 'kp''y gkt''ej qkegu'cpf "cttcpi go gpvu. ''y g'r qgvuø'kpf kxkf wcn'ectggtu. 'y j gtgcu'cpyj qrqi k kpi ''qh'' Uecpf kpcxkcp"cpf "I wpi ctkcp"r qgvt { 'y cu'r tqo r vgf "d { 'f khhgtgpv."ko ci qmi kecn'r gtegr vkqpu0'Uvcwpej n( " Rtqvguvcpv'cpyj qrqi kuvu'j cxg'dggp'hqwpf '\q'f gpqwpeg'r qgvt { 'kp'Tqo cpeg'hcpi wci gu'hqt'kw'Ecyj qrke'' dcemy ctf pguu'cpf '\q'tguxtlev'ugrgevkqpu'\q'yi g'o kpko wo 'tgs wktgf 'd{ 'j kuvqtkecn'f qewo gpvcvkqp0'Kv'ku'y qtyj " pqvkpi "vj cv'uwej "f kxgtug"o qvkhu'ecp'eq/qeewt kp'c'ukpi ng'cpvj qnqi {øu'-f ggr 'uvtwewtgø'i nquugf 'qxgt'd{ 'cp'' crrgctcpeg'qh'j qo qi gpgkv{ ''qh'\tgcvo gpv'etgcvgf ''d{ ''c'\wpkhqto '\cdrg''qh'eqpvgpw0 Kp''y g'eqtr wu'uwf kgf. "c'Gwtqegpvtke"r gtur gevkxg"r tgf qo kpcvgu'f gur kg'c'o ctngf 'kpvgtguv'kp'i gqi tcr j ke."  $\textbf{n'pi wkuwle.''cpf''pcwlqpcn'f kxgtukv} (0 \textbf{V'j g''ugv''qh''o clqt''rkxgtcwxtgu''tgrtgugpvgf''kp''cpvj qmi kgu''qh''y qtnf''r qgvt \{ \textbf{m'vcwxtgu''tgrtgugpvgf'' kp''cpvj qmi kgu''qh''y qtnf''r qgvt \} (1 \textbf{m'vcxxtgu''tgrtgugpvgf'' kp''cpvj qmi kgu''qh''y qtnf'' kgu''qh''y qtnf''y qt$ tgo ckpu'tgrcvkxgn( 'uvcdrg0Nkgtcwtgu'vj cv'o c{ 'dg'eqpukf gtgf 'o kpqt'htqo 'c'Gwtqr gcp'r gtur gevkxg'ctg'htgs wgpvn( " kpenwf gf "kp"y c{u"y j kej "uwi i guv"cp"cy ctgpguu"qh"f kuvkpev"v{r gu"cpf "f gi tggu"qh"qyj gtpguu0Dw"y j gyj gt "o clqt"qt" o kpqt."pcvkqpcn'ugrgevkqpu'\gpf "\q"dg"f qo kpcvgf "d{ "c"ukpi rg"r qgv."c"hgcwtg'yj cv'ku't grcvgf "\q"pkpgvggpyj /egpwt{ " j kgtctej kecn'pqvkqpu''qh'r tkpegu''qt''o qpctej u''qh'r qgvt{0F gur kxg''yj gug''cpf ''qyj gt''dtqcf ''vgpf gpekgu.''gcej '' cpyj qmi {"j cu'kwu'qy p'f kuvkpevkxg'r tqhkrg="cpf" {gv'kv'ku'r quukdrg' \q'f kuvkpi wkuj "o qf gnu'qh' cpyj qmi kgu0'V j g'o quv' uvtknikpi "o qf gn'ku' 'y cv'qh' I O Lej gttøu' D kaf gt uc c nif gt "Y gnarkygt c wat "\*Rkewtg" I cngt { "qh' Y qtnf "N kygtcwtg+"qh' 3: 6: " \*5tf 'tgx0'gfp.'3::667+="kxu'i gqi tcrj kecn'cttcpi go gpv'gz"qtkgpvg"rqgukc"\*+rqgvt{"htqo "vj g'Gcuvø+'y cu'ko kxcvgf" d{"y g"pwo gtqwu"qy gt"cpy qrqi kuvu"y j q"qti cpk gf "y gkt"ugrgevkqpu"d{"i gqi tcr j kecrlr tkpekr rgu0 Cnyi qwi j ''yi gug'hkpf kpi u'ctg'dcugf ''qp''c'eqtr wu''qh'ugxgtcn'j wpf tgf ''cpyi qnqi kgu. ''uqo g''qh''yi go ''dkncvgtcn''yi g{ '' uj qwrf 'pqv'dg'i gpgtcnk gf 'wpetkkecm(0'Vj g{ 'ecp.'j qy gxgt.'ngi kko cvgn( 'ugtxg'cu'c'uqwteg'qh'j {r qvj gugu'hqt" qyj gt'f qo ckpu0

# Hwt yj gt 'Tgcf kpi

Guuo cpp''3; ; 4='Guuo cpp''cpf 'Htcpm''3; ; 2='Guuo cpp''cpf 'Uej ò pkpi ''3; ; 8='Htcpm''cpf 'Guuo cpp''3; ; 2='I 3/4mg''3; ; 2='I wn{c''cpf 'Nquucw''3; ; 6='Mkwgn''3; ; 7='Nghgxgtg''3; ; 4c<'3466590

CTO RP 'RCWN'HTCP M

# Cunqekcvkqp'kpvgt pcvkqpcrg'f gu'kpvgt r t³ vgu'f g'' eqphgt gpeg'\*CKE+

Vj g"j wi g"r tqrklgtcvkqp"qh"eqphgtgpegu "cpf "j gpeg"kpvgtr tgvgtu. "f wtkpi "vj g"{ gctu"ko o gf kcvgn{ "hqmqv kpi "Y qtrf "Y ct"Vy q"r tqo r vgf "ecmi"htqo "r tcevkkqpgtu"hqt"cp"qti cpk cvkqp"q"tgi wcvg"y g"kpvgtr tgvkpi "r tqhguukqp0' Eqpugs wgpvn{.'kp"3; 75 "CKE "\*vj g"Cunqekcvkqp"kpvgtpcvkqpcrg"f gu"kpvgtr t³ vgu"f g"eqphgtgpeg."qt"kpvgtpcvkqpcri" Cunqekcvkqp"qh"Eqphgtgpeg "kpvgtr tgvgtu+"y cu"hqwpf gf "kp"Rctku="ku"j gcf s wctvgtu"j cxg"ukpeg"o qxgf "vq"I gpgxc0 Vj g"r wtr qug"qh"CKE."cu"ucvgf "kp"ku"Ucvwygu."ku":>q"f ghkpg"cpf "tgr tgugpv"yj g"r tqhguukqp"qh"eqphgtgpeg" kpvgtr tgvgt. "vq"ko r tqxg"kx "gur gekcm{ "d{ "gpeqwtci kpi "vtckpkpi "cpf "tgugctej ."vq"uchgi wctf "yj g"kpvgtguvu"qh"ku" o go dgtu"cpf "vq"ugtxg"kpvgtpcvkqpcrieqqr gtcvkqp"d{ "f go cpf kpi "j ki j "r tqhguukqpcriuvcpf ctf u"qh"vj go ø0O qtg" vj cp"hqtv{ "{gctu"qp. "CKE "tgo ckpu"y g"qpn{ "y qtrf y kf g"dqf { 'tgr tgugpvkpi "yj g"kpvgtguvu"qh"eqphgtgpeg" kpvgtr tgvgtu0Nkng"r tqhguukqpcricunqekcvkqpu"qh"rcy {gtu"qt "f qevqtu."kvj cu"uqwi j v'qxgt"yj g"{gctu"vq"wr j qrf" rtqhguukqpcrilvvcpf ctf u"qh"dgj cxkqwt"cpf "r gthqto cpeg."cpf "j cu"r tqxkf gf "ugtxkegu"cpf "c"uwr rqtvkpi "htco gy qtrm' hqt"ku"o go dgtu0Vj ku"j cu"kpenxf gf "ur gcnkpi "hqt"kpvgtrtgygtu"kp"pgi qvkvkqpu'y kyj "rcti g"go r mq {gtu."r ctvkewctn{ "kvgtpcvkqpcrilqti cpk cvkqpu."eqpegtpkpi "r c{"cpf "y qtmkpi "eqpf kkqpu0} O go dgtu"qh"C KE "ctg"gzr gtkgpegf "eqphgtgpeg"kpvgtr tgvgtu"y j qug"cr r necvkqpu"vq"lqkp"yj g"Cunqekcvkqp"j cxg" dggp"cr rtqxgf "d{"cp"Cf o knukqpu"Eqo o kvgg"hqmy kpi "cp"cunguuo gpv'qh'y gkt"hpi wkrke"cdktk{"cpf" rtqhguukqpcrileqo r gvgpeg0Kp"3; ; 8."o go dgtuj kr "hki wtgu"uvqqf "cv"crrtqzko cvgn{ "5222"kpvgtrtgygtu"kp"qxgt"92"

eqwpvtkgu0[ gv."hqt"j kunqtkecn'tgcuqpu."vj g"Cuuqekcvkqp"j cu'tgo ckpgf "wpo kuncmcdn{"Y guvgtp"Gwtqr gcp"kp"hqeww< tqwi j n{"j cnh'qh'kun'o go dgtu'ctg"dcugf "kp"Dtwuugn."I gpgxc."Nqpf qp"cpf "Rctku='vj gtg"ctg"ctqwpf "ukz "vko gu"cu" o cp{"kp"Rctku"cmpg"cu"kp"vj g"y j qrg"qh'Chtkec0Cdqwv92"r gt"egpv'qh'o go dgtu'ctg"hgo crg."y j kej "tghrgewu'ncktn{" ceewtcvgn{"vj g"i gpf gt"f kuntkdwkqp"kp"vj g"r tqhguukqp"cu"c"y j qrg0O go dgtuj kr "uvckunkeu"ctg"cmq"kpf kecvkxg"qh"vj g" hcev'vj cv'Ckke "ku'r gtegkxgf "vq"dg"r tko ctkn{"qhttgrgxcpeg"vq"htggrcpeg"kpvgtr tgvgtu."y j q"cv'cm'gxgpwi'i tgcvn{" qwpwo dgt"vj gkt"kp/j qwug"eqrngci wgu<"qpn{"cdqwv'9"r gt"egpv'qh'o go dgtu"ctg"uvchh'kpvgtr tgvgtu0'Vj g"y qtmkpi " rcpi wci gu"qh'kpf kxkf wcm'ctg"ercuukhkgf "kpvq"vj tgg"ecvgi qtkgu."ecmgf ":Cø";Dø'cpf ":Eø"vj g"hktuv'y q"dgkpi " rcpi wci gu"qh'y j kej "j g"kpvgtr tgvgt"j cu"pcvkxg"qt"pgct/pcvkxg"eqo o cpf "cpf "hpvq"y j kej "j g"qt"uj g"y qtmu="vj g" vj ktf "c"rcpi wci g"qh'y j kej "vj g"kpf kxkf wcn'j cu"c"eqo r rgvg"wpf gtuvcpf kpi "cpf "htqo "y j kej "j g"qt"uj g"y qtmu="vigg" eQP HGTGP EG'CP F "UKO WNVCP GQWU'RP VGTRTGVKP I +0

Uttwewtcm(."'y g'Cuuqekckqpøu'uwr tgo g'uwcwwqt{"dqf{"ku''y g'Cuugo dn{."y j kej "o ggwu'dkgppkcm{"cpf "ku''qr gp''q" cm'o go dgtu0Kp''dgwy ggp'Cuugo dnkgu."chhcktu'ctg'o cpci gf "d{"'y g'Eqwpekn''y j kej "eqo r tkugu''y g'Rtgukf gpv." Vtgcuwtgt "cpf "f grgi cvgu'htqo "'y g''44'Tgi kqpu0CKKE"qr gtcvgu'kp"c"pwo dgt"qh'f khhgtgpv'ugevqtu."uwej "cu''y g" Gwtqr gcp'Eqo o kuukqp."'y g''Wpksgf "P cvkqpu."cpf "xctkqwu'pqp/i qxgtpo gpvcn'qti cpk cvkqpu="r qnke{"r tqr qucnu''ctg" r whqty ctf "d{"'xctkqwu''ur gekchuv'eqo o kwggu''cpf "y qtmkpi "i tqwr u0Kp"cf f kkqp"vq"cp"cppwcn'F ktgevqt{"qh'' o go dgtu."CKKEøu'r wdnkecvkqpu''eqo r tkug''uqo g'hqt'kpvgtpcn'eqpuwo r vkqpô uwej "cu''c''s wctvgtn("Dwngvkpô cpf" qyi gtu'kpvgpf gf 'hqt''y g'r wdnke0

CKKE øu'cej kgxgo gpwi'f wtkpi ''y g'hktuv'hqtv{ "{ gctu'qh'kwu'gzkuvgpeg'y gtg'eqpukf gtcdrg0'Kv'qdvckpgf ''y kf gur tgcf " tgeqi pkkqp'qh'eqphgtgpeg'kpvgtr tgvgtu'cu'vqr/hrki j v'rkpi wkuvu'r tqxkf kpi "c'\twn{ "r tqhguukqpcrl'ugtxkeg''cpf ''dqwpf " d{ "c'\uvtkev'eqf g'qh'gvj keu0'Kv'y qtrngf ''enqugn{ ''y kj ''guvcdrkuj o gpwu'\tckpkpi ''kpvgtr tgvgtu'uq''cu'\q''gpuwtg''c'hrqy ''qh'' y gm's wcrkhkgf ''gpvtcpwu'kpvq''y g'r tqhguukqp0'Kv'cnuq'j grr gf 'kortqxg'y qtrnkpi ''eqpf kkqpu.''hqt'kpuvcpeg''d{ ''cfxkukpi '' y g''KUQ''qp''y g''f guki p''qh'kpvgtr tgvgtuø'dqqy u.''dqyj ''hkzgf''cpf''o qdkrg0

Kpgxkcdn(."cu"cp"qti cpk| cvkqp"o cwtgu"cpf "i tqy u"kp"uk| g"yj g"hqewu"qh"ku"cevkxkkgu"uj khu0Cnj qwi j "f kwewukqpu" ctg"wpf gt"y c{"cdqwi"yj g"r quukdktk{ "qh"cmqy kpi "CKKE øu"tgi kqpcn"i tqwr u"o qtg"cwqpqo {."kv"ku"wprkmgn("yj cv"cp{" f gekukqpu"vcmgp"y knillgqr ctf k| g"yj g"Cuuqekcvkqpøu"kpvgtpcvkqpcn"f ko gpukqp0CKKE "ku"pqy "nguu"kpxqnxgf" yj cp" rtgxkqwun("kp"pgi qvkcvkpi "tcvgu"qh"r c{."dwv"kp"tgegpv"{gctu"kv"j cu"guvcdrkuj gf "rkpmu"y kyj "qyj gt"dtcpej gu"qh"yj g" kpvgtr tgvkpi "r tqhguukqp" hqt"gzco r ng"y kyj "eqwtv"kpvgtr tgvgtu"cpf "uki pgf "ncpi wci g"kpvgtr tgvgtu+"cpf "y kyj " rtcevkxkqpgtu"kp"egpvtcn"cpf "Gcuvgtp"Gwtqr g0Dqvj "qh"vj gug"f gxgmqr o gpvu"kpf kecvg"c"dtqcf gpkpi "qh"CKKEøu" j qtk| qpu0Vj g"ej cmgpi g"hcekpi "yj g"Cuuqekcvkqp"y km"dg"j qy "vq"ugtxg"yj g"kpvgt guwu"qh"kpvgtr tgvgtu"yj q"j cxg" gzvtgo gn("f kxgtug"i gqi tcr j kecn"uqekcn"cpf "rkpi vkurke"dcemi tqwpf u"y j knv"eqpvkpwkpi "vq"cr r gcn"vq"kwu"qtki kpcn" eqpuvkwype{."pco gn("eqphgtgpeg"kpvgtr tgvgtu"r tko ctkn("kp"yj g"y guvgtp"y qtnf 0 Ugg"cnuq<

H F | TCVKQP "KP VGTP CVKQP CNG"F GU"VTCF WE VGWTU"\*HKV+0

ICP GV'CNVO CP

# Cwwq/vt cpurc vkqp

Vj g'vgto u'cwwy/vtcpurcvkqp"cpf "ught/vtcpurcvkqp"tghgt"vq"vj g'cev'qh'vtcpurcvkpi "qpgøu'qy p'y tkkpi u'qt"vj g'tguww" qh'uwej "cp"wpf gtwnkpi 0°C 'hcktn( "eqo o qp"r tcevkeg"kp"uej qrctn( "r wdrkuj kpi ."cwq/vtcpurcvkqp"ku"htqy pgf "wr qp"kp" nksgtct { "uwxf kgu0°Vtcpurcvkqp"uej qrctu"vj go ugrxgu"j cxg"r ckf "rkwrg"cwgpvkqp"vq"vj g'r j gpqo gpqp."r gtj cr u'dgecwug" vj g{ "vj qwi j v'kv'vq"dg"o qtg"cmkp"vq"dkrkpi wcrkuo "vj cp"vq"vtcpurcvkqp"r tqr gt0°Kpf ggf ."j kuvqtkecm( "ur gcmkpi ."cwq/vtcpurcvqtu"j cxg"qhvgp"dggp"y tkvgtu"y j q"f kf "pqv'lwuv'o cuvgt."dw'ej qug"vq"etgcvg"kp"o qtg"vj cp"qpg"rcpi wci g0' Vj gkt"eqpuekqwu"cy ctgpguu"qh'vj ku"qr vkqp"ecppqv'dg"qxgtuvcvgf <eqpvtct { "vq"r tcevkeg"f wtkpi "vj g'O kf f rg"Ci gu." y j gtg"rcpi wci g"ej qkeg"y cu"hktuv"cpf "hqtgo quv"c"o cwgt"qh'i gptg."tqo cpvke"yj kpmkpi "j cu"hcxqwtgf "ugrhgzr tguukqp" cmpi "rkpi wknke"cpf "pcvkqpcn'rkpgu0°Grk cdgyj "Mrquv("Dgcwlqwt"tki j vn("uvcvgu"yj cv'y j krg"÷dkrkpi wcnu"htgs wgpvn(" uj khv"rcpi wci gu"

# Nepi wei g'wy'cpf 'ewkwf g

Cu'hct'cu'y g'f kutklwkqp'qh'y g'tgur gevkxg'rcpi wci gu'kı'eqpegtpgf.'c'hgy "s wgukqpu'o c{"j grr "q'hrguj "qw'y g" r qtvtck'qh'c'r ctvlewrt'ugrh'vtcpurcvqt"qt'i tqwr "qh'ugrh'vtcpurcvqtu0Ki'y g'r tcevleg'u{uvgo cvle'qt'hlo kvgf "vq'c" ulpi ng'gzr gtkgpegA'Ctg'y g'cwj qtu'eqpuvcpv'kp'y gkt'ej qleg'qh'uqwteg'cpf "cti gv'rcpi wci gu'\*cu'y kyj ":tgi kqpcnø" y tkgtu'y j q'vtcpurcvg'y gkt'y qtm'kp'qtf gt'vq'tgcej "c'rcti gt'cwf kgpeg+"qt"f q''y g{ 'htggn("uy kej "f ktgevkqpuA'Ki''y g'' pcvkxg''vqpi wg'wugf 'hqt'vtcpurcvkqpu.'kp'eqo r nlcpeg'y kyj "kpvgtpcvkqpcn'eqpxgpvkqpu'hqt'y g'vtckpkpi "qh'vtcpurcvqtu" \*ugg'FKTGEVKQP'QH'VTCPUNCVKQP+A'Qt'ku'kv.'tcyj gt.'tguvtlevgf "vq'y g'y tkkpi "qh'qtki kpcn'vgzwi'\*cu'tgs wktgf" d{''tqo cpvke'kf gqmi {+A'F qgu'y gtg'crrgct'vq'dg'c'f kxkukqp'qh'rcdqwt'dgwy ggp'rcpi wci gu."qpg'rtgf qo kpcpvn(" dgkpi "wugf 'hqt'-j ki j 'rkvgtcwtgø'y g''y g''y gt'hqt'r qrwct'i gptguA'Cv'y j kej "r qkpv'kp'y gkt'ectggtu'f q'y tkvgtu'wtp'vq'' y g'r tqeguu'qh'cwq/vtcpurcvkqpA'Ctg'ugeqpf "xgtukqpu'rtqf wegf "\*c'nqpi "vko g+"chvgt'y g'htuv'xgtukqpu'j cxg''dggp'' r wdrkij gf "qt''ctg''y g{ "qp''cp''gs wcn'hqqvkpi 'htqo "c''ej tqpqmi kecn'r qkpv'qh'xkgy .'Ngoku''y gkt''f gxgmr o gpv'o qtg''qt'' nguu'uko wncpgqwuA

J cxkpi "f gygto kpgf" j qy "yy q"qt" o qtg"hcpi wci gultgncy" q"gcej "qyʻgt." yʻg" tkenkgun's wgurkqp" tgo ckpul'q" dg" vcemgf  $\langle y'j' \rangle$  ("f q"uqo g"y tkygtultgr gcvlp" c"ugeqpf "hcpi wci g"yʻj cv"; cul'cntgcf {"dggp"uckf" lp" yʻgkt" r tgxkqwul'y qtmA" F kuuc kulhce kqpp" cmpg" y kyʻ "gzkurkpi "tcpunc kqpul" ctf n("gzr nckpul" ej qkeg" yʻcv." q"uqo g"cv'hgcuv." uggo u"cu'cduwtf" cul" tgf qkpi "c"r ckpukpi "kp"c" f khlgtgpv'uj cf gg\*F gxcttkgwz" 3; ; 5<37+0Cr ctv'htqo "o cygtkcnleqpf kakqpul" gzkng." o cttkci g." hkpcpekcnli ckp+" yʻgtg" o wuv'dg" uqo g"wnygtkqt" o qukxg" yʻcv'j gm u"y tkygtu" q"qxgteqo g"yʻgkt" lpkkcnl" tgnwe wcpeg0Hqt" pgkyʻgt" Xncf ko kt" P cdqnqx" pqt" Uco wgn'Dgengw'mqngf" hqty ctf "q"yʻj cv'yʻg" hqto gt" f guetkdgf" cul" -uqtvkpi "yʻtqwiʻj" qpggul" qyʻp" kpctf u." cpf "yʻgʻp" t{kpi "yʻgo" qp" hqt" uk{g"hng"c" r ckt" qh'i mqxgug "Dgcwlqwt" 3; : ; < 2+" yʻg" hcwgt" cul" yʻg" yʻy cungul cpf" yʻkf u"qh'ugrh' vtcpunc kqpg "Eqi p" 3; 83<839+0Dbklpi wcn'y tkygtu" yʻy q" tcf kkqpu." yʻj kyʻj g" "yʻy gl" qhlgt" uwej "c'hgrkekqwu" uqwteg" hqt" yʻj g"f kneqxgt {"qh'iksgtct {"pqto u0'Kp"O gpcnj go" Rgtt {qu'y qtf u" Rgtt {"3; : 3<3: 3="f tcy kpi "qp" Vqwt {"3; 9: <

Ukpeg''y g'y tkygt'j ko ugrh'ku''y g''tcpurcvqt.'j g'ecp''cmqy 'j ko ugrh'dqrf''uj khwi'htqo ''y g'uqwteg''yzv' y j kej .'j cf 'kv'dggp'f qpg''d { "cpqy gt 'tcpurcvqt.'r tqdcdn( 'y qwrf 'pqv'j cxg'r cuugf 'cu''cp''cf gs wcvg'' vtcpurcvkqp0'Uvej ''dqrf''uj khw.''kh''y g { ''ctg''u { uvgo cvke.''ugtxg''cu''r qy gthwrlkpf kecvqtu''qh''y g''cevkxkv{ ''qh'' pqto u0

repi wei g'eqpveevleqphrkev.'Dgri kwo "j cu'r tqf wegf "ku'uj etg'qh'dkhpi wen'ewj qtu.'yi qwi j ''yi g{"ctg'tetgn{" cempqy rgf i gf "cu'uwej ''kp''\*pggf rguu''q'uc{.'o qpqrkpi wen+'rkgtet{"j kurqtkgu0P qy .''kp''yi ku''r ctvkewret 'gzco r rg.''yi g" xqi wg''qh'ugrh' vepurevkqp''eep''dg''s wksg''tki qtqwun{"f evgf .''ukpeg''vgzwi'\tepurevgf "d{"yi g''xgt { ''ewj qtu'qh''yi g'' qtki kpeni'err get''dgwy ggp''3; 46''epf ''3; 8; "\*y kij ''ep''kpetgeug''dgwy ggp''3; 57''epf ''3; 82+0'Vj g''r j gpqo gpqp''o ekpn{" kpxqrxgu''hkxg'''Hrgo kij "y tksgtu''ur eppkpi "w q''i gpgtevkqpu0'Y j gtgeu''yi g''o go dgtu''qh''yi g''grf gt''i tqwr '\*\*Igep''Tc{1 Iqj p''Hrepf gtu.''Tqi gt''Cxgto egvg.''Eeo krg''O gmq{+'\vgpf ''q'r wdrkuj ''e''tgi kqpem{"o etngf ''Hrgo kij ''F wej ''vgzv'' ehgt''j exkpi ''y tkwgp''ku''qtki kpen'hp''yi g''es wktgf ''{gv'hwm{"o euvgtgf ''Htgpej ''repi wei g.''yi g''{qwpi gt''ugrh' vtepurevqtu'' ''O etpkz''I klugp.''Iqj ep''F ekupg+'uvetv'qwv'y tkkpi ''kp''uvepf etf 'F wej ''epf ''uwdugs wgpvu{"o etngv'e''Htgpej ''xgtukqp.'' uqo gvko gu''{getu''revgt0'Vj g''uy kej ''kp''f ktgevkqp''dgwy ggp''uqwteg''epf ''veti gv''repi wei gu''eep''dg''hprngf ''q''o elqt'' uqekq/r qrkskeen'ej epi gu0'Kp''yi g''3; 52u.''Hrgo kpi u''nqt''yo g''y g''htuv'\do g''j ef ''ceeguu''q''e''wpkxgtuky{"gf weevkqp''kp''yi gkt'' o qyi gt''qpi wg.''yi gkt''hpi wkuke'tki j wi''j exkpi ''dggp''gpuj tkpgf ''kp''e''pgy ''eqpukwwkqp''tgeqi pkl kpi ''tgi kqpen'' wpkrqi wchuo ''\*1 two ep''3; ; 3+0'Hrtqo ''e''f guetkr kxg''r gtur gevkxg. ''qpg''pqvkegu''yi ev'yi gug''ewq/vtepurevkqpu''pqv''uq'' o wej ''dgrqpi ''q''e''f khrgtgpv'u{uvgo ''yi g''yi g''qtki kpen'xgukqpuô yi g{"'Tq''pqv'ko r n{ ''ep{ ''tgen'ej epi g''kp''cwf kgpegô cu''j ki j rki j v''gzkurkpi ''-kpvteyl''y'' ye''' ye''yi gug''ter qrevg''htqo '' Dgewlqwtøu''\*3; : 7+0'K''ku''yi wu''r quukdrg''q''gz vter qrevg''htqo '' Dgewlqwtøu''\*3; : 7+0'K''ku''yi wu''r quukdrg''q''yz vter qrevg''htqo '' Dgewlqwtøu''\*3; : 7+0'K''ku''yi wu''r quukdrg''q''yz vter qrevg''htqo '' Dgewlqwtøu''\*3;

c'tkg'qh'r cuuci g'gpf wtgf 'd{ "cm quv'cm'y tkgtu'y j q'wnko cvgn{ "y qtm'kp"c'rcpi wci g'qvj gt 'vj cp 'vj g" qpg'kp'y j kej 'vj g{ 'j cxg'hktuv'f ghkpgf 'vj go ugnxgu'cu'y tkgtu0'Ugnh/vtcpurcvkqp'ku'vj g'r kxqvcn'r qkpv'kp'c'' vtclgevqt{ "uj ctgf 'd{ "o quv'dknkpi wcn'y tkgtu0

J gt "eqtr wu'uggo u'uqo gy j cv'gzegr vkqpcn'kp''y cv'kv'eqpukuwu'qh'y tkvgtu'uwej "cu'Gnuc''Vtkqngv'cpf "Xncf ko kt"
P cdqnqx. "y j q"ej cpi gf "vgttkvqtkgu. "dqvj "j cxkpi "hngf "vj g"Uqxkgv'Wpkqp"ctqwpf "3; 39. "cpf "hgnv'qdnki gf "vq"cf qr v'
y g"ncpi wci g"qh'y gkt "pgy "eqwpvt {0Hqt "vj qug"dknkpi wcnu'y j q"ecp"uy kej "ncpi wci gu'y kyj qwv'pgeguuctkn{"

'ej cpi kpi "r nceguø'\*kp"dqvj "c"nkvgtcn'cpf "c'hki wtcvkxg"ugpug+"cwq/vtcpuncvkqp"pggf "pqv'dg"c'r qkpv'qh'pq"tgwtp0'

#### Vgzwent grevlqpu

Jqy "fqgu"c"ugnh/ntcpuncnkqp"tgncvg"cu"c"vgzv"vq"÷pqtocnø"ntcpuncnkqpuA'Ecp"kv"dg"uckf"vq"rquuguu"knu"qyp" f kırkpevkxg"ej ctcevgt A'Kp"cp"guuc { "qp"Ico gu'Iq { egøu"qy p"Kıcıkcpk kpi "qh'vy q"r cuuci gu'htqo "j ku" Y qt mlkp" Rt qi t guu'\* yi g'hwwxtg" Hkppgi cpu'Y cng+'Ices wgrkpg'Tkuugv'cpuy gtu'kp' yi g'chhkto cvkxg0 Wprkng' vtcpurcvkqpu' Hp' yi g' www.cn'ugpug"qh'vj g'y qtf ø'\*3; : 65+. 'uj g'cti wgu. 'Iq{egøu'vgzw'ctg''÷pq'r wtuvkv'qh'j {r qvj gvkecn'gs wkx.cngpw'qh'vj g'' qtki kpcnl\gzvl\*cu'i kxgp. "f ghkpkkxg+"dwv'cu'c 'ncvgt "gncdqtcvkqp"tgrtgugpvkpií c'nkpf "qh'gzvgpukqp. "c'pgy "uvcig. "c" o qtg"fctkpi "xctkcvkqp"qp"vjg"vgzv"kp"rtqeguuø"\*3;:6~8+0"Vjku"cmqyu"jgt"vq"qrrqug"Iq{egøu"cwq/vtcpurcvkqp"vq" y g":Hr grkv{ "cpf "wpkpxgpvkxgpguuø"\*3; : 6< +"'y cv'ej ctcevetk gf "y g"Hr gpej "vtcpurcvkqp"qh'y g"uco g"r cuuci gu."d{ "c" vgco "vj cv'kpenwf gf "pq"nguu'vj cp"Rj knkr r g"Uqwr cwnx." [xcp"I qm"Cf tkgppg"O qppkgt"cpf "Uco wgn'Dgengw0Y j cv'ku" cv'uvcng'j gtg'ku'vj g'qrf'pqvkqp'qh'cwj qtkv{.''qh'y j kej ''qtki kpcn'cwj qtu'vtcfkxkqpcm{'j cxg'nqvu'cpf'vtcpurcvqtu'' pqpg0'Ukpeg'Iq{eg'j ko ugrh'y tqvg'vj gug'ugeqpf "xgtukqpu'kp'kf kqo cvke"cpf "etgcvkxg'Kcrkcp."vj g{"ctg'kpxguvgf "y ky " cp"cwj qtk/{ "vj cv'pqv'gxgp"cp":crrtqxgf ø'vtcpurcvkqp"d { "f kxgtug"j cpf u"ecp"o cvej 0'Vj g"r wdrkeøu'r tghgtgpeg'hqt"cp" cwj qtøu'tcpurctkqp'ku'rguu'dcugf ''qp''cp''gztgpukxg''uwf { ''qh'kxu'kptkpuke''s wcrkxkguô yi qwi j ''Tkuugt'f qgu''eqpf wet' uwej "cp"gzco kpcklqpô yi cp"qp"cp"crrtgekcklqp"qh"yi g"rtqeguu"yi cv'i cxg"dktyi "vq"kv0"Vj g"tgcuqp"hqt"yi ku"uvcvg"qh" chrcktu'ku's wkwg''qdxkqwu."cu''Dtkcp''Hkwej ''r qkpwu''qwx<'-iy g'y tkwgt/vtcpurcvqt''ku''pq'f qwdv'hgnv'vq''j cxg''dggp''kp''c''dgwgt'' r qukklqp'\q'tgecr wtg'\j g'kpvgpvkqpu'qh'\j g'cwj qt'qh'\j g'qtki kpcn'\j cp'cp{'qtfkpct{'\tcpurcvqtø'\3;:: 347+0'Kp'' vgto u'qh'kwi'r tqf wevkqp."cp"cwq/vtcpurcvkqp"cnq"f khhgtu'htqo "c"pqto cn'qpg."kh'qpn( 'dgecwug'kv'ku'o qtg'qh'c" f qwdrg'y tkkpi 'r tqeguu'y cp'c'y q/uxci g'tgcf kpi /y tkkpi 'cekxkv{0Cu'c'tguwn.'y g'qtki kpcnøu'r tgegf gpeg'ku'pq'' mpi gt "c"o cwgt "qh":uvcwu"cpf "uvcpf kpi ø "qh"cwj qtkx{ ."dw"dgeqo gu":r wtgn{ "vgo r qtcn"kp"ej ctcevgtø"\*Hkej " 3; :: ♂53+0"Vj g"f kuvkpevkqp"dgwy ggp"qtki kpcn'cpf "\*ugnh/+vtcpuncvkqp"vj gtghqtg"eqmcr ugu. "i kxkpi "r nceg"vq"c"o qtg" hgzkdrg'\gto kpqmi {'kp''

y j kej "dqvj "vgz vu"ctg"tghgttgf "vq"cu"÷xctkcpvuø'qt"÷xgtukqpuø'qh"gs vcn'uvcvvu'\*Hkej "3; : : ♂5465+0 Kl'uj qwrf "dg"tgo go dgtgf. "j qy gxgt. "y cv"Hkej øu"tgo ctmu"y gtg"hqto wrcvgf "kp"c "dqqmrgpi y "uwwf { "qh"Uco wgn" Dgengwa''dkikpi wcn'y qtn0Vj qwi j 'j g'r tqdcdn( 'ku''y g''ukpi ng''cwq/ tcpurcvqt ''y cv'j cu'tgegkxgf ''y g''o quv'etkkecn' cwgpvkqp"\*Eqj p"3; 83="J cppc"3; 94="Uko r uqp"3; 9: ="Hgf gto cp"3; : 9="Dgcwlqwt"3; : ; <384698+: "Dgemgwøu"ecug"ku" pqv'y g'twrg0J cxkpi 'gredqtevgf 'qxgt''y g''{ getu''w kp''y qtmu'kp''w q'repi wei gu.'j g'ku'o qtg''qt'rguu'kp''c''rgei wg''qh'' j ku''qy p. "gxgp"co qpi "ugrh/ vtcpurc vqtu0 Ergctn(. "Dgengwøu''etquu/nkpi wkuvke ''etgcvkqp. 'y j gtg' Htgpej ''cpf 'Gpi nkuj '' crrgctu'\q'dg"c'hwpf co gpvcn'f khgtgpeg'dgw ggp'y j cv'eqwf 'dg'rcdgngf '**uko wncpgqwu'cwq/vtcpurcvlqpu**'\*vj cv' ctg"gzgewgf "y j krg" y g'hktuv'xgtukqp"ku'uvkrn'kp"r tqeguu+"cpf "f grc { gf 'cwq/vt cpurcvkqpu'\*r wdrkuj gf "chygt" eqo r ngvkqp"qt"gxgp"r wdnkecvkqp"qh"vj g"qtki kpcn'o cpwuetkr v+0Cu"c"o cwgt"qh"hcev."Dgengw"j ko ugnh"tguqtvgf "vq" dqyi "o qf gu"qh"ugrh/vtcpurcvkqp"cv"f khhgtgpv"uvci gu"kp"j ku"ectggt0J g"uvctvgf "qwv"d{ "vtcpurcvkpi ."y kyj "yj gr" qh" j ku'htkgpf 'Cnttgf 'R² tqp. "c'hkpkuj gf 'y qtm'hkng" O wt rj {. "c"pqxgn'y cv'j cf "dggp"r wdnkuj gf 'kp'Gpi nkuj "dghqtg" Y qtnf " Y ct''Vy q. "dw'y j qug''Htgpej "gs wkxcrgpv'y cu''vq''cr r gct "qpn( "c'f gecf g'hcvgt0Kp''vj ku'ecug. 'vj g'Gpi nkuj "vgzv'j cf" crtgcf { "rgf "cp"cwqpqo qwu"gzkuvgpeg. "vj gtgd { "rko kskpi "vj g"r quukdkrkskgu"qh"kppqxcvkqp<"+D { "cpf "rcti g. "vj g"  $\textit{tcpurcvkqp'hqmqy u''y} \ g''qtki \ kpcn''qh''y \ j \ kej \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ g''y \ cp''kwu'' \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ngfi \ ng''y \ leg \ .''qdxkqwun{ .''pq''qpg''eqwrf''j \ cxg''o \ qtg''kpvko \ cvg''mpqy \ ng''y \ ng''y$ cwj qt/stcpurcyqtø'\*Eqj p'3; 83-838+0'Uqqp''chsgt.''Dgengw''y qwrf 'kpkklcvg''y g'\*qhsgp''Gpi rkuj +'tgy tkkpi ''y j krg''uvkm' y qtmkpi "qp" y g'\*o quvn( "Htgpej +'xgtukqp<kp" y g'r tqeguu "qh'eqo r ngvkpi "Rkpi . "hqt 'kpuvcpeg. 'j g'f qgu 'pqv' - y qtm' uko r n( 'htqo ''vj g'hkpcn'xgtukqp''qh'']Dkpi \_. ''dww'qp''qeecukqp''\cmgu''cu''j ku''uqwteg''vj g''gctnkgt''f tchwu''qh''vj g''qtki kpcn' o cpwuetkr w/™Hkxej '3; :: ≪92+0"Vj g'hcwgt'r tcewkeg'ecp''dg''o quv''cr vn('f guetkdgf ''cu''c''nkpf ''qh''dkrkpi wcn'etgcwkqp''yj cv'' f gxgmr u'cmpi 'r ctcmgn'rkpgu'kpuvgcf ''qh''o gti kpi 'kpvq''dkdrkecn'eqphwukqp''qt''rcpi wci g''drgpf kpi 0'KV'ku''pqvg/y qtyj { " kp''y ku'tgi ctf ''y cv'Dgengw.'pqv'wprkng''qy gt''dkrkpi wcn'y tkgtu'\*\*Dgcwlqwt''3; :; ₹8="J gkpgo cpp''3; ; 6₹76+.''vgpf u'' vq"cxqkf"\gzwcn'o wnknkpi wcnkuo "\ugg"\O WNVKNKP I WCNKUO "CP F "VTCP UNC VKQP +0"Vj wu. 'vj qwi j "j ku" kpf kxkf wen'\gz wi'etg'pqv'dkrkpi wen 'Dgengwøu'y qtm\\engp'eu'e'y j qrg'f ghkpkkxgn( 'ku. 'hqt 'geej 'o qpqrkpi wen'r etv' ecmi'hqt'ku'eqwpvgtr ctv'kp''y g''qyj gt''rcpi wci g=':Qpg''o ki j v'uc{ "vj cv'y j krg''y g'hktuv'xgtukqp''ku'pq''o qtg''y cp''c" tgj gctucn'hqt"y j cv"ku"{ gv"vq"eqo g."vj g"ugeqpf "ku"dw"c"tgr gvkxkqp"qh"y j cv"j cu"i qpg"dghqtg."vj g"vy q"eqpegr vu" eqo kpi '\qi gyj gt 'kp'\j g'\qpg'\Htgpej '\y qtf \frac{'\t^2 \text{vkklqpg}'\Hkej '\3; :: <379+0

# Hwt yj gt 't gcf kpi

Dtqy p'3; ; 4="F cf c| j cpqxc'3; : 6="Hkej '3; : 5."3; : 7="I tggp'3; : 9="I two cp'3; ; 6="MktgIgpugp'3; ; 5="Nco r kpi '3; ; 4=" O eI wktg'3; ; 2="Rcmcekq'3; 970

TCIP KGT'I TWO CP

# D

# Dcdgn'vqy gt'qh

Vj g'dkdrkecn'uvqt { "qh'vj g'vqy gt "qh'Dcdgn'\*1 gpguku'33⊰ó; +"j cu'nqpi 'hcuekpcvgf '\tcpurcvqtu'cpf 'uvwf gpvu'qh' vtcpurcvkqp0'K/eqpvckpu'vj g'Qnf 'Vguvco gpv'uvqt { "qh'vj g'hcm'kpvq'nkpi wkuvke''f kxgtukv{ .''y j kej "j cu'qhvgp''dggp''tgcf'' cu''c'o { vj 'qh'vj g''qtki kp''qh''vtcpurcvkqp<

Pqy "y g"y j qng"gcty" j" cf "qpg"rcpi wci g"cpf "hgy "y qtf u0Cpf "cu"o gp"o ki tcvgf "htqo "y g"gcuv."y g{" hqwpf "c"r nclp"kp"y g"ncpf "qh"Uj kpct"cpf "ugwngf "y gtg0Cpf "y g{"uckf "vq"qpg"cpqy gt."öEqo g."ngv"wu" o cng"dtkemu."cpf "dwtp"y go "y qtqwi j n{00"Cpf "y g{" j cf "dtkemilqt"uvqpg."cpf "dkwo gp"hqt"o qtvct0' Vj gp"y g{"uckf."öEqo g."ngv"wu"dwkrf "qwtugnxgu"c"ek{."cpf "c"vqy gt"y ky "kwi"vqr "lp"y g"j gcxgpu."cpf "ngv" wu"o cng"c"pco g"hqt"qwtugnxgu."nguv"y g"dg"uecwgtgf "cdtqcf"wr qp"y g"hceg"qh"y g"y j qng"gctyj 00"Cpf" y g"NQTF"uckf."öDgj qrf."y g{"ctg"qpg"r gqr ng."cpf "y g{"j cxg"cmiqpg"hcpi wci g="cpf" y ku"ku"qpn{"y g" dgi kppkpi "qh"y j cv"y g{"y kmifq="cpf"pqy kpi "y cv"y g{"r tqr qug"vq"fq"y kmipqy "dg"ko r quukdrg"hqt" y go 0Eqo g."ngv"wu"i q"f qy p."cpf "y gtg"eqphwug"y gkt"hcpi wci g."y cv"y g{"o c{"pqv"wpf gtuvcpf"qpg" cpqy gtøu"ur ggej 00"Uq"y g"NQTF"uecwgtgf"y go "cdtqcf"htqo "y gtg"qxgt"y g"hceg"qh"cmiy g"gcty ." cpf "y g{"nghv"qhh"dwkrf kpi "y g"ekx{0Vj gtghqtg"ku"pco g"y cu"ecnngf"Dcdgn"jo gcpkpi "-eqphwukqpø\_." dgecwug"y gtg"y g"hQTF"uecwgtgf" y g"hcpi wci g"qh"cmiy g"gcty ="cpf"htqo "y gtg"y g"hQTF"uecwgtgf" y go "cdtqcf"htqo "y gtg"y gt"y g"hQTF"uecwgtgf" y g"hceg"qh"cmiy g"gcty ="cpf"htqo "y gtg"y g"hQTF"uecwgtgf" y go "cdtqcf"axgt"y g"hceg"qh"cmiy g"gcty 0"Tgxkugf"Uccpf ctf"Xgtukqp+

Gzki'y g'NQTF."qt"y cv'i tqwr "qh'i qf u'y cv'y g'Qrf "Vguvco gpv'ecmu'y g"*Grqj ko* "\*:rgv'wu'i q"f qy pô pqv'c'tq{crl' qt"c"f kxkpg";y gø "dwi'c"i tqwr +: "gzki'cnıq"y g'r gqr rg"f y grikpi "kp"y g'rcpf "qh"Uj kpctô cpf "gpvgt"y g'vkrgucyt."y g" qpn{ "r gtuqp"ecr cdrg"qh'tgo gf {kpi. "gxgp"urki j vn{."y g"uecwgtkpi "qh'vqpi wgu"cv'DcdgriU gpeg"y g'vkrg"qh'HKVøU" lqwtpcn"*Dcdgri*="j gpeg"y g'vkrg"qh'I gqti g"Uvgkpgtøu"dqqm'qp"vtcpurcvkqp."*Chygt "Dcdgri*\*3; 97; gpeg"y g'vkrg"qh" Lces wgu'F gttkf cøu'f geqpuvt wevkqp"qh"Y cnygt "Dgplco kp.":F gu"Vqwtu'f g"Dcdgriø\*3; 2+ô cpf "y g"rkuv'i qgu'qp"cpf" qp0

Dwł'j g'uvqt { "tckugu"o qtg"s wguvkqpu"y cp"kv"cpuy gtu. "y j kej "ku"wpf qwdvgf n{ "qpg"qh"ku"cwtcevkqpu0"Y j cv"ctg"y g"vq" f q"y kj "j g"o { y "qh"qpg"ncpi wci gA"Uqo g"y tkgtu. "pqwdn{ "j g"I gto cp"Tqo cpvkeu"htqo "J gtf gt "cpf "j g" Uej ngi gn"dtqy gtu"y tqwi j "J wo dqnf v"cpf "I qgy g"cpf "xctkqwu"r quv'Tqo cpvkeu"htqo "Dgplco kp"vq"J gkf gi i gt "cpf " I gqti g"Uvgkpgt."j cxg"y cpvgf "vq"dgnkgxg"kp"c"r tko qtf kcn"ncpi wci g"y cv"y cu"nquv"kp"y g"uecwgtkpi "qh"vqpi wgu"cv" Dcdgn"cpf "y cv"o ki j v"dg"tgi ckpgf "y tqwi j "r gthgev" "qt"gxgp. "hqt"Dgplco kp. "ko r gthgev" o { uvkecn'vtcpurcvkqp0"Vj g" vtcpurcvqt"y wu. "kp"y ku"xkukqp. "dgeqo gu"y g"Y qtnf "Ucxkqwt." tguvqtgt "qh"y g"qtki kpcn'nkpi wkuvke "wpkv{"y cv"y g"i qf u" uo cuj gf "qp"y g"r nckpu"qh"Uj kpct0

C'tgrcvgf 'o { y .'f gxgmqr gf ":tvekgp\khlecm{ø'kp''y g''o kf/pkpgvggpyj "egpwt { 'd { 'Cwi wuv'Uej rgkej gt'\si3: 4368: +" wpf gt''y g'kpur ktc\kqp''qh''y g''I gto cp''T qo cp\keu.'ku''y cv'qh''cp''qtki kpcn'Kpf q/Gwtqr gcp''r gqr rg.''y j q''ur qmg''c'' ukpi rg''r vtg''r tko qtf kcn'hcpi wci g''qt''Wturtcej g''ecmgf 'Rtq\q/Kpf q/Gwtqr gcp0'Cu''Uej rgkej gt''cpf ''cm'qh'j ku'' r j kmmi kecn'hqmqy gtu''ukpeg''tgeqi pk g.''y gtg'ku''pq''gxkf gpeg''y cv''uwej ''c''ncpi wci g''gxgt''gzkuvgf.''cpf ''y g'kf gc''ku'' tcyi gt''hct/hgvej gf <'y cv'cm'qh'y g''o qf gtp''ncpi wci gu'htqo ''Gwtqr g''q''Kpf kc''f gxgmqr gf 'htqo ''c''ukpi rg''ncpi wci g''y cv''y kpi u''y gtg''qpeg''uko r rg.''r wtg.''wpkhkgf.''dw''pqy ''ctg''eqo r rgz.''o kzgf.''f kxgtug0'Ukm''j cxkpi ''cf o kwgf ''y cv'' y g''y j qrg''pq\kqp''qh''cp''

Kpf q/Gwtqr gcp'r gqr rg'cpf 'hcpi wci g'ku'r wtg'ur gewrckqp. 'o quv'j kuvqtkecn'nkpi wkuvu'eqpvkpwg'vq'hkpf 'kv'htwkhwn'vq'' ur gewrcvg"qp"y j gtg"y gug"j {r qvj gvkecn'r gqr rg"nkxgf ."y j cv'nkpf "qh"geqpqo { "vj g{ "j cf ."y j cv'i qf u"vj g{ "dgnkgxgf " kp."cpf "uq"qp0Gv{o qrqi kuvu"uvkm'\tceg"y qtf u"dcem'\q"j {r qvj gukl gf "Kpf q/Gwtqr gcp"tqqw0Cpf."qh"eqwtug."kp"vj g" 3; 52u''y g'Pc| ku'ur gewrcygf ''y cv'y g'Kpf q/Gwtqr gcpu''qt''Ct {cpu''y gtg''drqpf ''Uecpf kpcxkcpu.''cm'hckt.''qpi/ j gcf gf "etgcwtgu"y j q"y gtg" y gtg" y gtg" cpf "qtki kpcn" tceg" qh" Gwtqr g. "ncvgt" eqpvco kpcvgf "d { "f ctm'd nqqf "htqo" gnugy j gtg0'Vj g'r tqdrgo 'ku'yj cv'yj g'o { yj ''qh'c'r wtg''qtki kpcn'\*Wt ur t cej g. '*y j gyj gt''ugv'qp''yj g'r rekpu''qh''Uj kpct''qt'' uqo gy j gtg'lp'Gwtqrg''qt''y g''Kpf kcp''uwdeqpvlpgpv.''ku'lpj gtgpvn{ 'pquvcri ke''cpf 'guej cvqrqi kecrô kornkekm{ ''dkcugf ''  $vqy\ ctf\ "c"eqpegr\ vkqp"qh"rcpi\ wci\ g"cu"j\ cxkpi\ "f\ gi\ gpgtcvgf\ "htqo\ "c"r\ tko\ gxcn"r\ wtkv{\ "cpf\ "yj\ wu"kp"pggf\ "qh"tguvqtcvkqp"\ }$ vq''y cv'r wtkx{0'Vj g'r ctcmgnu'co qpi ''y g'Kpf kcp''cpf 'Gwtqr gcp''ncpi wci gu''ctg''qdlgevkxg'hcevu.''y j kej ''o ki j v'dg'' gzr nckpgf "cp{"pwo dgt "qh'y c{u="yj g"j {r qyj guku"qh"cp"qtki kpcn"Kpf q/Gwtqr gcp"ncpi wci g"yj cv'y cu'uecwgtgf "cetquu" wy q"eqpvkpgpvu"ku"cp"gzr ncpcvqt { "o { vj. "cpf "qpn( "qpg"uwej "o { vj. "cpf "qpg"y kvj "f kuwtdkpi "ko r nkecvkqpu0 Vj g"uvqt { "qh"vj g"vqy gt "qh"Dedgn"ku"enuq"het "htqo "e"f kxkpg"o epf evg"hqt "vtepunevqtu0"Vj g"i qf u"f q"pqv"ue { ."::Ngv"wu" eqphwug" y gkt "ncpi wci g." y cv' y gtg" o c{"dg" \tcpunc \kqp@" Vj g{"uc{": Ngv' wuí eqphwug" y gkt "ncpi wci g." y cv' y g{" o c{" pqv'wpf gtuvcpf 'qpg'cpqvj gtøu'ur ggej ø'y j kej 'ku's wksg'c'f khhgtgpv'o cwgtô qpg'vj cv'uggo u'cm quv'vq'dcp'' vtcpurcvkqp."cmpi "y kij "cp{"qvj gt"o gcpu"qh"eqo o wpkecvkpi "cetquu"hkpi wkuvke"dcttkgtu"\*kpenwf kpi ."qpg"uwr r qugu." hqtgki p'hcpi wci g'hgctpkpi +'cpf ''vj wu''qh''qpeg''ci ckp''vj tgcvgpkpi ''vj g''ugewtkv{ "qh''vj g''i qf u''qp''j ki j 0'Vj g''uvqt { " eqpegkxgu'nkpi wkunke "wpkx{."cpf "yi wu'j wo cp"dgkpi uø'cdknkx{"\q"eqo o wpkecvg"y kyj "gcej "qyj gt "gxgt {y j gtg"kp"yi g" y qtrf. "cu'c'r qvgpvkcn'y tgcv'vq'f kxkpg'j gi go qp{."cpf "vj wu'uqo gvj kpi "vq'dg'uo cuj gf 0'Kp''cp''ktqpke''y kuv. "vj ku" f ggr/ugcvgf "dkdnkecn'kf gqmi { "cnuq 'hggf u''yj g"cwcem'qp 'nkpi wkurke 'f kxgtukv{ "ncwpej gf 'kp''yj g''Wpksgf "Uvcvgu''d { ''yj g''  $Gpi\ rkuj\ "Qpn("O\ qxgo\ gpv<'yj\ g"cwgo\ r\ v'vq'f\ ghkpg'Gpi\ rkuj\ "cu'vj\ g"qhhkekcn'hcpi\ wci\ g"qh'vj\ g"Wpkxgf\ "Uvcvgu'cpf\ 'vj\ wu'vq''$ rtgxgpv'dkrkpi wcn'gf wecklqp'kp''y g'uej qqnu.''y g'pggf'hqt'kpvgtrtgvgtu'kp''y g'eqwtvu.''cpf'uq''qp0'Vjgtg'ku'c'hgct'' co qpi "o cp{ 'Cpi mqr j qpg 'Co gtlecpu" y cv'J kur cpleu" ctg" vcmkpi "qxgt" y g"eqwpvt { "\*f go qi tcr j kecm{ 'kh'kp" pq" qý gt 'y c{+."cpf ''ý cv'ý g{ "ctg'r mwkpi "ý cv'cngqxgt" kp" Ur cpký . "c'rcpi wci g'y j kej "ý g'Cpi mr j qpg'r qy gtu'ý cv' dg"ecppqv"wpf gtuvcpf 0J gpeg"yj g"f tkxg"vq"-uecwgtø'qt"-eqphwugø'yj gkt"Ur cpkuj "ekklt gpu"d{"hqtekpi "yj go "vq"ngctp" Gpi rkuj 0

Dwi'j g'ktqp{'kp''j ku'ku'qpn{'uwr gthkeken'hqt'wnko evgn{''j g''qy gt''qh'Dedgn'o { j 'ku'kugnh'ep''eweeni'qp''hpi wknke'' f kxgtukx{0Kp'kk'hpi wknke''wpkx{'ku'gzr nekn{''r qtvtc{gf''cu''j g'f epi gt.'dwi'qpn{'htqo ''j g'i qf uø'r qkpv'qh'xkgy .''epf'' y g''uqt{''veekn{''gpeqwtei gu'tgef gtu''vq'kf gpvkh{''y kj ''j g''r gqr ng''f y gmkpi ''kp''j g''nepf ''qh''Uj kpet.''j g''dwkrf gtu''ev'' Dedgn'y j qug'wpket{''nepi wei g''y cu'ueewgtgf ''epf ''eqphwugf 0Gxgt{qpg''qpeg''ur qng''e'ukpi ng''nepi wei g.''ku''y g'' uvqt{øu'uwdvgzv.''epf ''gxgt{qpg''uj qwrf''ur gem'e'ukpi ng''nepi wei g''ei ekpô uc{.''Gur gtepvq.''qt''Gpi nkuj .''qt''y j evgxgt'' y g''pgzv'nkpi we''htepee''o c{''dg0Eqo r etgf''y kj ''y ku''pquveni ke''nqpi kpi .''em'vtepurevkqp''ghqtw''y km'uggo '' r eyi gvkeem{''kpef gs wevg<''ntef wwqtg''ntef kqtg.''y g''tepurevqt''ku''e''tef wegt.''dgeewug''ulj g'heknu'vq''tguvqtg''wu'vq''e'' r tkukpg''uvey''dghqtg''tepurevkqp''y cu''pgeguuet{0}

Ugg"cnuq<

O WNVKNKP I WCNKUO 'CPF''VTCPUNCVKQP ="RWTG"NCP I WCI G="UGO KQVKE 'CRRTQCE J GU="VTCPUNCVCDKNKV[ 0

# Hwt yj gt 't gcf lpi

Dctqp'3; ; 2="Dwtng'3; 98="F gttlsf c'3; : 213; : 7d="J cttlsu'cpf "Vc{mt'3; : ; = I gqti g''Uvglpgt'3; 970

\*e+"y g'Crqet{rjc<34"dqqmu'\cmgp"qxgt"d{"y g'gctn{"Ej tkukcp"Ej wtej "htqo "y g"I tggm"

FQW NCUTQDIPUQP

# Dkdrg'tt cpurc vkqp

Vj g'Dkdrg'ku'vj g'j qn{ 'dqqm'qh'Ej tkwkcpkv{0KV'eqpukuvu'qh'vj g'hqmqy kpi <

 $xgtukqp"qh"yig"Qrf"Vguvco gpv'dw'pqv'hqto kpi "r ctv'qh"yig" J gdtgy "Dkdrg"cpf "pqv'ceegr vgf" 'cu''ecpqpkecn'd { "qtyiqfqz" Lgy u0Vjg"cr qet { rjcn'dqqmu. "mpqyp"cnuq"cu''fgwgtqecpqpkecn"ctg"ceegr vgf "d { "Tqocp"Ecyiqrkeu" dw'tglgevgf" 'd { "Rtqvguvcpvu"cu''c "dcuku'hqt"fqevtkpgu'\sqg''dgqy +0 } \\$ 

Kp"qtf gt "\q" wpf gtuvcpf "cpf "crrtgekcvg" yi g"gzvgpv" cpf "eqorngzk {"qh"Dkdng" \tcpurcvkpi." cti wcdn {"yi g"i tgcvguv" wpf gtvcnkpi "kp"kpvgtnkpi wcn"eqo o wpkecvkqp" kp" yi g"j kuvqt {"qh" yi g"y qtnf." kv" ku"guugpvkcn" \q" xkgy "kv" htqo "ugxgtcn" r gtur gevkxgu \ck" kvu" r cuv" j kuvqt {"cpf "hwwtg" r tqur gevu." yi g"tgngxcpv" nkpi wkuvke "cpf "uqekqnkpi wkuvke" hcevqtu. "cpf "yi g" i wkf kpi "r tkpekr ngu" cpf "y kf gn {"wugf "r tqegf wtgu0" Vj g"uki pkhecpeg" qh" Dkdng "\tcpurcvkpi "ecp" dg" tgcf kn {"ugpugf" y j gp" y g"eqpukf gt" yi cv" cv" rgcuv" qpg" dqqm" qh" yi g" Uetkr wtgu" j cu" dggp" \tcpurcvgf" cpf "r wdnkuj gf" kp" 422; "ncpi wci gu" cpf" f kcngevu. "ur qngp" d {"c"o kpko wo "qh"; 9"r gt" egpv" qh" y g" y qtnf øu" r wrcvkqp0

# J kwqt { 'qh'Dkdrg'tt cpurc vlqp

Vj g'j kuvqt { "qh''Dkdrg' 'tcpurcvkqp" o c { "dg'f kxkf gf 'kpvq" vj tgg'r tkpekr cn'r gtkqf u<" vj g'I tgeq/Tqo cp" \*422" DE 'vq' CF" 922+. "vj g'T ghqto cvkqp' \*vukzvggpvj "cpf 'ugxgpvggpvj "egpwxtkgu+. "cpf 'vj g'o qf gtp'r gtkqf 'vj j kej "eqxgtu'r tko ctkn{ "vj g" pkpgvggpvj "cpf 'vy gpvkgvj "egpwxtkgu. "qt "vj cv' ctg" qhvgp "ur qngp" qh' cu" ÷vj g'o kuukqpct { "egpwxtkguø" o

#### Vj g'I tgeq/Tqo cp'rgtkqf

Vj g'hktuv'tcpurcvkqp'y cu'iy g'I tggmlUgr wci kpv'Xgtukqp'qh'vj g'I gdtgy 'Dkdrg.''qt''Qrf ''Vguvco gpv.''o cf g''r tko ctkn{" kp''y g''ugeqpf ''egpwt { 'DEO'Vj ku''tcpurcvkqp'' cf ''cp''gpqto qwu''kphrwgpeg''qp''o cwgtu'qh''ecpqp.''tcpurcvkqp'' r tkpekr rgu. "cpf ''xqecdwct { ''go r rq { gf ''kp'Ej tkrvkcp''Uetkr wtguOF wtkpi ''y g'I tgeq/Tqo cp''r gtkqf .''uqo g'qh''y g'' hktuv''tcpurcvkqpu''qh''y g''P gy ''Vguvco gpv'dqqmu'y gtg''cnq''o cf g''kpvq'NcvkpO'Vtcpurcvkqpu''qh''y g''Qrf ''qt''P gy ''Vguvco gpv'kpvq''qy gt ''rcpi wci gu'qh''y g''O kf f rg''Gcuv'uqqp''hqmqy gf .''hqt''gzco r rg''U{ tkce.'Eqr vke''\*y q''f khtgtgpv'' f kcrgevu+''cpf ''rcygt''Cto gpkcp.''I gqti kcp.''Gy kqr ke.''Ctcdke.''Rgtukcp.''cpf ''hkpcm( 'I qy keO'Vj g''Qrf ''Ncvkp''xgtukqpu'' qh''y g''P gy ''Vguvco gpv'y gtg.''j qy gxgt.''wpucvkulcevqt { .''cpf ''y gug''y gtg''tgxkugf ''d { ''Uv'IGTQO G''vqy ctf u''y g''gpf '' qh''y g''hqwty ''egpwt { ''kp''y g''xgtukqp''pqy ''npqy p''cu''y g''Xwri cvg''\*ugg''<u>NCVKP ''VTCF kvKQP</u> +0Uv'Igtqo g''y gp'' eqo r rgvgf ''y g''tcpurcvkqp''y gqt { ''y cu''r ctvkewrctn{ ''ko r qtvcpv'dgecwug''j g''kpukrvgf ''y cv'y g''ugpug''uj qwrf ''j cxg'' r tkqtkx{ ''qxgt''y g''hqto 0

#### Vj g'Tghqto cvkqp

F wtkpi "'y g'Tghqto cwlqp.''\tcpurcwlqpu'qh'\y g'Dkdrg'\y gtg''o cf g'kp''cmo quv'cm'\y g'r tkpekr cn'repi wci gu'qh''Gwtqr g." dw'\y g'o quv'ko r qt\cpv'eqp\tkdwkqp'\q'\y g'r tkpekr rgu'qh'\tcpurcwlqp''y cu'o cf g'd { 'O ct\sp'NWVJ GT'\sugg'' I GTO CP "VTCF KVKQP +0'Nwy gt\su'\tcpurcwlqp''qh'\y g'Dkdrg'\kp\q'I gto cp''cpf "j ku'\uo cm'\dqqm'f ghgpf kpi "j ku'' r tkpekr rgu'qh'\tcpurcwlqp''kp\tqf wegf '\uki pkhlecp\v'pgy '\xkgy u''cdqw'\tcpurcwlqpcn'gs wkxcrapeg'\kp'\y g''Uetkr wtgu0'\kp'' Gpi rkuj .''y g''o clqt''etgc\kxg''eqp\tkdwkqp''y cu''o cf g''d { "Y knkco "V[ PFCNG'\sugg''DTK\kU] "VTCFK\kQP +." y j qug'\tcpurc\kqp'qh'\y g'P gy "Vgu\co gp\v'\n\to gf "\y g'r tko ct { "dc\uku'\hqt"\y g're\yt'f gxgnqr o gp\v'\n\to gr'' \left g\u''qh'\tcpurc\kqp\u''\p'' Xgt\ukqp\si' y j kej "j cf '\usej "c''i tgc\v'\kphn\sigpeg''qp''j \wpf tgf u''qh'\tcpurc\kqp\u'\kp'' \y g''o ku\ukqpct { 'y qtrf 0}

## Vj g'b qf gtp 'r gt kqf

Vj g'o qf go 'r gtkqf 'ecp'dg'f kxkf gf 'kpvq''w q'o ckp'r j cugu0'Vj g'hktuv'r j cug'ucy ''y g'r tqf wevkqp'qh'tgxkukqpu'cpf ''
pgy ''tcpurcvkqpu'kpvq''c'pwo dgt''qh'o clqt''Gwtqr gcp''rcpi wci gu. 'r tko ctkn( 'kp'tgur qpug'vq'pgy ''f kueqxgtkgu''cpf ''
kpuki j vu''eqo kpi 'htqo ''ctej cgqmi { ''cpf ''y g''uwf { ''qh'Dkdng''o cpwuetkr vu0'F wtkpi ''y g''ugeqpf ''r j cug. ''pwo gtqwu''
vtcpurcvkqpu''y gtg''o cf g''d{ ''o kuukqpctkgu'kpvq''rcpi wci gu''qh''y g''÷y ktf ''y qtnf Ø0

Vj g'o quv'ko r qt vcpv'eqpvt kdwkqpu'f wt kpi ''y g'hktuv'r j cug'y gtg''y g'Gpi rkuj 'Tgxkugf ''Xgtukqp''\3:: 7+.'Co gt kecp'' Uvcpf ctf ''Xgtukqp''\3: 23+'Tgxkugf ''Uvcpf ctf ''Dkdrg'\3; 74+''cpf 'P gy 'Tgxkugf ''Uvcpf ctf ''Dkdrg'\3:: ; +0'Vj g''y q'' qy gt ''o clqt 'wpf gt vcnkpi u'hqt ''Gpi rkuj ''y gtg''y g'P gy ''Co gt kecp''Dkdrg'\3: 92+''dcugf ''qp''I tggnl'cpf ''J gdt gy ''vgz w'' tcy gt''y cp''y g''Xwri cvg. ''cpf ''y g'P gy ''Gpi rkuj ''Dkdrg'\3: 92+0'Vj g''r tkpekr cn'kphrwgpeg''dgj kpf ''y gug''eqo o kwgg'' gpvgtr tkugu'y gtg''y g''etgcvkxg''qpg/o cp'\tcpurcvkqpu''d{ ''uwej ''uej qrctu''cu'Lco gu'O qhhcw.''Tkej ctf ''Y g{o qwj .''cpf '' Gf i ct'I qqf ur ggf 0Rgtj cr u''y g''o quv'uki pkhkecpv''dtgcm'y ky ''vcf kkqp''kp''vcpurcvkpi ''y g''Dkdrg'y cu''y g'' eqpvtkdwkqp''qh''IDDRj krrkr u'kp''j ku''*Ngwgt u''q''I qwpi ''Ej wt ej gu*''

\*3; 74+ 'hqmqy gf ''d{ ''Vqf c{ $\phi u'Gpi nluj ''Xgtulqp''*3$ ; 88.''3; 98+''cpf ''Vj g'Nkxlpi ''Dkdng''\*3; 93+''y j kej ''y cu''o wej '' crrtgelcvgf 'hqt''ku'uv{ng''dw''ugxgtgn{ ''etkkelţ gf 'hqt''ku''gzgi gulu0}

## Nlpi wkwle'kuwgu'lp'Dklrg'tt cpurcvlqp

Wphqtwpcvgn(."o cp{"r gqr ng"uvkmidgnlgxg"yj cv"vtcpurcvkpi "kpvq"uq/ecmgf"r tko kvkxg"ncpi wci gu"ku"uko r n{" ko r quukdng"dgecwug"uwej "ncpi wci gu"ctg"uckf "vq"j cxg"pq"cm j cdgv."kpuwhkekgpv"xqecdwrct{."kpcf gs wcvg" i tco o ctu."cpf "pq"nkytcwttg0Dwr"yj gtg"ctg"pq"uwej "ncpi wci gu0Cmincpi wci gu"j cxg"yj g"r qvgpvkcnivq"eqo o wpkecvg" yj g"tgngxcpv"eqpvgpv"qh"cp{"o guuci g."cmj qwi j "yj g{"o c{"pqv"dg"cu"ghhkekgpv"kp"f qkpi "uq"pqt"dg"cdng"vq"tgcf kn{" o cvej "uqo g"qh"yj g"uwdvng"eqppqvcvkxg"o gcpkpi u"qh"hki wtcvkxg"gzr tguukqpu"cpf "tj gvqtkecnif gxkegu0Vj g"hcev"yj cv" cmincpi wci gu"ctg"cv"ngcuv"; 2"r gt"egpv"uvtwewtcm{"uko knct"i wctcpvggu"yj g"r qvgpvkcnihqt"ghhgevkxg"kpvgtnkpi wcni eqo o wpkecvkqp0

Dkdng'\tcpurc\qtu'dgnkgxg'\j c\'gxgp'\j g'\uq/ecngf '\ur\kt\kwcn'f ko gpukqpu'\qh'c'\gz\'ecp''cny c\u'dg''eqo o wpkec\uf."
dwi'j ku'o c\u'tgs wktg''s wkwg'f khhgtgp\u'\\r\ r gu'\qh'gzr tguukqpu\UHqt''gzco r ng. "c''\u\| gn\underlikf kcp'\kp'\uqwi gtp'\O gz\keq''ecp''
ur gcm'cdqwi'\underlike\i ø'cpf '\underlike\text{wtw}\v'cu'\underlike\i cpi kpi ''qp\u'\underlike\i g'' g''j gct\w'\underlike\un

Głłge ksg''t cpurc kapu''c tg''t ctgn(''y qtf/haty qtf.''dgecwug''r ksgtcn't gpf gtkpi u''c tg''a progrego kapu'' kapu'' y qtf' kapu'' y qtf' kapu'' y qtf' ksgtcn't gecwug''r ksgtcn't gpf gtkpi u''c tg''t y got'' y g''t kapu'' y got'' y g''t y

#### Uqekqrlpi wkrke'kurwgu'lp'Dkdrg'tt cpurcvkqp

Y j krg'hkpi wkurkeu'hqewugu'qp''y g'urt wewt gu'qh'hcpi wci gu. 'uqekqrkpi wkurkeu'ku'eqpegtpgf 'y kj 'y g'y c{u'kp'y j kej "r gqr rg''wug'hcpi wci g''\q''ceeqo r rkuj ''xctkqwu''r wtr qugu0'Vj g''cwkwf gu''cpf ''xcnwgu''cuuqekcvgf 'y ky ''y gug''wugu'' dgeqo g''etkkecri'dgecwug''y qug'hqt'y j qo ''Dkdrg''tcpurcvkqpu''ctg''o cf g''ctg''uq''go qvkqpcm{''kpxqrxgf ''kp''dqvj ''y g'' hqto ''cpf ''eqpvgpv'qh''cp{ ''Dkdrg''yzv0C''pwo dgt''qh'o cwgtu''y cv'o ki j v'uggo ''wpeqpvtqxgtukcri'kp''c'ugewrct''eqpvgzv'' vcng''qp''i tgcv'uqekqrkpi wkurke'ko r qtvcpeg''kp''c''dkdrkecri'eqpvgzv''gur gekcm{ ''kp''o cwgtu''qh'ecpqpkekv{ .''

vgz wcn't grlcdkrkv{ ."f korgev'f khlgt gpegu."rgx gnu'qh'hcpi wci g."f gi t ggu'qh'hkgt crpguu."hqto cv."cpf 'uwr r rgo gpvct { "o cvgt kon'uwej "cu'pqvgu."kpvt qf wevkqpu."cpf "r t ghoegu0

#### Ecpqpkeks{

Vj g'kuwg'qh'ecpqpkek{ 'kı'r ctvkewctı( 'tgrgxcpv'kp'f gekukqpu'cdqw'iy qug'dqqmı'qh'iy g'Uetkr wtgu'iy cv'ctg'iq'dg'' vtcpurcyf "cpf "r wdrkıj gf "hqt"r ctvkewct"ej wtej gu0Tqo cp'Ecyj qrkeu'ceegr v'cu'r ctv'qh'iy g'Qrf "Vguvco gpv'c" pwo dgt "qh'dqqmı'iy g{ "ecmif gwgt qecpqpkecn"hqt "gzco r mg'iy g'dqqmı'qh'Vqdkv."Lwf ky ."Uktcej ."cpf "Y kuf qo "qh" Uqmo qp0Vj g'Rtqvguvcpvu'ecmiy gug'uco g'dqqmı'crqet (rj cricpf "i gpgtcm( 'tglgev'iy go ."gur gekcm( 'y j gp'kv'' eqo gu'vq'guvcdrkıj kpi "f qevtkpgu0Dw'cm'Rtqvguvcpvu'ctg'pqv'kp'hwn'ci tggo gpv'qp'y j kej "qh'iy gug'dqqmı'uj qwf'' dg'tglgevgf "qt'ceegr vgf 'hqt'iko kygf "r wtr qugu0Vj g'Qtvj qf qz'Ej wtej gu. 'hqt'gzco r ng'iy g'Twuvkcp.'I tggm'' Cto gpkcp.'I gqti kcp."cpf "Gyj kqr ke''ej wtej gu."cnaq'f khtgt'uqo gy j cv'kp''y gkt'xkgy u'cdqwi'y gug'dqqmu0Cpf "gxgp" y kyj kp''c'ugtkgu'qh'ceegr vcdrg''dqqmı'y gtg'ku'wwcm( 'c''ecpqp''y kyj kp''y g''ecpqp0Hqt''gzco r ng. 'Geergukcuvgu'ku'c'' mti gn( 'pgi ngevgf "dqqmi'dgecwug'kv'uggo u''q''dg''uq''uegr vkecn'cdqwi'nktg0Uko krctn( ."o cp{ 'r gqr ng''ctg''go dcttcuugf "d{ 'y j g''gtqvke''gzr tguukqpu''kp'y g''Uqpi "qh'Uqpi u0}

Ecpqpkek("pqv'qpn("cr r kgu"\q"\y g"ej qkeg"qh'dqqmi"\q"\dg"kpenwf gf "kp"\y g"Dkdrg."dwv'cnıq"\q"\y g"ucwu"qh'egt vkp" vtcpurc\kqpu0Hqt"Tqo cp"Ecyj qrkeu."\y g"\yzv'qh'\y g"Xwri cyg."r tgr ctgf "d{"UvIGTQO G"cpf "rcygt"tgxkugf "d{" qy gtu."y cu"xkgy gf "hqt"o qtg"\y cp"3222"{ gctu"cu"\y g"ecpqpkecn'\tcpurc\kqp.."hqto kpi "\y g"dcuku'hqt "kpygtr tgvv\qp" cpf "hqt"cp{"hwty gt "\tcpurc\kqpu0Hqt"Gpi rkuj /ur gcm\pi "Rtq\yguvcpvu."\y g"M\pi "Lco gu"Xgtu\qp"ces wktgf "cm quv'\y g" uco g"uvcwu."cpf "hqt"I gto cp/ur gcm\pi "Rtq\yguvcpvu"\y g"Nwy gt "Xgtu\qp"gplq{gf "uko krct" tgur\ki g0Dw"\y kr"bceqt" qh'ecpqpkek\{"cnq"cr r r\kgu"\q uqo g'\tcpurc\kqpu"\p"\y g"Vj ktf "Y qtrf.."y j kej "uqo g\ko gu"ces wktg"ecpqpkecn'uvcwu" xgt{"s wkem(0Ch\yteqor r ry\pi) "\y g"\tcpurc\kqp"qh'\y g"Dkdrg"\p"qpg"qh'\y g"o clqt"\tcf g"rcpi wci gu"qh"Y guv'Cht\ec." y g"\tcpurc\qt"tgwtpgf "j qo g"qp"rgcxg"qh'cdugpeg"cpf "f gekf gf "\q"\cng"\uqo g"eqwtugu"\p"r\pi wkr\eu0J g"uqqp" tgcr\q gf "j qy "o cp{"o kuvcngu"j g"j cf "o cf g"\p"j ku"yctn\{"y qtm"cpf "wr qp"tgwtp\pi "\q"y g"h\gr "y g"\tcpurc\q"y g"\y g"y g"y g"y g"y g"y cu"\qrf "\y cv"j g"j cf "pq"tki j v'\q"\eic pg"\y g"y qtf "qh'\y g"Nqtf \p"\q g"\y qtf "qh'\y g"Nqtf \p"\y g"\y qtf "qh'\y q"\y qtf "qh'\y q"\y qtf "qh'\y q"\y qtf "qh'\y q"\y qtf "qh'\

#### Vgz, wwc rit gric dirity

Vgz wcn't grkcdkrkv{ 'ku'c'o clqt'kuuwg'kp''y g''ej qkeg''qh''y g''dguv't gcf kpi u'kp''I gdt gy ''qt''I t ggni'vgz wi'vq''ugt xg''cu''y g'' dcuku'hqt ''t cpurc kqpu'kpvq''qy gt 'icpi wci gu0'Hqt ''gz co r ng. 'kp''O ctm'3 6''y g''dguv'I t ggni'o cpwuet kr wi't gcf ''÷cu'kv'' uc {u'kp''Kuckcj ø''dw''y g''pgzv'y qtf u''eqo g'ht qo ''O creej k'cpf ''qpn(''y g''ugeqpf ''r ctv'qh''y g''s wqw kqp''ku'ht qo ''Kuckcj 0' Egt vckp''uet kdgu''pq''f qwdv''pqygf ''y g''kpceewt ce { ''cpf ''ej cpi gf ''y g''yzv''vq''t gcf ''÷cu''kv''uc {u''kp''y g''r t qr j gwo0'O quv'' uej qrctu'kpukuv'y cv'c''t cpurc vqt ''uj qwrf ''hqnqy ''y g''dguv''yz wcn''gx kf gpeg. ''dcugf ''pqv'qp''eqwpvkpi ''o cpwuet kr wi'dw'' qp''y gki j kpi ''y gkt 't grgx cpeg0

#### Fkcıgev'f khigt gpegu

Fkhgtgpegu'qh'f kengev'ctg'qh'y tgg'o clqt'\f r gu<j qtk qpvcn\http(0) gqi ter j kecn\http:\ktgt\kecn\http:\ktgv\kecn\http:\kt

Xgt vlecn'f korgevu'ctg'i gpgtcm{ "qh'yi tgg'v{r gu<"vtcf kkqpcn'cpf "rkvgtct { ."eqo o qp."cpf "uwduvcpf ctf 0'Vj g''vtcf kkqpcn o rkvgtct { "f korgev'ku'pqto cm{ 'yi g'rcpi wci g'qh'uej qqnu."dgwgt "dqqmu."cpf 'yi g'o qtg"gf wecvgf 'r gqr rg0'Vj g''

eqo o qp/rcpi wci g'f kcrgev'ku'guugpvkcm{ ''y g''qxgtrcr 'rcpi wci g''dgwy ggp''y g''rksgtct { ''cpf ''eqmqs wkcn'rgxgnu0'Ki'ku'' y g''v{r g''qh'f kcrgev'go r m{gf ''d{ ''c''dquu''vcmkpi ''vq''go r m{ggu''cpf ''d{ ''c''o cvtqp''vcmkpi ''y ky ''c''o ckf 0'Vj ku'' tgrcvkxgn{ ''pcttqy ''dcpf ''ku''y g''dcuku'hqt''vtcpurcvkqpu''qh'y g''Uctkr wxtgu''kpvq''o qtg''y cp''322'rcpi wci gu''kp''xctkqwu'' r ctw''qh''y g''y qtrf .''cpf ''y g''pwo dgt''qh''uwej ''vtcpurcvkqpu''ku''i tqy kpi ''tcr kf n{ 0'Dw''vtcpurcvkqpu''qh''r ctw''qh''y g'' Dkdrg''kpvq''uwduvcpf ctf ''f kcrgevu''j cxg''cro quv''cry c{ u''dggp''tglgevgf ''d{ ''y g''xgt{ ''r gtuqpu''y j q''pqto cm{ ''wug''uwej ''c'' f kcrgev0'Vj g{ ''tghwug''vq''ceegr v'y g'y gm'o gcpkpi ''ghqtw''qh'y qug''r tqf wekpi ''uwej ''vgz w.''dgecwug''y g{ ''tgi ctf ''y ku'' v{ r g''qh''r wdrkecvkqp''cu''c''r cvgtpcrk kpi ''kpuwn0

Uqekqtgrki kqwu'f kergewi'tgr tgugpv'v{r kecn'y c{u'kp'y j kej 'tgrki kqwu'eqpuvkwgpekgu'go r m{'kp/i tqwr 'hepi wei g0Kp'' Gpi rkuj 'huqo g'r gqr ng'o wej 'r tghgt''y g''y qwhj gg''yto kpqmi {."gur gekem{'kp''r tc{gtu'cpf 'dkdrkecn'r qgxt{."cpf 'y g{" o c{"gxgp''r tgugtxg''y gug''f kuvkpevkqpu'kp''uqeken'tgrevkqpu''co qpi ''ej wtej ''o go dgtu0Uqo g''qh''y g''uco g''v{r gu''qh'' f kuvkpevkqpu''qeewt''y kyj ''ugeqpf ''r gtuqp''ukpi wret''r tqpqwpu'kp''I gto cp. ''Htgpej ''cpf ''Ur cpkuj 0Dkdrg''tcpurevkqpu'' o cf g'kp''uq/eemgf ''i gpf gt/pgwten'repi wei g''enuq''eqpuvkwwg''c''nkpf ''qh''uqekqtgrki kqwu''f kergev'y kyj ''xgt{''j gex{''y gqmi keen'ko r rkeevkqpu. ''dgecwug''y qug''y j q''kpukuv'qp''uwej ''repi wei g''ygpf ''vq''dg''y gqmi keem{ ''rkdgten0Vj g''wug''qh'' egtvckp''ng{ "y gqmi keen'yto kpqmi {''ku''cnnq''c''etweken'gngo gpv'kp''uqekqtgrki kqwu''f kergevu. ''hqt''gzco r ng''gwej cthw'' xu0'Nqtf &u''Umr gt. ''rt kguv''xu0'r cunqt. ''cf j gt gpwi'xu0'o go dgtu. ''gewo gpkeen'xu0'kpvgtf gpqo kpevkqpen''cpf '' ucet co gpv'xu0'ucet gf ''tkg0

#### Ngxgnu'qh'hcpi wci g

Y kj kp"cp{"rcpi wci g"qt"f kcrgev'j gtg"ctg"cny c{u"f khtgtgpegu"qh"rgxgrlqt"tgi knvgt0Vj g"tgi knvgt"wugf "qp"cp{"i kxgp" qeecukqp"tghrgewu"j g"nkpf "qh"rcpi wci g"ur gcngtu"tgi ctf "cu"cr r tqr tkcvg"hqt" y g"v(r g"qh"uqekcn"gpeqwpvgt "kp"y j kej " y g{"ctg"gpi ci gf 0Vj gtg"ku"c"i gpgtcnlvgpf gpe{"hqt"vtcpurcvqtu"vq"tckug" y g"tj gvqtkecnlrgxgrlqhl"rcpi wci g"kp"c" vtcpurcvkqp"dgecwug"c" j ki j "nkvgtct{"rgxgrluggo u"vq"hkv"y g"uvdrko g"ej ctcevgt"qh"y g"f kxkpg"tgxgrcvkqp0C v"y g"uco g" vko g." y ku"pqto cm{"tguwwu"kp"y g"f khtgtgpv"rgxgru"kp"y g"I tggmlcpf" J gdtgy "vgzvu"dgkpi "tgf wegf "vq"c"ukpi rg"rgxgrlv" Ceeqtf kpi n{." y g"uko r rg."uvtcki j v'hqty ctf "rcpi wci g"qh"y g"I qur grlqh"O ctnlku"tckugf "vq"y g"rgxgrlqh"y g"rcpi wci g" kp"y g"Gr knvrg"vq"y g"J gdtgy u." cpf "o wej "qh"y g"f knkpevkxgpguu"qh"y g"cwy qt"cpf "y g"cwf kgpeg"ku"nqu0Kfi'y g" rgxgrlqh"rcpi wci g"ku"vqq"rqy ."kv"ku"i gpgtcm{"tglgevgf"dgecwug"kv"uggo u"f go gcpkpi "qt"vqq"gr j go gtcn"dw"kh"y g" rgxgrlku"vqq"j ki j ."kv"o c{"dg"dg{qpf"y g"tgcf{"eqo r tgj gpukqp"qh"cp"kpvgpf gf"cwf kgpeg0Vj ku"ku"egtvckpn{"twg"qh" uqo g"r qtvkqpu"qh"y g"P gy "Gpi rkuj "Dkdrg."y j gtg"y qtf u"uwej "cu"ghwri gpeg."o kpkwt cpv."rwti cvkqp."cpf"t gswky" ctg"wugf 0

#### Fgi tggu'qh'hlagtcıpguu

Vj g'o quv'ugtkqwu'uqekqrkpi wkuke'kuwg'kp''Dkdrg''\tcpurc\kpi ''ku''r tqdcdn\{ ''y g''eqp\tqxgtu\{ ''qxgt''y g''f gi tggu''qh'' rk\gtcrpguu''cpf ''htggf qo ''\y cv'c''\tcpurc\qt''ecp'' cxg''kp''tgpf gtkpi ''y g''dkdrkecn'\gz\v\0'Vj qug''y j q''hcxq\tt''rk\gtcrpguu'' qh\gp''cti wg''y cv'\y g''o qtg''rk\gtcn'\y g''\tcpurc\qtp''y g''equgt''k\v'\ku'\q''y g''qtki kpcn\0'Uqo g''gxgp''l\wr\kh\\ ''y g'' cy my ctf pguu''cpf ''qdue\tk\gu''qh''rk\gtcn'\tgpf gtkpi u''d\{ ''kpuku\p\pi ''y cv'\y g''ecr cek\\ ''\q''eqo r tgj gpf ''uwej ''c''\gz\v'ecp'' dg''c'o gcu\tg''qh''y g''ur kt\wcn'\puki j v'i tcp\gf ''\q''tgcf gtu''d\{ ''I qf 0

Ukpeg"y g"t grgxcpeg"qh"c"o guuci g"ku"pqv"kp"y g"hqto crihgcwtgu"qh"c"\gzv"dwv"kp"ku"ugo cpvke"eqpvgpv."uqo g" o gcuwtg"qh"htggf qo "ku"tgs wktgf "kh"y g"cti gv"cwf kgpeg"ku"\q"wpf gtuvcpf "y g"dkdrhecri\gzv0Vj g"j gcx{"y gki j v"qh" vtcf kkqp."j qy gxgt."qhvgp"uvkhrgu"c"\tcpurcvqtøu"etgcvkxk\{"cpf"qduvt wev"c"tgcf gtøu"eqo r tgj gpulqp0Hqt"gzco r rg." o quv"Gpi rkuj /ur gcngtu"j cxg"pq"kf gc"y j cv"J cnqy gf "dg"y { "pco g"\*y g"hktuv"r gvkxkqp"qh"y g"Nqtf øu"Rtc{gt." O cwj gy "8< +"tgcm("o gcpu0Vj g"I tggm"\gzv"ecp"dg"\tcpurcvgf "rksgtcm("cu"+Ucpevkhlgf "dg"y { "pco gø"kp"y j kej " +pco gø"ku"c"Ugo kke"y c{ "qh"cxqlxf kpi "c"f ktgev"tghgtgpeg"\q"I qf."cpf "+ucpevkhlgf ø'o wuv"tghgt"pqv"\q"y g"ej ctcevgt" qh"I qf."dw"\q"y g"o cppgt "kp"y j kej "J g"ku"tgeqi pk gf "d{"r gqr rg"cu"dgkpi "\twn("I qf 0Ceeqtf kpi n{."kv"ku"o qtg" tgrgxcpvn{"tgpf gtgf "cu"O c{"cmlr gqr rg"t gcrk| g"y cv"{qw'ct g"I qf"qt"J grr "vu"\q"j qpqwt"{qw'cu"I qf "qt"gxgp"cu" J grr "wu"\q"j qpqwt"{qm'cu"I qf "qt"gxgp"cu" J grr "wu"\q"j qpqwt"{qm'cu"I qf "qt"gxgp"cu" J grr "wu"\q"j qq\q"j qq\q"j qq\q"j qq\q"j qq\q"j qq\q"j qq\q"j qq\q"j qq\q"

#### FkHgtgpegu'kp'hqtocv

Kługgo u'cno quv'kpetgf kdrg''y cv'f khłgtgpegu'qh'hqto cv'kp''y g'r wdrkeckqp''qh''y g'Dkdrg''eqwrf ''dgeqo g''etwekcn'' uqekqrkpi wkuke''kuuwgu. ''dww'f kukpekqpu''qh''y ku''v{r g''ctg''y g''qtyj qi tcrj ke''gs wkxcrgpv''qh''uwej ''r ctcrkpi wkuke''qtcn'' hgcwtgu''

cu'lpvqpcvkqp. 'r cwug. 'mqwf pguu'cpf 'xqkeg's wcrkx{0'Hqt'uqo g'r gqr rg. 'vj g'r tkpvkpi ''qh'c' 'yzv'cu'r tqug''qt'r qgvt{'ku'' qpg''qh'vj g'o quv'uwdvrg''cpf ''eqpvtqxgtukcri'cur gevu'qh'hqto cv0'Qpg'\tcpurcvqt ''qh'c''r qr wrct''Dkdrg'kpvq''Gpi rkuj 'r ckf'' ectghwri'cwgpvkqp'\vq''y g'r qgvke''ej ctcevgt''qh'vj g'Rucmo u. ''Lqd. ''cpf ''vj g''dqqmu''qh'vj g'r tqr j gwu. ''dwv'j g'pgxgt yj grguu'' j cf ''vj g''vgzv'r tkpvgf ''kp''r tqug. ''dgecwug. ''cu''j g''uckf. ''j g'y cpvgf 'r gqr rg''vq''tgcrk g''vj cv'y j cv'y cu'y tkvgp''y cu''vtwg0'Kp'' hcev. ''o cp{ ''r gqr rg''cuuwo g''vj cv'r qgvt { ''ku''pqv'vq''dg''vcmgp''ugtkqwun{ .''cpf ''vj g{ ''f q''pqv'tgcrk g''vj cv'vj g''r tkpvkpi ''qh'' dkdrkecn'r qgvt { ''y kyj ''kpf gpvcvkqp''vq''o ctm'r tko ct { ''cpf ''ugeqpf ct { ''rkpgu''ku''c'i tgcv'cuugv'kp''wpf gtuvcpf kpi ''y g'' o gcpkpi ''qh''y g''yzv'cpf ''cnuq''j grr u'kp''vj g'r wdrke''tgcf kpi ''qh''y g''yzv'kp''wpkuqp0

Vj g'wug'qh'ugr ctcvg'r ctci tcr j u'hqt'o ctmlpi "gzej cpi gu'llp"eqpxgtucvlqp"cpf "f kcmqi wg'ku'gzvtgo gn{ 'j grr hwrlhqt" o quv'tgcf gtu. "dwv'uqo g'tgcf gtu'ctg'uj qengf 'vq'ugg'vj g'Dkdng'r tkpvgf 'nkng'c 'pqxgn0'Vj g{ "o wej 'r tghgt 'vq'j cxg'' gcej "xgtug'r tkpvgf "cu'c'ugr ctcvg'wpkv'dgecwug'vj ku'uggo u'vq'j ki j nki j v'cpf "vq'lwuvkh{ "vj gkt 'nkpf 'qh'vj gqnqi { ."dcugf "qp'kuqncvgf 'vgzw0

Qpg''qh''y g''o quv''cpqo cmwu''gngo gpwu'kp'hqto cv'ku''y g''wug''qh'f khhgtgpv''eqmwtu''cpf ''v{r ghcegu''vq''o ctm'ur gekcn'' y go gu''cpf ''uqwtegu0'Hqt''gzco r ng. ''uqo g''r gqr ng''kpukuv''qp''tgf/ngwgt''Dkdngu''uq''y cv''y g''tgcf gt''o c{ ''f kuvkpi wkuj '' dgwy ggp''y g'y qtf u''qh''Lguwu''cpf ''y qug''qh''qyi gtu0''Vj g''f khhkewn{ .''j qy gxgt.''ku''y cv'kp''uqo g''ecugu''y gtg''ku''pq'' i gpgtcn''ci tggo gpv''qp''r tgekugn{ 'y j kej ''ctg''y qtf u''qh''Lguwu''cpf 'y j kej ''ctg''pqv0'Cnuq.''kh''y g'y qtf u''qh''Lguwu''ctg'' uq''dg''kp''tgf ''kpm''y j { ''pqv'y g''y qtf u''qh''Lquwu''ctg'' y j kej ''ctg''pqv0'Cnuq.''kh''y g''y qtf u''qh''Lguwu''ctg'' uq''dg''kp''tgf ''kpm''y j { ''pqv'y g''y qtf u''qh''Lquwu''ctg''

Uqo g'tgcf gtu'y qwrf 'rkng''vq'ugg''c'xctkgv{ "qh'eqmwtu'vq'o ctm'uwej "yi go gu''cu'hwrhkngf 'r tqr j ge{. "yi g'J qn{ "Ur ktkv." cpf 'ucnxcvkqp."y j krg''qyi gtu'kpukuv'yi cv'ko r qtvcpv'xgtugu''uj qwrf ''dg'kp''ncti gt''dncem'v{ r g0'Dw''cm'uwej ''o gyi qf u''qh'' j ki j rki j vkpi 'uqwtegu''cpf ''v{ r gu''qh''eqpvgpv''cewcm{ "ecm'kpvq''s wguvkqp''yi g''f qevtkpg''qh''r ngpct { 'kpur ktcvkqp. "c'hcevqt'' i gpgtcm{ "qxgt/mqnngf ''d{ ''yi qug''y cpvkpi ''uwej ''f kurkpevkqpu''kp'hqto cv0

#### Uwrrigo gpwt{'hgcwitgu

O quv'Dkdrg'tgcf gtu'y graqo g'uwej ''uwr r rgo gpvct { 'hgcwtgu'cu'c'r tghceg'uvcvkpi ''y g''y zwcn'dcuku'qh'y g'' vtcpurcvkqp''cu'y gri'cu'y gri'ctgr' tkpekr rgu'cpf ''r tqegf wtgu'wugf ''kp''y g''r tgr ctcvkqp''qh'y g''yzv0Cpf ''y g{ ''ctg'cnq'' r rgcugf ''q''y cxg''c'f kevkqpct { 'hqt'wpwwcn'y qtf u. ''cp''kpf gz ''cpf ''o cr u. 'dw''y g{ ''qhxgp''qdlgev'uvtqpi n{ ''vq''pqvgu''cpf '' kpvtqf wevkqpu0Uwej ''cf f kkqpu''q'y g''yzv'uggo ''q'tqd'kv'qh'kwi'ugrh'uwhhekgpe { ''cpf ''cr r gct''q'uwi i guv'y cv'y g'' J qn{ ''Ur ktk'f kf ''pqv'mpqy ''dguv'y j cv'r gqr rg''uj qwf ''tgegkxg0Hqt''o quv'r gqr rg.''j qy gxgt. ''pqvgu''cdqww'y g''xctkqwu'' kpf kxkf wcm''ecrngf ''J gt qf ''ctg'kpf kur gpucdrg. ''cpf ''hqt''ewnwtgu''j cxkpi ''s wkg'f khrgtgpv'ewnqo u'cpf ''kf kqo u'uwej '' pqygu''ctg''etwekcn'hqt''eqttgev'wpf gt/uvcpf kpi 0Hqt''gzco r rg. ''kp''Y guv'Chtkec''qpg''y c { ''q'kpuwn''c'ej kgh'ku''q''r rceg'' dtcpej gu''kp''j ku''r cyj 0Kp''qff gt''q''j qpqwt''cp''ko r qtvcpv'r gtuqp''y g''r cyj ''ku''uy gr v'engcp'kp'htqpv'qh'j ko 0Y j cv'ku''q'' dg''f qpg. ''y gtghtg. ''y kyj ''y g''uqt { ''qh'Iguwno''tkwo r j cpv'gpvt { 'lpvq'Igtwcrgo A'Ku'c''tcpurcvqt''q''ej cpi g''y g''uqt { ''cpf ''y cxg''Iguwno'hqmy gtu''i q''cj gcf ''qh'j ko ''uy ggr kpi ''y g''r cyj A'Qh'eqwtug''pqv#Kp''y g''y g''yzv'c''tcpurcvqt''o wuv'' cfj gtg''q''y g''j g''y kyy''dw''kp''c''hqqvpqvg''y g''o gcpkpi ''qh'y j cv'\qqm'r rceg''ecp''dg''gzr rckpgf ''q''tgcf gtu''kp'' Y guv'C'ttkec0

Kotqf weskqpu"vq"dkdrkecn'dqqmu"cpf "i tqwr u"qh"uwej "dqqmu"ctg"r ctskewrctn("j grr hwrlhqt"o quv"tgcf gtu"dgecwug"yj g{" ecp"r tqxkf g"yj g"j kuvqtkecn'cpf "ewnwtcn'kphqto cskqp"yj cv"ku"uq"guugpskcn'hqt"eqttgev'eqo r tgj gpukqp0"Y j {."hqt" gzco r ng."y qwrf "yj g"Lgy u"j cxg"vq"i q"vq"yj gkt"gpgo kgu."yj g"Rj krkuskpgu."kp"qtf gt"vq"j cxg"yj gkt"r nqwi j u"cpf "ukemgu" uj ctr gpgf A'T gcf gtu"pggf "vq"mpqy "yj cv"yj g"Rj krkuskpguø'ewnwtg"y cu"kp"o cp{"tgur gevu"uwr gtkqt"vq"yj cv"qh"yj g" Kutcgrksgu."y j q"y gtg"ukrn'kp"yj g"Dtqp| g"Ci g."y j krg"yj g"Rj krkuskpgu"j cf "crtgcf {"ces wktgf" Ktqp/Ci g"vgej pqnqi {0

# Rt kpekr igu'cpf 'r t qegf wt gu'qh'it cpurc wqp

Cm'Dkdng''tcpuncvqtu.''y j gyj gt''y g{ "ctg'y qtmkpi "cmpg"qt'kp"c"eqo o kwgg.'hqmqy "c'ugtkgu''qh'ko r nkekv'qt"gzr nkekv'' r tkpekr ngu'i qxgtpkpi "o cwgtu''qh''yzv.''gzgi guku.'hki wtcvkxg'hcpi wci g.''f ktgev'xu0kpf ktgev'f kueqwtug.''r ctci tcr j kpi .'' ugpwgpeg'hgpi yj .''cpf ''uq''qp0kpetgcukpi n{ .''tcpuncvqtu''ygpf ''vq''ci tgg''qp''yj g'hqmqy kpi ''o clqt'r tkpekr ngu<

\*c+''y g''wug''qh''uej qrctn{ 'I tggm'cpf 'I gdtgy ''yzvu \*d+''kpvgtrtgvcvkqpu''dcugf ''qp''y g''dguv''uej qrctn{ 'Iwfigo gpv \*e+"tgpf gtkpi u"vj cv"y km"dg"cwtcm{ "kpvgmki kdrg"cpf "ceegr vcdrg"hqt"vj g"kpvgpf gf "cwf kgpeg"cpf "vj g"r tguwo gf "wugu"qh"vj g"vgzv

\*f +'y g'kpeqtr qtcvkqp''qh''dcemi tqwpf 'kphqto cvkqp''kpvq''pqvgu.''kpvtqf wevkqpu.''cpf 'y qtf 'hkuvu''tcyj gt''y cp''
ngcxkpi ''qw''uwej ''kphqto cvkqp''qt''r wwkpi ''kv'kpvq''y g''vgzv0

Rtcevkecm{"cml'Dkdrg"\tcpurcvkpi 'kpvq"o clqt"rcpi wci gu'ku'f qpg"d{"\gco u'qh'\j tgg'\q'hkxg"r gqr rg'y kj "eqo r rgo gpvct{"mpqy rgf i g"cpf "umkmu"cpf "y kj "tgur qpukdkrkv{"hqt"y qtmkpi "hwmko g"qp"\tcpurcvkpi 0'Uwej "vcpurcvqtu"o wuv'cnuq'j cxg'xgtdcn'hcekrkv{"cpf "etgcvkxkv{."cpf "c"ukpegtg'tgur gev'hqt'\j g'xkgy r qkpvu"qh'qyj gt"r gqr rg0

Vgco u'qh''tcpurcvqtu'pqto cm( 'f kxkf g'tgur qpukdkrkkgu'hqt'f khhgtgpv'dqqmu'qh''y g'Dkdrg. 'ectghwm( 'tgxkgy ''y g'' uej qrctn( 'rksgtcwtg''qp''y gug''dqqmu. 'r tgr ctg''vgpvcvkxg'f tchw''y cv'ctg''y gp''tgxkugf ''d { ''qy gt''o go dgtu''qh''y g''ycco .'' f kuewuu'y g''f tchv''tcpurcvkqpu''vqi gy gt''cpf ''f gekf g''qp''f khhgtgpegu''qh''kpvgtr tgvcvkqp''cpf ''y qtf kpi .''cpf ''vguv''y g'' tguwnu''y ky ''tgxkgy gtu''cpf ''tgr tgugpvcvkxgu''qh''y g''kpvgpf gf ''cwf kgpeg0'

Vtcpurc klapu "kpvq" repi wei gu" april "tgegpvnl" ces wkt kpi "c" y tkwgp "hato "ctg" i gpgtcml "ectt kgf" aw' d { "c" vtcpurc vqt" y knj "cv' recurv uqo g" vtck pkpi "kp" rhpi wku vkeu. "ewn wtcn' cpnj tqr qmi { "cpf" dkd rhecn' uwnf kgu. "y j q" ugt x gu" r tko ctknl" "cu" ctguqwteg" r gtuqp "y knj "c" vgco "qh' rapech kxkf wcn 0 kvlu r ct vke wrctnl" kor qt vcpv' vj cv' vj g" vgz v'qh' vj g" vtcpurc vlap" dg" y tkwgp "f qy p" d { "c" rapech eqo o kwgg" o go dgt "uq" vj cv' kv' y km' dg" tgi ctf gf" cu' dgkpi "vj g' y qtm' qh' vj g' rapech r gqr rg" cpf" pqv' vj g' r tqf wev' qh' c'hqtgki p" o kuulqpct { 0

Ugg'cnuq<

S WTØ P "MQTCP+"VTCP UNC VIQP ="VQTCJ "VTCP UNC VIQP 0

#### Hwt yj gt 't gcf kpi

 $\label{eq:decomp} \mbox{Dggmo cp"cpf 'Ecmqy '3; 96="Dtweg"3; 9; ="Ecmqy '3; 96="Mpqz"3; 6; ="Nctuqp"3; : 6="P \mbox{ kf c"3; 86="P \mbox{ kf c"cpf 'Vcdgt"3; 8; ="f g" Y cctf 'cpf 'P \mbox{ kf c"3; : 80} }$ 

GW GPG'CP KFC

# E

# Eqo o wpłecykzglhwpeykqpcncrrtqcej gu

Vj g"vgto u"**eqo o wpłec vkxg**"cpf "**hwpevkqpcn**ii tqwr 'vqi gyj gt"c"xctkgv{ "qh"crrtqcej gu"vq"vtcpurcvkqp0Uqo gvko gu" nqugn{ "wugf "cpf "pqv"cny c{ u"f ghkpgf ."vj g{ "dtqcf n{ "tgrtgugpv"c"xkgy "y j kej "tghwugu"vq"f kxqteg"vj g"cev"qh" vtcpurcvkpi "htqo "kwu"eqpvgzv."kpukuvkpi "wrqp"vj g"tgcn/y qtnf "ukwcvkqpcn"hcevqtu"y j kej "ctg"r tko g"f gvgto kpcpvu"qh" o gcpkpi "cpf "kpvgtrtgvcvkqp"qh"o gcpkpi 0

Y g'o c{ "f kurkpi wkuj "vj tgg"o ckp"urtcpf u"qh"vj kpmkpi "y j kej "j cxg"kphnwgpegf "vj ku"r gtur gevkxg"qp"vtcpurcvkqp<

c+'y g'hwpevkqpcnkuv'xkgy u'qh'y g'Dtkkuj ''tcf kkqp'kp'hpi wkuvkeu.''uvgo o kpi 'htqo 'LOT(Hktyj ''cpf ''eqpvkpvkpi 'kp'' y g'y qtm'qh'LŒcvhqtf.''O kej cgn'I tgi qt{.''O kej cgn'I cmkf c{''cpf ''qyj gtu

d+'y g'pqvkqp''qh''eqo o wpkecvkxg''eqo r gvgpeg'f gxgrqr gf ''qtki kpcm( ''d{ 'F gm'J {o gu'kp''tgur qpug''vq''y g'' Ej qo um( cp''xkgy ''qh''rcpi wci g''eqo r gvgpeg

# Vj g'hwpevkqpcrkuv'tt cf kskqp

Y j gtgcu'k'y qwrf ''dg''t wg''q''uc{ ''j cv'rhpi wkurkeu'cpf ''tcpurcvkqp''uwrf kgu'j cxg. ''wpvkrleqo r ctcvkxgn( ''tgegpvn( 'cv' mcux.''wpf gti qpg''ugr ctcvg''f gxgmr o gpv''cpf ''gxgp''f gpkgf ''cp{ ''o wwcrltgrgxcpeg. 'kv'tgo ckpu''y g'ecug''y cv''ci gpf cu'' ugv'd{ ''xctkqwu''uej qqnu''cpf ''utcpf u'y ky kp''hpi wkurkeu''j cxg. ''uqqpgt''qt 'revgt. ''hqwpf ''y gkt'y c{ ''kpvq''y kpmkpi ''cpf '' y tkkpi ''cdqww''tcpurcvkqp0'Vj wu. ''uttwewtcrkuo .''hwpevkqpcrkuo .''tcpulaqto cvkqpcri' gpgtcvkxkuo .''uqekqrkpi wkurke'' cpf ''r u{ej qrkpi wkurke 'kuuwgu'j cxg''cml'kphrwgpegf ''y g'f gdcvg0'Kp''i gpgtcn''y qug''kf gcu'j cxg''dggp''o quv'kphrwgpvkcn'' y j kej ''r reeg''o gcpkpi ''cpf ''eqo o wpkecvkqp''cv'y g''egpvtg''qh''rkpi wkurke''cpcn( uku0'V) wu. ''Hkty' .''dwkrf kpi ''qp'' O crkpqy unkøu'pqvkqp''qh''-eqpvgzv''qh''ukwcvkqpø''ucy ''o gcpkpi ''kp''yto u''qh'hwpevkqp''kp''eqpvgzv''cpf ''tglgevgf ''y qug'' crrtqcej gu''q''y g''uwrf { ''qh''ncpi wci g'y j kej ''uqwi j v''q''gzenwf g''y g''uwrf { ''qh''o gcpkpi 0'Etwekcm{ .''y g''y cu''etkkecn'' qh''y g''tgurtkevkxg''xkgy ''qh''rcpi wci g''cu''eqf g'y j kej ''j cf ''dggp''r tqo kpgpv'kp''gctn( ''eqo o wpkecvkqpu''y) gqt { 0'Vy ku'' xkgy ''tgf wegf ''pcwtcrlircpi wci g''q''tcpuo kuukqp''qh'kphqto cvkqp. ''cu''pp''eqo o wpkecvkqpu''gpi kpggtkpi <

Vj g"vgngr j qpg"r gqr ng"ctg"qpn{ "eqpegtpgf" y kij "vj g"gngevtkecn'vtcpuo kuukqp"qh'vj g"o guuci g."uq"vj cv' cf gs wcvg'kphqto cvkqp"ku"ceegr vgf "qt"r wv'kp"cv'uqwteg"cpf "vtcpuo kvvgf"vq"vj g"tgegkxkpi "gpf 0"Y j cv'vj g" r gqr ng"cv'gcej "gpf "ctg"vj kpmkpi ."kpvgpf kpi ."f qkpi "qt"pqv'f qkpi "ku"eqo r ngvgn{ "kttgngxcpv0

\*Hktyj '3; 8: < 8+

Kp''y g'hwpevkqpcnkuv'r gtur gevkxg."qp''y g''qvj gt''j cpf."y g''eqpvgzv'qh''ukwcvkqp''ku''et welcn'cpf ''o wuv'kpenwf g''y g'' r ctvkekr cpwi'kp''ur ggej "gxgpwu."y g''cevkqp''vcmkpi ''r nceg''cpf "qvj gt''tgngxcpv'hgcwtgu0'Hqnqy kpi ''Hktyi ."o cp{ " nkpi wkuvu."uwej "cu''J cmkf c{ "\*3; 9: +."j cxg''wpf gtvcngp''y g''f guetkr vkqp''qh''eqo o wpkecvkxg''gxgpwu''cpf ''y g''cpcn{ uku'' qh''xctkgv{ ''kp''ncpi wci g."y j krg''qvj gtu''\*Ecvhqtf ''3; 87="I tgi qt{ "3; 89."3; : 2+"j cxg''cr r nkgf ''uwej ''pqvkqpu''vq''y g'' uwwf { "qh''vcpurcvkqp0'Ecvhqtf ''\*3; 87<: +"cf xqecvgf ''c''+htco gy qtm'qh''

ecvgi qtkgu'hqt''y g''encuukhecvkqp''qh''uwdrcpi wci gu''qt''xctkgvkgu''y ky kp''c''vqvcn'icpi wci gø0'Vj wu.''**t gi knygt 'cpcn{ uku**'' \*ugg''<u>VGZ V'NRP I WKUVKEU'CP F "VTCP UNC VKQP</u>+'eco g''vq''dg''uggp''cu''c''r qy gthwri'vqqn'kp''y g''encuukhecvkqp'' cpf ''cpcn{ uku''qh''ygz wi'cpf .''yj gtghqtg.''kp''vtcpurcvkqp0'Kpf ggf .'hqt'I tgi qt{ "\*3; : 2-688+.''yj g''guvcdrkuj o gpv''qh'' tgi knygt ''gs wkxcngpeg''ku''yj g''o clqt''hcevqt''kp''yj g''r tqeguu''qh''vtcpurcvkqp0'Ceeqtf kpi ''vq''yj ku''xkgy .''c''i kxgp''ncpi wci g'' wwgtcpeg''ku''uggp''cu''crrtqrtkcvg''vq''c''egtvckp''wug''y ky kp''c''egtvckp''ewnwtcn'eqpvgzv='kp''c''f khlgtgpv''nkpi wkuvke''cpf'' ewnwtcn'ugvkpi .''cf lwuvo gpvu''j cxg''vq''dg''o cf g0

## Vj g'eqo o wplecvkxg'gxgpv

Gctn ('xkgy u'qh'y g'r tqeguu'qh'eqo o wpkeckqp'kpxqnxgf 'y g'pqkqpu'qh'gpeqf kpi 'cpf 'f geqf kpi 'c'o guuci g.'y j kej " y cu'uggp'\q'eqpukuv'qh'dkwu'qh'kphqto c\kqp0'Vj g'\tcpurc\qt'y cu'\tgc\gf "cu'c'f geqf gt"cpf 'tg/gpeqf gt"qh'o guuci gu." y j q'uqwi j v'vq'tgrc{ "vj go "kpvcev'chvgt"o cmkpi "cflwuvo gpvu'hqt"kphqto cvkxkv{ . "fgrgpfkpi "qp"vjg'tgrcvkxg'\*wp+ rtgf kevodkrkv{ "qh'kvgo u'kp''y g'uqwteg"cpf "voti gv'nopi woi gu0'Vj ku'i gpgton'xkgy "qh'eqo o wpkecvkqp''ku'orrnkgf "vq" vtcpurcvkqp"d{"Pkfc"\*3; 86<342hh0+."yjq"uwiiguvu'vjcv'ukpeg."ceeqtfkpi"vq"eqoowpkecvkqp"vjgqt{."kphqtocvkxkv{" ku'gs wkxcrgpv'vq'vvpr tgf kevcdkrkv{ '\*hqt'gzco r rg.'kvgo u'kp''c''o guuci g'y j kej ''ctg''vqvcm{ 'r tgf kevcdrg''ctg''pqv'' kphyto cvkxg="yi qug"y j kej "ctg"vprtgfkevcdrg"ctg"j ki j n{ 'kphyto cvkxg+. 'r ctv'qh'yi g"vtcpurcvqtøu"lqd"ku'vq" eqo r gpucvg'hqt"yj g'nqy gt'ngxgn'qh'r tgf kevcdkrkv{ 'y j gp'c'o guuci g'ku'\tcpuhgttgf "cetquu'nkpi wkurke"dqwpf ctkgu0' Vj g"tgcuqpu'hqt"vj ku'nqy gt"ngxgn'qh'r tgf kevcdkrkv{ "o c{ "dg"nkpi wkurke" hqt"gzco r ng"wphco krkct"y qtf "qtf gt."wug"qh" y qtf u'y kj 'my gt'htgs wgpe { ''qh'qeewttgpeg. ''wphco krkct ''eqmqecvkqpu+''qt ''ewnwtcn''kpenwf kpi ''wphco krkctkv{ ''y kj '' yj g'ugwkpi "qh''yj g'uqwteg''ygzv0'EQO RGP UCVKQP "ku'ghhgevgf ''d{ "dwkrf kpi ''tgf wpf cpe{ ''kpvq''yj g''vcti gv''ygzv'kp'' qtf gt "\q"cxqkf" y j cv" P kf c"ecmu" eqo o wpkeckqp" :qxgt nqcf Ø I gpgt cm{ "ur gcnkpi . "y ku"kpxqnxgu" ngpi y gpkpi "y g" o guuci g'\q'urtgcf '\j g'kphqto cvkqp'nqcf 0'Vj g'pqvkqp'qh'÷ewnwtcn'tgf wpf cpe{ø'j kpvgf 'cv'kp'vj ku'xkgy 'ku'c'wughwn' qpg. "wr "vq"c"r qkpv0"Vj g"r tqdrgo "y kj "yj ku"o qf grl'qh"eqo o wpkecvkqp"ku"yj cv"kv"cmqy u"yj g"uqekcrl'ektewo uvcpegu"qh" vgz v'r tqf we vkqp"cpf "tgegr vkqp"vq"dg"qxgtrqqmgf "cpf."cv"vj g"uco g"vko g. "ko r nkekvn( "xkgy u"o gcpkpi "cu"c" s wcp.\hcdrg"gp.\kv{"\q'dg"tgrc{gf"\pvcev'htqo"uqwteg"\q'\cti gv'rcpi wci g0'Dqyi "qh'yi gug'y gcmpguugu'ctg"tge\khkgf" kp''uwf kgu''y j kej ''xkgy ''ncpi wci g''cu''uqekcn''dgj cxkqwt0

#### Uqekcıleqo o wpkecıkqp

Qpg"gctn("eqpvtkdwkqp"vqy ctf u'tguvqtkpi "vj g"uwf {"qh'eqo o wpkeckqp"vq"ku'uqekcn'htco g/y qtm'ku'vj g'hqto wc" f gxkugf "d{"J (F (Ncuuy gm'kp"3; 6: 'hqt"f ghkpkpi "vj g"tgngxcpv'ej ctcevgtkuvkeu"qh'c"ur ggej "gxgpv<"÷Y j q"uc{u'y j cv'kp" y j kej "ej cppgn'vq"y j qo "y kij "y j cv'ghhgevAø'\*s wqvgf "kp"P qtf "3; ; 3<58+0'Ncvgt "tghkpgo gpvu"vq"vj g'hqto wc"kpenwf g" y g"cf f kkqp"qh'y j gpA'y j gt gA'y j {A'j qy A'vq"gpeqo r cuu'vj g'hwm'tcpi g"qh'hcevqtu"chhgevkpi "hcpi wci g"kp"wug0' Tgkuu'\*3; : 6+"cpf "P qtf "\*3; ; 3+"ctg"co qpi "vj qug"y j q"ukwcvg"vj g"gxgpv'qh'vtcpuncvkpi "kp"vj ku"eqo o wpkecvkxg" htco gy qtn0'Vj g"crrtqcej "kpuwtgu'ci ckpuv'vtgcvkpi "vj g"vgzv'cu"cp"gpvkv{ "kp"kugnh "f kxqtegf "htqo "vj g" ektewo uvcpegu"qh'ku"r tqf wevkqp"cpf "tgegr vkqp."c"vgpf gpe{"y j kej "ku'uvkm'crrctgpv'kp"uqo g"wugu"qh'vtcpuncvkqp"kp"

C"tgrevgf "crrtqcej "ku"yj cv"y j kej "uggu"yj g"tcpurevqt"cu"c"uqekcn'dgkpi "cpf "eqpukf gtu"j kul"j gt "eqo r gvgpeg"cu"c" tgegkxgt "cpf "r tqf wegt "qh"vgz w0"Vj g"pqvkqp"qh"eqo o wpkecvkxg"eqo r gvgpeg"ku"qtki kpcm( "cwtkdwcdrg"vq"F gm" J {o gu"\*3; 93+"y j q"kpvtqf wegf "kv"vq"eqwpvgtcev"yj g"eqo r gvgpeg lr gthqto cpeg"f kej qvqo { "qh"Ej qo um(cp" nkpi wkuvkeu0"Kp"r reeg"qh"vj g"+kf gcn'ur gcngt/rkuvgpgtí wpchhgevgf "d{"uwej "i tco o cvkecm( "kttgrgxcpv'eqpf kkqpu"cu" o go qt{ "iko kcvkqpu."f kuvtcevkqpu. "uj khw"qh"cwgpvkqp"cpf "kpvgtguv."cpf "gttqtuø"\*Ej qo um("3; 87 $\checkmark$ +"J {o gu"y cu" kpvgtguvgf "kp"pcwtcm( "qeewttkpi "ewnwtcn'dgj cxkqwt"cpf "kp"y j cv'ku"r quukdrg. "hgcukdrg"cpf "crrtqrtkcvg"kp"i kxgp" uqekcn'ektewo uvcpegu0"Hqt"vj g"r wtr qugu"qh'uwwf {kpi "vj g"tcpurevqtøu"eqo o wpkecvkxg"eqo r gvgpeg. "y g"o c{"cf crv" vj g"hqwt/r ctv'ercuukhecvkqp"r tqr qugf "d{"Ecpcrg"\*3; : 5+"vq"ceeqwpv'hqt"vj g"+wpf gtn(kpi "u{uvgo u"qh'npqy rgf i g" cpf "unkritgs wktgf "hqt"eqo o wpkecvkqpø'cu'hqmqy u<

\*c+"I too o cykecnleqo r gygpeg<kp"yi g"ytcpurcyqtøu"ecug."yi ku"gpyckru"r cuulxxg"eqo o cpf "qh"qpg"cpf "ceykxg" eqo o cpf "qh"cpqyi gt "rcpi wci g"u{ uvgo ."kp"yi g"ugpug"qh"r quuguulxpi "yi g"mpqy ngf i g"cpf "unkrn"tgs wktgf "vq" wpf gtuvcpf "cpf "gzr tguu"ceewtcygn{ "yi g"hkytcn"o gcplxpi "qh"wygtcpegu

\*d+"*Uqekqrkpi wkuke"eqo r gvgpeg<*'yj g'\tcpurcvqtøu"cdkrkv{ '\q'lwf i g'\y g'\cr r tqr tkcvgpguu'qh'\wvgtcpegu'\q'c" eqpvgzv.'kp'\yto u'qh'uwej 'hcevqtu'cu'\y g''uvcwu'qh'r ctvkekr cpvu.'r wtr qugu'qh'\y g''kpvgtcevkqp''cpf ''pqto u'cpf'' eqpxgpvkqpu'qh'kpvgtcevkqp

e+F kueqwt ug"eqo r gvgpeg<Vj g'tcpurcvqt øu"cdkrkv{ "vq"r gtegkxg"cpf "r tqf weg"eqj gulxg"cpf "eqj gtgpv"vgzv"kp" f khlgtgpv"i gptgu"cpf "f kueqwtugu"VJ cvko "cpf "O cuqp"3; ; V2+

\*f+"*Ut c vgi ke "eqo r gvgpeg*<"yi g"vtcpurc vqt øu "cdkrkv{ "vq"tgr ckt"r qvgpvkcn"dtgcmf qy pu"kp"eqo o wpkec vkqp"cpf "vq" gpj cpeg"yi g"ghhge vkxgpguu"qh"eqo o wpkec vkqp"dgw ggp"uqwteg/vgz v"r tqf wegt "cpf "vcti gv/vgz v"t gegkxgt "\*Dgm" 3; ; 3<6366+0

Vjg'hqmqy kpi 'vgzv'ku'r ctv'qh'c'Gwtqrgcp''Wpkqp'fktgevkxg'eqpegtpkpi 'vjg'fkuntkdwkqp'qh'rjctocegwkecn'rtqfwevu≺

#### Ctvkerg'4

Ngu'Gvcvu'o go dtgu'r tgppgpv''qwvg''o guwtg''wkrg''r qwt''s wg''pg''uqkgpv'f kuvtkdw² u''uwt''rgwt''vgttkqktg''s wg'' f gu''o ² f keco gpvu'r qwt''rgus wgnu''wpg''cwvqtkucvkqp''f g''o kug''uwt''rg''o ctej ² ''eqphqto g''cw'f tqkv'' eqo o wpcwcktg''c'² v² ''f ² rkxt² g0

I kxgp''y g''vcum'qh''r tqf wekpi "cp''Gpi nkuj "'vgzv''y j kej "ku''vq''j cxg''y g''uvcwu''qh''c''ngi cm{ "dkpf kpi "f qewo gpv'kp''y g'' vcti gv''ncpi wci g''eqo o wpkx{ .''y g''vtcpurcvqt''qh''y ku''r cuuci g''o ki j v'tgrcvg''vgzv''vq''eqpvgzv''d{

 $c+'ugngevkpi'htqo''y g'ngzkecn'cpf'u{pvcevke'r qvgpvkcn'qh'y g'vcti gv'ncpi wci g'y j cvgxgt'kvgo u'ctg''y qwi j v'vq'' tgnc{''y g'r tqr qukvkqpcn'o gcpkpi ''qh'y g'r cuuci g'o quv'enqugn{.'o cmkpi ''cp{''qdrki cvqt{''ej cpi gu''q'uwej ''y kpi u'' cu'y qtf''qtf gt.''hqt''gzco r ng''o go dgt''uvcvgu'hqt''Gvcw''o go dt gu$ 

\*d+'vcnkpi 'kpvq'eqpukf gtcvkqp''y g'uvcwu''qh''y g'vgzv'cu'c''f ktgevkxg.''y ky ''dkpf kpi 'hqteg''qp''kvu'wugtu.''cpf 'wukpi '' y ku''cu''c''etksgtkqp''hqt''tgpf gtkpi .''hqt''gzco r ng.''y g''r tgugpv''vgpug''qh''*r t gppgpv*''cu''*uj cnt'vcng* 

\*e+"cwgo r wpi "vq"tghrgev"yi g"cwyi qtkxcvkxg"uvcwu"qh"yi g"f qewo gpv"\*r qy gthwri'f kueqwtug+"d{ "cf qr wpi "yi g" eqpxgpwqpu"qh"yi g"cr r tqr tkcvg"ngi cn'i gptg"kp"Gpi nkuj "vq"r tqf weg"cp"kpuvcpeg"qh"yi g"vgzv"v{ r g":kpuvtwevkqp/y kyi qwv/qr vkqpø

\*f +'i kxgp''y g'eqo o wpłecykxg''ugwkpi .''y g'i gptg''cpf ''y g'f kueqwtug''cu''ur gekhkgf 'kp''\*d+''cpf ''\*e+.''uggnkpi ''cdqxg'' cm''htqo ''c''uvtcygi ke''r qkpv''qh''xkgy .''yq''tguqnxg''cp{ ''r qygpykcn'co dki wkv{ .''gpuwtg''eqo o wpłecykqp''ku''gzr nkeky''cpf '' cf o ku''qh''pq''ngi cn''nqqr j qngu0

Gcej "qh'yi gug"uguu"qh'umkmu"cpf "mpqy ngf i g"ku"f gr m{gf "d{ "yi g"\tcpurc\qt"kp"qtf gt "\q"tghrgev'yi g"kp\gp\kqpu"qh'yi g" uqwteg"\gz\v'r tqf wegt="dwv'kv'ku"j gtg"\yi cv'c'uki pkhkecpv'r tqdngo "ctkugu0"

#### Ogcpkpi 'cpf 'eqo o wpkeckkqp

Vtcpurcvqtu'ctg'eqpuvcpvn{"eqphtqpvgf" y kj "y g'hcev'y cv'y g{"ecppqv'mpqy "y j cv'y gkt"uqwteg" yzv'r tqf wegt" mpqy u''qt'kpvgpf u'y kj "cp{"egtvkpv{0Cu'tgegkxgtu'qh'vgzvu."y g{"j cxg"pq'f ktgev'ceeguu'vq'y g'eqo o wpkecvkxg" kpvgpvkqpu'qh'r tqf wegtu'qh'vgzvu0'Y j cv'r ctvkekr cpw'kp'eqo o wpkecvkqp. "kpenwf kpi "vtcpurcvqtu."ecp'f q'ku'vq'dwkrf "c" o gpvcn'o qf gn'qh'kpvgpf gf "o gcpkpi "qp" y g'dcuku'qh'y g'vgzwcn'tgeqtf "cpf "cm'tgrgxcpv'eqpvgzwcn'kphqto cvkqp" cxckrcdrg. "y j kej "ku'y gp'o cvej gf "ci ckpuv'y gkt'mpqy rgf i g'qh'rcpi wci g'cpf "qh'y g'y qtrf "cv'rcti g0'Kp'y ku'ugpug." y g'tgegkxgt "kpvgtr tgvu."tcvj gt"y cp'wpf gtuvcpf u."c'vgzv0

Uq. 'r ctvlek cpw'kp''eqo o wpkecvlqp''\*kpenvf kpi 'vtcpurcvqtu+'r tqeggf 'qp''yi g''dcuku''pqv'qh'npqy ngf i g''dw''tcyi gt''qh'' cuuwo r vkqpuô cdqw''gcej ''qyi gtøu''cuuwo r vkqpu''cpf ''cdqw''yi g''eqi pkkxg''gpxktqpo gpv'y j kej ''r tqf wegtu''cpf '' tgegkxgtu''uj ctg0'Vj ku''ku''uko krct''vq''yi g''o qf gn'qh''eqo o wpkecvlqp''wr qp''y j kej ''I ww'\*3; ; 3+.''hqmqy kpi ''Ur gtdgt''cpf '' Y knqp''\*3; : 8+.''dcugu''j ku''+tgrgxcpeg/yi gqtgvkeø'ceeqwpv'qh''vtcpurcvkqp''cu''kpvgtrtgvkxg''wug''\*ugg''RTCI O C VKEU'' CPF''VTCPUNC VKQP +0'Kp''eqo o wpkecvkqp.''yi gtg'ku''cny c{u''cp''gzr gevcvkqp''qh''qr vko cn't tgrgxcpeg.''f ghkpgf ''cu'' cf gs wcvg''eqpvgzwcn'ghtgevu''cv'o kpko cn'r tqeguukpi ''equv0'Ceeqtf kpi ''q'I ww.''yi ku'ku''j qy ''j gctgtu'kphgt''y j cv'yi g'' kpvgfr gf ''kpvgtrtgvcvkqp''qt''o gcpkpi ''qh''cp''wwgtcpeg''ku<''-kv'ku''yi g''kpvgtrtgvcvkqp''yi cv'ku''o quv''eqpukngpv'y kyi ''yi g'' rtkpekr ng'qh'tgngxcpeg.''cpf ''yi gtg''ku''pgxgt''o qtg''yi cp''qpg''kpvgtrtgvcvkqp''yi cv'hwthru'yi ku''eqpf kvkqpø''kdkf 0''53+0' Vj g''vtcpurcvqt.''yi gp. ''ku''gpi ci gf ''kp''-kpvgtrkpi wcn'kpvgtrtgvkxg''wugø''nkpnkpi ''j kulj gt''eqo o wpkecvkxg''kpvgpvkqp''q'' yi g''kpvgpf gf ''kpvgtrtgvcvkqp''qh''yi g''uqwteg''ygzv'cpf ''gpuwtkpi ''yi cv'yi g''cti gv'ygzv'tgugo dngu''kv''kpvgtrtgvkxgn(0

#### Ncpi wci g'hwpevlqp.'tgzv'hwpevlqp.'tt cpurcvlqp'hwpevlqp

Vj gtg'j cxg'dggp'o cp{'cwgo r vu'vq'encuukh{''y g'hwpevkqpu'qh'ncpi wci g0'Co qpi ''y g'o quv'kphnwgpvkcn'hqto wncwkqpu'' ctg"yj qug"qh"DAj rgt"\*3; 56+:"Icmqduqp"\*3; 82+"cpf" J cmkf c{"\*3; 95+0DAj rgtøu" F ct uvgmvpi uhvpmkqp." Cwuf twentwpmkqp"cpf "Crrgnhwpmkqp"tghgt."tgur gevkxgn[."vq"vj g"tgrtgugpvcvkqp"qh"qdlgevu"cpf "rj gpqo gpc."vj g" cwkwf g'qh'y g'\gzv'r tqf wegt '\qy ctf u'uwej 'r j gpqo gpc.''cpf 'y g'cr r gcn\q'y g'\gzv't gegkxgt0Vj gug'y tgg''  $\label{thm:continuous} \mbox{hwpe-kqpu'eqttgur} \mbox{ qpf''dtqcfn(''vq''Icmqduqp@u'Tghgtgp-kcn''Gzrtguukxg''cpf''Eqpc-kxg''hwpe-kqpu.''cnj~qwi~j~''vj~g''ncwgt''} \mbox{ left for the properties of the propert$ cffk.kqpcm{ "fkuvkpi wkuj gu'Rj cvke"\*vj g'wug"qh'ncpi wci g"vq"etgcvg"cpf "o ckpvckp"uqekcn'eqpvcev+."O gvcnkpi wcn'cpf " Rqgvle'hwpevlqpu0J cmlfc{"fkuvlpi vkuj gu'vj tgg"o cetqhwpevlqpu<'yj g'llfgcvlqpcn'\*tgrtgugpvcvlqp"qh'gzrgtlgpeg+."  $y \ g'' kp v g tr \ g t u q p c n' v j \ g'' u r \ g c n g t \not o u'' kp v g t x g p v kq p'' kp'' y \ g'' w u g'' q h'' n c p i \ w c i \ g'' c p f '' y \ g'' g z r t g u u kq p'' q h' c w k w f \ g + '' c p f '' y \ g'' \ g'' u r g c n g t \not o u'' kp v g t x g p v kq p'' kp'' y \ g'' w u g'' q h'' n c p i \ w c i \ g'' c p f '' y \ g'' g z r t g u u kq p'' q h'' c w k w f \ g + '' c p f '' y \ g'' u r g c n g t \not o u'' kp v g t x g p v kq p'' kp'' y \ g'' u r g c n g t \not o u'' kp v g t x g p v kq p'' kp'' y \ g'' u r g c n g t v q p v kq p'' kp '' y \ g'' u r g c n g t v q p v kq p'' kp '' y \ g'' u r g c n g t v q p v kq p'' kp '' y \ g'' u r g c n g t v q p v kq p'' kp '' y \ g'' u r g c n g t v q p v kq p'' kp '' y \ g'' u r g c n g t v q p v q$ vgz wcn'\*vj g'ur gcngtøu'r qvgpvkcn'hqt 'eqpuvt wevkpi 'eqj gtgpv'vgz v+0'Vj gtg'ku. 'vj gp. 'c'f gi tgg'qh'eqpugpuwu'co qpi " yj gug"cnygtpcvkxg"hqto wncvkqpu0"kk"ku"qp"yj g"dcuku"qh"DAj ngtøu"v{rqnqi {"'yj cv'Tgkuu'\*g0103; 98+"fkuvkpi wkuj gu" dgwy ggp" y g"kphqto cykxg" ygzv. "y g"gzrtguukxg" ygzv" cpf "y g"qrgtcykxg" ygzv. "gcej "ecnkpi" hqt 'r ctykewrct "ugwu" qh'unkmu" cpf "untcygi kgu"qp" yi g"r ctv"qh" yi g"ttcpurcyqt0" Vi gtg"ecp" dg"pq" f qwdv" yi cv"rcpi wci g"hwpeykqpu" ko r kpi g"uki pkhkecpyn (" qp''y g''tcpurcvqtøu''cum'qh'tgrc{kpi ''xcnwgu'htqo ''uqwteg''\gzv'\q'\cti gv'\gzv0Cu'Tqdgtvu'\s3;;4+''r qkpvu''qww.'' j qy gxgt."kv"ku"ko rqtvcpv"vq"fkuvkpi wkuj "dgwy ggp"ncpi wci g"hwpevkqp"cpf"vgzv"hwpevkqp0"Pq"cewcn"vgzv"ykm"gzjkdkv" qpn("qpg"rcpi wci g"hwpewlqp0"kp"hcev."cm"\gzvu"ctg"o wnwhwpewlqpcn"gxgp"kh"qpg"qxgtcm"tj gvqtkecn"r wtr qug"y km" i gpgtcm{"\gpf"\q"rtgfqo kpcvg"cpf"hwpevkqp"cu"\j g"wnklo cvg"fgvgto kpcpv"qh"\gzv"unt wewtg"\J cvko "cpf"Ocuqp" 3;;2+0

Kýku'hwtyi gt''pgeguuct { ''vq''eqpukf gt''yi g'hwpevkqp''pqv'lwuv'qh'hcpi wci g''cpf ''\*iuqwteg+''vgzv'dwv'cnuq''qh''yi g''tcpurcvgf ''
vgzv=''yi g'tgcuqpu'hqt''eqo o kuukqpkpi ''qt''qyi gty kug'kpkkcvkpi ''c''vtcpurcvkqp''ctg'kpf gr gpf gpv'qh''yi g''tgcuqpu'hqt''yi g''
etgcvkqp''qh''cp { ''r ctvkewct''uqwteg''vgzv0'Kv'ku''kp''yi ku''ugpug''yi cv''yi g''*UMQRQU'*VJ GQT[ ''qh'Tgkuu''cpf ''Xgto ggt''
\*3; : 6+'ku''vq''dg''wpf gtuvqqf 0'Vj g''hwpevkqp''qh''yi g''vtcpurcvgf ''vgzv'kpenwf kpi ''yi g''kpuvkwwkqpcnhcevqtu'uwttqwpf kpi ''
vj g''kpkkcvkqp''qh''yi g''vtcpurcvkqp.''ku''c''etwekcnhf gvgto kpcpv'qh''vtcpurcvqtuø'f gekukqpu0'Kp''yi ku'hwpevkqpcnhxkgy ''qh''
vtcpurcvkqp.''cp { ''pqvkqp''qh''gs wkxcngpeg''dgwy ggp''c''uqwteg''vgzv'cpf ''c''vcti gv'vgzv'ku'uwdqtf kpcvg''vq''yi g''unqrqu''qt''
r wtr qug''y j kej ''yi g''vcti gv'vgzv'ku'kpvgpf gf ''vq'hwnkn0'Cf gs wce { ''y kyi ''tgi ctf ''vq''unqrqu''yi gp''tgr rcegu''
GS WKXCNGP EG''cu''yi g''uvcpf ctf ''hqt''lwf i kpi ''tcpurcvkqpu0'Kp''c''

uko krct 'xgkp. 'J qrl /O @pw@k'\*3; : 6+'xkgy u'\tcpurc\kqp''cu'\kp\gtewnwtcn'CEVKQP '\kp'y j kej '\j g'i qcnu'qh'\j g''ce\kqp'' ctg''dq\j '\j g'\tcpurc\kqp''cy j kej '\j g'\tcpurc\kqp''cy j kej '\j g'\tcpurc\kqp''ku'\q'hwrhkr0P qtf '\\*3; ; 5< +'' kp\tqf wegu'\j g'hwt\j gt 'f ku\kpe\kqp''\j cv'kv'ku'pqv'\j g'\gz\v'\kp''ku\grh''y j kej '\j cu'c'hwpe\kqp='tc\j gt. 'c'\gz\v'ces wktgu''ku'' hwpe\kqp''\p''\j g''ukwc\kqp''\kp''y j kej '\kv'ku'tgegkxgf 0

Kó''ygto u'qh''y g''Gwtqr gcp''Wpkqp'f ktgevkxg''ekyf ''cdqxg.''c'hwpevkqpcn'xkgy ''y qwf 'f kukpi wkuj ''cv'ngcuv'y q'r quukdrg'' r wtr qugu'hqt''y g''tcpurcvkqp0'Vj g''yzv'o c{ ''dg''tcpurcvgf 'hqt'kphqto cvkqp.''kp''qtf gt''vq''i kxg''cp''ceewtcvg'' tgr tgugpvcvkqp''qh''y g''r tqxkukqpu''qh''y g''r ctvkewrct''f ktgevkxg'lkp''s wguvkqp.''qt''kv'o c{ ''dg''tcpurcvgf ''kp''qtf gt''vq''uvcpf '' cu''c''ngi cm{ ''dkpf kpi ''yzv'lkp''c''vcti gv'rcpi wci g'eqo o wpkx{0'Vj g''rcwgt''r wtr qug''ku.''qh'eqwtug.''o qtg''j gcxkn{ '' eqpurtckpkpi ''y cp''y g''hqto gt0'Uwej ''tgcn'y qtnf ''r wtr qugu''ctg''r ctco qwpv''cpf ''eqo r ngvg''y g''tcpurcvqtøu''ej ckp''qh'' eqo o wpkecvkqp0'Vj wu.''y g''eqo o wpkecvkxg1'hwpevkqpcn'r gtur gevkxg''ecp''dg''uggp''cu''cp''cr r tqcej ''y j kej ''tgrcyu''y g'' ektewo uvcpegu''qh''y g''tqf wevkqp''qh''y g''uqwteg''yzv''cu''c''eqo o wpkecvkxg''gxgpv''q''y g''uqekcn'ektewo uvcpegu''qh''y g'' cev'qh''tcpurcvkpi ''cpf ''y g''i qcni'y j kej ''ky'cko u''q''cej kgxg0

#### Hwt yj gt 't gcf kpi

 $I \ ww'3; ; 3 = "J \ cwo "cpf "O \ cuqp"3; ; 2 = "J \ qrl \ O \ @pw@k'3; : 6 = "J \ qwug"3; ; 9 = "P \ qtf "3; ; 3."3; ; 5 = "T \ gkuu"3; 98."3; : 6 = "T \ gkuu"cpf "Xgto \ ggt"3; : 6 = "T \ qdgt \ w'3; ; 40$ 

KCP'O CUQP

# Eqo o wpks{ 'kpvgtrtgvkpi

Eqo o wpkx{ "kpvgtrtgvkpi "tghgtu"vq"vj g"v{rg"qh"kpvgtrtgvkpi "yj kej "vcmgu"rnceg"kp"vj g"rwdnke"ugtxkeg"urj gtg"vq" hceknkvcvg"eqo o wpkecvkqp"dgw ggp"qhhkekcnu"cpf "nc{"rgqrng<"cv"rqnkeg"fgrctvo gpwu."ko o ki tcvkqp"fgrctvo gpwu." uqekcn'y gnctg"egpvtgu."o gfkecn'cpf "o gpvcn'j gcnj "qhhkegu."uej qqnu"cpf "uko knct"kpuvkvvkqpu0"Kv"ku"uqo gvko gu" tghgttgf"vq"cu"fkcmji wg'kpvgtrtgvkpi 'qt'rwdnke'tgtxkeg'kpvgtrtgvkpi 0

Eqo o wpk\{"kpvgtrtg\kpi "ku"v\{r\lecm\}"dkf\ktge\kqpcn'cpf ."cu"c"twg."ecttkgf "qw\"eqpugewkxgn\{0'K\"eqxgtu"dq\j\" kpvgtrtg\kpi "kp"hceg/vq/hceg"ukwc\kqpu"cpf "kpvgtrtg\kpi "rtqxkf gf "qxgt"\j\ g"\ygrj\ qpg"cpf "ku"rtqdcdn\{"\j\ g"o\ quv" eqo o\ qp"\{r\ g"qh\"kpvgtrtg\kpi "kp"\j\ g"\y\ qtnf\ 0'C\v'qpg"\ko\ g"r\ gthqto\ gf "qpn\{"d\{"xqnwpvggtu."wpvtckpgf "dkrkpi\ wcn." htkgpf\ u"cpf "tgnc\kxgu"\"uqo\ gvko\ gu"\penwf\ kpi "gxgp"ej\ knf\ tgp+."eqo\ o\ wpk\{"\pvgtrtg\kpi\ "j\ cu"i\ tcf\ wcm\{"f\ gxgmrgf "cu"\c"rtqhguukqp"qxgt"\j\ g"r\ cuv'hgy\ "f\ gecf\ gu."\p'tgur\ qpug"\q"\pvgtpc\kqpcn'o\ ki\ tc\kqp"cpf\ "j\ g"eqpugs\ wgpv'hpi\ wkn\ke"\ j\ gvgtqi\ gpgk\{"qh"o\ quv'pc\kqpu\0'Kpetgculpi\ n\{."kv'uggo\ u"\q"dg"f\ gxgmr\ pi\ "kpvgtrtg\kpi\ \\ a\"\gec\gq\ qp\c"\gec\kqpcn'o\ wpk\{"\to\gq\ rq\ n'\gec\kqp\c"\pvgtrtg\kpi\ \\ \\ g'\c\gu\ rq\ n'\gec\kqp\c"\pvgtrtg\kpi\ \\ g'\gec\kqp\ "\gec\kqp\ "\gec\kqp\ n'\gec\kqp\ n'\gec\kqp\ "\gec\kqp\ "\gec\kqp\ n'\gec\kpy\ g'\c\gec\kqp\ "\gec\kqp\ "\gec\kpy\ g'\c\gec\kqp\ "\gec\kqp\ n'\gec\kpy\ g'\c\gec\kqp\ "\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kqp\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kpy\ n'\gec\kpy\ n'\gec\kqp\ n'\gec\kpy\ n'\gec\kp

Vj g'hktuv'kpvgtpcvkqpcn'eqphgtgpeg'f gxqvgf 'gpvktgn{ 'vq'kuuwgu'qh'eqo o wpkv{ 'kpvgtrtgvkpi 'vqqm'r rceg'kp''Vqtqpvq.'' Ecpcfc'kp'3;; 7'\*ugg'Ectt'gv'cn0'3;; 9+0

# Eqo o wpls{ 'lpvgtrtgvlpi 'xu0qvj gt'v{ rgu'qh'lpvgtrtgvlpi

Vj g'tqrg'qh'vj g'eqo o wpkx{ 'kpvgtrtgvgt'ku'cu'xkcn'vq'uweeguuhwi'eqo o wpkeckqp''cu'vj cv'qh'cp{ "qvj gt'v{rg'qh'' kpvgtrtgvgt0'Kp''cf f kkqp."kpvgtrgvgtogy gpv'kp'hceg/vq/hceg'kpvgtcevkqp''go rj cukl gu'vj g'eqo o wpkx{ 'kpvgtrtgvgtøu'tqrg''cu'' dqvj ''c'rcpi wci g''cpf 'uqekcn'o gf kcvqt0'Y j krg''yj g''vgz wcn'o cvgtkcn'hqt''eqphgtgpeg'kpvgtrtgvkpi ''rcti gn{ "eqpukuvu'qh'' rtgrctgf "s'qhvgp'y tkvvgp+"o qpqmi wgu'kp''yj g''uqwteg''rcpi wci g."eqo o wpkx{ 'kpvgtrtgvgtu'j cxg''vq''j cpf rg''tgcn'vko g'' f kcmi wg<'o qtg''qt''rguu''ur qpvcpgqwu''cpf ''wprtgf kevcdrg''gzej cpi g''qh''cm'dgwy ggp''kpf kxkf wcnu''ur gcnkpi ''f khlgtgpv'' rcpi wci gu. "cpf "vj g{ "cnnq"j cxg"vq'kpvgtrtgvkp''dqvj ''f ktgevkqpu0'Vj ku'ku''qhvgp''yj g''ecug''cnnq''kp'hceg/vq/hceg'' kpvgtrtgvkpi ''wpf gtvcngp''kp''dwukpguu''cpf ''f kr nqo cvke''ugwkpi u0'J qy gxgt. ''r tqhguukqpcn'eqo o wpkx{ ''kpvgtrtgvkpi '' f khlgtu'htqo ''o quv'qvj gt''y{ rgu'qh'hceg'kpvgtrtgvkpi ''kp''yj cv'kv'ku''qhvgp''wpf gtuvqqf ''cpf l''qt''tgs wktgf ''vq'' kpxqnxg''c'j ki j ''rgxgn'qh'hpgwtcrkx{ ''cpf 'f gvcej o gpv="vj g''eqo o wpkx{ ''kpvgtrtgvgt''ku''

i gpgtcm( "gzr gevgf "pqv'vq"ukf g"y kyj "gkyj gt "r ctv( 0

Vj g'r tkpekr ng'qh'pgwtchk{"cpf 'f gwej o gpv."y j kej "ku'r gtj cr u'vcngp'hqt'i tcpvgf 'kp'EQWTV'RP VGTRTGVRP I ."
j cu'dggp'c'o clqt 'kuwg'qh'f gdcvg'co qpi 'r tqhgwkqpcn'eqo o wpk\{ 'kpvgtr tgvgtu'cpf 'vj qug'y j q'vtckp'vj go 0'
Cwgo r w'vq'f ghhpg'vj g'cr r tqr tkcvg'ipxgn'qh'hpxqnxgo gpv'xu0f gwej o gpv'qp'vj g'r ctv'qh'vj g'eqo o wpk\{ "kpvgtr tgvgt'ctg'htcwi j v'y kj 'f khhewnkgu0ffp'r tcevkeg."c'eqo o wpk\{ 'kpvgtr tgvgt'qhxgp'j cu'vq'uwhhgt'vj g'f krgo o c'qh''
dgkpi 'uko wncpgqwun\{ 'uggp'cu'vj g'ko o ki tcpvgu'cf xqecvg'cpf 'vj g'qhhekcngu':qqng/cpf 'j gm kpi 'j cpf 0'Vj ku'cnq''
o gcpu'vj cv'eqo o wpk\{ 'kpvgtr tgvgtu'ecp. 'htqo 'vy q'qr r qukpi 'r qkpwi'qh'xkgy .'dg'tgi ctf gf 'cu'r qvgpvkcn'tgpgi cf gu0'
Vj gkt'f krgo o c'cu'o gf kcvqtu'ku'hwv j gt'gzcegtdcvgf 'd\{ 'vj g'r tgxcngpeg'qh'uqekcn'cpvci qpkuo .'gvj pke'vgpukqpu'cpf ''
tcekcn'r tglwf keg'kp'o quv'eqwpvkgu0O quv'eqo o wpk\{ 'kpvgtr tgvgtu'ctg'vj go ugnxgu'o go dgtu'qh'o kpqtk\{ 'i tqwr u'kp''
vj g'j quv'eqwpvt \{ .'dw'eqo r ctgf 'vq'qvj gt'o go dgtu'qh'vj gug'i tqwr u'vj g\{ 'ctg'tgrcvkxgn\{ 'cuuko krcvgf 'kpvq'vj g'j quv''
uqekgv\{ 'cpf 'hco khct'vy kj 'ku'kpukwwkqpu0Eqo r ctgf 'vq'eqphgtgpeg."eqwtv'dwukgguu'cpf 'uko krct'v\{ r gu'qh''
kpvgtr tgvkpi .'eqo o wpk\{ 'kpvgtr tgvkpi 'tgo ckpu'c'ny /uccwu'r tqhguukqp'y j kej 'f qgu'pqv'cwtcev'j ki j 'ngxgni'qh''
tgo wpgtcvkqp0Vvj ku'ku'kpf ktgevn\{ 'tghrgevgf 'gxgp'kp'vj g'ngxgni'qh'vtckpkpi ''o cf g'cxckrcdng<'y j gtg'eqwtugu'ctg''
ur gekhecm\{ 'f guki pgf 'hqt'eqo o wpk\{ 'kpvgtr tgvgtu.'vj g\{ 'vgpf ''q'dg'twp''o quvn\{ 'd\{ ''eqnpi gu'tcvj gt'vj cp''
wpkxgtukkgu0}

# Rt qhgudqpcnitt clplpi 'r t qi t co o guk'cp'qxgt xlgy

Rtqhguukqpcnl\tckpkpi "hqt"eqo o wpkx{ "kpvgtrtgvgtu"ku"tgncvkxgn{ "y gml'guvcdrkuj gf 'kp"eqwpvtkgu"y j gtg"vj g"pggf 'hqt" tgrkcdrg'kpvgtr tgvkpi 'ku'tgeqi pk gf 'd{ 'y g'uqekgv{ 'cv'rcti g'tcy gt'y cp'lwuv'd{ 'o go dgtu'qh'y g'hkpi wkurke'' o kpqtkkgu0'Kp"uqo g"eqwpvtkgu."vtckpkpi "ku"uwr r qtvgf "cv"pcvkqpcn"ngxgn0'Vj ku"j cu"nqpi "dggp"vj g"ecug"kp"vj g"P qtf ke" eqwpvtkgu. "Cwuvtcrkc. "P gy "\ gerepf. "cpf "kp" y g'Ecpcf kep" P qt y y guv 'vgttkqtkgu '\*hqt "Gpi rkuj "xku«/xku 'cdqtki kpcn' ncpi wci gu+0'Gnugy j gtg.'hqt'kpuvcpeg''y g''Wpksgf ''Uvcvgu'\*'ugg''Htkuj dgti '3; : 8+.'r wdnke'tgeqi pkskqp''qh'cpf ''uwr r qtv'' hqt"UNIPGF"NCPIWCIG"NPVGTRTGVNPI"ku"tgncvlxxgn{"uvtqpi."yjkng"eqoowpkv{"kpvgtrtgvlpi"tgockpu" ncti gn("f gr gpf gpv'qp"wpvtckpgf"cpf"wpegtvkhlgf"xqnwpvggtu0I gpgtcm("ur gcnlpi."vj g"ngxgn'qh'r wdnle"uwr r qtv'lp" o quv'eqwpvtkgu'\gpf u'\q'hnwewcyg'kp'tgur qpug'\q'yi g'i gpgtcn'r qnkkecn'enko cvg. 'y j kej 'f gvgto kpgu'yi g'ngxgn'qh' hwpf lpi "cxckrcdrg'hqt" \tclplpi "r tqi tco o gu"cpf "hqt" r c{o gpv'qh"eqo o wpkv{ "kpvgtr tgvgtuø hggu0 Kp'Cwwtchc.'F gcmlp'Wpkxgtukv{'cpf'O ces wctkg'Wpkxgtukv{'j cxg'dggp'r tqxkfkpi'r tqhguukqpcn'vtckpkpi'hqt" kpygtrtgygtu. "kpenwfkpi "eqo o wpkv{ "kpygtrtgygtu."ukpeg" yj g"ncyg" 3; : 2u0 Ceetgfkxcykqp" qh" eqo o wpkv{ "kpygtrtgygtu" j cu''gzkungf ''kp'Cwuntcnkc''ukpeg''3; 990'Kk'ku''r tqxkf gf ''d{ ''yj g'Pcnkqpcn'Ceetgf kscnkqp'Cwnj qtkv{ ''hqt''Vtcpuncvqtu''cpf '' Kovetr tevetu. "P CCVK" kp"cv'necuv'42" f kthetepv'ncpi wci g"eqo dkpcvkqpu0Cpqvj gt"ko r qtvcpv'kpuvkvvvkqp"ku" vj g" Cwunterlep 'Kpunkwwg'qh'Kpvgtr tgvgtu'epf "Vtepurcvqtu'\* CWUKV"3; ; 4+0'Vj gug'epf "qvj gt'qti epk evkqpu'j exg'o ef g" eqpulf gtcdrg 'ghhqtvu' yi tqwi j ''yi g''{ gctu' \q''gf wecvg 'pqv'qpn{ ''yi g' kpvgtr tgvgtu' dw'cnq' yi g' wugtu' qh' kpvgtr tgvkpi " ugtxkegu0Hqt'kpuvcpeg.''y g'P cvkqpcn'Egpvtg'hqt'Eqo o wpkx{ 'Ncpi wci gu'kp'y g'Rtqhguukqpu'cv'O qpcuj 'Wpkxgtukx{ " j cu'dggp'twppkpi "eqwtugu'hqt"r tqhguukqpcnu'kp"vj g'ctgc"qh'ncy. "o gf kekpg. "uqekcn'y qtm'nkdtctkcpuj kr "cpf "dwukpguu" ukpeg"yj g"ncvg"3; : 2u0

Vj g'Cwemcpf ''Kpurkwwg'qh''Vgej pqmi { 'lp''Y gmkpi vqp. 'P gy '\ gcrcpf .'j cu''qhhgtgf 'eqwtugu'kp''eqo o wpkx{ "kpygtrtgykpi ''dgy ggp''Gpi rkuj ''cpf ''uqo g''ukz''Cukcp''cpf ''Rcekthe''rcpi wci gu''ukpeg''3; ; 20'Kp''3; ; 6. 'kv'qti cpk gf ''y g'' httuv'r tqhguukqpcri'vtckpkpi ''r tqi tco o g'hqt'O cqtk'kpygtrtgygtu'O'Ceetgf kcvkqp''j cu'dggp''cxckrcdrg'hqt''eqo o wpkx{ "kpygtrtgygtu'kp''Gpi rkuj ô O cqtk'ukpeg''3; : 90'Vj gug'kpygtrtgygtu''ctg''rhegpugf ''d{ ''y g'O cqtk'Ncpi wci g'' Eqo o kuukqp''chygt''r cuukpi ''rcpi wci g''gzco u''qpn{ 0'Hqt''qyj gt''rcpi wci gu. 'kpygtrtgygtu''ecp''tgegkxg''ceetgf kcvkqp'' y tqwi j ''y g'Cwuxtcrlcp''P CCVK'i gpgtcm{ ''ceegr vgf ''cu''rtqxkf kpi ''c''f g''hcevq''uvcpf ctf 0 kp''Ecpcf c.''eqo o wpkx{ ''kpygtrtgygt''gf wecvkqp''f khhgtu'htqo ''rtqxkpeg''vq''rtqxkpeg0'Hqt''kpuvcpeg.''y g''Ctevke'' Eqngi g'kp''y g''P qtyj y guv''Vgttkqtkgu''j cu''xtckpgf ''kpygtrtgygtu''dgy ggp''Gpi rkuj ''cpf ''f khhgtgyv'cdqtki kpcn'' rcpi wci gu'ukpeg''y g''3; 92u0'Uwf gpvu''ctg''tgetvkxgf ''gpvktgn{ ''htqo ''o kpqtkx{ ''rqrwcvkqpu''cpf ''tckpkpi ''cko u''cv'' tghkpkpi ''y gkt''Gpi rkuj ''cpf ''f gxgrqr kpi ''uqo g''unhmu''eqpukf gtgf ''pgeguuct { 'hqt''kpygtrtgygtu''\tcpurcvqtu''kp''i gpgtcr0' Vj g''Crdgtvc''Xqecvkqpcn''

Eqmgi g'\tc\pu'\kp\gtrtg\gtu'\kp\Gcu\gtp'\Gcu\gtp'\Gcu\gtp'\Gcu\gtp'\Co\gt\kcp'\cpf''\Co\gt\kcp''\cpf''\Co\gt\kcp''\cpf''\Co\gt\kcp''\cpf'

Uko kretn( 'kp''y g''Wpksgf "Uccyu." f khhetgpv'uccyu'j cxg'f khhetgpv'r qnkekgu'y ky 'tgi ctf ''\q''kpystr tgyt'gf weckqp0Vj g''
Wpkxgtukx{ "qh'Ctk qpc" j cu'twp"c'xctkg√{ "qh'eqwtugu'kp"eqwtv'kpystr tgykpi "\*Gpi nkuj /Ur cpkuj +'ukpeg" y g'3; : 2u="
uwf gpwi'qhysp"gpf 'wr 'y qtmkpi 'kp'pqpngi cn'cu'y gm'cu'ngi cn'ugwkpi u0Uj qt√yto "tckpkpi 'kp'Gpi nkuj /Ur cpkuj "
kpystr tgykpi "j cu'hqt"uqo g"{ getu'cnuq'dggp'r tqxkf gf "d{ "y g"Y kmkco "Rcvgtuqp"Eqmgi g'kp"Y c{pg."P gy "Igtug{."y g"
Wpkxgtukx{ "qh'Ecnkhqtpkc"cv'Nqu'Cpi gngu."y g'O qpystg{ "Kpukwwg"qh'Kpystpcykqpcn'Uwf kgu."cpf "y g"Wpkxgtukx{ "qh"
F gncy ctg0F gur kg''y g'ncti g'kpetgcug'kp''y g'pwo dgt "qh'ko o ki tcpwi'cpf "tghwi ggu'htqo "Cukcp. 'Rcekhke.'O kf f ng"
Gcuytp"cpf "Gcuy'Gwtqr gcp"eqwpvtkgu'f wtkpi "y g'3; : 2u."y gtg'j cxg''dggp'hgy "vtckpkpi "r tqi tco o gu'kp"
eqo o wpkx{ "kpystr tgykpi 'kpxqnxkpi 'y gug'ncpi wci gu'\*F qy pkpi 'cpf "J gno u'Vkngt { "3; ; 4="Uej y gf c/P kej qnuqp"
3; ; 6+0

D{"cpf"hcti g. "Gwtqr gcp"eqwpvtkgu" y kj "j g"gzegr wqp"qh" j g"P qtf ke"eqwpvtkgu+"j cxg"o cf g"xgt { "hkwrg"ghhqtv"uq" htt'\q'hqto cnk g''gf wecvkqp''cpf '\guvkpi 'hqt'r wdnke/ugtxkeg'kpvgtr tgvkpi 0Cu'kp''qvj gt'r ctwi'qh'vj g'y qtnf.'ngi cn' kpvgtrtgvkpi 'ku'tgncvkxgn(''dgvvgt'tgi wncvgf''cpf''oqtg''kpuvkxvvkqpcnktgf''eqorctgf''vq''uqekcn'ugtxkeg.''jgcnvj''cpf'' o gpvcn'j gcnyj 'kpvgtrtgvkpi O'Hqt'kpuvcpeg.''vj g'I gto cp''rtqhguukqpcn'cuuqekcvkqp'hqt'kpvgtrtgvgtu'cpf''vtcpuncvqtu.'' DF ©"\*Dwpf 'f gt 'F qro gwej gt 'wpf '@dgt ugv/gt +"qti cpk gu'uj qtv'vgto "\tckpkpi "kp"eqwtv'kpvgtr tgvkpi "dwv'j cu'f qpg" rkwrg'uq'hct'\q'r tqxkf g'\tckpkpi 'hqt'kpvgtr tgvgtu'kp''qvj gt'kpuvkwvkqpcn'ugwkpi u0Vj g''Gyj pq/O gf k/kpkvej g'\ gpvt vvo " kp"J cpqxgt"ku"cp"gzegr vkqp<kv"j cu"dggp"c"ncti guecng"eqqtfkpcvqt"qh"eqo o wpkv{ "kpvgtrtgvkpi "ugtxkegu"kp" y g" P kgf gtucej ugp"tgi kqp"ukpeg"3; ; 3"cpf "eqp\kpwgu"\q"qti cpk g"y qtmuj qr u."eqphgtgpegu"cpf "ugo kpctu."uqo g\ko gu" kp"eqmcdqtcvkqp"y kj "ncti g"o gf kecn"kpuvkwvkqpu. 'vq"vgcej "r wdnke"ugtxkeg"r tqxkf gtu"j qy "vq"y qtm'y kj "eqo o wpkv{" kpygtrtgygtu0Kp"yj g"Wpkygf"Mkpifqo."\tckpkpi"j cu'dggp"cxckrcdrg"qp"c"uo cm'uecrg"ukpeg"3;:5."kpkkcm("rtqxkfgf"  $d\{ \text{``Vj g''Kpurkwwg''qh''Nkpi wkuru.''uwr r qtvgf ''vj tqwi j ''c''ugtkgu''qh''i tcpwi'htqo ''vj g''P whhkgrf ''Hqwpf cvkqp.''cpf ''rcvgt'' | vlashed to the state of the$ yj tqwi j "xctkqwu"kpuvkwwkqpu"uwej "cu"yj g"Wpkxgtukv{ "qh"Y guvo kpuvgt0Vj g"P whhkgrf "Kpvgtr tgvgt "Rtqlgev'dtqej wtg" \*3; ; 667+'rkınu'3; 'f kthgtgpv'eqmgi gu'y j kej 'twp'uj qt√vgto 'eqwtugu'f guki pgf 'vq'r tgr ctg'uwwf gpwu'vq'ukv'yj g'gzco " hqt"yjg"Fkrmqoc"kp"Rwdnke"Ugtxkeg"Kpvgtrtgvkpi0Kpvgtrtgvgtu"ecp"urgekcnktg"kp"gkvjgt"Nqecn'Iqxgtpogpv."Jgcnyj" qt"Ncy 0C"P cvkqpcnTgi kuvgt"qh"Rwdnle"Ugtxleg"Kpvgtrtgvgtu"y cu"ugv"wr"d{"yi g"P whhlgnf"Hqwpfcvkqp"lp"3;;60Vjg" Nqpfqp'Kpvgtrtgvkpi 'Rtqlgev'\*NKR+'cnuq'qhhgtu'c'xctkgv{ 'qh'uj qtv'vgto 'eqwtugu'hqt'eqo o wpkv{ 'kpvgtrtgvgtu' \*Ucpf gtu'3; ; 4+0

O qtg"cf xcpegf "\tckpkpi "kı"cxckrcdrg"\p"o cp{"r ctwi'qh"\tecpf kpcxkc\text{OUy} gf gp"y cu"co qpi "\j g"htuv\q"qti cpk g" r tqhguukqpcri\tckpkpi 'hqt"eqo o wpk\{"kp\gtr tg\gtu."u\ctv\pi "cu"gctn\{"cu"3; 8: ."cv\c"\ko g"y j gp"c"rcti g"pwo dgt"qh" ko o ki tcpv\'y qtngtu'y gtg"tget\ksgf "htqo "cdtqcf "d\{"U\y gf kij "eqo r cpkgu\text{OP} c\kqpcri'ceetgf kc\kqp"hqt"eqo o wpk\{" kp\gtr tg\gtu"j cu"cnq"dggp"cxckrcdrg"ukpeg"3; 980\tckpkpi ."rcti gn\{"qhtgtgf "cv\'eqmgi gu"cpf "uko krt"kpu\kwkqpu"kp" yi g"hqto "qh\"uj qt\v\gto "eq\text{utgu}"k\"u\cxckrcdrg"\upog"\qp "\upog"48"f khtgtgp\"repi wci gu\text{ONpi gt "cpf "o qtg"cf xcpegf "eq\text{utgu}" ctg"cnq\"qhtgtgf "cv\text{U}y gf kij "\wpkxgtuk\gu"\p"\xctkqwu"repi wci g"eqo dkpc\kqpu\text{Upog"3; : 8."\y g"\pu\kw\text{ybuk\kwg"hqt" K\"cv\Uqenj qm "\text{Wpkgtuk\gu"\y}" g"o ckp"rtqxkf gt"qh\"cf xcpegf "\text{vckplpi "htt" kp\text{ytt tg\cv\text{Uqenj qm "Wpkxgtuk\gu"\y}" g"o ckp"rtqxkf gt"qh\"cf xcpegf "\text{vckplpi "htt" kp\text{ytt tg\cytu\gun"\text{ytt tg\cytu\gun"\tex

## Eqpvgpv'cpf 'cko u'qh'vtckpkpi 'rtqi tco o gu

Vtckpkpi "rtqi tco o gu'hqt eqo o wpkv{ 'kpvgtrtgvgtu'xct { 'kp''dqvj 'ueqrg''cpf 'cko u0'C'i gpgtcn'

```
i qcn'ku'qh'eqwtug'\q"gpuwtg'c'j ki j 'ngxgn'qh'ceewtce{ 'd{ 'ko r tqxkpi 'uwwf gpwø'eqo o cpf 'qh'\j gkt'y qtmkpi "
ncpi wci gu0Kp"cffkkqp"vq"npqy ngfi g"qh"nkpi wkuvke"uvt wewtgu. "vj ku"eqxgtu"vtckpkpi "kp"vj g"wug"qh"ur gekcnkt gf"
vgto kpqnqi { "cpf 'hco krkctk kpi "uwf gpw'y kj "vj g'uwdlgev'ctgcu'cpf "cf o kpkntcvkxg'r tqegf wtgu'qh'vj g'r ctvkewrct"
f qo ckpu'kp'y j kej ''y g{ ''y kuj ''vq'ur gekcnk g.'hqt'gzco r ng''j gcnyj ''ugtxkegu.''nqecn'i qxgtpo gpv.''uqekcn'ugtxkegu''cpf ''
ngi cn'ugtxkegu0O quv'r tqi tco o gu'ctg'cnuq'f guki pgf 'vq'f gxgmr 'cy ctgpguu'qh'r qvgpvkcn'ewnwtcn'f khhgtgpegu'
dgwy ggp"r ct wlekr cpwi kp" y g"kpvgtr tgwpi "cev0K/ku"pqv"wpeqo o qp"hqt"eqo o wpkv{ "kpvgtr tgvgtu" \q" cxg" \q"
kpygtxgpg'\q'uo qqi 'ewnwtcn'f khgtgpegu'd{. 'hqt'kpuvcpeg. 'gzr nckpkpi ''qt''cf lwukpi 'eqpxgpvkqpu'eqpegtpkpi ''j g''
f gi tgg"qh"hqto crkx{ "kp"cfftguukpi "vj g"qvj gt"r ctv{0Fkhhgtgpegu"kp"eqpxgpvkqpu"eqpegtpkpi "vj j gp"cpf 'vj j gtg"kv"ku"
crrtqrtkcvg"\q"dtkpi "wr"y j cv"\q"qpg"qt"dqyj "rctvkgu"o ki j v'dg"\cdqq"\qrkeu."uwej "cu"o qpg{."ugz."ftkpmkpi "qt"
tgrki kqp. "o c{ "cnuq"tgs wktg"f grkdgtcvg"kpvgtxgpvkqp"qp"vj g"r ctv"qh"vj g"kpvgtr tgvgt"vq"cxqkf "eqo o wpkecvkqp"
dtgcnf qy p0Qh'eqwtug. "uwej "kpvgtxgpvkqp"d{ "vj g"eqo o wpkv{ "kpvgtrtgvgt"eqwrf" o gcp"rtgxgpvkpi "vj g"rctvkgu"
eqpegtpgf "htqo "i gwkpi "hco krkct"y ky "gcej "qvj gtøu"eqpxgpvkqpu"qh"r qrkxgpguu"cpf "eqttgevpguu0'Qr kpkqpu"
yj gtghqtg'xct{ "co qpi "tckpgtu'eqpegtpkpi "yj g'tqng'qh'yj g'eqo o wpkv{ "kpvgtrtgvgt"cpf "yj g'pqvkqp"qh'ghhkekgpe{ "kp"
yj g'kpvgtrtgvkpi "eqpvgzv0Wnko cvgn(."ghhkekgpe{"ecp"qpn("dg"o gcuvtgf"cickpuv'c'rctvkewrct"i qcn"cpf"i qcnu"qh"
eqwtug"o c{ "f khhgt."eqkpekf g."cpf "dg"pgi qvkcvgf "kp"c"hceg/vq/hceg"kpvgtcevkqp0
Uqo g'uej qrctu'eqpukf gt'kk'vj g'eqo o wpkx{ 'kpvgtr tgvgtøu'r tqhguukqpcn'f wx{ 'vq'kphqto ''gcej ''*qt''qpg+"qh'vj g'r ctvkgu''
cdqw'y j cv'ku'eqpukf gtgf 'crrtqrtkcvg. 'pqto cn'tcvkqpcn'cpf 'ceegr wdrg'd { 'vj g'qvj gt'rctv { 0'Uj ceno cp'y tkgu'
cdqwi'yi g'*WMH'eqo o wpkx{ 'kpvgtrtgvgt'yi cv'-ui g'ku'tgurqpukdrg'hqt'gpcdrkpi 'yi g'rtqhguukqpcn'cpf 'enkgpv'y kyi "
xgt { "f khhgtgpv'dcemi tqwpf u'cpf "r gtegr vkqpu'cpf "kp"cp"wpgs wcn'tgrc kqpuj kr "qh'r qy gt "cpf "mpqy rgf i g. "vq"
eqo o wpkecvg"vq"vj gkt"o wwwcn'ucvkuhcevkqpø'*3; : 63: +0'Ucpf gtu'*3; ; 4-67+"cnuq"uwi i guvu'vj cv'kv'ku'vj g'kpvgtr tgvgtøu"
f w{ "-xq"dtkf i g"c"r qy gt"i cr "cu"y gm"cu"c"ncpi wci g"cpf "ewnwtg"i cr ØGo r ktkecn"t gugctej "*Nkpgm"gv"cn03; ; 4="
Y cf gpul¾3; ; 4. '3; ; 7+'j cu'uj qy p''yj cv'kpvgtrtgvgtu'ctg'kpenkpgf ''vq'hqmqy ''vj ku'rtkpekrng'kp'rtcevkeg. 'kttgurgevkxg''
qh'y g'hcev'y cv'qhhekcn'eqf gu'qh'gy keu'o cng'pq'o gpvkqp"qh"÷o wwcn'ucvkuhcevkqpø'qt"÷gs wcrkv{ø'dwv'tcy gt"
go rj cult g''y g''kpvgtrtgvgtøu''tqng''cu''c''pgwtcn'fgxkeg''hqt''vtcpuhgttkpi ''o guuci gu0Go rktkecn'tgugctej ''j cu''cnuq''
rtqxgf" y cv'lpvgtrtgvgtu' vgpf" vq''i kxg''j ki j gt"rtkqtkv{"vq" y gkt"tqrg" cu'eq/qtfkpcvqtu." tcyj gt" y cp" vtcpurcvqtu." kp" y g"
ugpug''y cv'y g{ 'f gxqvg'o wej 'ghhqtv'\q'uwuvclplpi 'llpvgtcevlqp.''uqo gvlo gu''cv'y g''equv'qh''ceewtce{ 'llp''tgpf gtlpi ''
kpvgtmewqtuø'vwvgtcpegu0'Vj ku'ukwcvkqp'f qgu'j cxg'kvu'f cpi gtu<kp'cuuwo kpi 'vj g'r qukvkqp'qh'vj g'':gzr gtvø'qp''
ncpi wci g"cpf "ewnwtg."cpf "j gpeg"\cnlpi "eqp\tqn'qh'\yi g"lpvgtcevlqp."\yi g"eqo o wplx{ "lpvgtrtgvgt"twpu'\yi g"tkum'qh"
f gr tkxkpi "yj g"o qpqrkpi wcrl'r ctvkgu"qh'r qy gt "cpf "tgur qpukdkrkv{ +: "hqmqy kpi "c'r cvtqpk kpi "o qf gn "o qtg"qt "rguu"
f gelf lpi 'hqt''y go 'y j cv'y g{ "qr vko cm{ 'y cpv'vq"cej lgxg"lp"cpf "d{ "'y gkt "gpeqwpvgt0"Vj ku'dgeqo gu'gxkf gpv'y j gp"
qpg'\cngu'kp\q'eqpukf gtc\kqp'\yi cv'\yi g''o qpqrkpi wcrlr ct\kgu'kp'kpu\kwklqpcrl\ugwkpi u''o c{ "qeecukqpcm{ 'rcem'yi g''
kpygtguv'cpf "o qykxcykqp"\q"cewcm{"\cmi\q"qpg"cpqyi gt0Hqt"kpuvcpeg."c"uwur gev'o ggykpi "c"r qrkeg"qhhkegt"qt"c"
ej knf "o ggvkpi "c"f qevqt "o c{ "r tghgt" vq"tgo ckp" ukngpv0Rtqhguukqpcn' vtckpkpi "ecp" dg"f guki pgf "vq"tckug" cy ctgpguu 'qh'
yj gug"cpf "qyj gt"kuuwgu"ur gekhke "vq"yj g"eqo o wpkx{ "kpvgtr tgvgtøu"y qtn0/Cu"c"twrg. "o quv"vtckpkpi "cko u"vq"gpuwtg"yj g"
kpygtrtgygtøu'eqo o kvo gpv'\q'c'rtqhguukqpcn'eqfg''qh'gyjkeu'cpf'i wkfg''\q'iqqf''rtcevkeg.''vjcv'ku'\q''uwrrqtv'gzkuvkpi''
uvcpf ctf u'eqpegtpkpi 'j qy 'vj g'o qpqrkpi vcrlr ctvkguø'pggf u'cpf 'gzr gevcvkqpu'uj qwrf 'dg'o gv0
O quv'r tqi tco o gu'r tqxkf g''tckpkpi 'kp''eqpugewkxg''cpf ''uko wnxcpgqwu''kpvgtr tgvkpi 0'Vj g{ 'r c{ ''xct{kpi 'f gi tggu''qh''
cwgpwlqp"vq"pqvg/vcmlpi "vgej pls wgu"cpf "f gxgmr lpi "vj g"t gngxcpv"umlmu"hqt "ulki j v"vtcpuncwlqp."cu"y gm"cu"hqt"
y tkwgp 'tcpurcvkqp0'Vj g{ 'i gpgtcm{ 'cnuq 'kpenwf g'c'eqo r qpgpv'qp 'kpvgtr tgvkpi 'vj gqt { .'kp'cf f kvkqp'vq'r tcevkecn'
gzgtekugu'cpf 'hpi wkuke'cpf 'vgto kpqmi { 'vtckpkpi 'kp'vj g'hcpi wci gu'kp's wgukqp0'Rtcevkecn'gzgtekugu'kpxqnxg''
rcpi wci g'hcdqtcvqt { 'y qtm'cpcn{ uku'qh'qpgøu'qy p''cpf ''qyj gt''uwf gpvuø'tgeqtf kpi u.''cpf 'tqng/r nc { 0
I wkf grkpgu'kpuvtwevkpi 'r wdrke 'ugtxkeg''qhhkekcnu'cpf ''qyi gtu''qp''j qy ''vq''eqo o wpkecvg''yi tqwi j ''eqo o wpkv{ ''
Pgy"
```

# Eqo o wpks{ 'kpvgtrtgvgtu'kp'iqekgv{

Vjg"rtqhguukqpcnktcvkqp"qh"eqoowpkx{"kpvgtrtgvkpi" kpenxfkpi"ugvkpi" wr"vtckpkpi" rtqitcoogu."u{uvgou"qh" egt while cylap "cpf" r tangun kapen cunaekcykapu + "tghrge wi cp" ahhkeken eapegtp hat "y g'ngi en ch'epf" uqeken y grhet g'ah ' o kpqtkx{."ko o ki tcpv'cpf "tghwi gg"r qr wrcxkqpu0Eqo o wpkx{"kpvgtr tgvkpi "gpcdrgu"vj qug"y j q"rcem'hrwgpe{"kp"cpf" mpqy ngf i g"qh"yi g"o clqtkx{ "ncpi wci g\*u+"cpf "ewnwtg\*u+"vq"t gegkxg"hwn"cpf "gs wcn"ceeguu"vq"r wdnke/ugtxkeg" hcekrkkgu0'Uwr r qtv'hqt''y g'r tqhguukqpcnk cvkqp''qh'eqo o wpkx{ 'kpvgtr tgvkpi 'ecp''cnuq''dg''uggp''cu'tghrgevkpi ''y g'' cwj qtkkguø'eqpegtp'hqt"gpuwtkpi "vj gkt"qy p'cdkrkv{ "vq"ectt { "qwv"vj gkt"f wkgu"y j gp"f gcrkpi "y kij "r gqr rg"y j q"ctg" wpcdrg"qt"wpy krrkpi "\q"eqo o wpkecvg"kp"\j g"qhhkekcrlhcpi wci g0"Hqt"kpuvcpeg."c"f qevqt"ecp"qpn("r tqxkf g"cf gs wcvg" j genyj "ectg"kh'yj g'r cykgpyu"ctg"cdrg"yq"f kuewuu'yj gkt"r tqdrgo u"ergetn{"cpf "htcpmn{ ="eqphkf gpykcrky{"o wuy'yj gtghqtg" dg'i wetepvggf O'Rtqhguukqpen'eqo o wpkx{ 'kpvgtr tgvgtu'etg'qdnki gf 'vq'gpuwtg'vj ev'vj g'eqph'kf gpvkenkx{ ''qh'ep{ '' kpygtcevkqp'kp''y j kej ''y g{ ''ctg'kpxqnxgf 'ku''cny c{u'o ckpyckpgf 0'Kp''y ku''ugpug. ''eqo o wpkv{ ''kpygtr tgygtu''hqto ''cp'' kpvgi tcn'r ctv'qh'vj g'uqekcn'ugtxkeg'u{ uvgo "qh'c"o qf gtp'uqekgv{ "cpf "ctg'kpuvtwo gpvcn'kp"gpuwtkpi "vj cv'cm'r ctvkgu" j cxg"gs wcn'ceeguu"vq"cpf "eqpvtqn'qxgt"vj qug"u{ uvgo u0Ekxkn'tki j vu"cpf "ekxkn'tgur qpukdknkkkgu"ctg"vy q"ukf gu"qh'vj g" uco g'eqkp0'Rtqhguukqpcn'\tckpkpi "o c{'hqewu'qp'cxqkfkpi "gttqtu'cpf "qo kuukqpu'\j cv'o ki j v'dg'equvn( "vq'\j g'r wdnke" r wtug. "dw'uggp'htqo "c"y kf gt"r gtur gevkxg. "eqo o wpkx{ "kpvgtr tgvkpi "ku"pqv"l wuv'cdqw'gpcdrkpi "ghhkekgpv" eqo o wpkecvkqp'vq''vcmg'r nceg<kk''cnuq'r nc{u'c''etwekcn'tqng'kp''r tqeguugu'nkng''ugi tgi cvkqp''cpf 'kpvgi tcvkqp''kp'' uqekgv{0Ki'ku''yj gtghqtg'korqtvcpv''vq''gpuwtg''eqpvkpwgf''uwrrqtv'hqt''yj g'rtqhguukqpcnk| cvkqp''qh'eqoowpkv{'' kpvgtrtgvkpi "cpf" \q"fkuvkpi vkuj "engctn ("dgvy ggp"rtqhguukqpcn eqo o wpkv ("kpvgtrtgvgtu"cpf" yj qug"yj q"j cxg"dggp" f guetkligf "cu"-i qqf "dww'wpunkrhwri"Uco ctkcpu. "ugrh/crrqkpvgf" gzrgtvu"cpf "wpuetwrwnqwu'hkzgtu" y j q. "qhvgp" hqt "c" hcv'hgg. "õj grr gf ö']qt "eqpvkpvg"vq"õj grr ö\_"vj gkt "rguu"nkpi vkunkecm{ "i khngf "eqo r cvt kqvuø"\*P kunc"3; ; 3< +0 Ugg'cnuq<

EQPHGTGPEG'CPF'UNO WNVCPGQWU''N VGTRTGVN = "EQWTV''N VGTRTGVN = "UNL PGF"
NCPI WCI G''N VGTRTGVN I 0

#### Hwt vj gt 't gcf kpi

 $\label{eq:cwuky} $$ CWUKV'3; ; 4="Dctum("3; ; 7="Dqy gp"cpf "Dqy gp"3; ; 2="Fqy pkpi "cpf" J gro u"Vkrrct{"3; ; 4="Fqy pkpi "cpf" Uy cdg{"3; ; 4="Hkuj dgti "3; : 8="I gpvkrg"gv'cr03; ; 8="Nkpgrn"gv'cr03; ; 4="Pkurc"3; ; 3="Ucpf gtu"3; ; 4="Uj ceno cp"3; : 6="Uej y gf c/Pkej qnqp"3; ; 6="Vgddrg"3; ; 4="Y cf gpul3/43; ; 4."3; ; 70$ 

EGEKNIC"Y CFGPUL"

# Eqo rgpucvkqp

Eqo r gpuckqp'ku'c'\gej pks wg'y j kej 'kpxqrxgu'o cnkpi 'wr 'hqt'\j g''nquu'qh'c'\uqwteg'\gzv'ghhgev'd { 'tgetgckpi 'c'' uko krct'ghhgev'hp'\j g'\cti gv'\gzv'\j tqwi j ''o gcpu'\j cv'ctg'\ur gekhke'\q'\j g'\cti gv'\repi wci g'\cpf lqt'\gzv\0Gzco r rgu'' ekgf 'kp'\j g''nkygtcwtg''qhygp'kpxqrxg''\j g''\tcpurc\qpp''qh''r wpu\0Hqt''kpuvcpeg. 'kp''c'f kuewukqp''qh'\j g''\tcpurc\qpu''qh'' y g''Htgpej ''eqo ke''\urkr''\cu^2 t kz''\star quekpp { ''cpf ''Wf gt | q'3; 94+."J cvko ''cpf ''O cuqp''eqpenwf g'\j cv''\star y g''\tcpurc\qpu'' cdcpf qp'\j g''cwgo r v'\q''tgrc { ''\j g''r wpu''cu''uwej ''cpf .''kpuvgcf .''eqo r gpuc\g''d { ''kpugt\kpi ''Gpi rkuj ''r wpu''qh'\j gkt''qy p'' y j kej ''ctg''pqv'r ctv'qh'\j g''uqwteg'\gz\0Dw''gs wkxcrgpeg''qh'kpvgp\kqp''j cu''dggp''o ckpvckpgf  $\emptyset$ '\star; 2424+0J gtg.''\j g'' uco g''hpi wkrke''f gxkeg''ku''go r m{ gf 'kp''dq\j ''uqwteg''cpf ''cti gv'\gz\ur'\q''cej kgxg''c''uko krct''j wo qtqwu''ghhge\0

O quv'y tkgtu'qp''y g'uwdlgev'pqvg''y cv'eqo r gpucvkqp''tgs wktgu''ectghwn''uvtcvgi ke''cr r necvkqp0I kxgp''y cv'y g'' vtcpuhgt ''qh''o gcpkpi u'htqo ''qpg'hcpi wci g''vq''cpqyi gt''eqpvkpwcm( ''kpxqnxgu''uqo g''f gi tgg''qh''nquu.''y g''vtcpuncvqt'' o wuv'f gekf g''kh''cpf ''y j gp''eqo r gpucvkqp''ku'y cttcpvgf 0P gy o ctm'\*3; ; 3<66+''uwi i guvu'y cv'+x wpu.''cnkxgtcvkqp.'' tj {o g.''uncpi .''o gvcrj qt.''r tgi pcpv'y qtf uô cm'y gug''ecp''dg''eqo r gpucvgf .''kh'y g''i co g''ku'y qtyi ''y g''ecpf ngô uqo gvko gu''kv'kupøvol'kp''c''uko knct''xgkp.''J gtxg{''cpf ''J ki i kpu'\*3; ; 4<62+''cuugtv'y cv'+y j kng''eqo r gpucvkqp''gzgtekugu'' y g''vtcpuncvqtøu''kpi gpwkx{.''y g''ghhqtv'kv'tgs wktgu''uj qwnf ''pqv'dg'y cuvgf ''qp''vgzwcm{ ''wpko r qtvcpv'hgcwtguø0

## Fghplpi 'eqo rgpucvlqp

Vj tqwi j qwi'yj g'3; 82u'cpf '3; 92u."*eqo r gpuc vkqp."eqo r gpuc vqt {* "cpf "*eqo r gpuc vg'hqt* "y gtg"wugf 'hqqugn{ 'cu'ugo k/ vgej plecn'vgto u'lp'vj g'hkytcwtg0P kf c''cpf ''Vcdgt'\*3; 8; +.'hqt''gzco r ng. ''cf xqecvg''vj g'llpvtqf wevkqp''qh'lkf kqo u'llpvq'' c'\cti gv\gzv'cu'cp"cf 'j qe'\tgur qpug'\q'\tcpurc\kqp'\quu0\kp"c'\qqvpqvg.'\yi g{ 'uwi i guv'\yi cv'÷Y j cv'qpg'o wuv'i kxg'\wr "  $vq''eqo\ o\ wplecvg''ghhgevkxgn(''ecp.''j\ qy\ gxgt.''dg''eqo\ r\ gpucvgf\ 'hqt.''cv''ngcuv'lp''r\ ctv.''d\{''yj\ g'lkpvtqf\ wevlqp''qh''hkwlpi\ ''$ kfkqo ugʻ\*kdkf0;328+0Vjg{"o cmgʻpqʻcwgorv."jqygxgt."vq"tgmcvgʻc'urgekhke'kpuvcpegʻqh'mquu'ykyj"cp'qrrqtwvpkv{" hqt"eqorgpucvkqp."pqt"vq"eqpukfgt"vjg"oqfcrkxkgu"qh"uwej"c"vgejpkswg0"Yknuu"wugu"vjg"vgto"urqtcfkecm{"vq"tghgt" vq''yej pls wgu'hqt''f gcrlpi ''y kj "-int wewt crl'f kxgt i gpegu''qp''y g''lpvtc/''cpf ''gz vt crlpi wku le 'hgxgnø'\*3; : 4-5; +0'Vj g'' ncwgt 'kpenwf g''vj g'mkpf ''qh''ewnwtcn'wpvtcpuncwcdkrkw{ ''y j kej ''qeewtu''÷y j gp''uqekqewnwtcn'hcevqtu''eqxgt''c''f khhgtgpv'' tcpi g'qh'gzr gtkgpegø'kp''y g'uqwteg''cpf '\cti gv'hcpi wci gu'\*kdkf 0<72+0'Ncvgt.''j g'o gpvkqpu'kpuvcpegu'y j gtg''÷c'' ngzkecn'd{/rcuu'uvtcvgi {"uwej "cu'rctcrjtcukpi "qt"gzrncpcvqt{"\tcpuncvkqpøku"÷vjg"qpn{"eqorgpucvqt{"yc{"qww" qrgp"\q"\jg"\tcpurc\qt\psi \dkf 0\ck\326+0\Hgy "ytksgtu"\qfc{"yqwrf" kpenwfg"rctcrjtcukpi "qt"gzrrcpc\qt{"\tcpurc\kqp"cu" eqo r gpucvqt { "vgej pks wgu0"Vj g { "y qwrf "cnuq"dg" rguu "rkngn ( "vq" kpenwf g"o kuo cvej gu"dgwy ggp" uqwteg" cpf "vcti gv" ewnwtgu'y kij kp''yj g'tcpi g''qh''tcpurcvkqp''r tqdrgo u''yj cv'eqo r gpucvkqp''ku''cdrg''vq''f gcn'y kij 0  $\label{thm:linear_loss} \begin{tabular}{ll} $U_{p} = U_{p} =$ co qpi "yj gug"ctg"J gtxg{"cpf "J ki i kpu"\*3; ; 4+"cpf "J ctxg{"\*3; ; 7+0J gtxg{"cpf "J ki i kpu"\*3; ; 4<56662+"f kuvkpi wkuj " hqwt "ecvgi qtkguk**"eqo rgpucvkqp'kp'hlpf.**"y j gtg"fkhlgtgpv'hlpi wkuke"fgxkegu'ctg"gorm{gf'kp''y g'\cti gv'\gzv'kp" qtf gt"\q'tg/etgcvg"cp"ghhgev'kp"\j g"uqwteg"\gzv="eqo rgpucvkqp'lp'rreg."\y j gtg"\j g"ghhgev'kp"\j g"\cti gv'\gzv'ku"cv'c" f kthgtgpv'r roeg'htqo ''y cv'kp''y g''uqwteg='eqo rgpucvkqp'd { 'b gtikpi.''y j gtg''uqwteg''yzv'hgcwtgu''ctg''eqpf gpugf " kp"yj g"\cti gv\\gzv<del>=</del>eqo rgpuc vlqp'd{ 'tr rkvlpi .'y j gtg"yj g"o gcpkpi "qh"c"uqwteg"\gzv'y qtf "j cu"\q"dg"gzr cpf gf " kpvq"c"nqpi gt"uvtgvej "qh"vj g"vcti gv"vgzv0J gtxg{"cpf"J ki i kpu"uwi i guv"vj cv"vj gug"hqwt"v{r gu"qh"eqo r gpucvkqp"ecp" eqqeewt0Kt'o wuv'dg'pqvgf."j qy gxgt."vj cv'vj g'rcuv'vy q'y qwrf "crrgct"vq"dg"o wwxcm{ "gzenwukxg"d{ 'f ghlpkkqp0 J ctxg{"\3;; 7+"s wguvkqpu"\j g"uvcwu"qh"\j g"ncuv"\y q"ecvgi qtkgu"cu"gzco r ngu"qh"eqo r gpucvkqp"cv"cm"qdlgevkpi "\q" yj qug"gzco r ngu"qh"o gti kpi "cpf "ur nkwkpi "yj cv"eqpegtp"yj g"o kuo cvej "qh"ngzkecn"o gcpkpi "dgwy ggp"uqwteg"cpf" wcti gv'ncpi wci gu0'Hqt"gzco rng." Jgtxg{"cpf" Jki i kpu" kdkf0"5; +"fkuewuu' yi g'urnkwkpi "qh'Htgpej" rcrkmqpu'kpvq" dwwythologu'cpf "o qvj u'lkp" vj g"Gpi nkuj "vkwng" qh" cp" ct vkeng "qp" ngr kf qr vytc0 "Kp" J ctxg{ øu 'xkyy . "vj ku 'ku 'uko r n{ 'vj g" eqpugs wgpeg"qh"c"u{uvgo ke"hgcwtg"qh"vj g"f kuvkpev"ngzkecn"wpkxgtugu"qh"Htgpej "cpf "Gpi nkuj "cpf "pqv"vj g"uqtv"qh" uv{nkuvke."\gzvur gekhle"hgcwtg"\j cv'j g"y kuj gu"\q"tgugtxg"hqt"eqo r gpuc\kqp0

#### Nkpi wkuke'f gxkegu

K'y cu'pqvgf 'y ky ''y g''gzco r ng''qh'r wpu''y cv'eqo r gpucvkqp"ecp'kpxqnxg''go r m{kpi ''y g''uco g''hpi wkuvke''f gxkegu''cu'' y g''uqwteg''yzv''vq''cej kgxg''c'uko knct 'ghhgev'kp''y g''ucti gv''yzv'0J gtxg{"cpf 'J ki i kpu''i kxg''cpqy gt''gzco r ng''qh''y ku'' y j gtg''uqwpf 'ku''gzr mkxgf 'hqt''tj gvqtkecn'ghhgev'kp''y g''uqwteg''yzv'' $\pm$ Xqknx''eg''s wg''xgwngpv'f ktg''ngu''xktkngu'' ceenco cvkqpu''f g''pqu''xkngu''gv'f g''pqu''xknci gu.''r wti gu''gphkp''f g''nøgppgo kø'\*3; ; 4-5:  $\pm$ 0'Vj g''vcti gv''yzv'eqo r gpucvgu'' hqt''y g''nquu''qh''y ku''ghhgev'd{"gzr mkxkpi ''c''f khhgtgpv'ugs wgpeg''qh''uqwpf u $\leftarrow$ ' $\pm$ Vj ku''ku'y j cv''y g''ej ggtkpi ''o gcpu.'' tguqwpf kpi ''y tqwi j ''qwt''qy pu''cpf ''xknci gu''engcpugf ''cv''ncuv'qh''y g''gpgo { $\phi$ \*kdkf  $\theta$ 00 J qy gxgt.''eqo r gpucvkqp''ecp''kpxqnxg''y g''wug''qh''f khhgtgpv'hpi wkuvke''f gxkegu''kp''y g''vcti gv''yzv'kh''y g{''ctg''lwf i gf'' vq''tgr tqf weg''c'uko knct''ghhgev''q'y cv''cej kgxgf ''kp''y g'uqwteg''yzv'0'Vj ku''

eqttgur qpf u'\q'J gtxg{"cpf "J ki i kpuø'ugeqpf "f guetkr vkxg"ecvgi qt { ."eqo r gpucvkqp"kp"mkpf 0'Vq"kmwutcvg"yi ku."yi g{" f kuewuu'c"Htgpej "pcttcvkxg"yi cv'cej kgxgu"c"uvtqpi "uv{rkurke"ghhgev'yi tqwi j "yi g"kpvgtr nc { "qh'uko r ng"cpf "r cuv" eqo r qugf "vgpugu0Cp"ceeqwpv'qh'yi g"htg"qh'c'uej qqn'vgcej gt "kp"yi g"Htgpej "T gukuvcpeg"o cmgu'uvtcvgi ke'wug"qh'yi g" eqo r ngvgf "vgpug"vq"eqpxg{ "uj qem'cpf "ko o gf kce { "qxgt"yi g"o cppgt"qh'j gt"f gcvj "\*kdkf 0."57+"

S wgns wgu'lqwtu''cr t³ u'nc''Nkd² tcvkqp."qp''tgvtqwxc''uqp''eqtr u'f cpu''wp''ej ctpkgt0Gng''c'² v² 'hwukn² g''ng'': "lwkngv'3; 66''«''nø-i g''f g''45''cpu0 Gng''hwv'wpg''o krkcpvg''gzgo r ncktg0

Vj g'Gpi rkuj ''vgpug'u{uvgo 'ecppqv'tgr tqf weg''vj g''ghhgevu''cej kgxgf ''d{ ''vj ku''kpvgtr rc{ ''qh''vgpugu0'Eqpugs wgpvn{ .'hqt'' vj g''hqmqy kpi ''vcti gv''vgzv'\*kdkf 0\'58+<

Vj ku'i ktrly cu'uj qv'qp": 'Lwn{ '3; 66. 'cv'vj g'ci g'qh'450'Uj g'y cu'cp''gzgo r rct { ' $t^2ukuxpvg0$ 

J gtg." 'y g'f go qpuvtcvkxg" 'V j ku. "y g'wug"qh' y g'pqwp" i kt n'tcy gt "y cp" y g'r tqpqwp" 'Gng" kp" y g'uqwteg" 'y zv+." 'y g" uvtcvgi ke"r roekpi "qh' y g't gvqtkecn'eqo o c"chwgt" 3; 66. "cpf" y g'ewnwtcn'dqttqy kpi "qh' t² ukuvc pvg" ctg" cm'kpvgpf gf" vq"eqpvtkdwg" 'vq"eqo r gpucvkpi "hqt" y g'hquul"qh' ghhgev'qdvckpgf" d{ "y g"kpvgtr ro{ "qh' vgpugu" kp" y g'uqwteg" vgz v0

#### Nqec skqp

F khhgtgpegu''qh''qr kpkqp''ctg''cr r ctgpv''co qpi ''uej qrctu''y j gp''kv''eqo gu''\q''nqec\kpi ''cp''kpu\cpeg''qh''eqo r gpuc\kqp''kp'' tgrc\kqp''\q''c''eqttgur qpf kpi ''nquu0J c\ko ''cpf ''O cuqpøu''xkgy ''ku''y cv'':kVo cwgtu''rguu''y j gtg''gzce\w(''y g''ko r tguukqp'' ku''eqpxg{gf ''\yi cp''\yi cv''kv'ku''eqpxg{gf ''\yi cp''\yi swkxcrgpv''gz\vgp\w\signed^\cin3;; 2 < 424 + 0P gy o ctn\vec{w}u''f ghkpkkqp''ku''o qtg'' ur gekhke''cpf ''uwi i guwu''y cv''eqo r gpuc\kqp''qee\wtu''pgct''\yi g''r qkpv'\qh''nquu\cin\cin\cin\cin\j'' ku'']eqo r gpuc\kqp''ku''uchf ''\yi qee\wt'' y j gp''nquu''qh''o gcpkpi .''uq\wpf/ghhgev''o g\wr j qt''qt''r tci o c\well'ghhgev'kp''qpg''r ctv'\qh''c''ugp\wgp\egg''ku''eqo r gpuc\kqp''c''f ku\kpe\wf'' cpq\yi gt''r ctv.''qt''kp''c''eqp\xi wqwu''ugp\wgp\egg\signed^\cin\3; : < 2 + 0Dcn\text{Dcngt.''qp''\yi g''q\yi gt''j cpf.''i kxgu''eqo r gpuc\kqp''c''f ku\kpe\wf'' f kur reegf ''ej ctce\wf''y j gp''uj g''u\c\wg\w\cin\cin\signed^\cin\yi g''\yi g''\yi g''\yi g''\yi g''\wey\signed^\cin\yi g''\yi g''

J ctxg{"\3; ; 7+"cwgo r wi'vq"dtkpi "\qi gyi gt"\yi gug"xctkqwu"go r j cugu."r wwkpi "hqty ctf "c"f guetkr \kxg"htco gy qtm" y j kej "kf gp\khkgu"\yi tgg"r qkp\w"qp"c"ur gevtwo "qh"r quukdkrkkgu0Vj wu"eqo r gpuc\kqp"ecp"dg"rctcngn'eqp\ki wqwu"qt" f krr rcegf "kp"tgrc\kqp"\q"c"i kxgp"kpu\cpeg"qh"nquu0K\ki'ku"pq\gf ."j qy gxgt."\yi c\k'kpu\cpegu"qh"\yi g"\f krr rcegf \degree ecvgi qt {" ctg"pq\k'cny c { u"gcu{ "\q"f krkpi wkuj "htqo "c"o qtg"\f gpgtcn\k gf \degree \k'r g"qh"eqo r gpuc\kqp0J gtg."\u\{ rku\ke "hgcwtgu"ctg" wugf "\p"\yi g"\cti g\k'\gz\k'p"cp"cwgo r \v'\q"\f pcwtcn\k g'\yi g"\gz\k'nqt"\yi g"\cti g\k'\gcf gtí "y kyi qw'\yi gug"]hgcwtgu\_"dg\kpi " \kgf "\q"cp{" ur gekhke "\pu\cpegu"qh"uq\keg "\gz\k'nqu\d'\yi ctxg{"3; ; 7< 6\f0

#### Vj g's wguskqp'qh'gs wkxc ıgp v'ghlgev

Vj g"pqkqp"qh"gs wkxcrgpv"ghhgev"y j kej "wpf gtrkgu" y g"f ghkpkkqp"qh"eqo r gpuckqp"ku"pqv."qh"eqwtug." wpr tqdrgo cvke0I wwi\*3; ; 3+"tckugu" y ku"kuuwg"kp" y g"f kuewuukqp"qh"c" cti gv" yzv" y cv"hckrgf "vq"tgr tqf weg" y g"ghhgev" qh"hrcwgt { "qh"ku"tgcf gtuø'ewrwtcri'npqy rgf i g. "cp"ghhgev'ergctn{ "vtki i gtgf "d{ "y g"uqwteg" yzv0"Uwi i guvkpi "y cv" y g" vtcpurcvqt" yi qwrf "cr r n{ "y g"yej pks wg"qh"eqo r gpuckqp"cpf "uvtkxg" yq"qdvckp" y g"ghhgev'qh"hrcwgt { "d{ "qy gt"o gcpu." I wwi\*kdkf 0."6: +"ko o gf kcvgn{ "tgeqi pk gu" y g"f khhkewrkgu" kpj gtgpv" kp" y ku"uqnwkqp<

F qgu'j g'] yi g'\tcpurcvqt\_'f q'uq'd{ "ej gemlpi "y j gyj gt'j ku'\tcpurcvlqp'hrcwgtu'\yi g'\tgegr vqt'\rcpi wci g" cwf lgpeg'llp'eqttgur qpf lpi 'r ctwl'qh'\yi g'\gz wu."qt"d{ "o cmlpi "uwtg'\yi cv'\yi g''pwo dgt"qh''lpuvcpegu''qh'' hrcwgt { "yi cv'qeewt' ku'gs wcn'dgwy ggp''qtki lpcn'cpf "\tcpurcvlqp."qt"d{ "uqo g''eqo r ctkuqp''qh'\yi g'' ewo wrcvlxg''hrcwgtlpi "ghlgev'qh'\yi g''y j qrg'\gz vA

Kp"qyj gt"y qtf u."I ww'cumu'y j gyj gt"yj gtg"ku'cp{ "go r ktkecn'dcuku'hqt"yj g"gs wkxcrgpv'ghhgev'cti wo gpv'qyj gt"yj cp"yj g" vtcpurcvqtøu'qy p"tgcevkqpu'vq"yj g"vgzwu'ulj g"ku'tgcf kpi "\*uqwteg+"cpf "y tkkpi "\*vcti gv+0Ncvgt"kp"yj g"uco g'r cuuci g." j g"y qpf gtu'y j cv'ueqr g"ku'nghv'hqt"eqo r gpucvkqp"cv'cmlkh'kv'ku'f ggo gf "yj cv'yj g'r tci o cvke "ghhgevu'qh'yj g'uqwteg" vgzv"÷ctg"pqv'uqekcm{ "ceegr vcdrg"kp"yj g'vcti gv'ewnwtgAø'\*kdkf+0

# Eqo rgpucvkqp'cpf 'vj g'wpkv'qh'vt cpurcvkqp

I ww'cniq''qwej gu'lp''y g'uco g'r cuuci g''qp''y g'lko r qtvcpv'lko r nlecvkqpu''y cv'y g''pqvkqp''qh'eqo r gpucvkqp''j cu''hqt'' guvcdnkuj kpi ''y g''WP KV''QH''VTCP UNCVKQP 0I kxgp''y cv'eqo r gpucvkqp''hqt ''c ''muv'uqwteg''yzv'ghhgev'ecp''dg'' f kur gtugf ''qt''f kur ncegf ''vq''c'f khhgtgpv'r ctv'qh''y g''vcti gv''yzv."eqo r gpucvkqp''uj khuu''go r j cuku''cy c{'htqo " guvcdnkuj kpi "eqttgur qpf gpeg''dgwy ggp''y qtf u''cpf ''ugpvgpegu''vq''y g''eqpukf gtcvkqp''qh''ncti gt''uvtgwej gu''qh''yzv0''Vj ku'' wzv'j qnkuvke''eqpegr vkqp''qh''y g''tcpurcvkqp''wpkv'kphqto u''Mpqy nuqpøu''tgo ctm'qp''y g''tqng''qh'eqo r gpucvkqp''kp'' Dgengwøu'CWVQ/VTCPUNCVKQP u.''kQ0Dgengwøu''vtcpurcvkqpu''qh'j ku''qy p'y qtmi'\*3; 9: ≪342+<

 $\label{thm:continuous} Vj g''pqvkqp''qh''eqo r gpucvkqp''uggo u''xcnkf ''gpqwi j ''kp''crrtqcej kpi ''Dgengw¢u''dkrkpi wcn'\gzvu''cpf ''kv''ku'' y qtyj ''uvtguukpi ''yj cv''cnyj qwi j ''kp''r kenkpi ''wr ''c''r ctvkewrct''yj go g.''yj g''eqttgur qpf gpegu''ecp''pgxgt''dg'' gzcev''cpf ''yj g''dcrcpeg''y kyj kp''ugevkqpu''qh''yj g''yzv'o c{ ''dg''cnygtgf .''nqnngf ''cv'kp''ygto u''qh''cp''gpvktg''cev'' qt''gxgp''yj g''yj qng''r rc{.''yj g''dcrcpeg''qh''j wo qwt''cpf ''r cyj qu.''hqt''gzco r ng.''y km''dg''o qtg''qt''nguu''gxgpn{''t tguvqtgf 0}$ 

K'o wuv'dg''pqvgf.''j qy gxgt.''vj cv'kv'dgeqo gu'kpetgcukpi n{ "fkhhkewn'vq'kfgpvkh{ "qeewttgpegu''qh'eqo rgpucvkqp'hqt" rctvkewnct''nquugu''kp''uwej "c''vgzv'j qnkuvke''crrtqcej 0'Vjg''rtqdngo u''ctg''eqo rqwpfgf''kh'vjg''fkurncegf''pcwxtg''qh'' eqo rgpucvkqp''eqo dkpgu'y kyj ''vjg''wug''qh'fkhhgtgpv'nkpi wkuvke''fgxkegu'kp''yjg''uqwteg''cpf''vctigv'vgzvu''kp''qtfgt''vq'' crrtqzko cvg''c''uko knct''ghhgev0

CFCRVCVKQP0

#### Hwt yj gt 't gcf kpi

Etkuchwnk'3; ; 8="I ww'3; ; 3="J ctxg{ '3; ; 7="J cvko "cpf 'O cuqp"3; ; 2="J gtxg{ "cpf "J ki i kpu"3; ; 4="P gy o ctm"3; : : . '3; ; 30 MGKVJ "J CTXG[

# Eqphgt gpeg'cpf 'tho wacpgqwu'hpvgt r t gvhpi

Kpvgtr tgvkpi "ku"vj g"qtcn'vtcpurcvkqp"qh'qtcn'f kueqwtug."cu"qr r qugf "vq"vj g"qtcn'vtcpurcvkqp"qh'y tkvvgp"vgz w0Vj g" rcwgt 'ku"mpqy p"cu"**uki j v'vt cpurcvkqp'**qt **'vt cpurcvkqp/cv/uki j v0** 

Kpvgtr tgvkpi "cu"cp"qhhkekcn'qt"r tqhguukqpcn'hwpevkqp"uggo u"vq"j cxg"dggp"kp"gzkuvgpeg"ukpeg"xgt { "gctn( "vko gu=" uqo g"uwf kgu"j cxg"kpf kecvgf "kuu"wug"kp"Cpekgpv'Gi { r v'\*Mvt| "3; : 7+0 kpvgtr tgvgtu"j cxg"r nc { gf "ko r qtvcpv'tqngu"kp" j kuvqt { ."kpvgt "cnkc."f wtkpi "gzr mtcvkqp"cpf "kpxcukqp"eco r cki pu<"hqt "kpuvcpeg"y j gp"yj g"Ur cpkctf u"cttkxgf "kp" Egpvtcn'cpf "Uqwj "Co gtkec"\*Mvt| "3; ; 3+0 Tgegpv'kpvgtguv'kp"yj g"hkgnf "ku"cuuqekcvgf "y kj "yj g"go gti gpeg"qh" ur gekcnk gf "hqto u"qh"r tqhguukqpcn'kpvgtr tgvkpi ."uwej "cu"dwukpguu"kpvgtr tgvkpi ."eqphgtgpeg"kpvgtr tgvkpi ."EQWTV" kP VGTRTGVkP I ."EQO O WP KV[ "kP VGTRTGVkP I "cpf"Uk P GF"NCP I WCI G"kP VGTRTGVkP I 0 V'y ku" gpvt { "o cngu"r ctvkevnct"tghgtgpeg"vq"eqphgtgpeg"cpf "uko wncpgqwu"kpvgtr tgvkpi 0

#### V{rgu'cpf 'o qf gu'qh'lpvgtrtgvlpi

Eqphgtgpeg'kpvgtrtgvkpi 'y cu'dqtp'f wtkpi 'Y qtnf 'Y ct'Qpg0'Wpvkn'y gp.'ko rqtvcpv'kpvgtpcvkqpcn'o ggvkpi u'y gtg'' j gnf 'kp'Htgpej .'yj g'kpvgtpcvkqpcn'ncpi wci g''cv'y g'vko g0F wtkpi 'Y qtnf 'Y ct'Qpg.'uqo g''j ki j /tcpnkpi 'Co gtkecp'' cpf 'Dtkkuj ''pgi qvkcvqtu'f kf ''pqv'ur gcm'Htgpej .'y j kej ''o cf g'kv'pgeguuct { ''vq'tguqtv'vq'kpvgtrtgvgtu'\* J gtdgtv'3; 9: +0' Y kyj ''yj g''cf xgpv'qh'uko wncpgqwu'kpvgtrtgvkpi .''cpf ''gur gekcm{ ''chvgt''yj g''P wtgo dgti ''vtkcnu'\* 3; 6768+"cpf ''Vqm{ q'' vtkcnu'\* 3; 686: +''eqphgtgpeg'kpvgtrtgvkpi ''dgeco g''o qtg'y kf gurtgcf 0'Kt'ku'pqy ''wugf ''y kf gn{ .''pqv'qpn{ ''cv' lynch gallong arlong artifacture grant grant

eqwtugu'cpf 'hgewtgu."cpf 'f wtkpi 'Ucvg'xkuku."y j kej 'o cmgu'vj g'vgto "÷eqphgtgpeg'kpvgtrtgvkpi ø'c'o kupqo gt0' Y j cv'pqy 'f kuvkpi wkuj gu'eqphgtgpeg'kpvgtrtgvkpi 'htqo 'qvj gt'hqto u'qh'kpvgtrtgvkpi 'ctg'kxu'o qf gu'\*eqpugewkxg" cpf 'uko wncpgqwu+."cpf 'kxu'j ki j 'r gthqto cpeg'ngxgn0

O quv'eqphgtgpeg'kpvgtr tgvgtu'qpn('j cxg'vy q'qt'vj tgg'y qtmkpi 'rcpi wci gu.'f kxkf gf 'cu'hqmqy u<

"C'hcpi wci g\*u+<'j g''pcvkxg''vqpi wg\*u+''qh''y g''kpvgtr tgvgt''qt''ncpi wci g\*u+''qh'y j kej ''ulj g''j cu''pcvkxg''qt''pgct/pcvkxg''eqo o cpf 0Kpvgtr tgvgtu''y qtm'kpvq''cu''y gm'cu''qw''qh''y gkt''C''ncpi wci g\*u+

"D'hcpi wci g"u+cpqp/pchxg"hcpi hcpi h

" $E'hpi wci g*u+\forall j$  gug"ctg"r cuukxg"hpi wci gu0Kpvgtr tgvgtu"y qtmhqo "c"E"hpi wci g"hpiq"j gkt "C"qt"D" ncpi wci g."dwj g $\{$ "f q"pqjhpvgtr tgjhpvj"c"E"hcpi wci g0

Kp'eqpugewksg'lpvgtrtgvkpi.'vj g'kpvgtrtgvgt'hkuvgpu'vq'c'urggej 'ugi o gpv'hqt'c'hgy 'o kpwgu'qt'uq.'vcngu'pqvgu." cpf 'vj gp'f grkxgtu'vj g'y j qrg'ugi o gpv'kp'vj g'vcti gv'rcpi wci g='vj gp'vj g'urgcngt'tguwo gu'hqt'c'hgy 'o kpwgu.'vj g'' kpvgtrtgvgt'f grkxgtu'vj g'pgzv'ugi o gpv.'cpf 'vj g'rtqeguu'eqpvkpvgu'vpvkri'vj g''gpf 'qh'vj g'urggej 0'Vj g''+ugpvgpeg/d{/ ugpvgpegø'kpvgtrtgvkpi 'qhvgp'hqwpf'kp'rkckuqp''cpf'eqo o wpkx{'kpvgtrtgvkpi 'ku'pqv'tgi ctfgf''d{'eqphgtgpeg'' kpvgtrtgvgtu'cu''+xtwg'eqpugewkxgø0

Kp'uko wncpgqwu'kpvgtrtgvkpi.'vj g'kpvgtrtgvgt'ukvu'kp''cp'kpvgtrtgvkpi 'dqqvj.'rkuvgpu'vq''vj g''ur gcngt''vj tqwi j ''c'' j gcf ugv''cpf 'kpvgtrtgvu'kpvq''c''o ketqrj qpg''y j krg''rkuvgpkpi 0F gngi cvgu'kp''y g''eqphgtgpeg''tqqo ''rkuvgp''vq''y g''cti gv' ncpi wci g''xgtukqp''y tqwi j ''c''j gcf ugv0

Uko wncpgqwu'kpvgtrtgvkpi 'ku'cnıq'fqpg'd{ 'uki pgf 'ncpi wci g'kpvgtrtgvgtu'\*qt'kpvgtrtgvgtu'hqt''j g'fgch+'htqo 'c'' urqngp'kpvq''c''uki pgf 'ncpi wci g'cpf 'xkeg'xgtuc0'Uki pgf 'ncpi wci g'kpvgtrtgvgtu'fq'pqv'ukv'kp''j g'dqqvj = 'yg{ 'uvcpf'' kp''j g'eqphgtgpeg'tqqo 'yjgtg'j g{ 'ecp''ugg''j g'urgcngt''cpf''dg''uggp''d{ 'yjg''qyjgt''rctvkekrcpvu0

Y j kur gt gf 'kpvgt r t gvkpi '\*qt 'ej wej qwci g+'ku'c'hqto ''qh''uko wncpgqwu'kpvgt r tgvkpi 'kp''y j kej ''y g'kpvgt r tgvgt'f qgu'' pqv''ukv'kp''c''dqqyi ''dwv'kp''y g''eqphgtgpeg'tqqo .'pgzv'vq''y g'f gngi cvg'y j q'pggf u''y g'kpvgt r tgvkpi .''cpf 'y j kur gtu'y g'' vcti gv'ncpi wci g''xgtukqp''qh''y g''ur ggej 'kp''y g'f gngi cvgøu''gctu0

P qpg"qh"vj gug"o qf gu"qh"kpvgtrtgvkpi "ku"tguvtkevgf "vq"vj g"eqphgtgpeg"ugvvkpi 0"Uko wncpgqwu"kpvgtrtgvkpi ."hqt" kpuvcpeg."j cu"dggp"wugf "kp"rcti g"o wnkrkpi wcn"vtkcnı."cpf "y j kur gtgf "kpvgtrtgvkpi "o c{"dg"wugf "kp"c"dwukpguu" o ggvkpi 0

## F kitgt gpegu'dgvy ggp'tt cpurc vkqp'cpf 'kpvgtrt gvkpi

Y j krg'o quv'uej qrctu'uvtguu'y cv'tcpurcvkqp"cpf "kpvgtr tgvkpi "guugpvkcm( "hwhkri'y g'uco g'hwpevkqp."o cp{ô gur gekcm( "kpvgtr tgvgtuô eqpukf gt"y cv'y g''y q''ctg"xgt { "f khhgtgpv."gxgp"kpeqo r cvkdrg"r tqhguukqpu0"Vj ku''cuugtvkqp." cu''y gm''cu''crngi gf "r gtuqpcrkx( "f khhgtgpegu''dgwy ggp"\tcpurcvqtu''cpf "kpvgtr tgvgtu'\*\*J gpf gtuqp"3; : 9+."j cxg"pqv''dggp" engctn( "f qewo gpvgf "kp"y g''nkvgtcwtg0"J qy gxgt."cu''tgi ctf u''cewcri'\tcpurcvkqp"cpf "kpvgtr tgvkpi "r tcevkeg."uqo g" f khhgtgpegu''ctg''pqv''eqpvtqxgtukcr0"Vj g''o quv''qdxkqwu''qh''y gug''ctkug''htqo "y g'hcev'y cv'\tcpurcvqtu''f gcri'y ky "y tkvgp"hcpi wci g''cpf "j cxg'\ko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq" vko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq" vko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq" vko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq" vko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq" vko g''\q''r qrkuj "y gkt''y qtm''y j krg''kpvgtr tgvgtu''f gcri'y ky "qtcri'rcpi wci g''cpf "j cxg''pq"

"tcpurc vqtu'pggf 'vq'dg'hoo krkct'y ky 'vj g'twrgu'qh'y tkwgp'rcpi wci g'cpf 'dg'eqo r gvgpv'y tkwgtu'kp'vj g'vcti gv' rcpi wci g="kpvgtrtgvgtu'pggf 'vq'o cuvgt'vj g'hgcwtgu'qh'qtcn'rcpi wci g'cpf 'dg'i qqf 'ur gcngtu.'y j kej 'kpenwf gu' wukpi 'vj gkt'xqkeg'ghhgevkxgn{ 'cpf 'f gxgrqr kpi 'c'∺o ketqrj qpg'r gtuqpcnkv{ø

"cp{"uwr r ngo gpvct{"mpqy ngf i g."hqt"gzco r ng"\gto kpqnqi kecn'qt"y qtnf "mpqy ngf i g."ecp"dg"ces wkt gf "f wt kpi" y tkwgp"\tcpurc\kqp"dw'j cu"\q"dg"ces wkt gf "rt kqt "kq" kp\gtr t g\kpi

'kpvgtrtgvgtu'j cxg'\q'o cmg'f gekukqpu'o wej 'hcuvgt'\j cp'\tcpurcvqtu0

C''uwdvgt''ngxgn'qh''cpcn(uku'qh''yi g''umkmu'tgs wktgf 'kp''vtcpurcvkqp''cpf 'kpvgtrtgvkpi ''o wuv'cy ckv'cf xcpegu'kp'' ru{ej qnkpi wkuvkeu''cpf ''eqi pkvkxg''ru{ej qnqi {0'Wpnkmg''vtcpurcvkqp.''kpvgtrtgvkpi ''tgs wktgu''cwgpvkqp''uj ctkpi ''cpf ''kpxqnxgu''ugxgtg''vko g''eqpuvtckpvu0'O cp{ ''tgewttgpv'kpvgtrtgvkpi ''gttqtu''o c{ ''y gm'rtqxg''vq''dg''yj g''tguwnv'qh''gkyj gt'' ucwtcvkqp''kp''qt''kortqrgt''o cpci go gpv''qh''yj g''kpvgtrtgvgtøu''rtqeguukpi ''ecrcekv{ ''\*ugg''dgnqy +0'C''fgvckrgf'' fkvewuukqp''qh''fkhtgtgpegu''cpf''

uko krctkskgu'dgwy ggp''\tcpurc\kqp''cpf''kp\vgtrtg\kpi ''cpf''qh''\yi gkt''ko rn\ecv\kqpu''hqt''\tckpkpi ''ecp''dg''hqwpf''kp''I krg'' \\*3;; 7d+0'Ugg''cn\q''\rac{RU\_I EJ QNKP I WKUVKE IEQI P KVKXG''CRRTQCEJ GU'0

# $\mathbf{J}$ kwqt { 'qh't gugc tej 'kp'eqphgt gpeg'kpvgt r t gvkpi

J knytkecm{ .'tgugctej 'kp'eqphgtgpeg'kpygtrtgykpi 'ecp'dg'dtqmgp'f qy p'kpyq'hqwt'r gtkqf u'\*I kng'3; ; 6+ 'gctn{" y tkkpi u.''y g'gzr gtko gpvcn'r gtkqf .''y g'r tcevkkqpgtøu'r gtkqf 'ecpf 'y g'tgpgy cn'r gtkqf 0 Vj g'gctn{ 'y tkkpi u'r gtkqf 'eqxgtu'y g'3; 72u'cpf 'gctn{ '3; 82u0F wtkpi 'y ku'r gtkqf .''uqo g'kpygtrtgygtu'cpf " kpygtrtgykpi 'ygcej gtu'kp'I gpgxc'\*J gtdgtv'3; 74.'Tq| cp'3; 78.'Ki '3; 7; +'cpf 'Dtwugnu'\*xcp'J qqh'3; 84+'uvctygf " y kpmkpi 'cpf 'y tkkpi 'cdqwy'y gkt'r tqhguukqp0'Vj gug'y gtg'kpwkkxg'cpf 'r gtuqpcn'r wdn'ecykqpu'y ky 'r tcevkecn' fkf cevke'cpf 'r tqhguukqpcn'cko u.''dwy'y g{ 'f kf 'kf gpykh{ 'o quv'qh'y g'hwpf co gpvcn'kuwygu'y cv'ctg'uvkm'f gdcygf " vqf c{0'Vj g'hktuv'cecf go ke'uwxf { 'qp'kpygtrtgykpi .''cp'kpytqurgevkxg'O C''y guku'd{ 'Gxc'Rcpgy .''y cu'f ghgpf gf ''cv'y g'' Wpkxgtukx{ 'qh'Nqpf qp'kp'3; 790

F wtkpi ''y g''gzr gtko gpvcn'r gtkqf '\*kp''y g''3; 82u''cpf ''gctn( ''3; 92u+:'c'hgy ''r u{ ej qmi kuwi'cpf ''r u{ ej qnkpi wkuwi'uwej '' cu''Vtgkuo cp. ''Qri'tqp''cpf ''P cpr qp. 'I qnf o cp/Gkurgt. 'I gtxgt. ''cpf ''Dctkn'i\*ugg'I gtxgt''3; 98+''dgeco g''kpvgtgurgf ''kp'' kpvgtr tgvkpi 0'Vj g{ ''wpf gtvqqn'ic'pwo dgt''qh'igzr gtko gpvcn'uwf kgu''qp''ur gekhke''r u{ ej qnqi kecn'cpf ''r u{ ej qnkpi wkurke'' cur gewi'qh'uko wncpgqwu''kpvgtr tgvkpi ''cpf ''uwf kgf ''y g''ghhgev''qp''r gthqto cpeg''qh''xctkcdngu''uwej ''cu''uqwteg'' ncpi wci g. ''ur ggf ''qh'f grkxgt { . ''gct/xqkeg''ur cp''\*klg0'y g''kpvgtxcn'dgwy ggp''y g''o qo gpv'c''r kgeg''qh'kphqto cvkqp''ku'' r gtegkxgf ''cpf ''y g''o qo gpv'kv'ku''tghqto wncvgf ''kp''y g''VN+:''pqkug. ''r cwugu''kp''ur ggej ''f grkxgt { . ''gve0'Rtcevkkqpgtu'' tglgevgf ''dqyj ''y g''o gyj qf u''cpf ''y g''tguwnu''qh''uwej ''uwf kgu0

Fwtkpi "y g'r tcevkkqpgtøu"r gtkqf. "y j kej "uvctvgf "kp"y g'revg"3; 82u"cpf "eqpvkpwgf "kpvq"y g"3; 92u"cpf "gctn("3; : 2u." kpvgtr tgvgtu."cpf "gur gekcm( 'kpvgtr tgvkpi "vgcej gtu."dgi cp"vq"f gxgmr "cp"kpvgtguv'kp kpvgtr tgvkpi "tgugctej "cpf" y gqt {0Vj g"htuv'Rj G" "f kuugtvcvkqp"qp"kpvgtr tgvkpi "d{ "cp"kpvgtr tgvgt"y cu"f ghgpf gf "kp"Xkgppc"d{ "Kpi tkf "Rkpvgt" \*pqy "Kpi tkf "Mvt| + kp"3; 8; 0P wo gtqwi'r cr gtu. "cu'y gm'cu'o qtg'y cp"42"O C"y gugu"cpf "f kuugtvcvkqpu."y gtg" uvdugs wgpvn( "y tkvgp"d{ "r tcevkulpi "kpvgtr tgvgtu0"Vj g"o ckp"y tww'eco g"htqo "Rctku."dw'y gtg'y cu"cnuq"o wej "cevkxkv{ "kp"Y guv'I gto cp{.'Gcuv'I gto cp{.'Uy ky gtrepf "cpf"qy gt"Gwtqr gcp"eqwpvtkgu."cu'y gm'cu'kp"y g"Uqxkgv" Wpkqp."E| gej qumxcmlc"cpf "Lcr cp0O quv'qh'y g"tgugctej "y cu'ur gewcvkxg"qt"y gqtgvkecn'tcy gt "y cp"go r ktkecn" cpf "o quv'Y guvgtp"cwy qtu."gzegr v'hqt"c"i tqwr "cv'GUKV"\* eqng"Uwr² tkgwtg"f øKpvgtr t³ vgu'gv'f g"Vtcf wevgwtu+"kp" Rctku."y qtngf "kp"tgrcvkxg"kuqncvkqp0Kp"r ctvkewct."tgrcvkqpu'y kyj "y g"uekgpvkhke"eqo o wpkv{ "qh'hpi wkuvu." r u{ej qnkpi wkuvu"cpf "eqi pkxkxg"r u{ej qmi kuvu'y gtg"xkt wcm( "pqp/gzkuvgpv."r quukdn( "o qtg"dgecwug"qh'y g" kpvgtr tgvgtuøf ghgpulxxg"cvkwxf g"y cp"dgecwug"qh"c"rcem'qh'hpvgtguv'htqo "pqp/kpvgtr tgvgtu" kg"3;; 7c."I gtxgt"cpf "Uxpcknq"3; 9: +0

Vj ku'r gtkqf "cnıq'ucy "vj g'uq/ecmgf "vj ² qt kg'f w'tgpu'\*ugg'IP VGTRTGVKXG'CRRTQCEJ +"dgeqo g'f qo kpcpv0'
Vj ku'--i gqt { "qh'ugpugø'y cu'pqv'pgy "\*R¾ej j cengt"3; ; 4-44+."dw'kv'y cu'cf qr vgf "kp'Rctku'cpf "uxtqpi n{ "r tqo qvgf " d{ "GUKV"f wtkpi "vj g"3; 92u'cpf "3; : 2u0Ku'dcuke "vgpgv'ku'vj cv'vtcpurcvkqp"cpf "kpvgtr tgvkpi "ctg'dcugf "qp"o gcpkpi " \*\*ng'ugpu+"cu'qr r qugf "vq"ncpi wci g."vj cv'vj g{ "r tqeggf "d{ "-:gz vtcevkpi ø'vj g'o gcpkpi "htqo "vj g"uqwteg"vgzv'qt" wwgtcpeg."f grkdgtcvgn{ "i gwkpi "tkf "qh'vj g'nkpi wkuke hqto "qh'vj g'qtki kpcn"cpf "gxgpwcm{ "tgr tqf wekpi "c'vcti gv'vgzv' qt''wwgtcpeg"qp"vj g'dcuku'qh'vj g"-:f gxgtdcnk gf "o guuci gø0Rtqr qpgpvu'qh'vj ku'vj gqt { "cuugtv'vj cv'vtcpurcvkqp"cpf " kpvgtr tgvkpi "ctg"ncpi wci g/kpf gr gpf gpv'kp"vj cv'vgzv'eqo r tgj gpukqp"cpf "r tqf wevkqp"ctg"ur qpvcpgqvu'cpf " cwqo cvke."y j cvgxgt"vj g'ncpi wci gu'kpxqnxgf ."r tqxkf gf "vj g'vtcpurcvqt lkpvgtr tgvgt"j cu'vj g'pgeguuct { "eqo o cpf "qh" yj g'uqwteg"cpf "vcti gv'ncpi wci gu'kpxqnxgf ."r tqxkf gf "vj g'vtcpurcvqt lkpvgtr tgvgt"j cu'vj g'pgeguuct { "eqo o cpf "qh" yj g'uqwteg"cpf "vcti gv'ncpi wci gu'cpf "vj g'tgrgxcpv'y qtrf "npqy ngf i g0

Vj g'tgpgy cn'r gtkqf ''dgi cp'kp''j g''o kf/3; : 2u''cpf 'ku'uwkn'kp''gxkf gpeg''vqf c{0'Vqy ctf u''y g''o kf/3; : 2u.''c'pgy "
i gpgtcwqp''qh''r tcewkkqpgtu''dgi cp''vq''s wguwkqp''y g''kf gcnk gf ''xkgy ''qh'kpvgtr tgwpi ''r quwwrcvgf ''d{ ''y g''y ² qt kg''f w''
ugpu''cpf ''vq''ecm'hqt''c''o qtg''uekgpwkhe''uwwf { ''qh'kpvgtr tgwpi .''i kxkpi ''tkug''vq''cp''kpvgtf kuekr nkpct { ''crr tqcej ''vq''y g''
uwdlgev0F wtkpi ''c''ugo kpct''qp''y g''vgcej kpi ''qh''vtcpurcvkqp''cpf ''kpvgtr tgwpi ''2j gnf ''d{ ''y g''Wpkxgtukv{ ''qh''Vtkguvg''
\*Kxcn(+'kp'P qxgo dgt''3; : 8'\*I tcp''cpf 'F qf f u''3; : ; +''y g''r tgxckrkpi ''f qi o c'y cu''ej cngpi gf 'kp'hcxqwt''qh''

y g"pgy "rctcf ki o "\*O qugt/O gtegt"3; ; 3+0Vj ku"pgy "rctcf ki o "j cu"ukpeg"eqpvkpwgf "\q"i ckp"i tqwpf 0T gugctej "ku" uvknihcti gn{ "wpf gt wngp"d{ "rtcevkukpi "kpygtrtgygtu."dw"y g{ "kpetgcukpi n{ "ftcy "qp"hkpf kpi u"cpf "kf gcu"htqo "qy gt" f kuekr nkpgu."kp"rctvkewct"pgwtqnkpi wkurkeu"\*ugg"Nco dgtv"cpf "O qugt/O gtegt"3; ; 6+0Vj gtg"ctg"o qtg"cpf "o qtg" go r ktkecn'uwf kgu"dgkpi "eqpf weyf."cnj qwi j "y gkt"rtqrqtvkqp"tgo ckpu"xgt{ "nqy "kh"eqo rctgf "vq"y g"vqvcn'pwo dgt" qh"rwdnecvkqpu"qp"kpvgtrtgykpi 0Cpf "hkpcm{ ."eqo o wpkecvkqp"dgw ggp"tgugctej gtu"ku"ko rtqxkpi ."kp"rctvkewct" yi tqwi j "y g"Vj g"Kpvgtrtgvgtøu"Pgy ungwgt"\*r wdnkuj gf "d{ "y g"Uewqnc"Uwrgtkqtg"f k"Nkpi wg"O qf gtpg"r gt "Kpvgtrtgyk" g"Vtcf wwqtk"cv'y g"Wpkxgtukx{ "qh"Vtkguvg+"cpf "y g"Dwngvkp"qh"KT VKP ."y g"kpvgtpcvkqpcn"Kpvgtrtgykpi "Tgugctej "cpf" Vj gqt{ "Kphqto cvkqp"P gw qtm"dcugf "cv"NJKV"\*Kpurkww"Uwr²tkgwt"f øKpvgtrt² wvkqp"gv"f g"Vtcf wevkqp+"kp"RctkuO' Vj gug"vtgpf u"j cxg"cnq"o cvgtkcnk gf "kp"c"eqphgtgpeg"j gnf "kp"Vwtmw."Hkprcpf ."kp"Cwi wuv'3; ; 6."qti cpk gf "d{ "y g" Wpkxgtukx{ "qh"Vtkguvg."cpf "KUKV"kp"RctkuO' "Qh"Vvtmw."y g"UUNO KV"qh"Vtkguvg."cpf "KUKV"kp"RctkuO'

#### Vj gqt gvlecrlkuwgu

O quv'uwf kgu'qp'kpvgtr tgvkpi 'j cxg'uq'hct'hqewugf 'qp'vj g'egpvtcn'r tqeguugu'qh'uko wncpgqwu'kpvgtr tgvkpi 0Cp'' korqtvcpv's wguvkqp"hqt"gctn{"kpxguvkicvqtu"ycu"yjgvjgt"ukownvcpgqwu"kpvgtrtgvgtu"cewcm{"vtcpuncvgf" uko wncpgqwun(.''y cv'ku'y j gyj gt''y g{ "cewcm( "nkuvgpgf "cpf "ur qmg"cv'y g'uco g''ko g0'Uqo g'eqpvgpf gf "y cv'y ku" qpn{"qeewttgf"tctgn{."cpf"'y cv'o quv'qh''y g"kpvgtrtgvgtøu'urggej "rtqf wevkqp"y cu'fqpg'f wtkpi "y g'urgcmgtøu" r cwugu0'Xctkqwu'go r ktkecn'uwf kgu. 'j qy gxgt. 'j cxg'uj qy p''y cv'y ku'ku'pqv'y g'ecug'\*1 gtxgt'3; 98+0 Vj g'pgzv'ko r qtvcpv's wguvkqp'r gtvckpgf 'vq'vj g'pcwtg'qh'vj g'o gpvcn'cevkxkkgu'y j kej 'vcng'r nceg'f wtkpi " uko wncpgqwu'kpvgtrtgvkpi 0'Y j krg'cmltgugctej gtu'ci tgg'y cv'ur ggej 'r gtegrvkqp''cpf 'r tqf wevkqp''ctg'r ctv'qh'y g'' r tqeguu. 'hkwrg''y qtm'j cu'dggp'f qpg''qp''qvj gt "ce\kxkkgu''y j kej "ctg"cuuwo gf "qt 'npqy p'\q'\cmg'r rceg. "cpf 'hkwrg''ku" mpqy p'cdqwi'y g'uko krctkkgu'cpf 'f khhgtgpegu'dgw ggp'ur ggej 'r tqf wevkqp'cpf 'ur ggej 'eqo r tgj gpukqp'kp'' kpvgtrtgvkpi "xu0'qvjgt"eqpvgzvu0'Hqt"rtqrqpgpvu'qh'vjg"vj²qtkg"fw'ugpu. "kp"rctvkewrct"Ugrgunqxkxej "cpf"Ngfgtgt"qh" GUKV. "vj gtg"ctg"pq"uwej "fkhhgtgpegu01 gtxgtøu"\*3; 98+"cpf "O qugtøu"\*3; 9: +"o qf gnu"qh"uko wncpgqwu"kpvgtrtgvkpi " ctg"cnuq"dcugf "qp"r u{ej qrkpi wkurke"o qf gnu"qh"qtf kpct{"eqo r tgj gpukqp"cpf "r tqf werkqp0F krrkpi gt"\*3;:; +" uko krctn( 'eqpvgpf u'vj cv'eqo r tgj gpukqp'kp'kpvgtr tgvkpi 'ku'dcukecm( 'vj g'uco g'cu'eqo r tgj gpukqp'kp'gxgt { f c { 'rkhg0' J qy gxgt. "o cp{"r tcevkxkqpgtu"cpf "vgcej gtu"qh"kpvgtr tgvkpi "r qkpv"vq"c"pwo dgt "qh"r j gpqo gpc"y j kej "uwi i guv" qy gty kug0Hqt 'kpuvcpeg. 'cu'tgi ctf u'r tqf wevkqp. 'y g{ ''uvtguu'y cv'dgecwug''qh'y g''tkum'qh'mquu'kpxqnxgf 'y j gp'' rci i kpi "vqq"hct"dgj kpf "vj g"ur gcngt."kpvgtr tgvgtu"qhvgp"j cxg"vq"uvctv"hqto wrcvkpi "vj gkt"VN"ugpvgpegu"dghqtg" j cxkpi "c'hwm'r kewtg"qh'yi g'kfgc''vq"dg"gzrtguugf0"Uqog."gurgekcm("Kni"\*3;9:+."cfxqecvg"eqwpvgt/uvtcvgikgu" y j kej "kpxqnxg"ugngevkpi "÷pgwtcnø'ugpvgpeg"dgi kppkpi u"vj cv'cmqy "vj g"kpvgtr tgvgt"vq"uvggt"vj g"ugpvgpeg"o qtg" gcukn( "vqy ctf u'vj g'ur gcngtøu"eqpenwukqp. "qpeg"vj cv'eqpenwukqp"j cu'dggp"i tcur gf 0'Qvj gtu'uvtguu'vj cv'kpvgtr tgvgtu" j cxg"\q"tgukuv'eqpuvcpv'nkpi wkuvke"kpvgthgtgpeg"htqo "vj g"uqwteg/ncpi wci g."uqo gvko gu"d{"cxqkfkpi "VN"y qtfu"cpf" unt wewnt gu''y cv'ct g''aqq''uko krct''aq''y qug''wugf''kp''y g''uqwteg/rcpi wci g''ur ggej 0'Y ky ''t gur gev''aq''ur ggej " eqo r tgj gpukqp."o cp{"r qkpv'qwk'j cv'yj g'kpvgtr tgvgtøu'mpqy ngf i g''qh''yj g''uwdlgev'cpf ''yj g''ukwcvkqp''ku'kphgtkqt''vq'' y cv'qh'y g'qy gt'r ctwekr cpvu. "cpf 'y cv'ulj g'uwrn'j cu'vq''cej kgxg''eqo r tgj gpukqp''dg{qpf 'y g'ngxgn'i gpgtcm{ " gzr gevgf 'htqo ''nkuvgpgtu'pqv'eqpxgtucpv'y kij ''vj g''uwdlgev'\*I krg'3; : ; +0'Qvj gt''r qvgpvkcn'lf khhgtgpegu''ctg''vj qwi j v'vq'' gzkuv'dwv'j cxg'pqv'dggp'kpxguvki cvgf 'u{ uvgo cvkecm{0Cpqvj gt'korqtvcpv'curgev'qh'vj g'kpvgtrtgvgtøu'ogpvcn' cevkxkv{ "eqpegtpu"etkuku"o cpci go gpv."vj cv"ku"eqr kpi "vcevkeu"vj cv"ctg"ugrgevgf "cpf "ko r rgo gpvgf "y j gp"kpvgtr tgvgtu" hceg"eqortgj gpulqp."rtqf wevlqp"cpf"qvj gt"f ldhlewnlegu" lkg"3;:;."3;;6."3;;7c."3;;7d+0"Kp"eqpugewlexg"oqfg." cp'ko rqtvcpv'rctv'qh'yi g'kpvgtrtgvgtøu'o gpvcn'cevkxkv{ 'ku'tgncvgf 'vq'pqvg/vcnkpi .''yi cv'ku'ugngevkpi 'vj g'kphqto cvkqp'' vq'dg'pqvgf. "cpf 'vj g'o qf g'qh'pqvcvkqp. "cu'y gm'cu'vj g'y c{ 'vj g'pqvgu'ctg' wugf 'f wtkpi 'vj g'tghqto wrcvkqp'r j cug0

# Rt qegudpi 'ecr cels{ 'cpf 'tj g' :Ghqt w'o qf gni

Qxgt"yi g"r cuv'hgy "{ gctu. "tgugctej gtu"j cxg"dggp"hqewukpi "qp"yi g"kpvgtr tgvgtøu"r tqeguukpi "ecr cekv{ "cpf "kvu"tqng"kp" kpvgtr tgvkpi 0Eqi pkvkxg"

ru{ej qmi kuwi'j cxg"mpqy p"hqt"uqo g"vko g"vj cv'y j krg"uqo g"qr gtcvkqpu"ctg"÷ewqo cvkeø"kp"vj g"ugpug"vj cv'vj g{" tgs wktg"pq"r tqeguukpi "ecr cekv{."qvj gtu"ctg"÷pqp/cwqo cvkeø"cpf "vcmg"wr "r tqeguukpi "ecr cekv{."y j kej "ku"cxckredrg" kp"c"hkpkxg"co qwpv0"kp"vj g"Ghhqt v'o qf gnu"qh"kpvgtr tgvkpi ."f gxgnqr gf "kp"cp"cwgo r v"vq"gzr rekp"vj g"tgewttgpv"cpf " xgt { "htgs wgpv"gttqtu"cpf "qo kuukqpu"hqwpf "kp"vj g"r gthqto cpeg"qh"dgi kppgtu"cpf "ugcuqpgf "kpvgtr tgvgtu"cnkng."I krg" \*3; :; +"cti wgu"vj cv'vj g"o ckp"eqo r qpgpwu"qh"vj g"kpvgtr tgvkpi "r tqeguu"ctg"pqp/cwqo cvke0"Uko wncpgqwu" kpvgtr tgvkpi "ku"f kxkf gf "kpvq"vj tgg"ugvu"qh"÷Ghqtvwoc"

\*c+'y g'Nkuygpkpi 'cpf 'Cpcn(uku'Ghqtv.'y j kej 'cko u'cv'eqo r tgj gpukqp''qh''y g''UN'ur ggej

\*d+'y g'Rtqf wevkqp'Ghqtv.'y j kej 'cko u'cv'r tqf wevkqp'qh'y g''VN'ur ggej

\*e+"c"Uj qt√vgto 'O go qt{'Ghqtv."y j kej 'j cpf rgu"kphqto cvkqp"dgw ggp"r gtegr vkqp"cpf 'r tqf wevkqp"kp"yj g"VN0

Cu'hct''cu'eqpugewkxg'kpvgtrtgvkpi 'ku'eqpegtpgf.''y ku'ku'f kxkf gf 'kpvq'c'hkuvgpkpi 'r j cug.''f wtkpi 'y j kej 'y g'' kpvgtrtgvgt 'hkuvgpu'vq'y g'ur gengt''cpf ''cngu'pqvgu.''cpf ''c'tghqto wrevkqp''r j cug.''f wtkpi 'y j kej 'y g''kpvgtrtgvgt'' tghqto wrevgu''y g'ur ggej 'kp''y g''VN0F wtkpi ''y g''hkuvgpkpi 'r j cug.''y g''Ghqtw''ctg''y g''Nkuvgpkpi ''cpf ''Cpcn{ uku'' Ghqtv''y g'P qvg''Rtqf wevkqp''Ghqtv.''cpf ''y g''U qtv'vgto 'O go qt { 'Ghqtv'hqt''y g''o cpci go gpv'qh'kphqto cvkqp'' dgwy ggp''y g''ko g''kv'ku''tgegkxgf ''cpf ''y g''ko g''kv'ku''cmpp''f qy p0F wtkpi ''y g''tghqto wrevkqp''r j cug.''y gtg''ku''c''P qvg/tgcf kpi ''Ghqtv''c''Nqpi /vgto 'O go qt { 'Ghqtv'vq''tgo go dgt''y g''ur ggej .''cpf ''c''ur ggej ''Rtqf wevkqp''Ghqtv0I krg'' cti wgu''y cv'kp''eqo r gvgpv'kpvgtrtgvgtu''qpn{ ''y g''htuv'r j cug''ku''etkkecn''ukpeg''y g''ugeqpf ''ku''pqv'r cegf ''d { ''y g'' ur gengt''cpf ''f qgu''pqv'kpxqnxg''o wej ''cwgpvkqp/uj ctkpi 0

Hqt"kpvgtr tgvkpi "vq"r tqeggf "uo qqvj n{ ."vy q"eqpf kkqpu"j cxg"vq"dg"o gv"kp"uko wncpgqwu"cpf "kp"vj g"\*etkkecn+" nkuvgpkpi "r j cug"kp"eqpugewkxg"o qf g<hktuv."vj g"uwo "qh"vj g"kpf kxkf wcn'Ghqtvuø"r tqeguukpi "ecr cekx{ "tgs wktgo gpwu" uj qwrf "pqv"gzeggf "vj g"vqvcn'cxckrcdrg"ecr cekx{ ="ugeqpf ."cv"gcej "r qkpv"kp"vko g."vj g"ecr cekx{ "cxckrcdrg"hqt"gcej "Ghqtv"uj qwrf "eqxgt"vj g"tgs wktgo gpwu"cuuqekcvgf "y kvj "vj g"vcum'vj g"Ghqtv"ku"gpi ci gf "kp0"Kt"gkvj gt "eqpf kxkqp"hckru" vq"dg"o gv."vj g"s wcnkx{ "qh"kpvgtr tgvkpi "f gvgtkqtcvgu."tguwnkpi "kp"gttqtu."qo kuukqpu."enwo u{ "tghqto wrcvkqp"qh"vj g" ur ggej ."cpf "uq"qp0

Ceeqtf kpi "vq"yi g"Ghqtv'o qf gnu. "wt ki i gt gt u'qh'kpvgtr tgvkpi "f khhkewnkgu'hcm'kpvq"yv q"ecvgi qtkgu0'Vj g"hktuv" kpenwf gu"yi qug"y j kej "kpetgcug"r tqeguukpi "ecr cekx{ "tgs wktgo gpvu"gkyj gt "dgecwug"yi g{ "tgs wktg"o qtg"r tqeguukpi "r gt "wpkv"vko g"\*hqt "gzco r ng"f gpug"qt "hcuv'ur ggej gu"cpf "gpwo gtcvkqpu+"qt "dgecwug"yi gkt "uki pcn'ku"pqku{ "qt "f kuvqt vgf "\*hqt "gzco r ng"j gcxkn{ "ceegpvgf "ur ggej gu."ur ggej gu"y kyj "wpwuwcn'i tco o ct "qt "nqi ke."pqku{ "r j { ukecn' gpxktqpo gpv"cpf "kpcf gs wcvg"ceqwurke"gs wkr o gpv+0"Vj g"ugeqpf "ecvgi qt { "kpenwf gu"ur ggej "ugi o gpvu"y j kej "tckug" f khhkewnkgu"hqt "yi g"Nkuvgpkpi "Ghqtv"dgecwug"qh"yi gkt "dtgxkx{ "cpf "ncem'qh'tgf wpf cpeg"\*hqt"gzco r ng"pwo dgtu." uj qtv"y qtf u"cpf "pco gu+0"

 $V_j$  g'Ghhqtv'o qf gnu'cnuq'gzr rckp'gttqtu'kp''y g'kpvgtr tgvkpi ''qh'uggo kpi n{ ''gcu{ ''ur ggej ''ugi o gpvu''d{ ''cwtkdwkpi '' yi go ''vq'ucwtcvkqp''qt''r tqeguukpi /ecr cekv{ ''f ghkek'kpxqnxkpi ''gctnkgt.''o qtg'f khhkewn''ugi o gpvu''cpf ''ngcf kpi ''vq''y g'' vtcpuhgt''qh''r tqeguukpi ''ecr cekv{ ''cpf ''vq''c''ej ckp''tgcevkqp''kp''y j kej ''y g'hcknwtg''qeewtu''cv''uqo g'f kuvcpeg''htqo ''y g'' cewcn''vtki i gtgtu''\*1 kng''3; : ; +0

Vj g"eqpegr v'qh'r tqeguukpi "ecr cekv{ "ku"cnuq 'rkpmgf "vq" y g" v{ r g"qh'o cuvgt { "qh'y qtmkpi "rcpi wci gu'tgs wktgf "htqo " kpvgtr tgvgtu0/Dgecwug"qh'vko g"eqpuvtckpwi"cpf "rko kvgf "r tqeguukpi "ecr cekv{ ." y g"kpvgtr tgvgt "pqv'qpn{ "j cu'vq"mpqy " y g"y qtf u'cpf "rkpi wkuvke" kwngu "kp" j kulj gt "y qtmkpi "rcpi wci gu. "dw" y gkt "cevkxg" wug" kp"eqo r tgj gpukqp" qt" r tqf wevkqp"o wuv'dg "hcuv'cpf "vcng" wr "rkvvg" r tqeguukpi "ecr cekv{ ="kp"qy gt" y qtf u." y g"kpvgtr tgvgtøu "rkpi wkuvke" mpqy ngf i g"o wuv'dg" j ki j n{ "÷cxckrcdngø0 Vj ku"tgs wktgo gpv'ku"etkkecn" kp"kpvgtr tgvgtu. "cu"qr r qugf "vq" vtcpurcvqtu." y j q"f q"pqv" j cxg" vq" y j q"ecp" f gxqvg"o kpwgu. "j qwtu"qt"o qtg" vq" y g"eqo r tgj gpukqp" qh" vgzv' ugi o gpvu"qt" vq" y g"tgvtkgxcn"qh'y qtf u"qt" rhpi wkuvke" twngu" ry j gkt" vcti gv'vgzv0

Vj g"eqpegr v'qh": tqeguukpi "ecr cekx{ø'ecp''uj gf "uqo g'hki j v'qp''yj g'o wej "f gdcvgf "kuuwg"qh''yj g'f guktcdkrkx{"qh" y qtnkpi "htqo "cp'C"kpvq''c'D'ncpi wci g"qt''xkeg''xgtuc0O cp{"Y guv'Gwtqr gcp''kpvgtr tgvgtu''encko "vj cv'yj g"qpn{" ncpi wci g'o cuvgtgf "y gm'gpqwi j "vq''r tqf weg''ceegr wcdng''vcti gv'ncpi wci g''wwgtcpegu'ku''cp'C''ncpi wci g.''cpf "yj cv'' kpvgtr tgvgtu''uj qwrf "vj gtghqtg''qpn{"y qtm'kpvq''yj gkt'C''ncpi wci g0Qp''yj g''qyi gt''j cpf ."o cp{"kpvgtr tgvgtu''htqo "vj g" hqto gt''Gcuvgtp''dnqen'uwi i guv'yj g''qr qukvg."pco gn{"yi cv''cp''kpvgtr tgvgt"

uj qwf "y qtm"t qo "cp"C"rcpi wci g. "dgecwug"y ku'kn"y g"qpn( "qpg"y cv'ulj g"wpf gtuvcpf u"y gm'gpqwi j "\q'tgcev\q" tcr kf n(0Vj g"s wgukqp"qh'y j gyj gt"qt "y j gp"kpygtr tgygtu"f q"cej kgxg"y g"tgs wktgf "rgxgn'qh'eqo r gygpeg"kp"yj gkt"C" cpf "D'rcpi wci gu'ku'd{ "pq"o gcpu"cp"gcu{ "qpg"\q'tguqnxg."cu'pq"r tgekug"cpf "tgrkcdrg"\qqnu'hqt"o gcuwtkpi "uwej " eqo r gygpeg"ctg"{ gv'cxckrcdrg0Vj cv'cukf g."j qy gxgt."\yj g"kunwg"qh'\yj g"F KT GE VKQP "QH"VT CP UNC VKQP "ecp"dg" cf f tguugf "kp"\yto u'qh'\ylo g"cpf "r tqeguukpi "ecr cekk{ "tgs wktgo gpwi'kp"\yj g"Nknygpkpi "Ghqtv'cpf "kp"\yj g"Rtqf we\*kqp" Ghqtv\'cpf "dg"uj qy p"\yi cv'\yj g"Nknygpkpi "Ghqtv'\crugu'wr "o wej "o qtg"r tqeguukpi "ecr cekk{ ."\yj g"C"kpvq"D" cti wo gpv'dgeqo gu"o qtg"eqpxkpekpi 0Kh "qp"\yj g"qyj gt"j cpf ."kv'wtpu"qw'\yj cv'kv'ku'\yj g"Rtqf we\*kqp"Ghqtv'y j kej " vcngu'wr "o wej "o qtg"r tqeguukpi "ecr cekx{ ."\yj g"D"kpvq"C"cti wo gpv'dgeqo gu"o qtg"r rwwkdrg0'Kfb'pq"o clqt" fkhtgtgpeg"ku'hqwpf "\q"gzknv'dgy ggp"\yj g"\yq ."dq\yj "cti wo gpwi'y qwf "j cxg"\q"dg"cuuguugf "d{ "tghgtgpeg"\q"q\yj gt" hcevqtu. "uwej "cu'\yj g"kpf kxkf wcn'kpvgtr tgygtøu'eqo o cpf "qh'\yj g"rcpi wci gu'kpxqnxgf ."j kulj gt'hrgzkdktk\{ "kp"cf cr vkpi " yg"uxtwewtg"qh'\yj g"qwr wv'\q"ceeqo o qf cvg'\yj g"kpeqo kpi "kpr wv'f gur kyg"cpkekr cxkqp"f khtkewnkgu."cpf "cp{ "rgzkecn' qt"i tco o cxkecn'r gewkctkkgu'qh'\yj g"uqwteg"qt"\cti gv'rcpi wci gu'\yj kej "o ki j v'kphnygpeg"gcug"qt "f khtkewn\{ "qh" eqo r tgj gpukqp" "hqt"gzco r ng'\yj g"ngxgn'qh'tgf wpf cpe{ +0

Ugg'cnuq<

EQOOWPKY[ "KP VGTRTGVKP I = EQWTV"KP VGTRTGVKP I = RU[ EJ QNKP I WKUVKE IEQI PKVKXG" CRRTQCEJ GU=UK PGF "NCP I WCI G"KP VGTRTGVKP I 0

#### Hwt yj gt 't gcf kpi

 $F \ kmlpi \ gt"3; : ; = I \ kg"3; ; 6."3; ; 7c."3; ; 7d = I \ tcp"cpf "F \ qf \ fu"3; : ; = INco \ dgt \ v'cpf "O \ qugt/O \ gtegt"3; ; 6 = IR \ ej \ j \ cengt"3; ; 6 = IR \ vc \ i \ gv'9 \ "3 + i"3; ; 7 = IVqo \ o \ qmc"3; ; 70$ 

FCPKGN'I KNH

# Eqpvt curks g'cpcn (uku'cpf 'tt cpurc skqp

# Qxgtxlgy Ij knqt lecridceni t qwpf

Cv'ku'o quv'untcki j shqty ctf. "eqpytcunkxg"cpcn{ uku'ku'c'hlpi wkunke"unwf { "qh'wy q'hcpi wci gu. "cko kpi "vq'lkf gpylh{ "f khhgtgpegu'dgwy ggp''y go "kp'i gpgtcn'qt''kp''ugngevgf "ctgcu0'Vj gtg''ku''c "egtvckp''nhpf "qh'eqpytcf kevkqp''kpj gtgpv'kp" y ku. "kp''y cv''y g''wy q'hcpi wci gu''o wun'j cxg''uqo g''eqo o qp''o gcuntg''d{ "y j kej "'y g{ "ecp''dg''eqo r ctgf. "ecngf "c" vgt shwo 'eqo r ct cylap ku "qyj gty kug''y g''eqpytcunkxg''\cun'lku''pqv''r quulkdrg0

Eqpvcukxg"cpcn(uku"ku"c"tgrcvkxgn("o qf gtp"f kuckr rkpg."go gti kpi "cu"c"o clqt"rkpi wkurke "qqn"f wtkpi "cpf "chygt" Y qtrf "Y ct"Vy q."r ct vkewctn( "kp" y g"Wpkygf "Ucvygu"kp" y g"eqpvyz v"qh"ugeqpf "cpf "hqtgki p"rcpi wci g"vgcej kpi ."dw" kv" cu"cpygegf gpwi "ugg"NCPI WCI G"VGCEJ kPI ."WUG"QH"VTCP UNC VKQP "KP +0Mt| gu| qy unt\*3; : 7+" kf gpwlhkyf "cp"cr r tqcej "vq" y g"vgcej kpi "qh"Ncvkp"kp"Gpi rcpf ."i qkpi "dcem"pgctn("c" y qwucpf "{ gctu."ecmgf "uki p" y gqt { ."y j kej "kpxqrxgf" tgeqpekrkpi "y g"i tco o cvkecn"f guetkr vkqpu"qh"Gpi rkuj "cpf"Ncvkp0F k"Rkytq" 3; 93+" hqewugu"qp"c"o qtg"tgegpv'tgrcvkxg."rcy"pkpgvggpyj /egpwt { "eqo r ctcvkxg"r j krqmi { ."y j kej "uqwi j v"vq"rkpm" rcpi wci gu" j krqtkecm( ."f gxgrqr o gpvcm("cpf" unt wewtcm("y ky kp"+co kn( o"tgrcvkqpuj kr u0) Eqpvtcuvkxg"cpcn(uku"cv'kuu"utqpi guv." j qy gxgt."dgi cp"vq"f gxgrqr "kp" y g"3; 52u."cpf "y g"Co gtkecp"rkpi wkuv' Dgplco kp"Ngg"Y j qth" 3; 63~462+"hqtgucy "kuu"r rceg"cu"c"uweeguuqt"vq" y g"eqo r ctcvkxg"uwf { "qh"rcpi wci gu<

O wej 'r tqi tguu'j cu'dggp'o cf g'kp''encuukh{kpi ''y g''ncpi wci gu''qh''y g''gcty 'kpvq''i gpgvke'hco krkgu.''gcej '' j cxkpi 'f guegpv'htqo ''c''ukpi ng''r tgewtuqt.''cpf 'kp''vtcekpi ''uwej 'f gxgmr o gpwi'y tqwi j ''ko g0'Vj g''tguwn'' ku''ecmgf ''ŏeqo r ctcvkxg''rkpi wkurkeu0ö''Qh''gxgp''i tgcvgt''ko r qtvcpeg'hqt''y g''hwwtg''yej pqmi { ''qh''y qwi j v'' ku''y j cv'o ki j v'dg''ecmgf ''ŏeqpvtcurkxg''rkpi wkurkeu0ö''Vj ku''r myu''y g''qwurcpf kpi 'f khhgtgpegu''co qpi '' vqpi wguô kp''i tco o ct.''mi ke.''cpf ''i gpgtcn''cpcn{ uku''qh''gzr gtkgpeg0

C"o clqt 'kphrwgpeg'qp" yi g"f gxgmqr o gpv'qh' yi g"eqpvtcuvkxg" cpcn{ uku'crrtqcej "j cu'dggp" yi g'kpvgtguv' uj qy p'kp'kv'd { "repi wci g'vgcej gtu'cpf 'reptgtu." cpf "o wej 'EC" j cu'dggp" wpf gtvcmgp" y kyj 'repi wci g'vgcej kpi 'tcyj gt' yi cp" vtcpurcvkqp" kp" o kpf 0'C 'mg{ "gctn{ 'lhki wtg'kp" yi ku' y cu'Ej ctrgu'E0'Htkgu' yj qug'' Vgcej kpi 'cpf 'Ngctpkpi 'Gpi nkuj 'cu'c" Hqt gki p'Ncpi wci g' y cu'r wdrkuj gf 'kp'3; 670 J ku'xkgy 'y cu'y cv'y g'rgctpgt' y cu'rkngn{ 'vq'vtcpuhgt' twrgu'cdqw' repi wci g'kpvgtpcrk gf 'htqo 'yi g'rgctpkpi 'qh' j kulj gt'N3'vq' yi g'ugeqpf 'repi wci g." cpf 'yi cv'o knvcngu'kp' yi g'ugeqpf' repi wci g'y gtg'f wg'vq' yi ku'kpcrrtqrtkcvg' vtcpuhgtgpeg0

Qpg"eqwf" 'y gtglqtg"r tgxgpv'f gxgqqr o gpv'qh"gttqtu'y tqwi j "c"r tkqt"eqpvtcukxg"cpcn{uku"cpf "gttqt"cpcn{uku." ngcf kpi "vq"y g'f gxgqqr o gpv'qh"cr r tqr tkcvg"vgcej kpi "o cvgtkcnu"vq"tgkphqteg"eqttgev"mpi wci g"ngctpkpi 0"Y j gp"kv" dgeco g"cr r ctgpv'f wtkpi "y g"ncvg"3; 82u"kp"y g"Wpkxgf "Uvcvgu"y cv'y ku"cr r tqcej "f kf "pqv'cf gs wcvgn{"gzr nckp"qt" r tgxgpv'r tqdngo u"qh"ncpi wci g"ngctpkpi ."EC"nquv'kv'r qr wnctkv{0"Kp"Gwtqr g."j qy gxgt."kv'tgvckpgf "kwu"cr r gcn' y tqwi j "y g"3; 92u."cpf "ugxgtcn'ncti g"eqpvtcuvkxg"r tqlgewu'y gtg"ugv'wr ."eqpvtcuvkpi "Gpi rkuj "y kyj ."hqt"gzco r ng." Rqrkuj "cpf "Hkppkuj "co qpi "qvj gtu0"

 $Cu'c''j \ gqtgvkecn'cpf''f \ guetkr vkxg''uwf \ \{''ij \ gtg''ku''uvkm'cp''kpvgtguv''kp''eqpvtcuvkxg''cpcn \ uku.''y \ kij ''Mt| \ gu| \ qy \ umk'*3; \ ; 2+'' \ eqxgtkpi''kp''f \ gr \ ij ''c''y \ kf \ g''xctkgv \ ''qh''ctgcu''cpf''eqpvgpvkqwu''kuuwgu0$ 

Qpg"ctgc"tgrcvgf "\q"eqpvcukxg"cpcn\uku."y j kej "j cu"f gxgmr gf "uqo gy j cv'ugr ctcvgn\uku"\y cv'qh'eqpvcukxg"

tj gvqt ke."c"vgto "htuv'wugf "d\uxu"\uxus green\uxu"\uxus green\uxus green\uxu"\uxus green\uxus green\uxu"\uxus green\uxus g

# Vj g't grgxcpeg'qh'E C'vq'vt cpurc vlqp

Vj g'go rj cuku'qh'o wej 'qh'vj g'y qtm'qp'EC''qp''vgcej kpi 'cpf 'hcpi wci g'hgctpkpi 'tckugu''

s wgurkqpu'cdqwi'ku't grgxcpeg''vq''t cpurc vqtu0'C v'c''r tcevkecri'rgxgn''kv'ku''r tqdcdn{ "o quv'wughwrikp''r qlpvkpi "qwi'ctgcu" y j gtg'f ktgev''t cpurc vkqp''qh'c''yto "qt'r j tcug'y kni'pqv'eqpxg{ "ceewtcvgn{ "kp''y g''ugeqpf 'ncpi wci g''y g''kpvgpf gf "o gcpkpi "qh''y g''httu0'C v'c'i rqdcn'rgxgn''kv'rgcf u''y g''tcpurc vqt''vq''nqqn'icv''dtqcf gt''kuuwgu''uwej "cu''y j gyj gt''y g'' uvt wewt g''qh''y g''f kueqwtug''hqt''c''i kxgp''vgzv'v{r g''ku''y g''uco g''kp''dqyj 'ncpi wci gu''\*ugg''F KUEQWTUG''CP CN[ UKU'' CPF "VTCP UNCVKQP +0

Hwty gto qtg. "cnj qwi j "EC"ku"y kf gn{ "r tcevkugf." yj gtg"ctg"c"pwo dgt"qh"yj gqtgvkecn"cpf "r tcevkecn"r tqdngo u"kp"ku" cr r necvkqp. "cm"qh"y j kej "o wuv"chhgev"lwf i go gpvu"cu"vq"kvu"wughwpguu"kp"r tgr ctkpi "qt"gxcnwcvkpi "vtcpuncvkqpu0" Vj gtg"ku"uqo g"qxgtncr "dgwy ggp"yj gug"r tqdngo u. "dww"yj g{ "ecp"pgxgtyj gnguu"dg"tgncvgf "vq"ur gekhke "f khhkewnkgu"qh" kf gpvkh{ kpi "c"eqo o qp"i tqwpf "hqt"eqo r ctkuqp. "eqo r ctkpi "f guetkr vkqpu"qh"f khhgtgpv"ncpi wci gu. "vcnkpi "ceeqwpv" qh"r u{ej qnkpi wkuvke "cpf"uqekqewnwtcn"hcevqtu. "cpf" "vcnkpi "ceeqwpv"qh"gz vtcvgz wcn"cpf "kpvgtvgz wcn"hcevqtu0

#### If gpvlh(lpi 'b'eqo o qp'l t qwpf 'hqt'eqo r ct luqp

Cm'eqo r ctkuqpu'tgs wktg''y cv''y gtg''dg''c''eqo o qp''i tqwpf ''ci ckpuv'y j kej ''xctkcvkqp''o c{ ''dg''pqvgf.''c''eqpuvcpv''y cv'' wpf gtrkgu''cpf ''o cmgu''r quukdrg''y g''xctkcdrgu''y cv''ctg''kf gpwlkgf =''y ku''ku''mpqy p''cu''y g''*vgt wwo 'eqo r ct cvkqpku*'' \*VE+O'Kp''EC''cpf ''vtcpurcvkqp.''y ku''v*gt vkwo ''eqo r ct cvkqpku*''ku''pqv''tgcf kn{ ''kf gpwlkkcdrg0

Hqto cn'ulo krctk{ 'ku'wptgrkcdng'hqt'ugxgtcn'tgcuqpu0Kp''y g'hktuv'r reeg. 'c'r ctvkewrct'i tco o cvkecn'untwewtg'kp''qpg'' repi wci g'o c{ 'dg''c'tgs wktgo gpv'y j krg'kp''cpqy gt''kv'o c{ 'dg''qpg''ej qkeg''co qpi uv'ugxgtcn='kp''y g''ugeqpf ''r reeg. 'y g'' ej qkeg''tgr tgugpvgf ''d{ ''c'i tco o cvkecn'untwewtg'kp''qpg''repi wci g'o c{ ''j cxg''c'f khhgtgpv'uki pkhkecpeg'kp''y cv'' repi wci g'htqo ''y g''ej qkeg''tgr tgugpvgf ''d{ ''cp''cr r ctgpvn{ ''gs wkxcrgpv'untwewtg''kp''cpqy gt''repi wci g'''ugg''pgzv'' ugevkqp. ''dgrqy +='kp''y g''y ktf''r reeg. ''kp''qpg''repi wci g''c'r ctvkewrt''untwewtg''o c{ ''dg''wpo ctnrgf ''y j krg''kp''cpqy gt''kv'' o c{ ''dg''o ctnrgf 0Uko krct''qdlgevkqpu''ecp''dg''rgxgnrgf ''ci ckpur'y g''wug''qh'ugo cpvke''cpf kqt''r tci o cvke''gs vkxcrgpeg''cu'' vgt vkwo ''eqo r ctcvkqpkv0C''r ckt''qh'ugpvgpegu'o ki j v'dg''ugo cpvkecm{ ''cpf kqt''r tci o cvkecm{ ''gs wkxcrgpv''dwv''j cxg'' y kf gn{ ''xct{ kpi ''kngrkj qqf u'qh''qeewttgpeg''kp''y g''repi wci gu''htqo ''y j kej ''y g{ ''ctg''f tcy p0}

C'uko r ng''gzco r ng''qh'cm''y gug''r qkpwu'ku''y cv'qh''y g''Rqtwi wgug''gzr t guukqp"o wkq''qdt ki cf q lc''cpf "y g''Gpi rkuj" gzr t guukqp"o wej "qdrki gf 0'Vj gug''ctg''u{ pwevkecm( "cpf "ugo cpvkecm( "eqo r ctcdng''dw''j cxg''c''f khhgtgpv''nkngrkj qqf" qh'qeewt t gpeg."o wkq''qdt ki cf q lc''dgkpi "y g''pqto cn'y c{ "qh'y cpmkpi "kp''Rqt wi wgug''cpf "o wej "qdrki gf "dgkpi "c" tctg''cpf "o qtg''t guvtkevgf "wuci g''y cp"'y cpmu''c 'hqv'\*cpf "qy gt''t gncvgf "gzr t guukqpu+'kp''Gpi rkuj 0'Mt| gu| qy unk'' \*3; ; 242+'t geqo o gpf u''-y g''wpf gtn(kpi "o gcpkpi "qh'y g''enquguv''crrtqzko cvkqpu''vq''y gm'hqto gf "y qtf/hqt/y qtf" vcpurcvkqpuø'cu''c''yt vkwo "eqo r ct cvkqpku"'dw''j ku''eqpegtp''ku'y kyj "y g''wug''qh''ur gekhle''r kgegu''qh''t cpurcvgf "vgzv'cu'' f cvc''hqt''EC''\*eh0''hqt''gzco r ng. "I ngcuqp''3; 8: .'Ico gu''3; : 2+'tcyj gt''y cp''y kyj "y g''wug''qh'EC''cu''c'y c{ "qh'' gzr nckpkpi "f khhkewnkgu''kp''tcpurcvkqp''qt''c''tcpurcvqtøu''utcvgi kgu''hqt''qxgteqo kpi "y gug''f khhkewnkgu''\*eh0''hqt'' gzco r ng. "P kf c''3; 86='Dggmo cp''cpf 'Ecmqy ''3; 96='[ gdtc''3; : 4='Gpnxkuv''3; 9: ='Dcngt''3; ; 4+0

#### Eqorct kpi 'f guet kr vkqpu'qhlf khhgt gpv'hcpi wci gu

Crctv'htqo "vj g'tgcn'dw'wpcxqkfcdrg'r tqdrgo u'ctkukpi "qw'qh'eqo rctkuqpu'qh'f guetkr vkqpu'vj cv'wkrk g'f khhgtgpv' rkpi wkuke o qf gnu. "vj gtg'ctg'r tqdrgo u'vj cv'ctkug "gxgp'dgwy ggp'f guetkr vkqpu'vj cv'wkrk g'vj g'uco g'ecvgi qtkgu'cpf "vj gqtgvkecn'htco gy qtm0

Rkng'\daggan 3; 89."cnuq'Rkng'cpf "Rkng'3; 99+"o cngu'c'f knkpe\dapp'dgw ggp'g\de'cpf 'go le'f guetkr \dapp'qp''qh'rcpi wci gu\daggan ggp'g\de'cpf 'go le'f guetkr \dapp'qp''q' cv'o cngu'wug'qh'r tgf gygto kpgf 'ecvgi qtkgu'hqwpf '\q'' cxg''dggp'qh'wug'kp''ceeqwp\dpi 'hqt'' qy gt 'hcpi wci gu='kv'ku'd{ 'ku''pcwtg'ko r qugf 'wr qp''y g'f cvd\Cp''go le'f guetkr \dapp'qp''y g''qy gt''j cpf 'o cngu'wug''qh'' ecvgi qtkgu''y cv'ctg'hqto wrcygf 'lp'tgur qpug'\q''y g''pggf u''qh'y g''rcpi wci g'wpf gt''uwf {='y g{ 'ecp''qpn{ 'dg''r tqxkf gf '' d{ ''uqo gqpg''kp\do cvgn{ 'hco krkct''y ky ''y g''rcpi wci g0'Vj g''ecvgi qtkgu''qh'cp''go ke''f guetkr \dapp''o c{ ''f tcy 'wr qp'' hco krkct''yto kpqmi { '\*g0 0'pqwp.'r cuukxg.'kpuntwo gpv+''dw''y g''f ghkpkkqp''cpf ''uki pkhecpeg''qh''cp{ ''ecvgi qt{ ''ku'' cny c{ u''f gr gpf gpv'wr qp''y qug''qh''cm''y g''qy gt ''ecvgi qtkgu''kp''y cv'rcpi wci g''\cpf ''pq''qy gt+\d\D\{ ''y gkt''pcwtg.''go ke'' f guetkr \dapp''ccp''dg''eqpukf gtgf ''

uckulcevqt { "qvj gt" vj cp" cu" c"r tgrko kpct { "uvgr "vqy ctf u" c"r tqr gt" go ke" qpg0 Go ke" cpf "gvke" f guetkr vkqpu" ctg" qp" c" erkpg0 Pq" f guetkr vkqp" ku" r gthgevn { "go ke" cpf "hgy "ctg" vqvcm { "gvke0

Cv'qpg''urci g. ''y g''Vtcpuhqto cwlqpcrl'I gpgtcwlxg''tcf kklqp''r tqo kugf "c'y c{"qw''qh''y g''gvke I'go ke''ko r cuug'y ky ''ku'' j qr g''qh''c'wpkxgtucrl'f ggr ''urt wewtg'y j kej "eqwrf ''ugtxg''cu''y g''dcuku''qh''cp{"eqo r ctkuqp. ''dw''y cv'j qr g''j cu''r tqxgf " vq''dg''cv''ngcuv''r tgo cwtg. "cpf ''kp''cp{"ecug''y g''kf gcrl\t cwlqp''qh''f cwc''cuuqekcvgf ''y kyj ''y ku''tcf kklqp''ngcf u'vq''y g'' gzenwukqp''qh''qq''o wej ''y cv'ku'tgngxcpv''q''tcpurcwlqp. "c'r qkpv'f kuewuugf ''ugr ctcvgn( ''dgnqy 0'Lco gu'\*3; : 2+"pqvgu'' y cv'qpg'y c{"qw''qh'y g''gyke Igo ke''f kngo o c'ku''q''f guetklg''dqyj ''ncpi wci gu'y kyj ''y g''kpvgpf gf ''eqo r ctkuqp''kp''o kpf 0' Y j kng''uwej ''f guetkr wlqpu'y qwrf ''dg''pgksj gt''r ctuko qpkqwu''pqt''cu''f grkecvg''cu''y g{ ''y qwrf ''dg''kh'y g{ ''y gtg'' wpf gtvcmgp''kp''kpf gr gpf gpeg''qh''gcej ''qy gt. "cpf ''cnsj qwi j ''y g{ ''y qwrf ''pqv''dg''hwnn( "go ke. ''eqo r ctkuqp''y qwrf ''dg'' gpcdngf ''dgwy ggp''y g''f guetkr wlqpu0'Uwej ''c'uqnwkqp. "j qy gxgt. "r ncegu''c''j gcx{ ''f go cpf ''qp''y g''cpcn( uv. ''kh''ulj g''j cu'' vq''tgf guetklg''c''ncpi wci g''gcej ''ko g''c''pgy ''eqo r ctkuqp''ku''q''dg''o cf g0

#### R{uej qrlpi wkuske'cpf'luqekqewnswtcrlhcevqtu

EC"f geni'y kỷ "u{ uvgo u'tevj gt "ý cp"wugtu'qh'u{ uvgo u0Eqpugs wgpvn{ "kv'vgpf u'vq"dg"t grgxcpv'vq"vtcpurevkqpu"cu" rtqf wewi'tevj gt "ý cp"vq"yj g'rtqeguu'qh'vtcpurevkpi ô y j kej "o cp{ "ewttgpv'vtcpurevkqp"ur gelechuru'\*g0 0J cvko "cpf" O cuqp"3; ; 2="Dgm'3; ; 3+"ugg"cu'egpvtcn'vq"cp"cf gs wevg"yj gqt { "qh'vtcpurevkqp"\*ugg"RU\_EJ\_QNkPI\_WKUVKEI" EQI\_P KVKXG"CRRTQCEJ\_GU+0'Kp"uq'hct"cu'f guetkdkpi "yj g'rtqeguu'qh'vtcpurevkpi "kpxqnxgu"vcnkpi "ceeqwpv'qh" ru{ej qnkpi wkuvke"cpf "uqekqewnwtcn'hcevqtu."kv'ku'wpf gpkcdng"yj cv'EC."cu'ewttgpvn{ "rtcevkugf."ecp"rtqxkf g"qpn{ "rctvkcn'cpf"s wguvkqpcdn{ 'tgrgxcpv'kprw0J qy gxgt."yj qug"y j q"cf xqecvg"c"rtqeguu/qtkgpvgf "crrtqcej "vq" vtcpurevkqp"uvkm'cxckn'yj go ugnxgu"qh'EC"qp"qeecukqp0J cvko "cpf"O cuqp"\*kdkf 0+."hqt"gzco r ng."eqpvtcuv'eq/tghtgpeg"uvtcvgi kgu'kp"Htgpej "cpf "Gpi nkuj "cpf" ygzvuki pcnkpi "uvtcvgi kgu'kp"Ctcdke"cpf "Gpi nkuj "kp"qtf gt"vq" ceeqwpv'hqt "vtcpurevqtuø'f gekukqpu0

Uki pkłkecpwł ."k/"y qwf" "cr r gct" 'q" dg" kp" 'y g" ctgc" qh" eqpytcurk g" yzv hpi wkrkeu" cpf "eqpytcurk xg" tj gvqtke" y cv" y j krg" eqphrkev" dgw ggp" EC" cpf "c" r tqeguu" qt kgpyc kqp" ku" ngcuv" ngn0 Mcr ncp  $^{1}$ 3; ::  $^{4}$ :;  $^{4}$ eqo o gpwi 'y cv"  $^{4}$ : y j krg" eqpytcurk xg" tj gvqtke "ku" nqewugf "qp" y g" hpkuj gf "\yzvô y g" r tqf weô qt" qp" uqo g" r tqf wev" cnppi "y g" y c{" dgw ggp" kf gc" cpf "hkpkuj gf "\yzv." kl" f qgu" pqv. "ecp" pqv." ki pqtg" y g" r tqeguu" qh" eqo r qukpi y0" y krg." j qy gxgt. "eqpytcurk xg" tj gvqtke "ecp" uj gf "hki j v"qp" eqo r qukkqp" uxt cyci kgu" kp" f khlytgpv" nci gu. "kwi" cwgp kqp" 'q" o cwgtu" qh" i nqdcn' qti cpk cykqp" o cngu" tgngx cpeg" 'q" tcpurcykqp" eqpy gyp kqwu. "ukpeg" o cp{" 'tcpurcytu" y qwf" 'tgcf kn{ 'tgqtf gt" y qtf u" qt" gxgp" encwugu" kp" cp" cwgo r v" q" r tqf weg" c" pcwtcn" cti gv" yzv" dw" uggo "\q" dcwnnic v" tgqtf gtkpi "ncti gt" wpku" qh" yzv" q" ceeqo o qf cyg" y g" tj gvqtkecn" pggf u" qh" y g" cti gv" cwf kgpeg0" Y j gtg" qp" y g" j cpf "tgqtf gtkpi "ku" tgukryf." y g" qtki kpcn'o c{" cwtcev'etkkekno "kpuycf 0 En{ pg" \*3; : 9-9; 6: 2+"f guetkdgu" y g" f khytgpv' gzr gevcylqpu" y cv'uej qnctu" dtkpi "\q" ceef go ke" r tqug. "f tcy kpi "cwgpykqp" \q" y g" hcev'y cv'kunwgu" qh" qti cpk cykqp" cpf "kunwgu" qh" tgi knyt kny{ ng" ctg" kpytf gr gpf gpv0

Y j krg'Cpi rq/Uczqp'cecf go keu'o c{"o kuu'nkpgctkx{"cpf "tgrgxcpeg"kp'I gto cp'f kueqwtug."cpf" ej ctcevgtk g'I gto cp''cecf go ke'tgi kuvgt''cu'j gcx{.'nqpi y kpf gf "qt''gxgp''kpeqj gtgpv."I gto cp" cecf go keu'o c{"uggm'kp''xckp''hqt''rgzkecn'cpf "u{pvcevke''o ctrngtu'qh'c''i gpgtcn'cecf go ke'tgi kuvgt''kp''y g'' r wdrkecvkqpu''qh''o quv''Gpi rkuj "ur gcmkpi "uej qrctu0'Uvej "c''tgi kuvgt''eqpxg{u''yj g''ko ci g''qh''dgkpi "rgctpgf" cpf "uc{kpi 'uqo gyj kpi 'uekgpvkhkecm{'uki pkhkecpv0}

Y j krg"o cp{"tcpurcqtu." y qwi j ." y qwf "y kpmlkingi kwo cvg" vq"o qf kh{"y g"u{pvcz"kp"qtf gt"vq"dtkpi "kv"kpvq"nkpg" y kyj "vcti gv"cwf kgpeg"gzr gevcvkqpu. "cpf "uqo g"y qwf "ceegr v"y g"kpugtvkqp"qh"ngzkecn"o ctngtu"hqt" y g"uco g"tgcuqp." hgy "y qwrf "dg"uq"dtcxg" "qt"hqqrj ctf {+"cu"vq"wpf gtvcng"c"tcf kecn"tgqtf gtkpi "qh"y g"qtki kpcn"vq"o ggv"y g"ewnwtcn" pggf u"qh"y g"cwf kgpeg0"Y j gtg"uwej "tgqtf gtkpi "j cu"vcngp"r rceg."kv"j cu"uqo gvko gu"cwtcevgf "etkkekuo "\*g0 0" Mwj ky e| cm'3; ; 2+0"kp"uq"hct"cu"kv"ku"eqpegtpgf "y kyj "y g"i nqdcn'qti cpk cvkqp"qh"vgzvu. "eqpvtcuvkxg"tj gvqtke"ku" r tqdcdn{"y gtghqtg"dguv"tgi ctf gf "cu"c"i wxf g"vq"r qvgpvkcn'tgcf gt "f khhkevnv{"tcyj gt"y cp"cu"cp"kpegpvkxg"vq" wpf gtvcng"tgqti cpk cvkqp"qh"y g"vcti gv"ygzv0

## Gz vt c vgz vwc dcpf 'kp vgt vgz vwc dkc evqt u

Vgzwi'dqyj 'r gtr gwcvg''cpf ''ctg''uj cr gf ''d{ ''ewnwtcn'cpf 'kf gqnqi kecn'eqpukf gtckqpu='yj g{ ''

cnaq'hqto "tgnckqpuj kr u'y kj "qvj gt'vgz w0llp" tcpurcvkpi 'htqo "UN'vq"VN."c" tcpurcvqt "ku"gpeqwtci gf "vq" cng" ceeqwpv'qh'vj g"cti gv'tgcf gtuj kr øu"f khhgtgpv'ewnwtg. "kf gqmi { "cpf "vgz wcn'gzr gtkgpeg0EC."pcttqy n( "f ghkpgf ." o c{ "f kurtcev'cwgpvkqp" htqo "vj g"gz vtcvgz wcn'cpf "kpvgtvgz wcn'hcevqtu0Vq" tgwtp" vq" yj g"eqo r ctkuqp" qh'o wkq" qdtki cf qlc" y kij "o wej "qdrki gf ."qpg" qh'vj g"tgur gewi'kp" y j kej "vj gug" gzr tguukqpu" f khhgt "ku" yi cv'vj g"Gpi rkuj " gs wkxcrgpv'y qwrf "pqto cm( "dg" wugf "d{ "c"pqpy qtmkpi /encuu'ur gcngt "kp" eqpxgtucvkqp" y kij "uqo gqpg" y kij "y j qo "ul j g"y cu"pqv'hco krkct. "uqekcn't guvtkevkqpu" qp" kuu" wug" pqv'qr gtcvkxg" hqt "vj g"Rqt wwi wgug" gs wkxcrgpv0

J qy gxgt. "qpg" dtcpej "qh" EC" f qgu'hqewu "kp" r ctv'qp" ewnwtcn'eqo r ctkuqp="gctn("gzco r rgu" ctg" Ncf q "\3; 79+"cpf" Y gkptgkej "\3; 75+0 Eqpvtcuvkxg" r tci o cvke "cpcn(uku" cpf "eqpvtcuvkxg" tj gvqtke "cnuq" dqvj "kpeqtr qtcvg" ewnwtcn'cpf" kf gqmi kecn'grog gpvu'y kij kp" yj go 0 Vj g"kpvgtvgz wcn't grcvkqpuj kr u" ygzvu "hqto "ctg." yj qwi j ."dg{qpf "yj g" ueqr g"qh" EC0

## Vj g't gre vlapuj kr 'dgwy ggp'eapvt cuvkxg'epen( uku'epf 'tt epure vlap

Vj g'tgncvkqpuj kr ''dgwy ggp'EC''cpf ''vtcpuncvkqp''ku''dkf ktgevkqpcn0'Qp''y g''qpg''j cpf .''yj g''vtcpuncvkqp''qh''ur gektke'' r kgegu''qh''vgzv'o c{ "r tqxkf g''yj g''f cwc''hqt''EC.''cu''kp'I ngcuqp'\*3; 87+.''Mt| gu| qy unk'\*3; ; 2+'cpf ''Ico gu'\*3; : 2+0'Qp'' yj g''qyj gt.''EC''o c{ "r tqxkf g''gzr ncpcvkqpu''qh''f khhkewnkgu''gpeqwpvgtgf ''kp''vtcpuncvkqp''\*g0 0'P kf c''3; 86=''Dggno cp'' cpf ''Ecmqy ''3; 96=''[ gdtc''3; : 4.''Gpmxkuv'3; 9: ='Dcngt''3; ; 4+0 
Vtcpuncvkqp''cu''c''uqwteg''qh'f cwc''hqt''EC''ku''uvtkevn{ "wpcxqkf cdng0'Vj g''etwekcn'hcevqtu''j gtg''ctg''y j cv''uk| g''qh'' ncpi wci g''uco r ng''j cu''dggp''ej qugp''hqt''vtcpuncvkqp.''y j gyj gt''kv'ku''pcwtcm{ "qeewttkpi "qt''hcdtkecvgf ''hqt''yj g'' r wtr qug.''cpf ''y j gyj gt''yj g''tcpuncvkqp''ku''yj g''cpcn{ uwxu''qy p0'Vj qwi j ''yj g''hqewu''qh'EC''o c{ "eqpvkpwg''vq''uj khv''

r wtr qug. "cpf "y j gvj gt "vj g"tcpurc kqp" ku" y g"gcpcn ( uwu"qy p0"Vj qwi j "vj g"hqewu"qh"EC"o c { "eqpvkpwg" vq"uj khv" vqy ctf u"r tci o c keu"cpf "f kueqwtug"cpcn ( uku. "kwu"wug"kp"tcpurc kqp"ku"pqv"kpgxkcdrg0 kVku" j qy gxgt "wprkngn ("vj cv"kv" ecp"dg"f kur gpugf "y kyj "eqo r rgvgn ("gkyj gt"kp"vj g"tckpkpi "qh"tcpurc vqtu"qt "kp"vj g"cuuguuo gpv"qh"tcpurc vkqpu. "gxgp" kp"ku"o qtg"tcf kkqpcn"rgz keq/i tco o cvkecn"o cpkrguvc vkqpu="J cnkf c { "\*3; : 7<"zxkk+"pqvgu" y cv"÷c"f kueqwtug"cpcn ( uku" y cv"ku"pqv"dcugf "qp"i tco o ct"ku"pqv"cp"cpcn ( uku"cv"cm"dw"uko r n ("c"twppkpi "eqo o gpvct { "qp"c"vgz vx0J g"cf f u" y cv"÷cnj qwi j \_"c"vgz vku"c"ugo cpvke "wpkv."pqv"c"i tco o cvkecn"qpg. "o gcpkpi u"ctg"tgcnk gf "vj tqwi j "y qtf kpi u="cpf" y kyj qwv"c"vj gqt { "qh"y qtf kpi ô vj cv"ku. "c"i tco o ctô vj gtg"ku"pq"y c { "qh"o cmkpi "gzr rkekv"qpgøu"kpvgtr tgvcvkqp"qh" vj g"o gcpkpi "qh"vj g"vgz vyv"kdkf 0+0Dcngt"\*3; ; 4+"eksgu"vj g"rcvygt"eqo o gpv'y kyj "crr tqxcn"kp"c"dqqn"vj cv'ku"kugrh"cp" kpf kecvkqp"qh"y g"eqpvkpvgf "xkxcnkv{ "qh"EC"cu"cp"ckf "q"tcpurcvkqp0

## Hwt yj gt 't gcf lpi

Dengt''3; ; 4="Dggmo ep"epf 'Eemqy ''3; 96="Dgm'3; ; 3="En{pg''3; : 9="Gpmxkw'3; 9: ="J evko 'epf 'O euqp''3; ; 2="[ gdtc''3; : 40 O KEJ CGN'J QG[ 'CPF 'F KCPG'J QW J VQP

# Eqtrqtc'kp'ttcpurcvkqp'tivwf kgu

Eqtrwi'llpi whwleu'ku''y g'dtcpej ''qh'nkpi wkwleu''y cv'uwf kgu'ncpi wci g''qp''y g''dcuku''qh'eqtrqtc.''klg0''-dqf kgu''qh'' vgzwi'cuugo drgf 'kp'c'r tkpekr rgf 'y c $\{\emptyset''$  Aqj cpuuqp'3; ;  $7\mathcal{3}$ ; +0C''**vgzv**'kp''wtp.''ecp''dg'f ghkpgf ''cu''÷cp''kpuvcpeg''qh'' rcpi wci g'kp''wug. 'gkij gt''ur qngp''qt''y tkwgp<c'r kgeg''qh'rcpi wci g''dgj cxkqwt''y j kej 'j cu''qeewttgf ''pcwtcm(.''y kij qw'' yj g'kpygtxgpykqp'qh'yj g'hkpi wkuwó'\*Uwddu'3;; 8-6+0'Eqtr wu'hkpi wkuwi'yj wu'vcng'cp''go r ktkecn'cr r tqcej 'vq'yj g'' f guetkr vkqp"qh'hcpi wci g<"yj g{ "kpukuv'wr qp"yj g'r tko ce{ "qh'cwyj gpvke."cwguvgf "kpuvcpegu"qh'wug."cp"crrtqcej "y j kej " j cu'dggp"okttqtgf"kp"tgegpv"{gctu'd{"fgxgmqrogpvu'kp"fguetkrvkxg"\tcpurcvkqp"uvvxfkgu0Hqt"gzcorng."uejqnctu" uwej "cu'J qmo gu'™3; :: ♂23+"j cxg"gzrtguugf "f kuucwkuhcevkqp"y ksj "vj g'wug"qh'kpvtqurgevkqp"d{ "vtcpurcvkqp" yj gqtkuvu. "cpf" Vqwt { "\*3; : 2c<'9; 6: 3+"j cu'f getkgf" crrtqcej gu'yj cv'xkgy "vtcpurcvkqpu" cu'kf gcrkt gf. "ur gewrcvkxg" gpvkkgu. 'tcvj gt''yj cp''qdugtxcdrg'hcew0'Vqwt { "\*3; : 2c<": 3+"eqpegf gu''yj cv'kuqrcvgf "cwgo r wi'j cxg''dggp''o cf g''vq'' f guetlidg'cpf 'gzr nckp'cewcn'tcpunckqpu'dw'ecmu'hqt'c'y j qng'o gyj qf qnqi kecn'cr r ctcwu'y cv'y qwrf 'o cng' kpf kxkf wcn'uwf kgu'\tcpur ctgpv'cpf 'tgr gcvcdrg0'Kp'\j ku'tgi ctf 'j g'uj ctgu'\j g'uco g'eqpegtpu'cu'eqtr wu'rkpi wkuvu'' uwej "cu'C vnkpu'gv'cr0\*3;; 4+."Gpi y cm1\*3;; 6+."Ukperckt"\*3;; 3+"cpf "Uwddu'\*3;; 5."3;; 7."3;; 8+."y j q'j cxg" xctkqwun("cfftguugf"kuuwgu"nkmg"eqtrwu"eqorqukxkqp"cpf"dkcu. "vjg"eqorngogpvct{"tqngu"qh"kpwkxkqp"cpf" qdugtxcvlqp"lp"rkpi wkuvke"tgugctej. "cpf" 'y g"rko kcvkqpu"qh" y g"eqo r wcvkqpcn"cpf "uvcvkuvkecn'vqqnu"ewttgpvn{ "kp" wug" kp"yj g"r tqeguukpi "qh"eqtr qtc0Cpf "cnyj qwi j "Vqwt{"\*3; : 2c<'83+"dgo qcpgf "yj g"ncem"qh"+uvtkev"uvcvkuvkecn"o gyj qf u" hqt"f gcnkpi "y kij "tcpurcvkqpcn"pqto u."qt"gxgp"\q"uwrrn{"ucornkpi "twngu"hqt"cewcn"tgugctej ø'kp"yj g"o kf/3; 92u." o wej "j cu'dggp"cej kgxgf 'kp"eqtr wu'nkpi wkurkeu'ukpeg"yj gp."cpf 'yj gqtkuru'uwej "cu'Dcngt'\*3;; 5."3;; 7."3;; 9+"j cxg" dggp'kpurtwo gpvcn'pqv'qpn('kp'kpeqtrqtcvkpi 'vj g'o gvj qfu'cpf'vqqnu'qh'eqtrwu'nkpi wkuvkeu'kpvq'f guetkrvkxg' vtcpurcvkqp"uwfkgu."dw/cnuq"kp"j ki j nki j vkpi "vj g'r ctvkewrct"ej cmgpi gu'vj cv'vtcpurcvkqp"r qugu'hqt"eqtr wu'uwfkgu0' Dghqtg"o qxkpi "qp"\q"\j g"\ur gekhle"f gvckru"qh"eqtr wu/dcugf "\tcpurc\kqp"\uwf kgu."j qy gxgt. "kv"ku"y qt yi "o gpvkqpkpi " uqo g'kuuwgu''qh'kpvgtguv''vq''dqvj ''vtcpurcvkqp/qtkgpvgf''cpf''i gpgtcrleqtrwu''uwwfkgu0

# Eqtrwu'f guli p'cpf 'dcule'r t qeguulpi

Y kj kp'eqtr wu'rkpi wkurkeu'i gpgtcm{.'yj g'vgto "eqtr wu'ku'wuwcm{ 'wugf 'vq'o gcp''÷cp{ 'eqmgevkqp''qh'twppkpi 'vgz wi j gnf "kp"gngevtqpke"hqto "cpf"cpcn{ ucdng"cwqo cvkecm{"qt"ugo k/cwqo cvkecm{"\*tcvj gt"vj cp"o cpwcm{+ø"\*Dcngt" 3; ; 7∕448-0′Vj g'hcev'yj cv'eqtr qtc"ctg"j grf "grgevtqpkecm(."vj cv'ku'kp"c'hqto "ceeguukdrg'\q"eqo r wgtu."o gcpu'yj cv' j wi g"s wcpkkkgu"qh"vgzv"ecp"dg"uvqtgf <'eqpvgorqtct { "o qpqrkpi wcrl'eqtrqtc"uwej "cu'yi g"Dtkkuj "Pcvkqpcrl'Eqtrwu" \*DPE+"cpf" 'y g'Eqdwkrf" Dcpm'qh' Gpi rkuj . 'hqt" kpuvcpeg. "twp" 'vq" 322" o kmkqp" cpf" 422" o kmkqp' y qtfu' tgur gevkx gn{" \*Dtkkuj 'P cvkqpcn'Eqtr wu'3; ; 7="Uwddu'3; ; 8<zxkkk+0Eqtr qtc'f khhgt'htqo 'qvj gt'hcti g'eqmgevkqpu'qh'o cej kpg/ tgcf cdrg'\gzv\\*hqt"gzco r rg."ctej kxgu'qt"grgevtqpke'\gzv'rkdtctkgu+."kp'\j cv'\j g{ "ctg'dvknv"÷ceeqtf kpi "\q"gzr rkekv" f guki p"etkıgtko"hqt"o"ur gekhke"r wtr qugø"\*C vnhpu"gv"on03; ; 4<3+0F guki p"etkıgtko"etwekom("f gr gpf "qp"vj g"gpxkuci gf" wug''qh''y g''eqtr wu''cpf 'egpvtg''qp''y g''laf gc''y cv'eqtr qtc''uj qwrf 'dg''uqo gj qy "#gr tgugpvcvlxxgø'qh''c''r ctvlewrct''v{r g'' qh'ncpi wci g'r tqf wevkqp'cpf lqt'tgegr vkqp0F guki p'etksgtkc'v{r kecm{'kpxqnxg'f gekukqpu'uwej 'cu'y j gyj gt'ur qngp'' cpf 'y tkwgp'hcpi wci g'ctg'\q'dg'kpenwf gf .'y j cv\vgzv'\{r gu'uj qwrf 'dg'ceeqwpvgf 'hqt.'y j cv'r gtkqf 'qh'\vgzv' rtqf wevkqp'ku'\q'dg'eqxgtgf.'cpf'yjgyigt'\gzv'ucorngu'qt'hwm'\gzvu'ctg'\q'dg'kpenwfgf'\"Cvnkpu'gv'cn03;;4="Dcngt" 3; ; 7 < 44; 652 = "Ukperckt" 3; ; 3 + 0 Qpeg 'c 'uwkscdrg 'dtgcnf qy p 'qh'\gz v'v{r gu. 'cwj qt 'r tqhkrgu. 'gve0'j cu'dggp 'f gekf gf " wr qp. 'vj g'cewcn'vgzwi'ej qugp'hqt'kpenwukqp'kp'c'eqtr wu'ecp'dg'ugngevgf 'tcpf qo n{ 0Cnvgtpcvkxgn{ .''c'eqtr wu/ dwkrf gt "ecp"kpvgtxgpg"o qtg"f grkdgtcvgn( "kp"vj g"ugrgevkqp"qh"cewcri'vgzvu. "ej qqukpi "vgzvu"ceeqtf kpi "vq" kpetgcukpi n("ur gekhke"etkıgtkc0"Vj g"vy q"crrtqcej gu"ctg"gzgo rnkhkgf "d{"vj g"Dtkıkuj "Pcvkqpcn"Eqtrwu"\*3;; 7+"cpf" Gpi y cml\*3;; 6+0'Hkpcm{. "eqtr wu/dwknf gtu"o wuv'ugewtg"r gto kuukqp"htqo "eqr {tki j √j qnf gtu"kp"qtf gt"vq"uvqtg"vgz vu" kp"grgevtqpke"hqto "cpf "\q'\wg'\y go "kp'\uwdugs wgpv'tgugctej 0'Dcngt"\3;; 7∢56+"cpf 'Cvnkpu"gv'cn0\3;; 4<6+"f kuewuu" y g'qhygp'y qtp{'kuuwg'qh'eqr{th j w

Qpeg'\gzwi'j cxg''dggp'\ugnge\ygf 'hqt'\kpenwukqp'\kp''c''eqtr wu.''c''f gekukqp''j cu'\q''dg''o cf g''cu'\q''

j qy "\j g{ "\uj qwf "\dg"\tgr tgugp\gf "\p"grge\tqp\e"\hqto 0'Dcu\e"\o ctm\wr "\o c{ '\pxqnxg"\pf kec\pi '\j g'\o c\p'f kxku\qpu" \p\"c"\gz\v."\hqt"\pu\vcpeg."\qt"\y g"cf f kx\qp"\qh"f guet\kr \xxg"j gcf gtu"\q"\pf kx\kf \wcn'\gz\w0'Iqj cpu\upp"cpf "J q\hrcpf "\%3;; 6+" cpf "Iqj cpu\upp"g\c\n0\%3;; 8+"f guet\kdg"j qy "c"d\kr\pi \wcn'eqtr \wu"\qh"P qty gi \kcp"cpf "Gpi nkuj "\gz\w1'ku"\o ctngf '\wr " \wu\pi i "c"\uej go g'eqo r c\kd\ng"y k\yj "\yj c\"\qh"\yj g"\Vgz\v'\Gpeqf \kpi "\p\k\kc\x\xg"\ugg"\Ur gt\dgti /O eS \wggp"cpf 'D\wtpctf " 3;; 6+0\J ki j gt"\ngxg\n"\o c\tm\wr "\o c{ '\pen\wf g"r ct\p\q\n'\ur ggej "\ci i \kpi '\hqt"\gxgt\{ "y qtf '\kp"\yj g'\eqtr \wu \"\qt"\gxgp" u\{p\ce\ke}"\tg\ge g''\tg\ge g

Vj g'ngxgn'qh'o ctm/wr 'vj cv'c'eqtr wu'ku'uwdlgevgf 'vq'y km'j cxg'kor nkecvkqpu'hqt'vj g'mkpf 'qh'gngevtqpke'r tqeguukpi " yj g'eqtr wu'ecp'wpf gti q0Tcy "eqtr qtc." log0 "wpwci i gf. "wpr ctugf "eqtr qtc." ecp "dg" 't gcvgf "cu'ugs wgpegu 'qh' ej ctcevgtu'kp'twppkpi 'vgzv'yj cv'ctg'f grko kvgf 'd{ 'ur cegu.'kp''qyj gt''y qtf u.'ugs wgpegu''qh''qtyj qi tcr j ke''y qtf u0'Uwej " twpplpi "y qtf u"qt" vqmgpu"ecp"dg"eqwpvgf "cpf" y g"pwo dgt"qh" vlo gu"c"ulpi ng"hqto "qt" v(r g"cr r gctu"ecp"dg" ecnewrcygf 0'Vj g'htgs wgpe { ''qh''qeewttgpeg''qh''ukpi ng''v{r gu''ecp''yj wu''dg''y qtngf ''qw''hqt''yj g''y j qng''eqtr wu0'Vj g'' pwo dgt "qh" f khgtgpv" { r gu"eqo r ctgf "\q" y g" \qvcn pwo dgt "qh" \qngpu" kp" y g" eqtr wu" { kgrf u" y g' \qqngp" tc \q hqt" yj cv'eqtr wu0V{rg/vqngp'tcvkqu'vgm'wu'uqo gyj kpi "cdqw'vj g'xctkgv{ "qh'vj g'xqecdwrct{ 'wugf "kp'c'eqtr wu'\*ugg" Dengt '3; ; 7 458+0 Cpq yi gt "o geuwtg." yi ev'qh'ngzheenff gpuk√{." kpf keevgu'y j ev'r gtegpvei g'qh't wppkpi 'y qtf u'ku" o cf g'wr "qh'ngzlecn'\*xqecdwrct { +'y qtf u. "cpf "j gpeg"y j cv'r gtegpvci g"ku"qeewr kgf "d { "i tco o cvlecn'y qtf u0Kp" uko r nkurke "vgto u. "c'nqy "ngzkecn'f gpukx{"y qwrf "o gcp"j ki j "tgf wpf cpe{"cpf "j gpeg"r tgf kevcdkrkx{"kp"c"vgzv\\*ugg" Uwddu''3;; 8 < 95 + 0°C 'hwt yi gt '\{r g''qh'r tqeguukpi ''qwr wu'c 'MY KE '\*mg{ ''y qtf 'kp''eqpvgzv+''eqpeqtf cpeg'hqt ''cp''kpr w' y qtf. 'tgxgcrkpi ''y g'eqpvgzwi'kp''y j kej ''y g'kpr wi'y qtf ''cewcm( ''qeewtu'kp''y g'eqtr wu0Tgewttkpi 'r cwgtpu''o c{ ''dg'' f kuegtpgf "cetquu'eqpvgzvu."r qkpvkpi "vq" y g"gzkuvgpeg"qh"uvcvkuvkecm ("uki pkhkecpv'eqmqecvgu"qh" y g"kpr w'y qtf 0" Eqpeqtf cpekpi "cpf" dcuke "uvc kurkecn'r tqeguukpi "qh'tcy "eqtr qtc" ctg"f kuewuugf "kp"f gvckn'kp" Ukperckt "\*3;; 3+0 "Kp" qtf gt "vq"f kueqxgt "tgi wrctkukgu"kp" yi g"eq/qeewtgpeg"qh "uc { ."egt vckp"r ct vu"qh"ur ggej "qt "ugp vgpeg"eqp uvkwygp vu." j qy gxgt. "c" vci i gf "qt" r ctugf "eqtr wu" y qwrf "dg" pgeguuct {0}

## Eqtrqtc'lp'ttcpurcvlqp'twwf lgu

O quv'qh'y g'eqtr qtc'o gpvkqpgf 'uq'hct'ctg'o qpqrkpi wcn'cpf 'ugtxg'y g'pggf u'qh'rkpi wkuwi'kp'i gpgtcr0'Vtcpurcvkqp'' uej qrctu."j qy gxgt."o c{"j cxg"f khlytgpv"pggf u."hqt"gzco r rg"hqt"eqtr qtc"yj cv"eqpvckp"f cvc"htqo "o qtg"yj cp"qpg" rcpi wci g. "cnj qwi j "vj ku'ku"pqv"pgeguuctkn{ "vj g"ecug<"hco krkct"o qpqrkpi wcrl'eqtr qtc. "gur gekcm{ "vj qug"eqpvckpkpi " ur gelenk gf "vgz vu. "ecp"dg" wugf "kp" vtcpurc vkqp"r gf ci qi { . "vq" tgkphqteg" uvwf gp vuø'mpqy ngf i g"qh'pqto cn'vcti gv" ncpi wci g'r cwgtpu."qt"kp"\gto kpqmi {"gz vtcevkqp"\Rgctuqp."hqtyj eqo kpi ="Uci gt"3; ; 2<352+0 Dengt'\*3; ; 7+"f guetkdgu'xctkqwu'v{r gu'qh'grgevtqpke"eqtr qtc'yi cv'ctg'qh'ur gekhke kpvgtguv'vq'vtcpurcvkqp'uej qrctu0' Kp''Dengtøu'\gto kpqrqi {.'c'rctengrleqtrwu'eqpukuvu'qh'\gzvu'qtki kpcm('y tkwgp'kp'c'hepi wei g'C'eqpi ukf g'\j gkt'' vtcpurcvkqpu'kpvq'c'hcpi wci g'DORctchgrleqtrqtc'j exg'cntgef { 'dggp'eqo r krgf 'hqt'ugxgtch'hcpi wci g'r cktu." kpenwf kpi 'Gpi nkuj /Htgpej '\*\*Ucmkg'3;; 7="cpf 'ugg"cnuq'Ej wtej 'cpf 'I cng'3;; 3."y j q'wug'vj g'Ecpcf kcp'J cpuctf" eqtr wu''qh'r ctrkco gpvct { "r tqeggf kpi u+: 'Gpi rkuj / Kkcrkcp'\*O ctkpck'gv'cn03; ; 4+: 'Gpi rkuj ô Pqty gi kcp'\*Iqj cpuuqp'' cpf "J qhrcpf "3; ; 6="Iqj cpuuqp"gv"cn03; ; 8+:"cpf "Gpi nkuj /I gto cp" "Uej o kgf "cpf "Uej @hrgt" 3; ; 6="3; ; 8+0" Crki po gpv'vgej pks wgu'o c{ ''dg''wugf ''vq''r tqxkf g''gzr rkekv'rkpmu''dgwy ggp''uqwteg''ugpvgpegu''cpf ''vcti gv'ugpvgpegu. ''qt'' uqwteg"y qtf u"cpf "\cti gv"y qtf u0Iqj cpuuqp"cpf "J qhrcpf "\foots3; ; 6+"r tqxkf g"c"\wughwrluwo o ct{ "qh"crki po gpv" r tqegf wtgu'dcugf "qp"eqo r ctkuqpu"qh'uqwteg"cpf "\cti g√ugpvgpeg'hgpi vj "cpf 'vj g'\wug'qh'r tgf ghkpgf 'hgzkecn' eqttgur qpf gpegu'dgwy ggp'uqwteg'cpf "\cti gv'hcpi wci gu0Rctcngn'eqtr qtc'ecp'dg'\wugf "\q'r tqxkf g'kphqto c\kqp''qp" ncpi wci g/r ckt "ur gekhle" 'tcpurc kqpcn'dgj cxkqwt. "vq"r qukv'egt vckp"gs wkx crgpeg"t grc kqpuj kr u'dgwy ggp"ngz kecn'kxgo u" qt"untwewntgu"lip"uqwteg"cpf "\cti gv'hcpi wci gu" Mgpp{."hqtyj eqo lipi ="O ctlipck'gv'cn03;; 4+."qt"\q"uwnf {"\yi g" r j gpqo gpqp"qh"\tcpurc\kqpgug"\Uej o kgf "cpf "Uej @hngt"3; ; 8+0V{r kecn'cr r nkec\kqpu"qh'r ctcngn'eqtr qtc"kpen\f g" vtcpurcvqt "tckpkpi ."dkrkpi wcn'rgzkeqi tcr j { "cpf "o cej kpg" tcpurcvkqp00 cm mlâ t "x3; ; 5+" j cu "cnuq "uwi i guvgf "vj cv" r ctcmgnleqtr qtc''y cv'kpenwf g''cr r tqr tkcvg'kphqto cvkqp''cdqwv''vtcpurcvqtuø'dcemi tqwpf u'eqwrf ''uwr r n{ ''wughwrl'f cvc'' hqt"r u{ej qnkpi wkuwi'kpxguvki cvkpi ''y g'f khhgtgpegu'dgwy ggp"hktuv'cpf ''ugeqpf 'hcpi wci g'ces wkukkqp0

Dengt "3;; 7454+'wugu'y g''ygto "o wwklpi werleqt r wu''yg'tghgt "y "-agwi'qh''y q''qt''o qtg''o qpqrhpi werleqt r qte''kp'' f khgtgpv'hepi wei gu. "dwkn''wr "kp''gkij gt "y g''ueo g''qt "f khgtgpv'hepukwwkqpu''qp''y g''deuku''qh''uko kret "f guki p''etkgtkeø'' C''o wnkrhpi werleqtr wu''y gtghqtg''eqpukrwu''qh''ygzwi'y ev'j exg''pqv''dggp'''tepurevgf =tevj gt "y g{ "etg''emi'qtki kpeni'hp'' y gkt 'tgur gevkxg''repi wei gu0'Cu''ep''gzeo r ng''qh''e'o wnkrhpi werleqtr wu''Dengt''i kxgu''y g''eqtr wu''eqo r krgf "d{ "y g'' Eqwpekri'qh''Gwtqr g''O wnkrhpi werl'Ngzkeqi ter j { "Rtqlgev0'C"o wnkrhpi werl'eqtr wu''eep''dg''wugf "hqt "eqpvtcurkxg'' rkpi wkurke''y qtml\*Cklo gt "epf ''Cnygpdgti "3;; 8+."kpenwf kpi "dkrhpi werl'rgzkeqi ter j { 0'Dengt "\$3;; 7455+"j qy gxgt." j eu''gzr tguugf "tgugtxevkqpu''edqwv'y g''wughwpguu''qh'o wnkrhpi werl'eqtr qte "kp''y gqtgrkeerl'vtepurevkqp''uwf kgu." ereko kpi "y ev'y qtmlwukpi "o wnkrhpi werl'eqtr qte "ku''deugf "qp''y g''gttqpgqwu''euwo r vkqp''y ev'-y gtg'ku''e''pewterl' y e{ "qh''ue{kpi "ep{ yi kpi "kp''epewterl" y e''enj'y g''pggf "\q''f q''ku'\q''hlpf "qw''j qy "\q''ue{ "uqo gyi kpi " pewtern" "kp''npi wei g''C''epf "repi wei g''Dø0'Gxgp''kp''eqpvtcurkxg''hkpi wknrkeu."o wnkrhpi werl'eqtr qte''eep''r tgugpv'' r teerkeerl'r tqdrgo u''kh'y g''ygzwu''py' g''f khgtgpv'repi wei gu''etg''pqv'y gm'o evej gf "hp'\gto u''qh''i gptg''epf ''ukwevkqperl' heeytu''\"Cklo gt''epf ''Cnngpdgti "3;; 8-36-0

Dengtøu'eqo retedng'eqtrwu'eqpukuvu'qh'e'eqngevkqp'qh'vgzw'qtki kpcm('y tkvgp'kp'e'nepi wei g.'ue{'Gpi nkuj .'' cmpi ukf g"c"eqmgevkqp"qh"\gz wi'\tcpurcvgf "\*htqo "qpg"qt"o qtg"rcpi wci gu+"kpvq"Gpi rkuj 0Qh"\j g"\j tgg"\{r gu"qh" eqtr wu'uj g'kf gpvkhkgu. 'kv'ku'vj g'eqo r ctcdrg'eqtr wu'vj cv'Dcngt'uwi i guvu'y km't gxgcn'o quv'cdqwv'vj g'ur gekhke'' hgcwtgu'qh'\tcpurcvgf '\gzv.'\log0'\j qug'hgcwtgu'\j cv'qeewt 'gzenwukxgn\{.''qt'y kj '\wpwuwcm\{ 'my 'qt'j ki j 'htgs wgpe \{.'' kp"\tcpurcvgf"\gzv"cu"qrrqugf"\q"qvjgt"\{rgu"qh'\gzv'rtqfwevkqp."cpf"\yjcv'ecppqv'dg"\tcegf"dcem'\q"\yjg"\phrwgpeg" qh'cp{"qpg"r ct wewrct 'uqwteg"\gzv'qt "rcpi wci g0 Khi'uwej "hgcwtgu"y gtg"\q"dg"f kueqxgtgf "kp"c"eqo r ctcdrg"eqtr wu'qh" uc{."Gpi rkuj ."cpf "y gtg"uwdugs wgpvn{"eqphkto gf "d{"uwwf kgu"kpxqnxkpi "eqo r ctcdng"eqtr qtc"qh"qyj gt "ncpi wci gu." yj g{"eqwrf" yj gp"dg"eqpulf gtgf" ecpf lf cvgu" hqt" \tcpurcvlqp" WP KXGTUCNUUF tcy lpi "qp" tgugctej "eqpf wevgf" d{" Uj ngukpi gt'\*3;; 3+."Vqwt{'\*3;; 3c+"cpf 'Xcpf gtcwy gtc'\*3; : 7+. 'Dcngt'\*3;; 5 ← 465 ó 7+ 'qwxkpgu' yj g'hqmqy kpi " j {rqvj gugu'y jqug'\wpkxgtucn'uvcwuu'eqwnf ''dg''kpxguvki cvgf ''wukpi ''eqorctcdng''eqtrqtc<''tcpuncvgf ''\wzvu'\wgpf ''\q''dg'' o qtg"gzr nlekv."wpco dki wqwu."cpf "i tco o cvkecm( "eqpxgpvkqpcn'vj cp"vj gkt"uqwteg"vgzwu"qt"qvj gt"vgzwu"r tqf wegf "kp" yj g"vcti gv"ncpi wci g="yj g{"cnuq"vgpf"vq"cxqkf"tgr gvkkqpu"yj cv"qeewt"kp"yj g"uqwteg"vgzv"cpf"vq"gzci i gtcvg"hgcwtgu" qh'y g'vcti gv'ncpi wci g0'Dcngt'\*3;; 9+"cnuq'uwi i guwu'y cv'vtcpuncvkqp"o c{"kpxqnxg"uqo g'nkpf "qh":ngxgnkpi "qww'd{" i tcxkscvkpi "vqy ctf u'vj g'egpvtg'qh'eqpvkpvsc."uvej "cu'vj cv'dgvy ggp"qtcrkx{"cpf "rkvgtce{"\*Uj rgukpi gt"3; : ; d+0 Uqo g'qh'vj gug'j {r qvj gugu'j cxg'cntgcf {"dggp"kpxguvki cvgf "qp"c'nko kvgf "uecng"d{"tgugctej gtu'uvej "cu'Uj co cøc"\*kp" Dengt '3; ; 7+. "Vqwt { '\*3; : 2c<34; ht0+cpf 'Rwwt kpgp'\*3; ; 7+. 'cnj qwi j ''j gug'cpcn{ ugu'y gtg'f qpg'o cpwcm{0' Eqtr wu'nkpi wkurke 'vgej pks wgu'cmqy 'o wej 'o qtg'r qy gthwn'i gpgtcnk cykqpu'vq'dg'o cf g'cdqwv'rtcpurcykqp." j qy gxgt0"Kh. "hqt"gzco r ng. "\tcpunc\kqpu"y gtg"\q"f kur nc { "c"j ki j "v{ r g/vqngp"tcvkq. "nqy "ngzkecn"f gpukv{ "cpf "nqy " ugpvgpeg"ngpi vj "\*y j kej "ecp"cm"dg"ecnewrcvgf "cwqo cvkecm( "wukpi "uqhvy ctg"hkng"Ueqvvgu"3; ; 8"Y qtf Uo kvj "Vqqnı+" xku/«/xku'qyi gt'\gzvu'kp'\yi g'\uco g'hcpi wci g.'\yi gp'\yi ku'y qwrf '\uwrrqtv'\yi g''\tuko rrkhkecvkqp''j {rqyi gukuø'hqt'gzco rrg0' Vj ku'ku''y g''rkpg''r wtuwgf ''d{ ''Nexkque/Dteky y ekg'\*3; ; 8+"kp''j gt''tgugetej ''wukpi ''ep''Gpi rkuj ''eqo r etedrg''eqtr wu0' Nkngy kug. 'kpetgcugf ''vgzv'ngpi yj ''cpf ''c''f kur tqr qtvkqpcvg''pwo dgt ''qh''gzr rcpcvqt { ''xqecdwrct { ''y qtf u''cpf '' eqplwpevkqpu'eqwrf 'uwr r qtv'vj g"÷GZ RNKE KVC VKQP 'j {r qvj gukuø'\*Dcmgt'3; ; 9♂: 263+0'Vj g"cwguvgf 'htgs wgpe{'qh'  $egt w l p 'x qecd w ct \{ 'k y o u' o c \{ 'r q l p v' v q y ct f u' i t g c v g t' u v c p f ct f l k c v l q p 'l p 'v t c p u r v g t u' v j c p 'l p 'q t l i l p c n' v g z v u. 'c' u' v g v u' v j c p 'l p 'q t l i l p c n' v g z v u. 'c' u' v g v u' v j c p 'l p 'q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u. 'c' u c p u c q v l p 'v q t l i l p c n' v g z v u c p 'v q t l p 'v q t l i l p c n' v g z v u c p 'v q t l p 'v q t$ hlopf kpi 'uwi i guvgf 'd{ 'I gmgtuvco øu'\*3; : 8+"tgugctej "wukpi "c"Uy gf kuj "eqo r ctcdng"eqtr wu0'Vj g"kf gc"vj cv" vtcpurcvkqpu"ctg"o qtg"eqpxgpvkqpcn'vj cp"vj gkt"uqwteg"vgzvu"qt"qvj gt"vcti gv'rcpi wci g'vgzvu"\*eh0'Vqwt{"3;: 2c<358+" ecp"cnuq"dg"\guvgf "d{ "kpxguvki cvkpi "eqmqecvkqpcn'r cvvgtpu0Eqtr wu'nkpi wkuvkeu'r tqxkf gu'kpvgtguvkpi "vgej pks wgu'hqt" ur qwkpi 'uvcvkuvkecm{ 'uki pkhkecpv'cpf 'gxgp'wpeqpxgpvkqpcn'eqmqecvkqpcn'r cwgtpu'kp'xcuv's wcpvkxkgu'qh'vgzv'\*Engct'' 3; ; 5="Nqwy "3; ; 5+"cpf 'uwej "yej pks wgu"ctg"dgkpi "gz ygpf gf "yq"dkrkpi wcn'eqtr qtc" Rgygtu"cpf "Rkeej k'3; ; 8+0 Eqtrqtc"cpf "vjg"uqhvyctg"hqt"rtqeguukpi "vjgo "wpfqwdvgfn("rtqxkfg"\tcpurcvkqp"uejqrctu"ykvj"rqygthwn'vqqnu'hqt" uwf {kpi ''y g'xgt { ''pcwtg''qh''tcpurcvkqp0'Uqo g''tcpurcvkqp''y gqtkuvu''

j cxg. 'j qy gxgt. 'uqwpf gf 'c'pqvg''qh'ecwkqp<'O cro mlâ t'\*hqt yj eqo kpi +'y ctpu''yj cv''yj g''dwm''qh'uvcvkuvkecn'gxkf gpeg'' rtqxkf gf "d{"eqtrqtc"o c{"ngcf"uej qnctu"vq":xtgcv"cu"o cti kpcn"kh"pqv"gzcevn("ki pqtg."rtqdngo cvke"ecugux0" O cm mlâ t "cnuq"cti wgu 'vj cv 'vj g "ugrgevkqp"qh 'vtcpurcvgf "vgz w 'hqt "kpenwukqp "kp "c 'r ctcmgn eqtr wu 'ecp "chhgev 'y j cv 'vj g" qdugtxgt"pqvkegu"vq"cp"wpf guktcdrg"f gi tgg. "cpf" vj cv" ctcrrgrleqtr wu'uvkrn'qpn("r tqxkf gu. "hqt"gcej "kpuvcpeg. "vj g" tguwn√qh'qpg'kpfkxkfwcnøu'kpvtqurgevkqp."cmlgk/eqpvgzwcm{"cpf"eqvgzwcm{'kphqtogfø'\*kdkf0+."vjwu'ocmkpi"c" ecug'hqt"eqtrqtc"yj cv"eqpvckp"ugxgtcn"vtcpurcvkqpu"qh"c"ukpi rg"uqwteg"vgzv0"Hkpcm{."O cno mlât"uvtguugu"yj cv":kp" qtf gt '\q'dg'cdrg'\q'r tqxkf g'cp{ 'mkpf u'qh'gzr repc\kqp'qh'\y g'f cvc'r tqxkf gf 'd{ '\y g'eqtr wu.'tcy gt'\y cp'o gtg'' uvcvkuvkeu. "cpcn(uvu'tgcm('pggf'uvduvcpvkcm('o qtg'eqpvgzv'vj cp'eqo r wygtu'vgpf'vq'ugctej 'cpf'fkurnc(ø'\*kdkf0+0 Eqo r ctcdrg'eqtr qtc''vqq''j cxg''y gkt'r tqdrgo u<k'k'ku'kp''y g'xgt { 'pcwtg'qh'\tcpurcvkqp''y cv'pgy 'i gptgu'ctg'' kpvtqf wegf "htqo "qpg"hkgtcwxtg"\q"cpqyj gt."cpf "\yj gtg"o c{ "dg"pqyj kpi ":eqo r ctcdrgo"kp"\yj g"j quv'hkgtcwxtg"\q"c"\gzv" kpvtqf wegf "vq"kv"vj tqwi j "vtcpurcvkqp"htqo "cpqvj gt"vgz wcn"vtcf kvkqp0"Vj ku"f khhkewn { "ku"uko krct"vq"qpg"hcegf "d { " uej qrctu'y qtmkpi 'y kyj ''nguugt/wugf 'ncpi wci gu<'yj g''qpn{ ''gzgo rrctu''qh''o cp{ ''\*pqp/rkxgtct { +''\gzv'\{r gu''kp''Kkuj '' I cgn/e. 'hqt 'kpuvcpeg. 'ctg' \tcpurc\kqpu.'o ckpn( 'htqo 'Gpi nkuj = 'yj gtg' ctg' pq' = pc\kxgø' \gz vu' y kyj 'yj kej 'vq' eqo r ctg'' vtcpurcvkqpu0'Vj g'ghhgevu'qh'vj g'geqpqo { "qh'vtcpurcvkqp"j cxg"cnuq"dggp"hgnv'd{ 'Lqj cpuuqp"cpf "J qhrcpf" \*3;; 648+."y j qug"ej qkeg"qh"vgz wu"hqt "ugngevkqp"kp"vj gkt "Gpi nkuj /Pqty gi kcp"dkf ktgevkqpcn"r ctcmgn"eqtr wu"j cu" dggp'ho kgf 'd{ 'vj g'hcev'vj cv'÷c'hcti g'pwo dgt'cpf 'c'y kf g'tcpi g'qh'vgzw'j cxg'dggp'vtcpurcvgf 'kpvq'P qty gi kcp." dw'hct'hguu'kp''y g''qy gt'f ktgevkqpø0

WP KXGTUCNU'QH'VTCP UNCVKQP

#### Hwt yj gt 't gcf kpi

Cvnlpu'gv'cn03;; 4="Dcngt'3;; 5."3;; 7."3;; 9="Nggej '3;; 3="Ukpenckt'3;; 3="Uwddu'3;; 80

FQTQVJ [ 'MGPP[

# Eqwt v'kpvgt r t gvkpi "

Hqt"kpuvcpeg."I qp| a mg| "gv'cn0\3;; 3+"cpf "QøVqqn'\3;; 6c+"j cxg"qdugtxgf "vj cv'r tquqf ke "gmgo gpvu"cpf " r ctcrkpi wkuvke "hgcwtgu"ctg"htgs wgpvn( "nghv'wpkpvgtr tgvgf ."cpf "vj cv'c"y kvpguuøu"vguvko qp{ "uwhhgtu"ceeqtf kpi n(0' Uj ngukpi gt "\3;; 3+"uko knctn( "tgr qtvu"c"i gpgtcn'vgpf gpe{ "qp"vj g"r ctv'qh'eqwtv'kpvgtr tgvgtu"vq"-i tco o cvkek gø' wpi tco o cvkecn'wwgtcpegu"cpf "qdugtxgu"vj cv'-vj g"qxgttkf kpi "vgpf gpe{ "qh'vj g"kpvgtr tgvgt "vq"f gngvg"c"hcnug"uvctv" o c{ "kp"hcev'ngcf "vq"vj g"qo kuukqp"qh'c"ugrh/eqttgevkqp"y j kej ."kv'y qwrf "uggo ."y cu"gzr tguun( "kpvgpvkqpcnø"kldkf 0\ck' 372+0

O qf gtp "eqwtv'lpvgtr tgvlpi "j cu"o cf g"rko kgf "r tqi tguu'lp "kuu'dtlgh'j kuvqt {0'Vj ku'ku'r tko ctkn{ "f wg'vq''y g"eqo r ngz" pcwtg"qh'ngi cn'lpvgtr tgvlpi "cpf "y g"lwf kekct {øu'co dkxcngpv'cvkwf g"vq'lpvgtr tgvgtu'lp''y g"eqwt vtqqo 0'Qp''y g''qpg" j cpf ."y g'ncy "ku'tgnwevcpv'vq''ceegr v'lpvgtr tgvgtu''cu'r tqhguulqpcnu'ecr cdng''qh'tgpf gtlpi "rhpi wkuvle"o guuci gu" ghhelgpvn{ "\*QøVqqn'3; ; 6d+"cpf "y gtghqtg''cu''qhhlegtu''qh''y g''ncy "\*O qttlv''3; ; 7+0'Qp''y g''qy gt''j cpf ."kv'lpukuvu''qp" vtgcvlpi "y g"r tqf wev'qh'eqwtv'lpvgtr tgvlpi "cu''c "ngi cm{ "xcnlf "gs wkxcngpv'qh''y g''qtli lpcn'wwgtcpeg0'O qttlv''\*ldlf 0'' 4; +"tgr qtvu''y cv'lp''y g''Gpi rkuj /ur gcnlpi "y qtnf ."÷Vcr g''tgeqtf lpi u''qh''pqp/Gpi rkuj "wwgtcpegu''r tqf wegf "lp''y g'' eqwtvtqqo "j ctf n{ "gxgt"gzkuv="y tkwpp"vtcpuetlr vu''ctg''cm quv''pgxgt"r tqxlf gf ø0

#### Vj g'r t qxkdqp'qh'eqwt v'lpvgt r t gvlpi 'cu'c'hgi cn't ki j v

Hqt"lwrkeg"\q"dg"f qpg."\j g"rgi crlu{uvgo "cf o kpkrytkpi "kv"j cu'\q"dg"uggp"\q"dg"hckt0Qpg"qhl\j g"guugp\kcn\vgpgw"qhl" c'hckt"\tkcrl\ku"\j g"rgi crlr t gugpeg"qhl\j g"ceewugf "f wt\pi "\j g"\tkcrl\V] g"eqpegr v'qhl"\tegi crlr t gugpegø'\permf gu" \text{-ikpi wkrke"r t gugpegø'\permf gp | "3; ; 6\text{-lVV} ku'o gcpu"\j cv'\j g"ceewugf "o ww'dg"cdrg"\q"\j gct"cpf "\wpf gtuvcpf "y j cv' q\j gt"\y kpguugu"ctg"uc{\pi i "cpf "j cu'\q"dg"cdrg"\q"\pmqy "\j g"rgi crlr t qeggf \pi u0\text{Eqpugs wgp vn}."c'r gtuqp"\p'c" \text{httgki p"eqwpvt} {"\dg"kv'c"\qwtkrv'qt"c"y qtrgt+"cp"\ko o ki tcpv'y j q'f qgu'pqv'j cxg"cf gs wcvg"eqo o cpf "qh'\j g"qhhk" ekcn'rcpi wci g"qh'\j g"eqwtv."\j g"cdqtki \pern'r qr wrc\kqpu"\p"eqwpvt\kgu"\uvej "cu'C wrt\crkc"cpf "\j g"\Wpksgf "Ucvgu." o go dgtu"qh'o \phqtkx{"i tqwr u"\p"o wrk\tcekcn'uqekg\kgu"\uvej "cu'O crc{ukc"cpf "Upi cr qtg."pqv'\q"o gp\kqp"\j g" ur ggej "qt"\j gct\pi /\to r cktgf "r qr wrc\kqp"\uveg"\uvej "\uveyl"\uvej "\uveyl"\uvej "\uveyl"\uvej "\uveyl"\uvej "\uveyl" \q gp\kryf"\uveyl" \q gp\kryf"\uveyl"\uvej "cm'\uveyl"\uvej "cm'\uveyl"\uveyl"\uvej "cm'\uveyl"\uveyl\uveyl\uveyl"\uveyl\uveyl\uveyl"\uveyl"\uveyl\uveyl\uveyl\uveyl\uveyl"\uveyl\uv

Vj g'tki j v'vq'cp'kpvgtr tgvgt'kp'c'eqwtv'ugwkpi 'ku'c'ngi cn'kuuwg'y j kej 'j cu'tgegkxgf 'o wej 'cwgpvkqp'dw'nkwrg''  $\label{thm:control} \mbox{ rgi kurc klqp0'C v'cp'kpvgtpc klqpcn'rgxgn''y g'tki j v'vq''cp'kpvgtr t gvgt'ku'r t qxkf gf 'hqt''kp''y g''Kpvgtpc klqpcn'Eqxgpcpv'qp''} \mbox{ } \mbox{$ Ekxkrl'cpf 'Rqrkkecn'Tki j vu.'kp''y g'Gwtqr gcp'Eqpxgpvkqp''qp''J wo cp'Tki j vu.'cpf 'kp''y g'Co gtkecp'Eqpxgpvkqp''qp'' J wo cp'Tki j wu="kv'y cu'cnuq"gzrtguugf "kp'rtqegf wtg"cv'vj g"P wtgo dgti "cpf "Vqm(q"y ct"vtkcnu0Cv'vj g"pcwlqpcn" ngxgn "xgt { 'hgy 'ngi cn'u { uvgo u'j cxg'hqto cntt gf 'vj ku't ki j v0'kp'C wuxt cntc. 'hqt 'kpuvcpeg. "qpn { 'vj g'uvcvg'qh'Uqwj " Cwunterke"j eu'r tqvgevgf "vj ku'tki j v'd { "e''unewwg0'kp"qvj gt"unevgu'y kyj "e''neti g'r qr wnevkqp"qh'ko o ki tepvu. 'hqt" gzco r ng "Xkevqtkc"cpf "P gy "Uqwij "Y cngu. 'y g'r tqxkukqp"qh'cp "kpvgtr tgvgt"ku o cf g''qt 'y kij j gnf "cv'y g'f kuetgvkqp ''qh' yj g"tkcn" lwfi g0 Eqo o qp"rtcetkeg" kp"dqyj "uvcvgu" kpfkecvgu" yj cv" kpvgtrtgvgtu" ctg"rtqxkfgf" cu"c" o cwgt "qh" eqwtug." dw'y ku'f qgu'tgo ckp'c's wguwkqp'qh'eqo o qp'r tcevkeg'tcy gt'y cp'ngi cn'tki j v'\*Ceeguu'vq'Kpvgtrt gvgtu'3;; 3+0 C'y kapguu'y j q'ku'qpn{'r ctvn{ 'hrwgpv'kp''y g'hcpi wci g'qh''y g'vtkcn'o c{ "dg'f gpkgf "cp'kpvgtr tgvgt"qp''y g'r tgo kug''y cv' nko kgf "mpqy ngf i g"uj qwrf "pqv"dg"yj g"r cuur qtv"vq"cp"wphckt "cf xcpvci g"dghqtg"yj g"eqwtv0J qy gxgt. "c"y kpguu" o ki j v'uqwpf "hnwgpv'kp"c"ncpi wci g"cpf "dg"f kucuxtqwun( "ki pqtcpv'qh"vj g"nkpi wkurke"uwdvrgvkgu"cpf "ewnwtcn'vtckw"qh" yj cv'ncpi wci g0'C'tgr qtv'd { ''yj g'P gy ''Uqwyj ''Y cngu'Eqo o kuukqp''kp''Cwuntcnkc''cempqy ngf i gu'yj cv'÷Vj g'pqwqp''qh'' cf xcpwci g'f gtkxkpi 'htqo ''y g''wug''qh''cp''kpygtr tgygt ''ctkugu''qwb'qh''c 'hwpf co gpwcn'o kuwpf gtuvcpf kpi ''qh''y g''pcwtg''qh'' kpygtrtgykpi ø'cpf "vj cv"÷vj gtg'ku'pq"gxkfgpeg'vj cví cp{"cfxcpycig'ku'cewcm("ugewtgfø'\*O wnkewnwt cnkuo "cpf"vjg" *Ncy* '3; ; 3+0

Vj g'lwf kekct { 'j cu'nqpi 'hckref 'vq'tgeqi pk g'vj g'eqo r ngzkv{ 'qh'ngi cn'kpvgtr tgvkpi 'cpf 'j cu'eqpugs wgpvn{ 'gzr gevgf '' vj g'eqwtv'kpvgtr tgvgt'vq'cev'cu'c'eqpf wkv.''vtcpuo kwkpi ''o guuci gu'dgwy ggp'vj g'ceewugf .''y kpguugu'cpf ''o go dgtu'qh'' vj g'eqwtv'y kvj qwv'cp{ 'kpvgtxgpvkqp'cpf 'kttgur gevkxg'qh'nkpi wkuvke'cpf 'ewnwtcn'f khngtgpegu'co qpi 'r ctvkekr cpvu'' \*Cncpq'3;; 2='Uqhvke'3;; 5='O qttku'3;; 7+0'Vj ku'ukwcvkqp''j cu'dggp'hwtyi gt'gzcegtdcvgf''d{ ''c'ncen'qh''cf gs wcvg'' vtckpkpi 'kp''y g''vgej pks wgu'qh'eqwtv'kpvgtr tgvkpi ''cpf''c'i gpgtcn'ncen'qh'f ghkpkkqp''qh''y g''eqwtv'kpvgtr tgvkpi ''kp''c cp{ ''ecugu0}

Cu'Tqdgtvu/Uo kij "\*3; : ; \$3+"j cu''qdugtxgf."Wpvtckpgf "kpvgtrtgvgtu."hct'htqo "hcekrkcvkpi" eqo o wpkecvkqp."ecp"ecwug"o cp{"rtqdrgo u0"Vj gkt"rcpi wci g"unkmu"o c{"dg"f ghkekgpv."vj g{"o c{"pqv" j cxg"vj g"pgeguuct{"crrtgekcvkqp"qh"tgrgxcpv"etquu/ewnwtcn"f khhgtgpegu."vj g{"o c{"pqv"j cxg" kpvgtrtgvkpi "unkmu"\*cu''qrrqugf "vq"eqpxgtucvkqpcn"cdkrkvkgu+="vj gkt"ej qkeg"qh"y qtfu"o c{"dg"kortgekug" cpf "eqpugs wgpvn{"o kurgcf kpi "cpf "vj g{"o c{"j cxg"c"vgpf gpe{"vq"hrcxqwt"vj g"kpvgtrtgvcvkqp"y kij "vj gkt" qy p"xkgy u"cpf "r gtegr vkqp"qh"vj g"hcevu0

Kpeqo r gwgpv'kpvgtr tgvkpi "j cu'vj gtglqtg'eqpvtkdwgf "vq"vj g'hcev'vj cv'kpvgtr tgvgf "gxkf gpeg'ku'tctgn{ "r gtegkxgf "cu" vtwj hwn'qt'tgrkcdrg'\*Ecttqm'3; ; 6+0Eqpugs wgpvn{."tcvj gt"vj cp"dgpghkkpi "htqo "vj g"cxckrcdktk{ "qh'cp"kpvgtr tgvgt." cpf "kp"cf f kkqp"vq"vj g"f khhkewn{ "qh'wpf gtuvcpf kpi "vj g"r tqegf wtgu"qh'vj g"eqwtv."c"hpi wkuvkecm{/j cpf kecr r gf " kpf kxkf wcn'o c{"dg'hcegf "y kj "vj g"cf f gf "f krgo o c"qh'y j gvj gt"vq"wug"cp"kpvgtr tgvgt "cpf "tkum'dgkpi "rcdgrngf "cu" gxcukxg."wpt gur qpukxg"cpf "wpvtwury qtvj {0

### Vj g'o gej cpleu'cpf 'iqi kwleu'qh'eqwt v'kpvgt r t gvkpi

Dtqcf n( "ur gcnkpi ."eqwtv'kpygtr tgykpi "ku'eqpegtpgf" y kj "gpcdrkpi "ý g"erkgpv'\*y j gy gt" y g"ceewugf ."y kpguu."qt" qy gt "r ctykekr cpv+"q"wpf gtuvcpf "y j cv'ku'i qkpi "qp"kp" y g"eqwt vtqqo 0F khlgtgpv'hqto u'qh'kpygtr tgykpi ."cpf" vtcpurcydp."o c{ "dg"wugf "vq"cej kgxg" y ku'gpf 0Cp"kpygtr tgygt" o ki j v'dg"cungf "vq"ectt{ "qw'eqpugewkxg" kpygtr tgykpi "y j gp"c" y kpguu'ku'kp" y j g"f qem"uko wacpgqwu'kpygtr tgykpi "kh'y g"y kpguu'qt"ceewugf "ku'huvgpkpi "vq" cpqy gt "vguvko qp{ "qt "hqmqy kpi "qy gt"gxgpwu'kp" y g"eqwt vtqqo "\*htqo "f gr qukklqpu" vq"ugpvgpekpi + "hckuqp" kpygtr tgykpi "qwukf g" y g"eqwt vtqqo "y kj "eqwpekn"cpf "gxgp"ej wej qvci g"\*klg0y j kur gtgf "kpygtr tgykpi +"hckuqp" ecugu0Hqt"kpucpeg."Uj ngukpi gt"\*3; : ; +"tgr qtvu" y cv'ej wej qvci g"kpygtr tgykpi "y cu'wugf "kp"Vj g"Uvcyg"qh"Kutcgn'xu0' kscp"Lqj p"F go lcplwn'vtkcn'\*3; : 96: +"vq"tgpf gt" y g"gpyktg"r tqeggf kpi u"kpvq"Wntckpkcp"hqt" y g"f ghgpf cpv0 Eqwt v'y qtm'cnq"kpenwf gu'uki j v'vtcpurcykqp"qh'f qewo gpvu"r tqf wegf "kp"eqwt v0O qtgqxgt."kv'ku'pqv'wpeqo o qp'hqt" y g"dgpej "vq"cum'y g"kpygtr tgygt."qxgt"c"uj qtv'tgeguu."q"r tqf weg"c"y tkwgp"vtcpurcykqp"qh'cp"gzj kdkv."c"vtcpuetkr v' qh"c"ygr j qpg"eqpxgtucykqp"qt"uwdykrgu'hqt"c"xkf gq"tgeqtf kpi 0

Vj g'xctkqwu'o gyi qf u'qh'kpygtr tgvkpi 'wugf 'kp''yi g'eqwtvtqqo 'cm'j cxg''yi gkt''uj qtveqo kpi u0Hqt'kpuvcpeg.''QøVqqn'' \*3;; 6d+''qdugtxgu''yi cv'eqpugewkxg'kpygtr tgvkpi ''ngcf u'vq''nceni'qh''ur qpvcpgkv{ ''cpf ''pcwtcmpguu'qh''eqo o wpkecvkqp.'' cpf ''O qttku''\*3;; 7+''tgr qtvu''yi g''wpgcug''etgcvgf ''kp''yi g''eqwtvtqqo ''d{ ''ccqwurke''kpygthgtgpeg''htqo ''y j kur gtgf ''kpygtr tgvkpi 0'Uwej ''uj qtveqo kpi u''uwi i guv''yi cv'kpygtr tgvkpi .''y j krg''cmqy kpi ''eqo o wpkecvkqp''vq''vcmg''r rceg''kp''yi g'' eqwtvtqqo .''qhvgp''urqy u''f qy p''yi g''eqwtv''r tqegf wtgu.''gur gekcm{ ''kp''ecugu'y j gtg''kpgzr gtkgpegf ''kpygtr tgvgtu''ctg'' wugf ''\*Tqdgtvu'Uo kyi ''3; : ; +0

Vq"gpcdig"eqo o wpleckqp"\q"rtqeggf "wo qqy iq "kp"yj g"eqwtvtqo ."cmlkpygtmqewqtu"ctg"i gpgtcm( "kputvevgf "\q" ur gcml\p"\y g"lktuvl" gtuqp."y j kej "gpvcku"ki pqtkpi "yj g"t j {ukecnl" tgugpeg"qh"yj g"kpygtrtgygt 0Vj g"r meg"y j gtg"yj g" kpygtrtgygt "ku"ugcygf "yj gtghqtg"r m{u"c 'uki pklkecpv"tqrg" kp"ckf kpi "qt" j kpf gtkpi "yj g"eqo o wpleckqp"rtqeguu0' Ugcvkpi "yj g"kpygtrtgygt "vqq "hct"etgcygu"ceqwnke"f khlkewnkgu"hqt"yj g"eqwtv'cpf "yj g"kpygtrtgygt "chng0Eqpxgtugn{." ugcvkpi "j ko jj gt"vqq"emug"vq"ppg"rctv{"ecp"i kxg"yj g"ko rtguukqp"yj cv"yj g"kpygtrtgygt "ku"pqv"ko rctvkcn0
Ko rctvkcnk{."y j kej "ku"yj g"tchaqp"f o" u g"qh"eqwtv'kpygtrtgykpi ."rmegu"c"ur gekcnleqpuvtckpv'qp"yj g"eqwtv" kpygtrtgygt."y j q"j cu"vq"f knxcpeg"j ko ji gtugrhihtqo "y kpyguugu"cpf "yj gkt"ko o gf kcy"ko khgu. "gxgp"y j gp"yj g{" yi go ugnxgu"ctg" | p"pggf "qh"yj g"kpygtrtgygt "ku"pytrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"rtkpekrmg"qh"gzennk | kpi "yj g" kpygtrtgygt" | cu"i kxgp"tkug"vq"yj g"eqo o gpego gpv"qh"c" vkcn\lambda | qp | a ng| "gv"cn\lambda;; 3 \lambda 99."4; 3 \lambda 0V j g"knkekn'xkgy "yj cv"rtkqt"npqy ngf i g"qh"yj g"ecug"eqwf"chkec"vq"gzr gev"cp" kpygtrtgygt"\o rctvkcnk | "ku "vq"uq o g"gzvgpv "vpf gtuccpf cdng0J qy gxgt. "kv"ugo u"wptgcnknke"vq"gzr gev"cp" kpygtrtgygt"\o rctvkcnk | "ku "vq"uq o g"gxgypv "vpf gtuccpf cdng0J qy gxgt. "kv"ugo u"wptgcnkne"vq" | tqh"yj g" ecug"cpf "uknidg"cdng"vq"r gthtto "ghtkekgpvn | "gur gekcm | "kxgp"yj g"kcev'yj cv'dce

kpytrtgyt"ctg"i gpgtcm("f kucqwtci gf "cpf "uggp"cu"kpyttwr kpi "eqwtv"rtqegf wtgu"kO qttku"3;; 7+0

Nkng"qy gt"rtqhguukqpcm"uwej "cu"my {gtu."eqwtv"kpytrtgytu"ctg"dqwpf "d{"rtqhguukqpcm"gy keu."cpf "y gtg"uj qwf" y gtghqtg"dg"pq"pggf "vq"gzenwf g"y go "htqo "egtvckp"rtqegf wtgu"kp"qtf gt "vq"gpuwtg"y gkt"ko rctxkchk{0Nkng" eqphgtgpeg"kpytrtgytu."y g{"vqq"pggf "vq"dg"dtkghgf "cdqwv"y g"o cytkcn"y g{"j cxg"vq"f gcn'y ky ."y g"hngn("vqrkeu" vq"dg"tckugf "cpf "y g"f qewo gpwu"vq"dg"uki j v\*vcpurcygf 0Rtkqt"ceeguu"vq"kphqto cxkqp"kp"eqwtv"kpytrtgykpi "ku" ewttgpvn("co qpi "y g"o quv"j qvn("f gdcvgf "kuuwgu"dgvy ggp"yj g"eqwtv"kpytrtgykpi "rtqhguukqp"cpf"yj g"lwf kekct{0}

Kp"cf f kkqp"vq"cm'y gug"f khhewnkgu."eqwtvtqqo "kpytrtgytu"cnq"j cxg"vq"eqpygpf"y kyj "gzvtc/nkpi wknke"rtguuvtgu" uwej "cu"ur ggf."kpyttwr vgf "f grkxgt{."uvtguu"cpf"o gpvcnhcvki wg."cpf "y g"gzvtgo g"xctkgv{"qh"vqr keu"tckugf"cpf" kuuwgu"f kuewnugf 0"Vj gug."cpf "y g"y kf g"tcpi g"qh"kpytrtgykpi "o qf gu'yj cv"j cxg"vq"dg"o cuvgtgf "cpf "wugf "unkhwn(" "eqpugewkxg."uko wncpgqwu."ej wej qvci g"cpf "cv'uki j v'vtcpurcykqp+"cm"eqpvtkdwg"vq"yj g"eqo r ngzkx{"qh"eqwtv"kpytrtgytu0}

#### Vj g'tt clplpi 'qh'eqwt v'lpvgt r t gvgt u

C'hgy "eqwpvtkgu."uwej "cu'vj g'Wpkgf "Uvcvgu'cpf "Cwuntcrkc."j cxg"o cf g'uqo g'ghlqtv'vq"gpuwtg"vj g'cxckrcdktk{ "qh" hqto cri'vtclplpi ."gzco kpcvkqpu."cpf "egtvlkhecvkqp"u{ uvgo u'hqt "eqwtv'lpvgtr tgvgtu0'kp" j g'Wpkgf "Uvcvgu."vj g'Eqwtv' kpvgtr tgvgt'Cev'qh'3; 9: "cpf 'kwu'co gpf o gpv'lp"3; :: "uqwi j v'vq"tgi wrcvg"vj g'r tqhguukqp0'EQO O WP KV[ " RP VGTRTGVRP I "kp"Cwuntcrkc"vgpf u'vq"kpxqnxg"c'i tgcv'f gcrl'qh'ngi crl'kpvgtr tgvkpi ."cpf "vj ku'j cu'ngf "vq" r tqhguukqpcrl'gvj keu'dgeqo kpi "cp"kpvgi tcrl'r ctv'qh'vj g'kpf wevkqp"r tqeguu'hqt"pgy n{ "ceetgf kvgf "kpvgtr tgvgtu0' Cwuntcrkc"j cu'cnuq'r kqpggtgf "vj g'r tqxkukqp"qh'ngchrgwl'qp": J qy "vq"y qtrn'y kvj "Kpvgtr tgvgtuø="vj gug'cko "vq"gf wecvg" vj g'r wdrke"vq"o cng"vj g'dguv'wug"qh'hpvgtr tgvgtu0

Vj gtg"ctg"xkt wcm{ "pq"cecf go ke"kpurkwrkqpu" y cv"r tqxkf g"vtckpkpi "kp"eqwtv'kpvgtr tgvkpi "ur gekhlecm{ 0J qy gxgt." uqo g"eqmgi gu. "r ctvkewrctn{ "kp" y g"Wpksgf "Uvcvgu"cpf "Ecpcf c. "qhhgt" uj qtv'eqwtugu 'ur gekhlecm{ "f guki pgf 'hqt"eqwtv' kpvgtr tgvgtu0" Y kyj "y g"go gti gpeg"qh"vtcpurcvkqp"uwf kgu"cu"c"hwm{ /hrgf i gf "cecf go ke"f kuekr nkpg. "o qtg"cwgpvkqp"ku" pqy "dgkpi "r ckf "vq" y g"pggf "vq"r tqxkf g"hwm'cecf go ke"vtckpkpi "kp"eqwtv'kpvgtr tgvkpi "\*Ncuvgt"cpf "Vc{nqt"3; ; 6+0 kp" cp"cwgo r v'vq"dtkf i g"y g"i cr "dgwy ggp" i gpgtcnkurø"cecf go ke"vtckpkpi "kp"kpvgtr tgvkpi "cpf" y g"ur gekhke"uvcpf ctf u" cpf "umkmu"tgs wktgf "kp" y g"r tqhguukqpcn'y qtnf. "ugtkqwu"uvgr u"j cxg"cnuq"dggp"vcmgp"kp"Cwuvtcnkc. "y g"Wpksgf "Uvcvgu" cpf "gnugy j gtg"vq"r tqxkf g"egtvkhlecvkqp"qh"eqwtv'kpvgtr tgvgtu0

EQOOWPKV[ "KP VGTRTGVKPI ="EQPHGTGPEG"CPF" UKO WNVCPGQWU"KP VGTRTGVKPI ="UK PGF" NCPI WCI G"KP VGTRTGVKPI 0

Ugg'cnuq<

#### Hwt yj gt 't gcf kpi

 $\label{eq:cncpq'3; 2=logtm} $$ Cncpq'3; ; 2=lDtqy p'3; ; 5=lEqrlp'cpf'Oqttlu'3; ; 8=lfg'lqpij'3; ; 4=lGfy ctfu'3; ; 7=lqp|app|g'lqp'cr03; ; 3=lNcuvgt'cpf'Vc{qt'3; ; 6=lOqttlu'3; ; 7=lTqdlpuqp'3; ; 6=lUj rgulpi gt'3; ; 30 $$$ 

OWJ COOCF'I COCN

## F

# Fgekklqp'b cmlpi 'kp'ttcpurcvlqp

Cp{"f kuewuukqp"qh"f gekukqp"o cmkpi "ku"engctn{"dcugf "qp"yi g"cuuwo r vkqp"yi cv"j wo cp"dgkpi u"dgj cxg"tcvkqpcm{0" Vj gtg"ku."j qy gxgt."co r ng"r tqqh"yi cv"\*r tko ctkn{"kp"yi gkt"f c{/vq/f c{"cevkxkkgu."nguu"uq"kp"yi gkt"uekgpvkhke" wpf gtvcmkpi u+"yi g{"cnuq"gpi ci g"kp"kttcvkqpcn'dgj cxkqwt0"Vj ku"tckugu"yi g"s wguvkqp"qh"j qy "qpg"uj qwrf "f ghkpg" tcvkqpcn'dgj cxkqwt"qt. "hqt"yi cv'o cwgt. "f gekukqp"o cmkpi 0"Vj gtg"ku"c"y kf gur tgcf "eqpugpuwu"yi cv'cp{"v{r g"qh" tcvkqpcn'dgj cxkqwt"o wuv'ucvkuh{"hqwt"tgs wktgo gpvu<"xgtkhkcdkrkv{."r ncwukdkrkv{."ukwcvkqpcn'cf gs wce{"cpf "xcnwg/qtkgpvgf pguu"\*Y cmuvgp"3; : 2+0Dg{qpf "yi cv."qr kpkqpu"xct{"eqpukf gtcdn{0

### F gelulqp'o cmlpi <cp'qxgt xlgy

C'f gekukqp'r tqdrgo "qeewtu'y j gp''qpg''ku'hcegf ''y ky "cp''kuwg''y j kej 'f go cpf u'uqo g'hqto ''qh'ej qkeg0Cp{ ''pqp/ vtkxkcn'ej qkeg''eqpvckpu''cp''grgo gpv'qh'tkum''dgecwug''o quv'f gekukqp''r tqdrgo u'ecppqv'dg''tgf wegf ''vq''j ctf ''cpf 'hcuv' twrgu''kpxqrxkpi "-khly gpø'tgrcvkqpu<'kh''qpg'j cpf rgu''c'r tqdrgo 'Z''y ku''y c{.''y g''tguwrv'y km'dg''[ 3-"kh''qpg''j cpf rgu''kv'' y cv''y c{.''y g''tguwrv'y km'dg''[ 40'Eqo r ctkpi ''y g''uqrwvkqpu''[ 3"cpf ''[ 4."qpg''ecp''qhvgp."dw''pqv''cny c{u."uvcvg'' y cv''qpg''qh''y g''y q''uqrwvkqpu''ku''o qtg''ghhkekgpv'y cp''y g''qy gt0P qvg.''j qy gxgt.''y cv'kp''cuuguukpi ''c'' f gekukqpo cnkpi ''ukwcvkqp'kpf kxkf wcn'f khhgtgpegu''o c{ ''r rc{ ''cp''ko r qtvcpv'tqrg''cpf .''cu'c''eqpugs wgpeg.'f khhgtgpv'' f gekukqp/o cnkpi ''uxtcvgi kgu''o c{ ''dg''go r rq{gf0

F gekukqp/o cnkpi 'r tqeguugu'ctg'kpgz vtkecdn( "eqppgevgf "y ky "r tqdngo /uqnxkpi "cevkxkkgu0Kp"qtf gt"vq"uqnxg"c" r tqdngo ."c"j wo cp"dgkpi "o wuv'dcukecm( "r quuguu'wy q"v(r gu"qh'npqy ngf i g. "f genctcvkxg"cpf "r tqegf wtcn'\*T { ng" 3; 6; +0F genctcvkxg'hpqy ngf i g"\*mpqy kpi "y j cv+"o gcpu"vj cv'c"r gtuqp"j cu'cxckncdng'kp"j kulj gt"o go qt { "uqo g" r qqn'qh'uvqtgf "mpqy ngf i g"cpf "gzr gtkgpeg0J ctf n( "cp{ "r tqdngo /uqnxkpi "cevkxkv{ "dgi kpu"y ky "c"vcdwnc"t cuc="kv" j cu'vq"f tcy "qp"uvqtgf "mpqy ngf i g0Rt qegf wtcnhpqy ngf i g"\*mpqy kpi "j qy +"o gcpu"vj cv'j wo cp"dgkpi u"j cxg" ceeguu"vq"uvtcvgi ke"mpqy ngf i g<"y g{ "mpqy "\*qt"qwi j v'vq"mpqy +"kp"y j kej "ukwcvkqpu"y g{ "o wuv'cr r n( "y j kej " qr gtcvkxg"o qxgu"vq"cwckp"y g"f guktgf "i qcn)

Ifo"tcpurckqp." iy g"f gekukqp/o cmkpi "kunwg"ku"r ctvkewctn("eqo r ngz."dgecwug"tcpurckqp"ku"guugpvkcm("c"f gtkxgf" cevkxkv{0':F gtkxgf ø'ku"wpf gtuvqqf "j gtg"vq"o gcp"vj cv"vj g"r wtr qug"qh"c"vtcpurckqp"ku"pqv"vj g"etgcvkqp"qh"cp"qtki kpcn" yzv"dwv"vj g"tcpulqto cvkqp"qh"c"r tho ct{"yzzv"kpvq"c"ugeqpf ct{"yzv"vV}j g"vcuniqh"vj g"vcpurcvqt."kv"ecp"dg"cti wgf." ku"vq"tgr tqf weg"c"uqwteg"yzv"hqt"c"vcti gv ncpi wci g"tgcf gtuj kr."vcmkpi "ceeqwpv"qh"ku"ugo cpvke. "hwpevkqpcn" rtci o cvke. "cpf" "uv{nkuvke"f ko gpukqp."kp"cf f kkkqp"vq"vj g"pggf u"cpf "gzr gevcvkqpu"qh"vj g"vcti gv yzzv"tgcf gtuj kr 0"kp" xkgy "qh"vj g"hcev"vj cv"r tqhguukqpcn"tcpurcvqtu"j cxg"vq"j cpf ng"ugo cpvkecm("cpf "uv{nkuvkecm("f khikevnv"yzvu."vj g{" wps wguvkqpcdn("gpi ci g"kp"c"i tgcv"f gcn"qh"r tqdngo /uqnxkpi "cpf"f gekukqp/o cmkpi "cevkxkkgu0"ki"ku"vj gtghqtg" uwtr tkukpi "vj cv"kp"vtcpurcvkqp"uwf kgu"hxwrg"j cu"dggp"uckf "uq"hct"cdqwv"r tqdngo "uqnxkpi "kp"vj g"ugpug"qh"c" u{ uvgo cvke"f guetkr vkxg"o gvj qf."cpf "vj g"uco g"ku"vtwg."r gtj cr u"vq"cp"gxgp"hcti gt"gzvgpv."qh"f gekukqp"o cmkpi 0' J ctf n("cp{"uwdlgev"kpf gz"qh"vj g"ewttgpv"hxgtcwtg"qp"vtcpurcvkqp"eqpvckpu"c"r tqdngo /uqnxkpi "qt"c" f gekukqpo cmkpi "gpvt{0Vgpg"ko r qtvcpv"gzegr vkqp"ku"cp"gctn("cwgo r v'd{"Ngx "\*3; 89+"vq"cr r n("I CO G"VJ GQT[" vq"f gekukqp"o cmkpi "hp"vtcpurcvkqp="Ngx "uvcvgu"vj cv"gxgt{"o qxg"-ku"kphnwgpegf"d{"vj g"npqy ngf i g"qh"r tgxkqwu" f gekukqpu"cpf"d{"vj g"ukwcvkqp"vj j lej "tguwngf"htqo "vj go ø\*3; 89-"

#### O cet qeqpvgzv'cpf 'b let qeqpvgzv'lpf gelulqp'b cmlpi

D{"eqpvtcuv."j cpf rlpi "o letqeqpvgzwcri'r tqdrgo u."r ct vlewrctn{"kp"rksgtct{"vgz vu."qhvgp"pgeguukscvgu"vko g/eqpuwo kpi "hqto wrcvkqp"cpf "tghqto wrcvkqp"ghhqtvu."y kji "htgs wgpv"lwo r kpi "dcemicpf "hqtvj "dgw ggp"vj g"uqwteg" vgzv"cpf "vj g"go gti kpi "vcti gv"vgzv0Eqo r rlecvkpi "hcevqtu"kpenwf g"ukpi wrct "\*gr kuqf ke+"r j gpqo gpc"qh"vj g"uqwteg" vgzv."uwej "cu"ugo cpvke"xci wgpguu."eqo r rgz "u{pvcz."kpvtkecvg"tj gvqtkecn'uvtcvgi kgu."vj go gltj go g"f kuvtkdwkqp." egpvtcn'xu0r gtkr j gtcn'kphqto cvkqp."o gvcr j qtu."y qtf r rc{."cmwukqpu."ktqp{."rcen'qh'eqj gtgpeg."o qtr j qrqi kecn' kf kqu{petcukgu"qt"pgqrqi kuo u."cf lgevkxglpqwp"eqrrqecvkqpu"\*Dcngt"3;; 4+"r tgr qukxkqpcn'r j tcugu."uvtkpi "eqo r qwpf u."ewrwtcn'rcewpcg."cpf "uq"qp0

Dgecwug''qh''y gkt ''rcem'qh'ur gekhek/{."i gpgtcn'r tqdrgo /uqrxkpi ''uxtcvgi kgu''qh''y g''\{r g''r tqr qugf ''d\{ ''O krrgt ''gv''cr0' \*3; 82+"kp''y gkt ''VQVG''o qf gn'\*VQVG''? ''vguv'qr gtcvg/vguv'gzkv+"ctg''qh''rko kgf ''j grr ''vq''tcpurcvqtu'y j gp''y g\{ ''gpeqwpvgt ''c''eqpetgvg''ukwcvkqp''qh''eqphrkev'cpf ''uvctv'ugctej kpi ''hqt''qr vko cn'qt''pgct/qr vko cn'uqnwkqpu0'Vj g''tgcuqp'' ku''qdxkqwuc''wprkng''i tco o cvkecn'twrgu''hqt''kpuvcpeg."o ketqeqpvgzwcn'r tqdrgo u. "cpf ''y gkt''uqnwkqpu. "ecp''dg'' i gpgtcnk gf ''qpn\{ ''q''c''xgt\{ ''nko kgf ''gzvgpv0'Vj g''o qtg''wpks wg''c''vtcpurcvkqp''r tqdrgo ''y g''rguu''r tcevkecdrg''y g'' i gpgtcn'r tqdrgo /uqrxkpi ''r tqegf wtgu''cpf ''y g''rguu''rkng''c'i co g''qh''ej guu''qt''cp''cni qtky o kecm\{ ''qti cpk gf '' hrqy ej ctv'y g''y j qrg''cevkxkv\{ ''dgeqo gu0

#### O qf gni'qh'f gelulqp'o cmlpi 'cpf 'tj glt 'crrllecdluls{ 'tq'tt cpurc vlqp

Kp'ku'gctn('uvci gu.'vj g'uvwf {''qh'f gekukqp''o cmkpi ''eqpegpvtcvgf ''qp''vj g'f gxgmqr o gpv'qh'hqto cn'o qf gnu'ewttgpvn('' wugf 'kp''qr gtcvkqpu'tgugctej 0'C''i qqf ''gzco r ng''qh''c'hqto crkuv'cr r tqcej ''vq'f gekukqp''o crkpi ''ku'r tgugpvgf 'kp''cp'' ct when g'd { 'T cej rlip 'gv'cn0 \*3; : 8+'y j q'eqo r ctg'c'eqi plakxg'o qf gn'cpf 'c'dgj cxkqwtcn'o qf gn'qh'f gekukqp'o cmlipi " cpf "eqo g"vq"yj g"eqpenwukqp"yj cv'dqyj "crrtqcej gu"ctg": wuv"yy q"eqo rgvkpi "f guetkr vkqpu"qh"c"ukpi rg"hwpf co gpvcn" rtqeguuø'\*3;:8<55+0'Vjgkt'cti wogpv'uwi i guwu.''cv'hgcuv'kornkekm{.''vjcv'hqtochkuv'oqfgnu'qh'fgekukqp''ochkpi'ctg'' pqv'crrnlecdrg'\q'\tcpurc\qt'rgthqtocpeg='\jku'ku.'kpekfgpvcm{.'\jg'ucog'gzrrcpc\qp'ikxgp'hqt'\jg'hcknxtg'qh' hwm{ "cwqo cvke"j ki j/s wcrkv{ "vtcpurcvkqp"kp"Dct/J krrgnøu"ugpug"\*ugg"<u>O CEJ KP G"VTCP UNCVKQP</u>."J KUVQT[ +0" Crctv'htqo ''xgt{ ''uko r ng''u{ pvcevke''r cwgtpu''uwej ''cu''Uwdlgev'Rtgf kecvg/Qdlgev''\**j g'j cu't gcf ''vj g''dqqm'*i'xu0'*Gt ''j cv'' f cu'Dwej 'i gngugp*+"eqpxgpvkqpcn'gzrtguukqpu"\**kp"uq"f qkpi* "xu0*f cdgk*+"qt"qvjgtykug"jkijn("uvcpf ctfk|gf"\gzv" eqphki wtc.kqpu'y j kej 'gzenwf g'f gekukqp/o cmkpi 'r tqegf wtgu'cp{y c{.''vtcpurc.kqp.''nkmg'cp{'hqto 'qh'ncpi wci g'wug.'' ku'eqpf kklqpgf 'd{ "c'xctkgv{ "qh'o guu{ 'hcevqtu.'kpenwf kpi "o go qt{ "rko kcvkqpu.'mpqy ngf i g'cpf "cwgpvkqpcn'i cr u." xci wgpguu. "cwkwf kpcn'hcevqtu. "kpvgthgtgpeg"ghhgevu. "cpf "uq"qp0"Vj g"etwz "qh"vj g"o cwgt. "dqvj "hqt "vj g"j wo cp" vtcpurcvqt"cpf "vq"c"o wej "j ki j gt"f gi tgg"hqt"o cej kpg"vtcpurcvkqp. "ku"vj cv"repi wci g"wug"uko r n{ "ecppqv"dg"vtgcvgf "kp" vgto u'qh'dkpct { ''qrrqukxkqpu.''cv'ngcuv'pqv'gzjcwuxkxgn(0'Uqwteg'\vgzv'cpf''vctigv'\vgzv'pqtocm(''uvcpf''kp''c''qpg/vq/ o cp{"tgrcvkqp."kg0"tcpurcvkqp"ku"pqv"c"hqto crir tqegf wtg"qh"uwduvkwvkqp"qp"vj g"dcuku"qh"uko r rg"qpg/vq/qpg" eqttgur qpf gpeg0Cpf "vj ku"eqphkto u"vj g"tgrgxcpeg"qh"r tqdrgo /uqnxkpi "cpf "f gekukqp/o cmkpi "r tqegf wtgu"kp" vtcpurcvqt'r gthqto cpeg0'

Y cmrvgp."y j qug"eqmgevkqp"qh"ctvkergu"qp"y g"pcwtg"qh"f gekukqp"o cmkpi "j cu"o wej "vq"qhhgt"vq"tcpurcvkqp" uwwf kgu. "j cu"uj qy p"yj cv'yj g"qweqo gu"cpf "eqpvkpi gpekgu"cuuqekcvgf "y kyj "c"r ctvkewrct "ej qkeg"ecp"dg"tghgttgf "vq"c" f gekukqp"±trco gø'cpf "vj cv'kv'ku''qhvgp"r quukdrg"vq"trco g"c"i kxgp"f gekukqp"r tqdrgo "kp"o qtg"yj cp"qpg"y c{ "\*3; : 2±0" Vj g"hkpcn"f gekukqp"f gr gpf u"qp"c"j quv'qh'hcevqtu. "uwej "cu"cf gs wcvg"mpqy rgf i g"dcugu. "c"uwhhkekgpvn( "f gockrgf" ej ctcevgtk; cvkqp"qh"yj g"r tqdrgo "tgs wktkpi "f gekukqp/o cmkpi "untcvgi kgu. "cpf" yj g"kpf kxkf wcmzu"qy p"r tghgtgpegu"qt" xcmxg"u{ urgo 0°Cv'y g"uco g"ko g. "Y cmrvgp"j cu. "pq"f qwdv'kpcf xgtvgpvn{."eqphkto gf "vj cv'ej qkeg"dgj cxkqwt"kp" vtcpurcvqt" gthqto cpeg"ku'pqv'c"y gm/kpvgi tcvgf "hkgrf"qh'tgugctej "kp"tcpurcvkqp"uwwf kgu0'Uq"hct. "vj g"f gekukqp/o cmkpi "cur gev'qh'vtcpurcvkqp"j cu. "gzegr v'hqt"c'hgy "kuqrcvgf "eqpvtkdwkqpu."dggp"tgrgi cvgf "vq"yj g'htkpi gu"qh'vj g" f kuekr rkpg="eqpegr wu'tgrcvgf "vq"yj g'r tqeguu'qh'f gekukqp"o cmkpi "j cxg"tctgn{ "dggp"kpxqngf "vq"uwr r qtv'vj g'hkpf kpi u" cpf "cti wo gpwu"qh'vj gqtknvu. "gcej gtu."qt"r tcevkxkqpgtu"y kyj "c"xkgy "vq"gzr rckpkpi "qt"i wkf kpi "tcpurcvqt" r gthqto cpeg"kp"c"u{ uvgo cvke"y c{0}

Vq"o cng"j kpi u"y qtug."j gtg"ku"eqpukf gtcdng"wpegtvckpv{ "kp"tcpuncvkqp"uwvf kgu"cu"vq"y j gyj gt"j g"tcpuncvqt"ku"kp" hcev"gpi ci gf "kp"i gpwkpg"f gekukqp/o cnkpi "r tqegf wtgu"cv"cm"cpf ."kh"uq. "vq"y j cv"gzvgpv"f gekukqp"o cnkpi "ecp"dg" eqpukf gtgf "c"tgeqi pk cdng"cpf "ngi kko cvg"hgcwtg"qh"vtcpuncvqt "dgj cxkqwt."Vj g"enctkhecvkqp"qh"j ku"kunwg"o c{" dgeqo g"gcukgt"kh"y g"hqewu"qwt "cwgpvkqp"qp"r tg/ej qkeg"dgj cxkqwt."Vg0'yj g"hcevqtu"yj cv"kpj kdk"qt"r tqo qvg" ej qkegu."tcvj gt"yj cp"qp"yj g"ej qkegu"yj go ugnxgu0Qdxkqwn{."yj gtg"ku"cny c{u"c"tcpi g"qh"dcttkgtu"yj cv"o wuv"dg" qxgteqo g"r tkqt"vq"f gekukqp"o cnkpi ."cpf "kv"ku"cti wcdn{"yj ku"engctkpi "cy c{"qh"dcttkgtu"yj kej "o wuv"dg"f gcnv"y kyj " kp"hwwtg"yj gqtgvkecn"go r ktkecn"cpf "cr r nkgf "vtcpuncvkqp"uwxf kgu0"Y g"o wuv":f gxqvg"o qtg"cwgpvkqp"vq" gzr gtko gpvcn"ukwcvkqpu"kp"yj kej "yj g"ej qkeg"cnvgtpcvkxgu"ctg"pqv"y gm"f ghkpgf ."kp"yj kej "o go qt{"hqt"kphqto cvkqp" ecp"dg"cuuguugf ."cpf "kp"yj kej "kyf kxkf wcn"f khngtgpegu"ecp"dg"u{uvgo cvkecm{"gzr nqtgf ø"\*Y cmusp"3; : 2."zkkk+0" Y j cv'y g"pggf "ku"kphqto cvkqp"pqv"qpn{"qp"j qy "vtcpuncvqtu"r gthqto "kp"i gpgtcn"dw"cmq"qp"j qy "yj g{"r gthqto "kp"c" ur gekhle"vtcpuncvkqp"ukwcvkqp"y kyj "cmlku"kpj gtgpv"cttc{"qh"eqo r ngz"hcevqtu0

y ky "uwwf gpwu"qh" tcpurc wkqp. "cpf "o c{"y gm"r tqxg" wughwn kp"f wg"eqwtug 0 Vj g{"j cxg"dgeqo g"tcyj gt"r qr wrct kp" tgegpv'{gctu'\*Mtkpi u'3; : 8="N3/4uej gt'3; ; 3="Vktmmqpgp/Eqpf kv'3; ; 5+"dgecwug" yj g{ "qhhgt "c"o gcpu "qh'kf gpvkh{kpi "  $\label{thm:constraint} \mbox{yi g"cn,gtpc,lkx\,gu"c"uwf\,gpv'vcmgu'lpvq'eqpulf\,gtc,lkqp'lpv'gz\,gewlpi~"c"vtcpurc,lkqp''vcum'cpf''j\,qy~'ulj~g''cr\,r\,tqcej~gu'c"} \mbox{yi g"cn,gtpc,lkx\,gu''c''uwf\,gpv'vcmgu'lpvq''eqpulf\,gtc,lkqp''lpv''gz\,gewlpi~"c"vtcpurc,lkqp''vcum'cpf''j~qy~'ulj~g''cr\,r\,tqcej~gu'c''$ http://wwf.gp.vu/tcpf.qo.nt/" gekukqp"o cmkpi "ku'\tkcn'cpf" gttqt<\uwf.gp.vu'tcpf.qo.nt/" ej qqug'cp"qr.vkqp" cpf "qdugtxg" y g"qweqo g" qt "uj qwrf "kp" y g"eqwtug" qh" y gkt "gf wec kqp" dg" o cf g" qdugtxg" cpf "y gki j "y g" qweqo g'qh''y gkt'r gthqto cpeg+0'Vj g'r tqeguu'd { 'y j kej '\tkcn'cpf/gttqt''dgj cxkqwt''i tcf wcm { 'rgcf u'\q'\y g'' f gxgrqr o gpv'qh'kpvgtpcnk gf 'cpf 'kpvgtpcnk cdrg'f gekukqp/o cmkpi 'uvtcvgi kgu'ku'cv'r tgugpv'qpn( 'r qqtn( 'wpf gtuvqqf 0' Ki'ku. 'j qy gxgt. 'tgcuqpcdrg' 'vq' 'cuuwo g' 'vj cv' 'vj g'r tqeguu 'qh' 'ngctpkpi 'f gekukqp/o cmkpi 'uvtcvgi kgu 'ku 'guugpvkcm{ " kpf wevkxg'kp'pcwtg<c'uwfgpv'gzrgtkgpegu'kpfkxkf wcn'rtqdngou'cpf 'vtkgu'vq'fgxgnqr'fgekukqp/ocntkpi'jgwtkuvkeu' y ký "ý g"cko "qh"i tef wem( "guvednkuj kpi 'uqo g"i gpgten'uvtevgi kgu"hqt "f genkpi 'y ký "r tqdngo u"kp"e "tqwkpg heuj kqp0 Y j gyj gt "yj ku'r tqegf wtg" lwu√khkgu 'yj g"cuuwo r vkqp "qh'f gekukqp/o cmkpi "twrgu "\*Gkpj qtp "3;; 2+"ku'f qwd vhwn "dgecwug" y g'eqpegr v'qh'f gekukqp'o cmkpi 'cpf 'vj g'pqvkqp'qh'twng/i qxgtpgf 'dgj cxkqwt'ctg'o wwcm( 'gzenwukxg0Qh'eqwtug." kh'f gekukqp/o cmkpi "r tqegf wtgu'ctg'hgctpgf 'y tqwi j 'kpf wevkqp. 'kv'ku'pgeguuct { 'vq'i tqwr 'vtcpurcvkqp'r tqdrgo u. "cu" htt "cu'r quukdrg." qp" y g"dcuku "qh'r gtegkxgf" uko krctk/{ "\*Xkpc{"cpf" Fctdgrpgv'3; 7: ="Ocrdrcpe" 3; 83 +="qy gty kug" yj gtg"y qwrf "dg"cu"o cp{ "f gekukqp/o cmkpi "j gwtkurkeu"cu"yj gtg"ctg"\tcpurc\kqp"ukwc\kqpu0J gpeg."cp{ "V{ r g"qh" f gekukqp/o cmkpi "j gwtkuwke"j cu'vq"dg"i gpgtcnk cdng"vq"uqo g"gzvgpv"qxgt"cp"qr vko cm{ "y kf g"tcpi g"qh"vtcpuncvkqp" rtqdrgo u0KVku'ergctn{''yi g''ecug''yi cv.''hcegf''y kij ''c''pqxgn'\tcpurcvkqp''rtqdrgo.''yi g''tcpurcvqt''ecppqv'ukorn{''hcm'' dcem'qp" who g/j qpqwtgf "f gekulqp/o cmlpi "untcygi lgu0llp" yj g"eqwtug" qh' who g. "j qy gxgt." y j cv'unctygf "qwv'cu'c" pqxgn" rtqdrgo "oc{"dgeqog"c"uvcpfctf"hgcwtg"qh"vtcpurcvqt"rgthqtocpeg"cpf."cu"c"eqpugswgpeg."pq"hqpigt"tgswktg" f gekukqp/o cmkpi 'eqi pkkxg'kpr w0

### Rtg/f gelulqp'o qxgu'cpf 'ej qleg'dgj cxlqwt

Vj g'kuuwg''qh'ko r tqxkpi ''c''\tcpurcvqtøu'f gekukqp/o cmkpi ''r qvgpvkcn'tckugu''c''pwo dgt''qh''s wguvkqpu.''

uwej "cu<"y j { "f q"ej qkeg"ukwc kqpu"qeewt "kp" vtcpurc vqt "r gthqto cpegA'y j cv'ctg" y g"hcevqtu" y cv'f gvgto kpg" y j kej " ej qkegu"cpf "y j kej "\{r gu"qh"ej qkegu"y kmi'qeewt "kp" y j kej "uwttqwpf kpi uA'y j cv'ctg" y g"r quukdrg"cnugtpc kxgu" vq" c" f gekukqp/o cnkpi "o qxgA'y j { "ctg"egt vckp" f gekukqpu. "uwej "cu" y g"vtcpurc vkqp" qh" y g"kxrg" qh"c"dqqm" r w'qhhA'j qy " f qgu"qpg" f geki g"y j gp" vq" f geki g"cpf" y j kej "xgtukqp" vq" i kxg"r tghgtgpeg" vqA'wpf gt" y j cv'ektewo uvcpegu" y km" f gekukqpu" dg"r ct vn{ "qt" y j qm{ "cxqkf gf A'y j cv'ku" y g"tguwn 'qh" c"f gekukqp/o cnkpi "r tqegf wtgA'C v'y g"o qo gpv." uwej "s wgunkqpu" uggo "vq" hg"qwukf g" y g"f qo ckp"qh'vtcpurc vkqp" uwwf kgu. "tgrgxcpv" y qwi j "y g{ "o c{ "dg" vq" kwu"qdlgev" qh'uwf {0'Qpg"y c{ "qh'dtkpi kpi "y go "kpvq" y g"tgcmo "qh'vtcpurc vkqp" tgugctej "ku" vq" cf qr v'uqo gyi kpi "htng" y g" hqmy kpi "r tqegf wtcn'r cwgtp" cu"c 'htco gy qtm'\*o qf khlgf "htqo "Eqtdkp"3; : 2+<

"r tqdrgo "kf gpvkhlecvkqp" f guetkr vkqp+
"kphqto cvkqp"eqngevkqp
"f grkdgtcvkqp"qp" j qy "vq"r tqeggf
"o qo gpv"qh"ej qkeg
"r quv/ej qkeg"dgj cxkqvt" gxcnvcvkqp"qh" tcpurcvkqp" tguvvnuн0

Qduvt wevkqp"o c{"qeewt"cv'cm quv'cp{"qh'vj gug'uvci gu."j cnkpi "qt"f gnc{kpi "vj g"f gekukqp/o cnkpi "r tqegf wtg." tckukpi "vj g"s wguvkqp"qh'uvci g"dqwpf ctkgu"qt"uvci g"qxgtncr r kpi 0'Uwej "dqwpf ctkgu"ctg"f khhkewn/'vq"r kp"f qy p"kp" vtcpuncvkqp."c'hcev'vj cv'o c{"ngcf "vq"y j cv'kp"f gekukqp"vj gqt{"j cu'dggp"ecnngf "÷pqv'ej qqukpi "dgj cxkqtø" Eqtdkp" 3; : 2<6; +0'÷P qv'ej qqukpi "dgj cxkqtø"o c{"dg"f wg"vq"wy q"tgcuqpu<

\*c+"vtcpurcvqtu"o c{"dg"eqphtqpvgf"y ky "c"mpi "cttc{"qh"cnvgtpcvkxgu"cpf"o c{"y gtghqtg"hkpf"kv"f khhkewn"vq" o cng"wr "y gkt"o kpf u. "gur gekcm{ "kh"y g{ "ctg"pqv"vtckpgf "vq"o cng"hcuv"f gekukqpu. "y ky "y g"cm quv"kpgxkxcdrg" eqpugs wgpeg"y cv"y gkt"ej qkegu"y km"f tcy "qp"hguu"y cp"qr vko cn"f gekukqp/o cnkpi "uvtcvgi kgu \*d+"cu"hct"cu"kphqto cvkqp"eqmgevkqp"ku"eqpegtpgf."kv"ku"d{ "pq"o gcpu"egtvckp"y cv"o qtg"kphqto cvkqp"y km" cwqo cvkecm{ "rgcf"vq"dgvygt"tguwnu0P gxgtyj grguu. "c"vtcpurcvqt. "gur gekcm{ "cp"kpgzr gtkgpegf"qpg. "o c{"uvctv" ceeguukpi "o cp{"r quukdrg"cnvgtpcvkxgu"kp"qtf gt"vq"o kpko kt g"uvvdlgevkxg"vpegtvckpv{0

K'uj qwrf ''dg''ergct''d{ ''pqy ''y j { ''r tg/f gekukqp''o qxgu''ctg''uq''ko r qtvcpv0'kp''cf f tguulpi ''y ku''kuuwg.''y g''f kuekr rkpg'' o wuv'f gcri'pqv'qpn{ ''y kyj ''kpf kxkr wcn'j gwrkurkeu''dww'y kyj ''kpf kxkr wcn'ugs wgpegu''qh'j gwrkurkeu''f wtkpi ''y j kej '' vtcpurcvqtu''cwgo r v''vq''tgf weg''eqo r rgz''r tqdrgo u''vq''c''hqto ''eqo r cwldrg''y kyj ''y gkt''ho kxgf ''r tqeguulpi ''ecr cdkrkrkgu0' Vj ku''r tqegf wtg''f qgu''pqv''cry c{ u''y qtrx''qhryp''c''vtcpurcvqt''ku''cy ctg''y cv'c''nkpf ''qh''r tqdrgo ''gzkuru.''dw''f qgu''pqv'' npqy .''qt''f qgu''pqv''npqy ''ko o gf kcvgn{.''j qy ''vq''ur gekh{ ''yj g''r tqdrgo ''cpf ''o cnrg''y g''pgeguuct { ''f gekukqp/o crhpi '' kphttgpegu0'Vj ku''ku''y j gtg''tgugctej ''qp''f gekukqp''o crhpi ''kp''tcpurcvkqp''ku''wti gpvn{ ''pggf gf 0'Y g''pggf ''vq''dg''cdrg''vq'' f guetkdg''f gekukqp/o crhpi ''dg' cxkqwt''kp''ycto u''qh''cp''kpvtcevkqp''dgw ggp''y g''tcpurcvqtøu''eqi pkxkxg''u{uvgo .''j kul j gt''npqy rgf i g''dcugu.''curn'ur gekhecvkqpu.''cpf .''rcuv''dw''pqv''rgcuv.''y g''=rtqdrgo ''ur cegø'y j kej ''r rc{u''c''f gekukxg'' tqrg''kp''f gvgto kpkpi ''f gekukqp/o crhpi ''dgj cxkqwt0Cmlhqwt''hcevqtu''r tqhqwpf n{ ''kphrwgpeg''f gekukqp/o crhpi '' r gthqto cpeg''kp''tcpurcvkqp''cpf ''tgs wktg''eqpukf gtcdn{ ''o qtg''cwgpvkqp''y cp'y g''j cxg''i kxgp''y go ''uq'hct0 \$Ugg''cnuq<

I COG"VJ GQT[ 'CPF'VTCPUNCVKQP="RU| EJ QNKPI WKUVKEIEQI PKVKXG"CRRTQCEJ GU="VJ KPMCNQWF'RTQVQEQNU0"

## Hwt yj gt 't gcf kpi

Mtkpi u'3; : 8="Ngx '3; 89="N3/4 uej gt'3; ; 3="Vktmqpgp/Eqpf kv'3; ; 5="Y knuu'3; : : . '3; ; 80

Y QNHTCO "Y KNUU

# Flf cevleu'qh'vt cpurcvlqp

ncpi wci g"igctpkpi "y cu'uggp"o ckpn{ "cu'c"s wgurkqp"qh'o go qtk| kpi "y qtf u'cpf "i tco o cvkecntwrgu'hqt" wpf gturcpf kpi "cpf "r tqf wekpi "vgz vu."y kyj "dqyj "cevkxkkgu"r tqeggf kpi "htqo "o kpko cn'wpku"uwej "cu'r j qpguli tcr j u." o qtr j go gu."cpf "y qtf u'vq"yj g"ugpvgpeg"cu"cp"wr r gt"hko kolkp"qyj gt"y qtf u."ncpi wci g"igctpkpi "y cu."cdqxg"cm"c" s wgurkqp"qh'ces wktkpi "c"dqwqo /wr "umkmikp"ncpi wci g"tgegr vkqp"cpf "r tqf wevkqp0Eqpugs wgpvn{."vtcpurcvkpi "j cu" vtcf kkqpcm{ "dggp"vtgcvgf"cu"c"o cwgt"qh'ces wktkpi "c"dqwqo /wr "umkmikp"wpf gturcpf kpi "uqwteg"vgzv'hqto u"cpf "y gkt"eqpvgpv'cpf "vtcpuhqto kpi "y go "kp"c"o qtg"qt"nguu"hkpgct"ugs wgpeg"kpvq"hkpi wkurkecm{ "-gs wkxcngpvy'vcti gv'vgzv' hqto u="yj g"eqpvgpv'ku"eqpukf gtgf "yj g"kpxctkcdng"kp"yj ku"qr gtcvkqp"cpf "gs wkxcngpeg"ku"tqwi j n{ "gs wcvgf "y kyj "eq/ vgzvdqwpf "f kevkqpct{ "-o gcpkpi uy"kQ0o gcpkpi u"y j kej "ctg"uwr r qtvgf "d{ "yj g"ko o gf kcvg"vgz wcn'gpxktqpo gpv'kp" y j kej "c"hqto "ku"go dgf f gf +0'Vj g"wpf gtn{ kpi "r tguwr r qukkqp"ku"yj cv'yj g"uwthceg"uvt wewt g"qh'c"ygzv'o cpkhguvu"ku" o gcpkpi "c"hqto "ku"go dgf f gf +0'Vj g"wpf gtn{ kpi "r tguwr r qukkqp"ku"yj cv'yj g"uwthceg"uvt wewt g"qh'c"ygzv'o cpkhguvu"ku" o gcpkpi "c"cu"eqpvgpv+"cpf "yj cv'ko kcvkpi "yj ku'uwthceg"uvt wewt g"d{ "tcpur qukpi "kv'kpvq"i tco o cvkecm{ "eqttgev' vcti gv'hcpi wci g"wpku"i wctcpvggu"yj g"r tgugtxcvkqp"qh'eqpvgpv0

C'egtvckp''y gqtgvkecn'f kthkewn{.'pqpg''y g''rguu''ncti gn{'ki pqtgf 'kp''r tcevkeg.'ku''y cv'rcpi wci g''grgo gpvu'eqpuvkwwg'' cp''kpugr ctcdrg''wpk''qh'hqto ''cpf ''eqpvgpv0J qy ''y gp''ecp''tcpurcvkqp''dg''ecttkgf ''qw'y j gp''kv'ku''wr r qugf ''vq'' r tgugtxg''y g'o gcpkpi ''cpf ''ej cpi g''y g''hqto ''qh''uqwteg''yzv''grgo gpvuA'Nkpi wkuvke''y gqtkgu'qh''tcpurcvkqp''uqrxg''y g'' r tqdrgo ''d{ ''f ghlpkpi ''GS WKXCNGP EG''pqv'kp''ygto u''qh''cduvtcev'ugo cpvke'kf gpvkv{ ''dwv'kp''ygto u''qh'eqvgz wcm{ '' uwhkekgpv'uko krctkv{ ''qh'eqpvgpv'dgw ggp''uqwteg''cpf ''vcti gv'rcpi wci gu.''y kj ''gs wkxcrgpeg''qh'hqto cn'uvtwewtgu'' dgkpi ''r wtuwgf ''qpn{ ''cu'hct ''cu'kv'ku'hgcukdrg''vq'f q''uq0'Vj g''vcpurcvqtøu''cum'vj gp''gpf u'y kj ''y g''\*nkpi wkuvke+'' r tqf wevkqp''qh''c''cti gv'vgzv0'Vtcpurcvkqpcn'umkmiku''ces wktgf ''d{ ''gzgtekugu''dcugf ''qp''nkpi wkuvke''gs wkxcrgpeg''twrgu''qh'' y g'V{r g<'-\*xtcpurcvg'I gto cp''cf xgtdu''d{ ''c''Ur cpkuj 'hkpcn'xgtd- s wg''eqpuvtwevkqp''cpf ''xkeg''xgtuc''\*j qhlgpvvkej '' mqo o v'gt @gur gt q''s wg'xgpi c +60'Vj g'uco g'umkmiku''cwi j v'qxgt''cpf ''qxgt''ci ckp.''wr ''q''gki j v'vko gu''r gt''f kr nqo c'' eqwtugô c''r tcevkeg'uvkmihqmy gf ''kp''cv'rgcuv'uqo g'I gto cp''kpuvkwkqpu0

Uq"o wej "hqt"yj g"\tcf kkqpcn'crrtqcej "\q"\tcpurc\kqp"\gcej kpi 0Hqt"\j g"r cuv'47"{ gctu"qt"uq."Lwnc"J qn| /O @pw@k' \*eh03; ; 5+"cpf "qyj gtu"j cxg"dggp"grcdqtc\kpi "c"hwpe\kqpcn'crrtqcej "\q"\tcpurc\kqp"y j kej "j cu"j cf "f ktgev'cpf 'hct/ tgcej kpi "ko r nkec\kqpu"hqt"yj g"\gcej kpi "qh"\tcpurc\kqp0Ceeqtf kpi "\q"\j ku"crrtqcej ."c"\gzv\ku"rtqf wegf "hqt"ur gekhle" tgekr kgpvu"kp"c"ur gekhle"eqpvgzv'y kyj kp"cp"+cevkqp"htco gø"\*J cpf nvpi ut cj o gp+"y j kej "eqpukuvu"qh"c"pwo dgt "qh" kpvgtf gr gpf gpv'hcevqtu"uvej "cu"ukwcvkqp."eqo o wplecvkxg"\gzv'hnvpevkqp"\*VJ GQT[ "QH"+VTCPUNCVQTKCN" CEVKQP ø\="\under\unde

### Vj g'hwpevkqpcn'crrt qcej 'cpf 'vj g'f lf cevkeu'qh'vt cpurc kqp

Htqo "y g'r qlpv'qh'xlgy "qh'\tcpurc\lqp"\gcej lpi ."y g'eqpugs wgpegu'qh'y g'f gxgrqr o gpv'qh'y g'hwpe\lqpcn' crrtqcej "uggo "qdxlqwu0'Hktuv."xlgy gf "cu"cp"cev'qh'lpvgtewnwtcn'eqo o wplec\lqp"tcyj gt"y cp"c'unkm'lp" \tcpubgttlpi "o kplo cn'hpi wku\le "wpku"cetquu'repi wci g'dqwpf ctlgu."\tcpurc\lqp"eqwrf "pq"nqpi gt"dg'\cwi j vlrgctpv' qp"y g'dculu'qh'rhpi wku\le "gzgtekugu0'P q"qpg'f gplgu"y cv'rhpi wku\le "unkmu"ctg"pgeguuct { "cu"c"uvct\lpi "r qlpv\\*Y knu" 3; ; 4+."dw'hwpe\lqpcrkuvu"cti wg'y cv'y gug'unkmu"ctg"r ctv'qh'c"o qtg'dcule "ewnwtcn'eqo r gvgpeg'lp"j cpf rhpi "uqwteg" cpf "\cti gv'eqo o wplec\kxg'eqpvgzwu'\\*Y kwg'3; : 9c+0

Ugeqpf ."\'y g'hwpe\kqpcn'crrtqcej "\q'\tcpurc\kqp'cpf 'k\u'\gcej kpi 'ku'\gcej kpi 'ku'pq\'r gtegkxgf "cu'dgkpi 'dqwpf '\q'\ur gekhe" repi wci g'r cktu."q\'y gty kug'\'y g''f kf ce\keu'qh'\tcpurc\kqp''y qwf 'dgeqo g''s wkg''eqo r ngz 'y ky kp''y ku'htco gy qtn0'K'\unku' kp\tqf wegf ''cpf ''gzgo r nkh\gf ''d{ ''uvct\xpi ''htqo ''i gpgtcn'r tqegf wtgu''qh'\gz\'tgegr \kqp''cpf ''r tqf we\kqp''\lp''c''r t\o ct{ '' ewnwtg''cpf ''ku''rcpi wci g=''uwej ''r tqegf wtgu''\gpf ''\q''dg''crrn\gf ''\lp''c''uwdn\o kpcn'o cppgt''cpf ''j cxg'\q''dg''dtqwi j v'\q'' eqpue\kqwpguu'\lp''qtf gt'\hqt''\y gkt'\hwpe\kqpu'\q''dg''tgcn\k\ gf ''\xY kwg''3; : ; +0Ewnwtcn'eqo r g\gpeg''eqo r t\lugu''\y g'' y j qng''tcpi g''qh''gxgt{ f c{ ''}}

kpvytcevkqp"cu'v gm'cu'v (r gu''qh''ur gekhke"r tqhyguukqpcn'dgj cxkqwt''y k j ''y j k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g'hco krkct0'' k ej ''c''v tcpurcvqt'' j cu''v q''dgeqo g''c ev tcpurcvqt'' j cu''v q''c ev tcpurcvqt'' j cu''v q''v ev tcpurcvqt'' j cu''v ev tcpurcvqt'' ev tcpurcvqt'' j cu''v ev tcpurcvqt'' ev tcpurcvqt'' ev tcpurcvqt'' ev tcpurcvqt'' ev tcpurEwnwtcn'eqo r gvgpeg'ces wktgf 'cu'r ctv'qh'\tcpurcvqt'\tckpkpi 'o c{ 'gxgp'ngcf 'vq'c'pgy 'r tqhguukqp. 'vj g' -kpvgtewnwtcn'o cpci go gpv'cuukuvcpvø'qt"-eqpuwncpvø'hqt'kpuvcpeg0'Uvej "eqo r gvgpeg'ku'vcwi j vlrgctpv'qp''yi g''dcuku" qh'c''y gqtgwecn'o qfgn'uwrrqtvgf''d{'i gpgtcnktcdng''gzcorngu0'Ewnwtcn'cpf'nkpiwkuwke''eqorgvgpeg''kp''c''ugeqpfct{'' rcpi wci g'ctg'kpvtqf wegf 'chygt'c'egt vckp''d o g'rci 0Qyj gt 'ewnwt gu'cpf 'rcpi wci gu'o c{ 'dg'kpvtqf wegf 'cv'c'rcygt'' uvci g'uvkm0'Qpeg"yj g"yj gqtgvkecn'o qf gn'cpf "yj g'hwpevkqpcn'umkmu'cuuqekcvgf "y kij "kv"j cxg"dggp"ces wktgf. "yj g{ "ecp" gcukn( "dg"gzvgpf gf "vq"qvj gt"ewnwtgu"cpf "ncpi wci gu"\*c"eqo o qp"gzr gtkgpeg"hqt"c"tcpuncvqt+0"Vj ku"ku"hqmqy gf "d{" c'eqo r ctkuqp'qh'yi g'ukwcvkqpcn'cpf 'vgz wcn'hgcwtgu'qh'yi g'r tko ct { "cpf 'ugeqpf ct { "ewnwtgu'cpf 'ncpi wci gu='yi ku" v{rg'qh'eqorctkuqp'i qgu'hct'dg{qpf ''yjg'ogyjqfu'qh'eqpvtcuvkxg'hkpi wkuvkeu.'hqt'kv'ku'cnyc{u'godgffgf'kp'' ukwc wqpcn'eqpygz w'cpf 'ceeqo r cpkgf 'd { 'hwpe wqpcn'ur gekhlec wqpu' \*ugg'J qn/O @pw@k'3;; 5 'qp' ÷vgz v'f guki pø+0 Qpeg'\gzwcn'eqo r gvgpeg'j cu'dggp'ces wktgf 'hqt'c'pwo dgt'qh'\gzv'\{r gu'uwej "cu'dwukpguu'ngwgtu.'kpvtqf wekpi "c" i wguv.''y tkkpi 'tgrqtw.''cpf 'uq'qp'\*Y kwg'3; : 9d="Pqtf'3; : 9c.'3; ; 2.'3; ; 3+"cpf'uqwteg'cpf' 'vcti gv'\gzw'j cxg''dggp'' eqo r ctgf. "eqo r tgj gpukqp"cpf "r tqf wevkqp"gzgtekugu":htqo "qpg"ewnwtg"vq"cpqvj gtø'o c{ "hqmqy 0Vj ku"o c{ "dg" f qpg. "hqt"gzcorng."d{"ur gelh{kpi "c"\cumlkp"qpg"ewnwtg"cpf"rtqf wekpi "c"eqttgur qpf kpi "\gzv"kp"cpqyj gt0Vj g"cko" qh'uwej "gzgtekugu'ku'\q"gpcdrg'uwf gpvu'\q"ces wktg"c'\tcpurcvkqpcn'eqo r gvgpeg'\j cv'y qwrf "cmqy "\j go "\q" tgrtqfweg"c"\gzv'o gcpkpi "\Htgpej "ugpu<"Ugrgumqxkej "cpf" Ngfgtgt"3; : ; ="ugg" \N VGTRTGVKXG" CRRTQCEJ +:" hktuv'qtcm("cpf"'y gp"kp"y tkkpi. "cpf"hcvgt"ko r tqxg"'y g"r tqf wev'd ("o gcpu'qh'tgr gcvgf"cwgo r vu'cv'÷eqttgevkpi ø'kv0' Cv'y ku'r qkpv.''y g'xgt { ''ygto ''-xtcpurcykqpø'dgi kpu'vq'r qug'c'r u{ ej qrqi kecn'dcttkgt '\*Vqwt { ''3; : 2+"cpf ''o c { ''dg'' uwdukwwgf "d{ "nguu't guvt ke kxg"f guki pc kqpu'uwej "cu"÷vgej pkecn'y tkkpi ØVj g'ugs wgpeg'vj wu'i qgu'htqo "vgz v'f guki p" vq'kpvgtrtgvkpi "\*Fqro gwej gp+'vq'vtcpurcvkqp0'K'ku'ko rqtvcpv'vq'pqvg'vj cv."pqvy kij uvcpf kpi 'vj g'i tqy kpi 'kphnvgpeg'' qh'y g'hwpevkqpcn'crrtqcej."o quv'eqwtugu'cv'r tgugpv'uvkm'r tqeggf'kp''y g''qrrqukxg'f ktgevkqp0'Kv'ku''s wkxg''eqo o qp'' ht "c" tcpurc kqp" eqwtug "vq" uvct v"y kj "gzgtekugu "kp" y tkwgp "tcpurc kqp. "tcpuhqto kpi "vj g" uwthceg "uvt wewtg "qh" c" y tkwgp 'uqwteg' 'vgz v'cu'erqugn( 'cu'r quukdrg' kpvq'c'y tkwgp' vcti gv'rcpi wci g0'Vj ku'ku' vj gp'hqmqy gf 'd { 'qtcn' www.cn/htcpvke"ugctej "hqt"vj g"tki j v"y qtf "kpuvgcf"qh"vt { kpi "vq"i gv"vj g"i kuv"qh"vj g"vgzv"kp"qtf gt"vq"eqpxg{ "kxu"o gcpkpi " qt'tgcrk g'ku'hwpevkqp'hqt'c'f khlgtgpv'vcti gv'tgcf gtuj kr 0

Kô'ý g'hwpeklpcn'o qf gn'qh'vgcej kpi .''ý g'xctkqwu'eqo r qpgpw'qh'c'eqwtug'ctg'wwcm( "qhhgtgf "cu'o qf wgu." cmy kpi "gcej "uwf gpv'vq'ej qqug'j kulj gt'kf gcn'ugs wgpeg'cpf "r ceg0C'eqwtug'kp'c'ur gekcnk gf "uwdlgev'uwej "cu" geqpqo keu. "dwukpguu'o cpci go gpv'qt "rcy "ku'wwcm( "qhhgtgf "cv'ý g'uco g'vko g'cpf "r tqxkf gu'ý g'uwwf gpv'y ký "ý g" pgeguuct { "dcemi tqwpf "kphqto cvkqp"kp"cv'rgcuv'qpg'ur gekcnk gf "hkgrf "qh'mpqy rgf i g0Kp"cf f kkqpp"vq'uwdlgev' gzr gtvkug'cu'uwej .''ý g'uwwf gpv'ku'kpvtqf wegf "vq'ý g'ur gekhke "rcpi wci g'wugf "kp"ý g'tgrgxcpv'hkgrf 0'Vj g'kf gc'ku'ý cv' y j krg"cp"gpi kpggt "j cu'vq'mpqy "j qy "vq'dwkrf "c'dtkf i g."ý g'vtcpurcvqt"j cu'vq'mpqy "j qy "gpi kpggtu'vcmi'cdqww' dwkrf kpi "c'dtkf i g0Vy g'r tko ct { "cko "qh'ý g''qxgtcmi'vtcpurcvkqp"eqwtug'ku'vq'vgcej 'hwpevkqpcni'r tqdrgo "uqrxkpi "kp" wzv'tgegr vkqp"cpf "r tqf wevkqp0Vj g'vgcej gt'uwi i guvu'uvtcvgi kgu. "f kuewuugu'tguwwu'y ký "ý g'uwwf gpvu."cpf "qxgtuggu" dqý "kpf kxkf wcn'tgugctej "cpf "vgco /y qtm0Cpf "i kxgp"ý cv'pq"eqwtug'ecp"eqxgt"cm'ctgcu'qh'mpqy rgf i g''qt''cm' v{ r gu'qh'vgz v.''ygcej kpi "ku'i gpgtcm("dcugf "qp"ectghwm("ej qugp"gzco r rgu'htqo "v{ r kecn'r tqhguukqpcn'eqpyzvu." i gpgtcnk gf "vq"eqxgt"ý g'uwwf gpvuø'ej qugp'hkgrf u''co qpi "qý gtu0

Vj g'wnko cvg'cko "qh'c''tcpurcvkqp''cu''vcwi j v'y ky kp''y ku'htco gy qtm'ku''vq'hwhki'c'hwpevkqpcn''vcun0'Vj g''vcum'ku'' r tqxkf gf "d{"c'eqo o kunkqpgt "\*Cwhxtci i gdgt+0'Vj g''vcpurcvqt''ku''cuwo gf ''vq''dg''cp''gzr gtv'kp''kpvgtewnwtcn'' eqo o wpkecvkqp<'ulj g''cpcn{ugu''y g'eqo o kunkqpgtøu''cko u."gzr gevcvkqpu''cpf 'y qtmkpi "eqpf kxkqpu''\*P qtf ''3; ; 3+''cpf "cevu''c''ewnwtcn'eqpuwncpv0'Vj ku''v{r g''qh''kpvgtcevkqp''ku''uko wrcvgf ''kp''y g''ercuutqqo ''gpxktqpo gpv0

#### Vtclplpi 'iksgtct{ 'vtcpurcvqtu

Vj g'hwpevkqpcn'crrtqcej.'y j kej 'j cu'kphrwgpegf''y g'y c{ ''tcpurcvkqp''eqwtugu'j cxg''dggp''f guki pgf''

cpf 'twp'kp'xctkqwu'r ctw'qh'\j g'y qtrf.'y cu'hktw'f gxgrqr gf 'hqt'\gz w'uwej 'cu'wugt'\puntwevkqpu.''cf xgtvkukpi "rcorj rgw.''uekgpvkhe''ctvkergu'hqt''r tqhgwukqpcm'qt'hqt''re{o gp."cpf 'uq'qp0Ku'r tqr qpgpvu.'j qy gxgt.''ereko 'yj cv'k'' ku'xcrlf 'hqt''cm'uqtw'qh'vtcpurevkqpcn'cumu.''cpf 'yj gtghqtg'hqt''yj g'\tcpurevkqp'qh'hkgtct{''vgz w''vqq0Vj g'o qf gri' rtguwr qugu''yj cv'yj g'r tqf wevkqp'qh'hkgtcwtg'\*\p'yj g''ugpug'qh'dgngw'ngwtgut'ku'c'i qcn'qtkgpvgf 'cev'qh'' eqo o wplecvkqp'hkmg'cp{ 'qyi gt'\*J cttcu'3; 9: +0'Kt'uq.''yj g''tcpurevkqp'qh'c''hkgtct{''vgzv'y kn'ij cxg''c'ur gekhle'r wtr qug'' cpf 'yccej kpi 'hkgtct{''tcpurevkqp'qp''yj g''dcuku'qh'c''hwpevkqpcn'o qf griku'yj gtghqtg'r quukdrg0C''tcpurevkqp'qh'c'' rksgtct{''vgzv'f qgu'pqv'pgeguuctkn(''hqmqy .''rgv'cmpg''-cu''emqugn(''cu''r quukdrgo''yj g''unteeg''untwewtg'qh'yj g''uqwteg'' ygxv'\Umf gpwi'qh'hkgtct{''tcpurevkqp''g cxg''q'wpf gtwcpf''yj g''qtk kpcn'\gzv''crr tgekcyg''yj g''un{ rg'qh'yj g''uqwteg'' cwy qt."cpf ''rtqf weg'c'ygzv'yj cv'ecp'hwpevkqp'kp''yj g''cti gv'ewnwtg0Vq''cej kxg''yj ku''yj g{''j cxg''q''rgctp''cdqw''yj g'' uqwteg''cpf ''cti gv'ewnwtgu''cpf ''rcpi wci gu.''kpenwf kpi ''yz wcn'cpf ''hkgtct{''pqto u0} Vtcpurevkqp''etkkekwo .''y j kej ''ku''r ctvkewrtn(''korqtvcpv'kp''yj g''eqpvgzv'qh'hkgtct{''tcpurevkqp.''r tqeggf u'kp''yj ku'' oqf grilhtqo ''c'y knhpi pgwu''q'tgur gev'yj g''cti gv'r tqf wevkqp''cu''c''yzv'kp''ku''qy p''tki j v'\*y qri /O @w@k6\Umf gpwu'qh'' nkgtct{''tcpurevkqp''ctg''yj gtghqtg''tckpgf ''q'wcvg''yj g''cko u''qh''yj gk'' kpf kxkf wcn'vtcpurevkqpu''uq''y cv'c"etkke''qt''c'' vcti gv'tgekr kgpv''ecp''kni g''y gt'ndid{''tghgtgpeg''vq''ku''f geretgf''cko u\OV'y g''o qf gri'qh''tcpurevkqp''etkkekwo'' cf qr vgf''kp''y ku''gpyzv'eqpuknwi'qh'yi tgg''uyer u<

\*c+"cpcn(uku"qh"vj g"vcti gv"vgzv"kp"vgto u"qh"vj j gvj gt"qt"pqv"kv"hwrhkru"vj g"cko u"f genctgf "d{"vj g"vtcpuncvqt "d+"cpcn(uku"qh"vj g"kpvgpvkqp"qt"cko u"qh"vj g"uqwteg"vgzv."cu"hct"cu"vj gug"ctg"tgeqxgtcdng
\*e+"gxcnvcvkxg"eqo r ctkuqp"qh"vj g"vy q"vgzvu"d{"tghgtgpeg"vq"vj gkt"\*r quukdn("f khhgtgpv+"cko u"\*Co o cpp"3;; 2=" ugg"cnuq"TGXKGY KPI "CPF"ETKVKEKUO</u>+0

### Hwt vj gt 'kurwgu'kp'tt cpurc vkqp'tgcej kpi

Vj g'cdqxg'ku'c'xgt { "i gpgtcn'umgvej "qh'vj g'dcuke"grgo gpvu'vj cv'o ki j v'dg'hqwpf "kp'c''vtcpurcvkqp"eqwtug'qh'cp { " v{r g<'y tlwgp"pqp/nkgtct { "vtcpurcvkqp."hkgtct { "vtcpurcvkqp"cpf" qtcn'vtcpurcvkqp. "kpenwf kpi "eqphgtgpeg"kpygtr tgvkpi 0' F gwkrgf "f knewnukqpu'qh'ur gekhle"eqo r qpgpwu'qh'xctkqwu'v{r gu'qh'vtcpurcvkqp"eqwtugu'ecp'dg'hqwpf "kp'Co o cpp" cpf "Xgto ggt "3;; 2+"cpf "Htgkj qhh'\*3;; 5+0Qvj gt'knuwgu'y j kej "ctg'qhwgp"vj g'uwdlgev'qh'f gdcwg'kp'vj g'eqpvgzv'qh" vtckpkpi "tvcpurcvqtu'cpf "kpvgtr tgvgtu'kpenwf g-'vj g'dcrepeg'dgw ggp"vj gqt { "cpf "r tcevkecn'y qtm'kp"f guki pkpi "c" vtcpurcvkqp"eqwtug. "vj g"f khtgtgpeg'dgw ggp"vtcpurcvqt "cpf "kpvgtr tgvgt "vtckpkpi ."vj g'ngxgn'qh'ur gekcnk cvkqp"vj cv' uj qwf "dg'cko gf 'hqt'\*vj cv'ku'y j gvj gt "ur gekcnk gf 'hkgrf u'uj qwrf "dg'cwi j v'cu'cp"gpf "kp'vj go ugnxgu'qt'cu'c'o gcpu" qh'vgcej kpi "uwwf gpvu'j qy "vq'ces wktg'uwdlgev'gzr gtvkug'kp'i gpgtcn+"cpf" "y j gvj gt"vj qug'y j q'vgcej "vtcpurcvkqp" uj qwrf "y go ugnxgu'dg"r tqhguukqpcn'vtcpurcvqtu0'Vj gug'knuwgu'ctg'i kxgp"f khtgtgpv'go r j cugu'd { "f khtgtppv'uej qnctu0' J qy gxgt.'kv'ku'bck''q'uc { .'hqt''kpurcpeg."vj cv'vj g"o clqtkx{ "y qwrf "cti wg'hqt'c'i gpgtcnknv'tcy gt "y cp"c'ur gekcnku'' crr tqcej "vq"tckpkpi 01 kxgp"vj cv'r tqhguukqpcn'vtcpurcvqtu'cpf "kpvgtr tgvgtu'ctg"gzr gevgf "vq"f gcnly kyj "c'xctkgv{ "qh'' vgzv'v{ r gu'cpf "uwdlgevu."cpf "vj cv'o cp{ "qh'vj gug'ecppqv'dg"cpvkekr cvgf "dghqtg"i tcf wckqp. "c'tcpurcvkqp"eqwtug" ecp"qnn("r tqxkf g"vj g"uwf gpv'y kyj "c'i gpgtcn'igf wecvkqp"cpf "vj g"umhni'vq"ces wktg"pgy "uwdlgev'gzr gtvkug"cu'kvku" pggf gf 016/ku'cnuq'tgcuqpcdrg"vq'cti wg"vj cv'unhmu'qh'vj ku'v{ r g'ctg'dguv'cwi j v'd { "vj qug'y j q"j cxg'c'uwhhkekgpv'ngxgn' qh'r tqhguukqpcn'gzr gtkgpeg'cu'vtcpurcvqtu'qt "kpvgtr tgygtu0

Ugg"cnuq

CEVKQP "\*VJ GQT[ "QH"::VTCP UNCVQTKCN"CEVKQP Ø="UMQRQU"VJ GQT[ ="VTCP UNCVQT/VTCKP KP I "

KP UVKVWVKQP U0

#### Hwt yj gt 't gcf kpi

Co o cpp"cpf "Xgto ggt"3; ; 2="Htgkj qhh'3; ; 5="I qwcf ge."hqtyj eqo kpi ="J qn! /O @pw@k'3; : 6="Mktcn{ "3; ; 7="Mwuuo cwrl" 3; ; 7="P qtf "3; : 9d="R{o "3; ; 5="Xkgppg"3; ; 5."3; ; 6="Y kwg"3; : ; 0

J CP U'LOXGTO GGT

# F kt gevkqp'qh'tt cpurcvkqp'%f kt gevkqpcrkx{+

c'hqtgki p'repi wei g'kpvq''y gkt''o qy gt''qpi wg''qt''xkeg''xgtuc''OQy gt''eqo dkpcvkqpu''ctg'r quukdrg.''j qy gxgt0Hqt'' gzco r rg. 'kp'Ecverqpkc.''tcpurevqtu'y qtmlhtqo ''qpg''repi wei g''qh'j cdkwen'wug''kpvq''cpqyi gt.''kQo'Ecverep''vq''Ur cpkuj 1 Ur cpkuj ''vq''Ecverep0'Uqo g''tcpurevqtu''ennq''y qtmlhtqo ''qpg'hqtgki p''repi wei g''kpvq''cpqyi gt0 Kp''r qr wret ''dgrlgh ''hipi wkuvke''eqo r gvgpeg''ku''u{ o o gvtkecnt'y g''i gpgtcn'r wdnke''o cngu'pq''f kuvkpevkqp''dgwy ggp'' vtcpurevkpi ''htqo ''c'hqtgki p''repi wei g''kpvq''y g''o qyi gt''vqpi wg''cpf ''xkeg''xgtuc''cpf ''cuuwo gu''yi cv'c''tcpurevqt''y kni' j cxg''pq''f khhkewn{''tcpurevkpi ''kp''dqyi ''f ktgevkqpu0'Vj ku''dgrlgh'qhxpp''gzvgpf u'vq''go r rq{gtu0'Hqt''gzco r rg.'' ecpf kf cvgu''hqt''c''tcpurevkqp''r quv'y kyi ''Ur cpkuj ''vgrgxkukqp''\*VX4''Ucp''Ewi cv.''3; : ; +'y gtg''vguvgf ''qp''y gkt'' vtcpurevkqp''htqo ''Htgpej ''cpf ''Gpi rkuj ''kpvq''Ur cpkuj ''cpf ''Ecverep.''cu'y gml'cu'htqo ''Ur cpkuj ''cpf ''Ecverep''kpvq'' Htgpej ''cpf ''Gpi rkuj 0'Vj g''gzgewkxgu'kp''ej cti g'y gtg''pqv'cv'cm''cy ctg''qh''y g''r tqdrgo u''qh''vtcpurevkpi ''kpvq''c'' hqtgki p''repi wei g''cpf ''uko r r(''cuuwo gf ''yj cv'cp{qpg'y j q''÷mpqy uo'Ur cpkuj ''cpf ''Gpi rkuj ''uj qwrf ''dg''cdrg''vq'' vtcpurevg''kp''dqyj ''f ktgevkqpu0

Vtcpurcytu."qp"yi g"qyi gt"j cpf."mpqy "yi cv'rkpi wkuske"eqo r gwgpeg"ku'tctgn{"u{o o gytkecn"cpf "f kuewuskqp"ygpf u'vq" egpytg"qp"ytcpurcykqp"kpyq"yi g"o qyi gt"yqpi wg0ffp'hcev."Mgm{ "\*3; 9; <333+"o ckpyckpu"yi cv'ukpeg"Iqj cp"I qwrkgd" J gtf gt "\*3989+"yi g"cuuwo r vkqp"j cu'dggp"yi cv'ytcpurcykqp"cy c{ "htqo "qpgøu"qy p"repi wci g"y cu'pqv'y qtyi "f kuewuskpi ."gzegr v'vq"uxtguu"yi g"f khhewuskgu"kpxqrxgf 0. Hqt "gzco r rg. "Ncf o ktcn\*3; 9; <62672+"tgeqi pk gu" vtcpurcykqp"kpvq"yi g'hqtgki p"repi wci g"qpn{"cu"c"r gf ci qi kecn"gzgtekug"yq"yguv'r gthqto cpeg"kp"yi cv'repi wci g=htqo "c"r tqhguukqpcn'r qkpv'qh'xkgy ."j g"eqpukf gtu'kv'cp"cduwtf "tgs wktgo gpv'cpf"c"j qr grguu'ycun0. Uko krctn{."P gy o ctm' \*3; :: <5+"dgrkgxgu'yi cv'÷Vtcpurcypi "kpvq"{qwt"repi wci g"qh"j cdkwcn'yug"ku'yi g"qpn{"y c{"{qw'ecp"ytcpurcyg" pcwtcm{"cpf"y kyi"o czko wo "ghlyeyxgpguux0}

Vj ku''qr kpkqp''ku''uq''y kf gn{ 'j gnf 'kp''Gwtqr g''y cv''y g''wpo ctmgf 'f ktgevkqp''qh''tcpurcvkqp''ku''kpvq''y g'o qyi gt''vqpi wg." cpf ''y ku'ku''y g'f ktgevkqp''tcpurcvqtu''ctg''gzr gevgf ''vq''y qtm'kpvq''d{ ''y g'kpvgtpcvkqpcn'qti cpk cvkqpu0Vj ku'ku'o cf g'' gzr nkeki'kp''WP GUE Qøu''3; 98''T geqo o gpf cvkqpu''qp''y g''ngi cn'rt qvgevkqp''qh''t cpurcvqt u'cpf ''vt cpurcvkqpu''cpf ''y g'' rt cevkecn'o gcpu''vq'ko rt qxg''y g''ucwu''qh''vt cpurcvqt u<':C''vtcpurcvqt''uj qwrf. "cu'hct''cu'r quukdrg. "vtcpurcvg'kpvq''j ku." qt''j gt."o qyi gt''vqpi wg''qt''kpvq''c''ncpi wci g''qh'y j kej ''j g''qt''uj g''j cu''c'o cuvgt { ''gs wcn'vq''y cv'qh''j ku''qt''j gt''o qyi gt'' vqpi wg'\*Rkengp''3; :; 467+0

Vj g'cuwo r vlap ''y cv'f ktgev'tcpurcvlap 'ku''y g''apn{ ''xkcdng''r tahguuklapen'ar vlap 'ku''r ctvkewetn{ 'f qo kpepv'kp''Gpi nkuj / ur genkpi ''eqwpvtkgu<'-y g''eapxgpvlap 'kp''y g''WM'ku''y cv'vtepurcvlap 'ku''wpf gtvengp'kpvq''y grepi wei g''aph'j cdkwen'wug'' '\*y g''y g''y g''y g''tcy gt''wpucvkulreevat { ''apg'ŏo qvj gt''appi wgö+ø'\*Mgksj ''3; : ; <386+0'V j g'' dgrkgh'ku''tghrgevgf 'kp''y g''r teevkeg''qh''r tahguuklapen'ati epk cvkapu0'Hqt''gzco r ng. ''V j g''kpurkwwg''qh''Nkpi wkuwø'\*KqN+'' F kr nqo c''kp''Vtepurcvlap ''qnn{ ''y gwu''vtepurcvlap ''kpvq''y g''eepf kf cvgøu''o qvj gt''appi wg''qt''nepi wei g''qh'j cdkwen'wug0 Vj g''wpo etngf ''wug''qh''-xtepurcvlap b''q''o gep''-xtepurcvlap ''kpvq''y g''o qvj gt''appi wgø'ku''uq''eqo o ap''kp''Gpi nkuj ''y cv'' vj gtg''ku''pq''y gt''ur gekhke''ygto .''epf ''y gtg''ku''pq''ei tggo gpv'cu''aq''y g''ygto kpami { ''hat''tepurcvlap ''kpvq''y g''hatgki p'' nepi wei g0'V j g''tef kklapen''ygto ''r**t qug''t epurcvlap**''j cu'hengp''kpvq''f kuwug''epf ''ku''cuuqekevgf ''y kyj ''y g''eeef go ke'' gzgtekug''qh''o enkpi ''uej qqn''ej knf tgp''tepurcvg''kpvq''Ncvkp''qt''I tggn0'Qvj gt''ygto u''etg''hpxgt ug''t epurcvlap ''epf''

kp''Htgpej.'r tqug''\tcpurc\kqp'ku''\yj ³o g''cpf 'ku''cnuq''cuuqekc\yf ''y kyj ''y g''cecf go ke''gzgtekug0'C''r ct\ke\wrctn{''i khyf'' uwf gpv''wugf ''\q''dg''ecmgf ''\texp''2 n³ xg''hqt\''gp''y go gø''dgec\wg''y ³o g''y cu''eqpukf gtgf ''o wej ''o qtg''f khhke\wr''y cp'' xgt ukqp.''y j kej 'ku''\tcpurc\kqp''kp\q''y g''o qyj gt''\qpi wg0'Dqyj ''\yto u''ctg''u\km''eqo o qpn{''wugf ''d{ ''r tqhguulqpcn'' \tcpurc\qtu0T wulkcp.''I gto cp''cpf ''Lcr cpgug''j cxg''pq''ur gekhke''\yto kpqmi { 'hqt''f ktge\kqpcnk\{ .''y j gtgcu''kp''Ur cpkuj .'' \kcnkcp.''Rqt\wi wgug.''Ctcdke''cpf ''Ej kpgug''f ktge\kqpcnk\{ ''ku''f guetkdgf ''kp'\yto u''qh''c'\tcpurc\kqp''dgkpi ''f ktge\vqt'' \kp\xqt ug0'T gegp\vn{ .''y ku''yto kpqmi { ''j cu''cnuq''dggp''wugf ''kp''Gpi nkuj .''y qwi j ''P gy o ctm'\\*3; :: ∅4+''uwi i guvu''y g'' \yto ''\text{-uytxkeg''\tcpurc\kqp\shq''hqt''\text{-tcpurc\kqp''htqo ''qpg\shu''repi wci g''qh''j cdk\wcn'\wug''kpvq''cpqyj gt''repi wci g\shu

#### J kwqt kechdcemi t qwpf

Cv'y g'dgi kppkpi 'qh'y g'Ej tkukcp'gtc.'f ktgevkqpcrkv{ 'y cu'pqv'cp'kuuwg'kp'Gwtqr g'ukpeg'o quv'tcpurcvkqpu'y gtg'' kpvq'Ncvkp.'y g'ncpi wci g'qh'qhhkekcnf qo .'tgrki kqp'cpf 'ngctpkpi '\*ugg'<u>NCVKP'VTCF KVKQP</u>+0KV'y cu'qpn{ 'y ky 'y g'' tkug'qh'y g''

pcvkqp'uvcvgu.''y g'Tghqto cvkqp''cpf ''y g'f gxgrqr o gpv'qh''y g'xgtpcewrctu''y cv'y g'kf gc''qh''y g'uwr gtkqtkv{ ''qh'f ktgev'' vtcpurcvkqp''cr r gctgf 0

Vj g'hktuv'Ej tkuvkep'vtepurevqtu'kpvq'Nevkp'y gtg'r tqdedn('I tggm'epf 'gxgp'Nevkp'ur gengtu'rkng'Uv'J kret { ''qt''Uv'' IGTQO G'\*ugg''NeVkp''eu'vj gkt''o qvj gt'vqpi wg0'Kp''uqo g'eeugu.''kv'ku'pqv'mpqy p'' y j gvj gt'vj g''qtki kpen'vgzv'y eu''Nevkp''qt'I tggm'\*Mgm('3; 9; <32; +0

Kp'Ej kpc.'kp''y g'ugeqpf 'egpwt{'CF.''y g'hktuv'\tcpurc\kqpu'qh'y g'Dwffjkuv'ucetgf '\gz\u'htqo ''Ucpumtkv'\q'Ej kpgug'' y gtg''d{'hqtgki p'o kuukqpctkgu.''qh'y j qo 'Cp''Uj kj/mcq.''c'Rctyj kcp.''cpf 'Ej kj/mw'ej kc/ej \picp.''c''Ue{\yj kcp.''y gtg'\yj g'' o quv'ko r qt\cpv'\piP kgpj cwugt''3; : 8+0

Kp"y g"hy grhy "cpf "y kt vggpy "egpwtkgu." tcpurcvqtu"qh"y g"Vqrgf q"Uej qqrl\*'ugg" URCP KUJ "VTCF KVKQP +"o cf g" y g"rgctpkpi "qh"y g"Gcuv"cxckredrg"vq"y g"Y guv"d { "kpxgtug" tcpurcvkqpu"qh"Ctcdke "cpf "J gdtgy "vgzvu." kphrwgpegf "d { "I tggm"U { tkce. "Rgtukcp"cpf "Kpf kcp"uej qrctu0O quv"qh"y gug" tcpurcvkqpu"y gtg"f qpg"d { "r cktu"qt" vgco u"qh" tcpurcvqtu." y j kej "kperwf gf "O wurko "qt" Lgy kuj "eqpxgtvu." cpf "y g"vgzvu"y gtg" tcpurcvgf "hktuv"kpvq"qpg"qh"y g" xgtpcewrct "rcpi wci gu"cpf "y gp"kpvq" Ncvkp" Xgtpgv"3; 9: +0

Vj g'gctn{'I wo cpkmu'\tcpurcvgf 'cy c{'htqo 'vj g'o qvj gt'\qpi wg'cu'c'o cwgt'qh'eqwtug0kp'j ku'etkkekno 'qh'vj g''
O gf kgxcn'\tcpurcvkqpu'qh'Ctkmqvrg'kp'F g'kpvgtrt gvcvkqpg't gevc'\*3642+:"Dtwpq'Ctgvkpq'kpukmgf 'vj cv'c'\tcpurcvqt''
uj qwrf 'j cxg'o cuvgt { 'qh'dqvj 'uqwteg'cpf 'vcti gv'rcpi wci gu. 'cnvj qwi j 'pgkvj gt'I tggm'pqt'Ncvkp'y gtg'j ku'o qvj gt''
vqpi wg'\*Mgm{ '3; 9; ≪32+0

Oct lp''NWJ GT'\*36: 563768+"\*ugg'<u>I GTO CP "VTCF KVQP</u>+'y cu'r gtj cr u'y g'htuv'q'cuuwo g'y cv'y g'dguv' tcpurckqpu'y gtg'cny c{u'lpvq''y g'o qy gt''qpi wg'\*Uej y ct| '3; 853: +"cpf 'htqo ''y g'ukzvggpy 'egpwt{ "qp. 'lpvgtug" tcpurckqp''dgi cp''vq''dg''tgi ctf gf ''qpn{ "cu''c'r gf ci qi kecn'gzgtekug''d{ "vtcpurckqp''y gqtknv0J qy gxgt.''y gtg'y gtg" korqtvpv'gzegr klqpu'lp'uelgpeg. 'tgrki klqp''cpf ''ksgtcwtg0'Uelgpvkhe''tgcvkugu''eqpvlpwgf ''vq''dg''tcpurcyf ''lpvq''Ncvlp'' wpkn'y g''gpf ''qh'y g''gki j vggpy ''egpwt{."cpf "Vj g'Y gcnj "qh!Pcvkqpu''d{ 'Cf co 'Uoky | \*39456; 2+'y cu'r tqdcdn{ "y g'hkuvlor qtvcpv'y qtm'pqv'vq''dg''tcpurcyf ''lpvq''Ncvlp0'Vj g''3962''tcpurcylp''qh'y g''Gcuvgtp''Hcyi gtu''d{ ''y g'' Dgpgf kelppu'y cu'tgr tlpvgf ''kp''y g''pkpgvggpy ''egpwt{''d{ ''y g'' Cdd²''Oki pg'\*Mgm("3; 9; 333+"cpf ''gxgp''kp''y g'' y gpkgy ''egpwt{ ''Ncvlp''eqpvkpwgf ''q''dg''y g''rqi cp''Cdd²''Oki pg'\*Mgm("3; 9; 333+"cpf ''gxgp''kp''y g'' y gpkgyj ''egpwt{ ''Ncvlp''eqpvkpwgf ''q''dg''y g''rqi cy'y tkkpi ''kp''y g''xgtpcewrctu'y cu'rkng'y tkkpi ''kp''ucpf.'' y j gtgcu'y tkkpi ''kp''w cy'y tkkpi ''kp''y g''xgtpcewrctu'y cu'rkng'y tkkpi ''kp''ucpf.'' y j gtgcu'y tkkpi ''kp''Ncvlp''qt''y cy'y tkkpi ''kp''y g''xgtpcewrctu'y cu'rkng'y tkkpi ''kp''ucpf.'' y gtg''eqpuvcpvn{ ''ej cpi kpi ''cpf ''j cf ''c'hlo kyf''pwo dgt''qh'tgcf gtu.''uqo g'y qtmu'y gtg''tcpurcyf ''kpvq''Ncvlp''qt''gcej '' c'y kf gt''cwf kgpeg0'Hqt''gzco r rg.'Oknqpøu''Rcctcf kug''Nquv'y cu'vtcpurcyf ''kpvq''Ncvlp''d{ ''Vj qo cu''Rqy gt'\*38; 3+'kp'' qtf gt''qt'gxgcn'Oknqp''q''y g'y qtnf ''cu'c'i tgcv'r qgv0

#### Vj g'ty gpvlgvj 'egpvvt {

Kp"y g"w gpvkgyj "egpwt { ."Gpi nkuj "j cu"eqo g"vq"qeewr { "y g"r nceg"qh"Ncvkp"cu"cp"kpvgtpcvkqpcn'ncpi wci g."pqv'qpn{ " kp"Gwtqr g"dw"y qtnf y kf g0Gpi nkuj "ku"y g"ncpi wci g"qh"kpvgtpcvkqpcn'vtcf g."o wnkpcvkqpcn'eqo r cpkgu. "uekgpeg." vgej pqnqi { "cpf "y g"o cuu"o gf kc."cpf "dqqmu."o ci c| kpgu."tcf kq."vgngxkukqp"cpf "hkno u"kp"Gpi nkuj "ctg"cxckrcdng"kp" o quv"r ctvu"qh"y g"y qtnf 0'Gpi nkuj "ku"r tqdcdn{ "y g"o quv"y kf gn{ "vcwi j v"hqtgki p"ncpi wci g."cpf "o cp{ "ngctpgtu"tgcej " j ki j "ngxgnu"qh"r tqhkekgpe{0'Rctvn{ "cu"c"tguwnv"qh"y ku"ur tgcf ."y g"pwo dgt"qh"vtcpuncvkqpu"kpvq"Gpi nkuj "hct"qwy gki j " y qug"kpvq"cp{ "qy gt "ncpi wci g="cpf" dgecwug"y gtg"ctg"pqv"gpqwi j "vtcpuncvqtu"y ky "Gpi nkuj "cu"y gkt"o qy gt" vqpi wg"kp"y g"tki j v"r nceg"cv"y g"tki j v"ko g."o cp{ "qh"y gug"vtcpuncvkqpu"ctg"kpxgtug0

C'uwtxg{"qh'tcpurcvqtu'wpf gtvcngp"d{"*Ncpi wci g'O qpvj n*("\*I tkpf tqf "3; : 8+"eqphkto gf 'vj cv'kv'ku'pqv'wpwuvcn'hqt" vtcpurcvqtu'vq''tcpurcvg'kpvq'qpg"qt'wy q'rcpi wci gu'qvj gt'vj cp'vj g'o qvj gt'vqpi wg="kp'hcev'uqo g''tcpurcvg'kpvq'hkxg" qt'ukz''qvj gt'rcpi wci gu0'J qy gxgt."vj g'r gtegpvci g"qh''÷r wtknvvø'y j q"qpn{"tcpurcvgf "kpvq'vj gkt"o qvj gt''qpi wg''y cu'' o wej "j ki j gt'kp'Dtkckp'\*: 6'r gt''egpv+''vj cp'kp''vj g''qvj gt''Gwtqr gcp''eqwpvtkgu''eqxgtgf "d{"vj g'uwtxg{0'Kp'I gto cp{'kv''y cu''qpn{''57''r gt''egpv0'}}

O eCrkuyt "\3; ; 4+"gzr rckpu" y cv"kp"Hkprcpf "y g"xqnwo g"qh" \tcpurc\kqpu"kp\q"Gpi rkuj "ku"\qq"i tgcv"hqt" y g"pwo dgt"qh" Gpi rkuj "\tcpurc\qtu"cxckrcdrg0J g"s wqvgu"Dgvengøu"\\3; : 9+"uwtxg{ "qh"kpxgtug"\tcpurc\qty" \tcpurc\qty" Hkprcpf ."y j kej "y cu" dcugf "qp"c"s wguvkqppcktg" \ugpv'qw"\q"\tcpurc\qty" cj gpekgu0Ceeqtf kpi "\q"y ku"uwtxg{ ."dgw ggp"8; \textit{0}"r gt"egpv'cpf" ; 3\textit{0}"r gt"egpv'qh"\y g"3: "\yzv"

 $v\{rgu'kp''jg''s wguwkqppcktg''ygtg''tcpurcvgf''qt''eqorqugf''f ktgevn\{''kpvq''hqtgkip''hcpi wcigu0Qpn\{'8''rgt''egpv'qh''jg''ogodgtu''qh''jg'''hqtgkip''hqt$ 

Fktgevkqpcrkv( 'ku'chhgevgf''d{ ''y g''eqpvgzv'kp'y j kej ''tcpurcvkqp''cngu'r negz'nepi wci g''eqo dkpcvkqpu. 'y g'' czckredktv( ''qh''tcpurcvqtu'y kj ''y qug''nepi wci g''eqo dkpcvkqpu. 'uwdlgev'ur gekcrkuvu. ''yzv'v( r gu. 'f gef rkpgu''cpf'' fkhgtgpv'nkpf u'qh'kpuxkwxkqpcn'eqpvtqnu0Ki'y g''uqwteg''repi wci g''cpf''y g''cti gv'repi wci g''ctg'kp''enqug''eqpvcev'' \*i gqi tcr j kecn ''eqo o gtekcn'cpf ''ewnwtcn'r tqzko kv( +'y gtg'y km'dg''o qtg''vtcpurcvqtu''cxckredng. ''cpf ''kv'y km'dg''gcukgt'' vq''hkpf ''qpg''q''vtcpurcvg''kpvq''y g''o qy gt''vqpi wg0'Vj ku'ku''y g''ecug'y ky ''Htgpej ''cpf ''Gpi rkuj 0Htgpej ''ku'y g''ktuv'' hqtgki p''repi wci g''kp'Gpi rkuj ''ku''gpi wg0'Vj ku'ku''y g''ecug'y ky ''Htgpej ''cpf ''Gpi rkuj 0Htgpej ''ku'y g''httuv'' hqtgki p''repi wci g''kp'Gpi rkuj ''ku''kp''Htgpej ''uej qqnu. ''cpf ''y gtg''ctg''Htgpej ''pcvkxg''ur gcngt'' vtcpurcvqtu''kp''y g''kg''xgtuc0Y j gp''uwej ''r tqzko kv( ''dgwy ggp''uqwteg''cpf ''cti gv'repi wci gu'' f qgu'pqv'gzkuv. ''qt''qpn (''gzkuvu''kp''qpg''f ktgevkqp''\*Gpi rkuj ''ku''cwi j v'kp''Hkppkuj ''uej qqnu''dw''pqv'xkeg''xgtuc+''kv'y km'' dg''j ctf gt''vq''hkpf ''tcpurcvqtu''vq''tcpurcvg''kpvq''y g''o qy gt''vqpi wg0Hqt''gzco r rg. ''kp''Ur ckp. ''o quv''tcpurcvkqpu''htqo ''
Ej kpgug. ''Lcr cpgug''cpf ''Ctcdke''kpvq''Ur cpkuj ''ctg''kpxgtug''tcpurcvkqpu. ''cnj qwi j ''y g''cti gv''yzv'ku''qhrgp''tgxkugf ''d{'' c'Ur cpkuj ''pcvkxg''ur gcngt0'O quv'Ej kpgug''q'Gpi rkuj ''tcpurcvkqpu''kp'Ej kpc''\*i wkf g''dqqnu. ''dwukpguu'' eqttgur qpf gpeg. ''kputwevkqp''o cpwcnu ''geo+''ctg''kpxgtug''tcpurcvkqpu''y j kej ''ctg''tgxkugf ''d{''cp''Gpi rkuj ''pcvkxg'' ur gcngt0

Qhygp. "\tcpurcvkqpu"qh"pqp/Gwtqrgcp"uqwteg"\gzwi"ctg"kpvgtogfkcvg"\tcpurcvkqpu0Vjku"ku"uq"kp"\jg"ecug"qh"Urcpkuj" vtcpurcvkqpu'qh'vj g'Ej kpgug'cpf 'Icr cpgug'ercuukeu0Tcf kq'Ecktq''dtqcf ecuvu'kp''Ur cpkuj 'htqo '4''vq'7'c0o 0'cpf 'vj g'' uetkr vu'o c{ "dg'\tcpurcvgf 'htqo 'Ctcdke"\q'Htgpej "cpf "\y gp'htqo 'Htgpej 'kpvq'Ur cpkuj 0 O eCrkuygt "cti wgu" yi cv" yi g"o clqtkx{ "qh" kpxgtug" \tcpurc \kqpu" \htqo "Hkppkuj "\q" Gpi rkuj "ctg" \gz \u' \hqt" \kpygtpc \kqpcn" eqpuwo r klap. 'y j gtg' 'j g'cti wo gpv' j cv' j g' tcpurc vqt 'j cu' 'vq' j cxg' pc klxg' ur gcngt 'eqo r gvgpeg' kp' j g' 'cti gv' ncpi wci g'cpf "ewnwtg"nqugu'uki pkhecpeg0'Hopkuj "\qwtkuv'dtqej wtgu'kp'Gpi rkuj "ctg'pqv'qpn( 'kpvgpf gf 'hqt'Gpi rkuj " pcvkxg"ur gengtu. "dwv"hqt "Kenkepu. "F wej "epf "Ier epgug"xkukqtu"eu"y gm0 Kpxgtug"vtepunevqtu "eep"vtepunevg"vj ku 'mkpf" qh'\gzv'eqorgvgvn{.'Kg0":xtcpuok'vjg'kpvgpfgf"oguucig'kp'c'ncpiwcig'yjkej'ku'engct'cpf'uwhhkekgpvn{'eqttgev' pqv'vq'eqpvckp'wpkpvgpf gf 'eqo ke'ghhgev'qt''vq''uvtckp''vj g'tgcf gtøu'r cvkgpeg''wpf wn{ø'\*O eCrkuvgt'3; ; 4∢; 9+0 I kxgp"ceeguu'\q'uwhhekgpv'f qewo gpvcvkqp. "eqpuekgpvkqwu'kpxgtug"\tcpurcvqtu'ecp"rtqf weg'eqo r gvgpv'vtcpurcvkqpu" qh'y g'uncpf ctf kt gf "f kueqwtug'hkgnf u'y j kej "ctg"eqo o qp'kp"dwukpguu. 'uekgpeg. "vgej pqnqi { "cpf "r wdnke" cf o kpkwtcvkqp0kp"Dctegrqpc." o quv'qh'y g"utcf wevqt gu'lwtcf qu'\*qhhkekcn'tcpurcvqtu'y j q'j cxg'r cuugf "c'uvcvg" gzco + "qhhgt" o wnk/f ktgevkqpcn 'tcpurcvkqpu '\* hqt "gzco r ng 'htqo "Kicnkcp." Tqo cpkcp. "Ur cpkuj "qt 'Ecvcrep 'kpvq 'Kicnkcp." Tqo cpkcp. "Ur cpkıj "qt" Ecvcrcp+0"Vj g"mkpf u"qh" \gzvu' \j g{ "\tcpurcvg" kpenxf g" \j qug" tgrcvgf "\q'hqtgki p" \tcf g < gzr qt v" f qewo gpw. "dwukpguu" ngwgtu. "dwukpguu" tgr qtw. "ceeqwpw. "dkm. "dcpmkpi" "cpf" kpuwtcpeg" eqttgur qpf gpeg="vgzw" tgrcvgf "vq"r wdrke"cf o kpkuvtcvkqp</dktyj ."pcvkqpcrkv{ ."o cttkci g"cpf "f gcyj "egtvkhkecvgu."cecf go ke"cpf "r tqhguukqpcri" f kr nqo cu. "uqekcn'ugewtkv{ "f qewo gpvu."vcz "t gwxtpu. "gve0"Vgej pkecn'cpf "uekgpvkhke "vtcpuncvkqpu"ctg"cnuq "qhvgp" kpxgtug'\tcpurc\kqpu<":-Kp''ur gekcrkugf 'hkgrf u'kk'o ki j v'cnuq''dg'hqwpf ''vj cv'kv'y cu''o qtg''uwkxcdrg''vq''wug''c''uwdlgev'' ur gelcrkuv'y kj "mpqy ngf i g"qh'yj g"uqwteg"ncpi wci g"yj cp"c"o qyj gt"vqpi wg"vtcpuncvqt. "gur gelcm( "kh'yj g"vgzv'ku" uwdugs wgpvn( "vq"dg"gf kvgf  $\phi$ "\*Upgm"cpf "Etco r vqp"3; : ; < 7+0

Vtcpurcvqtu'o c{"dg'tgs wktgf "vq'fq"kpxgtug'qtcn'vtcpurcvkqpu<eqpvcev'y ky "enkgpvu."r wdrke'tgrcvkqpu."eqpxgtucvkqp" kpvgtr tgvkpi "cpf "pqpkpvgpukxg'eqphgtgpeg'kpvgtr tgvkpi ."gve0"y j gtg''nguu'vj cp''r gthgev'r tqpwpekcvkqp"cpf "u{ pvcz" ctg''ceegr vcdrg''kh'vj g{ "fq"pqv'kpvgthgtg"y ky "vj g'eqo o wpkecvkxg''ukwcvkqp0'Rqnkeg''cpf "eqwtv'vtcpurcvqtu'j cxg''vq" y qtm'kp''dqvj "fktgevkqpu0'Rqnkeg''uvcvkqpu'kp''r qr wrct''vqwtkuv'tguqtvu'qp''vj g'Equvc''Dtcxc''wuwcm("eqpvtcev'c" vtcpurcvqt''hqt''vj g''j ki j "ugcuqp0'Ki'c''vtcpurcvqt''j cu''dggp''eqpvtcevgf 'hqt''Gpi rkuj ''cpf''I gto cp''vj ku''vtcpurcvqt''ku'' gzr gevgf ''vq''uqnxg''vj g'fckn("eqo o wpkecvkqp''r tqdrgo u'kpxqnxkpi "vqwtknvu."y j kej ''kpenwf gu''

y qtmkpi "cu"c" \tcpurc \qt"cpf "eqpxgtuc \kqp" \kp\vgtr tg\vgt" \kp\vdqy | "f ktge \kqpu0 Ngi kurc \kqp" y kyj "tgi ctf "\q" eqwt \v" kpygtr tgygtu'ku'pqv'cv'cm'ergct'kp''o cp{'eqwpytkgu.''dww'gxgp'kp''yj g''Wpkgf''Uvcygu'cpf'Ecpcfc.''y j gtg''yj g'eqpytqnu'' ctg"o qtg"tki kf."'y g"eqwtv"kpvgtrtgvgt"ku"gzrgevgf"vq"fq"dqyj"fktgev"cpf"kpxgtug"kpvgtrtgvkpi0 Vj qug'y j q'uxtguu'y g'ko r qt vcpeg'qh'pc vkxg'ur gcngt "eqo r gvgpeg'kp'y g'ewnwtg"cpf "ncpi wci g'qh'y g'vcti gv'vgzv' qhygp"f q"pqv"cwcej "gpqwi j "ko r qt vcpeg" \q" wpf gtuvcpf kpi "\j g"ewnwtg" cpf "ncpi wci g"qh" \j g"uqwteg" \gz v." r ct whew ctn( 'y j gp'f kueqwtug'r cwgtpu'f khhgt 'i tgc vn( 'htqo 'qpg'ewn wtg'vq'cpq y gt 0'V j ku'o c { 'hgcf 'vq'ugt kq wu' kpygtpcykqpcn'etkugu. "cu'j crrgpgf "dgw ggp" y g"Cogtkecpu" cpf "y g"Icrcpgug" fwtkpi "Y qtnf "Y ct" Vy q"cpf" dgw ggp''y g'Co gtlecpu'cpf 'y g'Kcsku'dghqtg''y g'I wh'Y ct0Vgco ''tcpurckpi .'y j gtg''qpg''o go dgt''qh''y g''yco " ku'cp'kpxgtug'tcpurcvqt'cpf'qpg'c'fktgev'tcpurcvqt."oc{"dg'cfxkucdrg'hqt"uvej 'ukwcvkqpu0 Fktgevkqpcrkx{"oc{"dg"fgvgtokpgf"d{"yjg"uvcwu'qh"c"hcpi wcig."yjg"xqnwog"qh"vtcpurcvkqpu"kpvq"kv."yjg"cxckrcdkrkx{" qh'tcpurcyqtu'y ky 'ur gelthe'rcpi wci g'eqo dkpcykqpu'cpf 'vj g'ko r qtvcpeg'qh'c'tcpurcykqp0J qy gxgt.'kpuvkywkqpcn' eqpvtqnu'ecp'dg'f gekukxg0Cu'cntgcf { 'o gpvkqpgf.'uqo g'kpvgtpcvkqpcn'qti cpk cvkqpu'tgs vktg'vtcpurcvqtu'vq'y qtm' vqy ctf u'y gkt "o qy gt "vqpi wg. "cpf "kp"uqo g"eqwpvtkgu"f ktgevkqpcrkx{ "ku'f gvgto kpgf "d{ "pqto u'f guki pgf "vq"cuuwtg" yj g'r qrkkecn'eqttgevpguu'qh'yj g'\tcpurcvqt0'Kp''U{tkc''cpf'Pqtyj''Mqtgc.''hqt''gzcorg.''yj g''qhhkekcn'\tcpurcvqtu'hqt'' Ur cpkuj "rcpi wci g"dtqcf ecuwu"j cxg"vq"dg"ekxkrlugtxcpvu"cpf."vj gtghqtg."kpxgtug"vtcpurcvqtu0"Vj g"dtqcf ecuvgtu"ctg" Ncvkp'Co gtkecp. 'dw'y g{ 'ctg'pqv'cmqy gf 'vq'tgxkug'y g'uetkr v'dghqtg'i qkpi 'qp'y g'ckt0 Vtcpurcvqtu'tctgn{ ''y qtm'lkp'lkf gcn'eqpf kxkqpu''cpf .''kp''pqp/Gpi rkuj ''ur gcmkpi ''eqwpvtkgu.''ctg''qhvgp'tgs wktgf ''vq''f q'' kpxgtug'\tcpurc\kqpu0'Vtcpurc\kqp'\j gqtkuvu'y qwrf 'f q'y gm'\q'tgeqi pk g'\j ku'hcev'cpf 'dvkrf 'wr 'c'dqf { 'qh' f qewo gpvcvkqp"y j kej "y qwrf "j grr "vj g"kpxgtug"vtcpurcvqt. "kpenwf kpi . 'hqt"gzco r ng. "gncdqtcvkqpu. "o cf g"y kj " vtcpurcvkqp'kp'o kpf. 'qh'f guetkr vkqpu'qh'vgzv'v{r gu'cpf 'f kueqwtug'hkgnf u'kp'f khhgtgpv'rcpi wci gu'cpf 'f khhgtgpv' ewnwtgu0'Vtcpurcvqt"\tckpggu'uj qwrf 'dg'o cf g'cy ctg'qh'vj gkt'rko kcvkqpu'kp'kpxgtug'\tcpurcvkqp'cpf '\tckpgf'vq'' tgeqi pk g"y j kej "vgzv"v{r gu"cpf "f kueqwtug"hkgnf u"yj g{"ecp"tgcuqpcdn{"gzr gev"vq"\tcpuncvg"eqo r gvgpvn{"cpf "j qy " vq'i q'cdqw'r tgr ctkpi 'y go ugnxgu'hqt''y g''cun0

Ugg'cnuq<

CWVQ/VTCPUNCVKQP0

### Hwt yj gt 't gcf kpi

 $\label{eq:def-possess} $$ \Dggd{'3;;7.'3;;8$='EqpitevDwrct'3;9;='I tkpftqf'3;:8$='Mgkj'3;:9$='Mgm{'3;9;}='Ncfoktcn'3;9;='OeCrkrvgt'3;;4$='Pgyoctm'3;::='Rkengp'3;:;='R{o'3;;4e0}$$ 

CNNKUQP 'DGGD[ 'NQP UF CNG

# F kneqwt ug'cpcn( uku'cpf 'tt cpurc vkqp

Ukpeg'kv'y cu'hktuv'wugf ''d{ '\ gmki ''J cttku'kp''3; 74.''vj g'vgto '**f kueqwt ug'cpcn( uku'**j cu'eqo g''vq''o gcp'f khhgtgpv'vj kpi u'' vq'f khhgtgpv'r gqr ng0'Vj cv'y j cv'ku'kpxqnxgf 'ku'vj g'uwf { ''qh'ncpi wci g''dg{qpf ''vj g'ngxgn'qh'vj g'ugpvgpeg''o c{ ''kp'hcev' dg''lwuv'cdqwv'yj g''qpn{ ''vj kpi ''vj cv'wpksgu''c''dtqcf ''cttc{ ''qh'f kur ctcvg''cr r tqcej gu.''cm'qh'y j kej ''y qwrf ''dg'x{ kpi ''hqt'' vj g''ncdgn'-f kueqwt ug''kpenvf gu''cm'hqto u''qh'' y tkkpi ''cpf ''ur gcmkpi ''\*I kndgtv'cpf ''O wmc{ ''3; : 6+.''y j kng''q'qvj gtu.''kv''eqxgtu''qpn{ ''yj g'y c{ ''vcm'ku''-r wv'' vqi gyj gtø'\*Ukpenckt''cpf ''Eqwnj ctf ''3; 97+0'Vtcpuncvkqp'uwf kgu'j cu''pqv''dggp''nguu''kpf gvgto kpcvg.''cpf ''tcpuncvkqp/ qtkgpvgf ''o qf gnu''qh'f kueqwtug''j cxg''dggp''vcmkpi ''uj cr g''cmpi ''yj gug''xctkgf ''cpf ''f kxgtug''nkpgu''qxgt''yj g''ncuv''42''{ gctu'' qt''uq0}

Htqo "cp"crrrkgf "htpi wkuke"r gtur gevkxg. "kv"j cu"dggp"hqwpf "wughwn'\q"f kuvkpi wkuj "y q"dcuke"mkpf u"qh"f kueqwtug" cpcn( uku"go cpcvkpi "htqo "y q"f khhgtgpv"ugpugu"qh"vj g"vgto "±f kueqwtugø kuugrh0"Vj g"httuv"qh"vj gug"ku"eqpegtpgf "y kvj " vj g"y c{"\gzvu"ctg"r wv'\qi gvj gt "kp"\gto u"qh"r tqf wev'cpf "hqto ."ugs wgpvkcn"tgncvkqpuj kr u. "kpvgtugpvgpvkcn"uvt wewtg" cpf "qti cpk cvkqp"cpf "o crr kpi 0"Vj g"ugeqpf "dcuke"ugpug"qh"f kueqwtug"ku"vj cv'y j kej "eqpegtpu"vj g"y c{"\gzvu"j cpi " vqi gvj gt "kp"vgto u"qh"pgi qvkcvkxg"r tqegf wtgu. "kpvgtr tgvcvkqp"qh"ugs wgpeg"cpf "uvt wewtg. "cpf "vj g"uqekcn"

tgrcvlqpuj kr u'go cpcvlpi 'htqo 'kpvgtcevlqp'\*ugg'Ecpf rkpøu'r tghceg'vq'Eqwnj ctf '3; 97+0I kxgp'vj cv'lp'cewcn' r tcevleg'vj g'eqo r ngo gpvctkv{ "qh'vj g'xctlqwu'cr r tqcej gu'vq'f kueqwtug'ku'kpgxkvcdng. "vtcpuncvlqpcn'o qf gnu'qh' f kueqwtug'j cxg''dggp''pgeguuctkn{ "gengevle0'Y kij kp''vj ku''gengevlekuo ."j qy gxgt. "qpg''ecp''f gvgev'c''egtvckp''vgpf gpe { "vq''qr v'hqt''vj g''ncwgt."o qtg''r tqegf wtcn'ugpug''qh''-f kueqwtugø=''ugg. 'hqt''gzco r ng. "J qwug''cpf ''Dnwo /Mwnnc'\*3; : 8+." I co dkgt''cpf ''Vqo o qnc'\*3; ; 5+''Upgm/J qtpd $\{.$ ''R3/ej j cengt''cpf ''Mckpf n'\*3; ; 6+''cpf ''F qngtwr ''cpf ''Nqf f gti cctf'' \*3; ; 6+0

### F kueqwt ug.'i gpt g'cpf 'vgz v

Cmpi ulf g''y ku'f wcrkx{ "qh'hqto "cpf 'r tqegf wtg'kp''y g'f ghkpkkqpu''qh'f kueqwtug."cpqy gt 'wughwrlf kuxkpexkqp''y cu'' dggp 'gurcdrkuj gf 'kp''tcpurcxkqp''uwxf kgu''dgwy ggp''f kueqwtug''qp''y g''qpg''j cpf ."cpf 'i gptg''cpf ''yzz''qp''y g''qy gt'' \*J cxko "cpf 'O cuqp''3; ; 2."3; ; 9+0Cv'c''i gpgtcrlipxgn''**i gptg**'tghgtu''q''y g''hpi wkurke "gzr tguukqp''eqpxgpxkqpcm{" cuuqekcygf 'y ky ''egtyckp'hqto u''qh'y tkxkpi '\*hqt''gzco r ng''y g''Ngwgt''vq''y g''Gf kxqt+''**vgzv**'tghgtu''vq''c''ugs wgpeg''qh'' ugpvgpegu''ugtxkpi ''cp''qxgtcm'tj gvqtkecn'r wtr qug''\*uwej ''cu''cti wkpi +''cpf '**f kueqwt ug**''tghgtu''vq''y g''o cygtkcn'qw''qh'' y j kej ''kpvgtcexkqp''ku''o qwrf gf ''cu''y gm''cu''y go gu''cf f tguugf 0

Y kij kp''y ku''y tgg/y c{"f kukpekqp."j qy gxgt."f kueqwtug'j cu'dggp''ceeqtf gf 'uwr tgo ce{"cpf 'ku'uggp''cu''y g" kpukwwkqpcn'eqo o wpkeckxg'htco gy qtm'y kij kp''y j kej "dqy "i gptg''cpf "\gzv'egcug''q''dg''o gtg''ecttkgtu'qh'y g" eqo o wpkeckqp''cev'cpf ''dgeqo g'hwm{ ''qr gtckqpcn'cu'xgj kergu''qh'o gcpkpi hwn'eqo o wpkeckqp0'Hqt ''gzco r ng. ''d{" go r nq{kpi "'y g''Ngwgt''q''y g''Gf kqt''cu''c'i gptg''cpf "'y g''tgdwwcn'cu''c'eqwpvgt/cti wo gpvckxg'\yzv'tutcvgi {."qpg'' eqwf ''eqpegkxcdn{ ''gpi ci g''kp''cp{ ''qh'c''pwo dgt ''qh'f kuewtukxg''r tcevkegu'\*tuwej ''cu''gzr tguukpi ''tcekno ''qt'' eco qwhrci kpi ''tgcn'kpvgpvkqpu+0'Vj g'i gpgtcn'cti wo gpv'wpf gtn{kpi "'y ku'uej go g''qh''ncpi wci g''wug''j cu''dggp''y cv." y j krg''cy ctgpguu''qh'y j g''eqpxgpvkqpu''i qxgtpkpi "'y g''cr r tqr tkcvg''wug''qh'y ku''qt''y cv'i gptg''qt''yzv'hqto cv'ku'' guugpvkcn'kp''tcpurcvkqp. 'kv'ku'cy ctgpguu''qh'y j cv'f kueqwtug''ko r nkgu''y cv'wnko cvgn{ 'hcekrkscvgu''qr vko cn'vtcpuhgt''cpf'' tgpf gtu''y g''o wej ''uqwi j v'chvgt''vtcpurcvkqp''GS WKXCNGP EG''cp''cwckpcdng''qdlgevkxg0

#### Eqo rgwpi 'f kueqwt ugu

C'r ct wewretn ('kpvgtguvkpi 'r j gpqo gpqp.'cpf 'qpg'y ky 'y j kej ''vtcpurcvqtu'qhvgp''j cxg'vq'y tguvrg.''ku'y cv'qh'' f kueqwtug'y ky kp'f kueqwtug.''qt''y g''pqvkqp''qh''eqo r gvkpi 'f kueqwtugu0'Vj ku''ku'y j gp''c''i kxgp''f kueqwtug''dqttqy u'' htqo ''qt''ghhgevkxgn ("-j klcemuø'cpqy gt''f kueqwtug''\*Dcnj vkpøu''-f qwdrg'xqkekpi ø+.'tgrc {kpi ''kp''y g''r tqeguu''cm'mkpf u'' qh''o ctngf ''o gcpkpi u''y cv'y g''vtcpurcvqt''o c { ''y kuj ''vq''r tgugtxg''d { ''o cuvgtkpi <

\*c+'y g'r tg/f kueqwtug'pqto u'qh'nkpi wkurke'wuci g \*d+'y g'wpo ctngf 'f kueqwtug'vq'dg'f gr ctvgf 'htqo \*e+'y g'f kueqwtug'dgkpi 'dqttqy gf 'hqt'c'tj gvqtkecn'r wtr qug0

ko o ki tcpwi'cpf "vj gkt"qhhur tkpi "\*4+ vj g"qhhur tkpi "qh'ko o ki tcpwi'\*3+ ko o ki tcpv'qhhur tkpi "\*3+ ko o ki tcpv'cpf "ko o ki tcpv/f guegpf gf r qr wrcvkqp"\*4+

Kp"yj ku'r ct vkewrct "f qo ckp"qh'hco kn( "tgnc kqpuj kr u. "gzr tguukqpu"y j kej "eqwrf "j cxg"dggp'wugf "dw'y gtg"pqv" kpenwf g<*j wudcpf u "y kxgu "o qvj gt u "hc vj gt u "r ct gpwu "uqpu "f cwi j vgt u*."

ho knkguO'Vj g'twng'i qxgtpkpi 'kpenwukqp''cpf ''gzenwukqp''qh''vgto u'ku''o quv'tgngxcpv''vq''vj g''\tcpuncvqt''y j q''j cu''vq'' qr gtcvg''y knj kp''uko knct''eqpuvtckpvu''cpf ''r c{ ''ur gekcn'cwgpvkqp''vq''vj g''qxgtcm'ghh''gev''qh''vj ku''nkpf ''qh''tguvtkevgf'' vgzwtg0

#### Qxgtrcrrkpi 'f kueqwt ugu

Y kj kp"cpf "cetquui'ewmwtcn'cpf "i gqi tcr j kecn'dqwpf ctkgu." I khhgtgpv'ewmwtcn'cuuwo r vkqpu. "cpf "y c { u'qh' gzr tguukpi "y gug." wpf gtnkg"r gqr ngøu"ecr cekv "vq"eqo o wpkecvg"y kj "gcej "qvj gt" kp"qtf gt" vq"cej kgxg"dqvj "r gtuqpcn" cpf "i mdcn'qdlgevkxgu" vcppgp"3; : 6+θCi ckpuv'y g"dcemi tqwpf "qh'uwej "dcuke"pqvkqpu. "tgugctej "kpvq"etquuv ewnwtcn'eqo o wpkecvkqp" cu'hp"tgegpv' { gctu'dggp"r ctvkewntn ("xki qtqwu."c"f gxgnqr o gpv'htqo "y j kej "vtcpuncvkqp" cpf "kpvgtr tgvkpi "uwwf kgu"j cxg"pq"f qwdv'dgpghkxgf "eqpukf gtcdn ("\*Dctum ("3; ; 5."3; ; 8="Hcti j cn'3; ; 5+θHqt" gzco r ng. "kp"qpg"r ctvkewnct" uwwf { "qh'vj g"nkpf "qh'f kneqwtug"kp"y j kej "y q"r ctvkgu"eqpxgtug"y ky "qpg"cpqvj gt"xkc"c" pqp/r tqhguukqpcn'kpvgtr tgvgt l"o gf kcvqt." kv"j cu'dggp'hqwpf "vj cv'f khhgtgpv'v (r gu'qh'o gf kcvkpi "tqngu"go gti g'hp"vj g" r tqeguu. "cpf "vj cv'y g"o gf kcvqtøu'tqng"f gvgto kpgu"vj g"etksgtkc"hqt"y j cv'eqpunkswgu'cp"cf gs wcvg"kpvgtr tgvcvkqp" \*Mpcr r /Rqwj qhh'cpf "Mpcr r "3; : 9+θVvj g"cpcn (uku'qh'c"o gf kcvkqp"uguukqp"kp"c"ngi cn'cf xkeg"ugwkpi "kpxqnxkpi "c" Vwtnkuj "enkgpv'cpf "c"I gto cp"ngi cn'cf xkugt"uwi i guvu'vj cv."kp"ukwcvkqpu'nkng"vj gug. "vy q"f kneqwtugu'twp"r ctcnngn'vq gcej "qvj gt."cpf "vj g"o clqt"f khhkewn ("qh'vj g"o gf kcvqtøu'vcum'eqpuknuu'qh'o cpci kpi "dqvj "y j kng"vt {kpi "vq"tgncvg" vj go "vq"qpg"cpqvj gt"\*kdkf θθ

Dww."cu"Mpcrr/Rqwj qhh"cpf "Mpcrr" qhpv'qww."yj g"gzej cpi gu"dgwy ggp"yj g"hktuv'r ctv{ "cpf" yj g"o gf kcvqt"qp"yj g" qpg"j cpf."cpf "dgwy ggp"yj g"o gf kcvqt"cpf "yj g"ugeqpf "r ctv{ "qp"yj g"qyj gt"j cpf."ctg"qhxgp"pqv'xgt{ "emugn{ "tgmcvgf." y kyj "yj g"kpvgtcevkqp" ypf kpi "vq"f tkhv'kpvq" y q"f kthgtgpv'f kueqwtugu"qpn{ "r ctvkcm{ "gs wkxcmppv'qp" yj g"eqpvgpv'ngxgn' Hqt" kpuvcpeg. "cv'qpg" uci g"kp"yj g"cf xkuqt{ "uguukqp" tghgttgf" "vq"cdqxg."yj g"I gto cp"ngi cn'cf xkugt "cpf" yj g"o gf kcvqt" lqkpvn{ "y qtm'qw'yj cv'c" f qewo gpv'y j kej "yj g"Vwtnkuj "enkgpv'j cf" uvdo kvgf "cu'uqo gyj kpi "ko r qtvcpv'hqt"yj g" tghxpf kpi "qh'uqekcn'ugewtkv{ "eqpvkdwkqpu'ku'kp'hcev'wpko r qtvcpvOC" hgy "wtpu'ncvgt."yj g"o gf kcvqt"cf xkugu'yj g" enkgpv'yq "tgvckp"yj g"qtki kpcn'qh'yj g"f qewo gpv."vq"o cng"c"r j qvqeqr { "cpf" 'vq"j cxg"yj ku"cwj gpvkecvgf OJ g"f qgu"pqv" j qy gxgt."o gf kcvg"yj ku"cf xkeg'vq"yj g"ngi cn'cf xkugt."dwvkpuvgcf "uy kej gu"vq"yj g"cf xkugtøu"ewttgpv'f kueqwtug'vqr ke<" yj g"ecnewncvkqp"qh'j qy "o wej "yj g"tghxpf u"y qwrf "dg"qp"yj g"dcuku"qh'f qewo gpvu"y j kej "yj g"enkgpv'j cf "pqv'dggp" cungf" hqtO

#### Eqwt vt qqo 'f kueqwt ug

Eqwtvtqqo "kpvgtcevkqp" j cu'dggp"c"r ct vkewrctn ("hgt vkrg"ct gc"hqt" y ku'dt cpf "qh'f kneqwtug"cpcn (uku." y j kej "ecp" { kgrf" o qtg"ko o gf kcvgn ("ceeguukdrg"kpuki j wi'kp"vtcpurcvkqp"uwf kgu." r ct vkewrctn ("kpvq" y g'r tqeguu'qh'kpvgtr tgvkpi 0'V j g" egpvtcn { r qvj guku"gpvgt vckpgf "d { "vj ku"mkpf "qh't gugctej "encko u'vj cv." f wg"vq" f khrgtgpv'o qf gu'qh'encuv/cpf "ugz/uqekcn k cvkqp." uqo g"f ghgpf cpvu"y kni'dg"o qtg"cdng"vq"eqr g"y kyj "vj g"cwyj qtkv { "ukwcvkqp"cv'eqwtv'vj cp"qvj gtu="hqt" gzco r ng." o kf ng/encuu'f ghgpf cpvu"mpqy "vj g"tqng"gzr gevcvkqpu"dgwgt" y cp"y qtnkpi /encuu'f ghgpf cpvu"vy g" s wguvkqpu"cf f tguugf "d { "uwwf kgu"y kyj kp"vj ku'dtcpf "qh"f kneqwtug"cpcn { uku"vj wu't wp"uqo gvj kpi "nkng"vj ku'Ctg"vj qug" y j q"ctg"wphco knct"y kyj "y g"u { uvgo "f knetko kpcvgf" ci ckpuvATF qgu"vj g"f ghgpf cpvzu"nkpi wkuke"dgj cxkqwt" eqpvtkdwg"vq"vj g"qweqo g"qh"vj g"j gctkpi A"Y qwrf"vj g"kpvgtr tgvgt"o cng"kv'c"r tkqtkv { "qp"j ku"qt"j gt"nkuv'vq"o cun'vj g" kpeqj gtgpeg"qh"cp"kpeqj gtgpv'f ghgpegATRgtj cr u"o qtg"vq"vj g"r qkpv."f qgu"vj g"kpvgtr tgvgt"vtckp"

j ko lj gtugnh'vq'tgukuv'yj g'vgo r vcvkqp''qh'uvgr r kpi 'kp''vq''j gnr ''cp''kpeqj gtgpv'f ghgpf cpvA'Vj gug''ctg''uqo g''qh''yj g'' r tqdngo u'y kyj ''y j kej ''r tcevkkqpgtu''ctg''eqpegtpgf ''cpf ''y j kej ''j cxg''tgegpvn{ ''dgi wp''vq''cwtcev'yj g''cwgpvkqp''qh''yj g'' vtcpuncvkqp''yj gqtkuv=''ugg''hqt''gzco r ng''Dctum{ '\*3; ; 5.''3; ; 8+''cpf ''O qttku'\*3; ; 7+0Ugg''cnuq''\frac{EQWTV''}{EQWTV''} \frac{KP VGTRTGVR I 0}{}

#### Y qt if 'xlgy 'cpf 'r gt ur gevlxg

Y ky kp''etquu/ewnwtch'eqo o wpłecykqp''uwf kgu. 'y qtnf/xkgy ''cpcn{ uku'j cu'hgcwtgf 'r tqo kpgpvn{ 0'Vj ku'j cu'untguugf '' y cv'f kueqwtugu'tghgt "-;q''y g''o cp{ 'f khhgtgpv'y c{u'qh''ur genkpi ''y cv'etg''cuuqekcyf ''y ky 'f khhgtgpv'uqekch' eqpvgzvuø' "Ngg''3; ; 443+0'Cf qr vkpi ''uwej ''c''xkgy . ''c''pwo dgt ''qh''vtcpurcykqp''uej qrctu'j cxg''cwgo r vgf ''vq''vcenng''y g'' kuuwg''qh''uqekq/ewnwtch'r tcevkegu. ''y gkt''tqng''kp''f kueqwtug''r tqf wevkqp''cpf ''y g'y kf gt''ko r nkecykqpu''y g{ ''j cxg'hqt''y g'' y qtm'qh'y g''vtcpurcyqt''cpf ''kpygtr tgygt0

Qpg"qh"yi g"o qtg"kpvgtguvkpi "j {r qyi gugu"wpf gtn(kpi "y qtm"kp"yi ku"ctgc"j cu"dggp"yi cv"y j krg"cm"hkgtcvg"rcpi wci g" eqo o wpkkgu"r quuguu"c"pwo dgt"qh"o qf gu"qh"vgzv"f gxgrqr o gpv"\*fqt"kpuvcpeg"cp"cwtcn"qt"c"xkuwcn"o qf g+." r ctvkewrct "r tghgtgpeg"hqt"uqo g"qh"yi gug"cpf "pqv"hqt"qyi gtu"ecp"wuwcm("dg"f gygevgf 0"Uwej "r tgf krgevkqpu"tghrgev" f khngtgpv"y qtrf "xkgy u"cpf "ctg"o qvkxcvgf "d{"c"xctkgv{"qh"uqekqrkpi wkuvke"hcevqtu."kpenwf kpi "uj ctgf "gzr gtkgpeg." tgegkxgt"gzr gevcvkqpu"cpf "hggf dcem"r qy gt."uqrkf ctkv{."r qrkvgpguu"cpf "uq"qp0"Hqt"gzco r ng."yi g"cwtcn"o qf g." y j kej "ku"f tcy p"wr qp"j gcxkn{"kp"c"hcpi wci g"uwej "cu"Ctcdke."ku"pqto cm{"pqv"ceegr vcdng"hqt"y tkwgp"r tqug"kp" Gpi rkuj 0"Kp"vtcpuncvkqp."yi g"hcknwtg"vq"uy kej "o qf gu"tguwnwi"kp"pgi cvkxg"vtcpuhgt"cpf "dtgcnf qy p"qh"kpvgtcevkqp" \*Ucøcf gf f kp"3; : ; +0

Gz vgpf kpi "vj g'ueqr g''qh'etquu/ewnwtcn'uwf kgu''vq'kpenwf g''y j cv'o c{ "dg''vgto gf 'kf gqmi kecn'r gtur gevkxg''\*J qf i g''gv'' cn'\3; 9; .''Hqy ngt''3; : 7.''Mtguu''3; : 7+.''f kueqwtug''cpcn{ uku''j cu'kp''t gegpv''{ gctu''dggp''r ctvkewnctn{ "cevkxg'kp''vcemkpi" pqv''qpn{ "r qrkxkecn'f kueqwtug."dw''cnuq''qvj gt''o qf gu''qh'eqo o wpkecvkqp''uwej "cu''cecf go ke''cpf 'kpf wuxtkcn'' gpeqwpvgtu''\*Mtguu''cpf "Hqy ngt''3; 9; +0'Vj g''i gpgtcn'vj twuv''qh'vj g''cti wo gpv'kp''vj ku''nkpf ''qh''r gtur gevkxg/cpcn{ uku'' tgncvgu''vq''y g''vgpf gpe{ "kp''i kxgp''f kueqwtugu''vq''uwr r tguu''wpr cncvcdng''ugo cpvke''hgcwtgu''cpf ''i kxg''o qtg'' r tqo kpgpeg''vq''qvj gt.''o qtg''hcxqwtcdng''uj cf gu''qh''o gcpkpi 0

Cp"gzco r ng"qh"yi g"cr r necvkqp"qh"yi ku"mkpf "qh"f kueqwtug"cpcn(uku"kp"tcpurcvkqp"uwkf kgu"ecp"dg"uggp"kp"Etkemxu" \*3; : ; +"cuuguuo gpv"qh"ttcpurcvkqpu"qh"Htgwf "kpvq"Gpi nkuj ."y j kej "gzj kdk"c"pwo dgt"qh"f kuvkpevkxg"ngcwt guOHktuv." yi gtg"ku"c"vgpf gpe { "vq"tgr meg"yi g"j wo cpkuvke"r gtur gevkxg" \*10g0y c { "qh"yi kpmkpi "cpf" y tkkpi +"d { "c"enkplecn"s wcuklo gf kecn"I tgeq/Ncvkp"vgto kpqmi { = hqt "gzco r ng" \*kj" "dgeqo gu" \*Gi q. "cpf" "uq"qp0Ugeqpf". "yi gtg"ku"c" vgpf gpe { "vqy ctf u"f gr gtuqpcnk cvkqpô d { "ej cpi kpi "cevkxgu"kpvq"r cuukxgu."hqt"kpuvcpeg0Hkpcm(."yi g"xctkgv("qh"tgi kuvgtu" cpf "o qdktk/"qh"vqpgu"cr r ctgpv"kp"yi g"uqwteg"yzv"ctg"eqpukuvgpvn("tgr megf"d{ "c"vpkhqto "o gf kecnluekgpvkhle" uv(ng0Kvo c { "dg"kpuvtwevkxg"j gtg"vq"tgecmiyi g"y qtf u"qh"COUtcej g{ ."qpg"qh"yi g"ktcpurcvqtu"qh"Htgwf" "cpf" qpg"qh" yi g"ewr tkxu. "ceeqtf kpi "vq"Etkemx" \*\vee yi g"o ci kpct { "o qf gn" Kj cxg"ngr v'dghqtg"o g"ku"qh"yi g"y tkkpi u"qh"uqo g" Gpi nkuj o cp"qh"uekgpeg"qh"y kf g"gf wecvkqp"dqtp"hg"yi g"o kf f ng"qh"yi g"pkpgyggpyi "egpwxt { ø"Otcej g { "3; 47+0 Kp"yi ki"f qo ckp"qh"t kueqwtug. "tcpurcvkqp"uej qnctu"j cxg"yi wu'nqewugf "qp"yi g"eqpuvtckpwi'r megf "qp"yi g"tcpurcvkqp" r tqeguu'd { "yi g"uqekqewnwtcneqpvgpv"qh"eqo o wpkecvkqp0"Vj g"kf gqmi ken'cpf "ewnwtcn'dcem tqwpf "kpkkcvgf "kp" yi g"ygzv'd { "yi g"cwyi qt"cpf "tgef "qhh'd { "dqyi "tgef gt"cpf" "tcpurcvqt" qxgtpu'yi g"y c { "kp"y j kej "yi g"qxgtcm'o gcpkpi " r qygpvkcn'ku"tgenk gf" "cy'dqyi "gpf u'qh'yi g"eqo o wpkecvkxg"ej cppgnt/Hwty gto qtg. "yi g"y c { "kp"y j kej "vi gef gt" eqpuvtwewic"tgr tgugpvcvkqp"qh"yi g"yzv'cpf "tgrcvgu"yi ku'vq'yi g"tgenly qtnf "uggo u"vq"dg"qh'etwekcn'ko r qtvcpeg'kp" fgcnlpi "y kyi "f kueqwtucn'o gcpkpi u"\*Eco r dgm'3; ; 5+0

#### Vj g'b gwrj qt kec n'r t qeguu'gz r nqkygf

Vj g"o gwrj qtkecn'r tqeguu'j cu'r gtj cr u'dggp"qpg"qh'vj g"o qtg"uki pkhkecpv'o ctmgtu'qh'y qtnf/xkgy "cpf "kf gqmi kecn' r gtur gevkxg"kp"vj g"f kueqwtug"cpcn{ uku"wpf gt "f kuewuukqp0"Vj ku"o c{ "dg"kmwntcvgf "htqo "ctgcu"qh'ncpi wci g"wug"cu" xctkgf "cu"r tqr ci cpf c"cpf "r gtuwcukqp"qp"vj g"qpg"j cpf "cpf "r qgvt { "qp"vj g"qvj gt0"Htqo "vj g"mpf "qh'lkpuki j vu" {kgnf gf "d{ "uwej "c"dtcpf "qh'f kueqwtug"cpcn{ uku."qpg"dcuke"hcev'cdqwv'hki wtcvkxg"gzr tguukqp"o c{ "dg"wpf gtnkpgf "cu" dgkpi "r ctvkewrctn{ "tgngxcpv'vq"vj g"vcum'qh'vtcpurcvkpi 0"Vj ku"tgncvgu'vq"y j cv'kp"f kueqwtug"ektengu"j cu'tgegpvn{ "dgeqo g"mpqy p"cu'vj g"hpvko ce{ 'vj gqt { <'o gwrj qtu'f q"pqv'qr gtcvg"ukpi n{ .'vj g{ "hqto "c"

pgwy qtm"cu'kv'y gtg0'Vj go cvke ir qgvke 'hlpmu'ctg"guvcdrkuj gf "pqv'qpn("y kyj kp" y g'uco g'uvtgvej "qh'hcpi wci g'\*uc{."c" r ctci tcr j "qt"c"ukpi ng"qtcn'gpeqwpvgt+'dww'cnuq"y kyj kp"o wej "y kf gt"ur cpu."cu'kp" y g'ecug"qh'c"uj qtv'uvqt { "qt"pqxgn" \*Cdw'Nkdf gj "3; ; 3+0'Vj ku'j cu'pqv'qpn( "gpcdngf "vtcpuncvqtu'vq'ugg"o gvcr j qtke "gzr tguukqp"kp"c"pgy "rki j v."dww'kv" j cu'cnuq"gpeqwtci gf "vtcpuncvkqp" y gqt { "vq'uwr r qtv'c" dg { qpf / y g/equo gvkeø'x kgy "qh'uq/ecngf "go dgnkuj o gpvu0' kp"r qgvt { ."hqt"gzco r ng."cpf "kp" y g'o c| g"qh'ewnwtcn'cpf "kf gqmi kecn'cmwukqpu. "cur gewu'qh'y g'o guuci g'uwej "cu" uqwpf "u{ o dqrkuo ."tj { o g."o gvtg."cmkgtcvkqp"cpf "uq'hqtyj "ctg"pq"nqpi gt"uggp"cu'f kxqtegf "htqo "ugo cpvke" eqpvgpv."dwv'cu'r ctv'cpf "r ctegn'qh'y g'qxgtcm'ko r qtv'cpf "ghlgev'qh'y g'vgzv'\*Eco r dgm'3; ; 5+0 \text{Ugg"cnuq<}

NIP I WILVIE 'CRRTQCEJ GU''RTCI O CVIEU'CPF 'VTCPUNCVIQP ''VGZ V'NIP I WILVIEU'CPF ''
VTCPUNCVIQP 0

#### Hwt yj gt 't gcf kpi

DCUKN'J CVKO

# Ftco c'ttcpurcydp

Qpn("ho kgf"uej qrctn("cwgpkqp"j cu"j kj gtvq"dggp"f gxqvgf"vq"vj g"vtcpurcvkqp"qh"f tco c."r tqdcdn("qy kpi "vq"vj g" ur gekcn"r tqdrgo u"eqphtqpvkpi "vj g"vtcpurcvqt"hqt"vj g"wci g0Wprkng"vj g"vtcpurcvkqp"qh"c"pqxgn"qt"c"r qgo ."vj g" f wcrkv("kpj gtgpv"kp"vj g"ctv"qh"vj g"vj gcvtg"tgs wktgu"rcpi wci g"vq"eqo dkpg"y kj "ur gevcerg."o cpkkgurgf "vj tqwi j " xkwcn"cu"y gm"cu"ceqwrxke"ko ci gu0Vj g"vtcpurcvqt"ku"vj gtghttg"hcegf "y kj "vj g"ej qkeg"qh"gkvj gt"xkgy kpi "f tco c"cu" rkytcwttg"qt"cu"cp"kpvgi tcn"r ctv"qh"c"vj gcvtkecn"r tqf wevkqp"\*xcp"f gp"Dtqgeni3; : : ₹768+0'Ulj g"o c{"cr r tqcej "vj g" r rc{"cu"c"hkytct{"y qtm"y j gp. "hqt"kpurcpeg."vj g"vtcpurcvqp"qh"vj g"eqo r rgvg"y qtmu"qh"c"r ctvkewrct"r rc{y tki j v"ku" wpf gtvcngp."cu"kp"vj g"ecug"qh"Lco gu"O eHctrcpgou"vtcpurcvqp"qh"klugpou"eqngevgf "y qtmu0Kp"vj g"rcwgt"ecug." j qy gxgt."vj g"y qtf u"ur qngp"qp"uvci g"ctg"uggp"vq"eqpuvkwwg"qpn("qpg"grog gpv"kp"c"vj gcvtg"r tqf wevkqp."cmpi "y kj "rki j vkpi ."ugvu."equrwo gu"cpf "o wrke<"f tco c"ku"c"r tqeguu"qh"vtcpurcvqppop\*1 qurcpf "3; : 2< +0J gtg."dgecwug"kv" hqto u"r ctv"qh"cp"kpvgi tcvgf "y j qrg."i tgcvgt"f go cpf u"ctg"cnq"r rcegf "qp"vj g"vtcpurcvkqp"y kj "tgur gev"vq"ku" -r gthqto cdkrkv{ \( \phi \) "y wu"kpetgcukpi "vj g"vgpukqp"dgwy ggp"vj g"pggf "vq"guvcdrkuj "tgrcvkqpuj kr u"dgwy ggp"vj g"vcti gv"vgzv" cpf "ku"uqweg"\*vj g"cf gs wce{ "hcevqt+"cpf" vj g"pggf "vq"nqto wrcyg"c"yzv"kp"vj g"vcti gv"rpi wci g"\*vj g"ceegr wcdkrkv{" hcevqt+"Vqwt{"3; : 2<\*; ="ugg"PQTOU+0}

#### Florgev.'tn{ rg'cpf 't gi knyt

### Uqekqewwwt crif kHgt gpegu

Ewnqo u'cpf "cwkwf gu'cnuq"f khhgt"o ctngf n{ 'htqo "qpg"ewnwtg"\q"cpq\j gt0\J co ng\va''f kngo o c.'hqt'\kpuvcpeg." y qwnf "qdx\kq\wnn{ 'dg'\kpeqo r tgj gpukdng'\q"cp'\kuncpf "tceg'\y j qug''ewnwtg''o cngu'\k'\qdn\i c\vqt{ 'hqt'c'\y kf qy "\q" o ctt{ 'j gt'f gcf 'j wudcpf \vai'\dtq\j gt'\leq 1 quvcpf '\leq: 2.5\left\Vj g'\wug'\qh'\ktqp{\left.'\q'\cng''cpq\j gt''gzco r ng.''cn\j q\wi j " eqo o qpn{ 'hqwpf '\left\p''r ct\u'\qh'\j g'\Gpi n\wi /\ur gcm\pi i'y qtnf .'\ku'\pgxgt\j grguu'\pq\'c'\wpkxgt\ucni'r j gpqo gpqp\V\p\" Gwi gpg'\Q\p\P gkm\pu'\Nqpi '\r c{\vai'\Lq\wtpg{ '\left\pu''pki j v''\j g''eqmqs\wf ''dg\w ggp'\Gf o \wpf ''cpf '\j ku'\r\ci gt.'\y k\j '\ku'\j t\wn'' cpf ''r ctt{ .'\ku'o gtgn{ ''c'i co g'\q'\j kf g'\j g'\tgcn'go q\kqpcn'\hggn\p\pi \q v'\j gtg''cpf ''uqp=\dw'\j ku'\b i \si v'' o \kncmgpn{ ''ecwug''eqpu\gtpc\kqp'\kp'\gta\g\y gmp\ta\f\ '\y j gtg''cp{ ''co d\ki \wk\f' \qh'\hco \kncn'\tgnc\kqp\uj \ku'\tgnt\p\tg\ki'\p\'\q'' cp''c\wf \kgpeg''cee\wnqo gf '\q''engct''cpf ''y gm'f gh\pgf ''tqngu'\kp'\j g'\hco \kn\{0\Qq\k'\s3; : 2+'f \kne\wnugu'\y \ku'\knu\wg'\y \kj '' tgur gev'\q''c''r tqf \we\kqp'\q\h'\Q\P g\km\pu'\r nc\f'\kp'\Ej \kpc0

Gxgp'lp''y g'ecug'qh'o qtg'enquqn( 'tgrcvgf 'Gwtqr gcp'ewnwtgu.''y gtg'ku'uwkni'y g'tkuniqh'eqpegr wi'dgkpi "gky gt" o kulpvgtr tgvgf ''qt 'pqv'hwn( 'eqo r tgj gpf gf 'y j gp'\tcpuhgttgf 'htqo ''qpg'ewnwtg''q'cpqy gt0C''r tqf wevkqp''qh'' QøEcug{øu''Lwpq''cpf ''y g'Rc{eqen'l}p'I gto cp{'i tcr r rgf 'hqt'c'mpi ''wo g'y ky ''y g'r tqdrgo ''qh'eqpxg{kpi ''y g'lf gc'' qh'vgpgo gpv'j qwugu<'y gug''dgrqpi ''q'y g'unwo ''f kuntlev'qh'F wdrlp''cpf ''uvcpf ''cu'c'u{o dqn'lqt''uqekcn'f gi tcf cvkqp0' Cnij qwi j ''cp''cwf kgpeg''o c{ ''dg''r tqxkf gf ''y ky ''cp''gzr rcpcvkqp''kp''y g''r tqi tco o g''pqvg.''y g'ur gekhle''gpxktqpo gpv'' y j kej ''eqpurkwygu''y g'dcemii tqwpf ''qh''y g''o guuci g''cpf ''y j kej .''cu''c'o ketqequo .''tgr tgugpwi'y g''o cetqequo ''qh'' Ktgrcpf .''qt''gxgp''y g'y qtrf .''ecppqv'dg''o ckpvckpgf ''\*Xgppgdgti ''3; : 2<349+016p''qvj gt''ecugu.''ewnwtcn'pqto u''qt'' j cdkuu''o c{ ''dg''npqy p''dw'hgnv'vq''dg''eqplwtkpi ''wr ''y g''y tqpi ''cuuqekcvkqpu0'Y j gp''Rkpvgtøu'V'j g''Ect gvcngt''y cu'' uvci gf ''kp''tcpurcvkqp''kp''Htcpeg.''c''Htgpej ''etkke''tgcevgf ''pgi cvkxgn(''q'Fcxkgu.''y g''tco r .''f tkpnkpi ''ygc0'I g'y qwrf'' j cxg''r tghgttgf ''j ko ''q'dg''f tkpnkpi ''y kpg''ulpeg''kp''Htcpeg''-ygc''ku''c''f tkpnh'vcngp''o ckpn{''d{ ''i gpvggn'qrf'' rcf kguø'\*Mgtuj cy ''3; 88<83+0

Rtqdrgo u'uwej "cu'yi gug'uj qy "yi g'pggf 'hqt "cf lwuvo gpwı'vq'dg'o cf g'dghqtg'c'r rc { "ecp"dg'uweeguuhwm{ "r gthqto gf" kp"vtcpurcvkqp0Dgkpi "r tgugpv'cv'yi g'uegpg"qh'yi g"cevkqp. "cu'ko o gf kcvg'y kpguu. "ku'r ctv'qh'yi g"gzr gtkgpeg"qh'yi g" cwf kgpeg"kp"c'r gthqto cpeg"ukwcvkqp"cpf "etgcvgu'yi g'ko r tguukqp"qh'r ctvkekr cvkqp "kp"yi g'uco g'u{uvgo "qh" eqo o wpkecvkqp0'Vj g"cwf kgpeg'yi wu'qeewr kgu'c'f khhgtgpv'r qukvkqp 'htqo "yi g'tgcf gt "qh'c'dqqm'y j q'ecp'f gekf g" y j gtg'vq"uvqr "cpf "tghrgev."cpf "gxgp"eqpuwrv'tgrgxcpv'y qtmu'qh'tghgtgpeg'kh'hwtyi gt"erctkhecvkqp"ku'tgs wktgf 0'Vj g" gzvgpv'vq"y j kej "cf lwuvo gpvu'pggf "vq'dg"o cf g'kp"qtf gt "vq"gpj cpeg'tcr kf "wpf gtuvcpf kpi ."j qy gxgt."vgpf u'vq" f gr gpf "qp"yi g'rkvgtct { "pqto u'r tgxckrkpi "kp"c'i kxgp"rcpi wci g'eqo o wpkx{ "cv'c'r ctvkewrct 'vko g0

#### Rqukslqp'cutwo gf 'd{ 'ttcpurcvgf 'flsgtcwtg

Vj g'f kukpeskqp''dgwy ggp''c''tcpurcvgf 'y qtm'cpf ''cp''qtki kpcn'y qtm'kp''ygto u''qh''rksgtct{ ''dgj cxkqwt''ku.''ceeqtf kpi ''vq'' Gxgp/\ qj ct.''c''ergct''hwpeskqp''qh''y g''r qukskqp''cuuwo gf ''d{ ''tcpurcvgf ''rksgtcwtg''cv'c''egtvckp''sko g''\*ugg'' RQN[U] UVGO ''VJ GQT[+0'Y j gp''tcpurcvgf ''rksgtcwtg''vcngu''wr ''c''r tko ct{ ''r qukskqp.''y g''dqtf gtnkpgu''dgwy ggp'' vcpurcvgf ''y qtmu''cpf ''qtki kpcn'y qtmu''ctg''f khrwug0'Wpf gt''uwej ''eqpf kskqpu.''Gxgp/\ qj ct''uwi i guwu.''+yi g''ej cpegu''y cv'' c''tcpurcvkqp''y km'dg''enqug''vq''y g''qtki kpcn'kp''ygto u''qh''cf gs wce{ ''ctg''i tgcvgt''yi cp''qyi gty kugø'\*3; 9: d<'48+0'Ka'' j qy gxgt.''tcpurcvgf ''rksgtcwtg''qeewr kgu''c''ugeqpf ct{ ''r qukskqp.''yi g''o ckp''cko ''qh''tcpurcvqtu''+y km'dg''vq''eqpegpvtcvg'' wr qp''hkpf kpi ''yi g''dguv'tgcf {/o cf g''r qgvke''o qf gnu''yi tqwi j ''y j kej ''vq''tgr tgugpv''yi g''hqtgki p''vgzv''kp''yi g''tgegkxkpi '' rksgtcwtgg'\*y g{ ''pg''3; ; 5< +0

Eqpukf gtgf 'htqo ''vj ku'r qkpv'qh'xkgy .''vtcpurc\kqp'ku'pqv'c'r j gpqo gpqp''y j qug'r ctco gvgtu'ctg'hkzgf ''qpeg''cpf 'hqt'' cm''cu'ku'uj qy p''d{ ''J g{ ngpøu'\*3; ; 5+'f kuewukqp''qh'f khhgtgpv'vtcpurc\kqpu''qh''J co ngv'kpvq''Htgpej ''vj tqwi j ''vj g''ci gu0' Vj g''ceegr vcdkrkv{ ''eqpuvtckpvu''vq''y j kej ''Uj cngur gctgcp''vtcpurc\kqpu''j cxg''dggp''uvdo kwgf ''ctg''cnuq''kmwutcwgf ''d{ '' Xqncktgøu''Htgpej ''xgtukqp''qh''Lwrkwu''Ecguct''\*eh0'Nghgxgtg''3; : 54263='xcp'f gp''Dtqgem'3; : : 83+0'Wpf gt''y g'' kphrwgpeg''qh''pgq/encuukecn'twrgu''y kyj ''tgur gev''vq''y g''wpkkkgu''qh''cevkqp.''vlo g.''cpf ''r nceg.''Xqncktg''ej qug''vq''qo kv'' y q''cpf ''c''j crh''cevx''y g''twrgu''f kevcvgf ''yj cv''y g''gxgpwu'tgncvgf ''vq''Dtwwu''cpf ''yj g''tgo ckpkpi ''eqpur ktcvqtu''eqwrf ''pqv'' dg''kpenwf gf .''cpf ''yj g''r nc{ ''j cf ''vq''gpf ''y kyj ''Ecguctøu''f gcyj 0'

#### Vtcpurvkqp'qllftcoc'kpvq'lguugt/npqyp'hcpi wci gu

Dgecwug''qh''y g''r qukkqp''qh'Gpi rkuj ''cu''qpg''qh''y g''o quv''y kf gn{ ''ur qmgp''ncpi wci gu'kp''y g'y qtrf .''rksgtcwtg''kp'' vcpurcvkqp''kpgxkscdn{ ''cmgu''wr ''c''nguu''egpvtcn''r qukkqp''kp''y g'Gpi rkuj /ur gcmkpi ''y qtrf ''y cp''kv'f qgu''kp''y g''rksgtcwtg'' qh''uo cmgt ''pcvkqpu.''y j gtg''nguugt/mpqy p''ncpi wci gu''ctg''ur qmgp0'Vtcpurcvkqp''htqo ''Gpi rkuj ''kpvq''uwej ''ncpi wci gu''ku'' o qtg''rkmgn{ ''vq''dg''erqugt''vq''y g''qtki kpcn''cpf ''vtcpurcvqtu''vgpf ''vq''nceg''hgy gt''r tqdngo u'y kij ''tgur gev''vq'' cxkpi ''vq'' o cmg''cf lwwo gpwu.''dgecwug''hco krkctkv{ ''y kij ''Gpi rkuj ''uqekcn''cpf ''ewnwtcn''unt wewtgu''ecp''qhvgp''dg''cuuwo gf ''qp''y g'' r ctv'qh''uwej ''y gcvtg''cwf kgpegu0

J gpeg."c"r nc{"uwej "cu" Gf wec vkpi "Tkvc"d{"yj g"Dtkkuj "r nc{y tki j v"Y km{"Twuugm"y j kej "vgmu"yj g"uvqt{"qh"c" Nkxgtr qqn"j ckt f tguugt "y j q"gptqnu"cv"yj g"Qr gp"Wpkxgtukx{"vq"uwf {"Gpi nkuj "rkxgtcwtg."o c{"cv"hktuv"uggo "tkf f ngf" y ksj "r tqdngo u"hqt"yj g"tcpuncvqt."cu"dqqmu"ctg"f kuewuugf "yj tqwi j qw"yj g"r nc{"y j kej "o c{"pqv"gxgp"dg"cxckncdng" kp"tcpuncvkqp"kp"qyj gt"ncpi wci gu0"Vj g"r nc{"y cu."j qy gxgt."uweeguuhwn{"tcpuncvgf "kpvq"c"ncti g"pwo dgt"qh" f kthgtgpv"ncpi wci gu."y ksj "kxngu"qh"dqqmu."kp"uqo g"ecugu."uko r n{"tgvckpgf "kp"Gpi nkuj 0

#### Cf cr w vkqp 'qt 'Gp i nkuj 'kgt ukqp

Rrc{u"qtki kpcvkpi "kp"rguugt/mpqy p"rcpi wci gu"cpf "r gthqto gf "kp"vtcpurcvkqp"kp"Gpi rkuj /ur gcnkpi "eqwpvtkgu."qp"vj g" qvj gt"j cpf ."qhvgp"tgs wktg"c"i tgcvgt"f gi tgg"qh"cf lwuvo gpv"dgecwug"qh"vj g"wphco krkctkv{ "qh"Gpi rkuj "cwf kgpegu"v kj "UN"ewnwtgu"cpf "uqekgvkgu0P qv"kphtgs wgpvn{ ."rgcf kpi "Dtkkuj "r rc{y tki j wi"ctg"eqo o kuukqpgf "vq"r gthqto "vj ku"vcum" r tqf wekpi "v j cv"ku"mpqv p"cu"c"pgy "xgt ukqp0Gzco r rgu"qh"vj ku"v{r g"qh"CFCRVCVKQP "kpenwf g"Y krf "J qpg{ ." O kej cgn"Htc{pøu"xgtukqp"qh"Ej gmqxøu"Rrc vqpqx"hqt"vj g"P cvkqpcn"Vj gcvtg."cpf "Ej tkuvqr j gt"J co r vqpøu" f tco cvkt cvkqp"qh"Ncenquøu"Ngu"Nkc kuqpu"F cpi gt gwugu"hqt"vj g"Tq{cn"Uj cngur gctg"Eqo r cp{ ."y j kej "rcvgt"ugtxgf" cu"vj g"dcuku"hqt"vj g"uetggp"xgtukqp0

Cpqi gt. "gs wcm( "uweeguuhwn'cf cr wkqp."ci ckp"hqt" j g"P ckqpcn" Vj gcvtg. "y cu"Vqo "Uvqr r ctf øu"tgy qtnhpi "qh" Iqj cpp"P guvtq{ øu"pkpgvgpvj /egpwt { "Xkgppgug"eqo gf { "Gkpgp" Iwz "y knt'gt "ukej "o cej gp0 Etwekcn'vq"P guvtq { "kp" y g"qtki kpcn'ku" j g"tcpi wci g. "kp"r ctvkewct" j g"tgo ctncdng" i co gu"j g"r nc { u"y ksj "y g"Xkgppgug" f kcngev\"Qp" j g" \ \ Tc // rg. "Uvqr r ctf øu"tgy tksg" xgtukqp. "o cngu"pq" wug"qh" f kcngev. "pqt" f qgu" kv" kpeqtr qtcvg" eqo ke "uqpi u"qh" j g"v { r g" P guvtq { "kngf" "q" kpvgtr qug" dgw ggp" uegpg" ej cpi gu0 Hqt" eqo ke "ghlgev." kv" tgnkgu" uqngn( "qp" Uvqr r ctf øu" qp p" y kv" qp" pgy n( "eqkpgf" r wpu"cpf" qvj gt" kpxgpvkxg" y qtf "i co gu0" Vj g"gpf" tguwnx" j qy gxgt. "y cu"c" j wi g"vj gcvt kecn'uweeguu0 Vj ku"cr r tqcej "vq" y g" tcpuncvkqp" qh"c"f tco cvke" yzv" j cu"dggp" f guetkdgf" cu" wukpi "y g"UN" ewnwtcn'eqpvgzv'cu" htco g'\gzv\selon "ku" po" kki ku. "wphqt wpcvgn(."pqv'y ksj qwv'j c| ctf u0 Cu" Dcuupgw/O eI wktg" kdkf 0+" eqo o gpw" qp" cp" Gpi rkuj "uvci kpi "qh" cp" Kcnlcp" r nc { <

Vj g'tguwn'qh'y ku'v(r g'qh'vtcpurcvkqp'ku'vq'etgcvg'c'o cuukxg'kf gqmi kecn'uj khv<'y g'htco g'vgmu'Dtkkuj "cwf kgpegu'y cv'y g'r rc{'ku'r tko ctkn('cdqwi':eqo ke'hqtgki pgtuø'cpf 'uq'y j gp'F ctkq'Hqøu'Ceekf gpwn' F gcvj 'qh'cp'Cpctej kw'y cu'r gthqto gf 'kp'Gpi rkuj 'kv'j cf 'dgeqo g'c'hcteg'cdqwi'y g'cduwtf kkgu'qh' Kcrkcpu'cpf 'vj gkt'hqtegu'qh'cwj qtkv{.'tcvj gt''y cp'dgkpi 'c'ucxci g'ucvktg'qp''y g'eqttwr vkqp'qh'y g'' r qrkeg'cpf 'u{urgo u'qh'r qy gt0

Cf cr wwkqpu'y j kej ''wng''j g'hqto ''qh''-etgcwkxg''tgy tkxguø'\*Dkmkpi vqp''3; : 6+''ctg''j gtghqtg'hkngn{ ''vq''dg''o quv'' uweeguuhwn'kp''j g''ecug''qh''o qtg''tqdwuv''eqo gf kgu. ''nguu''uq''y kj ''r nc{u''eqpegtpgf 'y kj ''uqekcn'etkkekuo .''cpf ''ngcuv''qh'' cm'y kj ''r u{ej qnqi kecn'f tco c0'Vj ku''ku''cenpqy ngf i gf ''d{ ''Uvqr r ctf 'y j q.''r tkqt''vq''j ku''P guxtq{ ''cf cr wwkqp. ''wtpgf ''Uej pkk ngtøu''F cu'Y gkxg''Ncpf ''kpvq''Wpf kweqxgt gf 'Eqwput{.''cnuq''hqt''y g''P cwkqpcn''Vj gcvtg0}

Kp''y g'ecug''qh''Wpf kueqxgt gf 'Eqwput {.''y g'Klugpgus wg'wpf gtewttgpwi'qh''y g'r rc { ''o cf g'kk'ko r qt vcpv''q'' guvcdrkuj ''cu'r tgekugn { ''cu'r quukdrg'y j cv''gxgt { ''r j tcug''o gcpv.''tqqv''qw''y g''cmwukqpu.''hkpf ''y g''pkegvkgu'' qh''gvks wgwg.''cpf ''uq''qp.''cpf ''i gpgtcm { ''vq''cko ''hqt''gs wkxcrgpeg0

\*Uvqrrctf'3;:3<+

Vj g'hcvg''qh''qvj gt. ''nguu''uweeguuhwn''r tqf wevkqpu''qh''r nc { u''cf cr vgf ''kp''vtcpuncvkqp''eqphkto u''vj g''pggf ''hqt''cwgpvkqp''vq'' f gvckn''cpf 'hckvj hwpguu''vq''y g''qtki kpcn'kp''y g''ecug''qh''r u{ ej qmji kecn'f tco c. 'Tgkf '\*3; : 2+'tgr qt wu''qp''c''nguu''y cp'' uweeguuhwn'r tqf wevkqp''qh''Cpqvknj øu''*Cpvki qpg*''cu''y g''tguwny'qh'uqo g''o kpqt. 'y gm/kpvgpvkqpgf ''

cnigteskqpu''wpf gtvengp''d{"ij g''tepurevqt0'Highi "ij ev'j ku''tepurevkqp"pggf gf "gredqteskqp."ij g''tepurevqt''ef f gf "e" eqwr ng"qh'i nquugu''epf 'f grgygf 'e'hgy 'nkpgu0'Kp''e'ugeqpf ''tepurevkqp''qh''j g''r re{."j qy gxgt."pq'uwej "enigteskqpu" y gtg"o ef g0'Vj g''f teo eske "ghhges'qh''j g''wpef er vgf "'tepurevkqp''wtpgf "qw''vq''dg''o etnigf n{ 'f khhgtgpv0'Y j gtgeu" tgxkgy gtu''qh''j g''Nqpf qp''r tqf weskqp''deugf 'hekj hwn{ "qp''y g''r tqr gt''yzv'y gtg''kp''pq''f qwdv'qh'Cpqwkrj øu''egpvten'' y go gu. "Co gtkeep''epf ''P gy ''\ gerepf ''tgxkgy gtu''gzr tguugf ''ugtkqwu''o kueqpegr vkqpu''edqw''y g''t wg''pewtg''qh''y g'' vtci gf {'y j kej ''y g''ef er vgf ''yzv''gpi gpf gtgf ''\*Tgkf ''3; : 2+0

### Vt cpurc vlqp'vj gqt { 'cpf 'vj g'vt cpurc vlqp'qh'f t co c

÷Vj gtg'kuø' 'Nghgxgtg'y tqvg'kp'3; : 2." ÷r tcevkecm( 'pq'vj gqtgvkecn'rkvgtcwtg''qp''vj g'vtcpurcvkqp''qh'ftco c''cu''cevgf''  $cpf "r tqf wegf \emptyset "3; : 2 < 39: +0 \\ J g "y gpv"qp" "q" cti wg "y cv" y g" cdugpeg "qh" tgrgxcpv" y tkklpi "qp" y g" uwdlgev" y cu. "cv" y g" cdugpeg "qh" tgrgxcpv" y tkklpi "qp" y g" uwdlgev" y cu. "cv" y g" chugpeg "qh" tgrgxcpv" y tkklpi "qp" y g" uwdlgev" y cu. "cv" y g" chugpeg "qh" tgrgxcpv" y tkklpi "qp" y g" uwdlgev" y cu. "cv" y g" chugpeg "qh" tgrgxcpv" y tkklpi "qp" y g" uwdlgev" y cu. "cv" y g" uwdlgev y cu. "cv" y cu. "cv" y cv" y c$ ftco cvke 'vgz vu'wuwcm( 'dgkpi 'eqphkpgf 'vq'y j cv'y cu'qp'vj g'r ci g0'Ukpeg'vj gp. 'j qy gxgt. 'eqpukf gtcdrg'r tqi tguu'j cu' dggp"o cf g"y kij kp"yj g"hkgrf "qh"r tci o cykeu0"kpetgcukpi n{ ."cwgpykqp"ku"dgkpi "i kxgp"yq"cur gevu"qh"eqo o wpkecykqp." vq''y g'y c{u'fkhgtgpv'ur ggej 'eqo o wpkkgu'unt wewtg'ur ggej 'cewu'uwej 'cu'cr qmi kgu. 'tgs wguwu. 'eqo r nckpwi'cpf 'uq'' qpô cm'ctgcu'qh'kpvgtguv'vq'vj g'vtcpurcvqt'qh'f tco c0'Hwtvj gt'wughwn'kphqto cvkqp'j cu'cnuq'eqo g'htqo 'vj g'hkgnf 'qh' uqekqrkpi wkukeu0Kp''3; 82. 'Dtqy p''cpf 'I kro cp''r wdrkuj gf ''c''f gwkrgf ''uwf { ''qh''yj g''r tqpqwpu''qh''cfftguu''kp'' Gwtqrgcp'hcpi wci gu. 'f tcy kpi 'cwgpvkqp'\q'\jg':\VIXø'f kuvkpevkqp''cu'hqwpf. 'hqt'kpuvcpeg. 'kp''Htgpej 'kp'\jg'\wug''qh'' yj g'kphqto cn'w'xu0'yj g'r qnkg'hqto cn'xqwu'cpf 'kp'I gto cp'kp"Fw'xu0'Ukg0'Ukpeg'yj gp. 'uej qnctu'j cxg'kpetgcukpi n{ " uvctvgf "vq"hqewu"qp"vj g"r tqdrgo u"gpeqwpvgtgf "kp"vtcpurcvkpi "o qf gtp"cpf "encuukecn"f tco c"kpvq"Gpi nkuj ."y j gtg" uwej "c"f kurkperkqp"pq"qpi gt "gzkuru"\*eh0Co wpf ugp"3; : 3="Cpf gto cp"3; ; 5="Mpwuqp"3; ; 6+0Nkgtct{"uej qrctu"ctg" cnuq'kpetgcukpi n{ 'dgi kppkpi 'vq'wtp'vj gkt'cwgpvkqp'vq'r tqdrgo u'ur gekhkecm{ 'tgrcvgf 'vq'vj g'vtcpurcvkqp'qh'f tco c0' Kp''y g'r cuv. 'eqo r ctcvkuvu'kp'r ctvkewrct 'uj qy gf 'rko kxgf 'kpvgtguv'kp''vtcpurcvkqpu'cu'kpuvtwo gpvu'qh'o gf kcvkqp''cpf " kphrwgpeg"co qpi "pcwqpcn'rksgtcwtgu."dw'y ku'ukwcwqp"j cu'tgegpvn("uvctvgf "vq"ej cpi g"\*J g{ngp"3; ; 5<3+0Vj g" qdugtxcvkqp"yj cv"tcpurcvqtu"htqo "f khhgtgpv"ewnwtgu"cpf "f khhgtgpv"dko g"r gtkqf u"y km"tgpf gt "c"r nc { "f khhgtgpvn{ "kp" vtcpurcvkqp"\*J g{rgp"3; ; 5+"cnuq"uj qy u"vj cv"c"htco gy qtmku"dgi kppkpi "vq"go gti g"hqt"j kuvqtkecn/tgrcvkxg"cpf" uqekqewnwtch'o qf gnu'qh'\tcpunc\kqp0

Vj g'kpvgtf kuekr nkpct { ''pcwtg''qh''vtcpurcvkqp''uwwf kgu''j cu'htgs wgpvn{ ''dggp''go rj cuk gf ''\*eh0'Upgm'J qtpd{ ''3; : = "Dcuupgw'3; : 213; ; 3+0'Vj ku''cnuq''j qnf u''vtwg''hqt''vj g''vtcpurcvkqp''qh''f tco c0'Vj g''y c{ 'hqty ctf 'hqt''cf xcpekpi ''c''vj gqt { ''qh''vtcpurcvkqp''ur gekhke''vq''f tco cvke''vgzvu''y qwnf ''uggo ''vq''kp''kp''nkpi wkuvu.''nkvgtct { ''uej qnctu''cpf ''eqo r ctcvkuvu'' lqkpkpi ''hqtegu''y kyj ''r nc{y tki j vu''cpf ''f ktgevqtu''kp''cp''cwgo r v'vq''y qtm'vqy ctf u''c''enqugt''wpf gtuvcpf kpi ''qh''y g'' tgs wktgo gpvu''qh''y g''uvci g. ''kpenwf kpi ''vtcpurcvkqp''hqt''y g''uvci g0 Ugg''cnuq<

NKVGTCT[ "VTCP UNCVKQP."RTCEVKEGU="NKVGTCT[ "VTCP UNCVKQP."TGUGCTEJ "KUUWGU="UJ CMGURGCTG"VTCP UNCVKQP0"

### Hwt vj gt 't gcf lpi

I WP KNNC'CP F GTO CP

# F wddlpi

Vj g'dguv'mpqy p'cpf 'o quv'y kf gur tgcf 'hqto u'qh'cwf kqxkuwcn'\tcpurc\kqp''ctg''UWDVKVNRP I 'cpf 'f wddkpi 0' Uwd\kxrkpi 'ku'xkuwcn'\kpxqnxkpi ''y g''uwr gtko r qukxkqp''qh'y tkwgp''\gzv''qpvq''y g''uetggp0F wddkpi .''qp''y g''qy gt''j cpf .'' ku''qtcn='kv'ku''qpg''qh'c''pwo dgt''qh''\tcpurc\kqp''o gyi qf u'y j kej 'o cng''wug''qh''y g''ceqwurke''ej cppgn'kp''uetggp'' \tcpurc\kqp0

Qtcn'rcpi wci g'\tcpuhgt'\lp'\'j g'\cwf kqxkuwcn'eqp\vgz\v'hcmu'\wpf gt'\vy q'o ckp''j gcf kpi u<'f wddkpi ''cpf ''tgxqkekpi 0'

F wddlpi '\lpxqnxgu''-\dig g'\tgr rcego gpv'qh'\dig g'\qtki kpcn'ur ggej ''d{ "c'xqkeg'\tcem'y j kej ''cwgo r vu'\q'\hqmqy ''cu'emqugn{ "cu''

r quukdng''y g''ko kpi .''r j tcukpi ''cpf ''nkr ''o qxgo gpvu''qh''y g''qtki kpcn'f kcmi wgø'\*Nw{ mgp''gv'cn03; ; 3<53+.''k0g0kv'' kpxqnxgu''nkr ''u{ pej tqpk| cvkqp0'Vj g''vgto ''=f wddkpi ø'ku''cnuq''uqo gvko gu''wugf ''vq''tghgt''vq''tgxqkekpi ''kp''y g''uco g'' ncpi wci g.''hqt''gzco r ng''y j gtg''y g''qtki kpcn'uegpg''ku''uj qv'ci ckpuv'c''pqku{ ''dcemi tqwpf ''cpf ''r quv'u{ pej tqpk| cvkqp'' dgeqo gu''pgeguuct { ''vq''tgeqtf ''y g''qtki kpcn'f kcmi wg0

**Tgxqlelpi** "o c{"'cmg"'y g"hqto "qh'c"xqleg/qxgt."pcttcvkqp"qt"htgg"eqo o gpvct{."pqpg"qh'y j lej "cwgo r wi'vq"cf j gtg" vq"y g"eqpuvtckpvu"qh'rkr "u{pej tqpk| cvkqp0"Y j krg"y g"xctkqwu"o gy qf u"qh'tgxqlekpi "o c{"dg"r tg/tgeqtf gf "qt" vtcpuo kwgf "hkxg."f wddkpi "ku"cny c{u"r tg/tgeqtf gf 0

 $\pm$ T gxqkekpi ø'ku'uqo gvko gu'wugf ''cu''c''i gpgtke''vgto ''vq''tghgt''vq''cm'o gyj qf u''qh''qtcn'hcpi wci g''vtcpuhgt.''kpenwf kpi ''nkr / u{pe''f wddkpi 0

#### Eqput clpvu'cpf 'r t glgt gpegu

Nkr/u{pe'f wddkpi 'ku'hct'o qtg'hcdqwt'kpvgpukxg'cpf 'o qtg'equvn{ 'vj cp'cp{ 'qvj gt'hqto ''qh'uetggp''vtcpurcvkqp0' Hki wtgu''s wqvgf 'hqt''cxgtci g'equvu'r gt''j qwt'hqt''uwdvkxkpi ''cpf 'f wddkpi 'kp'Gwtqr g'\*Nw{ mgp'gv'cn0'3; ; 3<28+" uwi i guv''yj cv'f wddkpi 'ku''37''vko gu''o qtg''gzr gpukxg''yj cp''uwdvkxkpi 0Cpf ''{gv.''f wddkpi 'ku''yj g''pqto ''kp''o cp{ ''eqwpvtkgu''uwej ''cu''I gto cp{ .''Ur ckp''cpf ''Kcn{ .''y j gtg''uwdvkxkpi ''ku''j ctf n{ ''gxgt''wugf ''qt''wugf ''qpn{ ''kp''xgt { ''tguvtkevgf'' eqpvgzvu0}

I qtkı'\*3;;5392ht0+'tgi gctugu'uqo g'qh''y g''r gtegkxgf ''cf xcpvci gu''cpf ''f kucf xcpvci gu''hpenwf g''y g''equv''cpf ''klo g'hcevqt. ''nquu'qh''cwyi gpvkek/{ ''y j gtg''y g''qtki kpcn'xqkegu''ctg''tgr ncegf ''d { '' y qug''qh''c ''ho kgf ''pwo dgt ''qh''cevqtu. ''ko r quukdkrk/{ ''qh''o ckpvckpkpi ''y g''knwukqp''qh''cwyi gpvkek/{ ''i kxgp''y g''r tgugpeg'' qh''xkuwcn'tgo kpf gtu''qh''y g''hqtgki ppguu'qh''y g''ugwkpi ''cpf ''ej ctcevgtu. ''cpf ''/o quv'ko r qtvcpvn{ô y g''pgeguuk/{ ''q'' o ckpvckp''hr ''u{ pej tqpk| cvkqp. ''y j kej ''r ncegu''y gcx{ ''f go cpf u'qp''y g''tcpuncvqt''cpf ''ku''c''o clqt ''eqpuvtckpv'kp''vgto u'' qh''qo kwkpi ''kpeqo r tgj gpukdng''qt ''kpuki pkhecpv'gngo gpvu0J gtduv'\*3;; 74796: +'ff kuewungu'c'hwtyi gt''f kucf xcpvci g<'' rwddkpi ''f gr tkxgu''xkgy gtu''qh'y g''qr r qtwpkk/{ ''q''knvgp''q''y g''hqtgki p''ncpi wci g. ''cpf ''y ku''o c{ ''r ctvn{ ''gzr nckp'y j { '' -yi g''uvcpf ctf ''qh'Cpi rkuj ''cu''c'hqtgki p''ncpi wci g''kulkq' 0 wej ''j ki j gt''kp''uwdvkrkpi ''eqwpvtkgu''uwej ''cu''y g''P gyi gtncpf u'' qt''Uccpf kpcxkcp''eqwpvtkgu''y cp''kp''I gto cp{.'hqt''kpuvcpegø'\*kdkf 0c'47: +0F wddgf ''hkro u''cpf ''r tqi tco o gu''cnq'' gzenwf g''egtvckp''ecvgi qtkgu''uwej ''cu''vqwtkrwu''cpf ''qyi gt''xkukqtu. ''y j q''o c{ ''pqv'ur gcm'y g''nqecn''ncpi wci g''dw''y qwf'' dg''cdng''q''hqmyy ''c''uwdvkryf ''xgtukqp''qh''uc{.''cp''Gpi rkuj ''qt''Htgpej ''hkro 0

Vj g'cti wo gpwi'hqt"cpf "ci ckpuv'f wddkpi "ctg" y gtghqtg" gs wcm ("eqpxkpekpi ."cpf" y j cv'uggo u'vq"f gvgto kpg" y g" ej qkeg"qh'f wddkpi "qt" uvdvkrkpi "cu'vj g"o ckp"o gyj qf "qh'uetggp" tcpurc kqp" kp"c" eqwpvt { "ku"c" eqo r ngz "cttc { "qh" hcevqtu0V y gug" hcevqtu "kpenwf g" equv. "cxckrcdkrk { "qh't gngxcpv'vgej pqmi { ."uvcpf ctf "qh'hkvgtce { ."kpvgtguv'kp" hqtgki p" mpi wci gu. "f gi tgg" qh'ewnwtcn'qr gppguu. "cpf" y g"uvtgpi y "qh'vj g"nqecn'hkro "kpf wuxt { 0P qpg" qh'vj gug" hcevqtu" qp" ku" qy p" ecp" ceeqwpv'hqt" nqecn'r tghgtgpegu0Wrko cvgn (."y g" ej qkeg" qh'o gyj qf" uggo u'vq" dg" f gvgto kpgf" rcti gn ("d { " cwf kgpeg" cdku0Xkgy gtu'kp" tcf kkqpcm (" wddkpi "eqwpvtkgu'vgpf" vq" hcxqwt "f wddkpi "cpf" y qug" kp" tcf kkqpcm (" uvdvkrkpi "eqwpvtkgu'hkpf" kb'f khrkevn'vq" gplq { "c" f wddgf" hkro 0Nw (ngp" gv'cn0\*3; ; 3<3: : ht0+"cti wg" hqt" c"uvtqpi gt" o kz" qh'o gyj qf u'dcugf "pqv'qp" pcvkqpcn'j cdkuu'dw'qp" rtqi tco o g"i gptg" cpf" ur gekhre" cwf kgpeg" rtqhkrg0Vj gkt" tgeqo o gpf cvkqpu" ctg" y qtyj "s wqvkpi "cv'rgpi vj <

 $\label{eq:conditional} \begin{tabular}{l} \begin{$ 

uwd karkpi <br/> 'r tqi tco o gu'y j kej "uj qwrf "dg"uwd kargf "ctg"pgy u"cpf "ewttgpv'chhcktu. "gf weckqpcn'dtqcf ecuw."<br/> egt ckp"f tco c"cpf "hkg"gpygt ckpo gpv'r tqi tco o gu."o wuke "cpf "qr gtc"tgrc {u."cpf "tgrki kqwu"r tqi tco o gu0Kb'y g" vcti gv'xkgy gt"i tqwr "hqt"y gug"r tqi tco o gu'kpenwf gu'y g"wpf gt" $72\phi$ u. "y g"dgwgt "gf wecvgf "cpf "o qtg"chhrwgpv" cu'y gm'cu'uwwf gpwu"cpf "qyj gt "kpygngewcn'o kpytkkgu. "y g"j ctf/qh'j gctkpi . "cpf "y qug'y ky "cp"kpygtguv'kp"y g" qtki kpcn'hcpi wci g"qh'r tqf wevkqp. "y gp"uwd kargf "xgtukqpu"ctg"r ct wewctn { "hkngn{" "q"dg"uweeguuhwi'co qpi "y go = "r tqi tco o gu"hqt"y g"xgt { "qrf ."ect vqqpu"cpf "r wr r gv'uj qy u. "uekgpeg"cpf "ctv" r tqi tco o gu."ur qtwu"cpf "qy gt"o clqt"r wdrke "gxgpvu. "xctkgv{"uj qy u."cpf "f tco c"kp"y j kej "gpygt ckpo gpv'ku'y g" r tgf qo kpcpv'hcevqt "ctg"dguv'tgxqkegf 0Kb'tgxqkegf ."f tco c"tgs wktgu'n{r/u{pe"f wddkpi "y j krg"qy gt" r tqi tco o gu'pggf "pqv'kpewt"y ku"gzr gpug0Vj g"ej gcr gt 'hqto u"qh'tgxqkekpi ."uwej "cu'htgg"eqo o gpvct { ."xqkeg/qxgt"cpf "pcttcvkqp"ygej pks wgu. "ecp"j gtg"dg'wugf "xgt { "ghhgevkxgn{0}

\*Nw{ ngp'gv'cn03; ; 3<3: ; +

## Ewnwt cn'eqpurt clpvu'lp'f wddlpi

Hey egw<sup>1</sup>/3; ; 8-98+"r qkpwi'qw''y cv'-kp"c'f wddgf 'hkro ''y g''ctg''eqpuwcpwf ''cy ctg''y tqwi j 'ko ci gu''cpf ''pqp/o cvej kpi '' o qwj ''o qxgo gpwi'qh''y g''r tgugpeg''qh''c'hqtgki p''rcpi wci g''cpf ''ewnwtgø''y j kej ''uwi i guwi'y cv'f wddkpi ''ku''c'r tko g'' kpuwcpeg''qh''qxgt v'tt cpurc vkqp''kp''J qwugøu''vgto u'\*J qwug''3; : 3=''ugg''S WCNKV[ ''QH''VTCP UNC VKQP +0'Kp''qvj gt'' y qtf u.''c'f wddgf 'hkro ''qt''r tqi tco o g''ku''cny c {u''qxgt vf ''r tgugpvgf ''cpf ''r gtegkxgf ''cu''c''tcpurc vkqp0'Vj ku''uwi i guwi'' y cv''y g''tgevo gpv'qh''ewnwtg/ur gekhe''o cvgtken 'kpenwf kpi ''f kergev.''y km'r qug''ugtkqwu''r tqdrgo u''kp''y ku''eqpvgzv.''cpf '' y cv'hwpevkqpon''er r tqcej gu''o c { "pqv''cny c {u''qhhgt''y g''tki j v'mkpf ''qh''uqnwkqp0'Y j gtgcu''tgr reckpi ''Co gtkecp''urcpi '' y kyj .''uc { .''Ur cpkuj ''urcpi ''o c { ''y qtm'y gm'kp''c'pqxgn''kp''y g''eqpvgzv'qh''c'f wddgf ''hkro ''y g''vgz wen'o cvgtken'y km'' ercuj ''vqq''qdxkqwunf ''y kyj ''y g''i guwtgu''cpf ''hceken'gzr tguukqpu''qh''y g''cevqtu0'Hey egw'\*3; ; 8-97+'i kxgu''cp''gzco r rg'' htqo ''y g''Htgpej ''hkro ''Uk'e& vc'kv''«''t glrc'kt g''cpf ''kwi''Co gtkecp''f wddgf ''xgtukqp'''Ugeqpf ''Ej cpeg.''y j gtg

kp''c''ercuutqqo ''uegpgí c''vgcej gt''wwgtu''y g''y qtf u''-J g{.''y qy .''o cp.''{qw¢tg''cm''c''dwpej ''qh'' o gcyj gcf u¢''y qtf u''kpvgpf gf ''vq''o cvej ''y g''o qwyj ''uj cr gu''dwí vq''cp{qpg'hco krkct''y kyj ''Htgpej '' ewwwtcn'hkhg.''f q''pqv''dgmpi ''vq''y g''o qf gu''qh''f kueqwtug''pqto cm{ ''wugf ''kp''y g''Htgpej ''ercuutqqo 0

Vj g'hœv'y cv'y g'ugwkpi "cpf 'y g'ej ctcevgtu'ctg'Htgpej ."Hcy egw'cti wgu "ecppqv'dg'o cungf 'kp'y ku'eqpvgzv0 Qp''y g''q gt''j cpf ."tgugctej 'j cu'uj qy p''y cv'kh'c'f gekukqp''ku'vcngp''vq''pcwtcnk g''c'hkro ''qt''r tqi tco o g'hqt'' r qrkkecn 'kf gqmi kecn'qt''eqo o gtekcn'tgcuqpu "ej cpi gu'o c{ ''dg'kpvtqf wegf ''cv'xctkqwu''ngxgnu''vq''j grr ''o ckpvckp''y g'' kmwukqp''qh''cwyi gpvkekv{0Ci quv'\*3; ; 7+'i kxgu''xctkqwu''gzco r ngu'htqo ''y g'f wddgf 'Ecvcrep''xgtukqp''qh''y g''Htgpej '' ugtkgu''Rt go kgt u'Dckugt v0'Vj g''f gekukqp''vq''Ecvcrepk g''y g''ugtkgu''kpxqrxgf ''pqv'qpn{ ''f tcy kpi ''qp''y g''gxgt { f c { '' ur ggej ''qh'Ecvcrep''xggpci gtu''dw''cnq''wukpi 'Ecvcrep''pco gu''hqt''ej ctcevgtu''cpf ''r reegu''cpf ''tgr reekpi ''y g''qtki kpcn'' o wuke''y ky ''y g''o wuke''qh''r qr wrct''Ecvcrep''tqenii tqwr u0

Y j gyj gt 'f qo guvlecvlpi ''qt 'hqtgki pk kpi 'kp' kwu''crrtqcej ''\*ugg' <u>UVTCVGI KGU'QH'VTCPUNCVKQP</u>+."cp{ 'hqto ''qh'' cwf kqxkuwcn' \tcpurcvkqp. 'kpenwf kpi 'f wddkpi .''wnko cvgn{ ''r rc {u''c' \wpks wg' \tqng' \kp''f gxgmr kpi ''dqyi ''pcvkqpcn' kf gpvkkgu'' cpf ''pcvkqpcn' uvgtgqv{r gu0'Vj g''tcpuo kuukqp''qh''ewnwtcn' xcnwgu' \kp'' uet ggp''tcpurcvkqp' cu''t gegkxgf ''xgt { ''nkwrg'' cwgpvkqp' \kp''yj g''nkgtcwtg''cpf ''tgo ckpu''qpg''qh''yj g''o quv''r tguukpi ''ctgcu''qh''tgugctej ''kp''tcpurcvkqp''uwxf kgu0

#### Hwt yj gt 't gcf kpi

O QP C 'DCMGT 'cpf 'DTC  $\,$  Q'J QEJ GN  $\,$ 

G

# Gs wkxcrgpeg

Gs wkxcrgpeg'ku'c'egpvtcn'eqpegr v'kp''vtcpurcvkqp''vj gqt { .''dwv'kv'ku''cnuq''c''eqpvtqxgtukcn'qpg0Crrtqcej gu'vq''vj g'' s wgurkqp"qh"gs wkxcrgpeg"ecp"f khhgt"tcf kecm{ <'uqo g''vj gqtkuru"f ghkpg"\tcpurcvkqp"kp"\ygto u''qh"gs wkxcrgpeg"tgrcvkqpu" \*Ecvhqtf '3; 87="P kf c"cpf "Vcdgt"3; 8; ="Vqwt { '3; : 2c="R{o '3; ; 4c. '3; ; 7="Mqmgt"3; ; 7+"y j kmg"qyj gtu"tglgev"yj g" yj gqtgvkecn/pqvkqp"qh'gs wkxcngpeg."encko kpi "kv'ku'gkvj gt"kttgngxcpv'\*\*Upgm/J qtpd{"3;::+"qt"fco ci kpi "\*I gpv| ngt" 3; ; 5+"\q"\tcpurc\kqp"\uwf kgu0[ gv'qyj gt"\j gqtkuvu'\uvggt"c"o kf f rg"eqwtug<'Dcngt"\uvgu'\j g"pq\kqp"qh'gs wkxcrgpeg" -int 'y g'ucng'qh'eqpxgpkgpegô dgecwug'o quv'tcpurcvqtu'ctg'wugf 'vq'kv'tcy gt''y cp'dgecwug'kv'j cu'cp{ "y gqtgvkecn" uvcwuø'\*3; ; 4468+0'Vj wu'gs wkxcrgpeg'ku'xctkqwun('tgi ctf gf ''cu'c'pgeguuct{'eqpf kkkqp'hqt''\tcpurc\kqp.''cp''qduvcerg'' vq'r tqi tguu'kp'\tcpurc\kqp'\uwf kgu."qt"c'\wughwrlecvgi qt { 'hqt"f guetkdkpi '\tcpurc\kqpu0 Rtqrqpgpwi'qh'gs wkxcrgpeg/dcugf 'vj gqtkgu'qh'tcpurcvkqp'wuwcm( 'f ghkpg'gs wkxcrgpeg'cu'vj g'tgrcvkqpuj kr 'dgw ggp'' c'uqwteg'\gzv\\*UV+"cpf "c'\cti gv\\gzv\\*VV+'\yi cv'cmqy u'\yi g"VV'\q''dg''eqpulf gtgf "cu'c'\tcpurc\kqp"qh'\yi g"UV'\kp'\yi g" htuv'r rceg0Gs wkxcrepeg'tgrcwlqpuj kru'ctg'cnuq'uckf''vq'j qrf''dgwy ggp'r ctwl'qh'UVu'cpf'r ctwl'qh''VVu0'Vj g''cdqxg'' f ghkpkkqp"qh"gs wkxcrgpeg"ku"pqv"wpr tqdrgo cvke."j qy gxgt0"R{o "\*3;; 4c<"59+."hqt"qpg."j cu'r qkpvgf "vq"kw" ektewrctkx{ <'gs wkxcrgpeg'ku'uwr r qugf ''vq'f ghkpg''\tcpurc\kqp."cpf ''\tcpurc\kqp."kp''wtp.'f ghkpgu''gs wkxcrgpeg0' ektewrctk/{0"Vj gqtkmu'y j q"o ckpvckp" yj cv'\tcpurc\kqp"ku'r tgf kecvgf "wr qp"uqo g"mkpf "qh'gs wkxcngpeg" j cxg. "hqt" yj g" o quv'r ctv. "eqpegpvtcvgf" qp"f gxgrqr kpi "v{r qrqi kgu"qh"gs wkxcrgpeg. "hqewukpi "qp" yi g"tcpm" y qtf. "ugpvgpeg" qt" vgzv" ngxgn+"cv'y j kej "gs wkxcngpeg"ku'uckf "\q"qdvckp" "ugg."hqt"gzco r ng. "Dengt"3; ; 4+. "qt "qp" yj g" \{ r g"qh'o gepkpi " \*f gpqvcvkxg. "eqppqvcvkxg. "r tci o cvke. "gve0+"yi cv"ku 'uckf "vq"dg"j grf "eqpuvcpv"kp "vtcpurcvkqp0"kpxguvki cvkqpu"qh"yi g" guugp kcn'pcwtg''qh''gs wkxcngpeg''tgo ckp''y g''gzegr kqp0

#### V{ r qmi lgu'qh'gs wlxcrgpeg

Cv'xctkqwu'rgxgn..."cpf "nqugn( 'hqmy kpi "Mqngt'\*3; 9; 3: 96; 3."3; : ; 32266+"gs wkxcrgpeg'kn'eqo o qpn( "gwcdrkij gf "qp" yj g'dcuku'qhc'y g'uqwteg'rcpi wci g'\*UN+'cpf "cti gv'rcpi wci g'\*VN+'y qtf u'uwr r qugf n( 'tghgttkpi "vq" yj g'uco g'yi kpi 'kp'iy g'tgcn'y qtrf...'kg0qp" yj g'dcuku'qh'y gkt'tghgtgpvkch'qt'T gpqvcvkg'ys wkxcrgpeg='yj g'UN'cpf "VN'y qtf u'tki i gtkpi "yj g'uco g'qt'uko kret'cunqekcvkqpu'kp'yj g'o kpf u'qh'pcvkxg'ur gengtu'qh'yj g'w q'rcpi wci gu.'kg0' yj gkt'eqppqvcvkxg'ys wkxcrgpeg='yj g'UN'cpf "VN'y qtf u'dgkpi "wugf "kp'yj g'uco g'qt'uko kret'eqpvgzwi'kp'yj gkt" tgur gevkxg'rcpi wci gu.'kg0y j cv'Mqngt'\*3; : ; 324+"ecmi'vgzv/pqto cvkxg'ys wkxcrgpeg='yj g'UN'cpf "VN'y qtf u'' j cxkpi "yj g'uco g'ghhgev'qp'yj gkt'tgur gevkxg'tgcf gtu.'kg0'rtci o cvke'\*Mqngt'3; : ; 324+"qt'f {pco ke'ys wkxcrgpeg" "P kf c'3; 86+='yj g''UN'cpf "VN'y qtf u'' j cxkpi 'uko kret'qty qi tcrj ke'qt'r j qpqqi kecnhgcwtgu.'qt'hqto cnl' gs wkxcrgpeg0Dcngt'\*3; ; 4+"gz vgpf u'yj g'eqpegr v'qh'gs wkxcrgpeg"vq'eqxxgt'uko kretk{ "kp''UV'cpf "VV'kphqto cvkqp" hqy "cpf "kp'yj g'eqj gukxg'tqrgu'UV'cpf "VV'f gxkegu'r rc{"kp''y gkt'tgur gevkxg''yzxu0'Uj g'ecmi'yj gug''y q'hcevqtu" eqo dkpgf "vgzwcnlys wkxcrgpeg0P gy o cp'\*3; ; 6<68; 7+"uxtguugu''yj cv'pqv'cmi'y g'xctkcdrgu''kp''tcpurcvkqp''ctg" tgrgxcpv'kp"gxgt{ 'ukwwxlqp."cpf "yj cv'tcpurcvqtu'o ww'f gekf g'y j kej "eqpulf gtcvkqpu''uj qwf "dg''i kxgp''r tlqtkx{ "cv' cp{"qpg''ko g."yi wu''gurcdrkuj kpi "c'mkpf "qh'hypekqpcrlys wkxcrgpeg'\*ugg''cnq'P gwdgtv'3; ; 6+0
Mcf g'\*3; 8: +"cpf "qy gt'y tksgtu''qp''ngzkecn'gs wkxcrgpeg."kp''r ctvkewct''kp''y g''ctgc''qh'\gto kpqqni { "\*ugg."hqt" gzco r rg. "Ctpy "3; ; 5='J cpp"

3; ; 4+."eqo dkpg" yi g"cdqxg"s wcrkcvkxg"f kurkpevkqpu'y kyi "c"s wcpvkcvkxg"uej go g" yi cv'ecvgi qtk gu"gs wkxcrgpeg" tgrcvkqpuj kr u"ceeqtf kpi "vq"y j gyj gt" yi gtg" kurc"c "ukpi rg"gzr tguukqp" kp" yi g"VN" hqt"c "ukpi rg"UN"gzr tguukqp. "kg0'qpg/ wq/qpg'gs wkxcrgpeg="o qtg" yi cp"qpg" VN"gzr tguukqp" hqt "c" ukpi rg"UN"gzr tguukqp. "kg0'qpg/ wq/o cp{ 'gs wkxcrgpeg=" c"VN"gzr tguukqp" yi cv'eqxgtu"r ctv'qh'c "eqpegr v"f guki pcvgf "d{"c"ukpi rg"UN"gzr tguukqp. "kg0'qpg/ wq/r ct v qh'qpg'' gs wkxcrgpeg="qt"pq" VN"gzr tguukqp" hqt"cp"UN"gzr tguukqp. "kg0'pkrigs wkxcrgpeg0'Uwej "c"s wcpvkcvkxg"cr r tqcej " o c{"j cxg"rko kyf"cr r rkecdkrk/ "kp"rcpi wci g"hqt"ur gekhle"r wtr qugu" \*NUR+: "dw'Upgm/J qtpd{"\*3; : : 42+"j cu" cti wgf "yi cv'kv'ku'f ghkekgpv'dgecwug'kv'ku'tgurtkevgf "vq'yi g"y qtf "rgxgn'cpf" cnuq"dgecwug'kv'ko r rkekn/ "cuuwo gu'yi cv' yi g"rcpi wci g"u{ uvgo "ecp"dg"gs wcvgf" y kyj "eqpetgyg"tgcrk cvkqp"kp"c" ygv0

## Vj g'þcwt g'hligs wkxcngpeg

Y tkigtu'y j q'j cxg'cfftguugf''y g'r tqdigo ''qh'y g'pcwtg''qh'ytcpurcykqp''gs wkxcigpeg'kpenwfg'Ecykqtf''\*3; 87='3; ; 6+" cpf "R{o '\*3; ; 4c+0'Ecvhqtf 'r qukuu'cp"gzvtcnkpi wkuvke"f qo ckp"qh'qdlgevu. 'r gtuqpu. "go qvkqpu. "o go qtkgu. "j kuvqt{." gve0"thrwcvlqp"kp"J cnkfc{cp"\gto u+. 'hgcwtgu'qh'y j kej "o c{"qt"o wuv'cej kgxg"gzrtguukqp'kp"c'i kxgp'hcpi wci g0' Vtcpurckqpcn'gs wkxcrgpeg'qeewtu.'j g'uwi i guvu.'y j gp''UVu''cpf "VVu''ctg'tgrcwdrg''\q''cv'rgcuv'uqo g''qh''y g'uco g'' hgcwtgu'qh'y ku'gzvtcnkpi wkuvke'tgcnk√{.'y cv'ku'y j gp''UV'cpf "VV'j cxg'crrtqzko cvgn("y g'uco g'tghgtgpvu'\*3; 87⊲2." 3; ; 6-695; +0/Ecvhqtf "vj wu'tgrkgu'qp"cp"guugpvkcm( 'tghgtgpvkcn'vj gqt{"qh'o gcpkpi ."cp"crrtqcej "y j kej "vtcpuncvkqp" yj gqtkuvu'uvej "cu'Dcuupgw'\*3; : 213; ; 3<8+"j cxg"hqwpf "vqq"pcttqy 0'Nkngy kug. "htqo "Htcy ng{øu'ugo kqvke" r gtur gevlxg. "vj g"laf gc"vj cv"o gcplopi "tgulaf gu"uqo gy j gtg"qwulaf g"ncpi wci g"lau"wpvgpcdrg<":-Vj gtg"lau"pq"o gcplopi " crctv'htqo "vj g"eqf gø"j g"o ckpvckpu. "cff kpi "vj cv"÷Vj g"y qtrf u"cpf "r quukdrg"y qtrf u"f khlgt. "cpf "vj g"s wguvkqp"qh" tghgtgpv'ku'pqv'gxgp''y g''s wguvkqp''vq''r qugø'\*Htcy ng{ '3; : 6d<386+0Ecvhqtf ''cnuq''eqo gu''wpf gt ''etkkekuo ô htqo '' Upgm/J qtpd{"\*3;:: ∢2+."co qpi "qvj gtuô hqt"wukpi "uko rnkuvke."kpxgpvgf "ugpvgpegu"vq"gzgo rnkh{"j ku"ecvgi qtkgu"qh" vtcpurcvkqpcn'gs wkxcngpeg. "cpf "hqt 'nko kxkpi "j ku'cpcn{ uku'\q'\j g'ngxgn'qh'\j g'ugpvgpeg0'Ecvhqtf øu'crrtqcej "o c{" j cxg"dggp"etkwlekt gf. "dwv'hgy "cnwgtpcwlxgu"j cxg"dggp"r wv'hqty ctf0"Vj g"r tqdngo "qh"r kppkpi "f qy p"vj g"guugpwlcn" pcwtg'qh'gs wkxcrgpeg'uggo u'vq'dg'tgrcvgf 'vq'vj g'r tqdrgo ''qh'r kppkpi 'f qy p''vj g''pcwtg''qh'rkpi wkuke''o gcpkpi " kugrh0R{o "3; ; 4c+"cxqkf u"yj ku"f khhkewn/{ "d{"o qxkpi "cy c{ "htqo "yj g"uvtkevn/{ "htpi wkuvke"vq"xkgy "vtcpurcvkqp"cu"c" vtcpucevkqp. "cpf "gs wkxcrgpeg"cu" gs wcrkv { 'qhlgzej cpi g'xcnvg0 Gs wkxcrgpeg "dgeqo gu"c "pgi qvkcdrg" gpvkv { ."y kj " vtcpurcvqtu'f qkpi 'vj g'pgi qvkcvkqp0

### Kpvgt dpi wedepf 'kpvgt vgz vvedgs wkxengpeg

Iβ "gctrkgt"y qtni'qp "gs wkxcngpeg." yj gqtknui'o cf g"c"f knkpevkqp"dgwy ggp"j {r qyj gykecn'o cr r kpi u'dgwy ggp"gngo gpwl" qh'cduxtcev'ircpi wci g"u{ uvgo u'\*cv'yj g"rgxgn'qh'rct qrg+"qp"yj g"qyg gt0Ecvkqtf "\*3; 87-49+"wugf "yj g"yto u'hqto cri' eqt t gur qpf gpeg'cpf 'vgzwcn'gs wkxcngpeg't gur gevkxgn( "'q"t ghgt"'q"yj g"yy q"ecvgi qt kgu0Mqngt" \*3; 9; -3: 566+" o cf g"c"uko krt "f knkpevkqp"y j gp"j g"f khtgtpykcvgf "dgwy ggp"Mqt t gur qpf gpp|."hqto cn'uko krtk\{ "dgwy ggp" rcpi wci g"u{ uvgo u "cpf" \*£ s wkxcngpe] ."gs wkxcngpeg't gur kqpu'dgwy ggp "tgcn'vgz u'cpf "wwgtcpegu0Mqngt" yj gp"y gpv' qp"\q"r t gugpv'£ s wkxcngp/ "cu'yj g"tgcn'qdlgev'qh'gps wkt {"kp"tcpurcvkqp"uwf kgu0Uko krtn(."Vqwt {"\*3}; : 2c-4668+" ej ctwi'yj g"gxqnwkqp"qh'y g"pqvkqp"qh'VTCP UNCVCDKNKV[ "htqo "cp"kpvgtnkpi wcn'r j gpqo gpqp"vq"cp" kpvgtvgz wcn'qpg0Y j krg't grevkqpuj kr u"guvcdnkuj gf "cv'yj g"rgxgn'qh'rcpi wg"ctg"pqy "rcti gn( "uggp"cu'yj g"eqpegtp"qh" eqo r ctcvkxg"hpi wknkeu. "hqto cn'eqttgur qpf gpeg'eqpvkpwgu"\q"j cxg"r tkf g"qh'r rceg"kp"O CEJ kP G" VTCP UNCVKQP ."y j gtg"hpi wknke/npqy ngf i g/dcugf "u{ uvgo u'wukpi "f ktgev'qt "ktcpuhgt"ctej kygewtg"qhygp"tgn("qp" o crr kpi u'dgwy ggp"yj g"hqto cn'untwewtgu"qh'wy q"repi wci gu0Npf ggf "Ecvhqtf øu'\tcpuhgt"ctej kygewtg"qhygp"tgn("gv'cn') 3; ; 6+0

Vj wu'y g'i gpgtcn'xkgy 'kp''tcpurcvkqp''uwf kgu''uqqp''eco g''vq''dg''y cv''gs wkxcngpeg''y cu''c't grcvkqp''dgwy ggp''vgzwu''kp'' wy q'f khhgtgpv'hcpi wci gu.''tcyi gt''y cp''dgwy ggp''y g'hcpi wci gu''y go ugnxgu0'Vj ku''uvgr 'hkdgtcvgf ''tcpurcvkqp''uwf kgu'' htqo ''f gdcvgu''qp''kpvgtn'pi wcn''tcpurcvcdkrkv{ ''dcugf ''qp''gpvktg''rcpi wci g''u{ uvgo u''y ky ''cm''y gkt''

wpcewcnt gf "o gcplpi "r qvgpvlcn'\*ugg" Mqmgt "3; 9; ="R{o "3; ; 7<3796: +0" Uvej "f gdcvgu" j cf "egpvtgf "qp" lpeqo r cvkdkrklgu" dgwy ggp" yi g"y qtnf u"lpj cdkxgf "d{" ur gcmgtu" qh"f kthgtgpv" rcpi wci gu" cpf "qp" yi g" uvt wewtcn" f kuuko krctkklgu" dgwy ggp" rcpi wci gu0 Qpeg" cwgpvlqp" y cu" rqewugf "qp" vgzvu" cpf "wwgtcpegu. "o cp{"qh" yi g"r qvgpvlcn" o wnkr ng" o gcplpi u"cpf "hwpevlqpu" qh" y qtf u"cpf "uvt wewtgu" lp" c" rcpi wci g"u{ uvgo "eqwrf" dg" grko lpcvgf" d{" tghgtgpeg" vq" yi gkt" eqvgzv" c cnlipi "vtcpurcvlqp" pqv" qpn{"o qtg" tcevcdrg. "dw" cnuq"o qtg" tgcrkuvle0

#### Gs wkxcrgpeg'cu'cp'go rkt kecn'cpf 'c'tj gqt gvkecn'eqpegr v

Vj g'pcttqy kpi 'f qy p'qh'y g'ueqr g'qh'y g'ygto 'gs wkxcrgpeg'yq'cp'kpygtygz wcn't grcykqp'uvkm'rghy'r rgpv{ 'qh'tqqo 'hqt" eqo r gwlpi "pqwlqpu"qh"yj g"eqpegr v0"Vqwt {"\*3; : 2c<"5; +"lxf gpwlhlyf "vy q"o clp"wugu"qh"yj g"vgto <"hktuv."gs wkxcngpeg" eqwrf "dg":c"f guet kr vkxg"vgto. "f gpqvkpi "eqpet gvg"qdlgevuô cewcn't gncvkqpuj kr u'dgwy ggp"cewcn'twwgt cpegu'kp"vy q" ncpi wci gul\*cpf 'hkgtcwtgu+.'tgeqi pkugf 'cul'VVulcpf 'UVuô y j kej 'ctg'uwdlgev'\q'f ktgev'qdugtxcvkqpø0'Vj ku' f ghkpkklqp'tgi ctf gf 'gs wkxcrgpeg'cu'cp'go r ktlecrlecvgi qt { 'y j kej 'eqwrf 'dg'guvcdrkuj gf 'qpn{ 'chvgt 'y j g'gxgpv'qh' vtcpurcvkqp0Vqwt { "eqpvtcuvgf" vj ku "crrtqcej" v kij "gs wkxcrgpeg" cu "÷c" vj gqt gvkech vgto. "f gpqvkpi "cp" cduvtcev. "kf gcn" tgrcvkqpuj kr. "qt"ecvgi qt{"qh"tgrcvkqpuj kru"dgvy ggp"VVu"cpf"UVu. "tcpurcvkqpu"cpf" bj gkt"uqwteguø" kdkf0+0 Vj ku'f kej qvqo {"ecp"dg"r tqdrgo cvke."j qy gxgt0"Hqt"qpg."kv"o c{"pqv"dg"r u{ej qrqi kecm{"r rcwukdrg0"Htqo "yj g" vtcpurcvqtøu'r qkpv'qh'xkgy .'kv'ku'pqv'ergct'y j gyj gt'c'tgcn'f kuvkpevkqp'ecp'dg'o cf g'dgwy ggp'y j cv'qpg'kpvgpf u'vq'' y tkg. "cpf "y j cv'qpg"cewcm( "y tkgu0'Hwtyi gto qtg. "gs wkx crgpeg"cu'c "y gqtgvlecn'vgto . "c'r tqur gevlxg"cpf "qhvgp" rtguetkr vkxg"pqvkqp. "ku"tgurqpukdrg"hqt"ces wktkpi "c"dcf"pcog"hqt"gs wkxcrgpeg"kp"uqog"s wctvgtu"kp"vtcpurcvkqp" uwwf kguOI gpv| rgt"\*3;; 5-6+: "hqt"gzco r rg. "eqpvgpf u'vj cv'uvcpf ctf u'qh" \tcpurcvkqp"cpcn{ uku'vj cv'tgn{ "qp"gs wkxcrgpeg" qt"pqp/gs wkxcrgpeg"cpf "qvj gt"cuuqekcvgf "lwfio gpvcn'etkvgtkc":korn("pqvkqpu"qh'uwduvcpvkcrkuo" 'vj cv'rkokv'qvj gt" r quukdkrkkgu'qh'\tcpurc\kqp'r tce\keg.''o cti kpcnk g'\wpqtyj qf qz'\tcpurc\kqp.''cpf 'ko r kpi g'\wr qp'tgcn'kpygtewnwtcn' gzej cpi gøOP gy o cp'\*3; ; 6<68; 6+."qp"yj g"qyj gt"j cpf."f guetkdgu'\tcpurc\kqp"gs wkxcrgpeg"cu"÷c"eqo o qpugpug" vgto "hqt"f guetkdkpi "yj g"kf gcnltgrcvkqpuj kr "yj cv'c"tgcf gt"y qwrf "gzr gev'vq"gzkuv'dgwy ggp"cp"qtki kpcn'cpf "ku" vtcpurcvkqp@0P gy o cp@u"gs wkxcrgpeg"ku"ergctn("rtqur gevkxg"cpf "kf gcn"cnyj qwi j "go rktkecn'crrtqcej gu"cnyq" hgcwtg'lp''y g''cpcn{ uku0R{o ''cnuq''ur gcmu''cdqwb'gs wkxcngpeg''cu''c''±hcev'qh'tgegr vkqpø'\*3;; 4c<'86±''cpf ''cdqwb'y g'' uqekcm("f gvgto kpgf"::gzr gevcvkqpø'vj cv'VVu'uj qwrf "uvcpf "kp"uqo g"nkpf "qh"gs wkxcngpeg"t gncvkqp"vq"vj gkt "UVu" \*3;;7**3**88+0

Vqwt {øu'go r kt kecn'ecvgi qt { ''qh'gs wkx cngpeg''j cu'o wej ''kp''eqo o qp''y kj ''Ecvhqt f øu'\gz wcn'gs wkx cngpeg0'C 'wgz wwcn' **gs wkxcrgpv**'ku'f ghkpgf ''cu''÷cp{ ''VN'hqto ''y j kej ''ku''qdugtxgf ''vq''dg''y g''gs wkxcrgpv''qh''c'i kxgp''UN'hqto ''\*vgzv''qt'' rqtvkqp"qh'vgzv+ø′\*3; 87∢49+0′Gs wkxcngpv'hqto u'ecp"dg"o cvej gf "d{"crrgcnkpi "vq"yj g"kpwkvkqp"qh'dknkpi wcn" kphyto cpwi'qt "d{"crrn{kpi "o qtg'hyto cn'r tqegf wtgu'uwej "cu'eqo o wcvkqp" \*Ecvhytf "3; 87≪196: +."c"o gyj qf "qh" f kueqxgtkpi "vgzwcn'gs wkxcngpvu"y j kej "eqpukuvu"qh"cumkpi "c"eqo r gvgpv'dkrkpi wcn'kphqto cpv'vq"vtcpuncvg"uvtgvej gu" qh'\gzv'cpf "vj gp'u{uvgo cvlecm{ 'kpvtqf wekpi 'ej cpi gu'kpvq'vj g'UN'\gzv'vq"guvcdrkuj 'j qy "gcej 'ej cpi g'ku't ghrgevgf " kp"yj g"vtcpurcvkqp0"Vgzwcn"gs wkxcrgpeg"ku."ceeqtf kpi "vq"Ecvhqtf."cp"go r kt kecn"r tqdcdkrkuvke"r j gpqo gpqp0"Vj g" r tqdcdkrk/{ "'y cv'c"i kxgp"UV"hqto "y km'dg"\tcpurcvgf "cu"c"i kxgp"VV"hqto "ecp"dg"ecrewrcvgf "qp"\y g"dcuku"qh" rtgxkqwu'gzrgtkgpeg'cpf'tgecuv'cu'c'rtqdcdkrkurke'**vtcpurvkqp'twrg**'\*Ecvhqtf'3;87<53+0'Upgm/Jqtpd{'\*3;::42+" hlpfu''y g'uco g''y gcmpguu'y ky ''y ku''xkgy ''qh''gs wkxcngpeg''cu''fqgu''R{o '\*3;;4c<'59+c'kv'ku''ektewnct=''vtcpuncwlqp'' gs wkxcrgpeg'ku'y j cv'ku'qdugtxgf ''\q'dg''gs wkxcrgpv0'Dw'y j krg'Ecvlqtf øu''xkgy ''qh''\gz wcn'gs wkxcrgpeg''o c{ ''uc{ " xgt { "hkwrg"cdqwl'yj g"pcwtg"qh"gs wkxcrgpeg."yj g"crrtqcej "j cu"hqwpf"crrnlecwlqp"llp"ctgcu"uwej "cu"gzcorrg"cpf" uvckukeu/dcugf "o cej kpg" tcpurckqp" "tugg" wej kpu"cpf "Uqo gtu"3; ; 4<539644+"cpf. "o qtg" tgegpvn(. "kp" tcpurckqp"  $o\ go\ qt\{'u\{uvgo\ u.'y\ j\ gtg'r\ tgxkqwun\{''tcpurcvgf\ ''UVu''cpf\ ''y\ gkt''VVu''ctg''uvqtgf\ ''y\ kyj\ ''c''xkgy\ ''vq''tge\{erkpi\ ''qnf''\ and\ ''vq''tge''\ and\ ''vq''tge''\ and\ ''vq''tge''\ and\ ''vq''tge''\ and\ ''vq''tge''\ and\ ''vq'''tge''\ and\ ''vq''tge''\ and\ ''vq'''tge''\ and\ ''vq'''tge''\ and\ ''vq'''tge''\ and\ ''vq'''tge''\ and\ ''vq'''tge''\ and\ ''vq'''tge''''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge''''tge'''tge''''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge''''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge''''tge''''tge'''tge'''tge'''tge''''tge''''tge''''tge'''tge'''tge'''tge''''tge'''tge''''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tge'''tg$  $wcpurcwlqpu.''uj\ qwrf\ ''y\ g'u\{uvgo\ 'tgeqi\ pk\ g'pgy\ 'kpr\ w'hqt'y\ j\ kej\ 'kv'cntgcf\ \{\ ''j\ cu'cp''\div gs\ wkxcngpw'vcti\ gv'tgpf\ gtkpi\ ''y\ g'u\{uvgo\ 'tgeqi\ pk\ g'pgy\ 'kpr\ w'hqt'y\ j\ kej\ ''kv'cntgcf\ \{\ ''j\ cu'cp''\div gs\ wkxcngpw'vcti\ gv'tgpf\ gtkpi\ ''y\ g'u\{uvgo\ 'tgeqi\ pk\ g'pgy\ ''kpr\ w'hqt'y\ j\ kej\ ''kv'cntgcf\ \{\ ''j\ cu'cp''\div gs\ wkxcngpw'vcti\ gv'tgpf\ gtkpi\ ''y\ g'u\{uvgo\ 'tgeqi\ pk\ g'pgy\ ''kpr\ w'hqt'y\ j\ kej\ ''kv'cntgcf\ \{\ ''j\ cu'cp''\div gs\ wkxcngpw'vcti\ gv'tgpf\ gtkpi\ ''y\ g'u\{uvgo\ 'tgeqi\ pk\ g'pgy\ ''kpr\ w'hqt'y\ j\ kej\ ''kv'cntgcf\ \{\ ''j\ cu'cp''\div gs\ wkxcngpw'vcti\ gv'tgpf\ gtkpi\ ''y\ g'u\ key\ g'$ \*ugg'<u>OCEJ KPG/CKFGF''VTCPUNCVKQP</u>=<u>"OCEJ KPG"VTCPUNCVKQP</u>.'CRRNKECVKQPU=<u>"OCEJ KPG"</u> VTCP UNC VKQP. 'O GVJ QF QNQI [ +0

Gs wkxcrgpeg'cu'cp'go r kt/ecrlr j gpqo gpqp'j cu'uggp'r gtj cr u'kvu'o quv'r qy gthwrlo cpk/guvcvkqp'vq''

f cvg'kp''Vqwt{øu'\*3; : 2c='3; ; 7+'y qtm0'Y j gtgcu''qyj gt''vj gqtkuvu''o ki j v'cum'y j gyj gt''vy q''vgzvu''ctg''gs wkxcrgpv'' ceeqtf kpi '\q'uqo g'r tgf ghkpgf.'r tguetkr vkxg'etkgtkqp'qh'gs wkxcngpeg.''Vqwt { '\tgcwi'yj g''gzkuvgpeg''qh''gs wkxcngpeg'' dgw ggp"VVu"cpf "UVu"cu"c"i kxgp0"Vj ku"gs wkxcrgpeg'r quwwr vg"\*3; : 2c<335+'yi gp"cmqy u"j ko "vq"uvcvg'yi cv"÷yi g" s wgurkqp"\q"dg"cungf "kp"yj g"cewcn'uwf { "qh'\tcpurc\kqpu"\gur gekcm( "kp"yj g"eqo r ctc\kxg"cpcn( uku"qh'\VV"cpf "UV+'ku" pqv'y j gvj gt 'vj g'vy q'vgzvu'ctg'gs wkxcrgpv'\*htqo "c'egtvckp''cur gev+."dwv'y j cv'v(r g'cpf 'f gi t gg''qh'vtcpurcvkqp"  $gs \ w kxcngpeg''y \ g \{ \ ''tgxgcnp'*3; \ : \ 2c < 69 + 0 \ Vqwt \\ \{ \ pu''cr \ r \ tqcej \ . \ ''cpf \ ''uwdugs \ wgp vn \ (''Mqngt \ pu''*3; \ ; \ 7 < 3; \ 8 + . \ ''o \ cngu''cr \ r \ gcn'' \ ) \\$ vq"c"j kuvqtlecn"tgrcvkxg"pqvkqp"qh"gs wkxcrgpeg0'-Tcyj gt"vj cp"dgkpi "c"ukpi rg"tgrcvkqpuj kr. "f gpqvkpi "c"tgewttkpi " v{rg'qh'kpxctkcpv.'kv'eqogu'vq'tghgt'vq'cp{'tgncvkqp'yjkej'ku'hqwpf'vq'jcxg'ejctcevgtktgf'vtcpurcvkqp'wpfgt'c' ur gekhkgf ''ugv'qh''ektewo uvcpeguø'\*Vqwt{ ''3; ; 7<83+0'Vj g'P QTO U''yj cv'f gvgto kpg''yj g'r ctvkewrct''eqpegr v'qh'' gs wkxcrgpeg'r tgxcrgpv'cv'f khhgtgpv'urci gu'kp'j kurqt { ."qt"co qpi uv'f khhgtgpv'uej qqnu'qh'\tcpurcvqtu."qt"gxgp"y kyj kp" y g"y qtm'qh'c"ukpi ng"tcpuncvqt. 'y gp"eqpuvkwwg"c"xcnkf "qdlgev'qh'gps wkt { 'hqt 'f guetkr vkxg"tcpuncvkqp"uwvf kgu0 Vqwt { øu'gs wkx crgpeg'r quwrc vg. "cu'y gm'cu'j ku'dtqcf "f ghkpkkqp"qh'c "tcpurc vkqp"cu'y j c vgxgt "ku'tgi ctf gf "cu'c" vtcpurcvkqp'kp''y g''vcti gv'ewnwtg''\*3; : 2c=3; ; 7+. 'cmqy 'j ko ''vq''dtqcf gp''y g''ueqr g''qh''vtcpurcvkqp''uwf kgu''vq'' kpxguvki cvg'r tgxkqwun("o cti kpcnkt gf"r j gpqo gpc0'Vj wu'gs wkxcngpeg/dcugf" tcpuncvkqp" y gqtkgu'ecp "guecr g" y g" egpuwtg"qh"qyj gt"uej qqnu"qh"yj qwi j v."y j gtg"kv"ku"y kf gn("j gnf "yj cv"gs wkxcngpeg"ko r nkgu"c"r tguetkr vkxg."pqp/ kpenwukxg"crrtqcej "\q'\tcpurc\kqp0\Vj gtg"ctg."j qy gxgt."qdlge\kqpu'\q"y j cv'ku'xkgy gf "cu'\qq"y kf g"c'pq\kqp"qh" gs wkxcrgpeg < "Upgm/J qtpd { "\*3; :: 43+"uwi i guvu" yi cv" yi g"pqvkqp" qh" gs wkxcrgpeg "kp" yi g" Gpi rkuj / ur gcmkpi "y qtrf" j cu'dgeqo g'uq'xci wg'cu'\q'dg'\wugnguu=\y j krg'R{o '\\*3;; 4c.'3;; 7+.'P gwdgtv\\*3;; 6+'cpf 'Mqmgt'\\*3;; 7+\'y qwrf 'nkmg'' vq"ugg"c"o qtg"tguvtkevkxg"xkgy "qh"gs wkxcrgpeg"tgkpuvcvgf."pqv"rgcuv"dgecwug"c"o qtg"eqpuvtckpgf "xkgy "qh" gs wkxcrgpeg"cmqy u"vtcpurcvkqp"vq"dg"f kuvkpi wkuj gf "htqo "pqp/vtcpurcvkqp0"R{o "\*3;; 7<388+"s wqvgu"Uvgeeqpk" \*hqtyj eqo kpi +'\q'uwrrqtv'yj ku'rqkpv<':Gs wkxcngpeg'ku'etwekcn'\q'\tcpunc\kqp''dgecwug'kv'ku'yj g'\wpks wg'kpvgtvgzwcn' Ugg'cnuq<

NIP I WKUVIE 'CRRTQCEJ GU='UJ KHVU'QH'VTCP UNCVKQP ='WP KV'QH'VTCP UNCVKQP 0

#### Hwt vj gt 't gcf lpi

Ecvhqtf '3; 87="Mqmgt '3; : ; . '3; ; 7="R{o '3; ; 7="Upgm/J qtpd{'3; : : ="Vqwt{'3; : 2c.'3; ; 70

FQTQVJ['MGPP[

# Gzr dekc vkqp

Gzr nekcvkqp'ku'y g''yej pls wg''qh''o cmkpi "gzr nekv'kp''y g''vcti gv''yzv'kphqto cvkqp''y cv'ku'ko r nekv'kp''y g''uqwteg''yzv0' Gzr nekvvkqp''ko r nekvvkqp+''uvtcvgi kgu''ctg''i gpgtcm("f kuewuugf ''vqi gyi gt''y kyi ''cf f kkqp''\*qo kuukqp+''uvtcvgi kgu'' \*Xkpc{ ''cpf 'F ctdgmpgv'3; 7: +0'Uqo g''uej qnctu'tgi ctf ''cf f kkqp''cu''y g''o qtg''i gpgtke''cpf ''gzr nekvcvkqp''cu''y g''o qtg'' ur gekhle''eqpegr v'\*P kf c''3; 86+:'y j kng''qyi gtu'kpvgtr tgv'gzr nekvcvkqp''cu''y g''dtqcf gt ''eqpegr v'y j kej ''kpeqtr qtcvgu''y g''o qtg''ur gekhle''eqpegr v'qh''cf f kkqp'\*V'' i wkpqv'3; : : .''Uej lqnf ci gt''3; ; 7+0'Vj g''y q''ctg''j cpf ngf ''cu''u{pqp{o u''d{'' Gpi nwpf 'F ko kxtqxc.''y j q''wugu''y g''ygto u''÷cf f kkqp/gzr nekvcvkqpø'cpf ''÷qo kuukqp/ko r nekvcvkqpø'\*Gpi nwpf '' F ko kxtqxc''3; ; 5+0

#### Fghplpi 'gzrılelscvlqp

Vj g'eqpegr v'qh'gzr nekcvkqp'y cu'hktuv'kpvtqf wegf 'd{ "Xkpc{"cpf 'F ctdgrpgv' $^{1}$ 3; 7: +'kp'y j qug'i muuct{"qh" vcpurcvkqp'\yej pks wgu'gzr nekcvkqp'ku'f ghkpgf "cu' $^{1}$ -yi g'r tqeguu'qh'kpvtqf wekpi 'kphqto cvkqp'kpvq'yi g'\cti gv' rcpi wci g'y j kej 'ku'r tgugpv'qpn{ 'ko r nekkr\{'lp''yi g'\uqwteg'\tepi wci g.''dw'y j kej 'ecp''dg'f gtkxgf 'htqo ''yi g'\teqpwzv'qt'' yi g'\ukwcvkqp $^{6}$ 3; 7: < ='\tcpurcvgf +0'Ko r nekkcvkqp'ku'f ghkpgf ''cu' $^{1}$ -yi g'r tqeguu'qh''cmqy kpi ''yi g'\teti gv'\tepi wci g'' ukwcvkqp''qt''eqpvgzv'\q'f ghkpg''egtvckp''f gvckru'y j kej ''y gtg''gzr nekk'\tep''yi g'\uqwteg'\tepi wci g $^{6}$ 4dkf 0<'32+0'Vj g'\teuwnru'' qh''gzr nekkcvkqp''cpf ''ko r nekkcvkqp''ctg''qhvgp''f kuewnugf ''kp''yto u''qh''i ckpu''cpf ''nquugu='hqt''gzco r rg. ''dgecwug''yi g'' J wpi ctkcp''r tqpqwp''u{uvgo ''ku''pqv'o ctngf ''hqt''i gpf gt.''r ctv'qh''yi g''o gcpkpi ''qh''yi g''Gpi rkuj ''r gtuqpcn''r tqpqwp''u/yi g'' ku''nquv'\tepurcvkqp''kpvq''J wpi ctkcp0

Vj g'eqpegr w'qh'gzr n'ekcvkqp''cpf 'ko r n'ekcvkqp''j cxg''dggp'hwt yj gt'f gxgmr gf ''d{ ''P kf c''

\*3; 86+."y j q."j qy gxgt."f qgu"pqv"cewcm{ "wug" y g" vgto u":gzr nlekkcvkqpø" cpf ":ko r nlekkcvkqpø" Pkf c"f gcnu" y ky "y g" o ckp" vgej pks wgu"qh" cf l wwo gpv" wugf "kp" y g"r tqeguu" qh" vtcpurcvkpi ."pco gn{ "cf f kkqpu."uwd vtcevkqpu" cpf " cnwgtcvkqpu" ctg" qh" y g" hqmqy kpi "v{r gu<

\*c+'hkmkpi 'qwk'gmkr vkecn'gzr t guukqpu

\*d+'qdrki cvqt { ''ur gekhlecvkqp

\*e+'cf f kkqpu'tgs wktgf 'dgecwug'qh'i tco o cvkecn'tguvtwewtkpi

\*f +'co r nkhlecvkqp 'htqo 'ko r nkekv'\q'gzr nkekv'uvcwu

\*g+"cpuy gtu"vq"tj gvqtlecn's wguvlqpu

\*h+'encuukhkgtu

\*i +'eqppgevkxgu

\*j +'ecvgi qtkgu'qh'vj g'tgegr vqt'ncpi wci g'y j kej 'f q'pqv'gzkuv'kp'vj g'uqwteg'ncpi wci g

\*k+'f qwdrgw'\*3; 86∢449+

Co rittec typ 'to 'lo r nekt' (grantekt'ucwu' + 'cdqxg+' cmgu'r meg'y j gp' + o r qt cpv'ugo cpte' grgo gpw' ecttlef 'lo r nektn 'lp' y g'uqwteg' rcpi wci g'o c { 'tgs wtg' gzr nekt't gpthecttqp' lp' y g'tgegr vqt' rcpi wci go' talk 0." 44: +0P kf c'htmu'ugxgtch'gzco r ngu'htqo 'DtDNG'VTCP UNC VtQP 'vq' kmwutcvg' y g'tcpi g'cpf 'xctlev ('qh' y ku' y r g' qh' cf kkqp0Hqt' gzco r ng'ō + swgp' qh' y g''Uqwy o' \neq \nwg''33 \land 3+'ecp' dg' xgt { 'o kurgcf kpi 'y j gp' pgky gt' os wggpo' pqt'' o' Uqwy o' ku'hco knct' lp' y g'tgegr vqt' rcpi wci gr Ceeqtf kpi n ('lp' Vctcuecp' qpg' o wu' uc { 'oy qo cp'y j q'y cu' twkpi " lp' y g'uqwy 'eqwput { \overline{oo} kldt 0.44; +0V j tqwi j qw' y g''3; 92u'cpf''3; : 2u. 'o quv'r wdnecttqpu' qp'r cttlch' tcpurcttqp'' y gqtkgu. 'gur gelcm ('lp' y g' hkgrf 'qh' rcpi wci g/ tgutkevgf .''ctgc/ tgutkevgf ''cpf 'ewnwtg/ tgutkevgf ''y gqtkgu' y qm gu'' 3; 94c='ugg' VTCP UNC VtQP 'UVWF KGU+ 'hqmy gf' P kf cøu' gzco r ng<'gzr nektctkqp' cpf' 'ko r nektctkqp' y gtg' uggp'' cu'qpn ('y q''co qpi 'c' xctley ('qh''o gy qf u'hqt''cf f kkqp''cpf 'qo kukqp' lp' tcpurctqp0

Hqt"gzco r ng. "Dctnj wf ctqx"\*3; 97 445+"kf gp\khkgu"hqwt"\{ r gu"qh"\tcpuhqto c\kqp"kp"\tcpurc\kqp<"r gt gu\cpqxn\curu" \*:\tcpur qu\k\kqp\eta+"\co gp\curu":\text{:uvdu\kwk\kqp\eta+"} qd\cxn\curup\k\g"\text{:ef f kkqp\eta+"cpf "qr\wij ej gp\k\g":\text{:qo ku\kqp\eta+"kp" ku" qr kpkqp."\j g"o qu\d"\to r qt\cp\text{!gcuqp"hqt"cf f kkqp"kp"\tcpurc\kqp"htqo "Gpi nkij "kp\q"T\wu\kcp"ku"gn\kr uku"\p"pqo kpcn" u\twewtgu"\p"Gpi nkij ."\j c\d"\ku."\j g"qo ku\kqp"qh"egt\ckp"ugo cp\ke"eqo r qpgp\u"\p"\p"\g" gp\k\ugo cp\ke" y gtg"r tgugp\d"\p"\j g"f ggr "\uxt\wewtg\O"\curu\g\nk\u"\pq\eta= ctce\vgt\k\u\k\u"\pq\eta= ctce\vgt\k\u\k\u"\pq\eta= "q\cku\k\u"\pq\eta= "q\cku\k\

C'xgt {"f gwkrgf" '\{r qrqi {"qh'rgzkecn'cpf" i too o c\ecn'\tcpuhqto c\qpu."kpen\f kpi "i too o c\ecn'cf f k\qpu'\p\"

Dwi ct\cp/T wulkcp'Cpf "T wulkcp/Dwi ct\cp''\tcpurc\qp."ecp''dg'\hqwpf '\kp'\yi g'\y qtm'qh'\yi g''Dwi ct\cp''\uegi qret"

Xcugxc\signal{\text{3}}; : 2\text{0}\f\p''\text{Xcugxc\psi'}\text{xcy}."cf f k\qpu''ctg''i gpgtc\psf 'y j gp\sir\ppi w\text{kulke}"cu\{o o g\text{\gentleft}\psi'\psguul\text{xcyu}\signal{\text{yz}}\reft r\text{kkqpu''cy'}\text{ gzr tguul\text{qp}'\text{kp''y g''\text{uq/tecngf}"\text{qo o gyt}\psi'\text{kgy."gr r\text{kely}'}\text{ gzr tguul\text{qp}'\text{y} g''\text{y g''\text{uq/tecngf}"\text{\text{qp}\text{uq/ecngf}"\text{\text{\text{qp}\text{uq/ecngf}}"\text{\text{\text{quu}\text{ugu}\text{y} ky i"}\text{f\text{\text{lpq}\text{up}\text{y} g''\text{tgpqpg="\daggeq}'\degreeq'\text{quaguul\text{xcy}'\text{tgpqppg="\daggeq}'\text{quuguul\text{xcy}'\text{tgpqpp}'\text{rqpqpp}'\text{cp''\text{y} g''\text{uul\cp.}"}\text{du''\text{pq}\text{y} g''\text{rqpqpp}'\text{quy}'\text{ecugu''\text{dg''\text{qo cy'\text{qo cy'\text{qo cy'\text{kp''}T wul\cp.}"}}\text{dw''\pay\f\

P gkij gt "Dctnj wf ctqx" 'pqt "Xcugxc" 'wugu' 'y g' 'y to "÷gzr n'ekscwlqpø' kugnh "'y qwi j "Mqo kuuctqx" '3; 8; +"go r nq {u' 'y g" Twuukcp" gs wkxcngpv." 'gmur nkuukt qxcpk {g0" Vj ku' 'y to ."cpf "'y g" cuuqekcvgf "ko r nkuukt qxcpk {g'\* ∺ko r n'ekscwlqpø+."dgeco g" y kf gn {"wugf "kp" Twuukcp" uwwf kgu' y kj kp' y g' vgz√n kpi wkuwke" crrtqcej "\q" \tcpuncwlqp" "Mwnj ctgpnq" 3; ::." Ej gtpqx" 3; ::." I cm' 3; ::. ⊕

#### Vj g'gzrdekscvkqp'j {rqvj guku

Vj g'uq/ecmgf "gzr dekc vlqp'j {rqvj guku'y cu'hqto wrcvgf "d{"Dnwo/Mwmc"\*3; : 8+"kp"y j cv'ku"eqpukf gtgf "d{"o cp{" vq"dg"vj g"hktuv'u{uvgo cvke"uwwf {"qh"gzr dekcvkqp0Ftcy kpi "qp"eqpegr vu"cpf "f guetkr vkxg"vgto u"f gxgmqr gf "y kj kp" f kueqwtug"cpcn{uku."uj g"gzr mqtgu"f kueqwtug"rgxgn'gzr nkekcvkqp."vj cv'ku."gzr nkekcvkqp"eqppgevgf "y kj "uj khvu"qh" eqj gukqp"cpf "eqj gtgpeg"\*qxgtv'cpf "eqxgtv'vgzwcn'o ctngtu+"kp"vtcpurcvkqp0'

Uj khu'qh'eqj gukxg'o ctmgtu'ecp'dg'r ctvl "cwtkdwgf "vq''y g'f khhgtgpv'i tco o cvkecn'u{uvgo u'qh'ncpi wci gu0'Hqt" kpucpeg. "kp'Gpi nkuj /Htgpej "vtcpuncvkqp'i gpf gt'ur gekhecvkqp"o c{"o cmg''y g'Htgpej "vgzv'o qtg''gzr nkek''y cp''y g'' Gpi nkuj 0'Qvj gt''uj khw''kp''y g''wug''qh'eqj gukxg''o ctmgtu''ctg''cwtkdwcdng''vq''f khhgtgpv'uv{nkuvke''r tghgtgpegu'hqt''egtvckp'' v{r gu''qh'eqj gukxg''o ctmgtu''kp''f khhgtgpv''ncpi wci gu0'Hqt''gzco r ng. "kp'Gpi nkuj /J gdtgy "vtcpuncvkqp''r tghgtgpeg''hqt'' ngzkecn'tgr gvkxkqp''tcvj gt''yi cp''r tqpqo kpcnk cvkqp''o c{"o cng''yj g''J gdtgy "vgzv'o qtg''gzr nkekv'\*3; : 8<3; +0J qy gxgt." ceeqtf kpi "vq''y g''gzr nkekvvkqp''j {r qyi guku. "kv'ku''yi g''r tqeguu''qh''vtcpuncvkqp''kugnh 'tcvj gt''yi cp''cp{ 'ur gekhke'' f khhgtgpegu''dgwy ggp''r ctvkewnct 'ncpi wci gu. "y j kej "dgctu''yi g''o clqt''r ctv'qh''yi g''tgur qpukdknkv{ 'hqt''gzr nkekvvkqp'' \*kdkf 0<

Vj g'r tqeguu'qh'kpvgtr tgvcvkqp'r gthqto gf ''d{ ''vj g''vtcpurcvqt''qp''yj g''uqwteg''vgzv'o ki j v'rgcf ''vq''c''VN''vgzv'' y j kej ''ku''o qtg''tgf wpf cpv''yj cp''yj g''UN''vgzv0'Vj ku''tgf wpf cpe{ ''ecp''dg''gzr tguugf ''d{ ''c''tkug''kp''yj g''rgxgri' qh''eqj gukxg''gzr rkekpguu''kp''yj g''VN''vgzv0'Vj ku''tcti wo gpv'o c{ ''dg''uvcvgf ''cu''õvj g''gzr rkekvvkqp'' j {rqvj gukvö.''yj j kej ''r quwvrcvgu''cp''qdugtxgf ''eqj gukxg''gzr rkekpguu''htqo ''UN''vq''VN''vgzwi'tgi ctf rguu''qh'' yj g''kpetgcug''vtcegcdrg''vq''f khlgtgpegu''dgw ggp''yj g''wy q''rkpi wkurke''cpf ''vgzwcri'u{uvgo u''kpxqrxgf 0'K'' hqmqy u''yj cv''gzr rkekvcvkqp''ku''xkgy gf ''j gtg''cu''kpj gtgpv'kp''yj g''r tqeguu''qh''vtcpurcvkqp0

Ceeqtf kpi "vq"U'i wkpqv"3;:: +:"j qy gxgt."vj ku"f ghkpkkkqp"ku"vqq"pcttqy <"-gzr nkekxpguu"f qgu"pqv"pgeguuctkn("o gcp" tgf wpf cpe{ø\*32: +0\*Ugeqpf n{. "uj g"r qkpw"qw" yj cv" +yj g"i tgcvgt" pwo dgt "qh" y qtf u"kp" Htgpej "\tcpurcvkqp." hqt" gzco r ng. "ecp"dg"gzr nckpgf "d{"y gm/f qewo gpvgf "f khhgtgpegu"kp"yj g"uv{nkuvkeu"qh"Gpi nkuj "cpf "Htgpej ø"\*kdkf 0+0"kp" jgt"xkgy." 'y g"\gto "÷gzrnkekxcvkqpø'ujqwnf" 'dg"tgugtxgf" 'hqt" cffkkkqpu" yjkej "ecppqv'dg" gzrnckpgf" d{"uvtwewtcn" uv{nkuvke"qt"tj gvqtkecn"fkhhgtgpegu"dgwy ggp"vj g"vy q"ncpi wci gu."cpf "cffkkqp"ku"pqv"vj g"qpn{ "f gxkeg"qh" gzr nkekscklap0'Gzr nkekscklap" kongu'r nceg" pav'apn("y j gp":taqo gyj kpi "ku"gzr tguugf "kp" y g" tcpuncklap. "y j kej "y cu"pav" kp"'y g"qtki kpcnø"\*kdkf0+."dwv"cnuq"kp"ecugu"y j gtg"÷uqo gyj kpi "y j kej "y cu"kornkgf"qt"wpfgtuvqqf"'y tqwij" rtguwrrqukwkqp'kp''yi g''uqwteg''\gzv'ku''qxgtvn(''gzrtguugf'kp''yi g''\tcpurcvkqp.''qt''cp''grgo gpv'kp''yi g''uqwteg''\gzv'ku'' i kxgp"c"i tgcvgt"ko rqtvcpeg"kp"yj g"\tcpurcvkqp"yj tqwi j "hqewu."go rj cuku."qt"hgzkecn'ej qkegø'\*kdkf0+0 U i wkpqv'gzco kpgu'tcpurcvkqpu'htqo 'Gpi rkuj 'kpvq'Htgpej 'cpf 'htqo 'Htgpej 'kpvq'Gpi rkuj .'cpf 'kp'dqvj 'ecugu'uj g' hkpf u'i tgcvgt "gzr nkekpguu'kp" 'tcpurcvkqp. "tguwnkpi "htqo "kortqxgf" 'vqr ke/eqoo gpv'hkpmu. "vj g"cff kkkqp" qh'hkpmkpi" y qtf u'cpf ''y g'tckukpi ''qh'uwdqtf kpcvg''kphqto cvkqp''kpvq''eqqtf kpcvg''qt''r tkpekr cn'uvtvewtgu'\*kdkf0</a>; +01 gt''uwf{" uwi i guwu'yi cv'yi g'kpetgcug'kp"gzr nkekpguu'kp"dqyi "ecugu'ecp"dg"gzr nckpgf "pqv'd { 'uvt wewt cn'qt 'uv{ nkurke" f khłytgpegu'dgwy ggp''y g''w q''rcpi wci gu. 'dww'd { ''y g''gf kklpi ''untcygi kgu''qh''ygzv'tgxkugtu0 J qy gxgt. 'uwr r qt v'hqt 'c'xgtukqp''qh'yj g''gzr nkekxcvkqp''j {r qyj guku'o c{"dg'hqwpf "kp"Xgj o cu/Ngj vqøu''uwvf {"\*3;:; +:" y j kej "eqo r ctgu" y g"htgs wgpe { "qh" eqppge vkxg" grgo gpvu" kp" Hkppkuj "lqwtpcrkuvke" vgzvu" vtcpurcvgf "htqo "Twuukcp" y ký "vý gkt"htgs wgpe { "kp" vgz vu"kp" vý g"uco g"i gptg. "qtki kpcm { "y tkwgp" kp" Hkppkuj 0"Uj g"hkpf u" vý cv" vý g"Hkppkuj " vtcpurcvkqpu"ctg"o qtg"gzr rkekv"yj cp"yj g"vgzvu"qtki kpcm("y tkvvgp"kp"Hkppkuj 0"KV"ku"r quukdrg. "yj gtghqtg. "yj cv" gzr nkekscykap "untcygi kgu "kpj gtgpv kp" y g" y tcpurcykap "r taeguu 'ecwug' y tcpurcygf "y gz vu kp" c"i kxgp i gptg" y a't gptg y a't gptg" y a't gptg Kp"yj g"3; ; 2u. "gzr nkekcykqp"t gugctej "i ckpgf "c"pgy "ko r gwu "htqo "gzr gtko gpvcn'uwf kgu"qh'eqpugewkxg"cpf " uko wnxcpgqwu'kpvgtrtgvkpi. ''y j kej ''uwi i guv''y cv''vko g''rtguuwtg''o c{ ''o cmg'ko rnkekxcvkqp''uvtcvgi kgu'\*eqo rtguukqp.'' eqpf gpucklqp+"o qtg"korqtvcpv"kp"kpvgtrtgvkpi "vjcp"gzrnkekkcvkqp"uvtcvgi kgu"\*Gpinvxpf"Fkokxtqxc."hqtvjeqokpi=" Uej lqrf ci gt '3; ; 7+0Cpq i gt 'cr r rkecvkqp 'qh' i g'eqpegr v'ku' '\q' dg' hqwpf 'kp' I gy uqp 'cpf 'O ct vkpøu' uwf { 'qh' FTCOC"VTCPUNCVKQP. "y j kej "Uwi i guvu" y cv"ko r nkecvkpi 1gzr nkecvkpi "vgej pks wgu" uj khv" egt vckp" gngo gpvu" htqo "yi g'hkpi wkuke" 'vq 'yi g'ukwc vkqpcn'ngxgn'cpf "xkeg'xgtucø'\*3;; 3<26+0 Kp'ftco c''tcpurc vkqp." io gcpkpi hwn' grgo gpwi'ctg'\tcpuhgttgf 'htqo ''ukwc\kqp'\kpvq''yj g''uvci kpi ''\gz\v'\\*uvci g'f ktge\kqpu+''qt''kpvgi tcvgf ''kpvq''yj g''ej ctcevgtuø'' y qtfuø'\*kdkf0+0

## V{ r gu'qh'gzr neksc vlqp

#### Qdrki c vqt { 'gz,r rkekvc vkqp

Qdrki cvqt { "gzr rkekcvkqp"ku"f kevcvgf "d { "f khhgt gpegu"kp" vj g"u { pvcevke "cpf "ugo cpvke "uvt wewt g"qh"

ncpi wci gu'\*Dctnj wf ctqx"3; 97="Xcugxc"3; : 2="Mncwf {"3; ; 5."3; ; 6="Gpi nwpf "F ko kxtqxc"3; ; 5+0"U{pvcevke"cpf "ugo cpvke"gzr nkekcvkqpu"ctg"qdrki cvqt {"dgecwug"y kyj qwv"yj go "vcti gv ncpi wci g"ugpvgpegu"y qwrf "dg" wpi tco o cvkecn0

Vj g''o quv'qdxkqwu''ecugu''qh''qdrki cvqt { "gzr rkekcvkqp"ctg"ecwugf "d { "'y g''uq/ecrugf "÷o kuukpi "ecvgi qtkguø0'Hqt" gzco r ng. "'y gtg'ku''pq'f ghkpkg"ctvkeng'kp'Twuukcp. 'uq'vtcpurcvkqp'htqo "Twuukcp'kpvq'Gpi rkuj .''y j kej "wugu'kuu" f ghkpkg"ctvkeng''r tqrkhkecm(.''y kri'kpxqnxg''pwo gtqwu''cf f kkqpu. "cu'y kri'vtcpurcvkqp'htqo "'y g''r tgr qukxkqp/htgg" J wpi ctkcp'kpvq''ncpi wci gu'uwej "cu'Twuukcp''cpf 'Gpi rkuj .''y j kej 'wug''r tgr qukxkqpu0

#### Qr vkqp c rlgz, r rlækvc vkqp u

Qr vkqpcn'gzr nkekcvkqpu'ctg'f kevcvgf 'd{ 'f khigtgpegu'kp''vgzv'dwknf kpi 'untcvgi kgu'\*eh0'Dnwo Mwnncøu'eqj gukxg'' r cwgtpu+"cpf 'un{ nkurke 'r tghgtgpegu'dgwy ggp'ncpi wci gu0'Vj g{ "ctg"qr vkqpcn'lkp"yj g'ugpug'vj cv'i tco o cwkecm{ "eqttgev'ugpvgpegu'ecp''dg''eqpuntwevgf 'y kyj qww'yj gkt "crrnkecvkqp''kp"yj g'vcti gv'ncpi wci g. "cnyj qwi j 'yj g'vgzv'cu'c" y j qng'y km'dg''enwo u{ "cpf "wppcwtcn0'Gzco r ngu''qh''qr vkqpcn''gzr nkekcvkqpu''kpenwf g''ugpvgpeg''qt''encwug''kpkkcn'' cf f kkqp"qh''eqppgevkxg''gngo gpwu''vq''untgpi yj gp''eqj gukxg''nkpmu. "yj g''wug''qh''tgncvkxg''encwugu''kpuvgcf ''qh''nqpi . "nghv'' dtcpej kpi ''pqo kpcn''eqpuntwevkqpu. "cpf ''yj g''cf f kkqp''qh''go r j cukl gtu'hqt''yj g''enctkhlecvkqp''qh''ugpvgpeg''r gtur gevkxg. "co qpi ''qyj gtu''\*F qj gtv{ ''3; : 9=''Xgj o cu'Ngj vq''3; : ; +0

#### Rt ci o cvle'gzrnlekscvlqpu

Rtci o cvke "gzr nkekcvkqpu"qh"ko r nkek "ewnwtch"kphqto cvkqp " $\Re\{o\ "3;;5+"$ ctg"f kevcyf "d $\{$ "f khhgtgpegu"dgwy ggp" ewnwt gu go dgtu"qh"y g"vcti gv"ncpi wci g"ewnwtch"eqo o wpkx $\{$ "o c $\{$ "pqv"uj ctg"cur gevu"qh"y j cv"ku"eqpukf gtgf" i gpgtch"npqy ngf i g"y kaj kp"y g"uqwteg"ncpi wci g"ewnwtg"cpf ."kp"uwej "ecugu."tcpurcvqtu"qhngp"pggf "vq"kpennxf g" gzr ncpcvkqpu"kp"tcpurcvkqpu0"Hqt"gzco r ng. "pco gu"qh"xkmci gu"cpf "tkxgtu."qt"qh"kxgo u"qh"hqqf "cpf "f tkpn"y j kej "ctg" y gm"npqy p"vq"y g"uqwteg"ncpi wci g"eqo o wpkx $\{$ "o c $\{$ "o gcp"pqy kpi "vq"y g"vcti gv"ncpi wci g"cwf kgpeg $\{$ "hqt"kygv":y g"tkxgt"O ctquø"nqt" $\{$ "hct" $\{$ "hqt"kyt $\}$ % hqt" $\{$ "hqt"kyt $\}$ % hqt" $\{$ "hgt $\}$ % hqt"hgt $\}$ % hqt"hgt $\{$ "hgt $\{$ "hgt $\{$ "hgt $\}$ % hqt"hgt $\{$ "hgt $\{$ "

#### Vt c purc vkqp/kpj gt gp v'gz r nkeksc vkqp u

#### Vj g'xcdf kv{ 'qh'vj g'gzrdekvcvlqp'j { r qvj gulu

Vj g'eqpegr v'qh'vtcpurcvkqp/kpj gtgpv'gzr nkekcvkqp''ku'tgrcvgf "vq''y g''gzr nkekcvkqp''j {r qyj guku."ceeqtf kpi "vq''y j kej " vtcpurcvkqpu''ctg''cny c {u''nqpi gt''y cp''y g''qtki kpcnu."tgi ctf rguu'qh''y g''rcpi wci gu."i gptgu''cpf "tgi kuvgtu''eqpegtpgf" "Dnwo /Mwmc''3; : 8="U' i wkpqv'3; : : +0"Vj qwi j "gzr nkekcvkqpu''cpf "ko r nkekcvkqpu."qt''cf f kkkqpu''cpf "qo kuukqpu."ctg" kpugr ctcdn( "kpvgt wy kpgf "kp''y g''r tqeguu''qh''vtcpurcvkqp."vj g''vgpf gpe { "vqy ctf u''gzr nkekcvkqp''ku''cny c { u''uvtqpi gt''y cp'' y g''vgpf gpe { "vqy ctf u''gzr nkekcvkqp''ku''cny c { u''uvtqpi gt''y cp'' y g''vgpf gpe { "vqy ctf u''gzr nkekcvkqp''ku''cny c { u''uvtqpi gt''y cp'' y g''vgpf gpe { "vqy ctf u''y cp'' ku''cny c { u''uvtqpi gt''y cp'' y g''vgpf gpe { "vqy ctf u''y cp''vgpf y c''vgpf gype { "vqy ctf u''y cp''vgpf y cy''vgpf gpe { "vqy ctf u''y cy''vgpf y c''vgpf y cy''vgpf gpe { "vqy ctf u''y cy''vgpf y cy''vgpf

<u>EQTRQTC''IP''VTCPUNCVIQP''UVWFIGU="UI IHVU'QH'VTCPUNCVIQP="WPIXGTUCNU'QH'</u> VTCPUNCVIQP0

#### Hwt vj gt 't gcf kpi

MRPEC'MNCWF[

## H

# Hf 2 t cylap 'lpvgt pcylapcig'f gu'tt cf wevgwt u'\*HW+

Vjg"HPf2tcvkqp"kpvgtpcvkqpcrg"fgu"vtcfwevgwtu"\*HKV+."cnuq"mpqyp"cu"vjg"Kpvgtpcvkqpcn"Hgfgtcvkqp"qh"Vtcpurcvqtu." ku'c'hgf gtcvkqp"qh'cuuqekcvkqpu."y kyj "o go dgt"qti cpk| cvkqpu'urtgcf"cetquu'hkxg"eqpvkpgpvu0KVy cu'hqwpf gf"kp" Rctku'lp''3; 75''d{ ''Rkgttg/Htcp±qku'ECKNN; '\*HTGPEJ ''VTCFKVKQP+."c''j ki j n{ ''tgi ctf gf ''nksgtct{ ''cpf ''o gf kc'' vtcpurcvqt"cpf 'hqpi/vko g'r tgukf gpv'qh'vj g''Uqek? v? 'htcp±ckug'f gu''vtcf wevgwtu0'Vj g'hqwpf kpi 'o go dgtu'y gtg'ukz'' kpvgtrtgvgtuø'cpf '\tcpurcvqtuø'cuuqekcvkqpu'htqo 'Fgpoctm'Htcpeg.'Kxcn(.'Pqtyc{.'vjg'Hgfgtcn'Tgrwdrke''qh' I gto cp{"cpf"Vwtmg{0'Ukpeg"yi gp."HKV"j cu"gxqnxgf"kpvq"c"ncti g"hgf gtcvkqp="kp"3;; 8"kv"eqo r tkugf '96"tgi wnct" o go dgtu'cpf '43'cuuqekcvg''o go dgtu'cpf 'eqpvkpwgu'vq'i tqy 'cv'c'dtkum'r ceg0 Tgi wrct "o go dgtu'ctg'r tqhguukqpcn'cuuqekckqpu'y j kej 'tgr tgugpv'vtcpurcvqtu'cpf 'y j kej 'j cxg'uko krct'i qcnu'vq''  $\label{eq:control_policy} \emph{y} \textit{ qug''qh''y} \textit{ g'Hgf gtcVkqp0Hqt''y} \textit{ g'r wtr qug''qh''cf o kuukqp''vq''o go dgtuj kr''qh'HkV.''y} \textit{ g''y qtf ''kt cpurc vqt''eqxgtu''}$ kpfkxkfwcni'y j q'r tcevkug'\tcpurcvkqp'kp''cp{ "qh'kwi'hqto u."y tkwgp"qt"ur qngp."kpenwfkpi "vj qug'ur gekcnk kpi "kp"qpg" qh'y g'grgo gpvu'qh'y g''tcpurcvkqp''r tqeguu'qt'kp'tgugctej "cpf "gf vecvkqp0'Cuuqekcvg"o go dgtu'ctg''qy gt'' qti cpk cwlqpu'kpvgtguvgf 'kp''tcpurcwlqp."o quvn( 'wpkxgtukxkgu''cpf ''tcpurcwlqp''uej qqru0Eqo o gtekcn'\tcpurcwlqp'' ci gpekgu'cpf 'vj gkt'tgrtgugpvcvkxg''qti cpkt cvkqpu'ctg''pqv''grki kdrg'hqt''o go dgtuj kr 0 Vjg"rtkpekrcn'qdlgevkxgu"qh'HKV"ctg<'vq"dtkpi"vqigyjgt"cuuqekcvkqpu"qh'vtcpurcvqtu"cpf"vq"rtqoqvg"kpvgtcevkqp"cpf" eqqr gtcvkqp"dgvy ggp"uwej "cuuqekcvkqpu="vq"ur qpuqt"cpf "hcekrkxcvg"vj g"hqto cvkqp"qh"uwej "cuuqekcvkqpu"kp"eqwpvtkgu" y j gtg'y g{ "f q'pqv'crtgcf { "gzkıv="vq"guvcdrkıj "rkpmı'y kj "qy gt "qti cpk cvkqpu'f gxqvgf "vq"vtcpurcvkqp"qt"qy gt" cur gevu'qh'kpvgtrkpi wcn'cpf 'kpvgtewnwtcn'eqo o wpkecvkqp="vq"f gxgrqr "j cto qp{ "cpf 'wpf gtuvcpf kpi "co qpi " o go dgt "qti cpk; cvkqpu"cpf "rgpf "kxu"i qqf "qhhkegu"kp"tguqnxkpi "cp{ "f khhgtgpegu"yi cv"o c{ "ctkug"dgwy ggp"yi go = "vq" r tqxkf g"o go dgt"qti cpk| cvkqpu"y kyj "kphqto cvkqp"cpf "cf xkeg="vq"r tqo qvg"tgugctej ."vtckpkpi ."cpf "vj g" j cto qpk| cvkqp"qh"r tqhguukqpcn"uvcpf ctf u="cpf."i gpgtcm(."vq"wrj qnf"vj g"o qtcn"cpf "o cvgtkcn"kpvgtguvu"qh" vtcpurcvqtu'y tqwi j qw'y g'y qtrf ."cf xqecvg"cpf "cf xcpeg"y g'tgeqi pkkqp"qh'y gkt "r tqhguukqp."gpj cpeg"y gkt 'uvcwu" kp"uqekgv{"cpf"hwtvjgt"vjg"mpqyngfig"cpf"crrtgekcvkqp"qh"vtcpuncvkqp"cu"c"uekgpeg"cpf"cp"ctv0 Kp"qtfgt"vq"oggv"kuu"qdlgevkxgu."vjg"Hgfgtcvkqp"jcu"ugv"vr"c"pwodgt"qh"eqookuukqpu"cpf"eqookvyggu0Kp"  $cf f k k qp. "egpvt gu" o c \{ "dg" et g c v g f "kp" ur gek h ke" t gi k qpu" v q" h qu v g t 'k p v g t c e v k qp "c o qpi "m e c n' o go d g t "kp" ur gek h ke" t gi k qpu 'v q" h qu v g t 'k p v g t c e v qp "c o qpi "m e c n' o go d g t "kp" ur gek h ke "t gi k qpu v q" h qu v g t 'k p v g t c e v qp "c o qpi "m e c n' o go d g t "kp" ur g e k h ke "t gi k qpu v q" h qu v g t 'k p v g t c e v q p i "m e c n' o go d g t "kp" ur g e k h ke "t g i k qpu v q 'k q v g t c e v q p i "m e c n' o g o d g t "kp" ur g e k h ke "t g i k q p u v q 'k q v g t c e v q p i "m e c n' o g o d g t "kp" ur g e k h ke "t g i k q p u v q 'k q v g t c e v q p i "m e c n' o g o d g t "kp" ur g e k h ke "t g i k q p u v g t c e v q p i "m e c n' o g o d g t " ur g e k h ke "t g i k q p u v g t c e v q p i "m e c n' o g o d g t " ur g e k h ke "t g i k q p u v g t c e v q p u v g t c e v q p u v g u$ cuuqekckqpu0Cv'r tgugpv.''vj gtg''ctg''wy q''uwej 'tgi kqpcn'egpvtgu<''vj g'Tgi kqpcn'Egpvtg'hqt'Pqtvj 'Co gtkec.'hqwpfgf'' kp'3; : 8."cpf "vj g'Tgi kqpcn'Egpvtg'hqt'Gwtqrg0Vj g'f gekukqp'\q'guvcdnkuj "vj g'hcwgt''y cu'\cngp'kp'3; ; 50

### I qxgt pkpi 'dqf kgu'cpf 'hwpf kpi

HKV"Y qtrf 'Eqpi tguugu'ctg'j grf 'gxgt{ ''y tgg''{ gctu0'Vj g{ 'kpenxf g'c''Uxcwxqt{ 'Eqpi tguu'\q''y j kej ''cm'o go dgt'' qti cpk cxkqpu''ctg'kpxkxgf ''vq''ugpf 'f grgi cxgu''cpf 'y j kej ''ugtxgu''cu''y g''uxr tgo g'i qxgtpkpi ''dqf { ''qh''y g'' qti cpk cxkqp0'Vj g''Uxcwxqt{ 'Eqpi tguu'ku''ceeqo r cpkgf ''d{ ''c''uekgpxkhke''eqpi tguu''qr gp''vq''cm''xtcpurcvqtu''ctqwpf ''y g'' y qtrf 0'Kp''dgwy ggp''eqpi tguugu. ''cp''grgevgf 'Eqwpekri'cpf ''cp''Gzgewkxg''Eqo o kxxgg''cf o kpkuxgt''y g''qti cpk cxkqp0' Vj g''Eqwpekri'o ggwu''qpeg''c''{ gct''cpf ''y g''Gzgewkxg''Eqo o kxxgg''hqwt''xko gu''c''{ gct0'Vj g{ ''ctg''cuukuxgf ''d{ ''c''}}

Eqwpekri'qh'Grf gtu'y j kej "eqpukuwi'qh'qwurcpf kpi 'hqto gt''qhhkegtu''qh''y g'Hgf gtcvkqp0 HKV''f gtkxgu''o quv'qh'kwu'kpeqo g'htqo 'hggu'r ckf 'd{ "o go dgt "qti cpk cvkqpu0'Uqo g''cevkxkkgu. "uwej "cu''y g'' r wdrkecvkqp"qh''y g''lqwtpcri'Dcdgn"ctg''uwr r qtvgf 'hkpcpekcm{ "d{ "WP GUE Q0'C "pwo dgt"qh''y g''r tk gu''cy ctf gf 'd{ "HKV''ctg''hwpf gf ''d{ "dgpghcevqtu0'Vj g''Hgf gtcvkqp''j cu''pq''r gto cpgpv'uvchh''cpf "cm'kwu''qhhkegtu''y qtm'qp''c''xqnwpvct{ "dcuku0

### Ugt xlegu'qllgt gf

Vj tqwi j 'kw'Eqwpekn'eqo o kuukqpu'cpf 'eqo o kwggu. 'HKV'gpf gcxqwtu'vq'o ggv'vj g'pggf u'qh'o go dgtu'vj tqwi j qw' yj g'y qtrf 'd{ "cfftguukpi 'uwej "kuuwgu"cu"tckpkpi "cpf'r wdrke"tgeqi pkkqp"qh'yj g'r tqhguukqp0'Vj g"gzej cpi g"qh" kphyto cvkqp"qp"r tqhguukqpen'uvewu."hyt"gzeo r ng."j cu'eqpvtkdwgf "vq"uqo g"nqeen'dtgemj tqwi j u"kp"vgto u"qh" r tqhguukqpcnltgeqi pkkqp0kphqto cvkqp"cdqw"vtckpkpi "r tqi tco o gu."r tqxkf gf "vq"o go dgtu"cpf "qyi gtu."j cu"j grr gf " c'pwo dgt 'qh'qti cpk cwqpu'f gxgmr 'vj gkt'qy p'eqwtugu. 'gur gekcm( 'kp'eqwpvtkgu'y j gtg'pqpg'gzkuygf 0'kphqto cwqp'' cdqw/xctkqwu/hcegw/qh/r tqhguukqpcn/r tcevkeg/ku/cnuq/dgkpi /eqngevgf /cpf /f kuugo kpcvgf 0 HKV''o ckpvckpu'nkckuqp'y kij "c"pwo dgt"qh'kpvgtpcvkqpcn'qti cpk; cvkqpu'kp"tgncvgf 'hkgnf u. "kpenwf kpi "vj qug'f gcnkpi " y ký "kpvgmgewcn"r tqr gtv{ "cpf "eqr {tki j v."cpf "vj g"CUUQEKCVKQP "KP VGTP CVKQP CNG"F GU"KP VGTRT ` VGU" FG'EQPHGTGPEG'\*CKKE+0'HKV''j cu'dggp'tgeqipkt gf 'd{'WPGUEQ'cu'c'Ecvgiqt{'C'pqp/iqxgtpogpvcn' qti cpk cvkqp"ukpeg"3; 920"Vj g"WPGUEQ"Tgeqo o gpf cvkqp"qp"vj g"Rtqvgevkqp"cpf "Kortqxgo gpv'qh"vj g"Ngi cn'cpf" Uqekcn'Ucwu'qh'Vtcpurcvkqpu'cpf "Vtcpurcvqtu."cf qr vgf 'kp'P cktqdk'kp'3; 98'r ctvn{ "cu'c'tguwnv'qh'y qtm'f qpg'd{" HKV. 'ku'c'o krguvqpg'kp''y g'j kuvqt { 'qh''y g'Hgf gtcvkqp0HKV'ku'cnuq'tgeqi pk gf 'cu'c'Ecvgi qt { 'D'pqp/i qxgtpo gpvcn' qti cpk cwqp'd{''yj g''Wpkgf'P cwqpu'\*GEQUQE'ugewqp+0 Kp"cffkkqp"vq"vjg"Yqtnf "Eqpitguugu. "yjkej"rtqxkfg"c"wpkswg"qrrqtwpkx{ "hqt"c"yqtnfykfg"gzejcpig"qh" kphyto cvkqp"cpf "gzr gtkgpeg. "HKV"j qnf u'c 'pwo dgt "qh"gxgpw'uwej "cu'vj g"P qtvj "Co gtkecp"Eqpi tguuô y j kej "ku" j grf "gxgt{"yi tgg"{gctu"cngtpcvgn{"kp"Ogzkeq."yi g"Wpkgf"Uvcvgu"cpf"Ecpcfcocpf"c"ugtkgu"qh"u{orqukwou0" Vj gug"u{o r qukvo u."cnuq"mpqy p"cu"Tqwpf "Vcdrgu."ctg"qhvgp"qti cpkt gf "y kvj "WP GUE Q"uwr r qtv"cpf "kp" eqqr gtcvkqp"y kj "c"mecn'o go dgt0Vj g{"o c{"cko "cv"hquvgtkpi "kpvgtguv"kp"vj g"r tqhguukqp"kp"c"tgi kqp"y j gtg"mecn" cuuqekckqpu'pggf 'qwukf g'uwr r qt v0'Vj g{ 'o c{ "cnuq'f gcn'y kj "ur gekhke "kuuwgu'uwej "cu'vtckpkpi . 'rkxgtct{ "vtcpurcvkqp." qt"eqr {tki j v0'kp"vj g"vgp"{gctu"htqo "3; : 5"vq"3; ; 5."pkpg"uwej "u{o r qukwo u'y gtg"j grf "kp"Y guvgtp"Gwtqr g"\*5+." Egpvtcn'Gwtqrg'\*4+.'Chtkec'\*4+.'Cukc'\*3+'cpf''Uqwj''Cogtkec'\*3+0 Dedgriepf "Vt cpurc kq"HKV"P gy urgwgt l"P qwxgngu"f g"nc"HKV"etg" y q"ukt gedrg"s wet vgtn{ "r wdrkec kqpu"ugpv"qww"vq" cm'HKV"o go dgt "qti cpk cvkqpu0"Vj g{ "o c{"cnuq"dg"qdvckpgf "d{"uwduetkr vkqp0Cu"c"ngctpgf "lqwtpcn"Dcdgn'ecttkgu" o quvn( 'hgcwtg''ctvkengu.'y j kng''*Vtcpurcvkq*''ku'o qtg'fkxgtukhkgf''cpf''ecttkgu''kphqto cvkqp''cdqw''HKV''cevkxkkgu''cu''  $y \; gm'cu'dqqm'tgxkgy \; u. "ct klengu'cpf 'r \; tqeggf \; kpi \; u''qh''u \{o \; r \; qukwo \; uO'C \; 'uj \; qt v''dwngvkp. "\textit{HKV/Hrc} uj \; . ''ku''r \; wdrkuj \; gf \; '' \; wdrkuj \; wdrkuj \; gf \; '' \; wdrkuj \; wdrk$ f wtkpi "Y qtrf "Eqpi tguugu"cpf "chygt"gcej "o ggykpi "qh"yj g"Eqwpekri'qt"Gzgewkxg"Eqo o kwgg0C"xcf g"o gewo" eqpvckpkpi "vj g"HKV"D{ncy u"cpf "Tgi wncvkqpu."c"fktgevqt{"qh"o go dgt"qti cpk| cvkqpu."vj g"nkuv"qh"HKV"Eqo o kwggu" cpf 'mg{ "xqnxpvggtu." vj g"Vtcpurcvqtøu Ej ctvgt." vj g"P cktqdk Tgeqo o gpf cvkqp" cpf 'qvj gt 'tgrgxcpv kphqto cvkqp ku" exckredrg'kp'e'nqug/rgch'hqto ev'uwkedrg'hqt'tgi wret'wrfevkpi O'Rtqeggfkpi u'qh'eqpi tguugu'epf 'u{orqukwou'etg' r wdrkuj gf "gkj gt "cu'uvcpf crqpg"r wdrkecvkqpu"qt "cu'ur gekcn'kuuwgu"qh"*Vt c purc vkq0*"Vj g{ "qhhgt "c''y gcnyj "qh" kphyto cvkqp"qp"\tcpurcvkqp"cpf"\tcpurcvqtu"ctqwpf"\j g"y qtnf O'HKV"j cu"cnuq"kpkxkcvgf"cpf"\ur qpuqtgf"c"\j go cvke" jkuvqt{"qh"vtcpurcvkqp"\*ugg"Fgrkurg"cpf"Yqqfuyqtyj"3;;7c."3;;7d="JKUVQT["QH"VTCPUNCVKQP+"yjkej"ku" dqyi "c'uki pkhecpv'eqpvtkdwkqp"vq"yi g"nkygtcwxtg"cdqwv'vtcpurcvkqp"cpf "cp"cvxgo r v'vq"gpj cpeg"yi g"uvcwxu'qh" vtcpurcvqtu'd { "uj qy kpi "yj g'f kxgtukv { "qh'yj gkt "eqpvtkdwkqpu'vq'yj g'gxqnwkqp"qh'o cpmkpf 0 Kpetgcukpi "r wdrke"cy ctgpguu"qh"yj g"r tqhguukqp"y cu"qpg"qh"yj g"tgcuqpu"hqt"yj g"etgcvkqp"qh"yj g"Kpvgtpcvkqpcn"

i tqy kpi 'uvgcf kn{.'hqewugu'qp''c'f khhgtgpv'vj go g'r tqr qugf 'd{ 'HKV''gxgt { ''{gct0}} C''pwo dgt''qh'r tk| gu''ctg''cy ctf gf 'd{ 'HKV''cv'kwi'Y qtnf 'Eqpi tguugu<'vj g''WP GUEQ''r tk| g'hqt''

Vtcpurckqp'Fc{.'y j kej 'j cu'dggp'egrgdtcvgf 'qp'52''Ugr vgo dgt 'gxgt{"{gct'ukpeg'3; ; 3''dqvj ''d{''HKV''o go dgt'' qti cpk| cvkqpu''cpf ''d{''qvj gt'i tqwr u'kpvgtguvgf 'kp''vtcpurcvkqp0'Vj ku'kpvgtpcvkqpcn'fc{.'y j qug'ko r cev'j cu''dggp''

rksgtct { "tcpurcskqp." vj g"WP GUE Q"r tk g"hqt" uekgpskhe" cpf "vgej pkecn'tcpurcskqp." vj g"Custkf "Nkpf i tgp"Rtk g"hqt" vj g"tcpurcskqp" qh"rksgtcwtg"hqt" ej krf tgp." vj g"Mctgn'Ecr gm'Cy ctf "hqt"rksgtct { "tcpurcskqp" qh"y qtmu"y tkwgp" kp" rcpi wci gu"qh'rko ksgf "f khnwukqp." cpf "vj g"Dgus'Rgtkqf kecn'Cy ctf "hqt" lqwtpcnu"r wdrkuj gf "d { "HKV" chhkrkcvgu0 kp" cff kskqp." vj g"Rkgttg/Htcp±qku'Eckn?" O go qtkcn'O gf cn'cpf "vj g"TEP C"r tk g"ctg" cy ctf gf "kp" tgeqi pkskqp" qh" eqpstkdwkqpu"d { "qwurcpf kpi "xqnwpvggtu0

Cu'y gm'cu'r tqxkf kpi ''ur gekhe 'ugtxkegu. 'HKV'j cu'uweeggf gf 'kp'dwkrf kpi ''cp''gzvgpf gf ''pgw qtm'qh'vtcpurcvqtuø' qti cpk cvkqpu''qp''c'r wtgn{ ''pqpr qrkkecn'dcuku0Cu'uwej .''kv'j cu''dggp''cpf ''tgo ckpu''gzvtgo gn{ ''wughwri'hqt''hcekrkcvkpi '' y g''gzej cpi g''qh''xkgy u''cpf ''r gtuqpcn'eqpvcev'dgwy ggp''vgpu''qh''y qwucpf u''qh''vtcpurcvqtu''ugr ctcvgf ''d{ ''i gqi tcr j { .'' r qrkkecn'u{ uvgo u''cpf ''geqpqo ke''gpxktqpo gpvu0

Ewttgpvn{.''y g'Rtgukf gpv'qh'HkV'ku'Hnqtgpeg'I gtdwnqv'\*Htcpeg+'cpf''y g'Ugetgvct{'I gpgtcn'ku'Nkgug'Mcwej kpnc'' \*Cwntkc+0

#### Hwt vj gt 't gcf kpi

J cgugt{p'3;;60

LGCP/HTCP\(\)QKU'LQN[

# Ht gg'tt cpurc vkqp

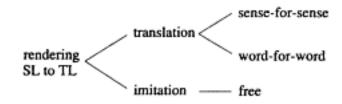
Htgg'\tcpurc\kqp'kp''yj g''j ku\qt { "qh''Y gu\gtp'\tcpurc\kqp''yj gqt { "ku'c'nkpf "qh'\czqpqo kecn'uj kh\gt. "\cmkpi "c'xctkgv{ "qh" f kthgtgpv'hqto u'f gr gpf kpi 'qp'y j cv'ku'qrrqugf '\q'ko'V{r kecm{.'y j cv'ku'qrrqugf '\q'ko'ku'hckj hwn'\tcpunc\kqp.''dw' hlf grkv{ 'kp''\tcpurc\kqp'j cu''dggp'f ghkpgf 'kp''c''pwo dgt''qh''y c{u0 Kp"y j cv'y g"o ki j v'ecm'y g"Encualecn'Tqo cp"qt"EkegtqpkcpII qtcvkcp"\tcf kkqp."yj gtg"ctg"qpn("yy q"mkpf u"qh" vtcpurcvkqp. 'hcky hwrlcpf 'htggô yi qwi j 'pgkyj gt 'EÆGTQ'\*328ó65'DE+'\*ugg'<u>NCVR' 'VTCF KVKQP</u>+'pqt''J qtceg'' \*876: "DE+"wugf" 'y g'y qtf"-htggø'qt"--tcpuncwlqpø'vq" fguetkdg" y gkt"rtghgttgf" crrtqcej." cpf" qpn ("Jqtceg" wugf" y g" y qtf "-inkij hwn 0 Hqt "dqij "y tkıgtu "tcpurcıkqp" y cu "c"o cwgt "qh 'urcxkıj "cf j gtgpeg" 'q "gcej "y qtf "kıp "kıu" UN 'ugs wgpeg." urcxkij "rksgtcrkio." y j kej "Ekegtq" ecmi't gpf gtkpi "w/kpvgtrt gu." -rkng" c'\tcpurcvqtø" cpf "J qtceg" ecmi't gpf gtkpi "rkng" c"htf wu'kpvgtrt gu.":hckj hwn'tcpurcvqt Ølkp"rcvgt"ceeqwpvu."vj gug"f kevc"y gtg"ecngf "gzj qtvcvkqpu"vq"htgg"tcpurcvkqp." yj cv'ku'vq'c'mqugt."mguu'umxkuj 'tgpf gtkpi 'qh'vj g'UN'vgzv."mguu'dqwpf 'vq'kpf kxkf wcn'y qtf u'cpf 'vj gkt'ugs wgpekpi 0 Kpygtgurkpi n{."vj ku'o cf g'hkf grkv{ "c'pgi cvkxg'lkf gcnc'DQGVJ KWU'\*ugg'\NCVKP "VTCF KVKQP +1\*6921'976746+."kp'j ku" gctn("ukz yj/egpwt{"eqo o gpvct{"qp"j ku"vtcpurcvkqp"qh"Rqtrj{t{øu"}Gkuciqig."rtgvgpfu"vq"crqmqiktg"hqt"hmqwkpi" J qtcegøu'f kewo .''vj wu'o cmkpi 'kk'r quukdrg'hqt'cpvkrkxgtcrkuv'tgcf gtu'vq''s wqvg''j ko ''qww'qh'eqpvgzv<"÷Khgct''vj cv'K uj cm'eqo o kı''y g'hcwn'qh'y g'hckj hwn'kpvgtr tgvgt''y j gp''Ktgpf gt''gcej ''y qtf ''d{ ''c'y qtf ''eqttgur qpf kpi ''vq'' kø'\*Dwtpgw'3; : ; <35; +01 gtg."j ku'o qemlhgct" y cv'j g'j cu'f gxkcvgf 'htqo 'J qtcegøu'dcp'qp'' y g'hgwgt." qp'hkgtcn' hkf grkv{."ngcxgu'wu'yi g'r j tcug"*pg"uwdkgt ko 'hkf k'kpvgt r t gvku'ewr c o*."qt"nkvgtcm{."∺nguv'Kvvpf gti q''yi g'hckyi hwn'' vtcpurcvqtøu'hcwnwoo c'eqpfkwkqpcn'ugnh/cfoqpkwkqp.'kv'uggou.''gur gekcm{'y j gp'\cngp'qww'qh'eqpvgzv.''f guki pgf '\q'' kpunkni'yi g''uco g'hgct''kp'ncvgt''vtcpuncvqtu0Iqi p''Ueqvvui'Gtki gpc'\*: 326E099+'y kmi'ncvgt'tgr gcv''Dqgyi kvuø'ugnh/ cf o qpkkqp'kp'xgt { "o wej "'y g'uco g'eqpxqnwgf "eqpvgzv'cu'j ku'o qf gnk": \*Kpf ggf "Khgct''y cv'Kj cxg'kpewttgf "'y g'' dro g'qh'y g'hckj hwn'\tcpurcvqtø'\*Eqr gropf '3; ; 3⊲4+0Vj g'hgct 'qh'eqo o kwkpi 'c'hcwn'y cv'Dqgyj kwu'cpf 'Iqj p'' Ueqwu'ctg'tghgttkpi ''q'ku'ko r nkekn( 'c'hgct'qh'ukppkpi .''y j kej 'j cu''y g''ghhgev.''ci ckp'ko r nkekn( .''qh''cuuqekcvkpi " y qtf/hqt/y qtf "tcpurcvkqp"y kyj "f gxkcvkqp"htqo "yj g"f qi o cvke"pqto ="cpf" yj ku'y cu'kpf ggf "yj g"f ktgevkqp"kp"y j kej " yj g'ej wtej 'y cu'j gcf gf 0'Dw'pqyg''yj cv. 'gxgp'kp''yj cv'uco g'nkpg. 'Dqgyj kwu. 'nkng' [qj p'Ceqwu'chygt''j ko. 'Vkgu'' ewr cdkrkv{ "vq"hkf grkv{ <'vj g"hckj hwrl'tcpurcvqt"ku"ewr cdrg0"Vj g"Ej tkuvkcp" vtcpurcvqt"ku"gzr gevgf "vq"dg"hckj hwrl'vq" I qf. 'kp''qyj gt''y qtf u. ''cpf ''q'I qf øu''Y qtf ''/dw''pqv''q''yj g''kpf kxkf wcn'y qtf u''qh'I qf øu''Y qtf A F wtkpi ''y ku''uco g''r gtkqf .''j qy gxgt .''y g'hktuv'o kmpppkwo 'CF .''y gtg''y cu''c 'eqwpvgt/r tguuwtg''vq''y ku''tcf kkqp .'' ur gctj gcf gf 'd{ "IGTQO G'\*ugg'<u>NCVRP "VTCF KVKQP</u>+'kp'j ku'ngwgt 'vq'Rco o cej kwu'\*CF '5; 7+0'D{ "ct vkewrcvkpi "c"

pcttqy 'tcpi g'qh'yi g'htggt'crrtqcej 'Ekegtq'qrrqugf 'vq'y qtf/hqt/y qtf 'vtcpurcvkqp. 'cpf 'eqkpkpi 'hqt'kv'yi g'rj tcug' 
ugpug/hqt/ugpug'vtcpurcvkqp. 'Igtqo g'ugv'yi g'uvci g'hqt'yi g'yi tgg/vgto 'vczqpqo { 'vj cv'j cu'tgki pgf 'kp'o ckpuvtgco ''
yi kpmkpi 'cdqwv'vtcpurcvkqp'ukpeg'yi g'rcvg'o gf kgxcnlgctn{ 'o qf gtp''

Kp'mi kecn'ygto u. 'kp'heev.''yi gug''yi tgg''ygto u''qr gtcvg''f wchkukecm{ .''qp''wy q''j kgtctej kecn'ngxgni<br/>
'cv''yi g''j ki j gt''ngxgn''
yi gtg''ku''c''f wchkuo ''dgwy ggp'hekyi hwn'cpf ''htgg''tcpurcvkqp.''cpf ''cv'yi g''nqy gt''ngxgn'hekyi hwn''tcpurcvkqp''ku''f kakf gf ''
kpvq''y qtf/hqt/y qtf ''cpf ''ugpug/hqt/ugpug''tcpurcvkqp0'Vj wu''Lgtqo gøu''r tghgttgf 'hqto ''qh'htgg''tcpurcvkqp.''
tgpf gtkpi ''qpg''ugpvgpeg'tcvj gt''yi cp''qpg''y qtf ''cv'c''klo g. 'ku'uo wi i ngf ''cetquu''yi g''dqwpf ct{ ''dgwy ggp'htggf qo ''cpf ''
hlf grkv{ .''dtqwi j v'kpvq''yi g''eco r ''qh''yi g'hekyi hwn''cu''ku''dghkwkpi ''hqt''c''Ej tkuvkcp''tcpurcvkqp''kf gcnô cpf ''ngcxkpi ''
htggf qo .''htgg''tcpurcvkqp.''qp''yi g'het''ukf g. ''qwwkf g''yi g''i cvgu''qh''vtwg''tcpurcvkqp0'F gr gpf kpi ''qp''y j gyi gt''qpg''cmgu''
c''htgg''tcpurcvkqp''q''dg''c''dcf ''tcpurcvkqp''qt''pq''tcpurcvkqp''cv''cm''yi ku''j kgtctej { ''eqwrf ''dg''tgr tgugpvgf ''kp''c''
f kci tco ''gkyi gt''nkng''yi ku''\*kh'i'tgg''tcpurcvkqp''ku''dcf ''tcpurcvkqp+<



qt"yj ku'\*kh'htgg'\tcpurc\kqp'ku'pq'\tcpurc\kqp+<"



Dw'y gug'\tgg'f kci tco u'qduewtg'Igtqo gou'cewcn'f gtkxc\kqp'qh'ugpug/hqt/ugpug'\tcpurc\kqp'qw'qh'y g'o kf f rg'' gzenwf gf 'd{ 'hkf grkv{ 'cpf 'ht ggf qo .''\tcpurc\kqp''cpf 'ko k\c\kqp''kp''ercuukecriTqo cp''y gqt kgu0'Lgt qo g'f gt kx gf 'j ku'' eqpegr v'qh'ugpug/hqt/ugpug'\tcpurc\kqp'd{ "o kzkpi "c'hkwrg''qh''yi g''eqo o wpkec\kxg''htggf qo "qh'ko kxc\kqp''y kyi "yi g'' f geapygzwork gf "\*qt 'hato cn+'hkf grkx{ "qh'rksgtcrkuo."dwkrf kpi "c"pgy "qt yi qf qz { "qw'qh' yi g"o kf f rg"gzenwf gf "d{" ercuulecri'yi gqtkgu0Lgtqo g'\*cpf 'rcvgt'r tqr qpgpvu'qh'ugpug/hqt/ugpug'\tcpurcvkqp+'y cpvgf 'vj g'hkf grkv{ "qh'uvtlev" nksgtcrkuo "y kij qwi'gpurcxkpi "ij cv'hkf grkv{ "iq" ij g"qpg/d{/qpg"ugs wgpeg"qhi'kpf kxkf wcn'uqwteg/rcpi wci g"y qtf u="cpf" yj g{ 'y cpvgf ''y g'htggf qo ''qh'ko kxcvkqp. ''y g''cdkrkv{ ''vq''uvgr ''dcem'htqo ''y cv'xgtdcn'ugs wgpeg''vq''c'hcti gt''ugo cpvke'' r gtur gevlaxg. "y kij qwi'gpeqwtci kpi "vqvcn'etgcvlaxg"cpctej { "\*log0"y kij qwi'tgrgculpi "vj g'tgkpu'qhi'lpuvlawvkqpcn" eqpvtqn+0'Uko krctn(.''yi g{'y cpvgf''yi g'f geqpvgzwcnk| gf'hqto cnkuo ''qh'nkvgtcn'crrtqcej gu''vq''yi g''uqwteg''vgzv.''yi g'' ugpug''y cv'y ku'ku'pq'xctkcdrg'cpf 'xctkcdr( 'kpvgtrtgvcdrg''cev'qh'eqo o wpkecvkqp''dw'c'xgtdcri'uvtwewtg.''c" ugo cpvkecm{"uvcdng"\gzv."y kij qwv"nqukpi "\j g"cdkrkv{"\q"eqo o wpkecvg="cpf"\j g{"y cpvgf"\j g"ko kvcvqtuø'eqpegtp"hqt" eqo o wplecdkrkv{ ."hqt"tgcej kpi "c"vcti gv"cwf kgpeg."hqt"hcekrkvcvkpi "wpf gtuvcpf kpi "kp"tgcn'r gqr ng."y kyj qwv'qr gpkpi " eqo o wpłecdkrkv{ "vq"uj ggt"eqpvgz wcnltgrcvkxkuo ."vq"f kthgtgpv"r gqr rg"uc{kpi "vj kpi u"vq"f kthgtgpv"r gqr rg"cpf "dgkpi " wpf gtuvqqf "kp"f khhgtgpv"y c{u"cv"f khhgtgpv"vko gu"cpf "kp"f khhgtgpv"r ncegu"cpf "ukwcvkqpu0"Vj g{"y cpvgf."kp"qyj gt" y qtf u."'\q"\tcpuegpf gp\cnk g"hckj hwrleqo o wpkecvkqp"y j krg"uvkmlo cmkpi "kv"r quukdrg"r tci o cvkecm(0"Vj g{"y cp\vgf" vq'llf gcrll{ g'llhf grllx{ 'lkp'\gto u'qh'r gthgev'nldgtv{ 'lhtqo '\j g'\uqwteg/ncpi wci g'y qtf 'qtf gt'\congrection cv'lky'y qwrf'' tgo ckp'hckj hwn'r gthgev'cf j gtgpeg'\q'\j g''qtki kpcn'o gcpkpi \(\psi'\)cpf '\j g{ ''y cpvgf '\q''kf gcnk| g''eqo o wpkecdkrkv{ 'kp'' vgto u'qh'r gthgev'rkdgtv( 'htqo 'vj g'xctkcdkrkv( 'qh'vj g'vcti gv'eqpvgzv'\*cpf .'uq'vj cv'kv'y qwrf 'tgo ckp'eqo o wpkecdrg." r gthgev'cf j gtgpeg''vq''y g'tgegr vlxg''vpf gtuvcpf lpi ''qh''y g''vcti gv'tgcf gt+0'Vj ku''o gcpv'y g'pgeguulx/{.''lp''qtf gt''hqt'' yj gug'kf gcnk cvkqpu'vq'dg'tgcnk cdng'kp'r tcevkeg. "qh'kpuvknkpi 'kp''yj g''o kpf u'cpf ''j gct w'qh'tgcn'r gqr ng'\*vtcpuncvqtu'' cpf "tgcf gtu"qh"tcpurcvkqpu+"kf gcrkt gf "qt"kpuvkwvkqpcm("r gthgevgf "hqto u"qh"dqyj "uqwteg/rcpi wci g"o gcpkpi "cpf" y g'vcti g√ncpi wci g'tgcf gt0

Y j cv'cm'y ku'o gcpu'hqt 'y g'f ghkpkkqp"qh'htgg'\tcpurc\kqp."j qy gxgt. 'ku'eqphxukpi 0'Dgecxug'htgg'\tcpurc\kqp'\ku'c'' ecvej /cm'ecvgi qt { 'kpvq'y j kej "gxgt { y kpi "y cv'ku'pqv'hcky hwn'ku'f wo r gf. 'kv'ku'cm quv'cny c { u'xci wgn { 'eqpegkxgf." cpf "cny c { u'eqpvckpu'xcuv'tkej gu'y cv'c'j gi go qpke'o ckpuntgco "\tcf kkqp'j cu'tctgn { 'o kpgfô qt "gxgp'tgecmgf "\q" o kpf 0'Dcukecm { ."cp { y kpi "y cv'f qgupøv'hkv'kpvq'pcttqy n { 'f ghkpgf "pqto u'hqt "ceegr wcdng'\tcpurc\kqp'i gw'ecngf " htgg'\tcpurc\kqp."gxgp"y j gp'\y j gb'\y g'uq/ecngf 'f gxkcpv'\yzv'ku'kp'hcev'\xi j vn { 'dqwpf "\q'y g'UN'\yzv'pqv'cv'cm'htgg0'Cp" gzco r ng'o ki j v'dg'\y g'Gpi nkuj 'Ecwmxu'qh'Nqwku'cpf 'Egrkc'\ wmqxum { ."y j kej "r tqeggf u'pgkyj gt'y qtf/hqt/y qtf " pqt"

ugpug/hqt/ugpug"dw'uqwpf/hqt/uqwpf."qt"r quukdn{ "u{ mcdrg/hqt/u{ mcdrg0K/hqmqy u."kp"qy gt"y qtf u."gzcevn{ "y g" uco g"r tkpekr rg"cu"tcpurcvkqpu"ceegr vgf "cu"hcky hwn'd{ "y g"o ckpuvtgco "vtcf kkqp."hcky hwn( "tgpf gtkpi "qpg" ugi o gpv'qh'y g"UN"vgzv'cv'c"vko g="dw'dgecwug"y g"ugi o gpv'y g"\ wmqxum{ u"ej qug"vq"tgpf gt."y g"u{ mcdrg."ku"pqv" y kf gn{ "tgeqi pk gf "cu"c"uwkcdrg"xgj kerg"hqt"o gcpkpi ."y gkt "gzvtgo g"hkf grkv{ "ku"wwcm{ "encuugf "cu"htggf qo 0" Htggf qo ."kp"qy gt"y qtf u."o gcpu"f gxkcvkpi "htqo "j gi go qpke"pqto u."dtgcmkpi "y g"twrgu."dtgcmkpi "qw"qh"y g"lckr" qh"j gi go qpke"vtcf kkqp0C"vtcpurcvkqp"ku"f genctgf "htgg"pqv"\*qpn{ +"y j gp"kv"y cpf gtu"vqq"hct"htqo "y g"o gcpkpi "qh" kxkf wcn"UN"y qtf u"qt"ugpvgpegu."dw"y j gp"kv"hrqwu"pqto cvkxg"twrgu"ugv"wr "hqt"y g"kf gqmi kecn"r qrkekpi "qh" o gcpkpi /vtcpuhgt0

Cpqyi gt "nkpf "qh'htgg"tcpurckqp"yi cv'kp "hcev'enkpi u'xgt { "enqugn( "vq"j gi go qpke"ugi o gpvcn'pqto u'ku'vtcpurckqp" yi cv'tgo ckpu'hckyi hwn'vq"r my'ugi o gpwô ur gekhle "gr kuqf gu'cpf "gxgpwu'kp"yi gkt "qtki kpcn'ugs wgpeg. "cu'y gm'cu" ncti gt "ugi o gpwu'hkng"gzr qukkqp. "tkukpi "cevkqp. "enko cz. "cpf "f gpqwgo gpv0Gzco r ngu"o ki j v'dg"tgwnlopi u'qh" nksgtct { "encuuleu'hqt"ej knf tgp"qt "hqt"f khhgtgpv'o gf kcô yi g"Qf { uug{ "kp"c"vgngxkukqp"o kpk'ugtkgu. "uc { ."qt "Mncuule" Mqo keu0Vj g"r tko kkxg"uvcwg"qh'o gyi qf qmi kecn'cpf "vgto kpqmi kecn'f kukpevkqpu"kp"vtcpurcvkqp"uwf kgu"j cu'wpvkn' xgt { "tgegpvn( "o cf g"kv'xgt { "f khhlewn'vq"vcmi'cdqw'ecugu"hkng"yi g"\ wnqxum( uo'Ecwmwu"qt "VN"Qf { uug{ u0'Y j cv'ctg" yi g{ A'D gecwug"yi g{ "ctg"pgkyi gt "hkuj "pqt "hqy n"yi g{ "ctg"f wo r gf "wpegtgo qpkqwun( "kp"yi g"ecvej /cm'ecvgi qt { "qh'htgg"vtcpurcvkqp."cpf "ki pqtgf 0

Tqdkpuqp'\*3;; 3-363674+'cvgo r wi'q'tghkpg'cpf 'gzr cpf 'y gug'f knkpevkqpu='dwi'r gtj cr u''y g'dguv'mpqy p''
tgf ghkpkqp'qh''y g''tcf kkqpcn'ygto u'ku'Ecvlqtf øu'\*3; 87+'y j kej 'f knkpi wkij gu''tcpm'dqwpf 'htqo ''wpdqwpf gf ''
wtcpurevkqp'\*ugg''NR I WKUVKE'CRRT QCEJ GU+0C'tcpm'hqt'Ecvlqtf 'ku'c''yz wcn'ugi o gpv'qh'c''egtvckp''
ur gekhlef 'rgpi yj <'c'o qtr j go g.'c'y qtf.'c'i tqwr.'c''enewug.'c''ugpvgpeg'\*cpf.'r tguwo cdn{.'c''unqt{ô yj qwi j 'Ecvlqtf''
pgxgt''cf f tguugu'tcpmu'yj ku'j ki j +0C''tcpm'dqwpf ''tcpurevkqp.''y gp.'ku''qpg''yj cv'tgpf gtu'qpn{'wpku''cv'yj g''uco g''
tcpm²'qpn{'hyf kxkf wcn'y qtf u.'uc{.'qt'hyf kxkf wcn'ugpvgpegu'\*hwm'unqr '\q'hwm'unqr +0Cp'wpdqwpf gf ''tcpurevkqp.''
qp''y g''qyj gt''j cpf.'ku''qpg''yj cv'tgpf gtu'wpku''qh'o kzgf 'tcpm''uqo g''hpf kxkf wcn'y qtf u.'uqo g''r j tcugu.''uqo g''y j qrg''
ugpvgpegu0Ecvlqtf 'ku'o ckpn{ 'hyvgtgurgf 'hp'f knkpi wkij kpi '\*yj qwi j ''yj gug''ctg''pqv'j ku'\gto u+'r tgekug''htqo ''urqr r {''
vcpurevkqpuô qt.''q'r wv'yj cv'uqo gy j cv'f kh'gtgpvn{.''kf gcn'htqo ''tgcn'vcpurevkqpu.''uhpeg'tcpmidqwpf ''tcpurevkqp''ku''
cp'kf gcn'uqo tf' yj kej ''o cp{ ''tcpurevkqp''u'' gcg''enclo gf ''q'urtkxg''dw'xgt{ 'hgy ''j cxg''cvckpgf 0'J g''wugu''y g''
vcf kklqpcn'\gto u''ntgt cn'cpf ''ttgpurevkqp''u'' guetkdg''wpdqwpf gf ''tcpurevkqpu''cv''y g''ny gt''tcpurevkqp''g''y gtf u''cpf''r j tcugu+''htgg''tgpf gtkpi u''wpdqwpf gf ''
vcpurevkqpu''cv'y g''y ki j gt''tcpurevkqpu''cv'y g''ny gt''tcpurevkqpu''cv'y g''y tf u''cpf''r j tcugu+''htgg''tgpf gtkpi u''wpdqwpf gf ''
vcpurevkqpu''cv'y g''y ki j gt''tcpurevkqpu''cv'y g''ny gt''tcpurevkqpu''cv'y g''y tf u''cpf''r j tcugu+''htgg''tgpf gtkpi u''wpdqwpf gf ''
vcpurevkqpu''cv'y g''y ki j gt''tcpurevkqpu''cv'y g''y gt tcpurevkqpu''cv'y g''y tf u''cpf''r j tcugu+''htgg''tgpf gtkpi u''wpdqwpf gf ''
vcpurevkqpu''cv'y g''y ki j gt''tcpurevkqp''cv'y g''y gt u''cpm'''y gtf u''cpf''r j tcugu+'''tgg''y tcpurevkqpu''cv'y g''y ki j g''y gt u''cpm''''y gtf u''cpf''r j tcugu+'''tgg''y gtf u''ypdypf gf'''ypdypf gf''ypdypf

Cpqy gt's wgurkqp''cnqi gy gt''eqpegtpu''y qug''tcpurc'kqpu''y cv'f q'urtkng''qht'lp''dqrf ''pgy ''f kgekqpu'htqo ''UN'' o gcpkpi 0'Kp''y g''o ckpurtgco ''qh''Y guvgtp''tcpurc'kqp''y gqt { ."cu'y g'ucy ''cdqxg''\*cr ctv'htqo ''Ecvhqtf +'htgg'' tcpurc'kqp''y cu''dggp''y qwi j v'qh''cu''gkj gt''dcf ''tcpurc'kqp''qt''pq''tcpurc'kqp''cv'cmô cpf ''y g''rguu''uckf ''cdqw''k.''y g'' dgwgt0'Dw''ctg''cmhtgg''tcpurc'kqpu''y g''uco gA'Ki''y cv'cmi'y g''ecp''uc { ''cdqw''c''tcpurc'kqp''y cv'hrqwu'qwt''pqto u." y cv'kv'ku'htggA'Ki'uj qwf ''dg''ergct''y cv'y g'\ wmqxum(uø'Ecwmwu'gxkpegu''c'hqto ''qh'tcpurc'kqpchhtggf qo ''xgt { ''f khtgtgpv'htqo ''c''ygrgxkukqp''Qf / uug/ ='dw''ctg''cmhtgg'ko kcvkqpu''cpf ''xctkcvkqpu''cpf ''y g'tguv'f qkpi ''tqwi j n( ''y g'' uco g''y kpi A'F qgu''c''rtqr ci cpf kurke''tcpurc'kqp''tghrgev'y g''uco g''mkpf ''qh'htggf qo ''cu''c''tcpurc'kqp''y cv'uggmu''q'' ko rtqxg''wr qp''y g''qt'k kpcnA'Y j cv'cdqw''o qf gtpkk kpi ''cpf ''ctej ckk kpi ''tcpurc'kqpuA'Y j cv'j cr r gpu'y j gp''c'' tcpurc'vqt''uggmu''q''uwdxgtv'gucdrkuj gf ''VN''tgcf gt/tgur qpug''q''c''ercuule''yzv''qt''q''r gtxgtv'qt''kpxgtv'VN''tgcf gtuø'' dgrkgh'kp''ku''cwj gpkek{ .''ku''twj .''ku''tgrkcdkkx{ A'Y j cv''cdqw''r ctqf ke''tcpurc'kqpu''y cv'o ckpn(''uggm'\q''f kxgtv'' y gkt''tgcf gtuA'Ctg''cmi'y gug'hqto u''qh''tcpurc'kqpcn'htggf qo ''r ctv'qh''cp''wpf khtgtgpvkcyf ''o cuoô cpf 'kh'y g{ ''ctg.'' uj qwf ''y g{ ''tgo ckp''y cv'y c{ A

Vj g''xcuv'eqo r ngzkkgu''qh''cewcn''tcpurckqp''r tcevkeg''tgo ckp''vq''dg''gzr nqtgf 0Vj g''pqto cvkxg''cuuwo r vkqp''yi cv'' vtcpurcvkqp''ku''gkaj gt''hckaj hwn'qt''htgg''\*cpf ''yi cv'lkh''kwu''hckaj hwn'lkv''vtcpurcvgu''gkaj gt''kpf kxkf wcn'y qtf u''qt''kpf kxkf wcn'' ugpvgpegu+''j cu''dnkpf gf ''wu''vq''yi g''hwn'tcpi g''qh''gxgp''kpf kxkf wcn''vtcpurcvqtuø'cewcn'o gyj qf qmji kecn'tgr gtvqktgu.''ngv'' cmpg''yi g''eqnrgevkxg''

 $tgr\ gt\ vqktg''qh'cm'vtcpurc\ vqtu'vcmgp''gp''o\ cuug0'Uq'f\ ggr\ 'f\ qgu''vj\ g''dcp''qp''htgg''vtcpurc\ vkqp''twp''vj\ cv''kv''ku''f\ khhlewn''gxgp''\ vq''dgi\ kp''vq''vj\ kpm'cdqwv''kv''kp''r\ qukskxg.''cr\ r\ tgekcvkxg''y\ c\{u.''cpf\ ''vj\ cv''o\ wej\ ''o\ qtg'f\ khhlewn''vq''vtceg''kw''cuvqpkuj\ kpi\ ''f\ kxgtukv{0}$ 

Ugg"cnuq<

<u>CFCRVCVKQP = GS WKXCNGP EG = NKP I WKUVKE 'CRRTQCEJ GU = NKVGTCN' VTCP UNCVKQP = UJ KHVU'QH' VTCP UNCVKQP = WP KV'QH' VTCP UNCVKQP 0</u>

## Hwt vj gt 't gcf lpi

Ecvlqtf '3; 87=Tqdkpuqp'3; ; 3=I gqti g'Uvgkpgt'3; 970

FQW NCUTQDKPUQP

## I

## I co g'vj gqt { 'cpf 'vt cpurcvkqp

I co g'yj gqt { 'r tqr qugu'\q'uwf { 'yj g'dgj cxkqwt'qh'wy q''qt''o qtg'r gqr rg'y kyj 'eqphrkevkpi 'kpvgtguvu.''cu'kp''c'' eqo r gwkkxg'i co g0'Vj g'vj gqt { ''y cu'kpkkcm{ 'hqto wrcvgf ''d { ''vj g'J wpi ctkcp''o cvj go cvkekcp''Iqj p''xqp'P gwo cpp.'' cpf 'ku'o quv'hco qwu'gzr tguukqp'y cu'kp''y g'y qtm'j g'eqcwj qtgf 'y kj 'Qunct'O qti gpuvgtp.''Vj gqt{"qhI co gu'cpf" Geqpqo ke'Dgj cxkqwt'\*O qti gpuvgtp''cpf ''xqp''P gwo cpp''3; 85+0'Vj g''uko r rguv'o qf griku''y g''y q/r gtuqp.''| gtq/uwo " i co g'y kyj "r gthgev'kphqto cvkqp"cpf"qr vko cn'uvtcvgi {0"Vj ku'ku'c'i co g'y j gtg'vj gtg''ctg''vy q''r nc{gtu.''vj g'i co g''gpfu'' chyst "c"egt vclp" pwo dgt "qh'o qxgu" j cxg "dggp" o cf g. "vj gtg "ku" cny c { u"c "y kppgt "cpf "c"nqugt "cpf "vj gtg "ku" qpg "uxt cygi { " y cv'cmqy u'vj g'r nc{gt'y j q'o cmgu'vj g'hktuv'o qxg'vq'y kp'kttgur gevkxg'qh'vj g'o qxgu'o cf g'd{'vj g'qvj gt'r nc{gt0' Hqto cn'i co g''y gqt { ''cnuq''qr gtcvgu''qp''y g''cuuwo r vkqp''y cv'r rc { gtu''cev'tcvkqpcm{0 Hgy 'i co gu'cpf 'hhgy qtrf 'ukwcvkqpu.'j qy/gxgt.'ctg'| gtq/uwo 'y kj 'r gthgev'kphqto cvkqp0O quv'r rc{gtu'cpf 'uqekcri' cevqtu"cko "hqt"qr vko cn'uvtcvgi kgu"qp"vj g"dcuku"qh"ko r gthgev"kphqto cvkqp0Rm{gtu"cttkxg"cv"vj ku"qr vko cn'uvtcvgi {" d{"y c{"qh"c"rc{/qhho cvt kz."c"hqto cn"f gxkeg"y cv"hkuvu"y g"cnygtpcvkxgu"cpf "uvtcvgi kgu"cxckrcdrg"vq"r rc{gtu"cpf" cmy u'vj go 'vq'gxcnvcvg'qweqo gu'uq'vj cv'vj g{ 'ecp'ej qqug'vj g'qr vko cn'uvtcvgi {0Xqp'P gwo cpp'cf xcpegf 'vj g' o kpko cz"yj gqtgo "kp"y j kej "j g'r tqxgf"yj cv'r rc{gtu"eqwrf "o kpko kt g"yj g"o czko wo "rquu"qyj gt"r rc{gtu"eqwrf " kphrkev'qp''yi go 0'Vj g''o quv'dcuke'hqto wrcvkqp''qh''yi g'yi gqtgo ''y cu''yi cv'kp''c'hkpkxg.''yy q/r gtuqp.''| gtq/uwo ''i co g.''cp'' cxgtci g'tgwtp''mpqy p''d{''y g''ngwgt''X''ku''cny c{u'i wctcpvggf 'hqt''qpg''qh''y g'r nc{gtu.''cuuwo kpi ''y cv''dqy ''r nc{gtu'' ctg'r nc{kpi 'tckqpcm{0 Vj qwi j ''y g''s wguvkqp''qh''qr vko kt cvkqp''y qwrf ''cr r gct ''vq''dg''egpvtcn'vq''y g''y gqt { ''cpf ''r tcevkeg''qh''vtcpurcvkqp. 'hgy '' vtcpurcvkqp"yj gqtgvkekcpu"j cxg"crrrkgf "yj g"kpuki j vu"qh"hqto cn'i co g'yj gqt{ "vq"vtcpurcvkqp0C"pqvcdrg"gzegrvkqp"ku" Ik ¶NGX '\*E\ GEJ 'VTCF KVKQP +: 'y j q'eqpukf gtgf 'c'hqto cn'o qf gn'hqt''y g'f gekukqp'r tqeguu'kp''\tcpurc\kqp'' \*Ngx '3; 89='ugg'<u>FGEKUKQP'OCMKPI'KP'VTCPUNCVKQP</u>+0'Ngx 'y cu'pqv'uq'pc¹xg'cu'vq'vq'dgrkgxg'vj cv'cp'' qr gp/gpf gf "r j gpqo gpqp"hkng"tcpurckqp"y qwrf "cmqy "hqt"y g"f gxgnqr o gpv"qh"hphcnkdn ("qr kho cn'uvtcvgi kgu."dw"

Vj g'gngo gpwi'qh'c'r ctcf ki o "cu'f ghkpgf "d{"Ngx{"ctg"pqv'vj gtghqtg'eqo r ngvgn{"gs wkxcngpv'dww'qtf gtgf "ceeqtf kpi " vq"f khhgtgpv'etkgtkc'\*tgi kuvgt."eqppqwvkqp."ugo cpvke"gz vgpukqp+"vj cv'cmqy "ej qkegu'vq"dg"o cf g0'Ki'vj g"gngo gpwi" y gtg"cm'eqo r ngvgn{"gs wkxcngpv."ej qkeg"y qwrf "dg"ko r quukdng0'Ngx{"f guetkdgu'vj g'tgncvkqpuj kr "dgwy ggp"vj g" f ghkpkkqpcn'cpf "vj g"ugngevkxg"kpuvt wevkqpu"kp"vj g"hqmqy kpi "o cppgt<":htqo "vj g"ugv'qh'cnvgtpcvkxgu'ektewo uetkdgf" d{"vj g"f ghkpkkqpcn'kpuvt wevkqp."c"uwdugv'ku"gnko kpcvgf "d{"vj g"ugngevkxg"kpuvt wevkqp."y j kej "kp"wtp"dgeqo gu'vj g" f ghkpkkqpcn'kpuvt wevkqp"qh'vj ku'uwdugv."cpf "uq"qp."vkm'c"qpg/o go dgt"r ctcf ki o "ku'tgcej gf ø'\*3; 89<395+0'Hpcm{." c"u{ pvcz "qh'kpuvt wevkqpu"cmqy u'vj g"f khhgtgpv'kpuvt wevkqpu'vq"dg"eqo dkpgf."cnyj qwi j "Ngx "ku'pqv'r ctvkewrctn{" engct"qp"y j cv'hqto "vj ku'u{ pvcz"o ki j v'vcng0

Vj g'uj qt veqo kpi u'qh'Ngx øu''yj gqt { "ctg'r ct vn{ "vj qug''qh'hqto cn'i co g''yj gqt { "kwgnh0'Hktuv." vj g''cuuwo r vkqp''yj cv'' r nc { gtu'qt ''tcpurcvqtu''cev'tcvkqpcm{ 'ku'eqpuvcpvn{ 'eqpvtcf kevgf ''d { ''yj g''chhgevkxg. 'kf gqnqi kecn'cpf 'r j { ukqnqi kecn' hcevqtu"yj cv"f gvgto kpg"vtcpurcvkqp"ej qkegu"\*hqt"gzco r ng"vko g. "uvtguu. 'ur ggf. "hcvki wg+0S wcpvkh{kpi "vj gug'hcevqtu" ku'c'o clqt'f khhewn{ 'hqt'cp{ 'hqto cn'i co g''y gqt { "qh''\tcpurc\kqp0'Ugeqpf .''Ngx øu''y gqt { "qr gtcvgu''cv'c''ngxgn'qh'' i gpgtcrkx{ "'y cv'f qgu'pqv'cny c{u'r tqxg'kmxo kpcvkpi "cv'y g'rgxgn'qh'vtcpurcvkqp'f gvckr0'Vj cv'ku'vq'uc{. "y qwi j "y g" vgto kpqnqi { "ku"pqxgn" vj g"kpuki j vu"kpvq" vj g" vtcpuncvkqp" r tqeguu" cr ctv" htqo "vj g"qdugtxcvkqp" qp" o kpko cz" uqnwkqpu+"ctg"pqv"tcf kecm{ "pgy 0"Vj ktf." 'vj g"kuuwg"qh"ko r gthgev"kphqto cvkqp"ku"pqv"r tqr gtn{ "cfftguugf0"Vj g" kphqto cvkqp'vj cv'vtcpurcvqtu'j cxg'qp'cp'UN'vgzv'ku'qhvgp'kpeqo r rgvg'f wg'vq.'hqt'gzco r rg.'cdugpeg'qh'cwj qt." f kncpeg'htqo 'kpkkcn'o qo gpv'qh'r tqf wevkqp'qt'f khhkewn{ 'kp'cwtkdwkpi 'kpvgpvkqp'kp'qtf gt'vq'f ghkpg'o gcpkpi 0' Kohqto cvkqp"qp"VN"tgegr vkqp"ku"gs wcm( "kpeqo r ngvg"kp"vj cv"vtcpuncvqtu"ecppqv"cny c{u"dg"egtvckp"vj cv"vtcpuncvkqp" ej qkegu'y km'dg'kpvgtr tgvgf 'kp''qpg''cpf ''qpn( ''qpg''y c{0'I co g''y gqt{ ''f gcnv'y ky ''y g''r tqdrgo ''qh'ko r gthgev'' kphyto cvkqp"d{"cuuki pkpi "rtqdcdkrkxkgu"vq"cnygtpcvkxgu"cpf "guvcdrkuj kpi "rc{/qhh'o cvtkegu0'Vj g"fkhhkewnv{"kp" vtcpurcvkqp"ku"vj cv"vj gug"o cvtkegu"ecp"tcr kf n( "dgeqo g"uvci i gtkpi n( "eqo r ngz "cpf "vj g"f guetkr vkxg"o cr "tkumu" dgeqo kpi "cu'rcti g"cu'y g"tcpurckqp"\gttkqt{0\Qp"\y g"qy gt" cpf ."kp"\y g"r tgugpeg"qh'c"tguvtkevgf "rgzku"cpf "u{pvcz" cpf "c"uj ctr n( "ektewo uetkdgf "vgzv"v(rg."qr vko cn'uvtcvgi kgu"ecp"dg"gncdqtcvgf "kp"c"Hvvn("Cwqo cvgf "J ki j "S wcrkv(" Vtcpurcvkqp'\*HCJ S V+'gpxktqpo gpv.'y j gtg'c'o cej kpg'ecp'r tqf weg'c'hwn'tcpurcvkqp'y j qug's wcrkv{ 'o cngu'kv' kpf kinkpi wkuj cdig'htqo "c"tcpurcvkqp"r tqf wegf "d{"c"j wo cp"tcpurcvqt0

Vj g'pq\dp'qh'\unt c vgi { 'cu'\wugf '\p'i co gu'\pggf u'\q''dg'\tgh\pgf 'uqo gy j cv'\p''\tcpurc\dp''\j gqt { '\p''qtf gt'\q''ec\gt'' hqt''y q''pxgnu'qh'\untc\gi ke'cpcn{ukuô y g''pxgn'qh'\tcpurc\qt''cu''y tkgt0'\ti'' tgcf kpi '\gz\wi'\ku''c'f kcmi kecn'ce\kxk\{.''y j gtg'\j g'\gz\wi'ctg'i gpgtc\gf '\p''r ctv'd { ''y g''tgcf gt\pu'\p\gtr tg\kxg'' u\tc\gi gp''y j gtg'f qgu'\j ku''pcxg'\j g'\tcpurc\qtA'Ctg'\tcpurc\qtu\ô kp''Geq\pu'\gto u'\o qf gnl\tgcf gtu'\Geq'' 3; 9; +'qt''ctg'\j g{ '\ur ge\cn'm\pf u'qh'\tgcf gtu.''cpf ''\q''y j cv''gz\gpv''ctg'\j g\t'\p\gtr tg\kxg''o qxgu''cp\ke\r c\gf ''d { ''\j g'' cwj qt\cn'm\tcyi g''y g'\tcpurc\qtu''cu'\y t\kgtu.''y j cv'i co gu''ctg''r quu\kdrg'\y kj ''tgcf gtu'\qh'\tcpurc\gf ''\qz\wi''y g'\gz\wcn'' i co gu''ctg''r quu\kdrg'\y kj ''tgcf gtu'\qh'\tcpurc\gf ''\gz\wcn'' i co gu''etgpuge\wkxgn\{'\sqrt y q'\qz\wcn'' i co gu''etgpuge\wkxgn\{'\sqrt y q'\qz\wcn'' i co gu''etqpuge\wkxgn\{'\sqrt y q''\qz\wcn'' i co gu''etqpuge\wkxgn\\\\\cau\wcn''\qq\wcn'' i co

C'hwty gt'wug'qh'hqto cni co g'yi gqt{'kp''tcpurcvkqp'ku'uwi i guvgf''d{''Grk| cdgyi ''Dtwuwu'y qtm'qp'i co g'yi gqt{''cpf'' nkgtct{''cpcn{uku'\*Dtwuu'3; 99+0'Vj g'i co gu'cwj qtu'r re{'y kj ''yi gkt'tgcf gtu''ctg''encuukhgf''kpvq'| gtq/uwo .''o kzgf'' o qvkxg''cpf ''eqqr gtcvkxg'i co gu0'Kp''c'| gtq/uwo 'i co g''yi g''cwj qt''eqqr gtcvgu''qpn{''o kpko cm{'y kj ''yi g'tgcf gt'' \*Iq{egøu''Hlppgi cpu'Y cng'y qwf''dg''c'i qqf ''gzco r rg+"cpf ''kp''c''eqqr gtcvkxg'i co g''eqqr gtcvkqp''y kj ''yi g'tgcf gt''ku'' o czko cn'\*cu'kp'y gm'y tkwgp''yej pkecn'o cpwcn+0'Kp''o kzgf ''o qvkxg''yezvu.''dqyi ''untcvgi kgu''ctg''eqo dkpgf ()' Gzvgpf kpi ''Dtwuwu''ercuukhlecvkqp''yq''tcpurcvkqp''yzwi'j cu''yy q''f knvkpev''cf xcpvci gu'\*Etqpkp''3;; 7<4586: +0'Hktuv.'' yi g''pqvkqp''qh''eqi pkkxg''r rgcuwtg.''y j kej ''ecp''dg''f gtkxgf ''htqo ''yzwcn'tgukuvcpeg.''ku''engctn{''ukwcvgf ''kp''c'' ercuukhlecvqt { ''htco gy qtn'yi cv'cmqy u''yzwu''q''dg''f khtgtgpvkcvgf ''hqt''f kf cevke''r wtr qugu0'Ugeqpf .''yi g''nyf ke''r qvgpvkcn'' qh''yzwu''\*htqo ''Ncvkp''nyf wu''o gcpkpi ''=rrc{ø'qt''=i co gø+"ecp''dg''eqttgrcvgf ''vq''vtcpurcvqt''lqd''ucvkuhcevkqp0'Vqq''o cp{'' gtq/uwo ''yzvu''cpf''yi g''cr r tgpvkeg''vtcpurcvqt''ku'nkngn{''vq''dgeqo g''r gto cpgpvn{''f kugpej cpvgf''y kj ''yi g''cevkxkv{0'' Uwxf gpw''qp''vtcf kkqpcn'o qf gtp''rcpi wci gu''

f gi tgg"eqwtugu"j cf "o cp{"uwej "gzr gtkgpegu"kp"rkxgtct{"\tcpurc\kqp"ercuugu"y j gtg"\j g{"y gtg"cungf "\q"\tcpurc\g" j ki j n{ "eqo r ngz "rkxgtct{"\gzvu."qhxgp"kpf ggf "qw\"qh"\j gkt"o q\j gt"\qpi wg0'Eqpxgtugn{...\qq"o cp{"eqqr gtc\kxg"\gzvu" cpf "gzvtgo g"dqtgf qo "ecp"tguwn0'Kp"\j g"nqecn\ c\kqp"kpf wuxt{...\qt"gzco r ng...\tcpurc\kpi "uko krct"\gzv\"\q gu" gpf nguun{"f qgu"pqv"cny c{u"ngcf "\q"c"j ki j "ngxgn"qh"uc\kuhcevkqp"y kj "qpgøu"y qtm0

Ki"\j gtg"ku"pq"r\clim{\chi}."\j g"i co g"qh"\tcpurc\kqp"ku"hngn{"\q"nqg"kw"cr r gcn0'C"\j gqtg\ke\kcp"qh"r nc{"rkng"Tqi gt"Ecknqku"

Ki ki r quukdıng ''q ''cti wg ''y cv'r tqlge-kqp. 'If gpwlikecwqp. 'Intguki j v'cpf ''y g''eqpuntwe-kqp ''qh''ugh''ctg'' fo gpulqpu''dqy ''

q''tcpuncwlqp''f kf cevkeu''cpf ''q''tcpuncwlqp''r tcevkeg' 'Etqplp''3;; 7-44: 653+0 Kp'cf f kkqp. ''y g''pqvkqp''qh'f kucpeg''

y j kej 'ku'lo r nlekv'kp''y g''hlevksg. ''ugr ctcvg''pcwstg''qh''y g''s co g''cpf ''kp''y g''tcpuncwqtøu''tgrewlqp''q''y g''UN''cpf ''VN''

ecp 'wughwni ''dg''tgrevgf ''q''Dcvguqpøu''pqvkqp''qh''r nc { ''cu'lpxqnxkpi ''ugnh'tghrgzkxg''Itco kpi ''\*y g''r nc { hwn'pkr 'ku''pqv'c'' dkg+0'Vj ku''ugnh'tghrgzkxg''f kucpekpi ''ku''dqy' ''cnlgpcvkpi ''cpf ''etgcvkxg0'Vj g''tcpuncwqt''y j q''ku''nquv'kp''tcpuncwlqp'' dgeqo gu''y g''ci gpv'qh''tgpgy cn''Vj g''chlpkw{ ''qh'r nc { ''q''o gvcrj qt. 'r ctcf qz''cpf ''tcpuncwlqp''y tqwi j ''y g'' hwpf co gpvcn'o gej cpkuo ''qh'y g''o cwej kpi ''qh''n g''kng''cpf ''y g''wpnkng''r qkpwn''qn'y g''tkej pguu''qh'i co g''cpf ''r nc { ''cu''c'' uqweg''hqt ''hwty gt''tghrgewlqp''qp ''ktcpuncwlqp0'Cpqy gt'tkej ''ur gewncwlxg''xgkp''kn''y qtf r nc { ''cpf ''tcpuncwlqp0' Cnj qwi j ''r wpu''cpf ''qy gt ''hqt ou'qh''nwf ke''j wo qwt ''ctg''eqpukf gtgf ''cu''o ctnkpi ''y g''hko kv'qt''dqwpf ctkgu''qh''

VTCP UNCVCDKnKV . ''y g''kpi gpwkx{ ''qh''tcpuncwqtu''qxgt''y g''egpwtkgu''j cu''wtpgf ''eqpuntckpwl'kpvq''qr r qtwykkgu''

cpf ''gzr nqksgf ''y g''r qygpvkcn'qh'hrepi wci g''y tqwi j ''y g''tcpuncwgf ''uwdxgtukqp''qh'y qtf r nc { ''\f F gradcurksc''3;; 5+0Kv'kn''

qpn(''cr r tqr tkcvg''y cv'wy q''ctgcu''qh''j wo cp''cevkxkx{ . ''pco gn( ''ugnh'tghrgzkxg''f kncpekpi ''cpf ''y qtf r nc { . ''dqi y ''qh''

y j kej ''j cxg''dggp''y gqtgwkecm{ ''o cti kpcnk gf ''cv'xctkqwu''r qkpwl'kp''j knqt { . ''uj qwnf ''eqo g''qi gyj gt 'kp''nwf ke''qt''r nc { ''

y gqtkgu''qh''tcpuncwlqp. ''gxgp''kh''o wej ''tgo ckpu''q''dg''f qpg0

## Hwt vj gt 't gcf lpi

Dcvguqp''3; 9: ='Dtwpgt''gv'cn0'3; 98='Dtwuu''3; 99='Eckmqku''3; 89='Etqpkp''3; ; 3.''3; ; 7='F grcdcuvkc''3; ; 5='Gki gp''cpf'' Y kpmgt''3; : 5='J gudqku''3; : 8='J wkl kpi c''3; 6; ='Ngx{''3; 89='Rectf''3; : 8='Y kppkeqw'3; : 20

O KEJ CGN'ETQP KP

# I gpf gt 'b gvcrj qt keu'kp'tt cpurc vkqp

Vj g'j knqt { "qh'\tcpurc\kqp'\ku'o ctngf "d { "y gm'mpqy p'f gdc\gu'qxgt"j qy "dguv'\q"dg"\ckij h\m\0\Ki'\ku'pqv'\u\tr t\ku\pi ." y gt ghqtg."\y cv'h\f gr\k\ "\kp'\tcpurc\kqp"j cu'dggp"eqpu\kn\gp\v\ "f gh\kpgf "\kp'\gto u'qh'i gpf gt "cpf "ugz\wch\{0\Y j krg" \tcpurc\qtu'cpf "\y gqt\kn\u'j cxg'\wugf "o cp { "o g\cr j qtu'\q"gzr r\ckp'\y g'\tcpurc\qt\u'y qtm\\qt h\ttp\tgzco r rg. "\tcpurc\qtp'\ku" r\kng"r c\kp\kpi "qt"eqr { \kpi "qt"r \w\kpi "qp"pgy "em\y gu'\qt"\tgcf \kpi "qt"gxgp'r\kng"y t\k\kpi "\ku\gr\+."\y qug'o g\cr j qtu'\y cv' tgrc\u'q"i gpf gt "tgxgcn'\uqo g\y \kpi "qh'\y g'r qr\k\keu"qh'\tcpurc\qp0\Vj g { "tgxgcn'\cp"cpz\kg\\ "cdq\w'\qt\k \kpu"cpf" qt\k \kpc\k\\ ."cpf "c'r qy gt"\u\twi i rg"qxgt"\y g'o gcp\kpi "qh'f \kh\gtgpeg0

Hlf grlx{."y wu."ku"pqv"lwuv"cp"kuuwg"qh"j qy "dguv"vq"uj cr g"vj g"tgrcvkqpuj kr "dgwy ggp"uqwteg"cpf "cti gv"vgz vu."dww" cnuq"cp"kuuwg"kp"vj g"±eqpvtcevø'vj cv'ej ctcevgtkl gu"o cttkci gollfof ggf ."vj g"f qwdrg"urcpf ctf "vj cv'kp"o cp{"ewnwtgu" ej ctcevgtkl gu"y cv'eqpvtcevonq"ecr wtgu"y g"ttcf kklqpcn"y c{"qh"xkgy kpi "vj g"tgrcvkqpuj kr "dgwy ggp"qtkl kpcn"cpf" "tcpurcvkqp<"lww"cu"klu"c"y qo cpøu."pqv"c"o cpøu"hlf grlx{"cpf"ugz wcn!r wtx{"y cv'o cwgt"o quv."hlf grlx{"ku"xkgy gf" f khlgtgpvn{"f gr gpf kpi "qp"y j gy gt "vj g"vgz v'ku"xkgy gf "cu"c"o crg"qt "c"hgo crg0Cu"Rkgttg/F cpkgn"J wgv"cf xkugu"kp"j ku" ugxgpvggpyj /egpwt{"y qtm"f g"kpvgt rt gwcvkqpg"hdt klf wq"\*3888."kp"Nghgxgtg"3; ; 4d<"; 5+."÷Y g"uj qwf"hqtdkf"cp{" nkegpug"kp"c"tcpurcvqt."cu"kp"c"rt gwcvkqpg"hdt klf wq"\*3888."kp"Nghgxgtg"3; ; 4d<"; 5+."÷Y g"uj qwf"hqtdkf"cp{" nkegpug"kp"c"tcpurcvqt."cu"kp"c"rt gwcvkqpg"hdt klf wq"\*3888."kp"Nghgxgtg"3; ; 4d<"; 5+."÷Y g"uj qwf"hqtdkf"cp{" nkegpug"kp"c"tcpurcvqt."cu"kp"c"rt gwcvkqpg"hdt klf wq"\*3888."kp"Nghgxgtg"3; ; 4d<"; 5+."÷Y g"uj qwf"hqtdkf"cp{" nkegpug"kp"c"tcpurcvqt."cu"kp"c"rt gwcvkqpg"hdt klf wq"\*3888."kp"Nghgxgtg"3; ; 4d<"; 5+."÷Y g"uj qwf"hqtdkf"cp{" nkegpug"kp"c"tcpurcvqt" of gpwx kli klp."cu"y g"ut {"vq"uxcor"qwlkorwfapge"kp"kpworgtcy"ogp@0 vJ g"gtytou"qh"htcpurcvkqp"oc{" fkhhgt"\*yj g"ut klw"qt"yj g"rwkk"u"qtg"yg"yqwf"c"cer vkxg"urcxg+." dwv"yg go ctngf "vgto"ku"vyg"dg"ugtxkrg"dghqtg"yj g"qtki kpcn"qt"vq"f qo kpcvg"kv"cu"qpg"yqwf"c"cer vkxg"urcxg+." dwv"yg "octngf" "vgto"ku"vyg" ockf gpu."o kwtguugu."cpf "wphckj hwrinqxgtu0Vtcpurcvqtu"j cxg"yqttkgf "yj cv"yj g"rwtkx{"qh"yj g"oq yg gt"vqpi wg."cpf "yj cv"dcuvctf u"yqwf"dg"dtgf 0Vtcpurcvqtu"j cxg"yqttkgf "gs wcm("qxgt"yj g"xkkhxx{"qh"yj g"qtki kpcn"cpf"yj g"eqor rckpv"ku"htgs wgpvn("yj cv"yj g"qtki kpcn"j cu"dggp" go cuewrcvgf 0Vj g"cev"qh"vtcpurcvkpi "j cu"dggp"eqor ctgf"vq"ugz."cpf"vq"tcr g0

## C'j kwqt lecn'qxgt xlgy 'qh'vj g'b gwcrj qt leu'qh'i gpf gt 'lp'vt cpurcwlqp

J knytkecm{."yj g"i gpf gtkpi "qh'\tcpurc\qp"qeewtu'cv'ngcuv'cu'gctn{"cu'yj g'ugxgpvggpyj "egpwt{."y j gp"yj g"y gm' mpqy p"\ci "rgu''dgmgu'hphf 3 ngu''y cu''eqhpgf "d{"I kngu'O 2 pci g"ctqwpf "38760Vj g"\ci "ecr wtgu''pqv'uko r n{"c" r j qpg\ke"uko krctkv{ "dgw ggp"dgcwv{"cpf "kphkf grkv{"kp"yj g"Htgpej "rcpi wci g."dw'c'\tcpuewnwtcn''r tgqeewr cvkqp" y kyj "htf grkv{"kp"dqyj "o cttkci g"cpf "\tcpurc\qp0Cu"kp"o cttkci g."uq"kp"\tcpurc\qp0, "pqyj kpi "o qtg"yj cp"yj g"r tqo kug" qh'htf grkv{"i wctcpvggu'yj g"rgi kko ce{."qt"kp"qyj gt"y qtf u'yj g"r cvgtpkv{"qh'yj g"qhtur tkpi 0Y j cv'ku'cv'kuwg."kp"dqyj" ecugu. "ku'yj g"cwyj qtkv{"qh'yj g'kcy gt kwj qt0Hqt."yj qwi j "o cvgtpkv{"ku'dkqmqi kecm("qdxkqwu."r cvgtpkv{"ku'pqv."cpf." hqt"yj ku'tgcuqp. "\tcpurc\qtu"j cxg"yj g"cdktxv{"\q"qduewtg"yj g'qtki kpu'qh'yj g"\gzv0Ip\"\uj qtv."yj g{"j cxg"yj g"cdktxv{"\q" dtggf "\gz wcn'dcuxctf u."c'hgct"o cf g"gzr rhekv'lp"UEJ NGKGTO CEJ GTøUhco qwu'\tgc\kug"qp"\tcpurc\qp"\s3: 35=" Ugg"I GTO CP "VTCF kwQp ="UVTC VGI KGUQH"VTCP UNC VQP +0F gdc\up gkgto cej gt"ct\wewcygu'y j cv'ku''cv'uncng'cu" hqmy u<":Y j q"y qwrf "pqv'hng"\q" gto kv'j ku'o qy gt "\qpi wg"\q"uvcpf "hqty "gxgt {y j gtg"kp"yj g"o quv'\wpkxgtucm{" crr gcrhpi "dgcww{"gcej "i gptg"kr"ecr cdng"qh'A'Y j q"y qwrf "pqv'tcy gt"uktg"ej krf tgp"y j q"ctg"yj gkt"r ctgpvuø'r wtg" ghtki {."cpf "pqv'dcuxctf u\x0\sign"3: 35."\p"\Nghgxgtg"3; 99-9; +0

Vtcpurcvqtu'j cxg. "qh'eqwtug. "cnuq 'tgukuvgf 'vj ku'i gpf gtkpi "qh'vj g''tcpurcvkqp"qt ''tcpurcvqt ''cu'hgo crg. "dw'j cxg" vtcf kkqpcm( "f qpg''uq''d{ "qr vkpi "kpuvgcf 'hqt "vj g''o cuewrkpg' vgto "qh'vj ku'dkpct { "qr r qukkqp0"Vj wu. 'y g''qeecukqpcm( "ugg'f kuewuukqpu''qh''tcpurcvkqp'kp''y j kej ''vj g''tcpurcvqt 'ku''cf xkugf . "cndgkv'kpf ktgevn( . "vq''wuxtr ''vj g''cwj qtøu''r cvgtpcn'' tqrg0'Vj g''Gctn'qh'Tqueqo o qp''cf xkugu''vj g''tcpurcvqt ''vq''-Ej wug''cp''cwj qt''cu''{qw''ej wug''c'htkgpf Ø'Vj tqwi j ''vj g'' htkgpf uj kr . ''vj g''tcpurcvqt''dgeqo gu''vj g''cwj qt''\*38: 7. 'kp''VOT Uvgkpgt''3; 97-99+<

Wpksgf'd{''yjku''U{orcyjgskem'Dqpf'[qw'itqy''Hcoknkct.'Kpvkocvg."cpf''Hqpf='[qwt''yjqwijwu.''{qwt''Yqtfu.''{qwt''Ukngu.''{qwt''uqwnu''citgg.'Pq''nqpigt'jku'Kpvgtrtgvgt.''dw'/Jg0

Y j kng''y g''\tcpuncvqt''ku''r tgugpvgf 'j gtg''cu''y g'hcy gt lcwy qt.''y g'\gzv'kvugnh'ku''c'hgo cng''y j q''o wuv'dg''\tgcvgf ''y kyj '' r cvgtpcn'ectg'\*kdkf0੯9: ←

Y kj "j qy "o wej "gcug'ku'c"{qwpi 'O wug'Dgvtc{øf "J qy 'pkeg'\j g'Tgr wc\kqp"qh'\j g'O ckf#[qwt"gctn{." nkpf."r cvgtpcn'ectg''cr r gctu. 'D{"ej cuv'Kpuvtwe\kqp"qh'j gt"Vgpf gt"[gctu0Vj g'hktuv'Ko r tguukqp'kp'j gt" Kphcpv'Dtgcuv'Y km'dg'\j g'f ggr guv'cpf "uj qwrf "dg'\j g'dguv0Ngv'pq'Cwuvgtkv{"dtggf "ugtxkrg'Hgct'Pq" y cpvqp"Uqwpf "qhhgpf "j gt"Xkti kp'Gct0

Vj g"tcpurcvqtøu"f wv{ "ku"vj gtghqtg"vq"o ckpvckp"vj g"vgzvøu"ej cuvkv{ "cpf "xkti kpkv{ ."y j kej "ku"uq"gcukn{ "÷Dgvtc{øf ø0' Vj g"o gvcr j qt "y qtmu"dgecwug"

xkti kpk{ ."cv'ngcuv'hqt''c'y qo cp."y cu'qpeg'f ggo gf "c'r tgtgs wkukg''vq'o cttkci g0'Vj wu."qwt'uqekcn'r tgqeewr cvlqp" y kij "'y g'tgi wrcvlqp"qh'hgo cng''ugzwcrkv{ 'ku'vtcpurcvgf 'kpvq'c'eqpegtp"qxgt"r tgugtxkpi 'cwj qtkcn'r tkxkrgi g0 Vj gug'f kuewuulqpu''qh''y g'kuuwgu''qh'hkf grkv{ "j cxg''dggp"eqwej gf 'kp''y g'hcpi wci g''qh'r cvgtpcrkuo <'r tqvgevkqp"qh''cpf "eqpegtp"qxgt'hgo cng''ugzwcrkv{ 0'Dwv.''wukpi "y g'hcpi wci g''qh'eqnqpkcrkuo "cpf "eqps wguv.''vtcpurcvlqp"y gqt { "j cu'' qhvgp"cnuq"cf xqecvgf "c''mkpf "qh'xkqngpeg''vqy ctf u''y g''vgzv0'Kp''y ku''pcttcvkxg.''vgzvu''o wuv'dg''r gpgvtcvgf ."o cf g'' ecr vkxg. "cu''Vj qo cu'F tcpv'cppqwpegu'kp'j ku''ukzvggpyj /egpwt { "vtcpurcvlqp"qh'J qtceg'\*3788.''kp''Co qu''3; 42<3346 35+<

Hktuv'K'j cxg''pqy "f qpg''cu''y g'r gqr rg''qh'I qf "y gtg''eqo o cpf gf "\q'f q'y ky "y gkt''ecr \kxg''y qo gp''y cv' y gtg''j cpf uqo g''cpf "dgcwkhwn\'K'j cxg''uj cxgf "qhh'j ku''j ckt''cpf ''r ctgf "qhh'j ku''pckru."'y cv'ku."K'j cxg'' y kr gf "cy c{ "cm'j ku''xcpkx{ "cpf "uwr gthrwkx{ "qh'o cwgtí "K'j cxg''r kgegf "j ku''tgcuqp."gnrgf "cpf "o gpf gf " j ku''uko krkwf gu."o qnkhkgf "j ku''j ctf pguu."r tqrqpi gf "j ku''eqt\cm'nkpf "qh'ur ggej gu."ej cpi gf "cpf "o wej " cnxgtgf "j ku'y qtf u."dw''pqv'j ku''ugpvgpeg."qt "cv'rgcuv'\*Kff ctg''uc{+"pqv'j ku''r wtr qug0

Vj g'dkdnkecn'r cuuci g''q''y j kej 'F tcpv'tghgtu'qwnlpgu'j qy ''c''ecr vkxg'y qo cp''o c $\{$  ''dg''o cf g''c'y khg<'÷Vj gp'' $\{$ qw''uj cm'' dtkpi ''j gt''j qo g''q'' $\{$ qwt''j qwug="cpf ''uj g''uj cm'uj cxg''j gt''j gcf ''cpf ''r ctg''j gt''pckn $\emptyset$ '\*F gw $\emptyset$ 43<4.'T gxkugf ''Uvcpf ctf'' Xgtukqp $+\emptyset$ F tcpv.''c''engti  $\{$ 0 cp''tcpurcvkpi ''c''ugewrct''cwj qt.''o wuv'o cng''J qtceg''c''uwkcdng''÷y khg $\emptyset$ JKp''f qkpi ''uq.'' F tcpv''tcpuhqto u''J qtceg''kpvq''c''o gvcr j qtke''hgo cng.''yj g''ghhgev'qh'yj kej ''ku''i nko r ugf ''kp''yj g''r tqpqo kpcn'tghgtgpeg'' y j gtg''j ku''uggo u''vq''tghgt''vq''÷y qo gp $\emptyset$ JVj g''ugzwcn''xkqngpeg''cmwf gf ''vq''kp'F tcpv $\emptyset$ u''eqmpk kpi ''o gvcr j qtu''o kttqtu'' yj g''ugzwcn''xkqngpeg''qh''eqps wguv''vq''yj ku''f c $\{$ .''y j gtg''tcr g''ku''wphqtwpcvgn $\{$  ''uvkn''c''r ctv'qh'y ct $\}$ 

### Vj g'o gwrj qt keu'qh'i gpf gt 'kp'o qf gt p'it cpurc wqp'inwf kgu

O qf gtp"yi gqtkgu"qh"vtcpurcvkqp"j cxg"r tgugtxgf "yi gug"i gpf gtgf "hgcwtgu"qh"yi g"vtcpurcvkqp"r tqeguu0'Vj g{"ctg" engct. 'hqt"gzco r ng. 'kp"I gqti g"Uvgkpgtøu"\3; 97+"J GTO GP GWVKE"O QVKQP. "y j gtg"yi g"vtcpurcvqt"r gpgvt cvgu" cpf "ecr wit gu"c"\gzv"kp"cp"cev"gzr nkekn{"eqo r ctgf "vq"gtqvke"r quuguukqp0'Vq"eqo r gpucvg"hqt"yi ku"cr r tqr tkcvkxg" tcr witg. "yi g"vtcpurcvqt"o wuv"cniq"o cng"co gpf u. "cwgo r v'uqo g"cev"qh"tgekr tqekv{"vq"eqo r gpucvg"hqt"yi g"cev"qh" gtqvke"ci i tguukqp0'Uvgkpgtøu"o qf gn"hqt"yi ku"f gtkxgu"htqo "Ngxk/Uvtcwuvøu"*Cpvj tqr qnqi kg"uvt wewit cng.* "-yi j kej "tgi ctf u"uqekcn"uvtwewitgu"cu"cwgo r vu"cv"f { pco ke"gs wkrkdtkwo "cej kgxgf"yi tqwi j "cp"gzej cpi g"qh"y qtf u."y qo gp." cpf "o cvgtkcn"i qqf uø"\*Uvgkpgt"3; 97-524+0"Y kij "yi g"ncpi wci g"qh"gtqvkekuo ."eqkpekf kpi "y kij "yi cv"qh"eqnqpkcnkuo ." Uvgkpgtøu"o gvcr j qt"ku"pqv"uq"f khtgtgpv"htqo "yi cv"qh"F tcpv0

Kρ"cp"gz vgpukqp"qh"Uvgkpgtøu"y qtm"Ugti g"I cxtqpum("\*3; 99+"cti wgu"y cv"y g"Qgf kr cn'o qf gnlecp"gzr nckp"y g" vcpuncvqtøu"uggo kpi n("eqpvtcf kevqt { "qdrki cvkqpu"dqy "vq"i kxg"y g"vgzv"-ej cuv"Kpunt wevkqpø\*cu"y g"Gctn'qh"
Tqueqo o qp"r wu"kν+"cpf "vq"tcxkuj "kνθ"κρ"r cvgtpcrkuvke"o qf gnu."qt"y j cv"j g"ecmu"-r kgvkuvkeø'qpgu."I cxtqpum(" cti wgu"y cv"y g"tcpuncvqt"-eqpukf gtu"j ko ugrh"cu"y g"ej krf "qh"y g"hcy gt/etgcvqt."j ku"tkxcn"y j krg"y g"vgzv"dgeqo gu" y g"qdlgev"qh"f guktg."y cv"y j kej "j cu"dggp"eqo r ngvgn("f ghkpgf "d{"y g"r cvgtpcn'hki wtg."y g"r j cmwu/r gpø"\*kdkf 0."77+0" Kρ"eqpvtcuv."y g"-ecppkdcrkuvkeø'νtcpuncvqt"ecr wtgu"cpf "tcr gu"y g"vgzv."o wkrcvkpi "kv"\*kp"I cxtqpum(øu"vgto u+" dg{qpf "tgeqi pkxkqp"\*kdkf 0."82+0"Dqy "o qf gnu"y gp"tgn("qp"c"hwpf co gpvcm("r cvtkctej cn'o qf gn'qh"cwy qtkx{." y j gtg"y g"uqp/νtcpuncvqt"gkj gt"qdg{u"qt"f guvtq{u"y g"hcy gt/cwy qt0

Vj g'co dkxcngpeg'dgytc { gf 'lp''y ku'o gvcr j qtke''o qf griku'gxkf gpv'lp''y g'tgcn'y qtnf 'qh''y cpurcylqp''cu'y gm') Encko u'' d{ ''y cpurcyltu'hqt''qtki kpcnk/{ ''cpf ''cwj qtk/{ .''o cf g'kp'tghgtgpeg''y cewi'qh''ctykurke''cpf ''dkqmi kecn'etgcylqp.''gzkur'kp'' uj ctr ''eqpytcuv'y q''y g'r reeg'qh''y cpurcylqp''kp''c''ngi cn''geqpqo ke''qt''nkgtct{ ''j kgtctej {0'Wpf gt''Co gtkecp''eqr {tki j v'' rey .''hqt''gzco r rg. ''y cpurcylqp''ku''eqpukf gtgf ''c''f gtkxcylxg'y qtm''nkng''c''o wukecn'r gthqto cpeg'''y cg''Xgpwk'3; ; 7+0' Vtcpurcyltu''ctg.''hqt''y g''o quv'r ctv.''r qqtn{ ''r ckf .''cpf 'lk'ku'uykm'tctg''hqt''c''y cpurcylt''q''o gtky'o qtg''y cp''c''nkpg''qt'' y q''kp''c''dqqm'tgxkgy '''y ugg''<u>TGXKGY kP I ''CP F 'ETK/KEK/O</u>+0'Kp''cf f kykqp.''cecf go ke''kpurkywkqpu'f q''pqv'' i gpgtcm{ ''tgi ctf ''y cpurcylqp''r tqlgewi'cu''cr r tqr tkcyg''gkyj gt''cu''f kuugtycylqp''r tqlgewi'qt''cu''y g''dcuku''hqt''ypwtg0'Cv'' yi g''uco g''y og.''j qy gxgt.''ky'y qwrf ''dg''y tqpi ''yq'cti wg''y cy'ytcpurcytu''j cxg''dggp'y kyj qwy'r qy gt0'Vtcpurc/

vqtu'j cxg'y kgrf gf "gpqto qwu'r qy gt 'kp''uj cr kpi "'y g't gegr vkqp"qh'egt vckp''vgz w''cpf .''kpf ggf .''kp'f ghkpkpi 'egt vckp'' rksgtct { ''cpf 'ewnwtcri'tcf kkqpu0

Tgegpv'ij gqt { "j cu''ecngf "kpvq"s wgurkqp"ij g"i gpf gtgf "r qrkkeu"qh''cwj qtkv{ "cpf "qtki kpcrkv{ ."ij g"ghhgeu"qh'iy j kej " j cxg"dggp"kpuetkdgf "pqv'lwuv'kp"tcpurcvkqp"uwf kgu. "dw''kp"o cp{ "cf lcegpv'f kuekr rkpgu"cu'y gm0\Qpg"qh'ij g"o quv' kphrwgpvkcn't gegpv'ij gqt kgu"qh''tcpurcvkqp"j cu''dggp"qhhgtgf "d{ "Ices wgu'F gttkf c"\*3; 9; ."3; : 7c+0\D{ "f tcy kpi "o cp{ " qh''j ku''vgto u'htqo "ij g''ngz keqp"qh''ugz wcn'f khhgtgpeg"\*hqt"gz co r rg</ri>
# huugo kpc vkqp. "kpxci kpc vkqp." j { o gp+ "F gttkf c" gzr qugu'i gpf gt "cu''c"eqpegr wcn'htco gy qtm'hqt''y g"f ghkpkkqpu"qh'o ko guku''cpf "hkf grkv{ "iy cv'j g"ecmu'kpvq" s wgurkqp0\Vj g"rcy "qh''tcpurcvkqp"tgs wkt gu''tcpui tguukqp." j g"cti wgu."uq''y cv'hkf grkv{ "ku'ko r quukdrg0\J g"tghgtu''vq" y ku''f qwdrg"dkpf "cu''c" j { o gp. "iy g'uki p"qh'dqy "xkti kpkv{ "cpf "eqpuwo o cvkqp"qh''c"o cttkci g0\D{ "uwdxgtvkpi "yj g" cwqpqo { "cpf "r tkxkrgi g"qh''y g''uq/ecmgf "qtki kpcn'\gzv." j g"cti wgu''hqt"y g''hpvgtf gr gpf gpeg"qh'y tkxkpi "cpf " vtcpurcvkpi ô cpf ."ko r rkekn{ ."ci ckpuv'c"r qrkxkeu"qh''tcpurcvkqp"y cv'f gr gpf u''qp"i gpf gt "xkqrgpeg0

## Vt cpurc vkqp'r t cevkegu

Hgo kpkuv'uej qrctuj kr 'j cu'f tcy p''cwgpvkqp''vq''y g''eqpukf gtcdrg''dqf { ''qh'y tkkpi ''d{ ''y qo gp''cpf 'j cu''uqwi j v'vq'' uwdxgtv'y g'f qo kpcpv'f kueqwtugu'qh'ewnwtcn'hqto cwlqp''cpf ''cwyi qtkv{0'Kt'j cu'r gtj cr u'o cf g'wu'cdrg''vq''hkuvgp''vq'' y g''kpet gcukpi n{ ''cwf kdrg''pwo dgt ''qh'y qo gp''tcpurcvqtu'y j q''ctg''dgi kppkpi ''vq''cum''cu''Uw| cppg''Lkm'Ngxkpg''f qgu.'' y j cv'kv'o gcpu''vq''dg''c'y qo cp''tcpurcvqt''kp''cpf ''qh''c''o crg''vtcf kkqp0'Ur gcmkpi ''ur gekhlecm{ ''qh'j gt''tcpurcvkqp''qh'' I wkrrgto q''Ecdtgtc''Kphcpvgou''Nc''J cdcpc''rctc''wp''kphcpvg'f khwpvq.''c''vgzv'y cv''÷o qemu'y qo gp''cpf ''y gkt''y qtf uø'' uj g''cumu'\*3; : 5 < 4+<

Y j gtg'f qgu'y ku'ngexg'c'y qo cp''cu''vtcpuncvqt''qh''uwej ''c''dqqmA'Ku''uj g''pqv'c''f qwdng''dgvtc{gt.''vq''r nc{''} Gej q''vq''y ku'P ctekuuwu.''tgr gcvkpi ''y g''ctej gv{r g''qpeg''ci ckpA'Cm'y j q''wug''y g''o qyi gtøu'hcyi gt'' vqpi wg.''y j q''gej q''y g''kf gcu''cpf ''f kueqwtug''qh''i tgcv'o gp''ctg.''kp''c''ugpug.''dgvtc{gtu0}

Vj g''xgt{ "ej qkeg"qh''vgzw''vq"y qtm'y kj ."vj gp."r qugu"cp"kpkkcn'f krgo o c'hqt "vj g'hgo kpkw''vtcpurcvqt<'y j krg"c''vgzv'' uwej "cu'Ecdtgtc'Kphcpvgøu'o c{ "dg'kf gqmi kecm( "qhhgpukxg."pqv'vq"vtcpurcvg'kv'y qwf "ecr kwwcy"vq''y cv'nqi ke" y j kej "cuetkdgu"cm'r qy gt "vq" y g''qtki kpcn'\*hcyj gt+0'Hgo kpkw'vtcpurcvqtu'j cxg" y wu''cf xqecvgf "c''vtcpurcvqp"qh" tgukuvcpeg" y cv'i kxgu''xqkeg" vq''cpvci qpkw'y qtmu''dw''cnuq" ur gcm]u\_'y kyj "y go "cpf "r rceg]u\_'y go "kp"c''rcti gt" eqpvgzvø'\*O ckgt"3; : 7-6+0'Gxgp"uwej "cr r ctgpvn( "uvtcki j vhqty ctf "cur gevu"qh''vtcpurcvqp"cu''f gekf kpi "qp" y g''i gpf gt" qh''c''r tqpqwp"r qug'f krgo o cu''vq" y g''vtcpurcvqt0'Kpf ggf ."y g''kuwwgu''tgrcvkpi "vq''i gpf gt''kp" y g''r tcevkeg'qh''vtcpurcvqp" ctg"o {tkcf ."xct{kpi "y kf gn( "ceeqtf kpi "vq" y g''v{ r g''qh''vgzv''dgkpi "vtcpurcvgf ."y g''rcpi wci gu''kpxqrxgf ."ewnwtcn'' r tcevkegu''cpf "eqwpvrguu''qy gt''rcevqtu0

O GVCRJ QT'QH'VTCPUNCVKQP0

Ugg'cnuq<

#### Hwt yj gt 't gcf kpi

J

# J gto gpgwke'b qwqp

J gto gpgwkeu'ku'cp'kpvgtrtgvkxg''o gyi qf 'f gxgmqrgf 'd{ 'vj g'I gto cp'Tqo cpvkeu.''gurgekcm{ 'Htkgftkej ''
UEJ NGKGTO CEJ GT'\*398963: 56+"\*ugg'<u>I GTO CP "VTCF KVKQP</u>+"cpf "Y knj gm 'F knj g{ '\*3: 5563; 33+"cpf "
pco gf ''chvgt''j g'I tggm'y qtf ''j gto gpgwykp.''o gcpkpi "-vq'wpf gtuvcpf ØlKt'kpxqmxgu''cp''go r cyj ke''r tqlgevkqp''qh''y g''
kpvgtrtgvgtøu'f guktg''vq''wpf gtuvcpf 'kpvq''y g''cevkxkv{ ''ulj g'ku''cwgo r vkpi ''vq''wpf gtuvcpf OTcyj gt''y cp''qdlgevkh{ kpi ''y g''
cevkxkv{ ''y g{ ''y cpv'vq''uwf { .''cpf ''tcyj gt''y cp''tgcvkpi ''kv'cu'c''uvcdng''gzvgtpcn'qdlgev'vq''dg''gzco kpgf 'y kj ''y g''
o gyi qf u'qh''go r ktkecn'uekgpeg.''j gto gpgwu''ko ci kpg''y go ugnxgu''kpukf g''y g''cevkxkv{ .''hggn'uwdlgevkxgn{ ''y j cv'kv''
o wnv'j cxg''dggp''rkng''vq''dg''qpg''qh''y g''y tksgtu''qh''y g''Dkdng''\*y g''uwdlgev'o cwgt''y g'o gyi qf ''y cu''qtki kpcm{ ''
f gxgmqrgf ''hqt+"cpf ''cwgo r v'vq''f guetkdg''y j cv'y g{ ''hkpf ''htqo ''y kyi kp0

Vj g"ygto "j gto gpgwke'o qykqp'ku'I gqti g'Uykpgtøu.'htqo "j ku'ej cr ygt"j gcf kpi "qh''y cv'pco g'kp''Chgt 'Dcdgri'
\*3; 97+0Kl'ku'j ku'cwgo r v'vq''r tqlgev'j ko ugrh'kpvq''y g''gcvkxkv{ "qh''vtcpurcvkpi "cpf "vq''f guetkdg'kv'htqo "y kyi kpô cp"
cwgo r v'vj cv'ku. "qp''y g''hceg''qh''kx' "hct "gcukgt "y cp''r tqlgevkpi "qpgugrh'kpvq''y g''gzr gtkgpeg''qh''y g''y tkygt\*u+"qh"
I gpguku. "uc{."ukpeg''Uykpgt''j cu''f qpg''vtcpurcvkqpu''j ko ugrh'Uvkm''ukpeg''j g''ercko u'vq''dg''gzr rqtkpi "pqv'j ku''v{r kecn''
cev'qh''vtcpurcvkqp''dw''y i g''cev'qh''vtcpurcvkqp''kp''ku''gpvktgv{."vtcpurcvkqp''cu''kv'j cu''dggp''gzr gtkgpegf 'htqo "y kyi kp''d{"
gxgt{"vtcpurcvt"y j q''gxgt''hxgf.''j ku''r tqlgev'ku''cv''ngcuv'cu''r tqdrgo cvke''cu''y g''cwgo r v'vq''i gv'kpukf g''c''uetkr wtcn''
cwj qtøu''umkp0'Qp''y g''qyi gt''j cpf.''cp''go r ktkecn'uekgpvkhke''cr r tqcej "vq''y g''uco g''vqr ke''y qwf "dg''gs wcm{"
r tqdrgo cvke. "hqt''urki j w("f khrgtgpv'tgcuqpuv''y g''go r ktkecn'uekgpvkrv'y qwf "pqv'twuv'j kulj gt''qy p''go r cyi ke''
kpwkkqpu''dw'y qwrf "i cyi gt''c'tcpf qo "uco r rg''qh''vtcpurcvqtu''cpf "cwgo r v'vq''i gpgtcnkf g''htqo "y gkt''qdugtxgf"
dgj cxkqwt "vq''-yi gø'cev'qh''vtcpurcvkqp0'Y j kg''y ku''y qwrf "qdxkcvg''y g''ceewucvkqp''y cv''go r ktkecn'uekgpvkruu''o gtgn{"
r tqlgev'yi gkt''qy p''gzr gtkgpeg''qpvq''qyi gt''r gqr rg. 'kv'y qwrf "uvkrn'ngcxg''y go "xwpgtcdrg''q''cwcemu''qp''y g''
uwdlgevkxkvf "pqv'qpn{"qh'i gpgtcnkf cvkqp''htqo "c''uco r rg''q''c''r qr wrcvkqp. "dw''cnrq"qh'hpvgtr tgvkpi "kpvgtpcn''
gzr gtkgpeg''htqo "qdugtxgf "dgj cxkqwt'\*igg''<u>URGE WNC VKX G''CRRT QCEJ GU</u>+0

Ugkpgt "gpxkukqpu''y g"j gto gpgwke "cev'qh''tcpurcvkpi "cu'c"o qxgo gpv'qt"o qvkqp"y tqwi j "hqwt 'uvci gu<"vt wuw." ci i tguukqp. 'kpeqt r qt cvkqp. "cpf "t gurkwwkqp0Vj g"tcpurcvqt 'hktuv'uwttgpf gtu''q' y g"UN''yzv."twuwi'kv'q'o gcp" uqo gyj kpi "f gur kg'kwi'cr r ctgpv'crkgppguu0Vj ku'ku''y g"uvgr "y cv'v{r kecm{"uv{o kgu'r gqr ng'y j q"uc{"y g{"ecpøv'ngctp" hqtgki p"ncpi wci gu<":\"oVj ku''o gcpu''pqyj kpi .\"o"cuugtvu''y g"gzcur gtcvgf "ej krf "kp'htqpv'qh'j ku''Ncvkp''tgcf gt"qt''y g" dgi kppgt "cv''Dgtrkx| ø"\*Uvgkpgt"3; 97-4; 9-0Vj g"tgcf gt"y j q"uvqr u"cv'y ku''uvci g"f qgupøv''tcpurcvg<'y g''qtki kpcn'\gzv'ku'' vqq'y qpf gthwn'\qq''r gthgev'cu'kv'ku. "gxgt''vq''uwdo kv'vq''tcpurcvkqp0Vj g''tcpurcvqt''y j q''uvqr u'cv'y ku''uvci g''r tqf wegu'' r ckphwn{ "rkvgtcn'tgpf kvkqpu<"y g"UN''y qtf u'kp''y gkt''qtki kpcn'ugs wgpekpi "ctg'\qq'y qpf gthwn'\q''hqteg'kpvq''VN'' j cdkcwu0

:Chryt 't wur'eqo gu'ci i tguukqp0'Vj g'ugeqpf 'o qxg'qh'vj g'\tcpurcvqt 'ku'kpewtukxg''cpf ''gzvtcevkxgø'\kldf 0\c'4; 9+0J gtg''
Uvgkpgt 'f tcy u'qp'J gi grlcpf 'J gkf gi i gt 'vq'gzr mqtg'vj g'ci i tguukxg''pcwtg'qh'cm'wpf gtuvcpf kpi ."cm'kpvgtr tgvcvkqp
ô qh'gxgt { 'j gto gpgwke0'Vj g'\tcpurcvqt''i qgu'cdtqcf ."gpvgtu'vj g''UN'\yzv."f tkxgp'pq''nqpi gt'd { 'r cuukxg''vtwuv'dw''
d { 'vj g'cevkxg'kpvgpvkqp''qh'\cmkpi 'uqo gvj kpi ''cy c { ."qh'i tcddkpi 'wr 'hkurhwu'qh'o gcpkpi ''cpf 'y cmkpi 'qhh'y kj ''
vj go 0'Vj g''uwdo gti gf 'ko r gtkcrkuv'\ypqt''qh'o wej ''Y guvgtp''

vtcpurcvkqp"yj gqt { "dgeqo gu"qr gtcvkxg"j gtg. "htqo "IGTQO Gøu" "ugg" NCVKP "VTCF KVKQP + "vcm"qh" vcm kpi "yj g" qtki kpcn'ecr vkxg''yi tqwi j ''yi g'T gto cp'Tqo cpvkeuø'cwcemu'qp'Htgpej ''pgqencuukekuo ''hqt''vcmkpi ''J qo gt''ecr vkxg0' Tgegpv'uwf kgu'qh'\tcpurc\kqp''cu'go r ktg'kpenxf g'Tchcgrl\3;::+'Ej g{hk\ '\3;;2+'P ktcplcpc'\3;;4+''cpf''Xgpwk' \*3; ; 4.'3; ; 7+0'Ugg"cnq"<u>O GVCRJ QT"QH"VTCP UNCVKQP</u>0

Vjg''yktf''uvcig''qt''oqxg'hqt''Uvgkpgt'ku'kpeqtrqtcvkqp<'÷Vjqwij''cm'fgekrjgtogpvø''jg''uc{u.''÷ku'ciitguukxg''cpf.''cv'' qpg"rgxgn"f guvt wevkxg. "yj gtg"ctg"f kthgtgpegu"kp"yj g"o qvkxg"qh"crrtqrtkcvkqp"cpf "kp"yj g"eqpvgzv"qh"õyj g"dtkpi kpi "  $dcen \textit{p\'o}'' \textit{l} \textit{dkf} \textit{Q'4}; ; \textit{+0'} \textit{kp''} \textit{i} \textit{g''} \textit{useqpf''} \textit{uvci} \textit{g''} \textit{i} \textit{g''} \textit{useqpf''} \textit{uvci} \textit{g''} \textit{i} \textit{gu''} \textit{cdtqcf''} \textit{y} \textit{kj''} \textit{r} \textit{nwpf} \textit{gt''} \textit{kp''} \textit{o} \textit{kpf} \textit{=} \textit{kp''} \textit{i} \textit{g''} \textit{i} \textit{tf} .'' \textit{u'} \textit{i} \textit{g''} \textit{g''} \textit{u'} \textit{g''} \textit{i} \textit{g''} \textit{g''} \textit{i} \textit{g''} \textit{g''} \textit{i} \textit{g''} \textit{g''} \textit{i} \textit{g''} \textit{$ tgwtpu"j qo g"y ky "r nwpf gt "kp"j cpf 0"Vj g"\tcpurcvqt"y j q"uvqr u"cv"y ku"uvci g"\tukpeg"kv"ku"f khhkewnv"vq"uvqr "cv"y g" ugeqpf. 'y ky qw'dtkpi kpi 'cp{ yi kpi 'dcem+'r tqf wegu'cuuko krcvkxg'\tcpurcvkqpu. '\tcpurcvkqpu'uq'\yi qtqwi j n{ " eqphqto gf '\q'VN'pqto u'cu'\q'dgct'pq'\tceg'qh'\j gkt'qtki kpu'kp'\j g'UN0

Vj g'hqwtyi "cpf 'hkpcn'o qxg'ku'tguvkwwkqp<":Vj g'\tcpurcvqt."\yj g'gzgi gvkuv."\yj g'tgcf gt'ku'\/ckyj hwn'\q'j ku'\yzv."o cmgu" j ku'tgur qpug'tgur qpukdrg. "qpn( 'y j gp'j g'gpf gcxqwtu'\q'tguvqtg'\j g'dcrcpeg'qh'hqtegu. "qh'kpvgi tcn'r tgugpeg. "y j kej " j ku''crrtqrtkcvkxg''eqortgj gpukqp''j cu'f kutwrvgfø'\*kdkf0\524+0'Vj ku''ku''Uvgkpgtøu''cwgorv'vq''uj khv'vjg''i tqwpfu''qp'' y j kej 'hkf grkv{ 'j cu'dggp'wpf gtuvqqf .'htqo 'c'uvcvke'qpg/vq/qpg'eqttgur qpf gpeg'dgw ggp'UN'cpf 'VN'vgzwu'vq'cp'' gyj kecri'r tqeguu'y j gtgd{'r qy gt'ugk| gf'ku'tgrkps wkuj gf'kp'tguvqtcvkxg'y c{u0'Vj g''tcpurcvqt''j cu'kpxcf gf''yj g''UN'' cpf "uvqngp"uqo g"qhi'kuu'r tqr gtv{ ="pqy "u1j g"o cmgu"tguvkvvvkqp"d { "tgpf gtkpi "vj g"UN"vgzv'kpvq"c"VN"vj cv'ku'dcncpegf " dgw ggp''y g'f kxgti gpv'r wmi'qh'y g'UN'cpf "VN'ewrwtcn'eqpvgzw0Tgwkwkqp''ku'r tqdcdn(.'kp'hcev.'c'hcpe{ ''y c{ ''qh'' tguvckpi "yj g"qrf "cf ci g.":cu'hckj hwm{ "cu"{ qw'ecp."cu'htggn{ "cu"{ qw'o wuw0'Vj g" ktcpurcvqt."hqt"Uvgkpgt."o wuv'dg" y kmkpi ''vq''i kxg''dcem'vq''y g''UN'cu'o wej ''cu''ulj g'j cu''vcmgpô hqt''gzco r ng.''d{ ''tcpuhqto kpi ''y g''VN''y tqwi j '' rtguuwtg'htqo 'UN'rj tcukpi u0

Vcngp"cu"c"y j qng. "Uvgkpgtøu"j gto gpgwke"o qvkqp"ku"c"tgxkukqp"qh"I qgvj gøu"vj tgg"gr qej u"qh"vtcpuncvkqp. "htqo "vj g" pqvgu'vq"Y guv'" uvkej gt "Fkxcp" 3: 3; +0I qgvj gøu'hktuv'gr qej 'ku'cr r tqr tkcvkxg. 'vj g'tcf kecn'f qo guvkecvkqp"qh'c" hqtgki p'\gzv.''gzgo r nkhkgf ''d{ ''NWVJ GTøu''Dkdng'\*ugg''<u>I GTOCP ''VTCF KVKQP</u> +=''Uvgkpgt''gzrcpf u'\j ku''kpvq'j ku'' ugeqpf "cpf "'y ktf "uvci gu"qh''y g"j gto gpgwke"o qwlqp. "ci i tguukqp"cpf "kpeqtr qtcwlqp. "wpf gt" y g"cuuwo r wlqp."  $r\ tguwo\ cdn \hbox{(."vj\ cv'vj\ gtg''ku'c''uki\ pkhkecpv'f\ khhgtgpeg''dgwy\ ggp''i\ qkpi\ ''cdtqcf''y\ kvj\ ''vj\ g''kpvgpv'qh''ugk \ kpi\ ''r\ tqr\ gtv \hbox{("cpf'')}$ cewcm("dtkpi kpi 'kv'j qo g'\*gxgp" yi qwi j 'kv'ku'f khhkewn/'vq'uj qy "y j cv'ko r cev'yi ku'uwdlgevkxg'f khhgtgpeg'j cu'qp" cewcn'tcpunctqpu+0

I qgyj gøu'ugeqpf "gr qej "ku'hw| | {="j g"y cpvu'kv'vq"dg"vj g"cpvkvj guku'qh'cr r tqr tkcvkqp. "cpf "kp'hcev'kp"j ku"gctnkgt" hqto wrcvkqpuô cu'kp''Uej rgkgto cej gtøu'j gto gpgwke'kp''÷Vj g'Fkhhgtgpv'Ogyj qf u''qh''Vtcpurcvkpi ø'\*3: 35+ô yj g'' cpvkyj guku'j cf "dggp"engct<"{qw'gkyj gt "dtkpi "vj g"cwyj qt"j qo g"vq"vj g"tgcf gt "qt"{qw'vcng"vj g"tgcf gt "cdtqcf "vq"o ggv" yj g"cwj qt0[ qw"gkj gt"f qo guvlecvg"qt"hqtgki pk g"\*ugg"<u>UVTCVGI KGU"QH"VTCPUNCVKQP</u>+0Dw"d{"yj g"Y guv " unkej gt "Fkxcp" I qgyj g'j cf "crrctgpvn("fkveqxgtgf" y g'rtqdrgo "kp" y ku" vkf { "f wcrkvo <"gxgp" y g'hqtgki pk gt" f qo guvkecvgu="gxgp" yi g"vtcpurcvqt" o quv"f gvgto kpgf "vq" vcmg" yi g"VN" tgcf gt "cdtqcf" vq" o ggv" yi g"cwyi qt" qp"UN" i tqwpf u'o wuv'hkpcm( "vtcpurcvg'kpvq''y g''VN."o wuv'dtkpi ''y g'hqtgki p''cwy qt''j qo g''vq''y g''VN. ''gxgp''kh'vq''c''tcf kecm( " hqtgki pk¦ gf "VN0'Uvgkpgt 'uqnxgu' vj ku'r tqdngo "d{"o cmkpi "vj ku" ∺gr qej ø'kpvq"c"j gto gpgwkecn' ∺o qxgø "qpg'r j cug"qh" yj g''tcpurcyqtøu'crrtqcej ''yq'j kulj gt''ygzv'cpf ''cum''yj cv''qh''twuv.''kp''y j kej ''yj g''tcpurcyqt''uwttgpf gtu'j kulj gt''VN'' rtgfkgevkqpu"cpf"gwu'y g"UN"cwjqt"\cng"qxgt0"Ukpeg"Uvgkpgt"ku'pqy"\cmkpi" gtogpgwkeu'tcyjgt"y cp"jkuvqt{." yj g'uqekcn'r u{ej qnqi { ''qh'lkpf kxkf wcn'\tcpurcvqtu'tcyj gt''yj cp''yj g''gr qej u''qh'\tcpurcvkqp'htqo ''Nwyj gt''vq''yj g''r tgugpv.'' j g'r ncegu''vj ku''vt wunkpi "o qxg'hkt uv. ''dghqtg''j ku''gzrcpfgf''xgt ukqp''qh''I qgvjgøu''crrtqrt kcvkqpôcnyjqwij. ''cickp. ''kv'' o ki j v'dg"cti wgf "vj cv'pc¹xg"rksgtcrkuo "r tgegf gf "ugpug/hqt/ugpug"\tcpurcvkqp"j kuvqtkecm{ "cu'y gm "kp" yj g"gctn{ " nkgtcn'Ncvkp'\tcpurcvkqpu'qh'Pcgxkvu'cpf'Nkxkvu'Cpftqpkewu'\u00e4ugg'\u00e4\u00e4TGG'\u00e4TCPUNCVKQP=\u00e4\u00e4Nk\u00e4GTCN''

#### VTCP UNC VKQP +0

I qgyj gøu''yj ktf "grqej "ku''yj cv'qh''yj g''o {uvkecn'kpvgtnkpgct "vtcpuncvkqp. 'y j kej "j g'kornkekvn( "cuuqekcvgu'y kyj "I gtocp" vtcpurcvkqpu'kp'j ku'qy p'r gtkqf. ''vtcpurcvkqp''y cv'u{ py gukt gu'j ku'gctrkgt''y guku'cpf 'cpvkyj guku'kp'c'f korgevkecn'o qxg'' vqy ctf "o guukcpke 'r gthgevkqp0'Y cnxgt "Dgplco kp"

y qwrf 'hcvgt.'kp''÷Vj g''Vcuni'qh''vj g''Vtcpurcvqtø'\*3; 45±''r kem'wr ''vj ku''o guukcpkuo ''cpf ''vcng''kv''vq''pgy ''j gki j wu'\*tugg'' RWTG''NCPI WCI G+='cpf ''y j krg''Uvgkpgt''f tcy u''j gcxkn( ''qp''dqvj ''I qgvj g''cpf ''Dgplco kp''vj tqwi j qwv''j ku''dqqm''j g'' cnuq''uki pkhkecpvn( ''ugewrctk| gu''j ku'r tgf geguuqtuø'o { uvkekuo .''tgcf u'kv'cu''gvj kecn'tcvj gt''y cp''guej cvqrqi kecn'/cu'' f ktgevgf ''vqy ctf''i qqf ''vtcpurcvkqp''tcvj gt''y cp''y g'tgf go r vkqp''qh''y g'y qtrf 0

P wo gtqwi'r tqdrgo u'tgo ckp''y kij "Uvgkpgtøi'hqto wævkqp0'Qpg'ki''y cv.''y j krg'j g'gzr rlekn{"y cpwi'q'o cmg'j ki" hqwthqrf "o qxgo gpv'cp'kf gcri'o qf gri'qh'gxgt { 'kpf kxkf wcri'cev'qh'tcpuævkqp.''j g''cnq''y cpwi'q'kmwntcvg''ky'y kij " ur gekhe''tcpuævkqpu'htqo "yi g'r cuvô cpf 'kp''yi g''eqwtug'qh'kmwntcvkpi "yi g'hqwt''o qxgu'j g''dgi kpu'vq''tgcv'yi go ''thrg'' uvcdrg''ecvgi qtkgu''hqt''yi g''ercuukhecvkqp''qh''tcpuævkqpu0'Vj wu''Nwij gtøu'Dkdrg''cpf "Xæf ko kt''P cdqnqxøu''Gwi gpg'' Qpgi kp''ctg''dqyj "ercuukhgef "cu''kpeqtr qtcvkxg''tcpuævkqpu="yi ku''ercuukhecvkqp''ku''dqyj "'tkxkcm{"ceewtcvg."kp''yi cv''cm'' vtcpuævkqpu''d{ "f ghkpkkqp''kpeqtr qtcvg''hqtgki p''vgzwi'kpvq''c''f qo gurke''eqpvgzv.''cpf "y krf n{ "r tqdrgo cvke.''kp''yi cv'' P cdqnqxøu''tcf kecri'rksgtcrkuo ''ku''hct''o qtg''ci i tguukxg''vqy ctf u''Gpi rkuj .''yi g''VN.''yi cp''kv'ku''qy ctf u''T wuukcp.''yi g'' UNO'kp''yi cv'ugpug''kv'o ki j v'j cxg''dggp''yi qwi j v'qh'cu''o qtg''rkng''yi g''o qxg''qh''twwô gzegr v'yi cv.''cu''hqt''I qgyi g.''kv'ku'' f khthewn'hqt''Uvgkpgt''q''gzr rekp''lww''j qy "'twwv''ecp''o qvkxcvg''c''ukpi rg''tcpuævkqp''y kyi qw''r tqeggf kpi ''q''yi g''qyi gt'' yi tgg''o qxgu0

Cpqyi gt 'r tqdrgo 'ku'yi cv'Uvgkpgt 'f qgu'cmqy 'I qgyi g'cpf 'Dgplco kp'vq'kplgev'c'rkwrg'qh'yi gkt 'f kcrgevkecn' o guukcpkuo "kpvq"j ku"j gto gpgwke"o qvkqp<":Vj g"vtwg"kpvgtnkpgctø"j g"y tkvgu.":ku"vj g"hkpcn"vvptgcnkt cdng"i qcn'qh'vj g" j gto gpgwke "cev0J kuvqtkecm{. "r tcevkecm{. "vj g"kpvgtnkpgct"cpf" o qv/«/o qv" o c{"kpf ggf" dg"c"etwf g"f gxkeg0" Dw" tki qtqwun{ "eqpegkxgf."kv"go dqf kgu" yi cv"vqvcrkv{ "qh" wpf gtuvcpf kpi "cpf "tgr tqf wevkqp." yi cv" wwgt "tcpur ctgpe{" dgw ggp"ncpi wci gu"y j kej "ku"go r ktkecm{ "wpcwckpcdng"cpf "y j qug"cwckpo gpv"y qwrf "uki pcn"c"tgwtp"vq"Cf co ke" wpkuqp"qh'j wo cp"ur ggej ø'\*kdkf 0.52: +0Engctn(. "j gtg."j g'y cpw'rkvgtcrkuo "vq"ugtxg"dqvj "cu"c"etwf g"f gxkeg"cv'vj g" dgi kppkpi "qh'yi g'j gto gpgwke"cev."kp'yi g'hqto "qh'vtwuv."cpf "cu'kxu'hkpcn"vptgcnk cdng'i qcn'kp''cp''guecncvkqp''qh'' tgurkwwkqp"\*cpf "hqt" vj cv'o cwgt. "kp" kpf kxkf wcn'ecugu hng" P cdqnqxøu 'tcpurcvkqp" qh'Rwuj nkp. "cu'knwuxtcvkqpu qh' vj g" qý gt 'vy q'o qxgu'cu'y gm+0'Vj ku'o ki j v'j cxg'y qtmgf 'dgwgt'j cf ''Uvgkpgt''uwvem'o qtg'emugn( 'y ký 'vj g'f kongevkecn' hqto "qh"I qgyj gou 'y tgg"gr qej u <'y g"etwf g" 'twurkpi "co cvgwt 'rkvgtcrkuv' \*y guku + 'rgctpu 'vq' 'tcpurcvg' 'ugpug/hqt/ugpug." y j kej "y g'I gto cp"Tqo cpvke" tcf kkqp" htqo "I gtf gt" 'q" I gkf gi i gt" eqcej gu" Uvgkpgt "vq" y go cvkţ g" cu" ci i tguukqp" cpf 'kpeqtrqtcvkqp'\*cpvkyj guku+: 'dww'f kueqxgtu'y j cv'cp'ko rqxgtkuj kpi 'xkqngpeg'yj ku'fqgu'vq'yj g'UN'vgzv'cpf'' tgwtpu"vq"hkytchuo "y kij "c"pgy "eqo r ngzkv{."tckugu"hkytchuo "vq"c"j ki j gt"r qy gt."kpvgtnkpgct"hkytchuo "cu"r gthgev" y qtf/hqt/y qtf "cu'y gm'cu'ugpug/hqt/ugpug"gs wkxcngpeg "dgw ggp" w q "vgz vu. "vj g" wn ko cvg "wpc wckpcdng "kf gcn'qh" Y guvgtp"\tcpurcvkqp"\u{pvj guku+0"Vj g'xci wgpguu'qh''Uvgkpgtøu'hqwtvj 'o qxg."cpf 'qh'vj g'j gto gpgwke'o qvkqp"cu'c" y j qng. "uwtgn( "j cu'uqo gyj kpi "vq"f q"y kyj "j ku"f guktg"vq"tgvckp"uqo gyj kpi "qh"vj ku"tqo cpvke"u{pyj guku"\*cpf "kvu" tgf go r vkxg"r qvgpvkcn+"y j krg"pqv's vkxg"hcmkpi "kpvq" y g"vtcr "qh"vvpcvckpcdkrkx{0J g"y cpvu"j ku"j gto gpgvvke"o qvkqp" vq'dg'dqvj 'cp'wpcwckpcdrg'kf gcn'o qf gn'c'o cr 'hqt'vj g'cr qecn{r vke'cev'qh'vtcpurcvkqp'vj cv'y km'vtcpuhqto 'cm' j wo cpk/{."cu"yj g"I gto cp"Tqo cpvke" tcf kkqp"j cu"ko ci kpgf "kv"vq"dg. "cpf "cp"go r kt kecn' vczqpqo { "kpvq"y j kej "j g" ecp'hk/kpf kxkf wcn'\tcpurc\kqpu'\cpf'j g'f qgu'r tqxkf g'pwo gtqwu'gzco r ngu'qh'y j cv'j g'ecmu't gu\kwkxg'\tcpurc\kqpu ô y j qm{ "uweeguuhwn'\tcpurcvkqpu'\yi cv."d{ "\yi g"Tqocpvkeuø'nki j vu. 'uj qwnf "jcxg'dggp'kor quukdng+0 Hqt"cmlkuu'r tqdngo u."j qy gxgt."Uvgkpgtøu"j gto gpgwke"o qvkqp"uvcpf u"cu"c"ucnwct { "cnigtpcvkxg"vq"tgegpv"nkpi wkurke" cpf 'uqekqnqi kecn'u{ uvgo u'o qf gnu'f gxgnqr gf 'lnqt 'vj g'r tqeguu'qh'vtcpurcvkqp'\*ugg'<u>PQTOCVKXG'OQFGN</u>+0D{" gzr mtkpi "y g'i gqr qrkkecn kf gqmi kecn cpf "uqekcn r u ej qmi kecn cur gew qh' tcpurc kqp. "Uvgkpgt eqpuqrkf cvgf" o wej "qh"I gto cp"tqo cpvke "tcpurcvkqp" vj gqt { "hqt" eqpvgo r qtct { "j gto gpgwkeu" cpf "j grr gf "ugv" vj g"uvci g" hqt" tgegpv'uwf kgu'qh'\tcpurc\kqp''cu'ko r gtkcrkuo ''d{ 'Tchcgn'Ej g{hk\ .'P ktcplcpc.''cpf ''qvj gtu'\\*ugg''OGVCRJQT''QH' VTCP UNC VKQP +0

### Hwt yj gt 't gcf kpi

Dgplco kp'3; 45="Dwtng'3; 98="Ej cw'3; : 6="I qgvj g'3: 3; ="J qy ctf '3; : 4="Qto kuvqp"cpf "Uej tkhv'3; ; 2="Rcro gt '3; 8; =" Uvgkpgt '3; 970

FQW NCUTQDKPUQP

## J kwqt { 'qh'vt cpurc vkqp

Kpvgtguv'kp''y g'j kuvqt { "qh''tcpurcvkqp'j cu'i tqy p'kp''tgegpv''{ gctu<'eqphgtgpegu'j cxg'hqewugf "qp''y g'uwdlgev." pwo gtqwu'dqqmu'j cxg"crr gctgf. "cpf "co dkkqwu'i tqwr "r tqlgewi'j cxg"dggp 'hcwpej gf 0Rgtj cr u'o qtg'uki pkkecpv." uej qrctu'j cxg'tgr gcvgf n{ 'ecrngf 'hqt'gxgp'o qtg'y qtm'vq'dg'f qpg. 'go rj cult kpi 'vj g'wti gpe { 'qh'eqpuvtwevkpi 'c'pgy " uwd/f kuekr nkpg'y kyj "crrtqrtkcvg"o gyj qf u'cpf 'yj gqtgvkecn'o qf gnu0 Uwf { kpi ''y g'j knqt { ''qh'\tcpurc\kqp'ku'pqv'c'pgy ''gpf gcxqwt0'Lwn\'cu'\tcpurc\qtu'j cxg'htgs wgpvn( 'tghrge\vgf ''qp'\y gkt'' ctv."uq"j cxg"yj g{ "qhygp"ecuv"c"i ncpeg"cv"yj g"j kuvqt { "qh"yj gkt"r tqhguukqp0"kp"j ku"3883"y qtm"÷Qp"yj g"Dguv"Y c{ "qh" Vtcpurcvlpi ø''J wgv'f kuewuugu''yj g''vtcpurcvqtu''qh''Cpvks wkv{ .''uwej ''cu''S wkpvkrkcp''cpf ''Ekegtq.''cpf ''eqo r ctgu''yj gkt'' kf gcu'qp''\tcpurc\kqp''y kj ''yj qug''qh''U\'IGTQOG''\'ugg''\<u>\NCVKP''\VTCFK\VQP</u>+'GTCUOWU'\'\ugg'<u>'FWVEJ''</u> VTCF KVKQP + "cpf "qvj gtu" Nghgxgtg"3; ; 4d+0J wgwtu cko "kp"r tgugpvkpi "vj g"xkgy u"cpf "cej kgxgo gpwu qh"vj g"r cuv." cu'j ku'\kurg'uwi i guvu.''ku'\q'f gvgto kpg'j qy ''\q'\tcpurcvg0'Uko krctn{.''Uco wgn'Iqj puqp.''y tkxkpi ''kp''Vj g''Kf ngt''kp''397;.'' vtcegu''y g''j knvqt { ''qh''tcpurcvkqp'htqo ''cpekgpv'I tggeg''vq''ugxgpvggpvj /egpwt { ''Gpi rcpf .''vq''kmwntcvg''y g''vtkwo rj '' qh'pqp/rkgtcri\tcpurc\kqp'\Lqj puqp'3; 85\433639\0 Y j kng'j knytkecn'htci o gpvu'uwej "cu" j gug"ctg" y qtyj { "qh'eqpukf gtcvkqpô c"÷j knyt{ "qh'j knytkguø'j cu" { gv'vq"dg" y tkwgpô y ku'gpvt { ''y km'hqewu'qp''y g''ghhqtw''qh''eqpvgo r qtct { ''uej qrctu0'Y j cv'f kuvkpi vkuj gu''y g''o qtg''tgegpv'' j kunqtkecn'uw fkgu'htqo 'r tgxkqwu'qpgu'ku'cp''cwgor v'vq'r tgugpv'c''oqtg''fkukpvgtguvgf.''uvtwew tgf''qt''u{uvgocvke'' xkgy 'qh'y g'r cuv0 Jkunqt{"ku"qp" yig"ewttkewnwo "kp"ocp{"fkuekrnkpgu="yigtg"ku"c"jkunqt{"qh"owuke."ogfkekpg."uekgpeg."gxgp"c"jkunqt{" qh'ceeqwpvkpi. 'uqo gvko gu'eqpuvkwvkpi 'gpvktg' wpkxgtukx{ "f gr ctvo gpvu'qt "cecf go ke 'r tqi tco o gu0'Vtcpurcvkqp" uej qqnı'ctg'pq'gzegr vlqp<'lp'Ecpcf c.'hqt'gzco r ng.'vj g'hktuv'eqwtug''qp''vj g'j kuvqt { ''qh'vtcpuncvkqp''y cu''etgcvgf ''d { '' RcwilJ qti wgrkp"cv'y g"Wpkxgtuk?" f g"O qpvtgcrlkp" y g"gctn{"3; 92u="cv'y g"Wpkxgtukv{"qh"Qwcy c"Uej qqrlqh" Vtcpurcvqtu'cpf 'Kpvgtr tgvgtu.'Igcp'F grkurg'cpf 'Nqwku'Mgm('j cxg'dggp'vgcej kpi 'j kuvqt{'ukpeg'vj g'o kf/3; 92u0' Qyj gt 'uej qqnı'j cxg'hqmqy gf 'uwkv.''cpf 'gxgp''y j gp''j kuvqt { 'ku'pqv'ur gekhlecm( 'vcwi j v'cu'c'ugr ctcvg'uwdlgev.'' j kunqt kecn'o cvgt kon'ku'wuwom('kpenwf gf'kp''nt cpuncvkqp''uwwf kgu''eqwt ugu''\*Y qqf uy qt yj ''3;; 8+0 Jkunqt { "ku"pqv"ukorn { "c"pgeguuct { "kpi tgf kgpv"kp" \j g"gf weckqp"qh"hwwxtg" \tcpurcvqtu="c" jkunqtkecn'r gtur gevkxg" ku" pgeguuct { "cpf "j cu'dggp "kpeqtr qtcvgf "kpvq" \tcpurcvkqp" uej qrctuj kr "kp" i gpgtcr0 Y tkkpi "vj g"j kuvqt { "qh' \tcpurcvkqp" ku'dqyj 'r quukdng'cpf '\ko gn{ 'dgecwug'qh'\yj g'f gxgnqr o gpvu'y kyj kp'\yj g'f kuekr nkpg'qh'\tcpuncvkqp'\uwf kgu0Cu'\uvt kevn{ " nkpi wkuke" yi gqtkgu"qh" tcpurckqp" j cxg"dggp" uwr gtugf gf. "tcpurckqp" j cu"eqo g" vq"dg" eqpukf gtgf "kp" ku" ewnwtcn" j kuvqtkecn'cpf "uqekqmi kecn'eqpvgzv0P gy "eqpegr wcn'vqqnu'r tqxkf gf "d{ "uej qnctu"y qtmkpi "htqo "c'xctkgv{ "qh" yj gqtgvkecni'r gtur gevkxgu'j cxg'o cf g'kvi'r quukdng. "cpf "gxgp'ko r gtcvkxg. "vq"y tkxg"yj g'j kuvqt { "qh'vtcpurcvkqp0 Ukpeg''y g'o kf/w gpvkgy 'egpwt{."cpf 'o qtg'r ctvkewrctn( 'ukpeg''y g'3; : 2u.''tcpurcvkqp''uej qrctu'j cxg''dggp'' eqpegtpgf "y kj "y tkkpi "y g'j kuvqt { "qh"y gkt "qy p"f kuekr nkpg0Cpvqkpg"DGTO CP "\*ugg"HTGPEJ "VTCF KVKQP+" ecnngf "vj g"eqpurt werkqp"qh'c"j kurqt { "qh' tcpurc kqp" vj g"o qur'r tguukpi "cum'qh'c" twn{ "o qf gtp" vj gqt { "qh' tcpurc kqp" \*3;:6-34+0"Vjku"cpf"ukoknct"rtqpqwpegogpw"ctg"dgeqokpi"oqtg"eqooqp<":KV"ku"vkog"vq"ikxg"vjg"jkuvqt{"qh" vtcpurcvkqp" vj g"r rceg" kv"f gugtxguø" Føj wnuv"3; ; 3 < 3 = "vtcpurcvgf + 0 KV ku" pqv" uwhhkekgpv" vq" tgeqi pk g" vj g" ko r qt vcpeg"

### Eqpust westpi 'tj g'j knyt { 'qh'tt cpurc stqp<f ghtpkstqpu 'o qf gm'cpf 'o gyj qf u

qh'j kurqt{.'j qy gxgt<kv'ku'cnıq'guugpvkcn'vq'hqto wrcvg'vj g'vcum'qh'vj g'vtcpurcvkqp'j kurqtkcp'kp'c'o qtg'gzr nkekv'cpf''

u{uvgo cvke''o cppgt'\* Føj wnuv'3; ; 3="Nco dgtv'3; ; 5e="R{o '3; ; 4d+0

Vj g'y qtf "j knqt{"j cu'wy q'ewttgpv'o gcpkpi u<"y g'gps wkt { "eqpf wevgf "d { "y g'j knqtkcp"cpf "y g'ugtkgu'qh'cewcn' gxgpwu'kp'y g'r cuv'y j kej "ctg'y g'uwdlgev'qh'j kulj gt "gps wkt { "\*Ectt"3; 83 ← 5 +0 Vj g'tgrcvkqpuj kr "dgwy ggp"r cuv" gxgpvu'cpf "y g'j knqtkcp"tgeqtf kpi "y go "j cu'dggp"y g'uwdlgev'qh'eqpukf gtcdrg"f gdcvg0 C wkwf gu'j cxg"ej cpi gf "tcf kecm{ "kp"y g'r cuv'egpwt { < "y g'pkpgvggpy egpwt { "dgrkgh'kp"c"j ctf "eqtg"qh'hcevu'gzknvkpi "qdlgevkxgn{ "cpf" kpf gr gpf gpvn{ "qh'y g'kpvgtr tgvcvkqp"qh'y g'j knqtkcp"y cu'ej cmgpi gf "cpf" i cxg'y c { "vq"cpqy gt "gzvtgo g." ceeqtf kpi "vq"y j kej "

j knyt { "ku":-yi g"tg/gpcevo gpv'qh'r cuv'yi qwi j v'kp"yi g"j knytkcpøu"qy p"o kpf ø" Eqnkpi y qqf "3; 84 437 +0'Uqo g" yi kpngtu"j cxg"eqo g"vq"nqnn'wr qp"j knytkqi tcr j { "cu"c"nkytct { "ctvghcev'tgs wktkpi "etgcvkxkv{ "qp"yi g"r ctv'qh'yi g" j knytkcp"\*Y j ksg"3; 95 +0'Y j krg"yi g"-qdlgevkxkv{ "s wguvkqpø"tgo ckpu"wptguqnxgf "\*P qxkem'3; : : +. 'ht wkhwn'j knytkecn' gps wkt { "uggo u"r quukdng"pqpg"yi g"nguu<'kv'f gr gpf u"pqv'qpn( "qp"c"dcncpegf "kpvgtcevkqp"dgw ggp"j knytkcpu"cpf " yi gkt"hcevu "dw'cnuq"qp"cp"cy ctgpguu"qh"yi g"eqo r ngz "pcwtg"qh"yi g"+hcevuø'yi go ugnxgu. "j { dtkf u"dgnqpi kpi "vq"dqyi " yi g":-y qtnf "qh"yi kpi u"cpf "yi g"y qtnf "qh"yi qtf uø" \*Uccphqtf "3; : 9 <95 +0

C'hwtyi gt'f kukpekqp'ecp'dg'o cf g'dgwy ggp'**j kwqt {.'**wpf gtuvqqf "cu'yi g''gxgpvu''qh''yi g''r cuv'tgeqwpvgf 'kp''pcttcvkxg'' hqto ."cpf '**j kwqt kqi tcrj {.'**yi j kej 'ku'yi g'f kueqwtug'wr qp''j kwqtkecn'f cvc. "qti cpk gf "cpf "cpcn( ugf "cmpi "egtvckp" r tkpekr ngu0'Vj g''vgto ''**j kwqt kqnqi { 't**ghgtu''q''yi g''o gyi qf qmi { "qh'y tkkpi ''j kwqt {='j qy gxgt. 'kv'ku''o qtg'htgs wgpvn( "tgr ncegf 'd{ ''yi g''vgto ''**j kwqt kqi tcrj {.'**yi j kej "ecp''yi wu''j cxg''c''f qwdng''o gcpkpi 0

Kpetgcukpi n{ ."vtcpurcvkqp"uej qrctu"j cxg"hgnv"y g"pggf "vq"tghrgev"qp"j qy "vq"y tkxg"j kuvqt {0'Qpg"qh"y g"hktuv" s wguvkqpu"y cv"ctkugu"eqpegtpu"y g"qdlgev"qh"y g"j kuvqtkecn"kps wkt {0'J qy "ku":-vtcpurcvkqpø"kugnh"f ghkpgf A'F qgu"y g" vgto "kpenwf g"dqy "y tkwgp"cpf "qtcn"hqto u "uwdf kuekr nkpgu"uwej "cu"vgto kpqmi { "cpf "rgzkeqi tcr j { ."cpf "tgrcvgf" cevkxkvkgu"uwej "cu"CF CRVC VKQP "cpf "RUGWF QVTCP UNC VKQP A'Y qwrf "c"j kuvqt { "qh":-vtcpurcvkqpø"cu" eqo o qpn( "wpf gtuvqqf "kp"y g"w gpvkgy "egpwt { "kpenwf g"Ej cwegt."hqt"gzco r ng."y j qug"y qtmu"ctg"uqo gy j gtg"kp" dgw ggp"qtki kpcn"cwj qtuj kr ."vtcpurcvkqp"cpf "cf cr vcvkqpA

Vj g"j knyt { "qh'\tcpurc\kqp"ecp"hqewu"qp"r tce\keg"qt"\j gqt { ."qt"dq\j 0C"j knyt { "qh'\j g"r tce\keg"qh'\tcpurc\kqp"f gcnu" y kj "uwej "s wgu\kqpu"cu"y j c\j cu"dggp"\tcpurc\gf ."d{"y j qo ."wpf gt"y j c\j'ektewo uvcpegu."cpf "kp"y j c\j'uqekcn'qt" r qnk\kecn'eqp\gz\0J knyt { "qh'\j gqt { ."qt "f kueqwtug"qp"\tcpurc\kqp."f gcnu"y kj "\j g'hqmqy kpi "mkpf u"qh's wgu\kqpu\z' y j c\j\tcpurc\qtu" cxg"j cf "\q"uc\{ "cdqw\j gkt "ct\letch\huekgpeg="j qy "\tcpurc\kqpu"j cxg"dggp"\gxcn\cwgf "c\j' kh\gtgp\j" r gt\kqf u=\y j c\j'mkpf u"qh'tgeqo o gpf c\kqpu"\tcpurc\qtu'j cxg"o cf g."qt"j qy "\tcpurc\kqp"j cu'dggp"\cwi j \v=cpf "j qy "\y ku'f kueqwtug"ku'fgrcyf "\q"q\j gt"f kueqwtugu"qh'\j g"uco g'r gt\kqf 0Qt."dq\j "\y gqt { "cpf "r tce\keg"ecp"dg"\kpxgu\k c\gf" c\j'qpeg\z'j qy "ecp"\y g'tgn\cdkr\k\{ "qt"tgngxcpeg"qh'\gz\w"qp"\tcpurc\kqp"dg"f g\gto kpgf A"Y j c\j'ku'\y g'tgnc\kqp" dgy ggp"r tce\keg"cpf "tghrge\kqp"qp"\tcpurc\kqpA

O wej 'y qtm't go ckpu''vq''dg''f qpg''kp''qtf gt''vq''hqto wrcvg''cf gs wcvg''o qf gnu0'Qvj gt''f kuekr nkpgu.''uwej ''cu''vj g'' rj knquqrj { "qh''uekgpeg.''ecp''r tqxkf g'i wkf cpeg'\*Føj wnv'3; ; 3+0'O qf gnu''ecp''dg''dqttqy gf ''htqo ''qvj gt''ur gekcnk gf '' j knqtkgu.''f gr gpf kpi ''qp''y j gvj gt''y g''ctg''uggnkpi ''vq''eqpunt wev''y g''j knqtkqi tcrj { "qh''c''f kuekr nkpg''qt''y g'' j knqtt{ "qh''nkpi wknkeu''y qwnf ''dg''crr tqr tkcvg''kp''y g''hktuv''ecug.'' cpf ''y g''j knqtt{ "qh''nksgtcwtg''qt''o wuke''kp''y g''ugeqpf 0

 $\label{thm:control_c$ 

Y j cv'ctg''y g''i qenı'qh''c''j kıvqt { "qh''tcpurcvkqpA'Y j cv'f qgu'kv'ugv'qw''vq''uj qy "qt''r tqxgA'Ecp"qpg"j kıvqt { "r ckpv'cp" -qdlgevkxgø'r kewtg''qh'ej cpi kpi 'kf gcu''cdqw''vtcpurcvkqp''cpf ''vtcpurcvcdkrkv{A'Qt.'kp'f qewo gpvkpi ''y g''eqpvtkdwkqp" o cf g''d { "vtcpurcvqtulvtcpurcvkqp"vq''kpvgmgewcn'j kıvqt { ."ctg''j kıvqtkcpu''o qvkxcvgf ''d { "c''eqpegtp''hqt''ko r tqxkpi ''y g'' ko ci g''qh''vtcpurcvqtu''cpf ''vtcpurcvkqp''kp''y g''g { gu''qh''qy gt''o go dgtu''qh''uqekgv{A'Kv'eqwrf ''dg.''cu''Lqu² ''Nco dgtv' \*3;;5d+'j cu''uwi i guvgf .''y cv'y g''y tkkpi ''qh'j kıvqt { "uvgo u''htqo "c''pggf ''vq''ngi kklo k g''c''pgy ''f kuekr nkpg0'Kpvtqf wekpi " c''j kıvqtkecn'r gtur gevkxg'kpvq''vtcpurcvkqp''uwwf kgu''ecp"cnuq''dtkpi ''cdqw''i tgcvgt ''vqngtcpeg''qh''y g''f khhgtgpv'' crrtqcej gu''vq''vtcpurcvkqp''cpf ''ecp''r tqxkf g''wpkx{ "vq''y g''f kuekr nkpg'\*Føj wnv'3;;6+0

## Y tkhpi 'vj g'j kwqt { 'qh'vt cpurc vkqp<'vj g'vgz vu

Y kij ''yj g''go gti gpeg''qh''cp''kpetgcukpi n{ ''ugrh/eqpuekqwu''f kuekr nkpg.''y qtmu''qp''\tcpurc\kqp''

dgi cp"\q'\penwfg"j kunqtkecn'\phqto cwlqp"cu'r ctv'qh'c"eqo r tgj gpukxg"\tgcvo gpv'qh'\y g'uwdlgev\0Gctn\"gzco r ngu" kpenwf g'Gf o qpf 'Ect {\phiu"\Nc"\tcf we\ndgp"f cpu'ng"o qpf g'o qf gtpg"\3; 78+"cpf "\Vj gqf qtg"\Uxxqt {\phiu"\Vj g'\Ct v'qh'\Vtcpurc\ndgp"\3; 79+\"y j kej 'r tgugpv'\nceu'cdqw'\y g'\tcpurc\ndgp" 'tcpurc\ndgp" 'tcpurc\ndgp" 'tcpurc\ndgp" 'tcpurc\ndgp" 'tcpurc\ndgp" 'y ky ''tcpurc\ndgp" 'y ky ''tcpurc\ndgp" 'y g'pqy ''encunke'\y qtmu'\d\"\lappe qt g'\under\ndgp" '\Ux\ndgp t'\under\ndgp" '\Ux\ndgp t'\under\ndgp" \under\ndgp t'\under\ndgp" \under\ndgp t'\under\ndgp t'\under\ndgp

Ukpeg''y g''cr r gctcpeg''qh''y gug''r kqpggtkpi ''y qtmu.''y gtg''j cu''dggp''c''r tqrkhgtcvkqp''qh''ctvkergu.''o qpqi tcr j u''cpf "eqngevkxg''tgugctej ''r tqlgevu.''gcej ''f tcy kpi ''y g''dqwpf ctkgu''qh'j kuvqt { ''kp''c''f khhgtgpv''y c { ''cpf ''nqqnkpi ''cv'y g''r cuv'' y tqwi j ''f khhgtgpv'hgpuguO'Cnyj qwi j ''y g''f kxkf kpi ''hkpgu''ctg''pqv''cny c { u''ergct ''cpf ''y g''ecvgi qtkgu''qhvgp''qxgtrcr .''y g'' uwtxg{ ''y cv'hqmqy u'y km''cwgo r v'vq''tgxkgy ''uej qrctuj kr ''kp''y g''hkgnf ''qh''y g''j kuvqt { ''qh''vtcpurcvkqp''htqo ''c'' o gyj qf qmi kecn'r gtur gevkxg0

#### Urceg'cpf 'vlo g

Ip 'nggr | pi ''y | yi 'y g'Gwtqr gcp''r tgqeewr cwlqp'y | kij ''y g'pcwlqp/uwcyg. ''\tcf kklqpcn'j | kuqtlqi | tcr j { ''j cu''ypf gf ''q'' | f kxlf g'\j g'j | kuqtlecn'hlgnf ''w ''lpvq'pcwlqpu'qt'\j gkt'ewmwtcn'i tqwr | kpi u'\*\*Uvcplqtf ''3; : 9-43-θ'Vtcpurcwlqp'j | kuqt { ." | vqq."j cu'' ckf ''cwgpwlqp''q'eqwpwt { .' tgi | kqp. 'qt ''hlpi wkuwlec''qt ''ewmwtcn'eqo o wpkx{0 | lgcp'F grkurg. ''hqt ''gzco r rg. 'j cu'' y tkwgp''j g'j | kuqt { ''qh''vtcpurcwlqp' | kp'Ecpcf c'\*3; : 9+'y j | krg''Uj gtt { ''Uvo qp'\*3; : ; +'hlo | ku''y g'hgrf 'hwty gt''d { ''uwf | kpi ''vtcpurcwlqp' | kp''S | wgdge. ''c'Ecpcf | kcp'r tqxkpeg''y cv'ku''hpi wkuwlecm | ''cpf ''ewmwtcm | 'f kuwlepv'htqo ''y g'tguv' qh'y g'eqwpwt { 0'V j gtg'ctg''qy gt''gzco r rgu'qh'pcwlqpcn'j | kuvqtkgu'qh'\tcpurcwlqp. ''qhrgp''hp''y g'hqto ''qh''ctwlergu. ''hqt'' gzco r rg''vtcpurcwlqp''kp'Eco gtqqp''\*P co c'3; ; 3+'cpf ''kp'Ewdc'\*Ctgpekdkc''3; ; 4+''cpf ''uqo gwlo gu'kp''y g'hqto ''qh'' dqqmu. ''cu''kp''Etqpkpøu''qxgtxkgy ''qh''c''y qwucpf ''{ gctu'qh'vtcpurcwlpi ''kp''Kgrepf ''\*Etqpkp''3; ; 8+0 | J kuvqt { ''ecp''cnuq'dg'f kxlf gf 'wulpi ''ej tqppqmi | kecn'eqpxgpwlqpu'nwej ''cu''egpwtkgu. 'tgki pu''cpf ''f { pcuwlgu0'Y qtm'qp'' tcpurcwlqp'j kuvqt { ''j cu'' gpgtcm | ''hqmy gf ''y g'' gtkqf k cwlqp''qh'ewmwtcn'j kuvqt { ''sCpvks wkx (.''y g''O kf rg'Ci gu.''y g'' Tgpckuucpeg. ''geθ0C''pwo dgt'qh'y qtmi'j cxg'' gcnv'y kj ''tcpurcwlqp''kp''y g''O kf rg'Ci gu''cpf ''Tgpckuucpeg''\*Ej cx { '' 3; : ='Eqr grcpf ''3; ; 3='Gmku'gv'cn'3; : ; ='Gmku''3; ; 3c. ''3; ; 3d='Gmku'cpf ''Gxcpu''3; ; 6+0 kp''cf f kwlqp. ''y g''Tqo cpvke''r gtkqf ''kp'' I gto cp{ ''\*Dgto cp''3; : 6+0 kp''cf f kwlqp. ''y g''Tqo cpvke''r gtkqf ''kp'' I gto cp{ ''\*Dgto cp''3; : 6+0 kp''cf f kwlqp. ''y g''Tqo cpvke''r gtkqf ''kp'' I gto cp{ ''\*Dgto cp''3; : 6+0 kp''cf f kwlqp. ''y g''Y g''' | I gto cp{ ''\*Dgto cp''3; : 6+0 kp''cf f kwlqp. ''y g''' | I gto cp{ ''py cp'' | I gto cp{ ''py cp'' | I gto cp''' | I gto cp''

#### V{rguˈqhˈʎt cpurc ʎkqp

Vtcpurckqp"j knyt { ."ikng"tcpurckqp"y gqt { ."j cul'ypf gf "\q"r rceg"r ct kewrct "go r j cuku"qp"ikytct { "tcpurckqp."cv" ko gu"j ki j rki j vkpi "ur gekhe"i gptgu"kp"eqo dkpckqp"y ki "ur cvkcn"cpf "vgo r qtcn"tgutkevkqpu0"kp"j ku"uwf { "qh"Gpi rkuj " xgtukqpu"qh"y g"Dtki kwkpg" \$T gxgrc vkqpu." F qo gpkeq "Rg| | kpk"\*3;; 3+"kpxguvki cvgu"f gxqvkqpcn"y tkkpi ."c"xgt { " ur gekhe"i gptg"cv"y g"etquutqcf u"qh"rksgtcwtg"cpf "ucetgf" y tkkpi "kp"y g'O kf f rg"Ci gu0Cppkg"Dtkuugv"\*3;; 2."3;; 8+" gzco kpgu"y g"vtcpurcvkqp"qh"y gcvtg"kp"S wgdge"f wtkpi "c"r ct vkewrctn{ "uki pkhecpv"42/{ gct "r gtkqf 0T gugctej "ecttkgf" qw"kp"I 3/wkpi gp"kpkkcm{ "eqpegpvtcvgf"qp"f tco c"cpf" y gcvtg"vtcpurcvkqp"kp"I gto cp/ur gcnkpi "eqwpvtkgu."htqo " y g"rcy"gki j vggpyj "egpwt { "qp0

Cpqyi gt"y c{"qh"mqmkpi "cv"yi g"j kuvqt{"qh"nkvgtct{"vtcpurcvkqp"ku"vq"uvwf{"yi g"uweeguukxg"vtcpurcvkqpu"cpf" tgegr vkqp"qh"i tgcv"cwj qtu."uwej "cu"J qo gt"qt"UJ CMGURGCTG."qt"egpvtcn"vgzvu"uwej "cu"Vj g"Ctcdkcp"Pki j wO' Qpg"gzco r ng"qh"yi ku"cr r tqcej "ku"yi g"eqnngevkqp"qh"guuc{u"qp"Gwtqr gcp"vtcpurcvkqpu"qh"Uj cnngur gctg"d{" F gncdcuvksc"cpf "F øj wnv"x3; ; 5+0

 $\label{thm:conj} Vj\ g'DtDNG''ku''cpqvj\ gt''qh''vj\ gug''uki\ pkhecpv'y\ qtmu.''cnvj\ qwi\ j\ ''kv'ku''kp''c''encuu''qh''kwu''qy\ p0''Ku''ko\ r\ qtvcpeg''ku''dcugf\ ''qp''\ c''r\ ctcf\ qz<'kv''ku''c''egpvtcn'\vgzv''kp''Y\ guvgtp''ewnwtg.''{\{gv''kv''ku''y\ tkvgp''kp''c''ncpi\ wci\ g''y \ cv'hgy\ ''r\ gqr\ rg''ecp''wpf\ gtuvcpf\ 0'\ Vj\ g''uqt{\{'qh''ku''tcpurcvkqp.''vj\ gtghqtg.''htqo\ ''vj\ g''\ tqwi\ j\ ''vj\ g''Tghqto\ cvkqp''cpf''wr\ ''vq''vj\ g''\ o\ qf\ gtp''gtc.''j\ cu''dggp''vqnf''kp''o\ cp{\{''y\ c{u0'Dkdrg''tcpurcvkqp''ku''eqxgtgf''kp''o\ quv'i\ gpgtcn'y\ qtmu''qh''j\ kuvqt{\.''cu''y\ gm''cu''kp''uqo\ g''ur\ gekhke''qpgu''*Dtweg''3;\ 92=''Ukpg''3;\ ;\ 2+0'Vj\ g''j\ kuvqt{''qh''y}\ g''tcpurcvkqp''qh''qvj\ gt''ucetgf''vgzvu.''uwej ''cu''\ vj\ g''VQTCJ\ .''S\ WT\ \theta\ P'''qt''Mqtcp+''$ 

cpf 'Dj ci cxcf 'I kc.'j cu'cnq''dggp'f qewo gpvgf.''cnj qwi j ''vq''c'hguugt ''gzvgpv.''dw't grki kqwu''t cpurcvkqp''kp''i gpgtcn' j cu't ctgn{ "dggp'eqpukf gtgf 'htqo ''c'eqo r ctcvkxg'r gtur gevkxg0'Ej cr vgt'8''qh''F grkurg''cpf ''Y qqf uy qtyj '\*3; ; 7c.''r r 0' 37; ó: 9+''cvgo r vu''vq'hkm'yj ku'i cr ''yj tqwi j ''cp''gzco kpcvkqp''qh''y g'tqrg''qh''t cpurcvqtu''kp''yj g''ur tgcf ''qh'yj g''o clqt'' y qtrf ''tgrki kqpu0

#### I tgcv'o qo gpvu'kp'ij g'j kwqt{'qh'itcpurvkqp

Vj g"j knqt { "qh'vtcpurcvkqp"j cu'dggp"o ctngf "d { "o qo gpwi'qh'r ct vkewrct "r tqf wevkx kv { ."-nej qqnw'qh'vtcpurcvkqp"y cv' j cxg"eqcrguegf "y tqwi j "c"eqpewttgpeg"qh'r qnkvkecn "ewnwtcn'cpf "npi wknvke "ektewo uvcpegu. "wnwcm { "wpf gt "y g" r cvtqpci g"qh'c "r ct vkewrct "lpf kx kr wcn'V j g"Dci j f cf "Uej qqn"y j kej "i tqwr gf "vqi gyi gt "vtcpurcvqtu"qh'y g"Cddcukf " r gtkqf "ctqwpf "vj g"r gtuqp "qh"J wpc { p"kDP "kUJ S ."ku"vj g"uwdlgev'qh'c "dqqm'd { "O { tkco "Ucroo c/Ectt "\*3; ; 2="ugg" CTCDKE "VTCF kvkQP +0"Vj g"Vqngf q"Uej qqn"y j kej "qr gtcvgf "lp" w grhy /cpf "vj ktvggpy /egpwxt { "Ur ckp."j cu'dggp" y g'uwdlgev'qh'c "pwo dgt "qh'ct vkengu" "F wpnqr "3; 82="Hq| "3; : . ."3; ; 3="Ices wctv'3; ; 3="R{o "3; ; 6="ugg"cnq" URCP kUJ "VTCF kvkQP +0"Nctu"Y qnkp"\*3; ; 3e+"j cu'tgxgcngf "vj g"eqpvxkdwkqp"qh'vj g"Xcf uvgpc"o qpcuvgt { ."nguugt" npqy p"r gtj cr u"vj cp"vj g"qyi gt" w q"uej qqnu. "dw'pq"nguu"ko r qtvcpv'hqt"yj g"f gxgnqr o gpv'qh'xgtpcewrct"ncpi wci g" cpf "rkxgtcwtg"kp"o gf kxcn'Uecpf kpcxkc"\*ugg"UY GF kUJ "VTCF kvkQP +0"

#### Qyj gt 'f kxkukqpu

P gy "r gtur gevksgu'lp" y g'j wo cpkkgu'cpf "uqekcn'uekgpegu."cmpi "y ky "uqekcn'ej cpi g'kuugnh" j cxg'kphnwgpegf "
uej qrctn( "tgugctej 'kp"i gpgtcn0I gpf gt."hqt 'kpuvcpeg." j cu'dgeqo g'cp'ko r qtvcpv'r ctco gvgt 'kp"ewttgpv'uej qrctuj kr 0'
J cppc { "%3; : 7+"f kuewuugu'y qo gp"y tkugtulvtcpurcvqtu"qh'tgrki kqwu"y qtmu="Mtqpvktku'\%3; ; 4+"cpf "Tqdkpuqp"\%3; ; 7+"
uwwf { "y go "cv'c"r ctvkewrct"r gtkqf ."vj g'Tgpckuucpeg"cpf "vj g'ukzvggpyj "vq"ugxgpvggpyj "egpwvtkgu. "tgur gevkxgn(0'
Uj gtt { "Uko qp"\%3; ; 8+"cpf "xqp"Hrqvqy "\%3; ; 9+"gcej "r tgugpv'cp"qxgtxkgy "qh'vj g"y j qrg"s wguvkqp"qh'i gpf gt"cpf "
vtcpurcvkqp0'Vj gtg"ku'tqqo "hqt"o qtg"y qtm'qp"vj g'j kuvqt { "qh'y qo gp"kp"vtcpurcvkqp."cmpi "vj g"hpgu"qh'qvj gt"
f kuekr nlpgu'\%rksgtcwtg."ctv."o wuke+"kp"y j kej "vj g"tqrg"r rc { gf "d { "y qo gp"vj tqwi j qw/j kuvqt { "j cu'tgegpvn("eqo g"vq" rki j v0

Kp"j ki j nki j vkpi "vj g"ej cpi kpi "hwpevkqp"cpf "uvcwu"qh"vtcpurcvqtu."eqpvgo r qtct { "uwwf kgu"j cxg"t geqi pk| gf "vj g" ko r qt vcpeg"qh"kpuvkwwkqpcn"hcevqtu<"gkj gt "vj g"ko r cev"qh"kpuvkwwkqpu"qp"vtcpurcvkqp"\*hqt"gzco r ng<"vj g"kphrwgpeg" qh"vj g"Cecf²o kg"htcp±ckug"qp"vtcpurcvkqpcn"pqto u+"qt"vj g"j kuvqt { "qh"vtcpurcvkqp"kpuvkwwkqpu"vj go ugnxgu"\*F gnkurg" 3; : 6."3; ; 2+0

Vj g''ej cmppi g''vq''Gwtqrgcp''kfgqmi kgu''qh''pcvkqpj qqf''cpf''gorktg''j cu''cnuq''dtqwi j v''cdqwv''pgy ''crrtqcej gu''vq''y g'' j kuvqt { ''qh''vtcpuncvkqp.''tgytkwgp''cu''c''j kuvqt { ''qh''eqps wguv''cpf ''eqmpk| cvkqp''\*Ejg{hkv| ''3;;3="Pktcplcpc''3;;4="ugg" OGVCRJQT''QH''VTCPUNCVKQP+0

#### Cpyj qrqi kgu'qh'loc vgo gp xu'c dqwv'tt c p urc vkqp

396: "\q"3: 69"\p"F øj wnv\\*3;; 2+0Ej guvgto cp"\3;:; +"\ku"c"eqmgevkqp"qh"o qtg"eqpvgo r qtct { "tgcf kpi u"\p" vtcpurcvkqp" i gqt { 0'Uqo g"cpvj qmi kgu"ctg"ceeqo r cpkgf "d { "cpcn(uku"qt"gzr rcpcvqt { "o cvgtkcn="kp"uqo g"ecugu" i g" o cvgtkcn|ku"r tgugpvgf "ej tqpqmi kecm(."y j gtgcu"\p"qvj gtu"\k'\ku"qti cpk gf "ceeqtf kpi "\q"i gptg"qt" i go g0F øj wnv." hqt"gzco r rg. "f kxkf gu"j ku"xqnwo g"\pvq"f kuewtukxg"ecvgi qtkgu0Nghgxgtg"\3;; 4d+"ku"c"eqmgevkqp"qh"ugo kpcn"\gz vu" cdqw\dcpurcvkqp"qtk kpcm("y tkwgp"\p"Ncvkp."Htgpej."I gto cp"cpf "Gpi rkuj."\dcpurcvgf "kpvq"Gpi rkuj "d { "vj g"cwj qt" cpf "ercuukhkgf "ceeqtf kpi "\q"vqr ke<"\j g"r qy gt"qh"r cvtqpci g. "\gej pks wgu"qh"\dcpurcvkpi. "cpf "uq"qp0Tqdkpuqpøu" Y guvgtp"Vtcpurcvkqp"Vj gqt { "Ht qo "J gt qf qww"\q"Pkgv| uej g"\3;; 9+"ku"r gtj cr u"\j g"o quv"dtqcf/tcpi kpi "\p"uq"hct" cu"kv"r tgugpvu"gzegtr wi'htqo "qxgt"; 2"cwj qtu. 'htqo "\j g"o kf/hkhy "egpwt { "DE"\q"\j g"gpf "qh"\j g"pkpgvggpy " egpwt { ."y ky "c"wughwi'dkqi tcr j kecn'pqvg"qp"gcej "cwj qt0

## Vqy ctf u'o qtg'eqo rtgj gpulxg'j kwqtlgu'qh'vtcpurcvlqp

Ulpeg''y g''rcyg''3; : 2u. "c''pwo dgt''qh''gh'nqtwi'j cxg''dggp''o cf g''\q''r clpv'\'y g''j knqt { "qh'\tcpurc\lqp"y ky "c''dtqcf gt" dtwij 0Htgf gtkem'Tgpgt'' tqr qugu'\q''eqttgev'\y g''-pcttqy ''hqewø'qh''r tgxkqwu''uwf kgu''eqpegpvtc\kpi "qp''cp" kpf kxlf wcn''rcpi wci g. "r ct\kewct''egpwt { .'qt'c'\ur} gekhe'\tcpurc\qt''cpf "\q'\tgxgcn'\y g''-eqo o qp'\y gqt { "qh''rcpi wci g" cpf "eqo o wplec\kqpø'cpf "-\u) ctgf ''lf gc''qh'\tcpurc\kqpø'\wpf gtn\ kpi "\y gqt { "cpf "r tce\keg'\kp" Y guvgtp''Gwtqr g'\text{Y gpgt''} 3; : ; 3-'r tqxlf gu''c'tlej "eqo r kre\kqp''qh'\tcpurc\kqpu''cpf "\u) gptk'xcp"J qqh'\u00e3; ; 3-'r tqxlf gu''c'tlej "eqo r kre\kqp''qh'\tcpurc\kqpu''cyf "j knqt { "qh''\tcpurc\kqp''\w00e3 gy'\u00e3 gy'

Vj g'f kxgtug'o gyj qf u'qh'y tkkpi ''y g'j kuqt { ''qh'\tcpurc\kqp'tghrgev'\y q''qr r qukpi '\ypf gpekgu'\kp''o qf gtp'' j kuqt kqi tcr j { <'qpg'eqpuku\kpi '\kp'\ur rk\kpi '\wr '\y g'hkgrf '\kp\q'\uo cmgt'cpf '\uo cmgt'r m\u'\cu'\ur gekcn\k c\kqp'' kpetgcugu. ''cpf '\y g''qy gt '\kp''o qxkpi '\\qy ctf ''c''\tglqkpkpi ''qh'\y g'r kgeguø'\kp''qtf gt '\\q'\cemg''c'\q\cn'\qt''i mdcn'j kuqt { '' \\ \text{\*Ucphqtf '3; : 9-63+0'K'}j cu''dggp''r quukdrg'\q''tgeqpekrg'\y gug'\ypf gpekgu''d { ''o gcpu'\qh'\ygoo ''y qtm'y j kej ''j cu'\y g'' cf xcp\ci g''qh''dt\pi kpi ''r n\tcr\tcr\to ''\q''dgct''qp'\y g''j ku\qt { ''qh'\tcpurc\kqp'\kp'\y g''y qtrf ''cpf ''j gpeg'\qh'\cej kgx\pi '\uqo g'' o gcu\tg'\qh''dtgcf \y i ''cpf ''qdlge\tx\k\\{0'I tq\tar ''tgugctej ''r tqlge\tu''j cxg''dggp''o cf g''r quukdrg'\y tq\ti j '\y g'\twr r qt\'\qh'' cecf go ke''cpf ''r tqhguukqpcn'kpu\k\tx\kqpu0'Q\y gt 'hce\qtu. '\qq. ''u\tej ''cu'\y g''etgc\kqp''qh''gnge\tqpke''pg\y qtm\.''j cxg'' hce\rtx\cyf ''y g'y qtm'\qh'\kpytpc\kqpcn'tgugctej '\yco u0

Vj g''gco ''ugv'qw''vq''gzco kpg'tgrtgugpvcvkxg''tcpurcvkqpu.''kp'T gto cp/ur gcnkpi ''eqwpvtkgu''kpkkcm{.''y qtnkpi ''y kj '' repi wci g.''rkxgtcwtg''cpf ''ewnwtg''r cktu'\*\*Dtkkuj /I gto cp.''Uy gf kuj /I gto cp.''Rqrkuj ô I gto cp.''gve0+0'Vj g{ ''f gcn'' y kj ''j g''o quv'htgs wgpvn{ ''tcpurcvgf ''y qtnu''d{ ''j g''o quv'htgs wgpvn{ ''tcpurcvgf ''cwj qtu''ukpeg''cdqw''y g''gpf ''qh''y g'' gki j vggpyj ''egpwt{ .''y j gp''tcpurcvkqp''dgeco g''c''o cuu''o ctngv'kp'T gto cp/ur gcnkpi ''eqwpvtkgu0'Kp''c''ugeqpf ''r j cug.'' cp''ghqtv'y cu''o cf g''vq''f gxgnqr ''o wnkrcvgtcn'r tqlgevu0'Vj g''dcuke'r tgo kug'ku''y cv'j kuvqtkecn'f guetkr vkxg''tcpurcvkqp'' uwwf kgu''pggf ''c''tcpuhgt/qtkgpvgf ''crrtqcej <'y g''j kuvqtkecn'r tqhkrg''qh''c''tcpurcvkqp''ecp''dguv''dg''y qtngf ''qw''d{ ''eqpegpvtcvkpi ''qp''y g''o quv'uvtknkpi ''f khhgtgpegu''dgwy ggp''uqwteg''cpf ''cti gv'\ygzvu0

Vj g'y qtm'qh'y g'I ¾wkpi gp'egpvtg'j cu'tguwngf 'kp''pwo gtqwu'r wdrkecvkqpu. 'r tkpekr cm{ "

vj g''ugtkgu''I ¾wkpi gt''Dgkut® g''| wt''Kpvgtpcvkqpcngp'©dgtugv| wpi ulqtuej wpi '\*I ¾wkpi gp''eqpvtkdwkqpu''vq'' kpvgtpcvkqpcn'\tcpuncvkqp'tgugctej =''ugg'hqt''gzco r ng''Mkvgn'cpf ''Htcpm'3;;3+0'Vj gkt''y qtm'kp''vj g''hkgnf ''qh'FTCOC'' VTCPUNCVKQP.''kp'r ctvkewnct.''j cu''dggp''i tqwpf/dtgcmkpi 0

Uko krct "r tqlgevu"ctg"ewttgpvn{ "kp" vj g"r tqeguu "qh" dgkpi "eqo r ngvgf 0" Vj g" Ucej y ¾ vgt dwej "f gt"

Vt cpurc vkqpuy kuugpuej ch'ku'cp''gpe{erqr gf ke''f kevkqpct{"qh''vtcpurc vkqp''uwf kgu."gf kgf 'd{"J gkf go ctkg''Ucrgxum{" \*Dgtrkp+''cpf ''vq''dg''r wdrkuj gf ''d{"Lwkwu'I tqqu''Xgtrci 0'K''cko u''vq''dtkpi ''vqi gyj gt''vtcpurc vkqp''uej qrctuj kr ''htqo " Gcuvgtp''cpf ''Y guvgtp''Gwtqr g0'C''uki pkhkecpv''r qt vkqp."cr r tqzko cvgn{"322"r ci gu."j cu''dggp''ugv'cukf g''vq''eqxgt''y g'' j kurqt{"qh''vtcpurc vkqp="yj ku''ugevkqp'ku''eqqtf kpcvgf ''d{"J cpu''Xgto ggt''\*J gkf grdgti +0

Vj g"Kovgt pc kappc n'Gpe{enqr gf kc "qhl'Vt cpurc/vkap" Uwf kgu "vj g"o quv'co dkskqwu'vq "f cvg. "ku'vq" dg"r wdrkuj gf "d{" Y cngt "f g"I tw{ vgt "kp"3; ; ; 642230 Gf kgf "d{"c"i tqwr "qh'ugxgp" uej qrctu. "kv'kpenwf gu'c "ugevkqp" qp" Vt cpurcvkqp" cpf "Ewnwt cn'J kuvqt {ø'y j kej "y km'o cng" wr "cdqwv'j crh'vj g"vqvcn'pwo dgt "qh'r ci gu" qh'vj ku'r tqr qugf "vj tgg/xqnwo g" y qtn0 Kv'y km'cnuq "eqpvckp" vj gqt gykecn'cpf "o gyj qf qmi kecn'ct vkengu "qp" vj g"vqr ke "qh'j kuvqt kqi tcr j {0 Vj g"cko "ku'vq" eqxgt" vj g"j kuvqt { "qh'vt cpurcvkqp" eqo r tgj gpukxgn{. "htqo "vj g"gctrkguv'vko gu'vq" vj g"r tgugpv'f c{. "cetquu'vj g"i nqdg." cnj qwi j "uqo g"ctgcu" cpf "r gtkqf u'y km'tgegkxg" c"o qtg"f gyckrgf "vtgcvo gpv'vj cp" qvj gtu0 Vj gtg" ctg" y tgg"f khhgtgpv" cpf "eqo r ngo gpyct { "cr r tqcej gu<

\*c+'eqxgtci g'qh'ncti g'i gqi tcr j kecnlewnwtcn'wpku'\*o ckpn{ 'Gwtqr g. 'dwv'cnuq'yi g'O kf f ng'Gcuv+'y ky "go r j cuku" qp"r j gpqo gpc"cetquu'yi g'tgi kqp"dtqngp"f qy p'kpvq'\tcf kkqpcn'r gtkqf u'qh'ewnwtcn'j kuvqt { "\*Cpvks wkx{ .'O kf f ng" Ci gu. 'Tgpckuucpeg. 'O qf gtp'Rgtkqf +

\*d+"eqxgtci g"htqo "tgi kqpcn"cpf "pckqpcn"r gtur gevkxgu. "y kyj "tcpurcvkqp"kp"I gto cp/ur gcmkpi "ctgcu" 'tgcvgf "kp" f gr yj "cu"c" ir ctcf ki o cvke "ecugø

 $\label{thm:condition} \hbox{$^*$e+'ecug''uwf kgu''qh''yj g''y qtrify kf g''f kuxtkdwkqp''cpf''xtcpurcvkqp''qh''uki pkhkecpv''yzvu0$}$ 

#### Vj g'HKV'Eqo o kwgg'hqt'ij g'J kwqt{'qh'Vtcpurcwlqp

VTCF KVKQP +"kp"3; 850 KVy cu'pqv'wpvkd3; ; 2."j qy gxgt."y cv'y g"r tqlgev'cewcm{ "dgi cp"vq"vcng"uj cr g. "wpf gt"y g" f ktgevkqp"qh"c"pgy "Eqo o kwgg"hqt"y g"J ktvqt { "qh"Vtcpuncvkqp" F grkurg"3; ; 3+0 Vj g"j ktvqt { "y cu"vq"dg"ugngevkxg" cpf "y go cvke."tcyj gt"y cp"eqo r tgj gpukxg"qt "gzj cwtrkxg0 P kpg"y go gu"y gtg"kf gpvkhkgf "cpf "c"tgugctej "ygco " j gcf gf "d{"c" r tkpekr cn'cwj qtø'y cu"r wv'vqi gyj gt "hqt"gcej "y go g0 Vj g"dqqm'y cu'r wdrkuj gf "kp"Gpi rkuj "cu" Vtcpurcvqt u'Vj tqwi j "J ktvqt { "cpf "kp"Htgpej "cu"Ngu"tcf wevgwt u'f cpu'ntj ktvqkt g" F grkurg"cpf "Y qqf uy qtyj "3; ; 7c" cpf "3; ; 7d+0

Go r j cuku'j cu'dggp'r megf "qp" y g'eqpvtkdwkqpu'o cf g'd { "vtcpumcvqtu' vq" y g'kpvgmgewcn'cpf "ewnwtcn'j kuvqt { "qh" y g'y qtnf < y g'kpvgpvkqp"qh'cm j cdgvu. "y g'go gti gpeg"qh'pcvkqpcn'hkvgtcwtgu. "y g'r tqr ci cvkqp"qh'tgrki kqwu'vgzvu." ge0'V j g'xcuv'uwdlgev'o cwgt" j cu'dggp'vtgcvgf "y tqwi j "eqnmcdqtcvkxg" tgugctej ."d { "uej qmctu'y ky "f khngtgpv'ctgcu'qh" gzr gtvkug. "hkxkpi "kp'xctkqwu'r ctwu"qh'y g'y qtnf 0'Cp"ghhqtv'j cu'dggp'o cf g'vq'o qxg"dg { qpf "c'Gwtqegpvtke"xkgy "d { "kpvtqf wekpi "pgy "o cvgtkcn'htqo "y g"Hct'Gcuv. "Chtkec"cpf "Ncvkp"Co gtkec. "hqt"gzco r ng0'Y j cv'ku'wpks wg"cdqw'y ku" r tqlgev'ku'y cv'ky'y cu'ur qpuqtgf "d { "HkV." y g'qti cpk cvkqp"y j kej "tgr tgugpvu''vtcpumcvqtu'y qtnf/y kf g='y g" kpvgtpcvkqpcn'f ko gpukqp"qh'y g'r tqlgev'j cu'dggp'hwty gt"gpj cpegf "d { "y g'hcev'y cv'WP GUE Q'ku'qpg"qh'y g'dqqmvu" eq/r wdrkuj gtu0

#### Hwt yj gt 't gcf kpi

LWF KVJ "Y QQF UY QT VJ

## K

## K gqmi { 'cpf 'tt cpurc tqp

Ki'ku'r gtj cr u'ktqpke''y cv'P kgyl uej g. 'y j q''ej co r kqpgf ''y g''pqykqp''y cv'cm'mpqy ngf i g''ku'r gtur geykxcn' ''klg0' eqpfkkqpgf "d{"qpgøu"rqkpv"qh"xkgy +: "uj qwrf" j cxg"fgpqwpegf" yj g"rtcevkeg"qh"rgturgevkxkuo "kp" vtcpurcvkqp" yj gp" j g"dgtcvgf" Korgtkcn'T qog"cpf" Encuukecn'Htcpeg'hqt" vjg"eqorngvg" cuukokncvkqp" qh'gctnkgt" nkvgtcwxtgu'kp" vjg" vtcpurcvkqp'r tqeguu'\*P kgv| uej g'3; 86<337638+0J qy gxgt.'j ku'eqo o gpw'kp'vj ku'tgur gev'f go qpuvtcvg'vj cv'cp'' -ilf gqrqi kecrø'cr r tqcej "'q''tcpurc klqp''ecp''dg''hqwpf 'kp''uqo g''qh''vj g''gctrkguv''gzco r rgu''qh''\tcpurc klqp''mpqy p''vq''wu0 Y kj ''y g''ur tgcf ''qh'f geqpunt werkqp''cpf ''ewnwtch'uwf kgu''kp''y g''cecf go {.''y g''uwdlgev'qh'kf gqmi {.''cpf ''o qtg'' ur gelthecm("yj g"lf gqmi {"qh'r qy gt"tgrcvlqpu."dgeco g"cp"lko r qtvcpv"ctgc"qh"uwf {."cpf "ercko u"cdqw"lf gqmi {" rtqnkhgtcvg'lkp''ocp{'hkgnfu.''vjqwij''yjg{'ctg'pqv'cnyc{u'ygml'uwduvcpvkcvgf0'Vjg'hkgnf'qhl'vtcpuncvkqp''uvwfkgu'' rtgugpwi'pq"gzegrwqp"vq"y ku'i gpgtcn'vtgpf O'Hqt"gzcorng."y g'j cpfhwn'qh'ecug"uwwfkgu'rtgugpvgf 'kp''Nghgxgtg" \*3;; 4c+"uectegn("Iwurkh("j ku'uy ggr kpi "f genctcvkqp" vj cv":qp"gxgt("ngxgn'qh' vj g" vtcpuncvkqp"r tqeguu. 'kv'ecp" dg" uj qy p''y cv. 'kh'nkpi wkuke eqpukf gtckqpu gpvgt kpvq eqphrkev'y kj eqpukf gtckqpu qh'cp'kf gqnqi kecn'cpf lqt" r qgvqmi kecn'pcwtg." vj g"rcwgt" vgpf "vq"y kp" qwø "kdkf 0.5; +0"Uko krctn{." Pktcplcpc" 3; ; 4.5 + 'y tkgu' vj cv' →Vtcpurcvkqpí rtqf wegu'uvtcvgi kgu'qh'eqpvckpo gpv0D{"go rm{kpi "egtvckp"o qf gu'qh'tgrtgugpvkpi "vj g'qvj gtô y j kej 'kk' vj gtgd { "cnuq"dtkpi u'kpvq"dgkpi ô vtcpurcvkqp"tgkphqtegu'j gi go qpke 'xgtukqpu'qh' vj g'eqmpkugf 0/6" J qy gxgt. "uj g'qhhgtu'pq"gzco r ngu'vq"f go qpuvtcvg"j gt "cuugtvkqp. "s wqvkpi "pqv'htqo "vtcpuncvkqpu'dwv'htqo "r tghcegu" vq"tcpurcvkqpu"qt"htqo "y qtmu"y tkwgp"f ktgevn("kp"Gpi nkuj 0"Hwtyj gto qtg."j gt"encko "vj cv"tcpurcvkqp"hwpevkqpu"d{" ÷etgcvkpi "eqj gtgpv"cpf "\tcpur ctgpv"\gzvu'\yj tqwi j "\yj g"tgr tguukqp"qh"f khhgtgpegø'\%kdkf 0\65+"pqv"qpn{ "eqpvtcf kevu" yj g'htgs wgpv'tghgtgpegu. 'kp''yj g'r tghcegu'htqo ''y j kej ''uj g's wqvgu. ''vq''yj g'pgi cvkxg''ej ctcevgtkuvkeu''y j kej ''ctg'' uwr r qugf 'r tgekugn( ''vq''o ctm'yj g''eqnqpk gf 'uwdlgev'cu''Qyj gt. ''dw''cnuq''ki pqtgu''yj g''nqpi ''\tcfkkqp''qh''÷gzq\keø'' vtcpurcvkqpu'y j kej 'y qtmlkp'y g'uco g'f ktgevkqp0P qpg'y g'nguu. 'dqy 'cwy qtu'uki pcn'y g'ko r qtvcpegô cpf 'y g' r tqdrgo cvle "pcwtg"/qh'vj g'uwdlgev. "cpf "Pktcplcpc"ku "egtvckpn("tki j v'vj cv'vtcpurcvkqp"cpf "vtcpurcvkqp"uwfkgu "j cxg"  $dggp" \div ecwi j \ v'kp" cp'kf \ kqo \ "qh'hkf \ grkv{ "cpf "dgvtc { cn'vj \ cv'cuuwo \ gu'cp" wpr \ tqdrgo \ cvke" pqvkqp" qh'' } \\$ tgrtgugpvcvkqpø\*kdkf0<6+0

 $\label{thm:control_c$ 

Kh "qp" y g" qpg" j cpf. "kf gqmi { "ku kpf ggf "ko r necvgf "kp" gxgt { "cur gev'qh" qwt" j wo cp" ukwc kqp. "y gp" y cqog gu'htcwi j v'y ky "r qvgp kcn'ceewuc kqpu "qh" ko r gt kcnkuo "gxgt { "uvgr "qh" y g"y c { 0 Gxgp "vtcpurc kpi "y g" cr r ctgp vn { "kppqewqwu Htgpej "gzr tguukqp" wpg" dci wgwg" f g"r ckp" d { "÷c" mqch" qh" dtgcf ø'ecp "rc { "y g" vtcpurc vqt" qr gp" vq" gpwpekc kqpu "qh" ÷uwr r tguukpi "cpf "tgr tguukpi "y g"Qy gtø) Kh. "qp" y g"qy gt" j cpf. "cu" T qej gt "\*3; ; 5 \$ 8 + "uc { uô gej qkpi "y g" f geqpuvt we kqpkuv enkej 2 ô \* mqt ki kpckt g"guw kpvt qwxc drgø \* ÷y g" qt ki kp" ecppqv'dg" hqwpf ø + "y gp" cm" f gxkc kqpu "dgeqo g"r gto kuukdrg. "pggf kpi "qpn { "y g"o qvkxc vkqp" qh" cp" kf gqmi { "vq" lwu kh { "y go. "dgec wug" y gt g" ku" pq" qt ki kpcn' \q" dg" eqr kgf "cpf "dgec wug" y g" ÷x kqrgp v"j kgt ctej { ø'y j kej "i kxgu"r tko ce { "vq" y g" uqwt eg" yz v'ecp" dg" qxgt wt pgf "kp" hcxqwt "qh" y g" cti gv'e wnwt g0

Vj g'eqpegr v'qh'|Pcej vt® nkej ngk/\*\*:r quv j wo qwu/pguuø+'dgeco g'hcuj kqpcdng'chygt 'f geqpuvt wevkqpkuvu'' tgf kueqxgtgf "Fkg'Cwhi cdg'f gu'©dgtugv| gtuø'\* Vj g'\cum'qh'vj g'\tcpurcvqtø+."Y cnxgt'Dgplco kpøu'3; 45"guuc{" y j kej "ecmu"\q"o kpf "I gqti g"Uvgkpgtøu"uvci g"qh"÷eqo r gpucvkqpø'qt"÷tguvkvvvkqpø'\*Uvgkpgt"3; 9713; ; 4√637≐'ugg" J GTO GP GWVKE 'O QVKQP = RWTG"NCP I WCI G+0"Vj ku"eqpegr v"ecp"uko krctn( "dg"uggp"cu"c"o qvkxcvkqp"hqt" kf gqqqi kecm( "kpvgthgtkpi "y kj "yj g"qtki kpcn"qp"yj g"i tqwpf u"yj cv'pgy "tkej pguu"ku"dgkpi "cf f gf "vq"yj g"y qtm<"kh" qtki kpcn'o gcpkpi 'f qgu'pqv'gzkuv'cpf 'kh'vj g'y qtm'nkxgu'qp'kp'vj g'gpf nguun( 'f ghgttgf 'o gcpkpi 'qh'vj g'r nc { 'qh'vj g'' uki pkhkgt. 'vj gp'xctkqwu'hqto u'qh'CFCRVCVKQP 'dgeqo g'Iwuvkhkgf 'cu'vj g'o ckp'vtcpurcvkqp'vgej pks wg0I gpf gt'' r qrkkleu'ngcf 'vq'vj g'uco g'eqpenxukqp'\*ugg'dgrqy +0'kp'vj gug'ektewo uvcpegu. 'vtcpurcvkqp'dgeqo gu'pqv'c'uwdo kuukqp'' vq"qyj gtpguu"dw'c"r gthqto cpeg"ctv'y kyj "r tqegf wtgu"gzcevn{ "eqo r ctcdrg"vq"yj qug"wugf "kp"o qf gtp/f c{ "uvci kpi u" qh'ercuulecri'y gc tg'cpf ''qr gt c0'kpf ggf. ''Nghgxgtg'\*3;; 4c<'73+'i qgu'uq'hct''cu''\q''uwi i guv'yi cv'hckyi hwri'tcpurcvkqp''ku'' lww'cpqyi gt 'tcpurcykqp'utcygi { ''yi cy'tguwwu'htqo ''yi g''eqmqecykqp''qh''cp''kf gqmi { ''cpf ''c''r qgykeu0 Vtcpurcvqtu'j cxg'pgxgt'pggf gf 'f khhewn'o qf gtp'eqpegr vu'vq'Iwwkh{ "cp'kf gqrqi kecn'cwkwf g'vqy ctf u'vj gkt'vcum" j qy gxgt0'Kh'y g'ceegr v'yj g'f ghkpkklqp"qh'llf gqmi { "cu'cp"cevkqp/qtkgpvgf "ugv'qh'dgnkghu'\*\*Ugnki gt"3; 98<, 364. "s wqvgf" kp'Kgrcpf '3; : ; ⊲53+. 'cpf 'kh'y g'cuuwo g''y qug''dgrkghu. 'gxgp''y j gtg''y g{ "ecm'y go ugrxgu''cguy gvke. 'tgrki kqwu''qt" r qgvke. "vq"dg"r qnkvkecn"kp" y g"ugpug" y cv" y gkt "cr r nkecvkqp" guvcdnkuj gu"t gncvkqpu" qh"f qo kpcpeg. "y gp" y g"ecp" ugg" rtqf wevkqp"qh"egtvckp"ghgevu"kp"vtcpurcvkqp0"Vjg"s wguvkqpu"Pqtf"\*3;;3<58+"cumu"cdqwv"c"urgekhke"vgzv"vq"dg" vtcpurcvgf "ecp"dg"cungf "qh"vtcpurcvkqp"kp"i gpgtcn"dw'y ky "c"r qy gt"qtkgpvcvkqp<"Y j cv'i gw'vtcpurcvgf "\*y j cv'ku" xcnwgf "cpf 'y j cv'ku'gzenwf gf +A'Y j q'f qgu'y g'\tcpurc\kqp'\\*y j q'eqpvtqnu'\y g'r tqf we\kqp'qh'\tcpurc\kqp+A'Y j q'ku' tcpurcyf "hqt" y j q"ku'i kxgp" ceeguu 'vq" hqtgki p"o cygtkcnu 'cpf" y j q"f gpkgf +A'J qy "ku'ij g"o cygtkcn 'vtcpurcygf" y j cv ku'qo kwgf. 'cffgf.'cnwgtgf.'vq'eqpvtqn'vjg'o guucig+A

### Kf gqrqi { 'cpf 'tt cpurcvlqp'lt qo 'c'j kuvqt lecrir gt ur gevlxg

Tqo cp"crrtqcej gu"y j kej "kpxqmxgf"cuwlo krcklqp"qh"yj g"uqwteg"yzzv"q"yj g"cti gv'ewmwtg"cpf"y j kej "y gtg" etkkek gf "d{"P kgv| uej g"cu"y g"j cxg"uggp."ctg"pqv'wpks wg"kp"yj g"j kmqt{"qh"vtcpurcvkqp0"Uko krct"cwkwxf gu"vqy ctf u" yj g"uqwteg"yzzv'cu"uqo gyj kpi "y j kej "pggf u"vq"dg"cf cr vgf "vq"yj g"tgegkxkpi "ewmwtg"gzknvgf "kp"yj g"O kf f rg"Ci gu0' Co qu"\*3; 42\$\rightarrow{2}\$+"s wqvgu"yj g"y qtf u"qh"\O nt ke"vq"yj g"ghtgev"yj cv"kp"j ku"vtcpurcvkqp"qh"yj g"Nxgu"qh"yj g"Uckpuu"j g" cddtgxkcvgf "yj g"y qtf u"dw"pqv"yj g"ugpug"kp"qtf gt "vq"r tgxgpv"dqtgf qo 0"Kp"f qkpi "vq."j g"y cu"o cmkpi "c"f qwdrg" kf gqmqi kecn'o qxg<"j g"y cu"pqv"qpn("cf cr vkpi "j ku"vtcpurcvkqpu"vq"j ku"tgcf gtuj kr "tcvj gt"yj cp"tgur gevkpi "yj g"uqwteg" vgzv"dw"y cu"cnq"r tcevkukpi "c"etchv"yj cv"yj g"gf wecvgf "cpf" engtkecn'encuugu"htqy pgf "vx qp."ukpeg"vtcpurcvkqp"y cu" yj gp"uggp"cu"uqo gyj kpi "qh"c"tgxqnwkqpct{"cev."cp"cwgo r v"vq"tgr reeg"yj g"f qo kpcpv"Ncvkp"d{"go gti gpv"pcvkqpcn" rcpi wci gu"urtwi i nkpi "vq"cuugtv"yj go ugrxgu"cpf "vq"y tguv"yj g"f knugo kpcvkqp"qh"mpqy ngf i g"htqo "encuu"eqpvtqn"f\p" yj ku"ugpug."\O nt ke"y cu"go r qy gtkpi "j ku"tgcf gtu"kp"y q"y c{u"yj tqwi j "tcpurcvkqp</p>
y gb"ugpug."\O nt ke"y cu"go r qy gtkpi "j ku"tgcf gtu"kp"y q"y c{u"yj tqwi j "tcpurcvkqp
y gty cu"r wwkpi "kphqto cvkqp" kpvq"y gkt"j cpf u"hqt"wpo gf kcvgf "eqpuwo r vkqp."cpf "j g"y cu"cmyy kpi "yj gkt"tgcf kpi "j cdku"vq"eqpvtqn"j ku"ej qkeg"qh" vtcpurcvkqp"yej pks wg0

D{"eqpvtcuv."Pqtvqp"\3; : 6\36+"f guetkdgu"j qy "Tgpckncepeg"vtcpurcvqtu."o qvkxcvgf "d{"ur ceg"iqi ke"cpf" Tgpckncepeg"eqpuvtwevkxkivlkf gqqqi {."ugv'qlhi'lip"ugctej "qh'c"eqo r ctcdrg"kpvgtrt gvcvkqpkul'rgz"\sizev "qhl" kpvgtrt gvcvkqpp\sizev." kig g{"y qwrf "dg"wpcdrg"vq"wtp"cy c{"Intqo "y g'ko ci g"qhl'ncmpp"vtcpurcvkxg"o cp" eqpuki pgf "vq"c"hcmpp"r quv/Dcdgrily qtrf \( \text{ "cpf" "y gtg" y gtghtg" liqtegf "dcem'qp" y g"tgrcvkxkwo "qh'l'qcej ko "R2 tkqp." y j kej "vtcpurcvul"cu"\danger y gtg"ctg"cu'o cp{"cpf" cu"xctkgf" o gy qf u"qh"vtcpurcvkqp"cu" y gtg"ctg"y c{u"qh'ur gcmkpi \( \text{ o} \) y cv" y g'ko r necvkqpu"qh'uvej "tgrcvkxkwo" o ki j v'dg"cpf" j qy "y kf gurt tgcf "qxgt" Gwtqr gcp"vko g"cpf" ur ceg"kv"y cu" ecp"dg"uggp "htqo "y j g"rkwrg/mpqy p"y qtm'qh'Dcregt| cp"\3; 9: \( \text{ 346+"y j q. "kp"tgrcvkqp" vq" y j g"f gxgrqr o gpv'qh" Twurkpr"cpf "Rqrkuj "rksgtcwtg." fghlpgu"cmir tg/Tqo cpvke"vtcpurcvkqp"cu"dgrqpi kpi "vq"cp"ci g"qh'u{petgvkwo "kp" y j kej "y g"eqpegr v'qh'cwyi qtuj kr "y cu"r tqdrgo cvke"cpf" kp"y j kej "w q"r tkpekr rgu"y gtg"cv'y qtm\center qet {r j c" \text{ "tgxgtug"r rci ktkwo +cpf" cppgzcvkqp"\text{ rci ktkwo +0Vj g"htuv'cr r tqcej ."Dcregt| cp" gmn'wu. 'ku"gzgo r nhhgf" d{" Dqi qo qrgvu. 'y j q"f geretgu'yj cv'j g"y kn"gzr cpf "qt"cddtgxkcyg"yj g"qtki kpcn'cwyi qt"y j gtg"pgegucct {"::aq"yj cv'K o ki j v'pqv'qpn("dg"qp"c"r ct"y kyj "y g"cwyi qt"Kco "vtcpurcvkpi "dw"gxgp"tkug"cdqxg"j ko "kp"hkxgrlpguu'qh" gzr qukxlqp\sixdkf \( \text{ \text{ "tcpurcv} y f = "'y g"ugcqpf" cr r tqcej "ku"ej ctcevgtk| gf" "k"qn"j qxunkk"y j q"ercko u"c"vtcpurcvkqp"cu" j ku"qp p"y qtm'dgecwug"y g"uko r rg"rcev'qh'r wxkpi "y g"y qtf u'kpvq"cpqy gt"rcpi wci g"j cu'i kxgp"kv'c":pgy " eqnwtkpi \( \sixda \text{ "kdf (\text{ \text{ "tcpurcv} y f = "'y g"ugcqpf" cr r tqcej "ku"ej ctcevgtk| gf" "kpvq"cpqy gt"rcpi wci g"j cu'i kxgp"kv'c":pgy " eqnwtkpi \( \sixda \text{ "kdf (\text{ \text{ "tcpurcv} y f = "'y g"ugcqpf" cr r tqcej "ku"ej ctcevgtk| gf" u'kpvq"cpqy gt"rcpi wci g"j cu'i kxgp"kv'c":pgy " eq

Vj g'eqpvkpwkpi 'kphrwgpeg'qh'tgrki kqwu'kf gqmi { "ecp"cnuq"dg"uggp"kp"P qtvqpøu"f guetkr vkqp"qh'j qy ''tcpurcvkqp'y cu" wugf 'kp'j g'dcwrg'hkpgu'qh'vj gqmi { "\*3; : 6<8365+<'y g''y gqmi kcpu'qh'Htcpeku'Kqh'Htcpeg'y gtg''qr r qugf ''vq''rkgtcn'' vtcpurcvkqpu'qh'vj g''Qrf "Vguvco gpv'dgecwug''uwej ''tcpurcvkqpu'ngpv'eqo hqtv'vq''y g''Lgy kuj ''tcf kkqp''qh'pqp/cmgi qtkecn'tgcf kpi u'y j kej 'y gpv'eqwpygt''q''y g'Ej tkuvkcp''tcf kkqp0'Vj g''Uqxkgv'y tkgt''Hgf qtqx''\*3; 7: ≪48+." y tkkpi ''htqo ''c'Octzkuv'xkgy r qkpv.''y cu''cdrg''vq''f kuo kuu''y g''rkygtcrkuv'ygpf gpe{ ''qh''dkdrkecn'\tcpurcvkqp''hqt''cpqy gt''

tgcuqp. "cu"+ctkukpi "pqv'uq"o wej "htqo "c"eqpuekqwu" yi gqtgvkecn'r qukvkqp"cu"htqo "uwr gtuvkvkqwu"r kgv{. "of gxqw" vtgo drkpi ö"dghqtg" yi g"Dkdrkecn'vgzvuø"\*vtcpurcvgf+0

Vj cv'tcpurckqp"y cu'y gp"cpf "ukmiku" ggr n( "ko r necvgf "kp"t grik kqwu"kf gqmi {"ecp"dg"uggp"pqv'lww'ht qo "unkto kuj gu"qh"y g"v{r g"f guetkdgf "d{"P qt vqp"dw'cnq"ht qo "y g"i tkun( "hcvg"qh"vtcpurcvqtu"uwej "cu"V[ PFCNG"kp" Dtkckp"\*ugg"DTKVKU "VTCFKVQP +"cpf "FQNGV"kp"Htcpeg"\*ugg"HTGPEJ "VTCFKVQP +"\*dqyi "dwtpv'cv'y g" uvcng+"c"hcvg"o kt qt gf "kp"y gry gpvkgyi "egpwt {"d{"y g"cuucuukpcvkqp"qh"y g"Lcr cpgug"tcpurcvqt"qh"Ucm cp" Twij f kgøu"Ucvpke"Xgt ugu"cpf "y g"uwdugs wgpv't ghwucn'd {"qy gt"r wdrkuj gtu"vq"r tqf weg"c"vtcpurcvkqp0Cpf "lwuv"cu" tgrki kqp"eqpvkpwgu"vq"i tkr "vtcpurcvkqp"qwr wv."uq"o qf go "y tkygtu"eqpvkpwg"vq"r tqlgev'eqpvgo r qtct {"kf gqmi {"qpvq" gctrkgt "yzvu0Vj wu"P qtvqp"j ko ugnh"uggo u"vq"dcenf cvg"c"f geqpuvt wevkqpkuv"kf gqmi {"vq"y g"T gpckuucpeg"y j gp"j g" uc {u"qh"Ices wgu"Rgrgvkgt "f w'O cpuø"f gerctcvkqp"+&v'y qwf "dg"pkeg"kh'y qtf/hqt/y qtf "vtcpurcvkqp"y gtg"r quukdrg"dw" ucf n( "kv'kupøvø'y cv'Rgrgvkgt "o cngu'wu"+tgrkxg"y g"ci qp{"qh"o qvkqp"kp"r rceg."qh"go dctnrcvkqp"vqy ctf u"cp"qdlgev" eqpuvcpv'kp"ku"ugnh'f gpkcnø\*3; : 6464+0

D{"eqpvtcuv."yj g"dqwti gqku/tgxqnwkqpct{"kpf kxkf wcnko "y kyj "y j kej "pkpgvggpyj /egpwt{"Tqo cpvkeko "eqo dcvgf" yj g"v{tcpp{"qh'mbpi u'y qwf "hcxqwt "nkgtcn'vtcpurcvkqpu'y j kej "tgur gevgf "kpf kxkf wcn'f khhgtgpeg0Eqpukf gt"
Rwuj mkpøu"egrgdtcvkqp"qh'Ej cvgcwdtkcpf øu "nkgtcn'vtcpurcvkqp"qh'vj cv'o quv'tgxqnwkqpct{"qh'r qgo u."Lqj p"O knqpøu"
Rctcf kug"Nquw:"cu"cp"kpf kecvkqp"vj cv'÷cp"ki pqtcpv'r cuukqp"hqt"pcvkqpcnko ø'j cu"i kxgp"y c{"vq"vj g"pggf "vq"ugg"
hqtgki p"cwj qtu"÷kp"vj gkt"qy p"pcvkqpcn'f tguu"cpf "y kyj "vj gkt"pcwtcn'f ghgewø\*Rwuj mkp"3: 59-675+0Vj ku"
kpvgtr tgvcvkqp"ku"kp"r ctv'uwr r qtvgf "d{"Hgf qtqx."y j q"y tksgu"vj cv'÷jv j ku"pgy "wpf gtuvcpf kpi "qh'vj g"r tqdngo "qh"
vtcpurcvkqpi "ku"kp"r ctv'uwr r qtvgf "d{"Hgf qtqx."y j q"y tksgu"vj cv'÷jv j ku"pgy "wpf gtuvcpf kpi "qh'vj g"r tqdngo "qh"
vtcpurcvkqpi "ku "kp"r ctv'uwr r qtvgf "d{"hgf qtqx."y j q"y tksgu"vj cv'÷jv j ku"pgy "wpf gtuvcpf kpi "qh'vj g"r tqdngo "qh"
vtcpurcvkqpi "y cu"r tgr ctgf "d{"vj g"hksgtcwtg"qh'vj g"tgxqnwkqpct{"dqwti gqkukgø"y j kng"kpuknvkpi "vj cv'ky'y cu'vj g"
vtguwn'qh'÷vj g"i gpgtcn'r tqi tguukxg"vgpf gpekgu'qh'vj g"gpvktg"j knqtkecn'r gtkqf "cu'c'y j qng. "nkpngf "y kyj "pcvkqpcn'
rkdgtcvkqp"o qxgo gpvuø"tcvj gt"vj cp"dgkpi "c"r wtgn("Tqo cpvke"\*cpf "kyf kxkf wcnknke+"r j gpqo gpqp" "Hgf qtqx"
3; 7: <5364="tcpurcvgf +0Vj g"O ctzknv'kpvgtr tgvcvkqp"qh'j knqt{"ku'nqwf "cpf "uxtqpi "j gtg0'Kv'y kni'dg"kpvgtguvkpi "vq"
ugg"y j cv'cnsgtpcvkxg"kpvgtr tgvcvkqp"y kni'dg"r tqf wegf "y j gp"yj g"j knqtkecn'tgxkukqpkno "qh'vj g"P gy "Tki j v."y j kej "
kp"yj g"3; : 2u"tgy tqvg"j knqt{"vq"uwr r tguu'uwej "uqekcnknv'kpvgtr tgvcvkqpu. "hpcm("tgcej gu"vj g"j knqtkqi tcr j {"qh"
vtcpurcvkqp"uwwf kgu0

yj gtghqtg'j cf "vq"cf qr v"cr r tqr tkcvg" vtcpurcvkqp" uvtcvgi kgu0'Hgf qtqx "uc { u"qh" Ngpkpøu" qy p" vtcpurcvkqp" o gyj qf "vj cv" -j g"cej kgxgu"hwm'ceeguukdkrk√{ "qh'eqpvgpv'hqt" vj g"y kf guv'ekterg"qh't gcf gtuø" kdkf 0 vko g. 'vj g''o gvj qf u''wugf 'j cf ''vq'tghrgev'O ctzkuv'kf gqmi {.''y j kej ''ku'y j { ''I cej gej krcf | g'\*3; 89+''wugu'\gto u''pqv'' pqto cm ('hqwpf'kp"qyj gt"Y guvgtp"yj gqtkgu"qh'vtcpurcvkqp0'Kh'yj g'f qo kpcpv'yj go g"qh'uqekcrkuv'ctv'y cu'uqekcn' tgcrkuo. "cej kgxgf "yi tqwi j "c"yi gqt { "qh"tghrgevkqp. "yi gp"c"yi gqt { "qh"tgcrkuvke "tcpurcvkqp"o wuv"cnuq "dg"r tqf wegf 0"Kp" yj ku'yj gqt { .''yj g'htgg/nkgtcn'f kur wyg'y qwrf 'dg'tgr ncegf 'd { 'cp''cr r tqr tkcvgn { 'O ctzkuv'f kcngevkeu'kp'y j kej ''yj g''cewcn' y qtf u'wugf "ctg"ugeqpf ct { "'\q"\j g"\ct\ku\ke"tgcrkv{ "qh"\j g"qtki kpcnø'cu"kv"ku"eqi pkxkxgn{ "\ctgxkxkhkgf ø'kp"\j g" vtcpurcvqtøu'o kpf "\*I cej gej krcf | g'3; 89<, 2+0Cu'kp"cmli qqf "f kergevkecnlr teevkeg. 'yj g'vj guku' \*uqwteg'hepi wei g+"epf " cpvkyj guku'\*vcti gv'hopi wci g+'ctg'tguqnxgf 'kp''yj g'u{pyj guku'qh''vtcpuncvkqp'\*kdkf 0<; 3+0 Eqo o wpkuv'lsf gqnqi { "y cu'pqv'yj g'qpn{ 'uqwteg'qh'qr vko kuo 'kp'vtcpuncvkqp'yj gqt { 0 kp'yj g'uekgpvkhke'cpf " vgej pamai kecn'cvo qur j gtg"qh'yi g"gctn{"cpf "o kf/w gpvkgyj "egpwt{.'yi gtg"y cu'hqt"c"\ko g"c'hggnkpi "yi cv'nkpi wkuvke" yj gqt { "j cf "r tqxkf gf "c":wekgpvkhleø'dcuku'hqt "i tqwpf kpi "tcpurcvkqp"kp"c"y c { "vj cv'uj qwrf "o cng'kf gqrqi kecn" o cpkr wrcvkqp"c"'y kpi "qh"y g"r cuv0Qpg"qh"y g"o ckp"r tqr qpgpvu"qh"y ku"vtgpf "y cu"Gwi gpg"P kf c."y j q"dgrkgxgf "y cv" j g'j cf 'hqwpf 'c'pgwtcn'r qkpv'qh'qdugtxcvkqp''qp'y j kej ''vq''dcug'j ku''eqpegr v'qh'f {pcoke''gs wkxcngpeg0'K'uj qwrf '' yj gtghqtg'eqo g'cu'pq'uwtrtkug''yj cv'Pkfc'ku''yj g'rtko g''vcti gv'qh'f geqpuvtwevkqpkuv'etk√ks wgu''qh''÷emquwtgø''y j kej " cko "\q'nc{"dctg"\j g'lkf gqnqi kecn'dcugu"pqv'qpn{"qh'lkpf kxkf wcn'cevu"qh'\tcpunc\kqp"dw'qh'\tcpunc\kqp"\j gqtkgu'lkp" i gpgtcrf/O guej qppke'\*3; : 8<99+. "hqt"gzco r ng. "ceewugu"Pkf c"qh"+r ugwf q/r tci o cvkuo ø'cpf "o cpkr wrcvkxg" dgj cxkqwtkuo. "cpf "I gpv| ngt "r qkpvu" \q" \j g" +pqp/f kxo" qh" + yj g" Rtqvguvcpv' uwd/vgz vo" kp" Pkf cou "crrctgpvn{"hopi wkuvke" crrtqcej '\*I gpv ngt'3; ;  $5 \triangleleft$ ; +0

Vq'y j cv'gz vgpv'ctg''etkkekno u'qh''P kf c''y go ugnxgu'kf gqnqi kecm{ "o qvkxcvgf A'Qpg''qh'y g''o quv'ht gs wgpv'etkkekno u'' qh''P kf cøu''o gyi qf qnqi { "ku''y cv'ku''lwwkhecvkqp''hqt''vtcpurcvkpi ''y g''dkdrkecn'r j tcug'' $\div$ q''i tggv'y kj ''c''j qn{ "mkuw'd{ "  $\div$ q''i kxg''c''j gctv{ "j cpf uj cng''cm''tqwpf ø'co qwpw''vq''eqo r nkek{ "qp''y g''y gqt { øu''r ctv'y kj ''y g''f qo kpcpv.'y j kxg." j gygtqugz wcn "o crg. "Y guvgtp. 'Cpi m/Co gtkecp''wpf gtuvcpf kpi "qh'y j cv'ku''cp''ceegr wdng''o qf g''qh'i tggvkpi " dgwy ggp''o gp0[ gv'eqo r ctcdng''eqpf go pcvkqpu''ctg''tctgn{ "j gctf 'htqo ''tcpurcvkqp''y gqtkuw'''cmj qwi j ''y g{ "ctg'' htqo "y g''i gpgtcn'r wdrke+"qh''vtcpurcvkqpu'y j kej ''tghrgev'qyi gt''i tqwr ''xcnxgu.''uwej ''cu'' $\pm$ Kckpøv'f qpg''pqyi kpi ''y tqpi ''  $\pm$ ew| ''Kckpøv'f qy p''y kj ''j gtø'htqo '' $\pm$ crrkpi ''y kj ''Lguwuô Vj g''I qqf ''P gy u'Ceeqtf kpi ''vq''y g''Hqwt ''Dtqyi gtu'' ''O cwj gy ''7-4:  $\pm$ 0Cpf 'I gpv ngt.''c''ugxgtg''etkke''qh''P kf c.''j cu''pq''eqo r ctcdng''f gpwpekcvkqp''vq''qhhgt''qh'Dctdctc'' I qf ctf øu'f genctcvkqp''y cv'y g'hgo kpkuv'vtcpurcvqt'' $\pm$ hrcwpw''y g''uki pu''qh''j gt''o cpkr wcvkqp''qh''y g''ygzvø'\*I qf ctf '' 3; ; 2<6 $\pm$ 0

Lwuv'cu''y g''wpkxgtucrkuo "qh''ercuukekuo "i cxg''y c{ ''vq''y g'kpf kxkf wcrkuo "qh''y g'Tqo cpvke"gtc. 'kpf kxkf wcrkuo "o c{ "dg"{kgrf kpi "vq"c'hqto "qh''tkdcrkuo "kp"y j kej "gcej "i tqwr "y km'y cpv'kwu"qy p"tcpurcvkqpu"cpf "kp"y j kej "y gty qtf u"qh" y g''uqwteg''vgzvô y j kej "I qf ctf "ercko u"j cu''dggp"qxgtxcrwgf "kp"tcpurcvkqp"y gqtkgu'\*3; ; 2 < 5 + i kxg'y c{ "gkyj gt "vq" ecppkdcrkl kpi ."y qo cpj cpf rhpi ."gyj pkekl kpi ."i c{o crkpi "cpf "qyj gt 'hqto u"qh'r quv'o qf gtpkuv'tcpurcvkqp."qt "vq"y g" pggf "vq"cxqkf "o wwcri'qhhgpeg0'Vj g''rcwgt "ku"ttwg"qh'c''tcpurcvkqp"qh'cp"Kpwkv'o { yj "kp"y j kej "yj g''Kpwnkww'y qtf 'hqt" +umkpu'vcngp'htqo "ugcnu'rguu'y cp"c"{ gct "qrf ø'j cu''dggp"tcpurcvgf "uko r n{ "d{ "+ugcnunkpuø'kp"qtf gt "vq"cxqkf "yj g" f qwdrg"dkpf "qh'qhhgpf kpi "yj g''ugpukkxkkgu'qh''y j kg''tgcf gtu''cpf "i kxkpi "c''r qqt "ko ci g'qh'Kpwkxu."gxgp"y qwi j "yj g'' vtcpurcvkqp"qo kuu'xkcri'ewnwtcri'grgo gpvu'pgeguuct{ "hqt''kpvgtr tgvkpi "yj g''ngi gpf "cpf "wtpu''cp"qr r qtwpkv{ "vq"rgctp" cdqwv'Kpwkv'uqekgv{ "kpvq"pq'o qtg''y cp"cp"gpvgtvckpo gpv'\*Ktgrcpf "3; : ; 333635+0

Ktapkecm("gpqwij."\tcpurc\kap"kp"dq\j "ecugu"\tgxgt\u"\q"c"\-i guwtg"qh'emuwtg"\yj kej "eqpuku\u"\kp"tgf\wekpi "\j g"\wpmpqy\p"\q"\j\g"\mpqy\p\p\\Tqej\gt"\3;;5\34=\tcpurc\yf\+\tcpurc\yf

y gqtkgu."-j g{"ctg"cmlqtkgpygf "vqy ctf u'y g"hwpevkqp"qhl'y g"vcti gv'ygzv'\*r tqur gevkxg"vtcpurcvkqp+t'cy gt"y cp" r tguetkr vkqpu"qhl'y g"uqwteg"\gzv'\*tgytqur gevkxg"vtcpurcvkqp+φ0 kp" ygto kpqmi kecn'ygto u. "iy ku"qhhgtu"pq"cf xcpeg"qp" Uej mgkgto cej gtøu" kunkpevkqp"s wqygf "cdqxg="dwv'kp"kf gqmi kecn'ygto u. "kv'tgxgtugu"Uej mgkgto cej gtøu" Tqo cpvkek kpi "ygpf gpe{"vq"hcxqwt"yj g"f kuqtkgpvkpi "cpf "cnkgpcvkpi "uvtcvgi {"qh'hqtgki pkk kpi "vtcpurcvkqp<" Uej mgkgto cej gt"ko ci kpgf "tgef gtu"uq"cwwpgf "vq"ewnwtcnl'f kxgtukv{"yj cv'y g{"y qwrf "f gxgmr "cp"gct"hqt" vtcpurcvkqpu"htqo "f kthgtgpv'mpi wci gu"\*Uej mgkgto cej gt"3: 35."3; 89¬9+"cpf "y qwrf "y gneqo g"kpvq"yj gkt "ncpi wci g" c"hpi wknvke"ur ceg"ugv'culf g"hqt "vtcpurcvkqp"kp"y j kej "hpi wknvke"o cpkr wcvkqp"ko r quukdrg"gnugy j gtg"y qwrf "dg" cmy gf "\*kdkf 0~92+0Vj cv'y ku"f gdcvg"urkmtci gu"kp"kf gqmi kecn'ygto u. "kp"ur ksg"qh"Upgm/J qtpd{øu"uqo gy j cv" vqcnk kpi "uvcvgo gpv."ku"uj qy p"d{"Dcpf koøu"\si; ; 5¬869+"tgcevkqp"vq"j gt"y qtf u0Vj g"cwj qtu"y j qug"vtcpurcvkqp" j g"f knewnugu. "Chtlecpu"y tkkpi "kp"Gwtqr gcp"ncpi wci gu."tgs wktg"c"uqwteg/ewnwtg"qtkgpvgf "cr r tqcej "y j kej "vcmgu" r ctvkewct"ectg"vq"cxqkf "-pgi cvkxg"uvgtgqv{r kpi ø'kp"y g"vtcpuhgt"dgw ggp"y g"ncpi wci gu"qh'y g"eqmpk gt"cpf "y g" eqmpk gf 0'

Ugg"cnuq<

I GPFGT'O GVCRJ QTIEU'IP "VTCPUNCVKQP = GTO GPGWVIE'O QVKQP = GVCRJ QT'QH'
VTCPUNCVKQP0

#### Hwt yj gt 't gcf kpi

Dengt'3; ; 8='Deuupgw'cpf 'Nghgxgtg'3; ; 2='Nghgxgtg'3; ; 4c='Pktcplcpc'3; ; 4='R{o '3; ; 4d='Tqdkpuqp'3; ; 3='I gqtig' Uvgkpgt'3; 9713; ; 40

RGVGT'HCY EGVV

# Ko kscvkqp

Kp"qtfkpct{"Gpinkuj."ko kucukqp"o gcpu"urcxkuj "eqr{kpi."o ko kemkpi."o ko kpi 0"Vj tqwi j "c"uvtcpi g"nkpi wkuvke"

j kuvqt {."j qy gxgt."vj g"y qtf"j cu"eqo g"vq"o gcp"cno quv"vj g"gzcev"qrrqukvg"kp"vtcpuncvkqp"vj gqt {<ffqkpi "uqo gyj kpi " vqvcm{ "f khhgtgpv'htqo "vj g'qtki kpcn'cwj qt."y cpf gtkpi "vqq"hct"cpf "vqq"htggn{ 'htqo "vj g'y qtf u'cpf "ugpug'qh'vj g'UN" vgzv0Kp'hcev.'ko kvcvkqp'j cu'eqo g'vq'dg'xktwcm{'u{pqp{o qwu'y kj 'HTGG''VTCPUNCVKQP0 Ko kcvkqp'ku'yj g'Encualecn'Ncvkp'\tcpuncvkqp'qh'yj g'I tggm'y qtf "o ko guku.'y j kej 'y cu'wugf 'kp'nksgtct{''yj gqt{'htqo " Rrcvq"cpf "Ctkuvqvrg"qpy ctf "vq"f guetkdg"vj g"y tkvgtøu"ko kvcvkqp"qh"tgcrkv{ ="r gf ci qi kecm( "kv"y cu"vvugf "hqt"tgxkvkqp" gzgtekugu. "kp"y j kej "uwwf gpvu"y gtg" 'cwi j v"vq"y tkxg"qt" qtcvg"d { "tgy tkxkpi "qt" tgur gcmkpi "encuuke" \gz vuô ej cpi kpi " yj go "kp"uqo g"uki pkhkecpv"y c{. "ej qqukpi "pgy "y qtf u"hqt"uc{kpi "yj g"uco g"yj kpi 0"Vj g"yy q"o quv"eqo o qp" crrtqcej gu'\q'\j ku'gzgtekug.'hqto wrcvgf 'd{ 'S wkpvkrlcp'kp'\j g'hcvg'hktuv'egpwt{ 'CF '\*Kpurkvwgu'qh'Qtcvqt{.'eQ 7'' CF +"htqo "\gto u"eqlpgf "d{ 'Rj km' Lwf cgwu' lp" Fg"xkx 'O quku' \dday 42" DE + "y gtg' O GVCRJ TCUG." qt "ej cpi kpi "qpg" y qtf "cv'c" ko g. "cpf "RCTCRJ TCUG." qt "ej cpi kpi "qpg" r j tcug" cv'c 'ko g0 Vj g'wug''qh'lko kxxkqp''kp''tcpurcxkqp''yj gqt { ''vq''o gcp''htgg''tcpurcxkqp''ku''o quv'r qr wrctn( ''guvcdrkuj gf ''kp''Lqj p'' FT[FGP øU'\*ugg''DTK/KUJ''VTCFCVKQP+'38: 2'r tghceg'\q'j ku'\tcpunc\kqp''qh'Qxkf øu''Gr kungu<'÷Vj g'\j ktf 'y c{ø'' j g'y tkiguô y g'hktuv'cpf "ugeqpf" dgkpi "o gwrj tcug" qt" y qtf/hqt/y qtf" 'tcpurc klqp" cpf" r ctcrj tcug" qt" ugpug/hqt/ ugpug'\tcpurc\kqp'\\ugg'\\\HTGG'\VTCPUNCVKQP\+"/-\ku'\yj cv'qh'\ko kc\kqp."\y j gtg'\yj g'\tcpurc\qt'\\\kh'\pqy "j g'j cu'\pqv' muv'y cv'pco g+'cuuwo gu'y g'hkdgtv(."pqv'qpn("vq'xct{'htqo 'y g'y qtf u'cpf 'ugpug."dwv'vq'hqtucmg'y go "dqy 'cu'j g" uggu"qeecukqp="cpf" \cmkpi "qpn("uqo g'i gpgtcn'j kpwi htqo "vj g"qtki kpcn" \q'twp"f kxkukqp" qp" \vj g'i tqwpf y qtm" cu'j g" r ngcugu¢0Cu'j g'ncvgt'tgo ctmu.":ko kxcvkqp"qh'cp"cwyj qt"ku'vj g"o quv'cf xcpvci gqwu'y c{ 'hqt"c'vtcpuncvqt'vq'uj qy " j ko ugrh "dwy' y g'i tgc yguv'y tqpi "y j kej "ecp"dg" fqpg" 'q" y g'o go qt { "cpf" tgr wc ykqp" qh' y g'f gcf ø0 Dw'j gtg''cu''gnugy j gtg. 'Ft {fgp''y cu''qpn('rqrwctk kpi ''c''ugpug''qh''y g''y qtf''y cv'j cf''dgeqo g''y gm'guvcdrkuj gf''kp'' yj g'ttcf kkqp0'Vj g'httuv'y tkgt'tq'twug'ko kvcvkqp'kp'tj ku'y c{ 'y cu'EKEGTQ'\*tugg'<u>NCVKP''VTCF KVKQP</u>+.'y j q'pqv' qpn("gzvgpf gf "encualecn'ko kvcvkqp'htqo "kpvtcnkpi wcn'vq"kpvgtnkpi wcn'o qf gmkpi "dwv'nkpngf "kv'vq"vj g'xgtd" gzrt ko gt g0'Ekegtq. "qt"tcij gt"j ku"f kemi keen'r gtuqpe "Nwekwu"Etcuuwu. "Hopf u"ij ev'ko ksevkpi "Nevkp"qtevqtu "dkpf u"j ku" xgtden'ko ci kpcvkqp."cpf 'uq'\tkgu'j ku'j cpf 'cv'ko kxcvkpi 'I tggm'qtcvqtu'kp''Ncvkp<

Dw'ncygt 'Kpqykegf 'y ku'f ghgev'kp'o { 'o gyi qf . 'y cv'y qug'y qtf u'y j kej 'dguv'

dghkwgf "gcej "uwdlgev."cpf "y gtg"yj g"o quw'gngi cpv'cpf "kp 'hcev'yj g"dguv."j cf "dggp"cntgcf { "ugkţ gf "wr qp" d{ "Gppkwu. 'kh'kv'y cu'qp"j ku'r qgvt { "y cv'Ky cu'r tcevkukpi ."qt"d{ "I tceej wu. 'kh'Kej cpegf "qn'j cxg"ugv" o { ugrh'c 'ur ggej "qh'j ku0'Vj wu'Kucy "yi cv'vq "go r mq { "yi g"uco g"gzr tguukqpu"r tqhkxgf "o g"pqyj kpi ."y j krg" vq"go r mq { "qvj gtu'y cu'c''r qukkxg"j kpf tcpeg. 'kp"vj cv'Ky cu'hqto kpi "yi g"j cdkv'qh'wukpi "yi g"rguu" crr tqr tkvg0'Chwgty ctf u'Ktguqrxgf .ô cpf "yi ku'r tcevkeg'Khqmqy gf "y j gp"uqo gy j cv'qnf gt.ô vq" vtcpurcwg'htggn("Jgzrtkectgo \_"I tggm'ur ggej gu"qh'yj g"o quv'go kpgpv'qtcvqtu0'Vj g"tguwrv'qh'tgcf kpi " yi gug'y cu'vj cv'kp"tgpf gtkpi "kpvq"Ncvkp"y j cv'Kj cf "tgcf "kp"I tggm"Kpqv'qpn("hqwpf "o { ugrh'wukpi "yi g" dguv'y qtf uô cpf "{ gv's wkxg'hco khct 'qpguô dww'cnuq'eqkpkpi "d { "cpcmi { "Jgzrtko gtgto "ko kcpfq\_" egtvckp"y qtf u'uwej "cu'y qwrf 'dg'pgy "vq'qwt'r gqr rg."r tqxkf gf "qpn("yi g{ "y gtg"crr tqr tkcvg0}

Gzrtlo gt g'iksgtem( "o gepu":q'ius wgg| g'iqwxô c'i qy gthwilo ci g'hqt''y g'itcpure\qp"r tqeguu'cu''Elegtq'f guetkdgu'' kx''cm\p"\q'i kx\pi 'dkty 0Hki wtc\kxgn( ."gur gekcm( '\p'eqppge\kqp''y ky ''ko kcpf q. 'gzrtlo gt g'o gepu'\q'o qwf ''qt'' hqto "qpg''y kpi ''kp' ko kc\kqp''qh''cpqy gt 0'Elegtqxu''r j teug''Ugf ''gx\kco ''gzrtlo gt go ''s wegf co ''xgt de ''ko kepf q'' uwi i guwi'y g'r qwgt''uj cr \kpi ''ere { '\pvq''y g'ikmppguu'qh'c'hceg."etgc\kpi ''uqo gyi \kpi ''pgy ''\kp' ko kc\kqp''qh''uqo gyi \kpi ''y cv'cntgcf { ''gz\kuw="qt. ''u\kpeg''y g'ikmppguu'qh'y j kej 'Elegtq'ur gemu'\ku''pqv'qh'c'hceg''dw'qh'y qtf u'\cpf ''u\kpeg''y g'' fgt\ksg''qwt''xgtd''gzrt guu'htqo ''y g'r ct\kekr ng''hqto ''qh'gzrt ko gt g+''kx'uwi i guwi'y g''Tqo cp\ke''r qgv'i kx\pi ''xgtdcn'' gzrt guul\qp''\q''y g''y j kur gt\pi ''qh'y g''o wug0'Gzrt ko gt g'\ko kcpf q'' kxgu''wu''y g''tepure\qt''cu''o gf kc\qt. ''dw'pqv'cu'' pgwtcn'\tepul\pt\o cej \kpg="\tevy" gt''ct'\y g''ct\kuv'y j q''o gf kc\gu''dgw ggp''y q''hqto u'qh''dg\pi .''y q''o qf gu'qh'' wpf gtu\cpf \kpi .''pcwtcn'cpf ''r neu\ke.''o c\gt'ko kcpf q''\ku''ur ge\kh\kecm("ej cppgngf ''y tqwi j ''y g''\tepure\qt\xu'') o gf \kc\kqp''qh''\tepure\qt\xu'' o gf kc\kqp''qh''\tepure\qt\xu'' o gf kc\kg''day ggp''y go ''dgec\wg'' l'qh' o u'qh''\tepure\qt'

CF CRVCVKQP ="HTGG"VTCP UNCVKQP ="NKVGTCN"VTCP UNCVKQP ="O GVCRJ TCUG="RCTCRJ TCUG"

FQW NCUTQDKPUQP

# Kpvgtrtgvkxg'crrtqcej

Vj g'kpygtrtgykxg''crrtqcej. ''uqo gyko gu'tghgttgf ''q'cu''y g''-kpygtrtgyckxg''crrtqcej ø'ku''cnq''npqy p''cu''y g''-y gqt{"qh''ugpugøo'kk'ku''cp''crrtqcej. ''q''pygtrtgykpi "cpf "tcpurcykqp''cf qrygf "d{"o go dgtu'qh'y g''GUKV''i tqwr. ''uqo gyko gu'' tghgttgf ''q''cu''-y g''Rctku''Uej qqnø''qh''-rtqhguuqtu''uj ctkpi ''y g''y gqtgykecn'eqpegrykqpu''wpf gtrkppkpi ''y g''yccej kpi "cv'y g''Geqng''Uwr² tkgwtg''f økpygtrt² vctkcv'gv'f g''Vtcf weykqp'']uke\_'qh'Rctku<'O (Ngf gtgt. 'F (Ugngumqxkej. 'HD gtdwnqv'' dw''cnnq''Inf gnkurg''cpf ''O (Rgti pkgtø'') gy uqp''cpf ''O ctykp''3;; 3-63+0 kpkkcm( 'f gxgmrgf 'kp''y g''rcyg''3; 82u''qp''y g''dcuku''qh'tgugctej ''kp''EQP HGTGP EG''kP VGTRTGVkP I. ''y g'' kpygtrtgykxg''y gqt{"qh''tcpurcykqp''y cu''uwdugs wgpvn( "gzygpf gf "vq''y g''y tkygp''tcpurcykqp''qh'pqp/nkygtct{"qt" -rtci o cykeø'yzvu''\*F gnkurg''3;: 2+''cpf ''q''y g''yccej kpi "qh''tcpurcykqp''cpf ''kpygtrtgykpi 0 V'y g''o ckp''tgrtgugpycykxg''qh'y g''Rctku''Uej qqn'ku''F cpkec''Ugngumqxkej 0F tcy kpi "qp''y gt''gzygpukxg''gzrgtkgpeg''qh'' rtqhguukqpcn'eqphgtgpeg''kpygtrtgykpi. ''Ugngumqxkej '\*\*3; 99+'f gxgmrgf ''c''y gqt{"dcugf ''qp''y g''f kuykpeykqp''dgwy ggp'' nkpi wknke''o gcpkpi ''cpf ''pqp/xgtdcn'ugpug''kn''f ghkpgf ''kp''tgrcykqp''q''c''tcpurcykpi ''rtqeguu''y j kej ''eqpuknvu''qh'yi tgg''uvci gu<'kpygtrtgycykqp''qt''gzgi guku''qh''f kueqwtug. 'f g/xgtdcnkycykqp.''cpf ''tghqto wrcykqp''

### Vj g'vj gqt gwechdceni t qwpf

Ftcy kpi "qp"gzrgtko gpvcn'ru{ej qmi {."pgwtqru{ej qmi {."nkpi wkuvkeu"cpf "Lgcp"Rkci gwu'y qtm'qp"i gpgvke" ru{ej qmi {."tgugctej gtu"qh'vj g"Rctku"Uej qqn'luwf {"eqphgtgpeg"kpvgtrtgvkpi "kp"tgcn'lukwcvkqpu."y kj "rctvkewrct" go rj cuku"qp"vj g"o gpvcn'cpf "eqi pkxkxg"rtqeguugu"kpxqnxgf 0Vj gkt"tgugctej "hqewugu"qp"vj g"vtcpurcvkpi "rtqeguu." rctvkewrctn{"qp"vj g"pcwtg"qh'o gcpkpi "cu"

Rtqr qpgpwi'qh'y ku'cr r tqcej "ugg"cm'vtcpurcvkqp"cu'c'hqto "qh'lpvgtr tgvcvkqp"cpf "cempqy ngf i g'y g'eqpvtkdwkqp" o cf g'd{ "Ect{"3; 78+"c"r tcevkulpi "lpvgtr tgvgt"y j q"dcugf "j ku'f guetkr vkqp"cpf "gzr ncpcvkqp"qh'y tkvgp"vtcpurcvkqp" qp"-qtcnø'vtcpurcvkqp"qt"lpvgtr tgvkpi 0°C mj qwi j "f khlptgpv'lp"y gkt"o qf cnkkgu. "y g'vtcpurcvkqp"qh'y tkvgp"vgzv'cpf "qh" qtcn'f kueqwtug"ctg"dqy "uggp"cu'eqo o wplecvkxg"cevu. "dw'y j g'hpm'dgwy ggp "f kueqwtug"cpf "y g'tgcn'y qtnf "ku" y qwi j v'vq"dg"nguu'uvtqpi "lp"y g'ecug"qh'y tkvgp"vgzvu0"Vj g"hpm'dgeqo gu'lpetgculpi n( "vgpwqwu'cu'y tkvgp"vgzvu" ci g. "qt"y j gpô ceeqtf kpi "vq"y ku'cr r tqcej ô qpg"etwekcn'hcevqt. "pco gn{"y g"xqwnqkt "f kt g"qt"kpvgpvkqp"qh'y g" cwj qt"cu'gzr tguugf "kp"y g'ur gekhle "eqpvgz wcn'ugpug. "ku'nquv0"kpvgtr tgvkpi "ku'eqpukf gtgf "y g'lf gcn'eqo o wplecvkxg" ukwcvkqp<"cm'lpvgtnqewqtu"ctg"r tgugpv."uj ctkpi "y g'uco g'ur cvkcn'cpf "yo r qtcn'ukwcvkqp. "ektewo uvcpegu"cpf "\*pqto cm{+'mpqy ngf i g'tgngxcpv'vq"y g'vqr ke"qh'f kueqwtug0

Kovetrtenkoj 'ku'pqv'deugf 'qp'xgtden'o go qt{'dw'qp'yi g'errtqrtkevkqp'qh'o gepkpi .'hqmqy gf 'd{'tghqto wævkqp'kp'' yi g'veti gv'nepi wei g0'Vtepunevqtu.'vqq.'y km'tgeqpuntwev'yi g''o gepkpi 'qh''yi g''uqwteg''nepi wei g''vgzv'epf 'eqpxg{'kv'q'' yi g''tgef gtu''qh''yi g''tepunevkqp0'Vj g{'y km''j qy gxgt.'pqto cm{'i q''qpg''uvgr''hwtyi gt''yi ep'kpvgtrtgwgtu.''d{''ewgo rvkpi '' vq'': 'gs wewg''yi g''gzrtguukqp''qh''ugpug.''vq''e''egtvekp''gzvgpv.''y kyi ''yi g''nkpi wkurke''o gepkpi u''qh''yi g''uqwteg'' nepi wei go'\*Ugngunqxkej ''3; 99-54-10

Ugrgumqxkej "f kukpi wkuj gu'dgw ggp" w q"rgxgru'qh"r gtegr vkqp. "vj cv'qh' vj g"rkpi wkuke "vqqrl\*tcyj gt "tcpukgpv+"cpf" yj cv'qh'ugpug''cu''cy ctgpguuk'': hugpug'ku''gzvgtpcn'y j gp''r tg/guvcdrkuj gf 'rkpi wkuvke''o gcpkpi 'o gti gu'y kyj ''c'' eqpeqo kcpv'r gtegr vkqp"qh'tgcrkv{ø'\*kdkf0'53+0'Vjg''\tcpurcvkqp'r tqeguu'ku'uggp''pqv'cu'c''-fktgev'eqpxgtukqpø'qh'vjg'' nkpi wkunke"o gcpkpi "qh'yi g'uqwteg'ncpi wci g'dw'cu'c":eqpxgtukqp'htqo "yi g'uqwteg'ncpi wci g'vq'ugpug'cpf "yi gp'cp" gzr tguukqp"qh"ugpug"kp"yj g'\cti gv"repi wei gø'\dkf 0."4: +0"Vtepure\kqp"ku"yj wu"pqv"uggp"eu'e'nkpget"\tepueqf kpi " qr gtcvkqp"dw/tcvj gt"cu"c"f {pco ke"r tqeguu'qh'eqo r tgj gpukqp"cpf "tg/gzr tguukqp"qh'kf gcu0 Igcp'F grkurg."c"Ecpcf kcp'uej qrct."f gxgrqr gf "c"o qtg"f gvckrgf "xgtukqp"qh'vj g'kpvgtr tgvkxg"cr r tqcej "vq"vtcpurcvkqp." dcugf "qp"f kueqwtug"cpcn(uku'cpf "\gz v'nkpi wkukeu."y j gtg"\j g"kpvgtr tgvcvkqp"qh"\j g"\gz v'ku'f ghkpgf "kp"\gto u'qh" ur gelhke "etkıgtlıc "uwej "cu "eqp vgz wıcın"cpcın( uku "cpf "r tgugtxlipi "vgz wıcın"qti cpkekv{ "\*F gırkurg"3; : 2."3; : : +:"y kij " r ct wew.rct "tghgtgpeg" '\q" \yi g" \gcej kpi "qh" \tcpurc \kqp" cpf "kpvgtr tg\kpi 0 F gnkung hqevugu '\qp" \yi g" kpvgngevwcn'r tqeguu" kpxqrxgf "kp"\tcpurc\kqp."\j g"eqi pkxkxg"r tqeguu"qh"kpvgtrkpi wcn\tcpuhgt."cpf "uvtguugu"\j g"pqp/xgtdcn'uvci g"qh" eqpegr work cvkqp0J g'xkgy u'vtcpurcvkqp''cu''c'j gwtkuvke'r tqeguu''qh''kpvgmki gpv'f kueqwtug''cpcn(uku'kpxqmxkpi ''vj tgg'' uvci gu0'Vj g'hktuv'uvci g'ku''yj cv'qh'**eqo rtgj gpukqp**=''yj ku'tgs wktgu'f geqf kpi ''yj g'uqwteg/vgzv'hkpi wkuvke''uki pu''y kyj '' tghgtgpeg"\q"\yi g"ncpi wci g"u{ uvgo "\*k0g0f gvgto kpkpi "yi g"ugo cpvke"tgncvkqpuj kr u"dgwy ggp"\yi g"y qtf u"cpf "wwgtcpegu" qh'y g'\gzv+"cpf "f ghkpkpi 'y g'eqpegr wcn'eqpygpv'qh'cp'\wygtcpeg'd{ "f tcy kpi 'qp''y g'tghgtgpvkcn'eqpygzv'kp'y j kej " k√ku′go dgffgf′³3;:: ₹5ó8+0′Vjg′yyq′qrgtc√kqpu′ctg′rgthqtogf′ukowncpgqwun{0′Vjg′ugeqpf′uvcig′qh′ tghqto wrcvkqp"kpxqrxgu"tgxgtdcrk kpi "yi g"eqpegr vu"qh"yi g"uqwteg"wwgtcpeg"d { "o gcpu"qh"yi g"uki pkhlgtu"qh" cpqyj gt 'ncpi wci g='yj ku'ku'tgcnkt gf 'yj tqwi j 'tgcuqpkpi .''uweeguukxg''cuuqekcvkqpu''qh''yj qwi j vu''cpf 'nqi kecn'' cuuwo r vkqpu0'Hkpcm{."yj g"yj ktf "uvci g"qh'xgt kHecvkqp"ecp"dg"

f guetledgf "cu"c"r tqeguu"qh"dcem/vtcpurcvkqp"y j kej "cmqy u"vj g"vtcpurcvqt"vq"cr r n{ "c"s wcrkxcvkxg"cpcn{ uku"qh"ugrgevgf "uqnwkqpu"cpf "gs wkxcrgpvu0Ku"r wtr qug"ku"vq"eqphkto "vj g"ceewtce{ "qh"vj g"hkpcn"vtcpurcvkqp0

### Tgrcvkqpuj kr'vq'qvj gt'crrt qcej gu

Cnj qwi j "hpi wkukeu"cpf "crrnkgf "hpi wkukeu"ctg"pqv"eqpukf gtgf "cf gs wcvg"htco gy qtmu"hqt"vj g"f guetkr vkqp"qh"vj g" vtcpuncvkqp"r tqeguu. "vj g"kpvgtr tgvkxg"crrtqcej "cempqy ngf i gu"c"f gdv"vq"f gxgmqr o gpvu"kp"vgzv"hpi wkuvkeu"cpf "f kueqwtug"cpcn{ uku. "r ctvkewnctn{ "y j gp"crrnkgf "vq"y tkvvgp"vtcpuncvkqp0

Vj g"÷j gqt {"qh'ugpugóo wuv'pqv'dg"eqphwugf "y kj "P gy o ctm²u"pqvkqp"qh'kpvgt r t gw vkxg't c purc vkqp."y j kej "
-tgs wktgu"c"ugo cpvke"o gyj qf "qh'vtcpurc vkqp"eqo dkpgf "y kj "c"j ki j "gzr mpcvqt { "r qy gt."o ckpn{ "kp"vgto u"qh'vj g"UN" ewnwtg."y kj "qpn{ "c"ukf g"i mpeg"cv'vj g"VN"tgcf gtø\*P gy o ctm³; : 3-57+0Vj g"kpvgtr tgvkxg"cr r tqcej "cf xqecvgf "d{" o go dgtu"qh'vj g"Rctku"Uej qqn'kp"hcev'cti wgu"vj g"qr r qukxg"qh'vj ku"r qukxkqp"cpf "r megu"o wej "go r j cuku"qp"vj g" vcti gv'tgcf gt."qp"vj g"enctkv{ "cpf "kpvgnki kdktkv{ "qh'vj g"vtcpurc vkqp"cpf "kw"ceegr vcdktkv{ "kp"vj g"vcti gv'ewnwtg"kp" vgto u"qh'vy tkkpi "eqpxgpvkqpu."wug"qh'kf kqo u."gve0"cu'vy gm'cu'vj g"eqo o wpkecvkxg"hwpevkqp"qh'qtcn'qt"y tkwpp" f kueqwtug0P qt"vj qwrf "vj ku"cr r tqcej "dg"eqphwugf "y kj "vj g"qpvqmi kecn'cr r tqcej "vq"vtcpurcvkqp"vj j kej " go r j cukl gu"vj g"twdlgevkxg"eqpf kkqpu"qh"vj g"kpvgtr tgvgt"cpf "vj g"tqng"r m{gf "d{"kpwkkkqp"kp"vgzv'kpvgtr tgvcvkqp" cpf "gzgi guku" gqti g"Uvgkpgt"3; 97."3; ; 4+0

Vj g''rcpi wci gu'wugf 'hqt''gzgo r nkhecvkqp'kp''y g''r wdnecvkqpu''qh''y g''Rctku''Uej qqn'ctg''o quvn( 'Gpi nkuj .''Htgpej ''cpf '' I gto cp. ''cpf ''y g''gzco r ngu''r tqxkf gf ''ctg''pqto cm( ''f tcy p''htqo ''tgcnkhg''kpvgtr tgvkpi ''qt''vtcpuncvkpi ''ukwcvkqpu0' I qy gxgt. ''cnj qwi j ''y g''o ckp''r wdnecvkqpu''j cxg''dggp''vtcpuncvgf ''kpvq''ugxgtcn'ncpi wci gu. ''kpenwf kpi ''Gpi nkuj .''y g'' kpvgtr tgvkxg''crr tqcej ''cu''gzr qwpf gf ''d{ ''Ugngunqxkej ''cpf ''j gt''eqnngci wgu''ku''pqv'y kf gn( ''cenpqy ngf i gf ''kp''y g'' Gpi nkuj /ncpi wci g''nkygtcwtg''qp''vtcpuncvkqp''y gqt {0

Cp"qxgtcm'ceeqwpv'qh''y g'lwygtr tgvkxg''y gqt { "ecp"dg'hqwpf 'lw''Ugngumqxkej "cpf 'Ngf gtgt'\*3; : 6+."c"eqmgevlqp" y j kej "cnxq'kpenwf gu''uqo g"gctrlgt"y qtm"cpf 'lw''Ngf gtgt'\*3; ; 6+0 Ugg"cnxq<

FKUEQWIUG'CPCN| UKU'CPF''VTCPUNCVKQP="EQPHGTGPEG'CPF'UKO WNVCPGQWU"

KP VGTRTGVKPI ="VGZ V"NKPI WKUVKEU'CPF"VTCPUNCVKQP0

### Hwt yj gt 't gcf kpi

O [ TKO 'UCNCO C/ECTT

# Kovet vgo r qt ch'tt cpurc vkqp

Kilpvetrlpi ven'tcpurckqp'ku'tcpurckqp'dgw ggp'w q'repi vei gu.'lpvetvgo r qten'tcpurckqp'kp'ku'r wtguv'hqto "
y qwf "dg'tcpurckqp"dgw ggp"y q'hqto u'qh'y g'uco g'repi vei g'ugr ctevef "d{ 'y g'r cuukpi 'qh'vko gOC v'ku'o quv'
o wpf cpg''ngxgn''kpvetvgo r qten'tcpurckqp''o ki j v'kpxqrxg''wr f ckpi "c'r kgeg''qpg''y tqve''c''{ get 'qt''wy q''ci q.'pqv''qpn{ "
kpenwf kpi "o qtg'tgegpv'tghetgpegu''dw''dtkpi kpi "y qtf kpi u''cpf "r j tcukpi u''kpvq''u{ pej 'y ky "qpgøu'o quv'tgegpv''
y kpnkpi 0'Vj ku''ku'i gpgtem{ 'y qwi j v'qh''cu'tgxkukqp."qt"gf kkpi ='dw''uqo gy j gtg''dgw ggp''tgy tkkpi "c''{ get/qrf "
r kgeg''qh''qpgøu''qy p''cpf 'tgy tkkpi "Dgqy wh'ikp'o qf gtp''Gpi rkuj .''y g'r tqeguu'wpf gpkcdn{ "dgeqo gu''tcpurckqp0'
J qy "qrf "f qgu''c'xgtukqp"qh''qpgøu'rcpi vei g'j cxg''vq''dg''dghqtg''kv'ku''eqpukf gtgf "c'f khhgtgpv'rcpi vei gA'Y g''ur gemi'qh''
o qf gtpk| kpi "

Uj cmgur gctg."dw/qh/\tcpurc\kpi 'Ej cwegt\Ej cwegt\u00ff f ng'Gpi nkuj 'ku'lwuv'\yi cv'o wej 'o qtg'cnkgp'\yi cp"
Uj cmgur gctg\u00fgu'\Gctn\u00ff 'O qf gtp'\Gpi nkuj .'\yi cv'o wej "j ctf gt'\u00ff ywpf gtuvcpf 'y kyj qww'ur gekcn'\tckpkpi .'\yi cv'c"
o qf gtp\u00e4 cvkqp''uggo u'nkmg''c'\tcpurc\u00ff qp0\u00ff kcnkcp''j cu'ej cpi gf 'uq'nkwng'\u00e4 pugx gp''egpwt kgu'\yi cv'F cpvg\u00ff u'r kwpc''
Eqo o gf kc. "c''egpwt \u00e4 "qnf gt'\yi cp''Vj g'Ecpvgt dwt \u00e4 "Vcngu" ecp''dg''tgcf''d\u00e4 "eqpvgo r qtct\u00e4 "Kcnkcpu'\y kyj qww''
kpvgt vgo r qtcn'\u00e4 cpurc\u00e4 qp=\u00e4 tggn'\u00e3 cu''ej cpi gf 'uq''nkwng'\u00e4 cv''eqpvgo r qtct\u00e4 "I tggm\u00e4 ep'\u00e4 kyj "qpn\u00e4"
o kpko cn'\u00e4 pvgt vgo r qtcn'\u00e4 cpurc\u00e4 qp0

Uqo gwło gu'kpygtrkpi wen'ytepurewkqpu'etg'eqpukf gtgf 'ko r qtvepy'gpqwi j ''yi ev.'y j gp''yi g{ ''qq'etg'' uwdlgevgf ''q' kpygt vgo r qten'ytepurewkqp0Vj ku'ku'gur gekem( ''ytwg'qh'yi g'Dkdrg0ILGTQO Gou'Xwni evg'\*ugg'NCVRP'' VTCF KVQP +'y cu'r etvn( ''cp' kpygtvgo r qten'ytepurewkqp''qh'qrf gt'Newp' xgtukqpu. 'r etvn( ''cp' kpygtrkpi wen'ytepurewkqp'' htqo ''yi g''qtki kpen'J gdtgy ''cpf 'I tggm0Vj g'Uvepf etf ''qt'Mkpi ''Leo gu'Xgtukqp''j cu'dggp''o qf gtpk| gf ''qt''ytepurevgf'' kpygtvgo r qtem( ''ugxgten'yko guô yi g'Tgxkugf ''Uvepf etf ''Xgtukqp.''yi g'Co gtkeep'Uvepf etf ''Xgtukqp.''yi g'P gy ''
Tgxkugf ''Uvepf etf ''Xgtukqp.''epf ''uq'y eu'yi g'Tj gko u/F qwek'Dkdrg.''y kyi qww'ykrg''ej epi gu.''dghqtg'ky'y eu'hkpem( ''
tgr reegf ''y kyi ''ep'gpyktgn( ''pgy ''Eeyi qrke'kpygtrkpi wen'ytepurevkqp'kp''yi g'Eqphtevgtpkx( ''Dkdrg0Gxgp''yi g'i tgevguv''
ytepurevkqpu'qh'nkygtet{ ''ereuwkeu. ''nkrg'Hqtkqou'O qpycki pg''qt''Ws wj etvou'Tedgreku.''etg''\yf r keem( ''tgytepurevgf'' kpygtrkpi wem( ''y j gp''yi g{ ''ci g='y kyi qwb'yi g''nkwti keen'r tguuwtg''q'nggr ''e'ytepurevkqp''nkrg'yi g''Mkpi ''Leo gu'Xgtukqp''
enkxg'kp''erkgp''uqrgo pkx( ''nqpi ''chygt'kx'j eu''nquv'kwi'htguj pguu.''e'nkygtet{ ''ytepurevkqp''uqqp''eqo gu'yq'uqwpf''o gtgn( ''s wekpv.''epf ''ku''err tgekeygf ''o quwf ''d{ ''uej qretu'O

Kp"c"dtqcf gt"ugpug."qh"eqwtug. "kpvgtrkpi wcn"vtcpurcvkqp"ku"cny c{u"d{"pgeguukv{"kpvgtvgo r qtcn"cu"y gm<"vko g"j cu" cny c{u'r cuugf "dgwy ggp" y tkkpi "qh" y g"y tkkpi "qh"y y g"y tkkpi "qh"y y g"y tkkpi "qh" y g"y tkkpi "qh"y y g"y tkkpi "qh" y g"y tkkpi "q ko r cev'y j gp''y g'm: ''wo g''dgwy ggp''qtki kpcn'cpf ''\tcpumvkqp''ku'tgmvkxgn(''uj qtv.''cu''y j gp''c''eqpvgo r qtct{''pqxgn'qt'' c'tgegpv'r kgeg"qh'vgej pkecn'y tkukpi 'ku'vtcpurcvgf 'kpvq'c'f khhgtgpv'rcpi wci g=kp'vj gug'ecugu'vj g'f khhkewnkgu'cpf " rtqdrgo "ctgcu"cm quv"cny c{u"uvgo "htqo "rkpi wkuvke"cpf "ewnwtcn"lf khhgtgpeg."pqv"vj g"rcuukpi "qh"vko g0"Dw"vy j gp" yj g'vko g'fkhhgtgpvkcn'ku'i tgcvgt. "kpvgtguvkpi "vtcpuncvkqp"rtqdngo u'ctkug0"Hqt"gzcorng. "uj qwnf" yj g'vtcpuncvqt" uqo gj qy "uggml'q'tghrgev'lp''y g''VN''y g'hcev''y cv''y g''UN''yzv'ku''qrf A'Uqo g''tcpurcvqtu.''rkmg''Htcpeku''P gy o cp''lp'' j ku'3: 73 'Gpi nkuj ''tcpurcvkqp''qh'J qo gt. ''qt'Twf qnh'Dqtej ctf v'kp'j ku'3; 2: 'I gto cp''tcpurcvkqp''qh'Fcpvg. 'j cxg'' uqwi j v'vq"ctej ck g"vj g"VN."vq"y tksg"kp"cp"qrf gt"qt"qrf gt/uqwpf kpi "hqto "qh'vj g"VN."cpf "vj wu'vq"uki pcn'vq"vj g"VN" tgcf gt 'y cv'y ku'ku'pqv'c'o qf gtp''yzv.'y cv'c'i tgcv'f gcn'qh'vko g'j cu'r cuugf 'ukpeg'kv'y cu'y tkwgp0Qy gt''vtcpurcvqtu.'' rkng 'Enctgpeg' Lqtf cp'kp'j ku' Eqwqp' Rcvej 'xgtukqpu'qh' Pgy 'Vguvco gpv'dqqmu'htqo 'vjg'3; 82u. 'jcxg'tcfkecm (" o qf gtpk gf "vj g"VN. "f grkdgtcvgn ("ewn kxcvkpi "cpcej tqpk no u"kp"qtf gt "vq"hqteg"tgcf gtu "vq"gzr gtkgpeg "vj g"vgz vøu" eqpvgorqtct { "tgrgxcpeg0O quv"vtcpurcvqtu"cxqlf" vj gug"gzvtgog" tgur qpugu"vq" vj g"r cuulpi "qh"vlog" dgwy ggp" vj g" qtki kpcn'cpf "vj g"\tcpurcvkqp."y tkxkpi "kp"c"VN"vj cv'ku'uqo gj qy "f gvgo r qtcnkt gf."o qf gtp"gpqwi j "vq"dg"tgcf" y ky qw'f kthewn ('dw'wpo ctngf 'hqt'o qf gtpk (<pq'\qr kecn'tghgtgpegu'\q'r gqr ng. 'r ncegu. ''qt' y kpi u'y cv'f kf ''pqv' gzkuv'kp''y g''kto g''qh''y g''qtki kpcn''pq''tgegpvn{ 'eqkpgf 'y qtf u''qt''urcpi ''y cv'o ki j v'o cng''y g''VN''tgcf gt''  $wpeqo\ hqtvcdn ("cy\ ctg"qh"vj\ g"f\ kuetgr\ cpe \{ "dgwy\ ggp"vj\ g"qrf\ "qtki\ kpcn"cpf\ "vj\ g"r\ tgugpv"kpvgtr\ tgvkxg"ukwcvkqp0 \} \\$ O quv'tcpurcvkqp" yi gqtkuvu. "vqq. "y j gp" yi g{ "j cxg" vcmgp" kuuvvg" y kyi "ctej ckt gf "cpf "o qf gtpkt gf "tcpurcvkqpu. "j cxg" vgpf gf "\q"xqleg"\j gkt "f kucrrtqxcn="ctej ckuo "cpf "o qf gtpk cvkqp"\(r kecm\) "f tcy "cwgpvkqp"\q"\j g"\tcpurcvkqp"cu"c" vtcpurcvkqp. "cu'c'r kgeg'qh'xgtdcn'etchruo cpuj kr "etgcvgf "kp" y g'r tgugpv'vko g'd { "c'tgcn'j wo cp"dgkpi . "cpf "y wu." ceeqtf kpi ''vq''yi g''ttcf kkkqpcn'y kuf qo .'f gttcev'htqo ''vj g'hko r kf 'r gtegr vkqp''qh''yi g''UN''vgzv'kkugnh0'Vtcpuncvqtu'kp''yi g'' Ej tkukcp"Y guv'j cxg"dggp"gzr gevgf "vq"o cmg"vj go ugnxgu"cpf "vj gkt"y qtf u"engct"vtcpur ctgpv'y kpf qy u"vq"vj g" qtki kpcn''vq''dg'j gctf''dw''pqv'uggp.''uq''cu''vq''o ckpvckp''vj g'kmvukqp''qh''vj g'ko o gfkce{''qh''vj g''UN''vgzv0C''Dkdrg'' vtcpurcykqp'kp'rctykewrctô dwy'wnyko cygn("cp{"\tcpurcykqpô yi cy'uqwpfu'\qq"o wej "nkng'c"\tcpurcykqp"dtgcmu'yi g" knowkqp. 'tgo kpf u''y g'tgcf gt''y cv'y j cv'ulj g'ku'j gctkpi 'ku''y g'xqkeg''pqv'qh''y g''qtki kpcn'cwj qt''dw''qh''y g''tcpuncvqt." y j kej 'kp'wtp'wpf gtueqtgu'yj g'hcev'yj cv'yj g'tgcf gt'ku'tgcf kpi ":\univalue" \text{wtvg'c''tcpurcvkqp.'pqv'yj g''Y qtf "qh'I qf.'pqv'yj g'' ko o qtvcn'y qtf u'qh'c'encuuke'cwj qt0

Vq"tcpurcvqtu"y j q"r tghgt"vq"ctej ck g"qt"o qf gtpk g"vj gkt"tgpf kkqpu"qh"qnf "vgz vu."vj ku"kmvukqpkuo "hggnu"nkmg"tcpm" j {r qetku{="tcvj gt"

y cp''tt {kpi ''q'tgrtguu''y g'hcev'qh''yo rqtcn'f khhgtgpeg'kp''y gkt''tcpuncvkqpu''y g{ "egngdtcvg'kw."j ki j nki j v'kw." hqtgi tqwpf "kw."d{ "y tkkpi "gky gt'kp"cp'kf kqo "y cv'pq"o qf gtp''tcpuncvqt''ur gcmu''pcvkxgn{ "\*ctej cke''tgpf kkqpu+"qt''kp" cp''kf kqo "y cv'y g''qtki kpcn'cwy qt''eqwrf "pqv'r quukdn{ "j cxg"go r mq{gf "\*o qf gtpk cvkqpu+0Kp"uq'f qkpi "y g{ "y tkxg" hqt."qt''r gtj cr u''uggm'vq''etgcvg."VN''tgcf gtu''y j q"gplq{ "vtcpuncvkqpu."y j q"j cxg"dtqngp"y gkt "cf f kevkqp"vq"c" y qtuj kr r gf "qtki kpcn'cpf "vcng"r ngcuwtg'kp"i qqf 'y tkxkpi "qh''cp{ "r gtkqf ."htqo "cp{ "r gpô gur gekcm{ "y tkxkpi "y cv' o cngu''y go "cy ctg"qh''y g''r tqdngo u''etgcvgf "d{ "vgo r qtcn'cpf "ewnwtcn'f khhgtgpeg0

Uyg'cniq< UVTCVGI KGU'QH'VTCPUNCVKQP0

## Hwt yj gt 't gcf lpi

Leeqduqp'3; 7: 0

FQW NCUTQDKPUQP

## N

## Ncpi wci g'tgcej kpi

#### wug'qh'tt cpurc vkqp'kp

F gur kg''y g''y kf gur tgcf 'r qr wrct 'cuuwo r klap''y cv'tcpurcklap''uj qwrf 'r rc { 'c'o clqt''cpf 'pgeguuct { 'r ctv'kp''y g''uwrf { "qh'c'hqtgki p''rcpi wci g.''y gpvkgy /egpwt { 'y gqtkgu''qh''rcpi wci g''ycej kpi ''cpf 'rgctpkpi 'j cxg''cv'dguv'ki pqtgf 'y g'' tqrg''qh''tcpurcklap.''cpf ''cv'y qtuv'xkrkhkgf ''ko'Htqo ''y g''wtp''qh''y g''egpwt { ''qpy ctf u''cm quv'crilkphrwgpvkcri' y gqtgvkecn'y qtmu''qp''rcpi wci g''ycej kpi 'j cxg''cuuwo gf 'y ky qww'cti wo gpv'y cv'c''pgy ''rcpi wci g''\*N4+''uj qwrf ''dg'' vcwi j v'y ky qww'tghgtgpeg''vq''y g''uwrf gpvxu'hktuv'rcpi wci g''\*N3+0

### Vj g'i tco o ct/vtcpurcvlqp'o gvj qf

Vj g'tgcuqpu'hqt''yj g'tglgevkqp'qh'vtcpurcvkqp''ctg''eqo r ngz='dw'dqyj "'yj g''r qr wrct''r gtegr vkqp''cpf "'yj g''cecf go ke'' tgcevkqp''ci ckpurvkqp''kp''tqo "'yj g'y kf gur tgcf "kphnwgpeg'qh''yj g''i tco o ct/vtcpurcvkqp''o gyj qf ."'yj kej "j cu'' dgeqo g''yj g''uvgtgqv{r g'hqt''yj g''wug''qh'vtcpurcvkqp''kp''rcpi wci g''ygcej kpi 0

Kp''c''I tco o ct/vtcpurcvkqp''u{ mcdwu."'yj g''uvtwewtgu''qh''yj g''N4''ctg''I tcf gf "'cpf "'r tgugpvgf "kp''wpku''\*qhrgp''gs wkxcrgpv'' vq''c''rguuqp''qt''yj g''ej cr vgt''qh''c''yz vdqqmvOKp''gcej "wpkv."c''nkuv'qh''pgy "xqecdwrt{"kgo u'ku''r tgugpvgf "'vqi gyj gt''y kyj "vcpurcvkqp''gs wkxcrgpvu='i tco o ct''twgu''ctg''gzr nckpgf "kp''yj g''N3='yj gtg''ctg''ugpvgpegu''hqt''vtcpurcvkqp."dqyj "kpvq" cpf "qwv'qh''yj g''N4."go r nq{kpi "qpn("'yj g''xqecdwrt{"cpf "i tco o ct"gpeqwpvgtgf "kp''yj g''ewttgpv'cpf "gctnkgt''wpkuO Kpvqf wegf "kp''yj g''I {o pcukc'qh''Rtwukc'kp''yj g''o kf/pkpgvggpyj "egpwt{."'yj g''I tco o ct/vtcpurcvkqp''o gyj qf ''ur tgcf" tcr kf n{."cpf "kv'ku''uvkni'wugf "y kf gn{"'vqf c{"\*yI qy cw'3;: 6<3536: +0Wpf gt''ku''kphrwgpeg''y tkwgp''vtcpurcvkqp''gz gtekugu'' dgeco g''yj g''egpvtcn'hgcwtg''qh''rcpi wci g''ygcej kpi "u{mcdwugu<''kp''yzvdqqmu''hqt''ugrhuwf{.''kp''uej qqnu."cpf "kp'' wpkxgtukkguO'Vj gug''gzgtekugu''ctg''tgi ctf gf "cu''dgkpi "cv''qpeg''c''o gcpu'qh'kputwevkqp."r tcevkeg''cpf "cuuguuo gpv="N4" eqo r gygpeg'ku''o gcuwtgf "d{"yj g''ceewtce{"qh''yj g''rgzkecn'cpf" i tco o cvkecn'gs wkxcngpeg''cwckpgf "kp''tcpurcvkqpO

## Vj g'f kt gev'o gvj qf 'cpf 'vj g't gl gevkqp'qh'vt cpur vkqp

I too o ct/vtcpurcvkqp"uqqp"eco g"wpf gt"cwcen0Cv"yi g"wvtp"qh"yi g"egpwvt { ."yi g"ugrh/uv{ ngf ":T ghqto "O qxgo gpvø" etkkek gf "kv"hqt"ki pqtkpi "yi g"ur qmgp"ncpi wci g. "hqt"gpeqwtci kpi "hcnug"pqvkqpu"qh"gs wkxcngpeg. "cpf "hqt"r tgugpvkpi "kuqncvgf "ugpvgpegu"tcvj gt"yi cp"eqppgevgf "vgzvu"\*I qy cw"3; : 6<395+0"Vj g"kphnvgpvkcn"r j qpgvkekcp"cpf "ncpi wci g/vgcej kpi "yi gqtkuv"I gpt { "Uy ggv"\*3: ; ; 13; 86<323+"tkf kewngf "yi g"mkpf "qh"ugpvgpeg"hqwpf "kp"c"v{ r kecn'vtcpurcvkqp" gzgtekug"cu":c"dci "kpvq"y j kej "ku"etco o gf "cu"o wej "i tco o cvkecn'cpf "ngzkecn'kphqto cvkqp"cu"r quukdngø"cpf "r tqf wegf "r ctqf kgu"kp"kmvuvtcvkqp"uwej "cu<

Vj g'o gtej cpv'ku'uy ko o kpi 'y kyj 'yj g'i ctf gpgtøu'uqp.''dw'yj g'F wej o cp''j cu'yj g'hkpg'i wp0 \*Uy ggv'3:;;3:86

Uwej "ugpvgpegu."cu"o cp{"j cxg"qdugtxgf."ctg"j ki j n{"ctvkhlekcnt"f kxqtegf "htqo "r wtr qug."eqpvgzv"cpf "cewcn'wug" \*hqt"hwt yi gt "f kuewuukqp"ugg"Eqqm'3; :; ♂634+0'Qyi gt "cwcemu"qp"i tco o ct/vtcpurcvkqp"j cxg"ekygf "yi g" f go qvkxcvkpi "f khhlewnv{"qh"vtcpurcvkpi "htqo "N3"vq"N4."yi g"tgkphqtego gpv"qh"tgnkcpeg"qp"r tqeguukpi "xkc"yi g"N3." uvtgpi yi gpkpi "qh"N3"kpvgthgtgpeg."cpf "c"f gvtko gpvcn'ghhgev"qp"yi g"ces wkukvkqp"qh"pcvkxg/rkng"r tqeguukpi "unkm"cpf" ur ggf "\*hqt"c"uwo o ct{"qh"uwej "cti wo gpvu"ugg"Uvgtp"3;; 4◄: 4ó: 9+0 Uvej "etkvkekuo u"j cxg"dggp"f gxcuvcvkpi n{"

głłge kxg'lp'lphrwgpelpi 'cecf go ke'qr kpkqp.'cpf 'ktcpurc kqp'j cu'pqv'{ gv'dggp't gkpurc yf 'cu'c'y gqt gkecm{/ lwwklyf 'ce kxkx{ 'kp'rcpi wci g'ycej kpi 0'Qr r qukkqp''\q''\y g''wug''qh'\tcpurc kqp'j cu'ngf '\q''kw'tgr rcego gpv'd { 'vj g'' f k gev'b gyj qf <'vj g''ycej kpi ''qh'cp''N4''wukpi ''y cv'rcpi wci g'\*cpf ''qpn{ 'vj cv'rcpi wci g+'cu'c'o gcpu''qh'kpurt we kqp0' C wkwf gu''\q''\tcpurc kqp''j cxg''xct kgf 'ht qo ''c''qvcn'dcp'\*cu'kp''y g'Dgtrkx| ''uej qqn++.''\q''cp'kpf wri gpv'kh't gnwe vcpv' cf o kuukqp''qh'kv'cu'c'pgeguuct { 'rcuv't guqt v.''+c''t ghwi g'hqt''y g'kpeqo r gvgpvø'cu'Mgm{ '\*3; 8; +'f guet kdgu'kv0Cro quv'cm' y gpvkgyj /egpwt { 'o gyj qf qrqi kgu''ctg''ur gekgu'qh''y g'f kt gev'o gyj qf '\*hqt'f guet kr vkqpu''cpf 'f knewnukqp''ugg.''kpvgt'' crkc.'Tkej ctf u'cpf 'Tqf i gtu''3; : 8.''Uvgtp''3; ; 4+0

O gcpy j krg."i tco o ct/vtcpurcvkqp"j cu'eqpvkpwgf "vq"dg"wugf ."gur gekcm{ "kp"ugeqpf ct { "uej qqnu"kp"o cp { "r ctwu"qh" yi g"y qtnf = "kv"ku"qpg"qh"yi g"hgy "o gyi qf u"y j kej "ecp"dg"cf qr vgf "kp"xgt { "rcti g"ercuugu"cpf ."dgkpi "unt wewst gf "cpf" r tgf kewcdrg. "ecp"i kxg"uwxf gpvu"c "ugpug"qh"eqphkf gpeg"cpf "cwckpo gpv0KVku"cnuq"uwkxgf "vq"vgcej gtu"y j qug"qy p" eqo o cpf "qh"yi g"N4"o c { "dg"rko kxgf 0Vj g"v{r kecn'vgcej gt"qh"i tco o ct/vtcpurcvkqp"ku"qpg"y j qug"N3"ku"yi g"uco g"cu" j ku"qt"j gt"uwxf gpvu. "cpf "y j q"j cu"rgctpgf "yi g"N4"cu"c"hqtgki p"rcpi wci g="uwej "vgcej gtu"j cxg"yi g"cf xcpvci g"qh" wpf gtuvcpf kpi "yi g"rcpi wci g/ur gekhle"r tqdrgo u"qh"yi gkt"uwxf gpvu0I tco o ct/vtcpurcvkqp"ku"cnuq"y kf gn{ "wugf "kp" dqqmu"hqt"ugrh"uwxf { 0

## Rankslechiepf 'f go qi terj le'lphnygpegu

 $\label{thm:price} \begin{tabular}{ll} $$K_0''y ku''gpt{."cu''hp''cp{'Tkwwuldp''qh''cpi wci g''ycej kpi ''y gqt{'cpf''r tce-keg.'k\'ku''ko r qtvcpv'\q'tgo go dgt''y g'' eqpugs wgpegu''qh'y g''r qukkqp''qh''Gpi rkuj ''cu''y g''y qtrf øu'o quv''y kf gn{''ngctpgf''hqtgki p''ncpi wci g''\S wktm'cpf'' Y kf f qy uqp''3; : 7='O eEcmgp''3; :: $\square$4642+0\fo''tgegpv'{gctu.''y g''o quv''hphrwgp\cn'kf gcu''cdqw''ncpi wci g''ycej kpi ''' cxg''qhgp''dgpp''dgp''gy kyj ''gzr rkek''tghgtgpeg''vq''Gpi rkuj ''Ncpi wci g''Vgcej kpi ''\square''GNV+.''ceeqo r cpkgf''d{''cp'' ko r rkek''cuuwo r vkqp''y cv'y g{''crrn{''vq''hqtgki p''ncpi wci g''ycej kpi ''kp''i gpgtcn'0'Vj ku''xkgy ''ku''urtgpi yi gpgf''d{''y g'' hqewu''qh''cwgp\kqp.''f gtkxkpi ''htqo ''Ej qo umkcp''hpi wkukeu.''qp''wpkxgtucn'tcy gt''y cp''ncpi wci g'ur gekhe''cur gew''qh'' ncpi wci g''cpf ''ncpi wci g''ces wkukkqp0Cti wo gpwl'eqpegtpkpi ''y g''r gf ci qi ke''wug''qh'\tcpurc\kqp''ctg''pq''gzegr \kqp''\q'' y g''kphrwgpeg''qh'\y gug''i gpgtcn'\tgpf u0'Vj g''tgrgxcpeg''qh'kf gcu''htqo ''GNV''\q'\y g''ycej kpi ''qh''qy gt''ncpi wci gu.'' j qy gxgt.''uj qwrf ''pqv''dg''cngp''hqt''i tcp\gf 0'Vj g''ecug''hqt''cpf''ci ckpuv'\tcpurc\kqp''o c{''xct{''y ky' 'y g''uqekcn'cpf'' rkpi wkuke''tgrc\kqpuj kr ''dgwy ggp''c'uwxf gpv\gu''N3''cpf ''N40'Vj g''i tqy kpi ''cuegpf cpe{''qh''Gpi rkuj ''cu''y g''y qtrf øu''o ckp'' kp\gtrpc\kqpcn''rcpi wci g'\set {uvcn'3; : 7='Eqwro cu'3; ; 4\square$: $96; ='Rj kmkr uqp''3; ; 4\square$9659+'o cmgu''y g''kuuwgu'' uwttqwpf kpi ''ku''ycej kpi ''kp''o cp{''y c{u''cv{r kecn0}} \end{align*} \]$ 

Kp"y g"w gpvkgyj "egpwt {."y g"y gqtgvkecntglgevkqp"qh"tcpurcvkqp"hkwgf "y gmly kij "f go qi tcr j ke"cpf "geqpqo ke" ej cpi gu"y j kej "etgecyf "pgy "o qvkxcvkqpu"hqt "igctpkpi "Gpi rkuj ."cpf "pgy "\(r\) gu"qh"ercuugu0Htqo "\(y\) g"pkpgyggpyj " egpwt {"qpy ctf u."ko o ki tcvkqp"kpvq"y g"Wpkgf "Ucvgu"ngf "vq"c"f go cpf "hqt "wkrkctlcp"eqwtugu"hqewdpi "wr qp"y g" tcr kf"f gxgmr o gpv"qh"c"hwpevkqpcnleqo o cpf "qh"y g"repi wci g0Kpetgcugf "y qtrf "vtcf g"cpf "vqwtkuo ."cpf "y g" i tqy kpi "f qo kpcpeg"qh"Gpi rkuj "cu"c"y qtrf "repi wci g."j cxg"r gtr gwcvgf "y ku"r gf ci qi ke"ukwcvkqp0Nvcpi wci g" ucj qqnu"hp"Gpi rkuj /ur gcmkpi "eqwpvtkgu"ecvgt "hqt"ercuugu"qh"xkukqtu"cpf "ko o ki tcpw"htqo "o kzgf "rhpi wkroke" dcemi tqwpf ."o cmkpi "vtcpurcvkqp"ko r quukdrg0Vj g"\(r\) kecn"vgcej gt "kp"uwej "ucj qqnu"ku"c"pcvkxg"Gpi rkuj "ur gcmgt" y j qug"gzr gtvkug"ku"hp"f ktgevo gyj qf "vgcej kpi "umkmu "cpf "tctgn( "kpenwf gu"eqo o cpf "qh"y g"uwxf gpvuy"N30' O qtgqxgt. "Gpi rkuj /ur gcmkpi "eqwpvtkgu."gur gekcm( "Dtksckp."j cxg"r tqo qvgf "y g"go r m {o gpv"qh"uwej "vgcej gtu" cdtqcf ."gxgp"kp"ukwcvkqpu"y j gtg"uwxf gpvu"uj ctg"cp"N3."cpf "vtcpurcvkqp"ecp"eqpugs wgpvn( "dg"wugf 0C"j ki j n( " svguklqpcdrg"cuuwo r vkqp"j cu"f gxgmr gf "y cv"y g"pcvkxg/ur gcmgt "vgcej gt "ku"pgeguuctkn( "y g"dguv\*hqt"f kuewukqp" cpf "ej cmgpi gu"vq"y ku"xkgy "ugg"F cxkgu"3;; 3="Rckngf c {"3;: 7="Rj kntr uqp"3;; 4-3; 56; +0"Kpvgtpcvkqpcn'r wdrkuj gtu" j cxg"j cf "cp"kpvgtguv'kp"y g"f go kug"qh"vtcpurcvkqp"vqq."cu"o qpqi my'o cvgtkcni'ecp"dg"f knvtkdwyf "y kyj qwytgi ctf" vq"uwxf gpvuyxfN30

### Kohnwegneg'qh'tigeqpf 'ficpi wci g'ces wkukskqp'tj gqt { '\*UNC+

Hwt y gt "qr r qukkqp" 'q' 'tcpurc kqp 'kp' 'rcpi wci g' 'ycej kpi "j cu' 'dggp' 'hwgmgf ''d { ''uweeguukxg' 'y gqt kgu ''qh' 'ugeqpf " rcpi wci g''ces wkukkqp' "\*UNC+' y j kej ''kp'' wtp' f gt kxg' ht qo ''y gqt kgu ''qh' 'ej krf t gpøu' 'hkt uv' 'rcpi wci g''ces wkukkqp' "\*HNC+: '' kp' y j kej . ''d { ''f ghkpkkqp.'' tcpurc kqp' j cu' pq''t qrg'' q''

r mc{0°Co qpi "o clqt" y gqtkgu" qh" HNC" j cxg"dggp" %c+"dgj cxkqwtkuo." y j kej "uggu" mcpi wci g"ces wkukkqp" cu"c" r tqeguu" qh" j cdk/hqto cvkqp." %d+"Ej qo umkcp" pcvkxkuo." y j kej "xkgy u"c" f kur qukkqp" q"ces wktg" mcpi wci g"cu"c" i gpgvke" gpf qy o gpv." cpf "%e+" hwpevkqpcrkuo." y j kej "uggu" mcpi wci g"ces wkukkqp" cu" y g"tguwn/qh" c"pggf "vq" eqpxg{"uqekcn" o gcpkpi 0°C m" j cxg" kp" wtp" j cf "c" xkectkqwu kphrwgpeg" qp" ygcej kpi "r tcevkegu." cm quv" pqpg" o cnkpi "wug" qh" vccpurcvkqp0°C "eqo o qp" ewttgpv" dgrkgh "f gtkxkpi "htqo "c" eqo dkpcvkqp" qh" pcvkxkuo "cpf" hwpevkqpcrkuo." ku" y cv" uwf gpv" cwgpvkqp" uj qwrf "dg" hqewugf "qp" o gcpkpi "cpf" eqo o wpkecvkqp" tcvj gt" y cp" qp" hqto." cu'y ku" y km" uvko wrcy" y g"uwdeqpuekqwu" ces wkukkqp" qh" y g"ncpi wci g"u{ uvgo "Mtcuj gp"3; : 4="Rtcdj w"3; : 9+0°V tcpurcvkqp." y j kej "ko r nkgu" c" eqpuekqwu" mpqy ngf i g" qh" y q"ncpi wci g"u{ uvgo u"cpf" y g"f grkdgtcvg" f gr mq o gpv" qh" dqy ." ku" pqv" co qpi "y g" cevkxkkgu" eqo r cvkdng" y ky "y ku" dgrkgh)

Vj g'cuuwo r wqpu'wpf gtn{ kpi 'ewttgpv'UNC''y gqt { "cpf 'cwgo r vu'vq''cr r n{ 'vj go 'vq''ncpi wci g'vgcej kpi 'ctg''cm' j ki j n{ 's wguwlqpcdng. "gur gekcm{ 'kp''y gkt 'f gpkcn'qh''y g'kpgxkcdng''y kuj "qh'vgcej gtu'cpf 'ngctpgtu'vq''cwgo r v'c'' eqpuekqwu''cpf 'u{ uvgo cwe'tgncwlqp'qh'N3''vq''N4''xkc''vtcpuncwlqp0'Ki'ku''engct''y cv.''dghqtg''vtcpuncwlqp''ecp''dg'' tgkpuvcwgf ''cu''cp''ckf ''vq''ncpi wci g''ces wkukwlqp. 'vj gtg''pggf u''vq''dg''gzr nkekv''tgeqi pkwlqp''y cv''cf wnv'UNC''pggf ''pqv'' pgeguuctkn{ ''cwgo r v'vq''tgr gcv'vj g''uvci gu''qh''ej krf ''HNC. ''dww''ecp''dg''guugpwlcm{ 'f khhgtgpv'kp''nkpf 0

## Vj g't gxkxcn'qh'tt cpurc vlqp

O quy'etkkekoo u'qh''tcpurc'kqp''crrn ('qpn('\q''y g''ho kgf ''cpf ''kf kqu{ petcke''wugu'qh''tcpurc'kqp''bp''y g''i tco o ct/tcpurc'kqp''o gyj qf ''cpf ''qxgtmqm'y g'hcev''y cv''tcpurc'kqp''ecp''dg''wugf ''kp''o cp{"qyj gt''y c{u''\f whh'3; : ; \$\sqrt{63}: \(\frac{4}\)'} I tco o ct/tcpurc'kqp''j qrf u'pq''o qpqr qn(."cpf ''tcpurc'kqp''o c{"dg''wugf ''dq'y ''o qtg''lo ci kpckxgn(."cpf ''cu'c'' eqo r rgo gpv''q''f ktgev''o gyj qf ''ygcej kpi ''tcyj gt''y cp''cp''gzenwukxg''cmgtpckxg''vq''k\0Cevkxkkgu''o c{"kpxqmxg''qtcn'cu'' y gm''cu''y tkwpp''r tcevkeg."cpf ''hqewu''qp''eqppgevgf ''yzv'tcyj gt''y cp''kuqrcvgf ''ugpvgpegu0'Uweeguuhwi'tcpurc'vqp.'' o qtgqxgt."o c{"dg''lwf i gf ''d{"etkkgtkc''qyj gt''y cp''hqto cn''ngzkecn'cpf ''i tco o cvkecn'ys wkxcrupeg0'Uwf gpwu''o c{"dg"' cuuguugf ''hqt''ur ggf ''cu''y gm''cu''ceewtce{0Vj g{"o c{"dg''gpeqwtci gf ''vq''tcpurc'vg''hqt''i kw.''q''uggm'r tci o cvke''qt'' uvfnkwe''gs wkxcruppeg."'q''eqpukf gt''y g''hgcwtgu'qh'i gptg''\Uy crgu''3; ; 2=\text{Hrqy gtf gy ''3; ; 5+"qt''vq''r tqf weg''f khhgtgpv'' tcpurc'vqpu''ceeqtf kpi ''vq''y g''pggf u'qh'y g''cwf kgpeg0'[ gv'uq''urtqpi ''j cu''dggp''y g''hphrwgpeg''qh''y g''i tco o ct/tcpurc'vqpu''ceeff kpi ''vq''y cy''c cp{"etkkeu''j cxg''dggp''wpcdrg''q''gpxkuci g''cp{"qyj gt''crrtqcej ''q''tcpurc'vqp'''pg''' rcpi wci g''ngctpkpi ''cpf ''dgrkgxg''y cv''kp''etkkek| kpi ''y ku''qpg''o gyi qf qmi { ."'y g{"ctg''f gcnkpi ''y kyi ''y g''wug''qh'' rgf ci qi ke''tcpurc'vqp''' pgtcn'}

 $Tgegpv''\{gctu''j\ cxg''uggp''y\ g''dgi\ kppkpi\ u''qh'c''tgcrrtckucn'qh''y\ g''tqng''qh''ytcpurcylqp''kp''ncpi\ wci\ g''ngctpkpi\ .''cpf''c''$   $pwo\ dgt''qh''y\ tkgtu''j\ cxg''gzrtguugf\ ''f\ qwdw''cdqw''kwu''dcpkuj\ o\ gpv''htqo\ ''y\ g''ercuutqqo\ ''*Y\ kf\ f\ qy\ uqp''3;\ 9;\ ='J\ qy\ cw''\ 3;\ :\ 6='F\ whh'3;\ :\ ;\ ='Eqqn''3;\ ;\ 3='Uvgtp''3;\ ;\ 4+'0'Vj\ g''gzvtgo\ kwo\ ''qh''ku''gctrkgt''tglgevkqp''ku''dgkpi\ ''tgeqi\ pk'\ gf''y\ g''wug''qh''tcpurcykqp''ku''dgkpi\ ''tgeqi\ pk' gf''y\ g''wug''qh''tcpurcykqp''ku''dgkpi\ ''tgeqi\ pk' gf''y\ g''ku''tcpurcykqp''ku''dgkpi\ ''tgeqi\ pk' gf''y\ g''y\ ty''y\ g''tcpurcykqp''ku''dgkpi\ ''tgeqi\ pk' gf''y\ g''y\ ty''y\ g''y\ g''$ 

Vj gtg'ku'cnıq'c'i tqy kpi ''cy ctgpguu'qh''y g'hqto cn'kpceewtce{ ''y j kej ''ecp''tguwn'htqo ''cp''gzenwukxg'hqewu''qp'' eqo o wpkeckqp. ''cpf ''c'tgcnk ckqp''y cv'tcpurckqp''ecp. ''cu'kk'y cu''tcf kkqpcm( ''dgnkgxgf ''vq'f q. 'f gxgmr ''ceewtce{0' Qpg''qh''y g''xktwgu''qh''tcpurckqp''cu''cp''gzgtekug''ku''y cv'y g'hgctpgt. ''dgkpi ''eqpurtckpgf ''d{ ''y g''qtki kpcn'\gzv.''ku'' f gpkgf ''tguqtv''q''cxqkf cpeg''urtcvgi kgu''cpf ''qdnki gf ''vq''eqphtqpv'ctgcu''qh''y g''N4''u{ urgo 'y j kej ''ulj g''o c{ ''hkpf '' f khhewn0'Cpqyi gt''xktwg'ku''y cv''tcpurckqp''ecp''hqewu''cwgpkqp''wr qp''uwdvrg''f khhgtgpegu''dgw ggp''N3''cpf ''N4''cpf '' f kueqwtci g''y g''pc¹xg'xkgy ''y cv'gxgt{ ''gzr tguukqp''j cu''cp''gzcev''gs wkxcrgpv0

Vj gtg"ctg"yj wu'uki pu''yj cv''yj g"qwrcy kpi "qh'\tcpurc\kqp"kp"rcpi wci g'\gcej kpi "o c{ "dg"eqo kpi "\q"cp"gpf 0Cu'Mgm{" \*3; 8; ∢39+'qdugtxgu. ''yj g''yy gpvkgyj "egpwt{ ''ku''wpks wg'kp''ku''

xkrkkeckqp"qh"\j g"\wug"qh"\tcpurckqp"kp"rcpi wci g"\gcej kpi 0J qy cw\\$3;: 6<383+"eqo o gpwi"\j cv\\$-\y g"r tcekeg"qh" \tcpurckqp"j cu"\dggp"eqpf go pgf "uq"uxtgpwqwun\"hqt"uq"nqpi "y kyj qw\"cp\"tgcm\"eqpxkpekpi "tgcuqpu"\j cv\k\"ku\"ku"\q "dg"j qr gf "\j cv\'y k\"\trup" kyj g"r tqhguukqp"\qqn\"cpqyi gt"\qqn\"cp\"k\\"\Cu\"y g"cr r tqcej "\j g"pgy "egpwt\"\."kv\ku\"\q\"dg"j qr gf "\j cv\'y ku" r tgf ke\kqp"y kn\"dg"tgcn\t gf "\p'c"tgpckuucpeg"qh\"\tcpurckqp"\p"rcpi wci g"\gcej kpi 0

## Hwt yj gt 't gcf lpi

I W 'EQQM

# Nkpi wkwe'crrt qcej gu

| Kp'3; 87. P qco | Ej qo um{ "uqwpf gf "c"pqvg"qhlecwkqp"kp"tgrcvkqp"vq"y g"lo r rkecvkqpu"qhli gpgtcvkxg"i tco o ct"lqt" | vtcpurcvkqp<"-Vj g"gzkuvgpeg"qhlf ggr/ugcvgf 'hqto cn'wpkxgtucnuí | f qgu"pqv."hqt"gzco r rg. "ko r n( "vj cv'vj gtg"o wuv'dg" uqo g"tgcuqpcdng"r tqegf wtg'hqt"vtcpurcvkqp i "dgwy ggp"hcpi wci guø\*3; 87-52+θ/β/"y g"hco g"{gct. "Ecvhqtf "r wdrkuj gf " j ku"y gm/mpqy p"dqqni/"c"htpi wkuke" Vj gqt { "qh\Vtcpurcvkqp." y j kej "qr gpu"y ky "y gty qtf u<" Ergctn(. "vj gp."cp { " y gqt { "qh\Vtcpurcvkqp." y j kej "qr gpu"y ky "y gqt { ø\*3; 87-3-θ/Vj ku" wpegtvclp"tgrcvkqpuj kr "dgwy ggp"hcpi wkukeu"cpf "vtcpurcvkqp"yj gqt { "eqpvlpwgu"vq"dg"tghrgevgf "kp"yj g'hkgtcwtg0' Gki j v"{ gctu"hcvgt." y g"hkpf "I34p"Cnltgej v'gzr tguulpi "tgi tgv'cpf "cuvqpkuj o gpv'yj cv'hkpi wkuvu"j cxg"pqv'eqpegtpgf " yi go ugrxgu'y ky "vtcpurcvkqp"\*3; 95-3+"y j krg"Uj xgkugt." y tkkpi "lp"yj g"hco g"{gct "\*cmj qwi j "pqv'y kf gn( "cxckcdng" wpvkri3; : 9+"o cmgu'yj g"qr r qukxg"ereko . "pco gn("yj cv'o cp{ "htpi wkuvu"j cxg"hqpi "ukpeg"f gekf gf "yj cv'tcpurcvkqp" eqwf "dg"yj g"qdlgev'qh'hkpi wkuvke"uwf { "\*3; : 9-35-θ/Uj xgkugt "tglgevu"yj g"xkgy "yj cv'hkpi wkuvkeu"cp"gzr rckp"qpn("yj g" nqy guv'ngxgnu"qh'htcpurcvkqp"cevkxkx{ "cu"dgkpi "dcugf "qp"vqq"pcttqy "c"xkgy "qh'hkpi wkuvkeu"0J g"f qgu." j qy gxgt. "tghgt" dtkghn("vq"yj g"hwtqtg"ecwugf "d{ "vj g"htuv'o clqt"cwgo r v'kp"T wunkcp"vq"rtqf weg"c"hipi wkuvke"f guetkr vkqp"qh" tcpurcvkqp" "htgf qtqx"3; 75+"cp"cwgo r v'y j kej "r tqxqngf"c"hxgn("r qngo ke"htqo "vj g"hwr r qtvgtu"qh'hkgtct { "crrtqcej gu"vq"tcpurcvkqp0}}

Vj g'lpvgtxgpkpi "{ gctu'uggo 'pqv'vq'j cxg'tguqrxgf 'vj ku'vgpukqp0Cro quv'52"{ gctu'chxgt''y g'Ecvhqtf/Ej qo um{" f genctcvkqpu. 'Dgm'\*3; ; 3</br/>
'zx+'encko u'vj cv'vtcpurcvkqp''y gqtkuvu'cpf 'rkpi wkuvu'ctg'i qkpi 'vj gkt'qy p'ugr ctcvg'y c{u0' Uko krctn{.'y j krg'uki pcmkpi .'lkp''y g''3; ; 5'r tghceg''vq''c''pgy "gf kkqp''qh''c'y qtm'hktuv'r wdrkuj gf 'lkp''3; 9: .''yi cv'' f gxgmqr o gpvu'lkp''nkpi wkuvkeu''j cxg''dtqwi j v'vj g''f kuekr nkpg''o wej ''emqugt''vq''yi g''eqpegtpu''qh''yi g''vtcpurcvkqp''yi gqtkuvu.'' Rgti pkgt''uvkrn'y ctpu''yi cv''yi gtg''ctg''yi qug''y j q'y qwrf ''nkng''vq''nkdgtcvg''vtcpurcvkqp''eqo r ngvgn{ ''htqo ''nkpi wkuvkeu'' \*3; ; 5</br/> +0

Vgpukqp"cpf "f kuci tggo gpvu"cukf g. "kv"ku"engctn{ 'hckt "vq"uc{ "vj cv"rkpi wkuvkeu"f qgu"j cxg"uqo gyj kpi "vq"qhhgt" vtcpuncvkqp"uwf kgu. "uq"o wej . "kp"hcev."vj cv"qpn{ "vj g"dtkghguv"qwvrkpg"ku"r quukdng"j gtg"qh"vj g"o ckp"ctgcu"y j gtg"vj g" y q"f kuckr nkpgu"ecp"kpvgtcev0

## Vj g't gre vkqpuj kr 'dgvy ggp'ikpi wkwkeu'cpf 'tt cpure vkqp

Vj g"tgrcvkqpuj kr "qh'nkpi wkuvkeu"vq"vtcpurcvkqp"ecp"dg"vy qhqnf <"qpg"ecp"crrn("vj g"hkpf kpi u"qh'nkpi wkuvkeu"vq"vj g"rtcevkeg"qh'vtcpurcvkqp."cpf "qpg"ecp"j cxg"c"nkpi wkuvke"vj gqt { "qh'vtcpurcvkqp."cu"qrrqugf."uc{."vq"c"nkvgtct{." geqpqo ke"qt"uqo cvke"vj gqt { "qh'vtcpurcvkqp0

Kó"y g"hktuv'kpuvcpeg."c"uwdf kxkukqp"qh"hkpi wkurkeu"uwej "cu"uqekqrkpi wkurkeu"o c{"j cxg"uqo gyj kpi "\q"uc{"cdqw'y g" tgrckqp"qh"hcpi wci g"\q"uqekcn"ukwckqp."cpf "y j cv'kv'j cu"\q"uc{"ecp"eqpugs wgpvn{"dg"cr r rkgf "kp"y g"cev'qh" vcpurckpi 0Hqt"gzco r rg."kp"Dctt{"J kpguø'pqxgrl'Mgu'\*3; 8; +"c"pqtyj gtp"Gpi rkuj "f kcrgev'ku"wugf "kp"y g"f kcrqi wg." cpf "y ku"uj qwf "kp"y gqt{"dg"vtcpurcyf" f khlgtgpvn{"htqo "y g"pqp/f kcrgevrlhcpi wci g"qh"y g"pcttcvkxg0"Vj ku"r qugu" c"r tqdrgo ."j qy gxgt."ukpeg"o cp{"ewrwtgu"gkj gt"f q"pqv"j cxg"c"f kcrgev'y j kej "j cu"eqo r ctcdrg"ewrwtcrlhwpevkqpu" qt"eqppqvcvkqpu"qt"y g{"s wkxg"uko r rn{"f q"pqv"r gto kv"y g"wug"qh"f kcrgev'kp"y g"y tkwxp"rcpi wci g0"Kp"y g"Htgpej "vcpurcykqp"qh"Mgu'\*3; : 4+"y g"tgi kqpcrl'f kcrgev'ku"tgr rcegf "d{"c"uqekqrgev."y cv'ku"c"f kcrgev'y j kej "ku"ej ctcevgtkurke" qh"c"uqekcrltcyj gt"y cp"c"tgi kqpcrl'i tqwr 0"Kp"

qy gt "tcpurcvkqpu." y g"f kergeven'hgewt g"o c { "uko r n { "f kuer r get" "cu"j er r gpgf "kp" Htcpeg" kp" y g"gki j vggpy " egpwt { +." wprguu" y g"tcpurcvqt "ku" y krrkpi "vq" cuuwo g" y g"tkum { "tqrg" qh" vtckn dre | gt0" Nkpi wkuvkeu "ecp" r tqxk f g" uqo g." dw' pqv'em "qh' y g"kphqto cvkqp" qp" y j kej "vq" deug" y g"f gekukqp" qh" j qy "vq" j cpf rg" f kergew "cpf" uko kret "hgewt gu" kp" vtcpurcvkqp0

Kp"y g"ugeqpf "kpuvcpeg."tcy gt"y cp"crrn(kpi "hpi wkinke"y gqt { "vq"gngo gpvu"y ky kp"y g"vgzv"vq"dg"vtcpurcvgf."qpg" ecp"crrn("kv"vq"y g"gpvktg"eqpegrv"qh"vtcpurcvkqp"kugnt0"Vj wu."kv"ecp"dg"uckf "y cv"Gwi gpg"P kf cøu"y gqt { "qh" f {pco ke'gs wkscngpeg'ku."kp"hcev."pqyi kpi "nguu"y cp"c"uqekqnkpi wkinkeu"qh"vtcpurcvkqp0D{ "hqewukpi "y g"vtcpurcvkqp" rtqeguu"qp"y g"vcti gv vgzv"tgegkxgt."y j q"f khhgtu"htqo "y g"uqwteg/vgzv"tgegkxgt"kp"ncpi wci g."ewnwtg."y qtnf" mpqy ngf i g"cpf "vgzv"gzr gevcvkqpu"kp"y g"uco g"y c{"y cv"c"pqtyi gtp"dnwg"eqnrct"y qtngt"f khhgtu"htqo "c"uqwi gtp" uvqemdtqngt"eqo rcvtkqv."y g"ctg"kpxkxgf "vq"ugg"y g"vtcpurcvkqp"rtqeguu"cu"qpg"qh"cf crvkpi "y g"uqwteg/ncpi wci g" vgzv"vq"c"f khhgtgpv"uqekcnli tqwr "y ky "y j cv"qpg"o ki j v."hqt"y g"ucng"qh"vgto kpqmi kecn'eqo rctcdktw{."ecm'kuu"qy p" ;pcvkqngevo0

Dqyi "qh"yi gug"crrtqcej gu"ctg"hqwpf "kp"yi g"y tkklpi u"qp"hkpi wkuvkeu"cpf "tcpurcvkqp0Cwyi qtu"uwej "cu"Cmltgej v" \*3; 95+:"I cvko "cpf "O cuqp"\*3; ; 2+:"Dgml\*3; ; 3+:"cpf "o cp{ "qyi gtu"ghhgevkxgn{ "hkuv"yi g"o ckp"gngo gpvu"qhl'hkpi wkuvke" yj gqt { "cpf "uj qy "j qy "yj g{ "uwr r qugf n{ "ko r cev"wr qp"gngo gpwu"kp"yj g" \tcpuncvkqp"r tqeguu"cpf "kwu"r tqf wev0"Vj g" ugeqpf "crrtqcej "ku'hqwpf 'kp" y g'y qtmı'qh'y tkıgtu'uwej "cu'Ecvhqtf "\*3; 87+. "y j q"cwgo r wı'vq'f guetkılg" vtcpuncvkqp" kp"vgto u"qh"c"ur gekhke hpi wkuvke "vj gqt {."kp"vj ku"ecug"J cmkf c { øu"tcpm/uecng"i tco o ct="qh"J qwug"\*3; : 3+."y j q"wugu" c'dcuke'f kurkperkqp'qh'hwperkqpcn'nkpi wkurkeu'\q'f guetkdg''yj g''wy q''urt cvgi kgu''qh''qxgt v'cpf ''eqxgt v'tt cpurc vkqp''\*ugg''  $\underline{\textbf{S WCNKV[''QH'VTCP UNCVKQP}} + = \texttt{"cpf''qh''Uj'} x \texttt{gkugt''*3}; : 9 + \texttt{"y j q'f tcy u'co qpi uv'qvj gt''vj kpi u''qp''i gpgtcvkxg''cpf''}$ ukwc włapcn'hoj wku keu '\q'f guet kdg '\tcpurc wap 'cu 'c' 'tgy t kwoi 'r taeguu. 'y j kej 'ku 'cnua. 'kp 'ghhgev. '\j g'crr tacej "  $cf\ qr\ vgf\ ''kp''tcpurc\ vkqp''vj\ gqt\ kgu''dcugf\ ''qp''tkpi\ vkuvkecm (\ ''hqwpf\ gf\ ''vczqpqo\ kgu''qh''tcpurc\ vkqp''vgej\ pks\ wgu0$ Vj g'o quv'ho qwu'gzco r ng'qh'y g'ugeqpf 'crrtqcej 'ku'Ecvhqtf øu'hkpi wkuvke'y gqt { ''qh'\tcpurcvkqp'\*3; 87+0Vj ku'ku'' qp''y g'y j qrg''s wkxg'f kucr r qkpvkpi .''kxu''o ckp''y gcmpguu''dgkpi ''y cv'Ecvhqtf øu''o qf grl'pgxgt''i qgu''dg{qpf ''y g'' ugpvgpeg"\q"kpeqtrqtcvg"\j g"\gzv"cu"c"\wpkv"qh"o gcpkpi 0"KVfqgu."j qy gxgt."tgo ckp"qpg"qh'\j g'xgt{ "hgy "\twn{" qtki kpcn'cvgo rvu'vq'i kxg'c'u{uvgo cvke'f guetkrvkqp'qh'vtcpuncvkqp'htqo 'c'nkpi vkuvke'r qkpv'qh'xkgy 0'Ecvhqtf'uggu' ncpi wci g'cu'c'ugv'qh'u{ uvgo u'qr gtcvkpi 'cv'f khhgtgpv'ngxgnu0'Vj ku'xkgy 'cnnqy u'j ko 'vq'f ghkpg'vj g'eqpf kwkqpu'qh' wzweds wkengeg "cu"qrrqugf "vq"hqto cdeqttgurqpf gpeg "\*ugg" WHVU QH VTCP UNC V KQP + "cpf "vq" f guetkdg"dtqcf "\tcpurc\kqp"\{r gu'\wukpi "\j tgg'\ugvu'\qh'etk\gtkc<

\*c+'lp''gto u'qh'y g''gz ygpv'qh'ytcpurcylqp.'Ecylqtf 'f kurkpi wkuj gu''dgwy ggp''hwni'yt cpurcylqp.'y j gtg''y g''gpyktg'' ygzv'ku''uwdo kwgf ''q''y g''ytcpurcylqp''r tqeguu''cpf " $\div$ gx gt { 'r ctv'qh'y g''UN''ygzv'ku''t gr reegf ''d { "'VN''ygzv'' o cygtkeng'\*3; 87 < 43 + "cpf ''r ct when'yt cpurcylqp.'y j gtg'' $\div$ tuqo g''r ctv'qt''r ctw''qh'y g''UN''ygzv''ctg''nghy'' wpytcpurcygf g''\*kdkf 0%Vj ku'ku''pqv''c''yej pkecn'f kurkpeykqp''dww''qpg''y j kej 'Ecylqtf ''cf qr wu''kp''qtf gt''yq''cxqkf'' eqphywkqp''dgwy ggp''y g''pqpygej pkecn'ugpug''qh''r ct ykcn''cpf''y g''yej pkecn'y c { ''kp''y j kej ''j g''wgu''y g''ygto ''t cpurcylqp''\*ugg''dgmy #0

\*d+'kp''gto u'qh'y g'igxgmi'qh'irepi wci g'kpxqnxgf 'kp''tcpurcvkqp."c'f kn/kpevkqp'ku'f tcy p''dgw ggp''vqvcn''

\*tcpurcvkqp''cpf 't gunt levgf 'tt cpurcvkqp0kp''wqvcn'tt cpurcvkqp."y j kej 'ku'y j cv'ku'i gpgtcm( 'o gcpv'd{ "

\*tcpurcvkqp."cm'y g''hpi wkn/ke''igxgmi'qh'y g''uqwteg''yzzv'\*r j qpqmi {.'i tcr j qmi {.'i tco o ct''cpf ''igzku+''ctg''

tgr megf ''d{ ''vcti gv'mpi wci g''o cvgtkcn0GS WKXCNGP EG''kp''y ku''v{r g''qh''vcpurcvkqp''ku''pqto cm( ''qpn( ''cej kgxgf''

cv'y g''igxgn'qh'i tco o ct''cpf ''igzku."cpf ''Ecvhqtf ''y gtghqtg'f ghkpgu''vqvn''vtcpurcvkqp''cu''y g''-tgr mego gpv'qh''UN''

i tco o ct''cpf ''igzku''d{ ''gs wkxcngpv''VN''i tco o ct''cpf ''ngzku'y ky ''eqpugs wgpvkcnt'gr mego gpv'qh''UN''r j qpqmi {1

i tcr j qmi { ''d{ ''\*pqpgs wkxcngpv+''VN''r j qpqmi {1 i tcr j qmi {ø'\*kdkf 0.44-10Kp''t gunt levgf ''t cpurcvkqp."qp''y g''

qy gt''j cpf .''y gtg''ku''+tgr mego gpv'qh''UN''yzwcn'o cvgtkcn'd{ ''gs wkxcngpv''VN''yzwcn'o cvgtkcn'cv'qpn( ''qpg''

mgxgm'\*kdkf 0.0'Vj gtg''ctg''y q''o ckp''v{r gu''qh'tguntlevgf ''tcpurcvkqp<'rj qpqmi lecn'tt cpurcvkqp''cpf''

i tcr j qmi lecn'tt cpurcvkqp0T guntlevgf ''tcpurcvkqp''cv'y g''i tco o cvlecn''gxgn'qt''ngzkecn'ngxgn'qpn( ''ku''+f kthlewn''

kh''pqv'ko r quukdngø'dgecwug''qh'y g''kpygtf gr gpf gpeg''qh'i tco o ct''cpf ''ngzku''

\*kdkf 0.46+0Ecvhqtf "cnuq"uvtguugu" yi cv'yi gtg"ecp"dg"pq"tguvtkevgf "vtcpurcvkqp"cv'yi g'kpvgtrgxgrlqh'eqpvgzv" dgecwug" yi gtg"ku'pq"y c{ "kp"y j kej "y g"ecp"tgr rceg"UN "õeqpvgzwcrl'wpkvuö"d{ "gs wkxcrgpv"VN" õeqpvgzwcrl' wpkvuö"y kyi qw'uko wncpgqwun "tgr rcekpi "UN'i tco o cvkecnl' rgzkecn'wpkvu'd{ "gs wkxcrgpv"VN'i tco o cvkecnl' rgzkecn'wpkvu'd ("gs wkxcrgpv"VN'i tco o cvkecnl' rgzkec

\*e+'kp''yto u''qh''y g'i too o cvkecn'qt''r j qpqmi kecn'tcpm'cv'y j kej "vtcpurcvkqp''gs wkxcrgpeg'ku''guvcdrkuj gf." Ecvlqtf 'f kuvkpi wkuj gu''dgwy ggp'**t cpm'dqwpf 'vt cpurcvkqp.**''y j kej 'kpxqrxgu''c'f grkdgtcvg''cwgo r v''vq'' eqpukuvgpvn("ugrgev''VN''gs wkxcrgpvu''cv''y g''uco g'tcpm'kp''y g''j kgtctej { "qh'i too o cvkecn'wpkxu."hqt"gzco r rg''cv'' y g''tcpm'qh''o qtr j go g. 'y qtf. 'i tqwr. 'encwug''qt''ugpvgpeg'\*kdkf 0x'46+."cpf 'wpdqwpf gf 'vtcpurcvkqp."y j gtg'' gs wkxcrgpegu''+uj wpv'wr 'cpf 'f qy p''y g'tcpm'uecrg. 'dwv'vgpf 'vq''dg''cv'yj g''j ki j gt'tcpmuô uqo gvko gu''dgwy ggp'' rcti gt'wpkxu''y cp''y g''ugpvgpegø'\*kdkf 0x'47='ugg''cnuq''HTGG''VTCPUNCVKQP+0

## Crr ( kpi 'tj g'hkpf kpi u'qh'hkpi wkwkeu'tq'tt cpurc kqp

Vj g'f kugpej cpvo gpv'qh'vtcpurcvkqp''yj gqtkuvu''cpf 'r tcevkukqpgtu''y kyj 'hkpi wkuvkeu'ku'uckf 'vq''ctkug'htqo ''yj g'tghwucn'qh'' Co gtkecp'untwewtcn'hpi wkunkeu'nq'cfftguu'njg'rtqdrgo 'qh'o gcpkpi 'qp'njg'i tqwpfu'njcv'o gcpkpi 'ku'uectegn("  $unt we wit gf "cpf." lp"cp{ "ecug." wpqdugt xcdrg0" Vj ku' \ r g''qh''r kpi wkurkeu' ku''qdx kqwun{ "qh''r kwrg'' cuukurcpeg' \ 'q' \ 'tcpurc \ kqp." } \\$ ukpeg. "cu" Ecvhqtf "uc{u.":KV"ku"ergctn{ "pgeguuct{"hqt"\tcpurcvkqp/yi gqt{"\q"ftcy "wrqp"c"\j gqt{"qh" o gcpkpi ø'\*3; 87<57+0J qy gxgt. "htpi wkukeu"f kf "hcktn( "s wkemn( "eqo g'\q'\y g'\cum'qh'o qf gmkpi "o gcpkpi "dqy "cv" y qtf "cpf "ugpvgpeg" ngxgr0" Vq"f guetkdg" o gcplpi "cv"y qtf "ngxgn" lkv"r tqf wegf "eqpegr vu" uvvej "cu"f gpqvcvlqp." eqppqvcvkqp."eqo r qpgpvkcn'cpcn( uku."cpf "ugo cpvke"hkgnf u="cpf "vq"f guetkdg"ugpvgpeg"o gcpkpi "kv"i gpgtcvgf " eqpegr vu'uwej "cu'r tguwr r qukskqp"cpf "gpvckro gpv0C"f kuewuukqp"qh'uqo g"qt"cm'qh'vj gug'hqto u'vj g'dwm'qh'vj g" y qtmu'd{ ''Dgm'\*3; ; 3+"cpf ''Rgti pkgt'\*3; ; 5+."co qpi ''qyi gtu0'Vj g'tgngxcpeg''qh'eqo r qpgpvkcn'cpcn{ uku''\q'' vtcpurcvkqp"j cu'dggp"f kuewuugf "d{ "P kf c" "3; 97d. "Ej cr vgt "35+"cpf "P gy o ctm" "3; ::. "Ej cr vgt "33+0 Vj g'ko rqtvcpeg'qh'vj gug'eqpegr vu'hqt'vtcpurcvkqp'ku'vj cv'vj gkt'crrnkecvkqp'kp'eqo rctcvkxg'nkpi wkuvkeu' f go qputtcvgu'ergetn( "vj cv'vj g"o gcp"kpi u'cpf "o gcpkpi "untwewtgu'qh'qpg'hcpi wci g"f q"pqv'o cvej "vj qug"qh'cpqvj gt0' Htqo "c'hkpi wkurke"r qkpv'qh'xkgy ."qpg'eqwrf "cm quv'uc{ 'yi cv'gcej 'hcpi wci g'ku'hwn'qh'i cr u'kp't grcvkqp'vq'qyi gt" ncpi wci gu0O quv'Gpi nkuj ''ur gengtu.'hqt''gzco r ng. ''y km'pqto cm{ ''wug'lwuv''y g''qpg''y qtf ''vq''tghgt''vq''y gkt''j qo g'' rki j vkpi "\*Rwv'y g'hki j v'qp+"y j gtgcu'Htgpej "r gqr ng"o c{ "tghgt" 'vq" y g'uco g' y kpi "d{ "c"pwo dgt "qh'f khhgtgpv' vgto u." f gr gpf kpi "qp" yi g"uj cr g"qt" r qukkqp" qh" yi g"hki j v"hkwkpi 0'O qwpkp" \*3; 85+"i kxgu" uko krct "gzco r ngu" htqo "yi g" ugo cpvke 'hkgrf ''qh''Htgpej ''dtgcf. ''co qpi uv'qyi gt''yi kpi u.''y j krg''Dcuupgw'\*3; : 21'3; ; 3+''qr gpu'j gt''y qtm'y kyi ''c'' eqorctkuqp"qh"Kcnkcp"cpf "Gpinkuj" yqtfu"hqt"dwwgt0Qpg"eqwnf"cmquv"uc{"yjcv"yjgug"ewnwtcn"kpeqorcvkdknkkgu" ctg''y g''-dtgcf 'cpf 'dwwgtø'qh'o cp{ 'y qtmu'qp'nkpi wkurkeu'cpf ''tcpurckqp0Cndtgej v'wugu''y g''kpvgtgurkpi 'cpcmqi { '' qh'ewttgpe{"\tcpuhgt"\q"f guetkdg"\uwej "kpeqo r c\kdkrkklgu<"cnj qwi j "\j g"cur gev'cpf "pwo gtkecn'xcnwg"qh'\j g"eqkpu" cpf 'pqvgu''ej cpi gu. 'vj gkt 'tgcn'xcnwg''uj qwrf 'pqv. 'dww'kp 'tgcnkv{ 'kv'f qgu. 'ukpeg''yj g{ 'hkv'kpvq''c 'f kthgtgpv'r tkeg'' unt wewst g'\*3;  $95 \checkmark = \text{lugg'cnuq'R} \{o '3; ; 4c+0\}$ 

Kpeqo r cvkdktkkgu"qh"vj ku"v(r g"j cxg"qdxkqwu"rkpi wkurke"ko r necvkqpu"hqt "vtcpurcvkqp0"Vj g"o gcplpi "y j kej "ku" vtcpuhgttgf "kp"vtcpurcvkqp"ku"pgctn("cny c { u"eqpvgz wcn"cpf "wuwcm("kpxqnxgu"uqo g"hqto "qh"nquu0"Vj ku"ku"pqy "c" eqo o qpr neeg"qh"nkpi wkurke"vj gqtkgu"qh"vtcpurcvkqp0"Eqpugs wgpvn(."qpg"vcun"qh"c"nkpi wkurke"vtcpurcvkqp"vj gqt { "dgeqo gu"vj cv"qh"f ghkpkpi "vj g"vtcpurcvkqp"vgej pls wgu"tgs wktgf "vq"f gcn"y kyj "vj gug"o kuo cvej gu"cpf "vj g"tgncvkqpu" vj g{ "ugv"wr "dgwy ggp"ncpi wci gu0

#### Y qtf'cpf'rj tcug'lgxgd\czqpqo lgu

Vj g'Twurkcp"tcpurckqp"tj gqtknv'Tgvungt"\*3; 96+"\cmnu"qh'tj tgg"hqto u"qh'eqttgur qpf gpeg"dgw ggp"uqwteg"cpf "
vcti gv'rcpi wci g0'Vj gug"ctg"**gs wkxcrgpeg.**"d{ "y j kej "j g"o gcpu"qpg/vq/qpg"eqttgur qpf gpeg."**cpcmji {.**"\j cv'ku"
s wcuku{pqp{o {"cpf "r ctvkcn'gs wkxcrgpeg."cpf "**cf gs wce{.**"y j gtg"\j g"\tcpurcvqt"f gr ctvu'htqo "\j g"y qtf kpi "qh'\j g"
qtki kpcn'cpf "\j g"f kevkqpct{"qhhgtkpi u'\q'wug'hqwt'\tcpurcvkqp"\gej pks wgu<

- \*d+'nqi kecn'f gtkxcvkqpô *uj qt vgt 'y qt mkpi 'j qwt u.* 'y j kej 'ku't guwn/'qt 'ghhgev.''dgeqo gu''*Ugpmwpi 'f gt 'Ct dgkw/ gk*v''
  \*nkgtcm{ "÷tgf wevkqp'kp'y qtm'vko gø+.''y j kej 'ku'c'r tqeguu'qt 'ecwug
- \*e+"cpvqp{o ke"\tcpurc\tqpô guv"\npg"\xcng\nt "f2l\" "cpekgppg"\tkgtcm{":ku"cp"cntgcf { "qnf "xcn\ng\nt"d{" pq"o gcpu"c"pgy "xcn\ng
- \*f +'EQO RGP UC VIQP ô cu'lp''y g''gctrlgt 't ghgt gpeg''vq''*Mgu* 'y j gtg''y g''cdugpeg''qh''c''uwkcdrg''f kcrgev'ku'' eqo r gpucvgf 'hqt''d{ 'c''ej qleg''qh''uqekqrgev0

C"o qtg"ceeguukdng"cpf "f gwkngf "f kuewuukqp"qh'vj gug'\gto u'\\*y j kej "ctg."pqv'uwtr tkukpi n\ ."xgt\ "uko knct"\q"vj qug" hqwpf "kp"qvj gt"\czqpqo kgu+"ecp"dg"hqwpf "kp"Uj xgkugt"\3; : 9+."htqo "y j qo "vj g"I gto cp"gzco r ngu"ctg"\cngp0' Uj xgkugt"\2; ygkugt"\2; ygqt\ "qh'i gpgtc\xxg"i tco o ct"kp"y j kej "f ggr " untwewtg"\ci u'ceeqwpv'hqt "ugnge\xqp"tguxtke\xqpu'\twgu'i qxgtpkpi "vj g"eqo dkpcdknt\ "qh'y qtf u'kpvq"r j tcugu+"cpf" uq"cmqy "\tcpunc\xqp"\q"dg"xkgy gf "cu"c"r tqeguu'qh'r ctcr j tcug"d\ "r tqxkf kpi "pq"hgy gt"\yi cp"77"ngzkecn'cpf "44" u\ pvce\xe'\twgu'\q'i wctcp\xgg'\yi g"o ckp\xppcpeg"qh'gs wkxcngpeg'y kyi kp"cp"cn\xgtgf "hqto "qt"\untwewtg0O quv' tcpunc\xqtu'y qwf "engctn\ "hxpf" uwej "cp"cr r ctcwu'\xpy kgnf\ \{0\}

Gwi gpg'P kf c'\*3; 8; +'j cu'r tqr qugf 'j ku'qy p'uko r ngt 'xgtukqp'qh'f ggr 'uxtwewtg'cpcn{uku. 'kp'y j kej 'eqo r ngz'' uxtwewtgu'qt 'ugpvgpegu'ctg'hktuv'tgf wegf 'vq'ngt pgnu 'qt 'uko r ng'ugpvgpegu. 'wukpi 'lwuv'y g'hqxt 'ecvgi qtkgu'qh'' Qdlgev. 'Gxgpv. 'Cduxtcevkqp. 'cpf 'Tgncvkqp='vcti gv'ncpi wci g'uxthceg'uxtwewtgu'ctg'y gp''cttkxgf 'cv'd{ 'c'ugtkgu'qh'' xcpuhqto cvkqpcn'twngu0'K'j cu'dggp'r qkpvgf 'qw'd{ 'o cp{ 'eqo o gpvcvqtu'y cv'uwej 'c'r tqeguu'ku'cm quv'egtvckpn{ "pqv'hqmqy gf 'd{ 'cewcn'xtcpuncvqtu. 'y j qug'cpcn{ ugu'qh'y g'uqwteg'ncpi wci g'vgzv. 'kh'wpf gtvcngp'cv'cm''ctg'hct'' o qtg'hkngn{ 'vq'vcng'y g'hqto 'qh'f kuewtukxg'gzr ncpcvkqpu'vq'y go ugnxgu'qh'y j cv'y g{ 'y kpn'y g'vgzv'ku'cdqw0'Qp'' y g'y j qng. 'f ggr 'uxtwewtg'cpf 'xtcpuhqto cvkqpcn'i tco o ct'y qwnf 'uggo 'vq'j cxg'qhhgtgf 'xgt{ 'nkwng'vq'y g'uwf { 'cpf 'y gqtk| cvkqp'qh'xtcpuncvkqp0}

Vj gug"cpcn(ugu"vgpf "hqt"y g"o quv"r ctv"vq"dg"eqpegpvtcvgf "cv"y qtf "qt"r j tcug"rgxgn"cpf "kv"ku"o ckpn( "vq"f guetkdg" y ku"rgxgn"y cv"vtcpurcvkqp"vczqpqo kgu"j cxg"dggp"f gxgrqr gf 0Uwej "vczqpqo kgu"t gr tgugpv"y c {u"qh"ceeqwpvkpi "hqt" vtcpurcvkqp"CS WXCNGP EG0T gvungtøu"vczqpqo {"j cu"cntgcf {"dggp"o gpvkqpgf ."cpf "y gtg"ctg"s wksg"c"bgy "qy gtu."dw"y g"o quv"ro qwu."cpf "qpg"qh"y g"o quv"etkkek gf ."ku"wpf qwdvgf n( "y g"qpg"r tqr qugf "d {"Xkpc {"cpf" F ctdgppgv"s; 7: +"y j kg"y g"o quv"tgegpv"ku"qhhgtgf "d {"O cmpg"\*3; :: +0Xkpc {"cpf "F ctdgppgv"f guetkdg"y g" vgej pks wgu"qh"dqttqy kpi ."ecrs wg. "nkgtcn"vtcpurcvkqp. "vtcpur qukkqp."o qf wrcvkqp. "gs wkxcrgpeg"cpf "cf cr vcvkqp." y kj "gzco r ngu"tqo "y g"tkpi wkuvke "pxgnu"qh"pzku."i tco o ct "cpf "yzv0O cmpg"f kuewuugu"xctkqwu"yeej pks wgu"qh" o cvej kpi ." | ki | ci i kpi ."tgetguegpeg."tgr cenci kpi ."tgqtf gtkpi "cpf "tgeqf kpi ."o quv"qh"y go "y kj "uwd/"cpf "uwd/uwd/f kxkulqpu"y cv"nqto "s wksg"c"eqo r ngz "gf kheg0J ku"encko "ku"y cv'uwej "vgej pks wgu"cpf "r tqegf wtgu"y km"-ugtxg"gkj gt" cu"vqqnu"hqt"y g"uwf {"qh"eqo r ngvgf "tccpurcvkqp"\*yi g"cpcn( vke"o qf g+"qt"cu"j gm o cvgu"kp"y g"cev'qhi'vtcpurcvkqp" "yj g"qr gt cvkxg"o qf g+ø\*3; :: -4+0J qy gxgt."o cp {"vtcpurcvqtu"hkpf."hkng"Ncf o ktcn">3; 9; -433+"yj cv'hkpi wkuvkeu" ecppqv"r tqxkf g"vtcpurcvkqp"yeej pks wgu"y j kej "ecp"dg"cr r nkgf "kp"c"hkpgct"hcuj kqp. "yi qwi j "yi ku"f qgu"pqv"r tgxgpv' Ncf o ktcn"j ko ugm'htqo "qhhgtkpi "j ku"qy p"vtcpurcvkqp"yi gqtgo u "c"o kzwtg"qh"eqpegr vu"cpf "vgej pks wgu"uwej "cu" -eqpvtgugpu"o kpko cn"f kuuko krcvkqp."kpet² o gpvkchkrcvkqp. "kpvtcf wevkqpø"gve0

#### Vgz v'Hpi wkuke'crrt qcej gu

Y qtf "cpf "rj tcug" igxgn' wzqpqo kgu. "gxgp" y j gtg" y j gtg" y j gtg" y gtg" y gtg" y gtgpukkxg. "ctg" kpcf gs wcvg' hqt "f gcnlpi "y kyj "cm" y g'r tqdrgo u'hcegf "d{"tcpurc wqtu 0 Ki ku'wuxcn" y gtghqtg. "vq" dtqcf gp" y g'ueqr g" vq" y g" VGZ V" NKP I WKUVKE "rgxgn" qh'tgi kuvgt "cpcn{ uku'\* vgpqt. "o qf g. "f qo ckp+ "F KUEQWTUG" CPCN[ UKU'\* y go cvke "untwewtg. "eqj gtgpeg." eqj gukqp+"cpf "RTCI OCVKE" cpcn{ uku'\* ur ggej "cevu." I tkegcp" r tkpekr rgu. "rcpi wci g" cpf" vgz v'hwpevkqpu+0 Vj ku'ku" o qtg" qt "rguu' y g"r tqi tguukqp" hqmqy gf "kp" J cvko "cpf" Ocuqp" 3; ; 2." 3; ; 9+" Dgm'\* 3; ; 3+" cpf" Dcmgt" 3; ; 4+0 Qpg" qh' y g" g'gtthguv' cr r hecvkqpu" qh' y g" eqpegr v'qh' tgi kuvgt" q" vtcpurc kqp" y cu'r tqxkf gf" d{"J qwug" 3; : 3+" y j q" uj qy gf" j qy "y g" y q" o clqt" vgz v'hwpevkqpu" **ff gc vkqpc n** eqpxg{kpi "kf gcu." cpf" **lpvgt r gt uqpc n** tgrckpi "cwj qt." vgz v'cpf "tgcf gt+" ctg" uwr r qtvgf" d{"tgi kuvgt" r ctco gvgtu" uwej "cu' o gf kwo "cpf" uqekcn' tqrg' tgrc vkqpuj kr. "cpf" j qy "qp" y ku'dcuku' c" vtcpurc vkqp" ecp' dg" lwf i gf" pqv' lwuv' qp' ugo cpvke" o cvej "dw' d{"y g"

Vj gug'hlpi wkuke eqpegr w'ctg'engctn ('qh'eqpukf gtcdng'ko rqtvcpeg'hqt'tcpunckqp'htqo 'vy q'rqkpw'qh'xkgy 0'Hktuv.'' cm'\tcpurc\qtu'\uj qwrf ''dg''cdrg'\q'r gthqto ''uwej ''cp''cpcn\( uku'\kp''qtf gt'\q''\\*c+'j cxg''cp'\wpf gtuvcpf kpi ''qh'\yj g'\yzv'\yj g\{ '' ctg"tcpurcvkpi "y j kej "cmqy u"y go "vq"ej qqug"y g"crrtqrtkcvg"tgi kuvgt "kp"y g"VN. "cpf "\*d+"rtqf weg"y gkt"qy p" cpcn{ uku'qh'tgi kuvgtu'cxckrcdrg'kp''UN'cpf ''VN'y j gp''y g{ "eqo g''vq''cemg'pgy ''uwdlgev'o cwgtu0Ugeqpf.''y g'' cuuwo r wkap "ku' yi cv' yi g'tgi kuvgtu''er r tar tke vg'kp''e 'i kxgp''ukwe wkap 'y km'xet { ''dgwy ggp 'nepi wei gu''epf ''yi ev ''eu''e '' eqtqmct { ."tgi kuvgt 'uj khvu'y km'qeewt 'kp' vj g'r tqeguu'qh' \tcpurc \kqp0'Ucf n{ ."j qy gxgt . 'xgt { 'hkvvg'eqo r ctc \kxg' y qtm' uggo u'vq'j cxg'dggp'f qpg'kp''y ku'hkgrf. "cpf "eqpugs wgpvn{ 'vj gtg'ku'nkwrg'uqnkf 'f cvc'hqt'\tcpurcvqtu'vq'i q'qp''qyj gt" yj cp'yj gkt''qy p''gzr gtkgpeg''cpf ''eqo o qp''ugpug0'Vj g''uco g''ku''\twg''qh''xkxcn''ctgcu''qh''\gzv'nkpi wkuvkeu''uwej ''cu'' eqj gt gpeg"cpf "eqj gulqp" "y g"eqpegr wcn'cpf "hpi wkrke hpnci gu'y j kej "eqo dkpg' \q"o cng'c \gzv'c "o gcpkpi hwn" wpkv+. '\gzv'v{rqmi { "cpf "\gzv'hwpevkqp0'Kv'ku'i gpgtcm{ "cuuwo gf "\j cv'f khhgtgpv'hcpi wci gu'y km'j cpf ng'\j gug'o cwgtu" fkhgtgpvn(.'y kj "eqpugs wgpegu'hqt"\tcpurc\kqp0'Htgpej.'hqt"gzco r ng.'y km'\gpf "\q'\vug"gzr nkek'j {r qvce\ke" eqj gukqp"cpf "eqj gtgpeg"f gxkegu. "dwv"j gtg"ci ckp"vj gtg"ku"qpn{ "c"f gctvj "qh"gzr gtko gpvcn"hkpi wkuvke"f cvc"vq"uwr r qtv" uwej "encko u0P gxgtvj gnguu." vj g'y qtmu"qh"P qtf "qp" vgz wcn'cpcn (uku "cpf" qh"T gkuu "cpf" "Xgto ggt" qp" hwpe vkqpcn" stcpurcvkqp"vj gqt { "r qkpv"vj g"y c { "\*ugg" \( \text{UMQRQU"VJ GQT[} + \text{"cpf "vj g"f gxgmr o gpv"qh"eqtr wu"cpcn { uku"d { "} \)  $eqo\ r\ wygt''uj\ qwrf''dgi\ kp''vq''tgo\ gf\ \{\ ''vj\ gug''f\ ghkekgpekgu'''ugg''\underline{EQTRQTC''KP'''VTCP\ UNC\ VKQP''UVWF\ KGU+0\}}$ Vy q'hkpcn'ctgcu'qh'o qf gtp''nkpi wkuxleu'y j kej ''ctg''qhxgp''nkpngf ''vq''vtcpurcvkqp''eqo g''htqo ''RTCI OCVKEU.''y j kej .'' dgkpi "eqpegtpgf" y kj "y g"wug/xcnwg" qh" wwgtcpegu. "ku" qh'r ctc" o qwpv'ko r qt vcpeg' vq" vtcpurc vkqp" u wyf kgu0 Vj g{"ctg" yj g'uq/ecngf 'I tkegcp'ko r nkecwtgu'cpf ''yj g''yj gqt { "qh'ur ggej 'cevu0'Vj g'eqpegr v'qh'ko r nkecwtgu'cpf ''yj g'' y g'' cuuwo r wkqp"yj cv'eqpxgtucwkqp"ku'i wkf gf "d{"c"ugv'qh'r tkpekr rgu"uwej "cu<"dg"r qrkvg. "f q"pqv'uc{"o qtg"qt"rguu'yj cp" {qw'j cxg'\q."cpf 'uq'qp0'Y j gp"qpg"qh'\j g'r tkpekr rgu'ku'xkqrc\yf."uqo gyj kpi 'ku'ko r rkgf 'cdqxg'cpf 'dg{qpf '\j g' pqto cn'tqwkpgu'qh'eqpxgtuckqp0Cnj qwi j ''y g'eqpegr v'y cu'f gxgnqr gf 'r tko ctkn( 'hqt''y g'cpcn(uku'qh'ur qngp'' rcpi wci g. 'kw't grgxcpeg' 'vq' 't cpurc vkqp' 'ku' cnuq' 'ergct 0'Vj g'r qrkvgpguu'r t kpekr rg' 'eqwrf 'dg' 'wugf 'kp' 'gzr rckpkpi " f gekukqpu'\cngp'kp'\j g'eqwtug'qh'\tcpurc\kpi "qhhgpukxg"o cvgtkcn'kpvq'ewnwtgu'y j gtg'kk'ku'pqv'ewuvqo ct{'\q'ecwug'' qhgpeg'kp'y tkkpi 0'Vj g'r tkpekr rg'qh's wcpvkv{ "j cu'ergct 'tgrgxcpeg'kp''vtcpurcvkpi "o cvgtkcn'y j kej 'ku'wphco krkct 'vq'' yj g''VN''cwf kgpeg0'Hwtyj gto qtg.'f khhgtgpv'hcpi wci gu'y km''crrn(''yj g'rtkpekrngu'kp'fkhhgtgpv'y c{u'kp'fkhhgtgpv' ukwc kqpu. "cpf "vj ku 'mpqy ngf i g"uj qwrf "hqto "r ctv'qh 'vj g" 'tcpurc vqt øu 'eqo r gwgpeg0 Hkpcm{ .'kv'j cu'dggp'uwi i guvgf 'vj cv'c'mpqy ngf i g'qh'ur ggej 'cev'vj gqt { 'ku'ko r qt vcpv'vq'vtcpurcvqtu0J cvko 'cpf' O cuqp'\*3; ; 2+. "hqt "gzco r ng. "r tqxlf g'ur ggej "cev"cpcn( ugu 'qh'r cuuci gu 'qh'Gpi nkuj "qp' yj g' cuuwo r vkqp' yj cv' yj g" urggej 'cev'\*r cuukpi 'lwfi go gpv.'i kxkpi 'qtfgtu.'cpf 'uq'qp+'wpfgtrkpkpi 'vjg'cewcrlyqtfu'wugf'ykrrlkphrwgpeg'vjg' vtcpurcvkqp0'Vj ku'ku. 'j qy gxgt. 'htgs wgpvn{ 'pqv'vj g'ecug. 'ukpeg'c'nksgtcn'vtcpurcvkqp'y km'qhsgp'r tqf weg'vj g'f guktgf " ghłgev'y kaj qww'ij g'pggf 'hat 'hwt vj gt 'cpcn( uku0'Vj ku'adugt x cwlap'f guet kdgu. 'kp'c 'pwuj gm'ij g'r tadngo cwle 'uvcwu'ah' nkpi wkuvkeu"y kyj "tgi ctf "vq" tcpurcvkqp" yj gqt { "cpf "r tcevkeg0" kp" uwo . "o qf gtp" nkpi wkuvkeu "engctn ( "r tqxkf gu"r qy gthwn" vqqnı'hqt''y g''cpcn(uku''cpf 'wpf gtuvcpf kpi ''qh'hcpi wci g.''cpf ''y gug''vqqnı''qwi j v''vq''dg''r ctv'qh''y g''eqo r gygpeg''qh'' gxgt { "tcpurc vqt0J qy gxgt." y gug "vqqnu "htgs wgp vn { "r tqxg" vq"dg" o qtg" wughwn | cu'f kci pqu vke 'vgej pks wgu. 'vq" hkpf "qww" y j cv'j cu'i qpg'y tqpi 'kp'c'tcpurcvkqp''chvgt''y g''gxgpv.''tcvj gt''y cp''cu'u{ uvgo cvke''ckf u'hqt''wug'f wtkpi ''y g''gxgpv0' Oqtgqxgt."o wej "gzegngpv'tcpurcvkqp"ku'f qpg'd{ "r gqr ng'y j q'j cxg"pq"npqy ngf i g"qh'y j cv'rkpi wkuvkeu'j cu'vq" qhhgt0KV'yi gtghqtg"uggo u'tgcuqpcdng'\q"uwi i guv'yi cv'nkpi wkurkeu'uj qwnf 'pqv'dg"gzenwf gf 'htqo 'f kuewuukqpu'qh' vtcpurckqp. "dw'uj qwrf. "cv'yj g'uco g''klo g. "dg''uggp''cu''lwuv'qpg''y c{. "tcyj gt''yj cp''yj g''qpn{'y c{. "qh''ceeqwpvkpi 'hqt''

y g'vtcpurcvkqp'r tqeguu0

Ugg"cnuq<

EQP VTCUVIXG"CPCN| UKU"CPF "VTCP UNCVKQP ="FKUEQWTUG"CPCN| UKU"CPF "VTCP UNCVKQP ="
RTCI O CVKEU"CPF "VTCP UNCVKQP ="S WCNKV| "QH"VTCP UNCVKQP ="UGO KQVKE"CRRTQCEJ GU="
VGZ V"NKP I WKUVKEU"CPF "VTCP UNCVKQP 0

## Hwt yj gt 't gcf kpi

RGVGT'HCY EGVV

# Nkgt ch't cpurc vkqp

Nkgtcn'tcpurcvkqp."cnuq"ecngf"y qtf/hqt/y qtf"tcpurcvkqp"d{"EKEGTQ"\*328668"DE="ugg"NCVKP"VTCFKVKQP+:" J qtceg'\*876: 'DE+'cpf 'xktwcm( 'gxgt {qpg'\j gtgch\gt."cpf 'O GVCRJ TCUG'd { 'Lqj p'FT[ FGP '\*385363922='ugg" DTK/KU 'VTCF K/KQP + 'ku'kf gcm( ''y g'ugi o gpvcvkqp"qh''y g'UN''vgzv'kpvq'kpf kxkf wcn'y qtf u'cpf ''VN''tgpf gtkpi ''qh'' yj qug'y qtf/ugi o gpvu'qpg''cv'c'\ko g0'Vj ku'kf gcn'ku'qhvgp'hkvgtcm{ 'ko r quukdrgô cp'kphrgevgf 'y qtf'kp''cp'' ci i nwkpcvkxg"UN. 'hqt "gzco r ng. "ecp"cno quv'pgxgt "dg"t gr ncegf "y kij "c"ukpi ng"y qtf 'kp"cp 'kuqncvkxg"VNô cpf. "gxgp" y j gp 'rksgtcm{ 'r quukdrg. 'vj g'tguwn/ku'qhsgp 'wptgcf cdrg0J gpeg'o quv'uq/ecrrgf 'rksgtcri'stcpurcskqpu'ctg'kp 'hcev' eqo r tqo kugu'y ky ''y g'kf gcn<'mqugt'tgpf kkqpu''y cv'tgr nceg'kpf kxkf wcn'UN'y qtf u''y ky 'kpf kxkf wcn'VN''y qtf u'' y j gtgxgt'r quukdrg."cpf 'enkpi "cu'enqugn{ 'cu'r quukdrg''vq''y g''UN'y qtf ''qtf gt''kp''y g''VN0 Ecvlqtf "\3; 87+"cvgo r vu'\q"qdx\kcvg"\yi g"eqphvu\kqpu'\kpi gtgpv'\kp'\yi g'\qqug'\yto u'\y qtf/\kqt/y qtf. "rkvgtcn"\ugpug/\kqt/ ugpug. "cpf "htgg"d{ "ur genkpi "qh'tepm/dqwpf "\tepure\kqp"cpf "wpdqwpf gf "\tepure\kqp0\Tepm/dqwpf '\tepure\kqp"  $r\,tqeggf\,u'd\{\,'tgpf\,gtk\!pi\,\,'tgz\,wcn'ugi\,\,o\,\,gpw'\,'yj\,\,cv'ctg''cm'cv'\,'yj\,\,g'uco\,\,g''t\,cpm'''o\,\,qtr\,j\,\,go\,\,g.''y\,\,qtf\,.''i\,\,tqwr\,.''encwug.\,''qt''$ ugpvgpeg+0Kp"vj ku"ugpug. "c"uvtkevn( "rkvgtcn"vtcpurcvkqp. "kp"vj g"qrf "ugpug"qh"tgpf gtkpi "qpn( "qpg"y qtf "cv"c"vko g. "cpf" c''uvt kevn (''ugpug'hqt/ugpug''tcpurcvkqp.''kp''yj g''Ncvkp''ugpug''qh''tgpf gtkpi ''qpn (''qpg''ugpvgpeg''cv''c''vko g.''y qwrf''dqyj ''dg''' land (''uppug''hqt/ugpug'''hqt/ugpug''hqttcpm/dqwpf 0°C "tcpurcvkqp" vj cv"f kf "pqv"cf j gtg" uq"emugn("vq"c" ukpi rg"tcpm"qt" vgzwcn'ugi o gpv"dwv"tgpf gtgf "pqy" kpf kxkf wcn'y qtf u. "pqy "y j qng"ugpvgpegu. "uqo gvko gu"eqpf gpukpi . "uqo gvko gu"gzr cpf kpi . "gve0"y qwrf "dg"cp" wpdqwpf gf 'tt cpurc tdqpô gxgp'kh''y g'tcpm/uj khw''y gtg''dgwy ggp''y qtf u''cpf 'r j tcugu''cpf ''y wu''nqqngf ''pgct/nkgtcn'' Kp"j ku"vgto kpqmi {."kp"hcev."hkgtcn"cpf "htgg"ctg"uwd/ecvgi qtkgu"qh"vpdqwpf gf "\tcpurcvkqp."vj g"hqto gt"dgkpi " wpdqwpf gf "tcpurc\kqpu"cv"yj g"nqy gt "tcpmu" y qtf u"cpf "r j tcugu+." yj g"ncwgt "wpdqwpf gf "tcpurc\kqpu"cv"yj g"j ki j gt" tcpmi'\*encwugu'cpf 'ugpvgpegu+0

Vjg"getnkguv"tepunevkqpu"vjev"uwtxkxg"vqfe{."Itggm/vq/Nevkp"tepunevkqpu"d{"Ipegwu"Pegxkwu"\*e@492óe@422"DE+" cpf 'Nwekwu'Nkxkwu'Cpf tqpkewu'\*e04: 66e0426'DE+'htqo ''y g''y ktf 'egpwt{ ''DE.''ctg'rkxgtcn='cpf ''d{ ''y g''o kf/hktuv' egpwt { "DE."y j gp"Ekegtq"hktuv"yj gqtk gf "tcpurcvkqp"hqt"yj g"gf wecvkqp"qh"yj g"qtcvqt."tcpurcvkqp"j cf "eqo g"vq"dg" yj qwi j v'qh'cu'f ghkpkkxgn{ 'hksgtcn0'Vj wu'y j gp'Ekegtq'cpf 'hcvgt'J qtceg'y ctpgf 'ci ckpuv'tcpuncvkpi 'y qtf/hqt/ y qtf." y g{"ur geldhecm{"y ctpgf"ci ckpuv"tgpf gtkpi "dkng"c" \tcpuncvqt." w/kpvgtrtgu." cu"Ekegtq"r wuu koo Vq" \tcpuncvg" y cu'\q'tgpf gt 'qpg'y qtf 'cv'c'\lo g=\q'tgpf gt 'cp'UN'\gzv'o qtg'htggn( 'kpvq'\j g'VN.'\w'qt cvqt.'htgg'cp'qtcvqt.'kp'' qtf gt '\q'r gtuwcf g'c "VN"cwf kgpeg 'ghhge \kxgn{. "y cu'\q'f q'uqo gyj kpi "cnqi gyj gt 'f khhgt gp \0'Gxgp 'xgt { 't gegp \n{. 'kp'' 3;77. "Xrcf ko kt" P cdqrqx "eqpskpwgu" vq" cuugt v'vj ku" cpekgpv'eqpegr skqp" qh's tcpurc skqp <'+Vj g"r gtuqp" y j q"f gukt gu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp <'+Vj g"r gtuqp" y j q"f gukt gu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp <'+Vj g"r gtuqp" y j q"f gukt gu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp <'+Vj g"r gtuqp" y j q"f gukt gu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp qu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp qu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp qh's tcpurc skqp qu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp qu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qh's tcpurc skqp qu'vq" cuugt v'vj ku" cpekgpv'eqpegr skqp qu'vq" cpekgpv'eqpegr skqp qu'vq qu'vq" cpekgpv'eqpegr skqp qu'vq qu'vqwtp"c"hkgtct{"o curgtr kgeg"kpvq"cpqvj gt"hcpi wci g"j cu"qpn{"qpg"f wx{"vq"r gthqto ."cpf "vj ku"ku"vq"tgr tqf weg"y kyj " cduqnwg"gzcevkwfg"y g'y j qrg"vgzv."cpf "pqyj kpi "dww'y g"vgzv0"Vjg"vgto "õrkxgtcrl'vtcpurcvkqpö"ku'vcwqmi kecrl'ukpeg" cp{yi kpi 'dw'yi cv'ku'pqv'xt wn{ 'c''t cpurcx kqp''dw'cp''ko kxcx kqp. 'cp''cf cr xx kqp''qt''c''r ctqf{y'\*3; 77. '3; ; 4 < 356+0 Kp'j ku'ngwgt'\q'Rco o cej kwu'\*CF'5; 7+:'LGTQOG'\*569663; H2='ugg':\NCVKP''\VTCFKVKQP+'ncwpej gf'c''  $f\ kxgti\ gpv'cpf\ 'o\ qtg''eqphrlevgf\ 'cwcem'qp''rkvgtcrkuo\ .''eqkpkpi\ 'vj\ g''vgto\ '' ugpug/hqt/ugpug'' t\ cpurc vkqp''hqt''c''hckvj\ hwrl'' and the second of the$ o kffg'i tqwpf 'dgw ggp'y g'hckj hwihkgtchuo 'Ekegtq'cpf' J qtceg'egpuwtgf 'cpf' y g'htgg'ko kcvkqpu'y g{" f ghgpf gf ô dw'cniq. 'r tqdrgo cykecm{ . 'f ghgpf kpi 'rksgtcn'ytcpurcykqpu'qh'Uetkr wxtg. "-y j gtg'gxgp'yj g'y qtf 'qtf gt" j qrf u'c''o {uvgt {ø0'Ukpeg''j ku'hgvgt''ku'hcti gn{'c'ugtkgu''qh''gzcor ngu'kp'y j kej 'vj g''Ugr wci kpv'vtcpuncvqtu'cpf''vj g''

gxepi grkuw'tepurevgf 'r cuuci gu'htqo 'vj g''

J gdtgy "Qnf "Vguco gpv'nqugn{.'htggn{.'ugpug/hqt/ugpug'kpvq'I tggm'y ku'ku'c'uvtcpi g'encko .'cpf 'r tqdcdn{" gxkf gpeg''y cv'gxgp'Igtqo g.'f gur kg''y ku''y qtqwi j i qkpi 'tcf kecnkuo .'j cf 'pqv'vqvcn{"f go {uvkhkgf ''y g'ucetcrkv{"qh" UN'y qtf ''qtf gt0O {uvkecn'vtcf kkqpu''dqyi ''dghqtg''cpf ''y tqwi j qw''y g''y kuvqt {"qh''Ej tknvkcpkv{"j cxg''v{r kecn{" eqpegkxgf ''qh''y gkt''ucetgf ''yzwu''cu''f kevvgf ''d{ ''y gkt''i qf .''cpf ''y wu''cu''vcdqq.''vq''dg''crrtqcej gf ''qpn{"y ky ''i tgcv'' tgxgtgpeg'hqt''y g''cewcn'y qtf u'\*cpf ''gwgtu.''cpf ''y gkt''ugs wgpegu+''qp''y g''r ci gô cpf ''y ky ''c''hgct''qh''ej cpi kpi ''gxgp'' c''u{ncdng0}

Qtyj qf qz 'Ej tkukcpkk{. "cpf "yj g"o ckputgco "yj gqt { "qh"tcpurcvkqp"dvkn/qp"k/d { 'Igtqo g"cpf 'j ku hqmqy gtu. "j cu" dggp"cp"gzqvgtke"cuucwnv'qp"vj ku'y qtuj kr "qh'vj g"UN'ngwgt."ecmkpi "kv'kf q $\pi$ cvt {="C wi wuvkpg"\\$576\6652+."kp" $\chi$ cev."kp" $\chi$ c Ej t kukep 'F qeut kpg. 'uvevgf 'j ku'r tghgtgpeg'hqt' vj g'Ugr wei kpv'tepurevkqp' qxgt' vj g'qtki kpen' J gdtgy 'epf 'Cteo eke' vgz vu. "dgecwug" vj g"94" I tggmi'vtcpurcvqtu" cv'Crgzcpf tkc" y gtg" i wkf gf "d{" vj g" J qn{"Ur ktk0" Hqt" cp" guqvgtke. "vj g" qtki kpcn'\gzv'cny c{u'\cngu'r tgegf gpeg. 'cpf 'c'\tcpurc\kqp'o wuv'enkpi '\q'kw'eqpvqwtu'cu'enqugn{ 'cpf 'tgxgtgpvn{ 'cu' r quukdng="hqt" yj g"gzqvgtke" Ej tkuvkcp" ej wtej ."c" \tcpurcvkqp" eqpegkxgf" cu"f kxkpgn{ 'kpur ktgf' \cdot cu'Lgtqo gou'Xwri cvg" eco g'\q'dg+"cny c{u'\cngu'r tgegf gpeg."cpf "f kxkpg"kpur ktc\kqp"ku'\cngp"\q"o cpf cvg"eqphqto kv{ "pqv'\q"UN'y qtf " qtf gt "dww'\q"qt yj qf qz "f qevt kpg0Cp"gzqvgt ke "\tcpurc vkqp" o wuv'yj wu'o cmg "ugpug"pqv'qpn( "kp" yj g"VN. "dww'kp"c" fqi o cvle'u{uvgo ''vj cv'ku''qrgtcvlxg''kp''vj g''VN''dwv'ku''vcngp''vq''dg''wpkxgtucn''rtg/gzkuvkpi ''pqv''qpn(''vj g''vtcpurcvlqp'' dwi'y g''UN''yzv'cu'y gm0C''eqttgev'ugpug/hqt/ugpug'\tcpurcvkqp'tgpfgtu'y j cv'y g''geergukcuvkecn'kpuvkwwkqp''cmgu''vq'' dg''y g''cduxtcev.''\tcpuegpf gp\cn'ugpug''qh''y g''UN''\gz\vô c''ugpug''y cv''y g''UN''cwy qt''y ko ugnh'o c{ ''pqv'j cxg''hwn{ '' wpf gtuvqqf. "cu'y j gp"cwj qtu'qh'dqqmu'qh'yj g"Qnf "Vguvco gpv'j cxg'yj g'i qf u'tghgt 'vq'yj go ugnxgu'lp 'yj g'r nxtcn'\*yj g" Grąj ko. "y j kej "vj g'hckj hwrlugpug/hqt/ugpug'\tcpurcvqt 'tgpf gtu'cu''vj g'ukpi wrct 'NQTF +"qt"f q"pqv"{ gv'hwrn{ " wpf gtuvcpf 'vj g'v(r qmi kecn'uki pkhkecpeg'qh'vj gkt 'qy p'y qtf u'kp'r qkpvkpi 'cj gcf 'vq'Ej tkuv0 Dw'k'y cu''q'dg''o cp{ "egpwtkgu''dghqtg''y ku''qty qf qz''y gqt { "qh''tcpurcvkqp"y cu'hwm{ "cuuko krcvgf 'kpvq"y g" wpeqpuekqwu'r tcevkeg "qh' tcpurc vqtu. "cpf 'rkxgtcn' tcpurc vkqp "eqp vkpwgf "vq'hrqwtkuj "vj tqwi j qwv' yj g'Okffrg' Ci guô Gtki gpc'\*e0 326: 99+. 'Dwti wpf kq'qh'Rkuc'\*f 033; 5+. 'cpf 'qyj gtu0'kpf ggf 'uqo g'uwxf gpw'qh'o gf kgxcn'\tcpurc\kqp'' yj gqt {.'uwej "cu'Dtqem'\*3; 9; +'cpf "Uej y cty' "\*3; 66+'j cxg'encko gf "yj cv'o gf kgxcn'ytcpuncykqp"y cu'pqto cykxgn(" nksgtcn0/Eqrgrcpf "x3;; 3+"qhhgtu"c"oqtg"eqorrgz"cpcn(uku"qh"ogfkgxcn"\tcpurckqp"kp"\gtou"pqv"qh"yqtf/hqt/yqtf" gctn( 'hhrggpyi 'egpwt ('ugpug/hqt/ugpug'\tcpurc\hqp"j cf 'dggp'ceegr vgf 'd ('cro quv'gxgt (/qpg'cu'\yi g'qpn('qt yi qf qz'' crrtqcej "vq"c"hqtgki p"vgzv."cpf "vj g"Tgpcknucpeg"ucy "vj g"dktvj "qh"vj g"vj gqtgvkecn"vtgcvkug"qp"vtcpuncvkqp."wuvcm(" crrtqcej gu'\q'\tcpurc\kqp0Tgpckuucpeg'\tcpurc\qtu'rkng'Ngqpctfq'DTWPK\359263666=\ugg'\tcpurc\tcpurc\qtu' VTCF KVKQP +"the kewnef "vj ght"r tef geguuqtuø'nkvetcn'tepf kvkqpu"qh'encuukecn'vez vu. "cpf "tevtcpuncvef "vj que"vez vu"ep" o cuug'kp"yj g"pgy "o qf g"f gxgmr gf "d{ "Lgtqo g"c"o kmpppkwo "gctnkgt0

Dw'hkgtchuo "f kf pø/f kucr r gct "wpf gt "i ku"qt ij qf qz "qpurcwi j v=k/"qpn("y gpv'wpf gti tqwpf."tguwthcekpi "o quv" untkripi n( "kp" ij g"y qtm'qh" ij g"1 gto cp"Tqo cpvkeu"\*ugg" I GTO CP "VTCF KWQP + "y j q"y gtg"ectghwilpqv'vq"ecm' yi g"tcpurcwqpu" ij g{ "f ghgpf gf "ikwgtcn/Hqt" Iqj cpp" I qwhtkgf "xqp" J gtf gt "\*396663: 25+"hqt" Cwi wuv'Y kij gmo "xqp" UEJ NGI GN "\*398963: 67+"hqt" Htkgf tkej "UEJ NGKGTO CEJ GT "\*398: 63: 56+"hqt" Iqj cpp" Y qrhi cpi "xqp" I qgi g"\*396; 63: 54+"hqt" Y kij gmo "xqp" J wo dqrf v\*398963: 57+" ij g"kuwg" kp" tcpurcwqp" y cu"pq "nqpi gt" ugi o gpwwkqp. "qt" y j cv'hqto cn'wpkv'q "kuqrcvg" hqt "tcpurcwqp. "dw'y j cv'o ki j v'dg"ecmgf "i gqi gto gpgwkeu. "y g" r tqdrgo cweu" qh'kpygtr tgwpi "ygzw" cetquu" ewnwtcn'dqwpf ctkgu/V j g" tcpurcwqt "gkij gt" cr r tqr tkcvgu" yi g" hqtgki p" ygzv" dtkpi u"kv'j qo g" kp" c"hqto "r crewcdrg" q" yi g"o qpqrkpi wcn'VN tgcf gtô r tqf wekpi "uqo gyi kpi "htmg" ugpug/hqt/ugpug" tcpurcwqt yi g" VN tgcf gt "kq" yi g" cwtcewqpu" qh'yi g" hqtgki p" ygzv'cpf "uggmu" q" gueqtv'yi g" VN tgcf gt "cdtqcf." uq'lo o gtug" yi g"VN tgcf gt "kp" yi g" gzwtcnhggn'qh'yi g" unterwyg." r tqf wekpi "uqo gyi kpi "htmg" hkgtcn'tcpurcwqpu" "ugg" UVTC VGI KGU" QH VTC P UNC VKQP +0 Kp" yi ku" pgy "eqpegr kqp" qh'yi g" qrf "f wcrkno." yi g" I gto cp" Tqo cpvkeu" ukf gf"

y j qraj gctvgf n{ 'y kij ''y g'hrwgt."cwcemlpi ''y g'Htgpej 'pgqercuulekuwi'hqt'cuulo krcvlpi ''y g'hqtgki p'cwij qtu''y g{ "vcpurcvgf ''vq'Htgpej ''vcuvgu''cpf 'hcuj kqpu''cpf 'r tckulpi 'I gto cp''vtcpurcvqtu''nkmg'Lqj cpp''J glotlej ''Xquu'\*39736 3: 48+'hqt''y gkt'y kmlpi pguu''vq''tgvclp''y g'uvtcpi gpguu''qt''hqtgki ppguu."qt'y j cv'y qwrf ''eqo g''d{ ''y g''3; : 2u'vq''dg'' ecmgf ''y g''cnvgtlx{ ."qh''y g''UN''vgzv0

Kp"y g"vy gpvkgy "egpwt {."y ku"Tqo cpvke"hqtgki pk kpi "eqpegr vkqp"qh"vtcpurcvkqp" j cu"dggp"r kengf "w "cpf "r cuugf" qp"d{"c"uweeguukqp"qh"dtknkcpv"yi gqtkuru. "htqo "Y cngt"Dgplco kp"\*3: ; 463; 62."÷Vj g"Vcuniqh"yi g"Vtcpurcvqtø" 3; 45+"yi tqwi j "O ctvkp"J gkf gi i gt"\*3: : ; 63; 98."Vj g"Rt kpekr ng"qh"l t qwpf ."3; 79+."vq"I gqti g"Uvgkpgt"\*Chrgt "Dcdgn" 3; 97+."Cpvqkpg"Dgto cp"\*Vj g"Gz r gt kppeg"qh"yi g"Hqt gki p ."3; : 613; ; 4+."Ncy tgpeg"Xgpwkk\*Vj g"Vtcpurcvqtøu" Kpxkukdlakof."3; ; 7+."cpf "qvj gtu0Nkng"o quv"qh"yi gkt"Tqo cpvke"r tgewtuqtu. "vj gug"revgt "vj gqtkuru" (r kecm("f wcnk g" wtcpurcvkqp"cpf "cuuki p"qxgtvn("o qtcn'ej cti gu"vq"yi g"vy q"ej qkegu<"gkyj gt"{qw"f qo guvkecvg"yi g"UN"vgzv."etcxgpn(" cuuko krcvg"kv"vq"yi g"hrcv"f gpcwttgf" qtf kpct {"rcpi wci g"qh"VN"ewnwtg."qt"{qw"hqtgki pk g"kv."tgvckp"uqo g"qh"ku" cngtkv{"yi tqwi j "hkgtcnkuo ."cpf"uq"j gtqkcm("tgukuv'yi g"hrcwplpii"r tguuwtgu"qh"eqo o qf kv{"ecr kcnkuo 0"Vj gtg"ctg" pq"qyi gt"cngtpcvkxgu."pq"o kf f rgu"gzenwf gf "d{"vj g"f wcnkuo ="cpf"vj g"o qtcn'ko r gtcvkxgu"dgj kpf "vj g"ej qkeg."kh"pqv' cny c {u"r tcevkecn'kp"yi g"tgcn'y qtnf "%c"vtcpurcvqt"o ki j v'dg"hqtegf "vq"f qo guvkecvg"kp"uqo g"ektewo uvcpegu. "vq"o cng" c"hxkpi +."ctg"pgxgtyj grguu"ktgxqecdng0

Ugg"cnuq<

HTGG"VTCPUNCVKQP="WPKV"QH"VTCPUNCVKQP0

#### Hwt vj gt 't gcf lpi

Dgto cp'3; : 6.'3; ; 4='Dtqem'3; 9; ='Ecvhqtf'3; 87='Uej y ctv|'3; 66='I gqti g'Uvgkpgt'3; 97='Xgpwk'3; : 8.'3; ; 70 F QW NCUTQDKP UQP

## Nkytct{'\tcpuc\qp

#### rtcevlegu

Nkvgtct { "'tcpurcvkqp"ku''y g'y qtm'qh'nkvgtct { "'tcpurcvqtu0"Vj cv'ku'c''tvkuo 'y j kej 'j cu''vq''ugtxg''cu'c''uvctvkpi 'r qkpv'hqt" c'f guetkr vkqp 'qh'nkvgtct { "'tcpurcvkqp."cp"qtki kpcn'uvdlgevkxg''cevkxkv{ "cv''y g''egpvtg''qh'c''eqo r ngz''pgw qtm'qh'uqekcn' cpf 'ewnwtcn'r tcevkegu0'Vj g'ko ci kpcvkxg. 'kpvgngewcn'cpf 'kpwkxkxg'y tkkpi 'qh''y g''tcpurcvqt''o wuv'pqv'dg''nquv'vq'' y g'f kugo dqf kgf 'cduvtcevkqp'y j kej 'ku'qhvgp'f guetkdgf 'cu''÷tcpurcvkqpø0

Nkgtct { '\tcpurc\qtu'j cxg'\q'eqppkxg'\qt'eqpygpf 'y ky '\y g'y gm/guvcdrkij gf 'j kgtctej kgu'kp'\y g'f ghkpkkqpu'qh'y j cv' eqpurkwwgu'nkgtcwtg<rqgvt{."ftcoc"cpf"rtqugôwuwcm{"kp"yjcv'qtfgt."qh"÷jkijø'ewnwtg"cu"qrrqugf"\q"÷nqygtø" ecvgi qtkgu'uwej "cu'uekgpeg'hkevkqp."ej knftgpøu'hkevkqp"cpf"-ir wrrø'hkevkqp0"Vj gug'j kgtctej kgu'ctg'tghrgevgf 'kp'' i gpgtcn'cuuwo r vkqpu'cdqwv'dqyj ''yj g'tgncvkxg''y qtyj ''cpf 'f khhkewn/{ ''qh'/tcpuncvkpi ''yj g''eqpuvkwygpv'ugevkqpu''qh'' rksgtct { 'r tqf weskqp0'Uwej "ecvgi qtk; cvkqpu"j cxg"dggp"cwcengf "d { "ewnwtcn"yj gqtkmu. 'r quv'o qf gtpkmu"cpf "uqo g" vtcpurcvkqp"uej qrctu"y j q"j cxg"r qkpvgf "qwv"j qy "vj g"eqpuvt wevkqp"qh"ecpqpu"j cu"dggp"kphqto gf "j kuvqtkecm("d{" xcnwg/lwfigo gpw'tghtcevgf 'vj tqwij 'r tglwf kegu'qh'ercuu. 'i gpf gt. 'pcvkqp'cpf 'tceg0'Vj gug'cwcemu'j cxg'cnuq'' wpf gto kpgf "eqphkf gpeg"kp" yj g"cwj qtøu kpygtr tgycykqp" qh'y j cy'u jj g"j cu'y tkygp kp'hcxqwt "qh'y j g"o wnkr nkeky{"qh" tgcf kpi u'd { 'tgcf gtuk'y g'mkpi n ('qt''s wggpn ('cwj qt'j cu'dggp'f gy tqpgf 'cpf 'tgr ncegf 'd { 'c'htci o gpvgf 'tgcm 'qh' kpfkxkfwcn'tgcfgtu'\*Xgpwk'3;;4+0'Vjg'yqtm'qh'nksgtct{"\tcpurcvqtu'kornkekn("cpf'uqogvkogu'gzrnkekn(" ej cngpi gu''y g''cwy qtkx{ "qh''y g''ecpqp. "y g''pcxkqpcrkuo "qh''ewnwtg''cpf "y g''±f gcyj ø'qh''y g''cwy qt0 C'hkgtet { "tepurevqt "ku'dkrkpi wen'epf 'dkewnwten'epf 'vj wu'kpj edku'e 'repf ueer g'y j kej 'ku'pqv'o er r gf 'd { " eqpxgpvkqpcnli gqi tcr j kgu="ulj g"ku"cv"j qo g"kp"vj g"hnwz"vj cv"ku"vj g"tgcrkx{ "qh"eqpvgo r qtct { "ewnwtg."y j gtg" o ki tcvkqp'ku'eqpuvcpv'cetquu'ctvkhkekcn'r qnkxkecn'dqwpf ctkgu0'kp'ugnh/uv{ ngf "o qpqnkpi wcn'f qo kpcpv'ewnwtgu."cu'kp" yj g'Cpi nq/Uczqp'xctkgvkgu.''yj cv'hnwz'ku'qhvgp'r qtvtc{gf "cu'c''yj tgcvgpkpi.'kh'pqv'c'r cyj qnqi kecn'uvcvg''qh'dgkpi 0' Nkgtct { ''tcpurcvqtu''ctg'kpxqrxgf ''cv'c'nggp'r qkpv'qh'ewrwtcn'eqpxgti gpeg''dgecwug''y g{ ''tcpurcvg''y qug''y qtmu'' y j kej ."hqt"y j cvgxgt"tgcuqp. "ctg"ugrgevgf "hqt"vtcpurcvkqp"cpf "y j kej "pqy "gzkuv"y j gtg"qyi gty kug"yi gtg"y qwrf "dg" ukrgpeg0'Vj g{ "qhvgp"r rc{"c'ng{ "tqrg'd{ "uwi i guvkpi "y qtmu'hqt "\tcpurcvkqp"qt"tgi wrctn{ "y tkkpi "tgcf gtuø'tgr qt vu'hqt" r wdrkij gtu'qp''dqqmi'ugpv''d{ 'hqtgki p''cwij qtu''qt''

y gkt "ci gpvu0'Vj g"gxgpwcn'ugrgevkqp"ko r nkgu"y g"y qtm'ku"t gr t gugpvcvkxgô gxgp"kh'kv'ku"cpvkecpqpkecnô qh'c" r ct vkewrct "s wkpvguugpvkcn'wug"qh'ncpi wci g"cpf "hggnkpi "kp"y g"uqwteg"ewnwt g0'KV'cnuq"ko r nkgu"y cv'y g'r wdnkuj gtu" dgnkgxg"y gtg"ku"c"o ct ngv'hqt "y cv'nkgt ct { "vt cpurcvkqp0'D{ "f ghkpkkqp."pgxgt y grguu."cp{ "rkvgt ct { "vt cpurcvkqp"dt gcmu" y g"pcvkqpcnkuv'ecpqp"dgecwug."j qy gxgt "cuuko krcvgf"d{ "y g"vt cpurcvkqp"cpf"r wdnkuj kpi "r t qeguu. "kv'kpvt qf wegu"kpvq" y g"t gcf kpi "ur ceg"qh"pqp/t gcf gtu"qh'y g"uqwteg"ncpi wci g"c"y qtm'y cv'y qwrf "qvj gty kug"t go ckp"cp"ctt c{ "qh" o gcpkpi nguu'ngwgtu"qt"u{ o dqnu0'Cu"y g"et gcvqt"qh'y g"pgy "y qtm'kp"y g"vcti gv'ewnwtg."y g"nkvgt ct { "vt cpurcvqt" qr gt cvgu"cv'y g"ht qpvkgt u"qh'ncpi wci g"cpf "ewnwtg."y j gtg"kf gpvkv{ "ku"hnwz."kt gf wekdng"vq"gxgt { f c { "pcvkqpcnkuv'ci u" qh"÷Ct cdø"; Gpi nkuj ø'qt "; Ht gpej ø "qt "vq"hqt gki p"vcm'uggp"cu"kt t kcvkpi "lcddgt 0

Nkgtct {"tcpurcytu"cnq"dgnpi "vq"c"ecuj "pgzwu"qh"tgrcvlqpuj kru"cpf "c"vtcf kklqp"qh"uqekcn"r tcevlegu"y kaj kp"yj g" r wdrkuj kpi "kpf wnt { 0C "eqpvtcev"j cu"vq"dg"uki pgf ."r c { 0 gpv"ci tggf ."cpf "f gekulqpu"cdqw"eqr { tki j v"cpf "f gcf rlpgu" hqt "f grkxgt { "qh"yj g"o cpwwetkr v"j cxg"vq"dg"tgcej gf ."wwxcm( "kp"yj g"eqwtug"qh"yj g"tcpurcytrøt"nppg"pgi qvkcvlqpu" y kaj "c"r wdrkuj gt0Rc { 0 gpv"o c { "dg"kp"yj g"hqto "qh"cp"cf xcpeg"qp"tq { cnkgu0Wwxcm( ."vj g"qtki kpcvkpi "cwaj qt" ceegr w"c"tq { cnv( "qh": "r gt"egpv"yj cv"kp"r tkpekr rg"rgcxgu"4"r gt"egpv"hqt"yj g"vtcpurcytt0Hqt"c"r wdrkuj gt"y j q"uggu"yj g" vtcpurcytt"cu"cp"cf f gf "gzr gpug."c"uo cm"r c { 0 gpv"o c { "dg"o cf g"cu"cp"cf xcpeg"qp"tq { cnkgu"qt"c"hrev'hgg"y qtnngf" qw"qp"yj g"dcuku"qh"c"tcvg"r gt"yj qwucpf "y qtf u000 cp { "kkgtct { "vtcpurcyttu"cti wg"hqt"cp"cf xcpeg"dcugf "qp"yj g" cewcn"co qwpv"qh"vlo g"yj g{ "gurko cvg"yj g"tcpurcvkqp"o c { "vcng"tcyj gt"yj cp"uwej "r kgeg/y qtm"tcvgu0I tcpw"htqo " ur qpuqtkpi "O kpkntkgu"qh"Ewnxtg"qt"dqf kgu"uwej "cu"vj g"Ctw"Eqwpekrikp"Dtkckp"qt"yj g"P cvkqpcn"Gpf qy o gpv"hqt" yj g"I wo cpkkgu"kp"yj g"Wpkgf "Ucvgu"ctg"uqo gvko gu"cy ctf gf "vq"r wdrkuj gtu"vq"f ghtc { "vj g"equv"qh"vtcpurcvkqp"\*ugg" RWDNNLI kP I "UVTC VGI kGU+0Eqpvtcew"wwxcm("kpenxf g"uqo g"hqpg"cdqw"+r tqxkf kpi "c"rcpi wci g"yj cv'ku" hckyj hvn'vq"yj g"qtki kpcnx"cpf "eqo o kv'yj g"tcpurcvqt"vq"yj g"eqttgevkqp"qh"r tqqhu0

Vj gug"cttcpi go gpw"o c{"f khhgt"htqo "eqwpvt{"vq"eqwpvt{0Kp"eqwpvtkgu"y kj "c"dwq{cpv"f go cpf "hqt"vtcpurcvkqpu."c" r wdrkuj gt"o c{"j cxg"cp"kp/j qwug"vgco "qh"vtcpurcvqtu0'*Cevgw/Uwf*. "hqt"gzco r ng. "kp"Htcpeg."j cxg"c"eqo r cp{"y j gtg" tgcf gtuø'tgr qtvu."yj g"eqo o knukqpkpi "qh"vtcpurcvkqpu"cpf "vtcpurcvqtu."cpf "yj g"y j qng"ej ckp"qh"r tqf wevkqp"ku"twp"d{" rksgtct{"vtcpurcvqtu"y j q"ctg"r ctv'qh'vj g"r tqhguukqpcn'cf o kpkuvtcvkxg"htco gy qtm'qh'vj g"r vdrkuj gtu"\*O cwgtp"3; ; 6+0' Kp"Dtksckp"cpf "vj g"Wpksgf "Uvcvgu."kv'ku"o qtg"nkngn{"vj cv'r wdrkuj gtu"y km'y qtm'y kj "htggrcpeg"vtcpurcvqtu"yj g{" mpqy "qt"y km'eqpvtcev'vj go "qp"vj g"dcuku"qh"y qtf/qh/o qwj "tgeqo o gpf cvkqp"\*vj g"+ntkgpf "qh"c"htkgpf ø+."r tqqh'qh" r tgxkqwu"y qtm'qt"d{"tghgtgpeg"vq"f ktgevqtkgu"qh"nksgtct{"vtcpurcvqtu0}

Nkgtct { "tcpurcytu"qhzgp"f q"pqv"j cxg"cp"ci gpv."dgecwug"ci gpvu"ctg"pqv"hpvgtguvgf "hp"yi g"urgpf gt"gctpkpi u"vq"dg" i rgcpgf "htqo "tgrtgugpvkpi "hkgtct { "tcpurcytu0"Vj gtg"ctg"tcpurcytuø"cuvqekcvkqpu"y j kej "y kni'cf xkug"qp" eqpvtcevu"cpf "rgi cnij grr "kp"f kur wgu. "dw"ej ctcevgtkurkecm { "yi g { "f q"pqv'dgeqo g"kpxqnxgf "kp"yi g"cewcn" pgi qvkcvkqpu"qxgt "kpf kxkf wcn'eqpvtcevu0!Nkgtct { "vtcpurcvqtu."rkng"cm'y tkgtu. "ctg"c"j gvgtqi gpgqwu"uqekcn" i tqwr kpi 0!Uqo g"ecp"rkxg"qp"yi gkt"kpj gtkcpegu"qt"yi g'y kpf hcm'qh'c"tq { cnv { "htqo "c"dguv ugngt."uqo g"o c { "eqo dkpg"rkxgtct { "vtcpurcvkqp"y kyi "hwm"qt"r ctv vko g"cecf go ke"r quvu"qt"qyi gt"y qtm"dw'htggrcpeg"rkxgtct { "vtcpurcvkqp"y kyi "hwm"qt"r ctv vko g"cecf go ke"r quvu"qt"qyi gt"y qtm"dw'htggrcpeg"rkxgtct { "vtcpurcvkqpu"y g"y qtnf "f gr gpf "qp"yi g"co qwpvu"yi g { "tgegkxg"hqt"yi gkt"vtcpurcvkqpu"yq"r c { "hqt"yi g" grgevtkek { "yi cv'r qy gtu"yi g"y qtf / r tqeguuqt0

Y j cv'y gp"qh'nkgtct { "tcpurcvkqp"cpf "y g"±gdkty ø'qh'y g"cwj qt A'Vj g'r tqeguu'qh'y tcpurcvkqp"f khhgtu'unki j vn{ 'htqo " vcpurcvqt "cpf "ku'kphnwgpegf "d { "y g'r ct wewrct "y qtm'y tcpurcvgf 0J qy gxgt."y j gy gt "y gtg"ku'vq"dg" eqmcdqtcvkqp"y ky "c"hkxkpi "cwj qt."qt"uwxf { "qh'r tgxkqwu'y tcpurcvkqpu'kp"y g"ecug"qh'c"÷ercuuleø'y qtm'y gtg"ctg" eqo o qp'uvci gu'cpf "r tqdrgo u'kp"y g"y qtm'qh'rkxgtct { "ytcpurcvqtu0'Ki'wugf "vq"dg"y g"ecug"y cv'y tcpurcvqtu'f kf "pqv" y tkxg"cdqw'y gug"kuuwgu'\* qqti g"Uvgkpgt"3; 97+"dw'y gtg"ctg"pqy "c"pwo dgt"qh'ecug/uwxf kgu'y tkxyp"d { " ytcpurcvqtu'cdqw'y gkt"o qf g"qh'qr gtcvkqp"\*hqt"gzco r rg"Hgnrykpgt"3; : 2="Ngxkpg"3; ; 3+0

Hktuv.''y g'hkgtct{''tcpurcvqt'eqphtqpvu'y qtf u'ugv'qp''y g'r ci gô kp''c'egtvckp''eqpvgzv'cpf''y ky 'r ctvkewrct'' tguqpcpeguô d{''cp''cwy qt''y j q''o c{''dg'f gcf''r j {ukecm{''qt''o gvcr j qtkecm{''cpf''pqy ''nkxgu''kp''y g''xctkgi cvgf'' tgcf kpi u''d{''c'j quv'qh'tgcf gtu''qh'y g''uqwteg''rcpi wci g0'Vj gtg''ku''cv''

ngcuv'c"o kpko wo "eqo o qpcnkx{"vq"yi qug"tgcf kpi u"etgcvgf "d{"vj g"qtki kpcn0"Vj g"nkvgtct{"vtcpurcvqt"etgcvgu"c"pgy "r cwgtp"kp"c"f khngtgpv'ncpi wci g."dcugf "qp"r gtuqpcn'tgcf kpi u."tgugctej "cpf "etgcvkxkx{0"Vj ku"pgy "etgcvkqp"kp"wtp" dgeqo gu"vj g"dcuku"hqt"o wnxkr ng"tgcf kpi u"cpf "kpvgtr tgvcvkqpu"y j kej "y kmii q"dg{qpf "cp{"kpvgpvkqpu"qh"gkvj gt" qtki kpcn'cwj qt"qt"vtcpurcvqt0"P gxgtvj grguu. "kv"ku"vj g"htwkv"qh"vj qwucpf u"qh"f gekukqpu. "ncti g"cpf "uo cm"cpf "qh" etgcvkxg"cevkxkx{"qp"vj g"r ctv"qh"vj g"vtcpurcvqt0

Cp"guugpvkcnlr tgr ctcvkqp"hqt"yj g"vtcpurcvkqp"y kmldg"ectghwnltgcf kpi "cpf "tg/tgcf kpi "cpf "ceeqo r cp{ kpi "tgugctej " qh'uqwteg'\gzv'cpf 'qyj gt'y qtm'd { 'vj g'cwj qt0'Vj ku'ecp'kpenwf g'\tcxgn'\q'vj g'y tkgtøu'eqwpvt { 'cpf 'j kuvqtkecn'cpf '' rksgtct { "tgugctej 0Kk'qhsgp"j grr u"vq"tgcf "y qtmu"yj cv"r rc { "c"uko krct"yj qwi j "f khhgtgpv"tqrg"kp"yj g"vcti gv"ewnwtg0Hqt" Hgnrvkpgt'\*3; : 2+. 'vj ku'o gcpv'tgcf kpi 'r qgvt { 'd { 'J ki j 'Ej wtej 'VVVGrkqv'kp''qtf gt''vq'i cwi g'vj g'tki j v'xqkeg'hqt'' Rcdm'P gtwf c."vj g"Ej krgcp'Eqo o wpku/0Kp"vj g"ecug"qh'c"rkxkpi "cwvj qt."c"tcpi g"qh'eqnrcdqtcvkxg"r quukdkrkkgu" qhigt "yi go ugnxgu0Uqo g"cwij qtu"gplq { "r ct kekr ckqp"kp" yi g"ktcpunckqp" \q' yi g"gz vgpv' yi cv' yi g'hkpcn'ht wkx'qh' yi g" eqmcdqtcvkqp"ku'c"pgy 'y qtm'kp'y j kej 'vj g{ "gzvgpf"cpf"cff"pgy "ugevkqpu'\*Ngxkpg"3; ; 3+0'Qvj gtu'o c{ "cff" o cti kpcn'eqo o gpwi'vq'c'f tchv0'Uqo gvko gu. "c''vtcpurcvqt" o c{ "f gekf g"qp"xgt{ "rko kxgf "eqnrcdqtcvkqp"y kxj "cp"cwxj qt" kp"qtfgt"\q"hwtyjgt"c"uvtcvgi{"qh"vtcpurcvkqp"\yjcv"ku"pqv"vkgf"vqq"erqugn{"vq"gswkxcrgpeg."cpf"\yjku"ecp"ikxg"oqtg" ueqrg'hqt'kpvgtxgpvkqp'qp'vjg'rctv'qh'vjg'vtcpurcvqt'\*Xgpwk'3;;7+0'Vjgtg'ctg'vtcpurcvqtu'yjq'qrv'pqv'vq'tgugctej" yj g'uej qrctn( 'dcemi tqwpf 'qh'yj g'y qtm'yj g{ 'ctg''tcpurcvkpi .'r tguwo cdn( 'kp'r wtuwky'qh'c'o qtg''÷y tkvgtn(ø'kpwkxkxg'' o qf g'\*Rgvgtu'3; ; 7+0'Y j cvgxgt''y g'untcvgi { "cf qr vgf "d{ "'y g'\tcpurcvqt."cp{ "\tcpurcv\qp "ku'\wn\ko cvgn\{ "'y g''r tqf wev'  $qh'o\ wn kr\ ng''t gef\ kpi\ u''cpf\ ''f\ tchw''y\ j\ kej\ ''r\ t gegf\ g''cpf\ ''f\ gwgto\ kpg''yj\ g''uj\ cr\ g''qh''yj\ g''h kpcn''f\ tchw''f\ gn kxgtgf\ ''vq''yj\ g''$ r wdrkuj gtu0/Eqpvgzv'ku'etwekcn0'Vj g'r tqeguu'o c{ 'dg'\twpecvgf ''qt''cnvgtgf ''d{ ''gzvgtpcn'hqtegu<''yj g'r wdrkecvkqp''qh''c'' dqqmloc{"jcxg"vq"eqkpekfg"ykj"yjg"tgngcug"qhl'c"hkno."c"ftcocvke"uetkrv'oc{"jcxg"vq"dg"jcpfgf"vq"rtqfwevkqp"uq" uwci kpi "ecp"dg"uwct vgf "cpf "vj g"tcpurc kqp"dg"ej cpi gf "kp"vj cv"r tqeguu. "qt "kp"c "tcf kxkqp"wr j grf "d{ "Nqpf qp"vj gc ttg" eqo r cpkgu"c":rkkgtcnø'tcpurcvkqp"o c{"dg"i kxgp"\q"c"y gm/mpqy p"y tkgt"y j q"vj gp"r tqf wegu"c"rkkgtct{"xgtukqp0 Fkhgtgpv'uvtcvgi kgu'o c{''dg''pgeguuct{''vq''crrtqcej ''c''uj qtv'n{tke'rqgo ''qt''c''nqpi ''y qtm'qh'rtqug''hkevkqp0C'' vtcpurcvqt"qh"hkevkqp"j cu"vq"gpi ci g"y kij "yj g"f khhgtgpv"tj { vj o u."vj g"ko ci gu"cpf "u{o dqru"cp"cwij qt"y km"wug"kp"vj g" eqwtug"qh"j wpftgfu"qh"rcigu"\*Ngxkpg"3;; 3+0Tgrgcvgf"tgcfkpi "cpf"tgugctej "gpcdrg" y g"tcpurcvqt" yq"kfgpvkh{" uwej 'r cwgtpu.''y qwi j 'uqo g'y km'dg''tcpurcygf 'uwdeqpuekqwun( 'cu'r ctv'qh''y g'r tqeguu''qh'ko ci kpcvkxg'tgy tkkpi 0'Kp'' f gpug'\gz w'tguqpcpv'y kj 'co dki wkkgu'cpf 'cngtpc\kxg'o gcpkpi u'd{ 'c'Ico gu'Iq{eg.'c'\tcpurc\qt'y qtmu'cv' f kut wr vkpi "'y g''vcti gv'ewnwtg''kp''y g''y c{ ''y g''qtki kpcn'y qtm'f kut wr vgf ''y g''uvcpf ctf ''rcpi wci g''cpf ''tgegkxgf ''pqvkqpu'' qh'y g'uqwteg'ewnwtg'\*Eqpf g/Rctkmc'3;; 6+0'Nkgtct { "\tcpuncvkqp'ku'y gp'c'xgt { 'uqekcn'ewnwtcm{/dqwpf'r tqeguu' y j gtg'y g''tcpurcvqt''r rc{u'c''ng{''tqng'kp''c''eqo r rgz''ugtkgu''qh'kpvgtcevkqpu0

Y j gp"c"o cpwwetkr v'ku'uwdo kwgf "\q"c"r wdrkuj kpi "j qwug."\j g"gf kkpi "r tqeguu'kpxqrxgu'\j g"cr r rlecvkqp"qh'c"pgy "
ugv'qh'etkgtkc"\q"\j g"\tcpurc\kqp0'Vj gtg'o c{"dg"c"j qwug/uv{rg"\j cv'cp"gf kxqt"\wugu"cetquu'\j g"dqctf."cpf "\j ku'o c{"
dg"cr r rleft."cr r tqr tkc\underline{\text{yq}} ("qt"q\j gty kug."\q"c"rl\underline{\text{yzv'lp"\tcpurc\underline{\text{kqp0'lp"\text{y}}} g"Gpi rluj."'Ur cpkuj "cpf "Rqt wi wgug/
ur gcmlpi "y qtrif u."\qt"gzco r rg."\j gtg"y km'ldg"\kuwwgu'qh'f khlegtgpv'f kcrgewi'cpf "gf kxqtu'y j q"y km'lqpn{"ceegr v'\j gkt"
xctlgv{"qh'u\underline{\text{yq}} ctf 0'Vj ku'q\underline{\text{yq}} rct\underline{\text{yq}} "wwcm{"kpeqpukuxgpv'cf cr vc\underline{\text{yq}} ur'\tcpurc\underline{\text{yq}} "uc{\text{yq}}."
Co gt\underline{\text{yq}} "qt "Dt\underline{\text{kuj}} "Gpi rluj 0'Uqo g"rgcf kpi "\tcpurc\underline{\text{yq}} "cti wgf "ci ckpuv'\j ku'r tce\underline{\text{yq}} "gzr rckpkpi "
y cv'\underline{\text{yf}} kqtu"ecp"r rc{"j cxqe"cu'\j g{"\tq" q''qpi rlek g"\j g"\underline{\text{y}} g"\underline{\text{yq}} "gry\underline{\text{yq}} "gry\underline{\te

Eqpuelqwu'f gekulqpu'y j lej 'lpxqnxg'ej cpi lpi ''y g''tcpurcvlqp''ctg''o cf g''cv''gxgt{ ''uvci g.''d{ ''gf kqtu''cpf ''tcpurcvqtu.'' lp''qtf gt''vq''ecvgt''hqt''y g''r gtegkxgf ''pggf u''qh''y g''tgegkxlpi .'f qo lpcpv'ewwtg='Mwj ky e| cm'\*3; ; 2+.'hqt''gzco r ng.'' f kuewuugu''y g''ecug''qh'ewu''o cf g''vq'O krcp''Mwpf gtcøu''pqxgn''Vj g''LqngO'Kl'ku''cnuq''y qt y ''r qkpvkpi ''qw''y cv'o cp{ ''r wdrkuj kpi ''j qwugu''f q''pqv''go r nq{ ''gf kqtu''y kyj ''c''npqy ngf i g''qh''y g''uqwteg''ncpi wci g''cpf ''y gtg''ku''pq''tcf kkqp''qh''

uwd/eqpvtcevkpi "htggrcpeg"gf kqtu"y kj "uwej "mpqy rgf i g0

C''r wdrkuj gf ''tcpurcvkqp'ku''y g'htwkv'qh''c''uwduvcpvkcn'etgcvkxg''ghtqtv''d{ ''y g''tcpurcvqt.''y j q'ku''y g''ng{ ''ci gpv'kp''y g'' uwdlgevkxg''cevkxkv{ ''cpf ''uqekcn'r tcevkeg''qh''vtcpurcvkqp0'Y j cvgxgt''y g''tguvtckpwi'qh''y g''pgw qtm'qh''uqekcn'cpf '' ewnwtcn'hcevqtu.''kv'ku''wnko cvgn{ ''y g''nkytct{ ''tcpurcvqt''y j q''o cngu''y g''y qwucpf u'qh''f gekukqpu''y cv'i kxg''c''nkytct{ ''y qtm'kxu''÷chvgtnkhgø<''cp''gzkuvgpeg'kp''qy gt''rcpi wci gu'\*Dgplco kp''3; 45+0 Ugg''cnq<

FTCOC"VTCPUNCVKQP="NKVGTCT["VTCPUNCVKQP."TGUGCTEJ"KUUWGU="RQGVKEU"QH"

VTCPUNCVKQP="RQGVT["VTCPUNCVKQP="RWDNKUJ KPI"UVTCVGI KGU="UJ CMGURGCTG"

VTCPUNCVKQP="UVTCVGI KGU"QH"VTCPUNCVKQP0

#### Hwt yj gt 't gcf kpi

Hgnrkpgt'3; : 2='Ngxkpg'3; ; 3='Rqpkgtq'3; ; 40

vgzvu0Vj g'hcwgt'ku'r ctvkewrctn( "vtwg"qh'hckt { "

RGVGT'DWUJ

# Nkytct{'\tcpuc\qp

#### tgugctej 'kuwgu

O cp{"qh'yi g"dqqmu"y tkwgp"qp"\tcpurc\kqp"\yi tqwi j "\yi g"ci gu"f gcn'ircti gn{"y kyi "rkxgtct{"\tcpurc\kqp."cpf "\kp" r ct \kewrt "y kyi "\yi g"f khhkewn\{"qh"\intervalore \kpurc\kqp" y gmø'cpf "qh"dgkpi "\intervalore \kyi hwnØ\Uwej "f kuewuukqpu"ctg"dcugf "qp"cp" cuuwo r \kqp"qh\wpkxgtucnk\{"cpf "qp"cj kunqtkecn'ereko u="\yi g{"\tctgn{"qh\ngt"cp{"uej qnctn{"kpuki j \kpvq"\yi g"y c{"cewcn" vcpurc\kqpu"j cxg"dggp"r tqf wegf "cpf "wugf "\yi tqwi j "\yi g"ci gu\@Uej qnctn\{"y qtm'if qgu"gzkuv."dw'k\k\ku"tcyi gt" j gygtqi gpgqwu."o cn\kpi "\k\yf khhkewn\'\q"r tqx\kf g"c"tgn\cdng"qxgtx\kgy "qh'gk\yi gt"\yi g"\yi kunqt \{"qt"ewttgp\y'\yi kpm\kpi "cdqw" nkgtct \{"\tcpurc\kqp0}

#### Nkytct{'ttcpurcvkqp<'c'rtqdrgo 'qhif ghlpkykqp

Vj g'xgt{"wug'cpf"eqo dkpcvkqp"qh'*rkvgt ct{*"cpf"v*t cpurc vkqp*"ku'u{or vqo cvke"qh'vj g'ecuwcn'y c{"kp"y j kej "vj g" eqpegr vu'qh'nkgtcwtg'cpf 'qh'\tcpurc\kqp'j cxg'\uq'hct'dggp'\cmpp'hqt'i tcpvgf 0P gkvj gt'eqpegr v'ku'uko r ng'qt'y gm' f ghkpgf 'kp''o quv'ewnwtgu0C''j knytkecn'gzr mtcvkqp''qh''y g''y c{ 'kp''y j kej ''y g''qdlgev''qh''uwf { ''j cu''dggp'' eqpegr work gf. 'y kj ''y g'ckf ''qh'uwej ''y kpi u'cu'f kevkqpctkgu. ''gpe { enqr gf kcu'cpf ''qyj gt''ng { ''kpuxt wo gpvu''qh'ewnwtcn'' mpqy ngf i g. "ku" y gtghqtg" xgt { "o wej "pggf gf 0" Vj g" uco g" crrnkgu" qh" eqwtug" \q" \tcpunc \kqp" r tce \kegu" cpf "\y gkt" gzcev" tgrcvkqpuj kr u'y kij "ij g"o qtg"qt"rguu'gzr nkeki'ij gqtkgu"grcdqtcvgf "cv"f khhgtgpv"r qkpvu'kp"j kuvqt {0 Vj g'wug''qh''yj g''vgto "hkygt c wt g''cpf ''ku''gs wkxcrgp w'kp''xct kq wu'rcpi wci gu''vq''t ghgt ''vq''ur gelthe 'r cwgt pu''qh'et gc vkx kv{ " kp"uv{ rg. 'i gptg. "cpf "uq"qp"uggo u"vq"dg"c"tcyj gt"o qf gtp"f gxgrqr o gpv. 'f cvkpi "dcem'qpn("vq"yj g"gki j vggpyj "egpwt {" \*Guectr k/3; 84=Ewngt'3; : ; +0'Uej qrctuj kr 'j cu'pqv'guvcdrkuj gf 'engctn('vj g'gzvgpv'vq'y j kej 'hkgt cwt g'cpf 'c'' nkugt c wit g"ctg"pgeguuctkn{ "rkpngf" "vq"qpg"r ct kewrct "rcpi wci g"cpf. "gxgp" rguu. "vj g"gz vgpv" vq" y j kej "r ct kewrct" rksgtct{"\tcfkkqpu"oc{"dg"rkpngf"\q"c"i kxgp"\gttkqt{."pc\kqp"qt"\uvcvg0'Ki'ku'i gpgtcm("cuuwo gf"\yi cv'uwej "rkpmu" gzkıv'c'r tlqtk''dwv'yj ku'cuuwo r vkqp''ku''wpvgpcdrg'hqt''c''xctkgv( ''qh'tgcuqpu0C''vgpwqwu'tgrcvkqpuj kr''dgw ggp'' rksgtcwtg"cpf "qyj gt"gpvkkgu'uwej "cu'rcpi wci g."vgttkqt{"cpf"pcvkqp"y qwrf "uwi i guv'yj cv'vtcpurcvgf "rksgtcwtg"y km" pqv'pgeguuctkn('o cpkhguv'uki pu'qh'kpvgtcevkqp'dgwy ggp'f khhgtgpv'hkvgtct{''vtcf kkkqpu'\*Nco dgtv'3; : 6+0'Vj g'eqpegr v' qh'\tcpurc\dp'\kugrh'\ku'uko krctn\ 'hct'htqo 'dgkpi '\wpkxgtucn''cpf 'y j gtg'\k'f qgu'\gzkuv.'\yj g'\dqtf gtrkpgu'\dgw ggp'\k'\cpf '' tgrcvgf "eqpegr vu"uwej "cu"CFCRVCVKQP "cpf" tgy tkklpi "ctg"pqv"pgeguuctkn( "ergct"qt" wpklqto n( "ftcy p."y j gvj gt" j kuvqtkecm ("qt"cv"c"i kxgp"o qo gpv"kp"vko g."pqv"gxgp"y kyj kp"vj g"uco g"nkpi wkuvke"vtcf kvkqp"\*xcp"I qtr"3; 9: +0 Vj g"wdks wkx{ "qh" y g" \( r g \) qh" gxgpv" y cv" ku" ecuwcm{ "tghgttgf" \q" kp" \tcpurc \kqp" \underwedgp" \underwedgp" \underwedgp" \underwedgp" \underwedgp" \underwedgp" \underwedgp" \underwedgp \underwedg k/kpewo dgpv'qp'uej qrctu'vq'f ghkpg'vj g'eqpf kkqpu'wpf gt'y j kej 'vj ku'v{ r g'qh'gxgpv'vcngu'r rcegu. 'cu'y gm'cu'vq'' kpxguvki cvg'vj g'eqpf kvkqpu'vvpf gt'y j kej 'kv'f qgu'pqv'qeewt0'Vj ku'ku'pq'gcu{ 'vcum'i kxgp'vj g'co dki vqwu'uvcwu'qh' vtcpurcygf "rksgtcwtg." r ctykewrctn{ 'kp''xkgy "qh''yi g''r tqdrgo "qh''xkukdkrkv{ lkpxkukdkrkv{ "qh''yi g''cev'qh''ytcpurcykqp0C" vtcpurcvkqp"o c{"dg"r tgugpvgf "gzr nkekn("cu"c"vtcpurcvkqp."kp"y j kej "ecug"kv"ku"xkukdrg."qt"kv"o c{"dg"f kui wkugf "cu"cp" qtki kpcn'y j kej "gzr nckpu'y j { ''y g''o clqtkx{ ''qh'tgcf gtu'tgo ckp''wpcy ctg''qh'y g'hqtgki p''qtki kpu''qh'uqo g''nkxgtct{ ''

vcngu'cpf "ej knftgpøu'nkgtcwxtg0'Y j cv'eqo r nkecvgu'vj g'kuuwg "gxgp'hwtvj gt'ku'vj cv'qtki kpcn'vgzvu'ctg''cnuq''uqo gvko gu'' f kui wkugf "cu'cp"qtki kpcn'yi cp"kv'ku'hqt"cp"qtki kpcn'ygzv'yq"dg"r tgugpygf "cu'c"ytcpurcykqp. 'r ctykewrctn( 'kp"yi g"y qtnf " qh'o cuu'nkgtcwtg'cpf 'kp''y g'dwukpguu'y qtrf '\*Nco dgtv'3; : ; +0'Dqy 'r ugwf qvtcpurcvkqpu'cpf 'kpxkukdrg''vtcpurcvkqpu' rtqxkfg'kpvgtguvkpi 'kpf kecvqtu'qh'vjg'xcnwg'rqukkqp'qh'korqtvgf'hkgtcwtg'kp'c'i kxgp'ewnwtg'cpf'vjgtghqtg'' f gugtxg'\q'dg'uwf kgf 'u{ uvgo cvkecm{ 'cu'egpvtcn'kuuwgu'kp''yj g'f gxgmqr o gpv'qh'rkvgtcwxtgu0 Cpqyi gt 'tgcuqp''y j { ''tcpurcvkqp'ku'qhvgp'kpxkukdrg''cpf ''co dki vqvu''ku''y cv'pqv'qpn{ ''gpvktg''\gzvu''dwv'cnuq'\gzv'' htci o gpvu'cpf 'f kuewtukxg'r cwgtpu'o c{ 'dg'ko r qtvgf 'kpvq''y g'vcti gv'rkvgtcwxtg0'Kp''y ku'ugpug.''y g'f khhkewn/{ 'qh'' ftcy kpi "c'engct'nkpg'dgwy ggp'y j cv'ku'qtki kpcn'cpf "y j cv'ku'tcpuncvgf "kp'c'i kxgp'nkvgtct { "ttcf kxkqp"tghrgevu'y g" y kf gt "f kthkewn{ "qh'kf gpvkh{ kpi "y j cv'ku'kpf ki gpqwu'cpf 'y j cv'ku'hqtgki p'kp'cp{ 'hcpi wci g<'cm'hcpi wci gu'eqpvckp'' o cp{"grgo gpvu"cpf "r cwgtpu"y j kej "ctg"wnko cvgn{ 'hqtgki p"kp"qtki kp0 Vq"yi g"gzvgpv"yi cv"rkvgtcwtgu"\*cu"rkvgtct { "\tcf kkqpu"qt"u { uvgo u+"ctg" kyf "vq"r ctvkevvct "rcpi vci gu."yi g { "j cxg"cm" f gxgmr gf. "cv'ngcuv'kp"r ctv. "y kj "vj g"ckf "qh'nkgtct { "gzej cpi g"xkc" \tcpurc kqpu" \Gxgp/\ qj ct"3; 9: c="Nco dgtv" 3; ; 3=Dcuupgw'3; ; 5+0KVku'pqv'cv'cm'ergct.'j qy gxgt.'y j gtg'cpf 'j qy 'y ku'gzej cpi g'\cngu'r rceg'pqt'y j cv'y g'' gzcev'ko r cev'qh'\tcpurc\kqp"qp"c'i kxgp"hkgtct{"\tcfkkqp"o c{"dg0P qw kj uvcpf kpi "\j g'hqpi "j knqt{"qh" uej qrctuj kr 'y j kej "cuugtvu' y g'kppqxcvkxg'pcwtg'qh' y g'kpvgtcevkqp'dgw ggp'nkvgtcwtg'cpf 'vtcpurcvkqp.' y g'ecp'pq' mpi gt "lwwkhlodn ("cuuwo g''y cv'uwej "gzej cpi gu'ctg"pgeguuctkn ("lppqxcvkxg" Gxgp/\ qj ct"3; 9: c+0'KVku'hokt" 'q'uc (." j qy gxgt."'vj cv''vj gtg"ctg"o cp{"kpuvcpegu"y j gtg"c"nkvgtct{"'vtcfkk/qp"j cu"dggp"i tgcvn{"kphnvvgpegf"d{"korqtvgf"cpf" vtcpurcvgf "o qf gnu"qp" yj g"ngxgn"qh"uv{nkuvke"f gxkegu. "o gvcr j qtu. "pcttcvkxg" uvt wewxtgu"qt "gpvktg" i gptgu" "uwej "cu" yj g" o qf gtp"pqxgn+"cpf "gpvktg"i gptg"u{ uvgo u"\*hqt"gzco r ng"vj g"Ctknvqvgncp"i gptg"vtcf kkqp"kp"vj g"Y guv+0"Y j cv'uggo u" vq'r rc{"c'f gekukxg'tqrg'kp'f gvgto kpkpi 'vj g'gzvgpv'qh'uwej 'kphrwgpeg."cu'y gm'cu'vj g'xgt{ 'f ghkpkkqp"qh'vtcpurcvkqp" y kij kp"c"i kxgp"rkvgtct{"'tcfkkqp."ku'\j g"r qukkqp"qh'rkvgtct{"'tcpurcvkqp"cu'uvej "cpf"\j g"gzvgpv'\q'y j kej "kv'j cu" y guvgtp'uqekgvkgu'nkvgtct{"tcpuncvkqp"uggo u'vq"j cxg"dgeqo g'uq'r tguvki kqwu'vj cv'vj g'xgt{"eqpegr v'qh'vtcpuncvkqp"  $\label{thm:control_c$ gpe{enqr gf kcu0O quv'ewnwtgu'y kni'ekg'kpuvcpegu'qh'nksgtct{'\tcpurcvkqp.'kp'\yi g'pcttqy ''ugpug.''cu''gzco r rgu''qh''  $i\ qqf\ ''qt\ 'y\ gm'mpqy\ p''tcpurc\ 'qt''j\ cp''uc\ \{\ ''DK\!DNG''tcpurc\ 'qpu.\ 'gxgp''j\ qwi\ j\ ''y\ g''ncwgt''j\ cxg''dggp''$ ko rqtvgf "o qtg"u{ uvgo cvkecm{ "cpf "y kij "hct/tgcej kpi "eqpugs wgpegu"kpvq"o quv"ewnwtgu0"Vj g"ecpqpkt cvkqp"qh" rksgtct { "\tcpurc\kqp"ku"c"eqpugs wgpeg"qh"vj g"r tgxcrgpeg"qh"c"P QTO CVKXG"eqpegr v'qh"\tcpurc\kqp"cpf "ku" tgurt levgf "vq"rkvgtct { "tcpurc vkqp"xku/«/xku'qyj gt"v{r gu"qh"vtcpurc vkqp"cpf "qyj gt"vgz vu"kp"vj g"vcti gv"ewnwt g0"kV ku" tctgn("'yi g''ecug''yi cv'c''nksgtct{"\tcpurcvqt''cpf"j kulj gt"qy p"\gzv'j cxg''ces wktgf "o qtg'r tguvki g"yi cp"yi g''ecpqpk gf" uqwteg'\gzv'cpf 'uqwteg'cwj qt<'tcpurc\qpu'qh'Xkti kn'cpf 'UJ CMGURGCTG'dgmpi '\q'\y g'eqtg'qh'ecpqpk gf' nksgtct{"y tkskpi "cpf" y gkt" tcpurc vqtu" j cxg"dgpghksgf" htqo "y ku'ukwc vkqp. "dw' y g{"j ctfn("xkg" y ky "y g'qtki kpcn" cwj qtu'kp''yto u'qh'r tguki g0Gzegr kqpu'f q''qeewt''cu. 'cti wcdn{ .'kp''yj g''ecug''qh''Dcwf grcktg''cu''ktcpurcvqt''qh''Gf i ct''

## Nkygtct{'ttcpurcvkqp<'tgugctej'o qf gnu

Cmcp'Rqg.'dw'qpn('xgt{'tctgn(0)

I kxgp"y cv"tcpurc\dp"ku"c"ewnwtg/dqwpf "r j gpqo gpqp."k\"ku"guugp\kcn"y cv'y g"uwf { "y g"y c { "kp"y j kej "k\"xct\kgu" y tqwi j "\ko g"cpf "cetquu"ewnwtgu."cu"y gm'cu"y g"tgcuqpu"hqt"y ku"xct\kc\dqp0\Engctn\{."\y gtg"\ku"c"pggf "j gtg"\hqt" y gqtg\kecn"cpf "o gyi qf qmi \kecn"o qf gnu"y j \kej "\ecp"r tqx\kf g"c"tgugctej /qt\kgp\wf "\ugv'qh"j \{ r q y gugu"hqt "uwwf \kgu"qh" y ku"\{ r g0\Qpg"\usej "o qf gn"j cu"dggp"r tqr qugf "d\{ "Vqwt \{ "\si3; : 2."3; ; 7+\"hqt"\dqy "r\kgtct\{ "\tcpurc\kqp"\cpf "\hqt" \tcpurc\kqp"\cpf "\hqt" \tcpurc\kqp"\cpf "\hqt" \tcpurc\kqp"\cpf "\hqt" \tcpurc\kqp"\cpf "\hqt" \tcpurc\kqp"\cpf "\hqt" \two "\uqe\kqn\kgu"\cpf "\hqt" \two "\uqe\kqn\kgu"\cqf gn'\ku"\cqf gn'\k\uqe\kqn\left"\teq\kgu"\cqf gn'\kg\upe\kqn\left"\teq\kgu"\cqf gn'\kg\upe\kqn\left"\teq\kgu"\cqf gn'\kg\upe\kqn\left"\teq\kgu"\cqf gn'\kg\upe\kqn\left"\teq\kgu"\cqf gn'\kg\upe\kqn\left"\teq\kgu"\cqf gn'\cq\kg\upe\kqn\left"\teq\kg\upe\kqn\left"\teq\kg\upe\kqn\left"\teq\kg\upe\kqn\left"\teq\kg\upe\kq\upe\kqn\left"\teq\kg\upe\kqn\left"\teq\kq\upe\kqn\left"\teq\kq\upe\kqn\left"\teq\kq\upe\kqn\left

cny c{u'dgmpi 'kp'qpg'y c{'qt'cpqy gt''q'c'hkgtct{'cpf kqt'ewnwtcn'gpxktqpo gpv'gxgp'kh'y ku'gpxktqpo gpv'ku'' i gqi tcr j kecm{ 'tgo qvg'htqo ''y gkt'r reeg'qh'tgukf gpeg0'Vj g'tgrevkqpuj kr''dgwy ggp''tcpurevkqpu'cpf ''y gkt'' gpxktqpo gpv'o c{"xct{.''cpf 'o c{"cv'ko gu'dg'pgi cvkxg."dw'kr'ku'cny c{u''y gtg."uj cr kpi ''tcpurevkqp''dgj cxkqwt''cpf '' kphwgpekpi ''y g'r qukkqp''qh'tcpurevgf ''rkgtcwtg0'Kf gpvkh{kpi ''cpf 'f guetkdkpi ''y g'r qukkqp''qh''tcpurevqtu''cpf '' vtcpurevkqpu''xkw' «/xku''c' i kxgp''tgcf gtuj kr 'ku'pq''gcu{ ''o cwgt0'Engct'r ctco gvgtu''pggf ''vq''dg''gredqtcvgf ''hqt''nqecvkpi '' vtcpurevkqpu''hktuv''cpf ''hqtgo quv'y ky ''tgur gev''q''y g''vcti gv'rksgtcwtg. ''dw''uqo gvko gu''cnuq'y ky '' tgur gev''vq''y g''uqwteg''rksgtcwtg. ''cpf ''gxgp'y ky ''tgur gev''vq''cp''kpygto gf kct{"tcf kkqp''qp'y j kej ''c''vtcpurevkqp'o c{" dg''dcugf '\*Vqwt{"3; : 2~75.'78="Uvcengndgti ''3; : 6+='y g''rcwgt. ''kQ0'kpvgto gf kcvg lkpf ktgev''tcpurevkqp.''ku''r ctvkewrtn{" eqo o qp''kp''c'\*r quv'+eqnqpkcn'eqnygz'v'\*Nco dgtv'3; ; 7+0D{"cpf ''rcti g."vtcpurevqtu''cpf ''vtcpurevkqpu''hwpevkqp''cu'' vtcpurevkqpu''tcyj gt''y cp''cu'y tkgtulrksgtcwtg.''cu''kp''y g''ecug'qh''eqpygo r qtct{"'vtcpurevkqpu''hy'y g'' r tggm'ercunkeu."cpf ''y ku''o c{"dg''f wg''gkj gt''q''y gkt''qy p''uvtcvgi kgu''qt''q''y gkt''r qukkqp''htqo ''y g''r qkpv'qh''xkgy ''qh'' y g''f qo kpcpv'rksgtct{''i tqwr u'\*Vqwt{"3; ; 5+0}

Vtcpurcvkqp'ku'c'v{rg'qh'eqoowpkecvkqp'yjkej'rqkpvu.''qhvgp''gzrnkekvn{.''vq'c'rtgxkqvu'eqoowpkecvkqp'kp''cpqvjgt'' ncpi wci g. "qt" \q"r ctw "qh" ko" Vj ku" tgnc \kqpuj kr "y kj "c"r tgxkqwu" eqo o wpkec kqp" cuuwo gu" uqo g" hqto "qh" gs wkx cngpeg" \*Vqwt{''3;:2∕76+''y jkej 'ku'pgxgtyjgrguu''yjqwijv'\q''dg'wpcwckpcdrg'kp'rtcevkeg0'Vjg''eqpetgwk|cvkqp''qh''yjg''gnwukxg'' pqvkqp"qh'GS WKXCNGP EG"ku"guugpvkcn'hqt"c"f guetkr vkqp"qh'vj g"r qukvkqp"qh'vtcpurcvgf "rkvgtcwtg"dgecwug"kv'ecp" gzr nclp"j qy "cpf "gxgp"y j { "xcnwg"cpf "r qy gt"tgncvkqpuj kr u"dgwy ggp"vj g"vtcf kxkqpu"kpxqnxgf "f gvgto kpg"vj g"xgt { " eqpegr v'qh''tcpurcvkqp0P wo gtqwu'v{r gu'qh'gs wkxcrgpeg"o c{"dg"r quwrcvgf 'kp"c"i kxgp"ewnwtg."cpf "gxgp"y kij kp" yj g'uco g''yzv.''dw''yj g'PQTOU'qh''gs wkxcmpeg''ctg''yq''c''egtvckp''gzygpv'r tgf kevcdmg<'hqt''gzco r mg.''r tqr gt''pco gu''kp'' pqxgnu'ctg'qhxgp'cf cr vgf '\q'hk'kpvq'\j g'\cti gv'\tcf kxkqp'kp'Htcpeg'dw'j ctf n( 'gxgt'kp'\j g'P gyj gtrcpf u0'Vj g'pqto u." o qf gnu'cpf 'untcvgi kgu'go r m{gf 'kp'c'i kxgp'\tcpurvkqp'ecppqv'dg'wpf gtuvqqf 'kp'kuqrcvkqp'htqo 'vj g'f qo kpcpv'cpf 1 qt"r gtkr j gtcn'rkvgtct { "cpf "ewnwtcn'gpxktqpo gpv'kp"y j kej "vj g"vtcpurcvkqp"j cu'vq'hwpevkqp0'Vj ku'gpxktqpo gpv'ku" eqo r ngz "cpf "ku"i gpgtcm{ "f ghkpgf "kp" 'gto u"qh" yi g" 'cti gv" ewnwtg" tcyj gt "yi cp" yi g" uqwteg" ewnwtg0 Cpf "{ gv." eqpvgorqtct { "o cuu"ewnwtg" j cu" i tcf wcm { "tgf ghlpgf." gxgp"rctvn { "gtcugf." vj g"dqtf gtnlpgu 'dgvy ggp" uqwteg" cpf " vcti gv'y qtrf u'y j krg'r rcekpi '\*tkrgtct { +"vtcpurcvkqp"y krj kp"c"o wrukrcvgtcrl'tcvj gt"vj cp"c"dkrcvgtcrl'htco g"qh"tghgtgpeg" \*Noo dgtv'3;:; +0P gxgtvj grguu. 'i kxgp''vj cv'rkvgtct{"vtcpurcvkqp"cpf'rkvgtct{"korqtvu'kp'i gpgtcrictg'i qcn'qtkgpvgf" cevlx kukgu'f guki pgf '\q'hwrhkn'c'pggf 'kp'\j g'\cti gv'nksgtct { '\tcf kukqp. 'cp'cpcn (uku'qh'\j gug'pggf u'cpf '\j g'untcygi kgu' go r m { gf 'vq 'cf f tguu' 'y go 'o c { 'j grr 'wu'gzr rckp' 'y g' f { pco keu'qh'nkxgtct { 'tgrc kqpuj kr u'cpf 'vtcf kkqpu. 'cpf 'j gpeg'' qh'rkvgtct { ''vtcpurcvkqp0

Y kij kp"ij ku"hwpevkqpcn"tgugctej "r ctcf ki o ."'ij gp. "ki'ku"cuuwo gf "ij cv"cm"itcpurcvkqp"cevkxk{ "\*y j gij gt "ki'kpxqnxgu" r tqf wekpi ."wukpi "qt"eqo o gpvkpi "qp"vtcpurcvkqpu+"ku"i wkf gf "cpf "uj cr gf "d{"uwej "ij kpi u"cu"ij g"pqto u."xcnwg" uecrgu"cpf "o qf gnu"y j kej "ctg"r tgxcrgpv"kp"c"i kxgp"uqekgv{ "cv"c"i kxgp"o qo gpv"kp"vko g0"Vj g"uwf {"qh"nkgtct {" vtcpurcvkqp"ij gtghqtg"eqpukuvu"qh"ij g"uwf {"qh"ntcpurcvkqp"pqto u."o qf gnu"cpf "vtcf kkqpu0Cp{"vtcpurcvkqp"cevkxk{." cpf "cp{"wwgtcpeg"cdqw"vtcpurcvkqp."ku"r ctv"qh"ij g"f cvc"ij cv"ecp"dg"wugf "vq"grcdqtcvg"c"r tqhkrg"qh"c"i kxgp" vtcpurcvkqp"gpxktqpo gpv"cpf "vq"guvcdnkuj "vj g"r qukkqp"vj cv"nkgtct {"vtcpurcvkqp"qeewr kgu"qp"vj g"ewnwtcn"o cr u"qh" vj g"y qtnf "Nco dgtv"3;; 5+"cpf "kpf ggf "y j gvj gt "kv"r rc {u"c"uki pkhecpv"tqng"kp"uj cr kpi "vj g"f {pco keu"qh"uwej " o cr u0Tkp"vj ku"tgur gev "uvcvgo gpwu"d{"vtcpurcvqtu"cpf"vj gkt"etkkeu"qt"tgcf gtu"ctg"kpvgtguvkpi "pqv"uq"o wej "kp" vj go ugnxgu"dw"cu"qdlgevu"qh"tgugctej 0O quv"ewnwtgu"j cxg"qpn{"c"ho kgf "vtcf kkqp"qh"vtcpurcvkqp"etkkekuo "cpf" vj gqt {."dwv"yj gtg"ku"i gpgtcm{"cp"qdxkqwu"u{uvgo cvkek{"kp"vj gkt"ko rnkekv"f kueqwtug"qp"vtcpurcvkqp0"Vj g"gpvktg" pgw qtm"qh"tgrcvkqpuj kr u"dgw ggp"vtcpurcvgf "vgz wu "vtcpurcvqtu."vj gkt"etkkeu"cpf "tgcf gtu"dgeqo gu"o qtg" kpynnki kdng"y j gp"eqpukf gtgf "cu"c"eqo r ngz"vtcf kkqp"qt"u{uvgo 0

## F guet kr vkxg'inwf kgu'qh'iksgt ct { 'vt cpurc vkqp

Ceeqtf kpi "\q"Gxgp/\ qj ct. 'kv'ku'r quukdrg'\q"r tgf kev'\j g"eqpf kkqpu'\wpf gt "y j kej "\tcpurc\kqpu'o ki j v'qeewr { "c" egpvtcn'qt "r gt kr j gtcn'r qukkqp"cpf "o ki j v'dg'kppqxcvkxg"qt "eqpugtxcvkxg'kp"\j g''uvtcvgi kgu'\j g{ "go r m{0' F guet kr vkxg''uvwf kgu''ctg''

tgs wktgf "\q"\guv'\j g"\xcnlf k\{"qh'\j ku"j {r q\j guku"cpf "\q"r tqxlf g"c"dcuku"hqt"grcdqtc\kpi "i gpgtcn"r tlpekr rgu"\j cv"ecp" j grr "wu"r tgf kev'uwej "eqpf kkqpu. "kh'\j g{ "ctg"l\pf ggf "r quukdrg"\q"r tgf kev'\Uqo g"f guetlir \kxg"\uwf kgu"j cxg"dggp" wpf gt vcngp"\p"tgegpv'{gctu. "cpf "\j g"\tcf kkqp"qh"\tcpurc\kqp"j cu"dggp"\uwf kgf "o qtg"qt "rguu"u{ uvgo cv\ecm\{"\p" egt vc\p"ewnwt gu. "\p" ct\l\ewnet"\j g"Gwtqr gcp"qpgu\U\j g"Gwtqr gcp"T gpckuucpeg"r gt\lqf "cpf "\ku"\eqpvtkl\wkqp"\q"\j g" dkt\y "qh'\y g"\xgt\{"eqpegr v'qh'nkgtct { "\tcpurc\kqp"\y gto cpu"\3; : 8+."Htgpej "encuklekuo "y ky "ku'\untqpi "cpf "gpf wt\pi " vcf kkqp"qh'ngu"\gngu"\phf \gngu"\phf \gngu"\phf \gngu"\phf \wdgt"\3; 8: ="U\cengrdgti "\3; : 6="F\øj \wnv\3; : 9+."cpf "\y g"tgo ctmcdn\{"t\ej "I gto cp" vcpurc\kqp"ewnwtg"\phf \gngu"\phf \gng"\phf \gngu"\phf \gng"\gngu"\phf \gngu"\phf \gng"\phf \gngu"\phf \

Vj gtg'kn'uwknic'pggf ''q'lpxguxki cvg''y g''dgi kppkpi u'qh'xctkqwu'Gwtqr gcp''hkgtct { "tcf kkqpu ''hqewkpi ''qp''hkgtct { "vcpure'kqp''cu''qpg''v|r g'qh'ikgtct { "cpf ''ewmxtcn'ko r qtv'\*Nco dgtv'3; : 8+0O quv'pcvkqpcn'ikgtcwtgu'uggo ''qj' cxg'' dcugf ''y gkt'ecpqpu''qp''y g''I tggmlcpf ''Ncvkp'o qf gnu ''qhwgp''y ky ''y g''o gf kcvkqp''qh''y g''Htgpej ''ecpqp. ''cpf ''vq''j cxg'' ngr v'y gug''ecpqpu''cnkxg''y ky ''y g''] gm ''qh'vtcpure'vkqp''cu''y g''uwrtgo g''tj gvqtkcn''gzgtekug''\*Tgpgt''3; : ; +0Vy g'' f khtgtgpvkcvkqp''qh'ikkgtct { "vtcf kkqpu''f wtkpi ''y g''Tqo cpvke''Ci g'kmxuvtcyu'c''f qwdng'o qxgo gpv'\pv'y g''r qukkqp''qh'' vtcpure'yf 'ikygtcwtg-''qp''y g''qpg''j cpf .''y g''U engur gctgcp''cpf ''qy gt''pgy ''o qf gni'j gm gf ''y g''xctkqwu''pcvkqpcn'' vtcf kkqpu'vq''guvcdrkij ''y gkt''pgy ''tj gvqtkeu''cpf ''i gptg''u (uvgo u ''i tcf wcm' ''uwduvkwkpi ''y gcvtg''cpf ''y g''gr le''y ky j''' rtqug'y qtnu=''qp''y g''y gt''y g''t getecn''tcf kkqpu''tcy' gt''y cp''kp''tkygtcwtg.''y qwi j ''ky'ku''bckt''q''uc { ''y cv'' cwgo r w''j cxg''qeecukqpcm( "dggp''o cf g''vq''tgkpvtqf weg''y g''encukeu''kpvq''o qf gtp''hkgtcwtg0''kp''vgto u'qh''y gttgetcon'' o qf gnu'qh''tcpurcvkqp. ''y g'' gto cp''tcf kkqp''j cu''dggp''d{ ''hct''y g''o quv'kphnxgpvlcn'D\Nguukpi .''Xquu.''J gtf gt.'' I qgy g. "UEJ NGKGTO CEJ GT''\*tugg''I GTO CP''VTCF kvkQP +''cpf''y g''I gto cp''Tqo cpvkeknu.''co qpi ''qy' gtu.'' j cxg''cm''wgf ''tcpurcvkqp''gzr nkekn( ''cu'c'''ng { ''kputwo gpv'kp''f gxgrqr kpi ''I gto cp''ewmxtg''qp''y g''dcuku''qh''c'' u{uvgo cvke'kpvgtcevkqp''dgw ggp''y g''\*o qtg''qt''nguu''Htgpej +''encukecn'vtcf kkqpp''cpf''y g''pgy ''y qtn''\*ugg''gur gekcm( '' Htcpm''gv'cn''03; : 9/+0

Gzvgpf kpi "yj g"tcpi g"qh"f guetki vkxg"tgugctej "dg{qpf "yj ku"guugpvkcm{"tgurkevgf "Gwtqr gcp"ltco g"qh"tghgtgpeg"y km" o quv"ikngn{"trqo r v"wu"q"tgxkug"qwt "wpf gturcpf kpi "qh"iksgtct { "vtcpurcvkqp"eqpukf gtcdn{. "gur gekcm{"kh"y g"kpenwf g" qtcnihkgtcwtg"cpf "yj g"j knvqt { "qh"eqnpk cvkqp"y kyj kp"qwt"r wtxlgy "Dcuupgw"3; ; 5="Nco dgtv"3; ; 7+0"Vj g" nkgtcwtgu"qh"P qtyj "Co gtkec"cpf "Ncvkp"Co gtkec"uggo "vq"j cxg"f gxgnqr gf "cm quv"gpvktgn{"qp"yj g"dcuku"qh" vtcpurcvkqp. "kp"o wej "yj g"uco g"y c{"cu"yj g"Tqo cp"vtcf kkqp"y cu"dcugf "qp"yj g"1 tggmiqpg0"Y g"o c{"y gmif kueqxgt" yj cv"cm"eqnqpkcn"ewnwtg."y tkkpi "u{ uvgo u"cpf "hkgtce{"j cxg"f gxgnqr gf "qp"yj g"dcuku"qh"vtcpurcvgf "hkgtcwtg0"Kp" Cltkec."cpf "cnuq"kp"Mqtgc"\*J {wp. 'hqtyj eqo kpi +."yj ku"r tqeguu"qeewttgf "y kyj "yj g"ckf "qh"yj g"Dklng"cpf "Iqj p" Dwp{cp0"Kp"Lcr cp"cpf "kp"Uqwj "Gcuv"Cukc."yj g"pqxgniwug"qh"eqnqs wkcnircpi wci g"kp"vtcpurcvkqpu"j cu"uj cr gf "eqpvgo r qtct{"y tkwgp"wuci g"\*J {wp"cpf "Nco dgtv"3; ; 7="O wtcnco k"3; ; 7+0F WDDIP I "cpf "UWDVKVNIP I ."wy q" pgy "i gptgu"wugf "kp"yj g"cwf kqxkuwcn"tgr tgugpvcvkqp"qh"hkevkqp"cpf "j gpeg"cti wcdn{"dgnqpi kpi "vq"yj g"ecvgi qt {"qh" nkgtct{"tcpurcvkqp."j cxg"r rc{gf "cpf "eqpvkpwg"vq"r rc{"c"uko krct"tqng"\*F gradcurksc"cpf "Nco dgtv"3; ; 8+0I kxgp" yj cv"tcpurcvgf "hkgtcwtg"j cu"dggp"uq "kphnwgpvkcnikp"uj cr kpi "yj g"f {pco leu"qh!f kueqwtug."eqo o wpkecvkqp"cpf "ewnwtg. "ku"vtcf kkqpcn'vtgcv gpv'cu"cp"ctv'yj cv'ku"dguv'f guetkldgf "d{"tghgtgpeg" "q"kpf kxkf wcn"cpgef qvcn'gzr gtkgpeg" pq"npi gt"uggo u"lwnkhkcdng."cpf "yj g"pggf "hqt"ugtkqwu."f guetkr vkxg"tgugctej "kp"yj ku"ctgc"ecppqv'dg"qxgtguvlo cvgf 0 Lloo"rma<

CP VJ QNQI KGU'QH'VTCP UNCVKQP ="FTCO C"VTCP UNCVKQP ="NKVGTCT[ "VTCP UNCVKQP."

RTCEVKEGU="RQGVKEU'QH'VTCP UNCVKQP ="RQGVT[ "VTCP UNCVKQP ="UJ CMGURGCTG"]

VTCP UNCVKQP0

#### Hwt yj gt 't gcf kpi

 $\label{eq:cuupgw3} \text{Dcuupgw3}; ; 5 = \text{Gxgp/} \ \ \text{qj ct'3}; 9: c = \text{J qto cpu'3}; : 8 = \text{J qto gu'3}; : : = \text{J qto gu'gv'cn03}; 9: = \text{Nco dgtv'3}; : 6. \text{'3}; : 8. \text{'3}; ; 3. \text{'3}; ; 7 = \text{Nco dgtv'cpf 'Nghgxgtg'3}; ; 5 = \text{Nghgxgtg'3}; : 3. \text{'3}; ; 3 = \text{Vqwt} \{ \text{'3}; ; 50 \}$ 

LQU 'NCODGTV

## 0

## O cej kpg/ckf gf 'tt cpurc kqp

C''xctkgv{ ''qh'f ghkpkkqpu'gzkvv'hqt''o cej kpgckf gf ''\tcpurcvkqp.''cnuq'mpqy p''cu'eqo rwygt/ckf gf '\tcpurcvkqp0' Dgw ggp" y go ." y gug"f ghkpkklqpu"r rceg" o cej kpg/ckf gf "tcpurcklqp" qp" c"uecrg" tgcej kpi "htqo "j wo cp" tcpurcklqp" kp" yj g'r tqr gt 'ugpug'qh'yj g'y qtf 'vq'hwn{ 'cwqo cvle'O CEJ IP G'VTCP UNCVIQP 0 Drcw'gv'cn0\*3; : 7<98+"f kn/kpi wkuj "vj tgg"v{r gu"qh"eqo r wygt kt gf "crrtqcej gu"vq"vj g"/tcpurcvkqp"r tqeguu</br> ckf u'hqt "tcpurcvqtu." o cej kpg/ckf gf "tcpurcvkqp." cpf "o cej kpg" tcpurcvkqp0 kp" y ku ercuukhkecvkqp." o cej kpg ckf u  $eqxgt'u \{uvgo\ u'uvej\ ''cu''y\ qtf''r\ tqeguuqtu.''f\ kevkqpct \{''o\ cpci\ go\ gpv'vqqnu.''VGTO\ ''DCP\ MU.''cpf\ ''xctkqwu''nqqm/wr''\ nqqm/wr'' and the sequel of the$ hceknkkgu'y j kej "uwr r qtv'yj g''tcpurcvqt''dw'f q''pqv'cewcm{ ''r gthqto ''yj g''tcpurcvkqp''\cun000 cej kpg/ckf gf'' vtcpurcvkqp"u{uvgo u."qp'vj g'qvj gt'j cpf."ctg'u{uvgo u'y j kej "cewcm{ 'r gthqto 'vj g'vcum'qh'vtcpurcvkqp"dw'tgn{ ''qp'' yj g'kpvgtxgpvkqp"qh'vj g'j wo cp'tcpurcvqt"cv'xctkqwu'uvci gu'kp'vj g'tcpurcvkqp'r tqeguu0'Vj g'fkthgtgpeg'dgwy ggp" o cej kpg/ckf gf "tcpurckqp"u{ uvgo u"cpf "o cej kpg"tcpurckqp"u{ uvgo u."kp"Drcw'gv'cn@u"xkgy ."ku'vj cv'vj g"rcwgt"ctg"  $kp \textit{vgpf gf ''cu''hwm{' ''cwqo cvke''tcpurcvkqp''u{uvgo u.''y qwi j ''y gkt''qwr w''ecp''qh''eqwtug''dg''r cuugf ''qp''vq''c''tcpurcvqt''} \\$ hqt"r quv'gf kklpi 00 qtg"tgegpv'cr r tqcej gu'\q"f ghkpkpi "f khhgtgpv'\{r gu"qh'eqo r wygtkt gf '\tcpurc\kqp'\cmg'cu'\y gkt" r tkpekr cn'etksgtkqp" y g"f gi tgg"qh'cwqo cwlqp." y cv'ku" y g"tgncvkxg" eqpvtkdwwlqp"qh' y g"o cej kpg" cpf 'y g'j wo cp" f kurkpi wkuj gu'co qpi 'o cej kpg/ckf gf 'j wo cp'\tcpurc\kqp'\\*O CJ V+.'j wo cp/ckf gf 'o cej kpg'\tcpurc\kqp'\\*J CO V+.'' cpf 'hwm( 'cwqo cvle'o cej kpg' \tcpurcvlqp'\*HCO V+ODcmcp'\*3; ; 4+'o cngu'c'dkpct { 'f kuvkpevlqp'dgw ggp'o cej kpg' vtcpurcvkqp'\*O V+'cpf 'o cej kpg/cuukuvgf leqo r wygt/cuukuvgf 'vtcpurcvkqp'\*O CV''qt'ECV+: 'wukpi 'o cej kpg' vtcpurcvkqp"\q"tghgt"\q"\cp{"u{uvgo "\j cv'cewcm{"r gthqto u"c"\tcpurcvkqpø'cpf "encuukh{kpi "\cp{"qyj gt"eqo r wygtkugf"  $\label{thm:constraint} $$ $$ tepurcvqt''vqqn'y j kej 'hemu'uj qtv'qh''vtepurcvkpi ''cu''c''ECV''f gxkegø''*Dcmcp''3; ; 4-62: +0 $$ $$$ Kp"'y ku"gpvt { . "'y g" 'ygto "÷o cej kpg/ckf gf "'tcpurc kqpø'ku" wugf "kp"c" dtqcf "ugpug" '\q" eqxgt "cm'mkpf u"qh'uqhvy ctg" u{uvgo u'gur gekcm( "f guki pgf "cpf "f gxgmqr gf "hqt 'wug"cu'r ct v'qh'c 'tcpurc vqt øu'y qtm/uvc vkqp. "dwv'pqv'yi go ugnx gu" r gthqto kpi "vj g"vcum'qh"vtcpuncvkqp"cu"uwej 0"Kp"qvj gt"y qtf u. "vj g"u{ uvgo u"f kuewuugf "j gtg"ctg"pqv"f guki pgf "vq" wpf gt vcng"cp{ "u{ pvcevke"qt"ugo cpvke"cpcn{ uku"qh"c"uqwteg"\gzv"pqt"\q"i gpgtcvg"c"\cti gv'ncpi wci g"gs wkxcngpv'qh" yj g'uqwteg'\gzv'qt''cp{'rctv'qh'kx0Cnuq''gzenwfgf'htqo''yj g'fghkpkkqp''qh'ocej kpgckfgf''\tcpurc\kqp''j gtg''ctg'' uvcpf ctf "uqhvy ctg"u{ uvgo u"wugf "kp"c"o qf gtp"qhhkeg"gpxktqpo gpv"kp"i gpgtcn"tcvj gt"vj cp"ur gekhkecm{"d{" vtcpurcvqtu="vj gug"kpenwf g"uvcpf ctf "y qtf/r tqeguukpi "uqhvy ctg."wpkxgtucn'f cvcdcug"u{uvgo u'cpf "qvj gt"vqqnu'wugf" kp'r gthqto kpi 'cfo kpkutcvkxg'\cumu0Qwt'ewttgpv'f ghkpkkqp'qh'o cej kpg/ckfgf'\tcpurcvkqp'hwtyj gt'cuuwo gu'yj cv' yj g'uqwteg/mpi wci g'vgzv'ku'cxckmdng'kp''o cej kpg/tgcf cdng'hqto 0'Vj wu.''o cej kpg/ckf gf ''vtcpumvkqp.''cu''f ghkpgf '' j gtg. "qeewtu" kp"cp{ "ukwc kqp"y j gtg"c"o cej kpg/tgcfcdrg" uqwteg" kgz v"ku"r tqeguugf "d{ "eqorwgtk| gf" kqqnu" kp"qtfgt" vq"r tqf weg"c"vcti gv/mpi wci g"vtcpumvkqp."y kj "vj g"vtcpumvqt"dgkpi "kp"eqpvtqn"qh"cm"uvci gu"qh"vj ku"r tqeguu"cpf" r gthqto kpi ''yi g'kpvgmgewcn'r tqeguu'qh'\tcpurcvkqp0

## Vcumi'kp'vj g'o cej kpg/ckf gf 'vtcpurcvkqp'rtqeguu

Vj g'r tqeguu'qh'o cej kpg/ckf gf "\tcpurc\kqp"ecp"dg'tqwi j n{ 'f kxkf gf 'kpvq'\yi tgg'\cumu0'Vj gug''

vcumu''ctg''wuwcm{ ''r gthqto gf ''uko wncpgqwun{ ."qt"cv'ngcuv'pqv'kp"c''uvtkev'ej tqpqmi kecn'qtf gt. ''dwv'kpxqnxg'f khhgtgpv''v{ r gu''qh''qqnu0'Vj g''vcumu'kp''s wguvkqp''ctg<''

"gf kklpi ."vj cv'ku"etgcvkpi "c"vtcpuncvkqp"gkj gt"d{"qxgty tkklpi "vj g"uqwteg"vgzv'qt"d{"gpvgtkpi "vj g"vtcpuncvkqp"kp" qpg"r ctv'\*y kpf qy +"qh'vj g"uetggp"y j kng"j cxkpi "ceeguu"vq"vj g"uqwteg"vgzv'kp"cpqvj gt"r ctv'qh'vj g"uetggp "vgto kpqnqi {"o cpci go gpv<"nqnnkpi "wr "cpf 1"qt"gpvgtkpi "vgto u"kp"c"o cej kpg/tgcf cdng"f kevkqpct{"qt" vgto kpqnqi {"f cvcdcug."dghqtg."f wtkpi ."qt"chvgt"vj g"vtcpuncvkqp"r tqeguu

"tcpurcvkqp"r tqr gt<ej qqukpi "vcti gv'rcpi vci g'gs wkxcrgpvu'qp"vj g'rgzkecn"u{pvcevke."vgzwcn"cpf 'hwpevkqpcn' \*r tci o cvke+'rgxgnu."y j gtg"vj g'vtcpurcvqt"o ki j v'dg"uwr r qtvgf "d{"xctkqwu'vqqnu'qhhgtkpi "vtcpurcvkqp" uwi i guvkqpu0

#### Gf kkp i

Ucpf ctf 'y qtf/r tqeguulpi 'uqhw ctg' ku'qhwgp' wugf 'hqt' etgc kpi 'cpf 'gf kkpi 'vj g' cti gv rcpi wci g' yz v0 J qy gxgt." y gtg' ctg' xctkqwu'hgcwtgu'y j kej 'ecp' ckf 'vj g' tcpurc vqt' kp' vj g' vcun'qh' gf kkpi 'dw'y j kej 'ctg' pqv' kpenwf gf 'kp' uwej "uvcpf ctf 'r tqf wew0' Vj gug' ctg' qhhgtgf 'd { 'vtcpurc vkqp' gf kqtu. 'uqhwy ctg' r tqi tco o gu' gur gekcm { 'f guki pgf 'y kj 'vj g'' pggf u'qh' vtcpurc vqtu' kp''o kpf 0

Hqt"gzco r ng. 'kh'yi g"vtcpuncvkqp"ku"etgcvgf "d{"qxgty tkkpi "yi g"uqwteg"\gzv."kv'ku"guugpvkcn'yi cv'yi g'uqhwy ctg'wugf " r tqxkf gu"yi g"r quukdkrkv{ "qh'r tqvgevkpi "egtvckp"gngo gpwu"qh'yi g"vgzv'ci ckpuv'dgkpi "qxgty tkvgp"ceekf gpvcm{0'Uvej " gngo gpvu"o c{"kpenvf g"vci u"y j kej "eqpvckp"nc{qwv'kphqto cvkqp"qt."kp"uqhwy ctg"nqecnkt cvkqp."gngo gpvu"y j kej "hqto " r ctv'qh"c"r tqi tco o g"eqf g0'Uko krctn{."kh'vtcpuncvkqp"ku"f qpg"vukpi "f khhgtgpv'y kpf qy u"hqt"f kur nc{kpi "uqwteg"cpf" vcti gv'vgzvu."c"vtcpuncvkqp"gf kvqt"y km'vuvcm{"kpenvf g"c"hgcwtg"hqt"uko wncpgqwun{"uetqmkpi "yi g"vgzvu"kp"dqyi" y kpf qy u0

#### Vgto kpqrqi {'b cpci go gpv

Cp'ko rqtvcpv'rctv'qh'vj g''vtcpurcvkqp''rtqeguu'kpxqrxgu'eqmgevkpi 'uwdlgev'urgekhke'vgto kpqmi {."gpvgtkpi 'vj ku'' vgto kpqmi {"kp''c''ocej kpg/tgcfcdrg'i muuct{"qt''vgto kpqmi kecn'fcvcdcug."cpf 'ocnkpi 'uwtg''vj cv'cm'vj ku''ecp''dg'' ceguugf 'htqo 'vj g''vtcpurcvkqp''gfkqt'fwtkpi 'vj g''cewcn'vtcpurcvkqp''rtqeguu0

Vgto kpqni {"o cpci go gpv'u{uvgo u'ctg'pqv'wwcm{"dcugf "qp'uvcpf ctf "f cvcdcug"u{uvgo u'dw'tcvj gt"eqpukn'qh" vqqnu'f guki pgf "ur gekhlecm{"hqt "tcpurcvqtu" "ugg"Uej o k\| "3; ; 2+0'Uwej "u{uvgo u'r tqxkf g'c'o gcpu'hqt'o ckpvckpkpi "eqo r rgz."eqpegr vqtkgpvgf "ygto kpqmi kecn'gpvt {"uvtwewtgu'y j kej "ecp'dg'kpf kxkf wcm{"cf cr vgf "d{"y g'vtcpurcvqt" cpf "kpenvf g'hgcwtgu'hqt"f ktgev'eqo o wpkeckqp"dgw ggp"yj g'vtcpurcvqp"gf kqt"cpf "y g'vgto kpqmi {"f cvcdcug'\text{hqt" gzco r rg'nqnhpi "wr "ygto u'o cpwcm{"qt'cwqo cvkecm{"tqo "y g'gf kqt."r cuvkpi "ygto u'htqo "yj g'f cvcdcug'kpvq'yj g" vgzv'cpf "xkeg'xgtuc+0'C wqo cvke'mqqm'wr "tgs wktgu'c'f gi tgg'qh'o qtr j qmi kecn'cpcn{uku'qh'y g'uqwteg'rcpi wci g'kp" qtf gv'y| kf gpvh{"kphrgevkqpcn'gpf kpi u'cpf "uvtkr 'kphrgevgf 'y qtf 'hqto u'vq'yj gkt 'y qtf "uvgo u') Vj gtg'ctg'cnq'u{uvgo u."cxckrcdng'qt'dgkpi "f gxgmr gf ."y j kej "gzr rhekn{"kpvgi tcvg'c'vtcpurcvkqp"gf kqt'cpf "c" vgto kpqmi kecn'f cvcdcug'y kyj "cp'cwqo cvke'mqm'wr "hgcwtg'kp'qpg'uqhwy ctg'r cenci g0'Uwej "u{uvgo u" cwqo cvkecm{"f kur rc{"cp"cf f kkqpcn'y kpf qy "eqpvckpkpi "y g'ygto kpqmi kecn'o cvgtkcn'tgrcvgf "vq'yj g'r ctv'qh'yj g" vgzv'ewttgpvn{"r tqeguugf "kp'yj g'gf kqt'y kpf qy "\text{hqt'c'f gvckrgf "f kuewunkqp"qh'uwej "u{uvgo u."ugg'O grd{"3; : 4." 3; : 5."3; ; 4+0

#### Vtcpurcvkqp'rtqrgt

Cnj qwi j ''y g''cewcri'cuni'qh''tcpurcvkqp.''y j kej ''kpxqnxgu''o cnkpi 'f gekukqpu''qp''y j kej ''cti gv'rcpi wci g''gs wkxcrgpu'' vq''wug.''ku'r gthqto gf ''d{ ''y g''j wo cp''tcpurcvqt.''y gtg''ctg''xctkqwu''vqqnu'y j kej ''ecp''dg''wugf ''vq''uwr r qtv''y g''tcpurcvqt'' kp''r gthqto kpi ''y ku''cun0'Qpg''uwej ''vqqri'ku'y g''yto kpqrqi { ''o cpci go gpv'u{ uvgo ''cu''f guetkdgf ''cdqxg0'Kp''cf f kxkqp'' vq''r tqxkf kpi ''ceeguu''vq''uqwteg''cpf ''vcti gv''yto u.''y ku''v{ r g''qh''u{ uvgo ''ecp''cpf ''uj qwrf ''qhhgt''f ghkpkkqpu''qh''y g''yto u'' kp''s wgurkqp.''kphqto cvkqp''qp''uwdlgev'hkgrf u.''rkpi wkurke''eqpvgz vu.''u{ pqp{o u.''cpf ''uq''qp''\*ugg''<u>VGTO KP QNQI [</u>.'' CRRNKECVKQP U+0

Crctv'htqo "rtqxkf kpi "kphqto cvkqp"qp"vj g"ngzkecn'qt"rj tcugqmi kecn'ngxgn"uqo g'vqqnu'qhhgt"uwi i guvkqpu'hqt"vj g" vtcpuncvkqp"qh'c"eqo rngvg'ugpvgpeg'qt"gxgp'ncti gt'ugi o gpvu'qh'vj g"vgzv0'Uwej "u{uvgo u."i gpgtcm{"mpqy p"cu" vtcpuncvkqp'b go qt{'uk uvgo u.'eqpukuv'qh'f cvcdcugu'y j kej "eqpvckp"uqwteg/ncpi wci g"vgzv'ugi o gpvu'vqi gvj gt"y kij " yi gkt"vcti gv/ncpi wci g"gs wkxcngpvu0'Vj g"vgzv'ugi o gpvu'ctg'f tcy p"htqo "vtcpuncvkqpu'r tqf wegf "d{"j wo cp" vtcpuncvqtu"cpf "vj gp"

ugi o gpvgf "ceeqtf kpi "vq"uko r ng"hkpi wkurke "cni qtkyj o u0Cp"gzco r ng"qh"uwej "c"u{ uvgo "y cu"wugf "kp"vj g"gctn{ "3; 82u" cu"r ctv"qh"c"o cej kpg/ckf gf "vtcpurcvkqp"vqqn"f gxgnqr gf "hqt"vj g"Gwtqr gcp"Eqcn"cpf "Uvggn"Eqo o wpkv{ "kp" Nwzgo dqwti 0K/ku"f guetkdgf "kp"vj g"CNRCE"Tgr qtv"\*CNRCE"3; 88496: +0

Vtcpurckqp"o go qt {"u{urgo u'qh''y ku'v{r g'ecp''dg''r ct-kewrctn{"wughwrlkh''y g'uqwteg/rcpi wci g''yzz'ku''cp''wr f cvgf" xgtukqp''qh''c''f qewo gpv'y j kej ''j cu''dggp''tcpurcvgf ''r tgxkqwun{"cpf ''y gp''urqtgf ''vqi gyi gt''y ky ''ku''tcpurcvkqp''\*hqt" gzco r ng''c''eqo r wgt ''o cpwcn+0'Y j gp''urct-kpi ''vq''tcpurcvg''y g''pgy ''vgzv'wukpi ''y g''tcpurcvkqp''gf kqt.''y g''u{urgo "cwqo cvkecm{"r gthqto u''c'ugi o gpvckqp''qh''y g''uqwteg''vgzv'cpf ''nqqmu'wr ''y g''ugi o gpwl'kp''y g''tcpurcvkqp''o go qt{"f cvcdcug0'Ki'c'ugi o gpv'ku''hqwpf.''y g''tcpurcvkqp''urqtgf ''y kyi ''y ku''ugi o gpv'ku''qhhgtgf ''cu''c''r quukdng''gs wkxcrgpv0'K'' ecp''dg''cf qr vgf ''d{ ''y g''tcpurcvqt''cu''kv'ku.''co gpf gf .''qt''tglgevgf 0'Cu''uqqp''cu''y g''tcpurcvqt''j cu''hykuj gf ''y g'' tcpurcvkqp''qh''y ku''ugi o gpv.''y g''pgy ''uqwteg''cpf ''cti gv''ugi o gpw''ctg''ci ckp''urqtgf ''vqi gyi gt''kp''y g''tcpurcvkqp'' o go qt{0}

Qpg"cfxcpegf "hgcwtg"qh"c"tcpurcvlqp"o go qt{"u{uvgo "ku"yi g"uq/ecmgf"hw||{ 'o cvej 'hcekkv{0Vj ku"ku"qh"kpvgtguv" vq"dqyj "r tqhguulqpcn"tcpurcvqtu"cpf "hpi wkuvu0"kp"cffkklqp"vq"gzcev"o cvej gu."u{uvgo u"yj kej "kpeqtrqtcvg"yj ku" hgcwtg"ecp"hlpf "kp"yj gkt"tcpurcvlqp"o go qt{"ugi o gpvu"yj kej "fkhgt"htqo "gcej "qvj gt"kp"egtvckp"tgur gevu"dw" yj kej "ctg"tgi ctf gf "cu"uko krct"ceeqtfkpi "vq"ur gekhke"cni qtkvj o u0"Vj g"cni qtkvj o u"ctg"dcugf "qp"vj g"r tkpekr rgu"qh" -hw||{"rqi keø"cpf"o cng"wug"qh"u{pvcevke"r ctukpi "o gej cpkuo u"vq"uqo g"gzvgpv0

C'uko krct'r tkpekr ng''qh''±my| { ''o cvej ø'qt''±eqpvtqmgf ''uko krctkv{ø'j cu''dggp''cr r nkgf 'kp''c'tcvj gt'f kthgtgpv'vtcpurcvkqp'' gpxktqpo gpv0C''u{uvgo ''mpqy p''cu''Eqo r wyt/Ckf gf 'F kengev'Cf cr wvkqp''\*ECFC+'j cu''dggp''wugf ''d{ ''Dkdng'' vtcpurcvqtu''vq''etgcvg''c''vtcpurcvkqp''qp''yj g''dcuku''qh''cpqyj gt''vtcpurcvkqp''kp''c''uko krct''qt''tgrevgf ''repi wei g.''hqt'' gzco r ng''vq''vtcpurcvg''yj g''Uetkr wvtgu''kpvq''ugxgtcn'f kengevu''qh''Uqwj ''Co gtkecp''qt''Chtkecp''repi wei gu'\*\*Dgcp''3;;5=''Uvcphqtf''cpf ''Y cvvgtu''3;;5+0

#### Kpvgi t c vgf 'ti{ uvgo u'hqt 'tj g'tt c pure vqt øu'y qt muve vlqp

Cu'gctn("cu'y g'3; : 2u. 'Cmp'O gnl{"j cf "f guli pgf "c'u{ uvgo "qh'o wnk/mxgn'vtcpurcvkqp"ckf u'\*O gnl{"3; : 4."3; : 5+0' Vj ku'kpenvf gf "c'vtcpurcvkqp"gf kqt"cpf "c'vgto kpqmi { 'mqm/wr 'hcekkv{ "cu'r ctv'qh'cp''Kpvgtcevkxg"Vtcpurcvkqp" U{ uvgo "\*KVU+0Qvj gt."o qtg''tgegpv'u{ uvgo u'cmq'kpenvf g''c'vtcpurcvkqp"o go qt{"eqo r qpgpv'0Cpvtkgu'htqo "vj g" ygto kpqmi { "f cvcdcug''cpf "vj g''vtcpurcvkqpu'hqwpf "kp''vj g''o go qt{"eqo r qpgpv'ctg'kpvgi tcvgf "cpf "vj g''u{ uvgo "vj gp" r tqxkf gu''cwqo cvke''uwdurkwwkqp''qh''cm'uqwteg/mpi wci g''ugi o gpwu''y j kej "ctg''gkvj gt''vqvm("kf gpvkecn'y kyj " ugi o gpvu''kp''vj g''o go qt{"qt''y j kej "f khtgt''qpn("y kyj "tgur gev''vq''yj g''yto u''eqpvckpgf "kp''yj g''yto kpqmi { "f cvcdcug0 C''urki j vn("f kthgtgpv''crrtqcej 'kpvqnxgu''kpvgi tcvkpi .'kp''cf f kkqp''vq''yj g''cdqxg."c''o cej kpg''tcpurcvkqp''u{ uvgo " y j kej 'rtqxkf gu''c'tcy ''vtcpurcvkqp''hqt''cp{"ugi o gpv''pqv'hqwpf 'kp''yj g''o go qt{ "eqo r qpgpv0Vyj ku''crrtqcej " uwi i guvu''yj cv''yj gtg''ku''pq''ergct''f knxhpevkqp''dgwy ggp''o cej kpg/ckf gf ''vtcpurcvkqp''cpf ''o cej kpg''tcpurcvkqp''cpf ''yj cv'' yj g''vtcpurcvkqp''qh''yj g''hwwtg''ku''dqwpf ''vq''o cng''gzvgpukxg''wug''qh''dqyj ''nkpf u''qhh'yej pqmi { 0 Ugg''cnq<

OCEJ KP G"VTCP UNCVKQP. "CRRNKECVKQP U=OCEJ KP G"VTCP UNCVKQP. "J KUVQT[=OCEJ KP G" VTCP UNCVKQP. "O GVJ QF QNQI [="VGTO "DCP ML=VGTO KP QNQI [."CRRNKECVKQP U)

## Hwt yj gt 't gcf lpi

Hkuej gt "gv'cn03; ; 6="P gy vqp"3; ; 4="Uci gt"3; ; 50

MCTN/J GKP\ 'HTGKL CPI

# O cej kpg'tt cpurcvkqp

#### crrlectqpu

 $Crr\,\text{rkeckqpu''qh''O cej kpg''Vtcpurckqp''*O V+''ecp''dg''ecvgi qtk' gf''kp''vgto u''qh''o qf g''qh''wug''cpf''kpvgpf gf''wugt0'Vj g'' hqto gt''tcpi gu''htqo ''hwn{''cwqo cvke.''vj tqwi j ''cwqo cvke''y kyj ''r tg/''qt''r quv' gf kskpi .''vq''kpvgtcevkxg0'Dtkgh''o gpvkqp'' y km''cnuq''dg''o cf g''qh''f kcmpi wg''cpf ''ur ggej ''vtcpurcvkqp''u{ uvgo u0'F khhgtgpv''wugtu''kpenwf g''yj g''gpf wugt''*kVg0'yj g'' eqpuwo gt''qh''yj g''vtcpurcvkqp+:''cp''kpvgto gf kcvg''ci gpv.''yj g''vtcpurcvqt.''cpf''yj g''qtki kpcn''cwyj qt''qh''yj g''vgzv''vq''dg'' vtcpurcvgf 0$ 

### Hwn('cwqo cvle'OV

Vjg'\gto'**hwn{'cwqocvle'OV**''crrnkgu'\q''ecugu'yjgtg'\jg'uqwteg'\gzv'ku'kprw\'\q'\jg'u{uvgo''cpf''\jg'\tcpuncvlqp'' ku'f grkxgtgf.''dqyj ''y kyj qwv'cp{'kpxqrxgo gpv'qh'yj g'wugt0I kxgp''yj g''ewttgpv''uvcvg/qh/yj g/ctv'qh''O V.''yj ku''uegpctkq'' ku'qpn{ 'uwkscdng'y j gtg'vj g'kpr wv'vgzv'ku'y tkwgp'kp"gkvj gt"c"pcwtcm{/qeewttkpi 'uwdncpi wci g"qt"cp"ctvkhkekcm{ " eqpvtqmgf "ncpi wci g."qt"gnug"y j gtg"c"tqwi j "vtcpuncvkqp."r quukdn{ "eqpvckpkpi "gttqtu"cpf "kpceewtcekgu."ku" pgxgtyj grguu'ceegr vcdrg0'Y kj 'hwrn( 'cwqo cvke'O V.'yj g'qpn( 'wugtu'ctg'yj g'cwyj qtu'cpf 'eqpuwo gtu0 Y j gtg"c"uwdrcpi wci g"ecp"dg"wugf ."vj g"qtki kpcn'cwyj qt"qh"vj g"vgzv"ku"pqv"chhgevgf ."dgecwug"vj g"uwdrcpi wci g" qeewtu'pcwtcm(0'C'uwdncpi wci g'ku'c'hcpi wci g'y j kej 'ku'pcwtcm('tguvtkevgf 'kp'ku'xqecdwrct ('cpf 'tcpi g'qh' unt wewnt gu0'Vj gug't gunt kevkqpu'ungo 'htqo 'dqvj ''vj g'undlgev'o cwgt ''qt '**f qo ckp**''\*y j gtg''vj g{ ''ctg''v{ r kecm{ ''ngzkecn+'' cpf "vj g"vgzv"v{rg" vj kej "ko rqugu"uvt wewtcn"tguvt kevkqpu+0"Vj ku"ku"qhvgp"uckf "vq"dg"vj g"o quv"uveeguuhwn uegpct kq" hqt"OV"\*eh0Mkxtgfig"cpf"Ngjtdgtigt"3;: 4-K"kh"vjg"crrnkecvkqp"ku"crrtqrtkcvg."vjg"eqpuwogt"ykm"pqv"gxgp" powieg' y cv' y g'' tcpurc wlop' j cu'dggp' f grix gtgf 'd { "c'eqo r wgt0" V j g'o quv'hco qwu'gzco r ng'qh' y ku'crrt qce j 'ku' y g'  $O \vdash V \vdash Q\hat{I}$  "u{uvgo "\*Ej cpf kqvz"3; : 9."3; : ; +"y j kej "\tcpurcvgu"67"222"y qtf u'qh'Ecpcf kcp'y gcyj gt "dwngvkpu'htqo" Gpi nkuj "kpvq"Hugpej "gxgt { "f c { . "y kuj qww"cp { "uki pkhkecpv"j wo cp"kpvgtxgpvkqp"y j cvuqgxgt0Qvj gt "gzco r ngu"qh"vj ku" i gptg'kpenwfg'o wnkrkpi wcn'ygz krgu'cduvtcevu. 'Ecpcfkcp'Fgrctvo gpv'qh'Ci tkewnwtg'tgrqtvu. 'Uy kuu'cxcrcpejg' y ctpkpi "dwngkpu."pgy ur cr gt 'tgr qt wi'cdqwi'dwukpguu'o gti gtu."cpf "uq"qp0Kp" y g"o quv'gz xtgo g'ecug."y g"ecp" yj kpm'qh'uwej "tcpurcvkqp"cu'dgkpi 'dcugf 'qp''yj g'mkpf 'qh'hkzgf 'r j tcugu'qpg'hkpf u'kp'c'j qnkf c{ 'r j tcug/dqqm'\*Uckq" cpf "Vqo kc"3; : 8."Iqpgu"cpf "Vuwlk"3; ; 2+." yi qwi j "kv'uj qwrf "dg"untguugf "yi cv'yi ku'ukwcvkqp"ku "pqv'v{r kecn0 Y j gtg"c"uwdrcpi wci g"f qgu"pqv"qeewt"pcwtcm{."c"uko krct"ghhgev"ecp"dg"cej kgxgf "d{"ctvkhkekcm{"ko r qukpi" tgutkevkqpu'cpf "eqpytqnu'qp" yi g"cwj qt < xqecdwrct { 'wug"cpf 'yi g'tcpi g'qh'cf o kuukdrg'u { pycevke 'untwewtgu'ecp"dg" f ghkpgf 'kp''ceeqtf cpeg'y kij ''y g'hko kcvkqpu''qh''y g''O V''u{ uvgo ''vq''dg''vugf 0'Vj ku''t gunt levgf 'kpr wv''crrtqcej ''j cu'' dggp'wugf 'xgt { 'uweeguuhwm { 'vq'r tqf weg's wcrkx { ''tcpurcxkqpu'y kj ''y g'ngcuv'uqr j kurkecvgf ''qh'O V'u { uvgo u0'Vj g'' rtcevkeg'y cu'hktuv'tgrqtvgf 'd{ 'Gnkuvqp'\*3; 9; +'y j gp'Zgtqz'vugf 'vj g'\*pqy 'qduqngvg+'Y gkfpgt'u{uvgo."cpf" uko krct "tgr qt vu"j cxg"cr r gctgf "qeecukqpcm ("gxgt"ukpeg0"kpf ggf. "c"pwo dgt "qh"uvcpf ctf kt gf "tguvtkevgf "rcpi wci gu"  $ctg''pqy ''cxckrcdrg.''y g''o \ quv'y \ kf \ gn(''wugf''dgkpi ''CGEOC''Uko \ r \ rkhkgf''Gpi \ rkuj \ .''y j \ kej ''y \ cu''f \ gxgrqr \ gf''hqt''y \ g''$ cxkcvkqp'kpf wuvtkgu'\*CGEOC'3;; 7+0'Ugxgtcn'qyi gt''gzcorngu''j cxg''dggp''tgrqtvgf''\*ugg''ENCYU''3;; 8+0'Vj g'' cwj qt"o wuv'hqmqy "c"uvtkev'uv{ rg"uj ggv."cpf "c"v{ r kecn'cr r nkecvkqp"ku'vgej pkecn'y tkvkpi ."hqt"gzco r rg"wugt"o cpwcnu" cpf "tgrqtvu0"kpvgtguvkpi n{ ."kv"j cu"dggp"tgrqtvgf "\*d{ "Ncy uqp"3; 9; < 3ht0+"yj cv"qpg"kpf ktgev"cf xcpvci g"qh"vj ku" crrtqcej 'ku'cej kgxkpi 'dgwgt'uv{ rg'kp''y g'qtki kpcn'\gzv0'Vj g''gpf/wugt''o c{ 'tgcnk g'kv'ku'O V''\*dgecwug''y g''uv{ rg''ku'' uwknygf + "dww" y ku ku 'uqo gwko gu 'f gukt cdrg0" V j ku 'uegpct kq 'ku 'r ct wewret n("crrt qrt kevg 'hqt 'ukwewkqpu 'y j gtg 'y g" eqpuwo gtu"ctg"pqp/pcvkxg"ur gengtu."qt"y j gtg"yj g"f qewo gpvcvkqp"o wuv"dg"uko wnxcpgqwun{"r tqf wegf "kp"c"xctkgv{" qh'ncpi wci gu0

y gkt "qy p"mpqy ngf i g"qh"y g"f qo ckp"vq"o cmg"ugpug"qh"enwo ukn{ "y qtf gf "\tcpurc\kqpu0O ct\kp"Mc{"\gmu"c"uvqt{" \*eksgf "kp"J wej kpu"cpf "Uqo gtu"3; ;  $4 \le 79 + \text{ht}$ qo "y g"gctn{ "f c{u"qh"O V"tgugctej ."y j gtg"r j {ukekwu"r tghgttgf "cu"  $\pm 0$  qtg"ceewtcvgø"y g"tcy "qwr w'htqo "c"Twuukcp/Gpi nkuj "O V"u{uvgo "\q"y g"\gzvu"r tqf wegf "d{"j wo cp"\tcpurc\qtu" y j q"y gtg"Twuukcp"gzr gtvu"dw'mpgy "pgzv'\q"pqyj kpi "cdqw'pwengct"r j {ukeu0O qtg"tgegpvn{ ."y ku"crrtqcej "j cu" dggp"\wugf "hqt"gzco r ng"kp"y g"VTCF GZ "u{uvgo "\Cwo ckstg"gv"cn03; ; 4 + y j kej "r tqxkf gu"tqwi j "\tcpurc\kqpu"qh" o krkct {"\gmzzgu"dgyy ggp"Gpi nkuj "cpf "Htgpej 0

#### Rtg/'cpf 'r quv/gf kslpi

Y j gtg'ij g'hwn( 'cwqo cvle'uegpctkq'ku'kpcrrtqrtkcvg.''ij g'r gthqto cpeg'qh'ij g'O V'u{uvgo 'ecp'dg'o kki cvgf 'd{" y g'wug'qh'r tg/'qt'r quv'gf kklpi .''klg0'cf cr vkpi ''ij g'kpr w'qt'qwr w'vgzv'vq'o ggv'ij g'gpf/wugtøu'pggf u0 Vj g't gut kevgf 'kpr w'crrtqcej 'f guetklgf 'cdqxg'ku'c'hqto 'qh'r tg/gf kklpi 0Qvj gt 'vgej pks wgu'kpxqnxg'kpugtvkpi 'c' nkpf 'qh'-o ctm/wr ø'kp'vj g'uqwteg'vgzv.'kpf kecvkpi 'gzr nkekn{.'hqt'gzco r ng. 'r tqr gt'pco gu'cpf 'vkxgu'y j kej 'vj qwrf' pqv'dg'vtcpurcvgf .'encwug'dqwpf ctkgu'y j gtg'vj gug'o ki j v'dg'co dki wqwu.'qt'gzr nkekv'kf gpvkhkecvkqp'qh'j qo qp{o u0' Vj ku'o ctm/wr 'o ki j v'dg'cej kgxgf 'd{"o gcpu'qh'cp'kpvgtcevkxg'r tg/r tqeguukpi 'uvci g'kp'y j kej 'vj g'u{uvgo 'ku'cdng'vq'' uecp'vj g'kpr wv'yzv'cpf 'kf gpvkh{'r tqdngo u'y j kej 'ctg'nkngn{ 'vq'ctkug'qpeg'kv'uvctw'vq'vtcpurcvg0'Vj ku'crr tqcej 'j cu'' dggp'o qtg'qt'nguu'cdcpf qpgf 'pqy <'vj g'wugt'j cu'vq'npqy 's wkxg'y gm'j qy 'vj g'u{uvgo 'y qtmu'vq'r tg/gf kv'vj g'vgzv'' tgcm{ 'ghhgevkxgn{ 0'kpvgtcevkxg'r tg/gf kklpi 'ku'o wej 'vj g'uco g'cu'kpvgtcevkxg'O V'r tqr gt'cpf 'uwdlgev'vq''y g'uco g'' nko kcvkqpu''vgg'dgny +0

Rquw/gf kwhpi 'ku'ewttgpvn{'yi g'o quv'eqo o qp'uegpctkq"cpf 'ku'cp"gzvgpukqp"qh'yi g'ukwcvkqp'f guetkdgf 'kp'yi g' f kuewuukqp''qh''tcy'''qwr'w''cdqxg.''y j gtg''y g''wugt''ku''gkyj gt''c''vtcpurcvqt''qt''y g''eqpuwo gt0 Rquv'gf kwpi ''eqpukuw''qh''vkf { kpi 'wr 'vj g'tcy 'qwr ww. 'eqttgevkpi 'o kuvcmgu. 'tgxkukpi 'gpvktg. 'qt. 'kp'vj g'y qtuv'ecug. 'tgytcpurcvkpi 'gpvktg' ugevkqpu0'K/'uj qwrf ''dg''pqvgf ''vj cv''gxgp''j wo cp''vtcpurcvkqpu''ctg''wuwcm{''uwdlgev'vq''tgxkukqp.''vj qwi j ''kv'uj qwrf ''cnuq'' dg'uckf "vj cv'tgxkukpi "O V'qwwr ww'ku's wksg'f khhgtgpv'htqo "tgxkukpi "j wo cp"qwwr ww<del>''</del>kpf ggf. 'uqo g'tgxkugtu'tgr qtvgf n{ " hlpf "kv"gcukgt" 'vq"y qtm"qp" O V"qwr ww. "ukpeg" 'vj gtg" ctg" pq" hggrlpi u" 'vq" dg" j wt v0 'Qp" 'vj g" qvj gt" j cpf . "Ej wtej "cpf" J qx{"\*3;;5,469ht0+"ekg"pwo gtqwu"pgi c√kxg"cur gewu"qh"yi ku"o qf g"qh"wug. "o cp{"qh"yi go "nqpi "tgeqi pk gf 0" Eqttgevlpi 'O V'qwr w'ku's wky 'f khytgpv'htqo 'tgxkulpi 'j wo cp''qwr w.'cpf 'o cp{ 'tcpurcvqtu'hlpf 'kv'htwutcvlpi 0' Cnq. 'ukpeg''y g'kpkkcn's wcrkv{ 'ku's wkvg''nqy. 'tgrckt'ecp''vcng''nqpi gt''cpf lqt''dg''o qtg''f kthkewn''y cp''uko rn{ 'uvctvkpi " htqo "uetcvej 0"P gxgtvj grguu."vj ku''qr vkqp''tgo ckpu''r qr wrct."cv'hgcuv''co qpi ''f gxgrqr gtu0"Hqt"gzco r ng. "ukpeg''vj g" o kuvengu'o ef g'd{ 'O V'u{ uvgo u'vgpf "vq'dg'tgewttgpv."o qtg'uqrj kuvkeevgf "u{ uvgo u'kpenvfg'ur gekhke'kpvgteevkxg" vqqnu'gur gelcm{ 'f guki pgf 'vq'hcekrkcvg'r quv/gf kkpi 0'Vj gug'cko 'vq'j gnr 'vj g'r quv/gf kqt'eqttgev'r tgf kevcdng'' o kuvengu."cpf "o c{"dg"nkpi wkuvkeem{"uqrj kuvkeevgf."hqt"gzco rng"ej cpi kpi "yj g"vgpug"qh"c"xgtd."yj g"pwo dgt"qt" i gpf gt "qh"cp"cf lgevkxg"cpf "uq"qp0"Y j gtg"c"ngzkecn'uwduvkwwkqp"pggf u"vq"dg"ej cpi gf ."vj g"i tco o cvkecn'kphngevkqp" o c{"pgxgtyj grguu"dg"ngr v="hwtyj gto qtg." 'y g"u{uvgo "o c{"dg"cdrg"vq"ceeguu"f kevkqpctkgu"cpf "yj gucwtk"gpcdrkpi "yj g" gzej cpi g'qh'pgct"u{pqp{o u'y kj "c'ukpi rg'mg{uxtqmg0Ej cpi gu'ecp'dg'o cf g'gkj gt'mqecm{"qt"i mqdcm{.'cpf "o c{" dg"#go go dgtgfø'd{"yj g'u{uvgo 0'Uqo g'u{uvgo u'ctg"gxgp"cdrg"vq"r tgfkev'y j gtg'yj g{"o c{"j cxg"o cf g"o kuvcrngu"  $cpf ''f tcy ''y g''r quv'gf kqt \not o u''c wgp kqp''q''y gug''r q vgp kcn'eqtt ge kqpu. ''qt''gxgp''qhhgt''c nugtpc/ kxgu0 Kp''cm'y gug''$ uegpctkqu. 'vj g'uwr r qugf 'wugt 'ku' v{ r kecm{ 'c' \tcpurc \qt. 'ukpeg' mpqy ngf i g' qh' dq yj 'vj g' uqwteg' cpf '\cti gv' ncpi wci gu' ku'tgs wktgf 0'Vj ku'dgkpi ''vj g'ecug. ''uwej ''u{ uvgo u'j cxg''vq''qhhgt''c''tgcn'kortqxgogpv'kp''r gthqtocpeg''qxgt''vj g'hwm{ '' j wo cp"gs wkxcngpv"vq"lwuvkh{" 'vj gkt"wug0'Qp" 'vj g"qvj gt"j cpf." 'vj g"u{ uvgo "ecp"chhqtf" 'vq"r tqf weg" unki j vn{ "nguu" uqrj kuvkecvgf "trcpurcvkqpu"kp"yj g"hktuv"r roeg. "ukpeg"yj g"r quv/gf kqt "ku"cny c{u"yj gtg"vq"engcp"wr "chwgty ctf u0

## Kpvgt cevkxg'O V

O gpvkqp"j cu'cntgcf { "dggp"o cf g"qh"kpvgtcevkxg"r tg/"cpf "r quv/gf kkpi ."y j kej "uj qwrf "dg"f kuvkpi wkuj gf "htqo "vtwn{ "kpvgtcevkxg"O V0"Kp"y ku'uegpctkq."y g"u{uvgo "eqpuwnu"y kyj "y g"wugt"f wtkpi "y g"eqwtug"qh"r gthqto kpi "y g" vtcpurcvkqp."erctkh{kpi "co dki wkxkgu"kp"y g"uqwteg"vgzv."ej qkegu"qh"cnvgtpcvkxg"vtcpurcvkqpu."cpf "

s wgurkqpu''qh''uv{ rg''kp''yj g''vcti gv''vgz v0Qtki kpcm{ "yj qwi j v''vq''dg''yj g''kf gcn''uqnwkqp''vq''yj g''wpcxckredkrkv{ "qh''hwm{ " cwqo cwle'j ki j 's wcrkv{ ''tcpurcwlqp'\*Mc{'3; : 2. 'O grd{'3; : 9+. 'vj ku'crrtqcej 'ku'pqy ''nqukpi 'r qr wrctkv{ 0'Vj g'o ckp'' f tcy dcemu'ctg'y cv'y g'wugt o wuv'pqto cm( 'j cxg'uqo g'mpqy ngf i g'qh'dqy 'ncpi wci gu'kpxqnxgf . 'cpf 'uq'ku' v{r kecm{ "c"\tcpurcvqt"\tcyi gt"\yi cp"\yi g"qtki kpcn'cwyi qt"qt"\yi g"gpf/wugt"\tcyi dw\ugg"dgmqy +0\tcmq. "dgecwug"O V"u{ uvgo u" v{r kecm{ "y qtm'ugpvgpeg/d{/ugpvgpeg."vj g"ghhgev'hqt"vj g"wugt"ku"qpg"qh'f kueqpvkpvkv{."ukpeg"vj g"u{uvgo "y km'cum' s wguvkqpu''cu''kv''eqo gu''vq''y go .'tcyj gt''y cp''cttcpi kpi 'hqt'tgncvgf ''s wguvkqpu''vq''dg''cungf ''gp''drqe''\*hqt''gzco r ng'' s wguvkqpu'qh'i tco o ct.'hgzkecn'ej qkeg.'cpf 'uq'qp+0'Hwtyj gt/o qtg.'dgecwug''yj g'kpvgtcevkqpu'ctg''wuvcm{''÷ecppgfø' vgz vu. 'vj g's wguvkqpu' vgpf 'vq'dg'xgt { 'tgr gvkxkxg. 'cpf 'qh'eqwtug' vj g'u { uvgo 'o c { 'cum'gzcevn { 'vj g'uco g's wguvkqp'' ugxgtcn'vko gu'f wtkpi 'vj g'eqwtug''qh'vtcpuncvkpi 'c'vgzv.'ukpeg'kv'ecppqv'tgcuqpcdn('dg''gzr gevgf 'vq''npqy 'y j gvj gt'' yj g'tgur qpug''yj g'hktuv''vko g''yj g''s wguvkqp''ku''cungf ''uj qwrf ''crrn( ''kp''cm'ecugu0'Uqo g''u{ uvgo u''kpeqtrqtcvg''c''ngctpkpi '' o gej cpkuo ."gpcdrkpi "yj g'wugt" vq'wr f cvg" yj g"u{ uvgo øu" f kevkqpctkgu" hqt "gzco r ng0" Dwb" yj ku" j cu" yj g" cf f gf" f kucf xcpvci g"qh"tgr gcvgf n{ "ej cpi kpi "vj g"hqewu"qh"cwgpvkqp"dgwy ggp"vj g"r ctvkewrct"vgzv"kp"s wguvkqp"cpf "vj g" repi wei g'kp'i gpgtcn0'Venkpi 'em'y ku'kpvq'eqpukf gtevkqp. "eqwr ngf 'y ky 'y g'heev'y ev'y g'wugt 'ku'v{r keem{ 'e' vtcpurcvqt. "uwej "u{ uvgo u"j cxg"dggp"hqwpf "vq"dg"vqq"enwo u{ "cpf "kp"i gpgtcn'o wej "urqy gt"vj cp"o cpwcn'vtcpurcvkqp0 C"o qtg"r rewukdrg"uegpetkq"hqt"kpvgteevkxg"O V"kpxqrxgu"e"o qpqrlpi werl'wugt. "pco gn{ "vj g"qtki kperl'ewj qt"qh"vj g" rtqf weg"o wnkhoji wcn'**rctcngn'yz w.** "k0g0'eqttgur qpf kpi "'yz w'kp"f khogtgpv'hcpi wci gu. "pqpg"qh'y j kej "ctg" kf gpvkhkgf "cu"qtki kpcn"qt"cu"c"\tcpurcvkqp"\*Uqo gtu"cpf "Iqpgu"3; ; 5+0J gtg"\yi gtg"ku"c"i qqf "f kxkukqp"qh"rcdqwt" dgw ggp" y g"wugt" cpf "y g"u { uvgo . "kp" eqpvtcuv" y ky "y g"vtcf kwkqpcn" kpvgtcevkxg" u { uvgo "f guetkdgf "cdqxg." y j gtg" y g" wugt "cpf "y g'u { uvgo "j cxg"qxgtrcr r kpi "cdkrkkgu<'y g'wugt "mpqy u'y j cv'u j g'y cpvu'vq'uc { ."y j krg'y g'u { uvgo "mpqy u" jqy"\q"uc{"kv"kp"xctkqwu"ncpiwcigu0"Vjku"uegpctkq"ku"cickp"oquv"crrtqrtkcvg"yjgtg"vjgtg"ctg"ygm/fghkpgf" uwdnepi wei gu. "cpf 'kp''uqo g'ecugu''y g'u{ uvgo "o ki j v'gxgp''dg''wugf "vq''i wkf g''y g''wugt 'kp''y g'eqo r qukkkqp''qh''y g'' uqwteg'\gzv'\Uqo gtu'gv'cn03;;2+0

C''u{ uvgo ''y j kej 'kpvgtcevu''y ky ''c''o qpqrkpi wcri'gpf/wugt'ku''o wej 'j ctf gt''vq'f guki p.''ukpeg''y g''u{ uvgo ''j cu''vq''vcmg'' o wej ''tgur qpukdkrkv{ 'hqt''y g''vcpurcvkqp0'J qy gxgt.''y ku''uegpctkq'y krri'dg''crrtqrtkcvg'hqt''gzcorrg'y j gp''y g'' uqwteg''vgzv'ku''rkpi wkuvkecm{ ''uvtcki j vhqty ctf ''dw''vcti gv''rcpi wci g''i gpgtcvkqp''ku''gur gekcm{ 'f khrkewn0'Icrcpgug''vq'' Gpi rkuj ''ku''cp''qdxkqwu''ecug''kp''r qkpv<''y g''uqwteg''rcpi wci g''ku''j ki j n{ ''xci wg''cpf ''kpvgtrtgvcvkxg''htqo ''cp''O V''r qkpv'' qh''xkgy 0'Vj g''u{ uvgo ''y qwrf ''qhrgt''c''tcpi g''qh''r quukdrg''vcpurcvkqpu''hqt''y g''wugt''vq''ej qqug''htqo ''qp''y g''dcuku''qh''j ku1 j gt''tgcn'y qtrf ''mpqy rgf i g''cpf ''kpwkkdqp.''cwtkdwgu''pqvcdn{ ''rcemkpi ''kp''eqor wwgtu0

#### Fkmi wg'cpf 'tr ggej 'O V

Y g'uj qwf 'cnq'o gpvlqp'j gtg'dcule'tgugctej 'qp'f kcmi wg/dcugf 'u{uvgo u'lp' y q'ugpugu0lp' y g'htuv'ugpug." tgugctej gtu'ctg'clo kpi 'cv'lpvgtcevkxg'u{uvgo u'lp' y j kej ''y g'kpvgtcevkqpu'lnto ''cp'lpvgnki gpv'f kcmi wg'\*Dqkgv'' 3; ; 5+'tcvj gt''y cp''y g'ecppgf ''vgzw'o gpvlqpgf ''cdqxg="lp''y ku'ecug.''y g'u{uvgo ''±go go dgtuø'y j cv'y g'wugt'j cu'' uckf ''r tgxkqwm( ''cpf ''qr gtcvgu'o qtg'htng''c'j wo cp'vtcpurcvlqp''eqpuwncpv'o ki j v.''y qtnkpi ''y ky ''c'enkgpv'vq'r tqf weg'' c'vtcpurcvlqp''vqi gyi gt0lp''y g'ugeqpf ''ugpug.''tgugctej ''eqpvkpwgu'vqy ctf u'yj g'f gxgmqr o gpv'qh'ur ggej ''vtcpurcvlqp'' u{uvgo u'hqt'j cpf rlpi 'f kcmqi wg.''y j gtg''y g'wugtu'ctg''eqpxgtucvlqp''r ctvpgtu'\*Mkcpq''3; ; 2="Mvtgo cvuv'3; ; 5+0Ki' uj qwf ''dg'uckf ''j qy gxgt''y cv'y g'uvcyg'qh'y g'ctv'dqyj ''kp''j wo cp/eqo r wyt'lpvgthcegu'cpf ''kp''ur ggej ''r tqeguulpi '' uwi i guvu''y cv'y gug''cr r rlecvlqpu''ctg'uvkm'c''nqpi ''y c{ ''qhh''gzegr v'kp''rlo kvgf ''f qo ckpu0 Ugg''cnq<

OCEJ KP G/CKF GF "VTCP UNCVKQP ="OCEJ KP G"VTCP UNCVKQP ."J KUVQT[ ="OCEJ KP G" VTCP UNCVKQP ."J KUVQT [ ="OCEJ KP G" VTCP UNCVKQP ."J KUVQT ."J KUVQT

#### Hwt yj gt 't gcf kpi

Ctpqrf "gv'crl)3; ; 6="J wej kpu"cpf "Uqo gtu"3; ; 4="Ncy uqp"3; : 4."3; : 7="P gy vqp"3; ; 4="Upgm"3; 9; ="Xcueqpegmqu"3; : : 0

J CTQNF "NUQO GTU

# O cej kpg'tt cpurckqp

## j kwqt{

Cnj qwi j ''j g'llf gc''qh'o gej cpll gf ''tcpurcvlqp''xlc''cp''lpvgto gf kcvg''wplxgtucn'icpi wci g'j cu''dggp''ctqwpf ''ulpeg''j g'' ugxgpvggpyj ''egpwt{.''j g'lhtuv'eqpetgvg''r tqr qucnu'hqt''c''-xtcpurcvlqp''o cej lpgø'ecp''dg''f cvgf ''r tgekugn( ''d{ ''y g'' ulvo wncpgqwu.''dw''wpeqppgevgf .''kuuwg''qh''r cvgpvu'llp''3; 55''vq''y g'Twuulcp''Rgvt''Uo ktpqx/Vtq{cpunlk''cpf ''vq''y g'' Cto gplcp''Htgpej o cp'I gqti gu''Ctvutqwpk0'Vtq{cpunlk''crrgctu''vq''y cxg'y qtngf'o qtg''ugtkqwun( ''cv''y ku''kf gc.'' y qwi j ''j ku''kf gcu''y gtg''ncti gn( ''ki pqtgf .''cpf ''kv'ku''pqv''y g''dw''Y cttgp''Y gcxgt'y j q'ku''etgf kvgf ''cu''y g''hqwpf kpi '' hcy gt''qh'O cej lpg''Vtcpurcvlqp''\*O V+'tgugctej 0

Qpg"qh"yi g"r tqf wewu"qh"Y qtrf "Y ct"Vy q"y cu"yi g"kpxgpvkqp"qh"yi g"÷grgevtqpke"eqo r wgtø"y j kej "y cu"wugf "vq" ecrewrcy"dcmkuvke 'hktkpi "vcdrgu"kp"yi g"Wpkxgf "Uvcvgu"cpf."o qtg"uki pkhkecpvn{."hqt"eqf g/dtgcmkpi "kp"Dtkxckp0' P qppwo gtke"cr r nkecvkqpu. "kpenwf kpi "vtcpurcvkpi."y gtg"uwi i guvgf "d{"r kqpggtu"uwej "cu"Crcp"Vwtkpi."dw"kv"ku" Y gcxgt"y j q"hqmqy gf "yi g"kf gc"yi tqwi j."pqvcdn{"d{"ektewrcvkpi"c"o go qtcpf wo "qp"yi g"vqr ke"vq"422"eqmgci wgu" \*Y gcxgt"3; 6; +0

Cnyj qwi j "Y gcxgtøu"qtki kpcn'kf gc"qh'wukpi "uqo g"qh'yj g"ygej pks wgu"qh'eqf g/dtgcmkpi "r tqxgf "wpr tqf wevkxg."yj g" i gpgtcn's wguvkqp"qh'o gej cpk gf "vtcpurcvkqp"r tqxgf "uvko wrcvkpi "gpqwi j ."cpf 'tgugctej "eqpugs wgpvn( "dgi cp"cv'c" pwo dgt "qh'egpvtgu0

#### Hkt uv/i gpgt cvkqp'\f kt gevø't\{ uvgo u

I qxgtpo gpvhwpf kpi "dgeco g"cxckrcdrg"kp" y g"Wpkgf "Ucvgu."cpf "kp"3; 73" [ gj quj wc"DctJ krgri'dgeco g" y g"hktuv" hwm ko g"O V"tgugctej gt "cv'O KV0V j g" { gct "3; 74" ucy " y g"hktuv'O V"eqphgtgpeg. "cnuq" cv'O KV. "cwgpf gf " d { "3: " kpf kxkf wcn."cm'dw'qpg" tgr tgugpvkpi "Co gtkecp" tqwr u0V j g"hktuv'f go qpuvtcxkqp" qh" cp"O V"u { uvgo "vqqni'r reeg" kp" Lcpwct { "3; 76. " y j gp" c"Twurkcp/Gpi rkuj "u { uvgo "f gxgrqr gf "lqkpvn | "d { "tgugctej gtu"htqo "KDO "cpf "I gqti gvqy p" Wpkxgtukx { "y cu"r tgugpvgf "kp"P gy " [ qtm0T gugctej "i tqwr u"kp" qy gt" eqwpvtkgu" y gtg"hqto gf ."c"f gf kecvgf "lqwtpcn" cr r gctgf "\*O gej cpkecnVt cpurc kqp. "gf kxgf "d { "Xkevqt" [ pi xg"cpf "r wdrkuj gf "d { "O KV+"cpf "y g"hktuv'hwm { " kpvgtpcxkqpcn'O V"eqphgtgpeg" y cu" j grf "kp"3; 78. "ci ckp" cv'O KV="kv'y cu"cwgpf gf "d { "Co gtkecp."Dtkkuj "cpf " Ecpcf kcp" f grgi cvgu. "y ky "eqpvtkdwkqpu"htqo "y g"Uqxkgv'Wpkqp0Ctqwpf "y ku"ko g. "y qtm'qp"O V"cnq"dgi cp"kp" Lcr cp. "cv'M { wuj w'Wpkxgtukx { 0

Vj g'pgzv'vgp"{ gctu'ucy "o clqt "cevkxkv{ "y qtnf/y kf g." vj qwi j "r ctvkewrctn{ "kp" vj g"Wpkgf "Uvcvgu." vj gtg"&42" o kndqp" y cu" kpxguvgf "kp" O V" cpf "tgrcvgf "tgugctej 0" Vj ku" j ki j "rgxgn'qh'hwpf kpi ô o quvn{ "o krkct {ô ecp" dg" gzr nckpgf" d{ "vj g" guecncvkpi "Eqnf" Y ct0 Cnvj qwi j "pqv'o cvej kpi "vj g" uecng" qh'vj g" Co gtkecp" kpxguvo gpv. "vj gtg" y gtg" cnuq" uki pkhkecpv'tgugctej "r tqi tco o gu" kp" Dtkckp. "Htcpeg" cpf" Lcr cp0 kp" vj g" Uqxkgv" Wpkqp. "cu" kp" vj g" Wpkgf" Uvcvgu. "O V" tgugctej "y cu" kpkkcm{ "hwpf gf" qp" c" dtqcf" dcuku. "y ky" ugxgtcn'i tqwr u" kpxqnxgf 0

F wt kpi ''y ku'r gt kqf .'c'pwo dgt ''qh''vgej pks wgu'y gt g'r tqr qugf .''y qwi j ''y g'r tgf qo kpcpv'qpg'y cu''f kevkqpct {/dcugf "f ktgev'tgr reego gpw''s ugg' O CEJ kP G''VTCP UNC VKQP .''O GVJ QF QNQI [ +:'kp''y j kej ''c'o kpko cn'co qwpv'qh'' cpcn{uku''qh'y g''uqwteg''vgzv'y qwrf ''dg''hqmqy gf ''d{ ''f kevkqpct { ''mqm/wr .''cti gv'y qtf ''tgr reego gpv'cpf ''nqecn'y qtf / qtf gt ''tgcttcpi go gpv'qp''y g''dcuku''qh'y g''vcti gv'y qtf u'ugngevgf 0'Qpn{ ''c'hgy ''i tqwr u'wugf ''vgej pks wgu''qh''cp{ ''nkpi wkurke''uqr j kurkecvkqp.''cpf ''kpf ggf ''y g'hqto cn'crrtqcej ''vq''nkpi wkurke'u'kpvtqf wegf ''d{ ''P qco ''Ej qo um( ''kp''y g'' revg''3; 72u''f kf ''pqv'ko r kpi g''qp''O V''tgugctej ''wpvkrlo wej ''revgt0'Qy gt ''crrtqcej gu'kpenwf gf ''uvcvkurkecn'' f kurt kdwkqpcn'cpcn{ uku.''y j krg''uqo g''i tqwr u''eqpegpvtcvgf ''qp''y g''y gqtgvkecn'kuuwgu'kpxqrxgf ''kp''f guki pkpi ''y j cv'' y qwrf ''eqo g''vq''dg''npqy p''cu''-ugeqpf/i gpgtcvkqp''u{uvgo uø0

C''wtpkpi ''r qkpv'kp''y g''gctn( ''j kuqt { ''qh'O V'ku''y g'hqto cwqp'kp''3; 86''qh''y g'Cwqo cwe''Ncpi wci g''Rtqeguukpi '' Cf xkuqt { ''Eqo o kwgg'\*CNRCE+''vq'tgr qtv'qp''r tqi tguu'kp'O V'tgugctej 0'Vj g'tguwnkpi ''f qewo gpv.''y g'kphco qwu'' CNRCE'tgr qtv'\*CNRCE''3; 88+.''eqpenwf gf ''y cv'O V'y cu'unqy gt.''nguu'ceewtcvg''cpf ''w keg''cu''gzr gpukxg''cu''j wo cp'' vtcpurcwqp.''cpf ''y cv'y gtg'y cu'pq'ko o gf kcvg''qt''r tgf kevcdng''r tqur gev'qh'wughwn'O V0'Cny qwi j ''y kf gn( ''etkkek gf '' cpf ''ceewugf ''qh'wukpi ''qwv'qh/f cvg'kphqto cwqp.''y tqpi n( ''ecnewrcwkpi ''equv''gurko cvgu.''cpf ''ki pqtkpi 'hcxqwtcdng'' tguwnwu.''y g'tgr qtv'j cf ''c''f gxcuvcwkpi ''ghlgev'qp'hwpf kpi ''kp'y g''Wpkxgf ''Uvcvgu.''cpf ''tgr gtewnukqpu'y gtg'hgnv'vq''c'' nguugt ''gzvgpv'cm'ctqwpf ''y g'y qtnf 0'Kp'hcev'y g''CNRCE''tgr qtv'cnuq''eqpvckpu''o cp{ ''

r qukkxg''y kpi u'pqv'qhvgp''s wqvgf.''uwej ''cu''c'tgeqo o gpf cvkqp''hqt''o cej kpg''ckf u'hqt''vtcpurcvqtu''cpf 'hwpf kpi 'hqt'' o qtg''dcuke''tgugctej ''kp''Eqo r wcvkqpcn''Nkpi wkuvkeu'\*'ugg''J wej kpu''3;; 8+:'dw'kv'ku''ej kghn(''tgo go dgtgf''hqt'' f gcrkpi ''c'drqy ''vq'O V'htqo 'y j kej ''kv'y cu'pqv'vq'tgeqxgt'hqt''cdqw''37''{ gctuO

#### Ugeqpf /i gpgt cvlqp '! Ipf lt gew'u uvgo u

Kýku'qhıgp'uckf ''yi cv'iy qug'O V'i tqwr u'y j kej ''uwtxkxgf ''yi g'CNRCE'tgr qtv'\*r tkpekr cm( 'kp'Gwtqr g'cpf 'Ecpcf c+'' tgur qpf gf ''vq'kv'd { ''tgxkukpi ''yi g'dcuke''yej pks wgu''yi g{ 'j cf ''dggp''wukpi ''cpf ''f gxgmqr kpi ''yi g''±pf ktgev'o gyi qf ø'\*ugg'' OCEJ kP G''VTCP UNC VKQP .''O GVJ QF QNQI [ +<''yi g''wt cpułgt ''crr tqcej .''kpxqrxkpi ''untwewtcn'cpcn( uku'qh'yi g'' kpr ww'\gzv.''c''dkrkpi wcn'o crr kpi ''cv'cp''cduvtcev'rgxgn''cpf ''u{ pyi guku'qh'yi g''vcti gv'\gzv='qt ''gnug''yi g''kpvgt rkpi wc'' crr tqcej ''kp'y j kej ''yi g''dkrkpi wcn'\tcpulrgt 'unci g'ku''cxqkf gf ''d{ ''yi g''wug''qh''c''o qtg''cduvtcev'wpkxgtucn'tgr tgugpvcvkqp0' kp''hcev.''yi g''rko kcvkqpu''qh'yi g''htuv'i gpgtcvkqp''crr tqcej ''j cf ''dggp''tgeqi pk| gf ''nqpi ''dghqtg''CNRCE.''cpf ''yi g'' encuuke'\tcpulrgt ''ctej ksgewtg''y cu''f guetkdgf ''d{ ''[ pi xg''cu''gctn{ ''cu''3; 790 kp''cf f kkqp.''cv''cdqww'yi g''uco g''ko g''Dct/J kngn'y cu'y tkkpi ''yi cv''hwn( ''cwqo cvke''j ki j/s wcrkv{ ''O V'y qwrf ''qpn{ ''dg''

Kp"cf f kkqp. "cv'cdqw'y g"uco g"dvo g"Dct/J kmgn'y cu'y tkkpi "y cv'hwn{"cwqo cvke"j ki j /s wcnkv{ 'O V"y qwnf "qpn{ "dg" r quukdng"kh"eqo r wgtu"eqwnf "j cxg"ceeguu"vq"y j cv'y g"pqy cf c{u"ecml-tgcn/y qtnf "mpqy ngf i gø'\*Dct/J kmgn'3; 82+0' Qp"y g"qy gt"j cpf ."kv"ku"egtvckpn{ "vtwg"y cv'uqo g"qh"y g"O V"u{uvgo u"y j kej "uwtxkxgf"y g"CNRCE"tgr qtv."qt"gxgp" y j kej "y gtg"uvctvgf "chvgt"kv."y gtg"f guki pgf "y kyj "cp"guugpvkcm{ "hktuv i gpgtcvkqp"ctej kxgewtg0

P gygtvi gmgu "vi g"o gurlyki plthocpy!O V"tgygetei "gh'y g"32"(getu"at "vg"bymyy lpi "vi g"CNRCE"tgr qtv"y cu"ognytaf"

P gxgt y grguu. "y g"o quv'uki pkhecpv'O V"tgugctej "qh''y g"32" { gctu'qt "uq'hqmqy kpi "y g'CNRCE "tgr qtv'y cu'egpvtgf" qp" y g'kpf ktgev'cr r tqcej . "cpf "qp" qy gt "hgcwtgu'qh'y g"ugeqpf / i gpgtcvkqp" f guki p "uwej "cu'wug'qh'o qtg" uqr j kuvkecvgf "hkpi wkuvke" cpf "eqo r wcvkqpcn'vgej pks wgu0'V j ku'y cu'c "r gtkqf "qh'tghrgevkqp" f wtkpi "y j kej "y g'qpn { " y qtm'qp'O V"kp'y g'Wpkxgf "Ucvgu'y cu'r tkxcvgn | "hwpf gf ."y j krg"gnugy j gtg'hwpf kpi "y cu'o wej "tgf wegf 0'V j g'o clqt" hki wtg'f wtkpi "y ku'r gtkqf "y cu'Dgtpctf "Xcws wqku'cpf "j ku'I GVC" i tqwr "kp"I tgpqdrg0'V j gkt "eqpvkpwkpi "ghlqtu" f wtkpi "O Vøu" +F ctm'Ci guø'kphrwgpegf "qy gt" tqwr u'\*pqvcdn { "kp"O qpvtgcn'cpf "M { qvq+"cpf "vgp" { gctu'chvgt "y g" CNRCE "tgr qtv'uqo g'r tqo kukpi "tguwnu'dgi cp" \qr qct0"

Vj g'o quv'pqvcdrg'uweeguugu'qh'vj ku'r gtkqf 'y gtg'vj g'O ¦ Vl QÎ "u{uvgo "f gxgrqr gf "d{"vj g"VCWO "i tqwr "cv' O qpvtgcn"y j kej "y cu'cdrg'vq"tgr rceg"j wo cp'vtcpurcvqtu'kp"vj g"gzegr vkqpcm{"vgf kqwu'vcun'qh'vtcpurcvkpi "y gcvj gt" dwrgvkpu'htqo "Gpi rkuj "kpvq"Htgpej ."cpf "U[ UVTCP ."c"j {dtkf "hktuv lugeqpf / i gpgtcvkqp"u{uvgo "y j kej "y cu" f gxgrqr gf "r tkxcvgn{"d{ "Rgvgt"Vqo c"kp"Ecrkhqtpkc="vj g"rcwgt"y cu'wugf "d{ "vj g"WUCH'cpf "P CUC."y j q"pggf gf" tqwi j "vtcpurcvkqpu'htqo "T wurkcp"kpvq"Gpi rkuj "\*ugg'<u>O CEJ kP G"VTCP UNCVKQP U+O"Vj gtg" y cu'cnrq'cp"Gpi rkuj /Htgpej "xgtukqp"qh"U[ UVTCP "y j kej "vj g"Eqo o krukqp"qh'vj g"Gwtqr gcp"Eqo o wpkkgu" \*EGE+"gzr gtko gpvgf "y ky "cpf "rcvgt"f gxgrqr gf "kp"Nvzgo dqwti 0Vj gug'uweeguugu"gpeqwtci gf "vj g"EGE"kp"3; 9: " vq'uvctv'f kuewurkqpu'vj cv'y qwrf "rgcf "vq'hwpf kpi "vj tqwi j qw'vj g"3; : 2u'qh'Gwtqvtc."y j kej "tgo ckpu'vj g"rcti guv'O V" r tqlgev'gxgt"wpf gtvcngp0</u>

Vj g'tgpckuucpeg''qh'O V''y cu''cm quv'eqo r ngvg''d { ''y g''gpf ''qh''y g''3; 92u.''y ky ''ugxgtcn'r tqlgevu''wpf gt''y c { ''ctqwpf '' Gwtqr g.''r cr gtu''qp''O V''qpeg''ci ckp''cr r gctkpi ''kp''lqwtpcnu''cpf ''eqphgtgpegu.''cpf ''y g'hktuv''qh''Curkdøu''qpi qkpi '' Vtcpurcvkpi ''cpf ''y g'Eqo r wgtø'eqphgtgpeg''ugtkgu''dgkpi ''j gnf ''kp''3; 9; ''kp''Nqpf qp0'Kp''Icr cp''vqq.''tgugctej gtu.'' j cxkpi ''ngctpv'o wej ''htqo ''uqrxkpi ''y g'r tqdrgo u''qh''i gwkpi ''eqo r wgtu''vq''j cpf ng''y g'Icr cpgug''y tkkpi ''u{uvgo .'' y gtg''wtpkpi ''y gkt''cwgpvkqp''vq''O V0

Ctqwpf "y ku"ko g."y g"hktuv'eqo o gtekcn'O V"u{uvgo u"y gtg"cnuq"dgi kppkpi "vq"cr r gct"qp"y g"o ctngv0Kp"tgvtqur gev" y g"o ki j v"tgi ctf "y ku"hktuv'hqtc{"cu"urki j vn{"r tgo cwxtg."ukpeg"pqpg"qh"y g"u{uvgo u"y cu"gur gekcm{"i qqf 0Cm"y g" u{uvgo u"y gtg"WU/dcugf "uwtxkxqtu"qh"CNRCE."cpf "y gtg"dcugf "o qtg"qt"rguu"qp"y g"hktuv'i gpgtcvkqp"ctej kxgewxtg0' Vj g"o qf guv's wcrkx{"y cu"eqo r gpucvgf "kp"uqo g"ecugu"d{"wugt/htkgpf n{"kpvgthcegu."dw"y g"Co gtkecp"i gpgtcn' r wdrke"y cu"pqv"{gv'tgcf { "hqt"O V"\*y g{ "f kf "pqv"{gv'r gtegkxg"y g"pggf + "y j krg"Gwtqr gcp"ewurqo gtu"y gtg"wugf "vq" o wej "j ki j gt"uvcpf ctf u0Vj g"j ctf y ctg"tgs wktgf "y cu"uvkn"gzr gpukxg."cpf "pqpg"qh"y g"u{uvgo u"y cu"tgcm{"cko gf" cv'c"o qpqrkpi wcn'wugt="y g{ "j cf "vq"dg"wugf"d{ "tcpurcvqtu."y j q"hgnv'y tgcvgpgf"d{ "pgy "vgej pqmi { "y j kej "kp"cp{" ecug"f kf "pqv'o cng"y gkt"y qtm'o wej "gcukgt0

Fwtkpi ''y g'pgzv'32" {gctu. ''y g'hkgrf ''qh'O V''dgi cp''vq''o cwtg. 'kp''r ctvkewrct ''cu''y g'hko kscvkqpu''

qh'y g'ugeqpf/i gpgtcvkqp'vgej pqrqi {"dgi cp'vq'dg'tgeqi pk gf "cpf "tgugctej gtu'uvctvgf "vq"gzr rqtg'y c{u'qh'i gwkpi "tqwpf "y gug'nko kcvkqpu0Cf xcpegu'kp"eqo r wgt"j ctf y ctg'egtvckpr("j cf "cp"ghhgev0Kp"r ctvkewrct."yi g'o qxg" vqy ctf u'kpvgtcevkxg'r tqi tco u'qp''uo crigt'r gtuqpcn'o cej kpgu'o gcpv'yi cv'yi g'uegpctkqô hktuv'uwi i guvgf "d{"Mc{"\*3;95+ô qh'j wo cp"cpf "eqo r wgt"y qtrkpi "vqi gyi gt"vq"etgcvg"c"vtcpurcvkqp"eqwrf "dg"tgcrk gf "\*ugg"OCEJ KPG/CKFGF "VTCPUNCVKQP +0'Qyi gt"uegpctkqu"kpxqrxkpi "r tgcpf "r quv'gf kkpi ."tguvtkevgf "kpr w'cpf "uq"qp'y gtg" uwi i guvgf "\*ugg"OCEJ KPG"VTCPUNCVKQP ."CRRNKECVKQP U+0

Vj ku'y cu'cnıq'c'r gtkqf "qh'kppqxckqp'kp'cm'y g'eqpvtkdwkpi "f kuekr nkpgu'\q'O V'tgugctej <'kp'Eqo r wcvkqpcn'
Nkpi wkukeu'pgy "crrtqcej gu'\q'r ctukpi "cpf "hkpi wkuke"hqto cnkuo u'eqwf "dg'kpeqtrqtcvgf "kpvq'O V'u{ uvgo u="
yj gqtgvkecn'hkpi wkukeu'y cu'cnıq'dgeqo kpi "o qtg'eqpuekqwu'qh'yj g'r tgugpeg'qh'yj g'eqo r wgt. "yj kej "r gto kwu'cpf"
gpeqwtci gu'o qtg'hqto cn'cpf "eqo r ngvg'yj gqtkgu'\q'dg'f gxgmr gf 0Kp'Eqo r wgt "Uekgpeg. "pgy "r tqi tco o kpi "
uv{ ngu'go gti gf 'yj kng'hcuvgt'cpf "o qtg'ecr cekqwu'j ctf y ctg'cnıq'i cxg'O V'tgugctej gtu'o qtg'tqqo 'hqt'o cpqgwxtg0
J qy gxgt. "qpg'o clqt'r tqdngo "tgo ckpgf. "pco gn{ "yj g's wguvkqp'qh'j qy "o wej "÷wpf gtuvcpf kpi ø'qh'c'vgzv'y cu"
pggf gf '\q'ttcpurcvg'kv0Cv'yj g'\ko g. 'kk'y cu'yj qwi j v'yj cv'yj g'go gti kpi 'hkgnf "qh'Ctvkhlekcn'Kpvgnki gpeg'\*CK+y qwnf"
uqqp'qhhgt'uqnwkqpu. "cpf "dqqmu'cpf "ctvkengu'qp'O V'cv'yj g'\ko g'wwcm{ "eqpenwf gf 'kp'yj ku'xgkp. "nqnnkpi 'hqty ctf "
q''yj g''÷yj ktf "i gpgtcvkqpø'qh'O V0

#### O V'dcemlp'hcuj kqp

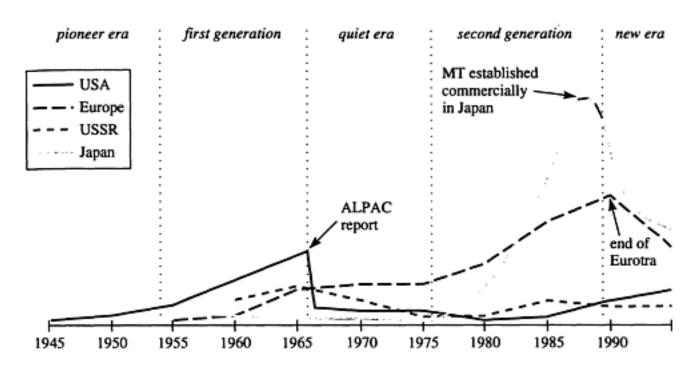
D{"y g"gpf"qh"y g"3; : 2u'O V"y cu'hkto n{"guvcdrkuj gf"ci ckp"cu"cp"gpvgtrtkug"y qty {"qh"uwrrqtv0O clqt"rtqlgew" kpenwf gf "Gwtqvtc."y j kej "kpxqnxgf"372"tgugctej gtu"kp"42"f khtgtgpv'nqecvkqpu"cetquu'Gwtqrg."y qtmkpi "qp"cmi" eqo dkpcvkqpu"qh"y g"\*vj gp+"pkpg"ncpi wci gu"qh"y g"GE0Eqo r cpkgu"uwej "cu"Rj krkru"kp"y g"P gvj gtmcpf u"cpf" Ukgo gpu"kp"O wpkej "y gtg"hwpf kpi "O V"tgugctej 0%p"Lcrcp."pgctn("cm"y g"o clqt"gngevtqpkeu"eqo r cpkgu"j cf" uy klvn("f gxgnqrgf"eqo o gtekcn'O V"u{ uvgo u. "cpf" O V"tgugctej ô pqvcdn("qp"urggej "vtcpurcvkqpô y cu"cnq" uwrrqtvgf"d{"y g"rwdrke"ugevqt0"Vj g"Lcrcpgug/hwpfgf"EÆE"rtqlgev\*Egpvgt"qh"y g"Kpvgtpcvkqpcn'Eqqrgtcvkqp"hqt" Eqo rwgtk|cvkqp+"kpxqnxgf"hxg"uqwj/gcuv'Cukcp"eqwpvtkgu"kp"c"eqmcdqtcvkxg"rtqlgev0%p"y g"Wpkgf"Ucvgu"/ gpeqwtci gf"d{"Gwtqrgcp"kpkkcvkxgu."y g"uwffgp"tgcnk|cvkqp"qh"y g"uvtgpi y "qh"Lcrcp"cpf"d{"uweeguuhwrighhqtw" pgctgt"j qo g."kpenwf kpi "y g"Rcp/Co gtkecp"J gcny "Qti cpk|cvkqp"dcugf"kp"Y cuj kpi vqp"FEô O V"tgugctej "cv'ncuv" rkengf"wr "ci ckp."y qwi j "uvkni'pqv'cv'y g"ngxgn'qh'y g"ncyg"3; 72u."cpf"c"pwo dgt"qh'rtqlgewiy gtg"uctvgf0Vj g"O V" eqo o wpkx{"d{"pqy "j cf"kwu'urgekcrkuv'lqwtpcni'cpf"eqphgtgpegu."cpf ô c"vtwg"uki p"qh"o cwtkx{ ô kwu'hcevkqpu'cpf" cti wo gpvu0

Cv'ij ku''ko g'cnuq.''ij gtg''y cu'c'ugeqpf ''y cxg''qh'eqo o gtekcn'O V'u{ uvgo u.'kpenwf kpi "Ukgo gpuø'O GVCN'cpf" KDO øu'NO V.'y j kej ''y gtg''dqij ''pqvcdng''kp''j cxkpi ''uvctvgf ''qww'cu''dcuke''tgugctej ''r tqlgevu''cpf ''j cf ''eqo r ngvgf ''ij g'' hwn'f gxgmr o gpv'e{eng0Qh''ij g''pgy gt ''eqo o gtekcn'u{ uvgo u.''uvkn'iuqo g''y gtg''qh''uko r ng''f guki p.''y kij ''nko kvgf '' r gthqto cpeg.''dww''pqy ''ij g'xgpf qtu''y gtg''o cmkpi ''o qtg''tgcnkuke''r tqo kugu0Cxckrcdng''u{ uvgo u'xct{''kp''o qf g''qh'' wug''cpf ''j ctf y ctg''r ncvhqto .''y kij ''ugxgtcn'cko gf ''cv'ij g''kpgzr gpukxg.''r gtuqpcn'eqo r wygt''gpf ''qh'ij g''o ctngv0'' Cmo quv'cm'eqo o gtekcn'u{ uvgo u'j cxg''s wkwg''uqr j kukecvgf ''wugt''kpvgthcegu.''unqvkpi ''eqo hqtvcdn{ ''kpvq''y qtf/r tqeguukpi ''gpxktqpo gpvu''cmpi ukf g''y tkkpi ''vqqnu''uwej ''cu''ur gm'ej gengtu.''yi gucwtk''f gum'(vqr ''r wdnkuj kpi '' r cenci gu.''cpf ''uq''qp0

Vj g'uvqt { 'uq'hct 'ku'uwo o ctk gf 'kp'cp'kphqto cn'y c { 'kp'Hki wtg'3</ri>
't gcmu'qh'cevkxkv{ 'ecp'dg'uggp'kp''y g'Wpkgf "Ucvgu'lwuv'dghqtg''y g'CNRCE'tgrqtv.'kp'Icrcp'kp''y g'hcvg'3; : 2u'y j gp'vgp'qt'hkhvggp'eqo rcpkgu'y gtg'r gthgevkpi " y gkt'eqo o gtekcn'u { uvgo u.'cpf 'kp'Gwtqrg'kp'3; ; 2.'y kyj ''y g'gpf ''qh''y g'Gwtqvtc'r tqlgev0'Y j krg''y g'CNRCE'r gcm' y cu'uqo gyj kpi ''qh''c'f kucuvgt.''y g''y q'hcvgt'r gcmu''o gtgn{ ''uki pcn'c'ej cpi g'kp'hqewu''qh'kpvgtguv'\* 'vq''qyj gt'tgncvgf " vqrkeu+'tcyj gt''y cp''c'hquu''qh'hwpf kpi ''cnqi gyj gt0'Kpvgtguvkpi n{ .'cv'yj g''o qo gpv'O V'tgugctej ''cevkxkv{ ''ku''qp''y g'' kpetgcug''qpn{ ''kp''y g''Wpkgf ''Uvcvgu''cpf 'kp''go gti kpi 'hctgcuvgtp''eqwpvtkgu'uvej ''cu'!Mqtgc''cpf ''Vcky cp0

#### Pgy 'tgej pks wgu'go gt i g

 $Cu''y g''3; ; 2u''dgi cp. "o cp{ 'O V'tgugctej gtu'y qpf gtgf 'y j cv'y g'pgzv'f gxgqqr o gpw'y qwrf ''dg0'Vj g''ugeqpf/i gpgtcwqp''r ctcf ki o ''j cf ''dggp'hcktn{ 'hwn{ 'gzr qqtgf ."cv''ngcuv'kp''r tkpekr ng0'Qh''eqwtug''y gtg''tgo ckpgf ''r tqdngo u''vq'' dg''uqnxgf ."}$ 



dqy 'r tcevlecn'cpf 'vj gqtgvlecn 'pqv'rgcuv'qh'cm'pgy 'rcpi wci g'r cktu'hqt 'y j kej 'pgy 'f go cpf u'y gtg'ctkukpi 0'Vj g''  $uy khv'i gqr qrkskecn'ej cpi gu'qh'vj g'hcuv'hgy "\{gctu'j cxg'j cf "c''egtvckp''ghhgev'qp''r gtegkxgf ''r tkqtkskgu0 [gv'co qpi "bu'n gy ghgev'qp''r gtegkxgf ''r tkqtkskgu0 [gv'co qpi "bu'n gy ghgev'qp'' ghgev'qp''r gtegkxgf ''r tkqtkskgu0 [gv'co qpi "bu'n gy ghgev'qp'' g$ uqo g'O V'tgugctej gtu''y gtg''y cu'c'unki j v'wpgcug0Cu'kp''y g'3; 82u."y g'r tqo kugu'qh'y g'gctn('3; : 2u'y gtg'uvctvkpi " vq'mqm'qxgt/co dkkqwu."cpf 'tgugctej gtu'y qpf gtgf 'y j gyj gt 'c'ugeqpf."gs wcm{ 'f gxcuvcvkpi 'CNRCE/uv{ ng'tgr qtv' y cu'ko o kpgpv'Vj g'j wi g'Gwtqvtc'r tqlgev'j cf 'lww'eqo g'vq'cp"gpf.''y ky 'o kzgf 'hggrkpi u0'Vj g'r tqo kug'qh'CKj cf " pgxgt 'tgcm{ "o cvgtkcnk gf 0Kp'Gwtqr g"cpf 'Icr cp. "cwgpvkqp" uj khvgf 'vq" o qtg'i gpgtcn'kuuwgu'uwej "cu'j wo cpô  $eqo\ r\ wgt\ "kpvgthcegu."gzr\ gtv'u \{uvgo\ u."ur\ ggej\ "r\ tqeguukpi\ ."cpf\ "uq"qp0"Vj\ gp."s\ wkvg"wpgzr\ gevgf\ n(\ ."cp"gpvktgn(\ "pgy\ "pgy"), wkvg"wpgzr\ gevgf\ n(\ ."cp"gpvktgn(\ "pgy"), wkvg"), wkvg"wpgzr\ gevgf\ n(\ ."cp"gpvktgn(\ "pgy"), wkvg"wpgzr\ gevgf\ n(\ ."cp"gpvktgn(\ "pgy"), wkvg"), wkvg"wpgzr\ gevgf\ n(\ ."cp"gp$ rctcfki o "hqt" O V"uwffgpn ("go gti gf0" Vy q"pgy "vgej pks wgu" j cxkpi "kp" eqo o qp"cp" ego rktkecnøtcyj gt" y cp" -tc.kqpcnkuw/crrtqcej. "s wksg'f khhgtgpv'htqo "vj g'rtgxcknkpi "o gvj qf qnqi {."j cxg'dgi wp'\q'cwtcev'tgugctej gtu0'Vj g" go r ktkecn'cr r tqcej 'kpxqnxgu'\j g'\wug'\qh'\eqt r qt c'\%\log0'\rcti g'j qnf kpi u'\qh'\gz w'\kp''o cej kpg/tgcf cdng'\hqto =\ugg'' EQTROTC''N 'VTCP UNC VKQP 'UVWF KGU+"cpf 'uvcvkurkeu'tcyj gt''yj cp''nkpi wkurke''twrgu''cpf ''cri qtkyj o u0'Qpg'' crrtqcej "kpxqnxgu"gzvtcevkpi "htqo "j wi g'rctcngn'eqtrqtc"\*dkmkqpu"qh'yqtfu+"ngzkecn'cpf "u{pvcevke"vtcpuncvkqp" gs wkxcrgpwi'qp"c"uvcwkuwkecn'r tqdcdkrkw{ "dcukui"\*Dtqy p"gv"cn03; ; 2+0"Vj g"qvj gt"crrtqcej "y qtmu"y kvj "o wej "uo cmgt" eqtrqtc"eqpukukpi "qh'mg{"gzco r ngu'y j kej "ctg"wugf "cu'\tcpunckqp"o qf gnu'\"ugg" OCEJ KPG" VTCP UNC VKQP." OGVJ QFQNQI [ +0'Vko g'y km'\gm'kh'\j ku'ku'c'o clqt'o knguvqpg'kp'\j g'j kuvqt { ''qh'OV. ''qt''lwuv'c'o kpqt'f kxgtukqp0' Egtvckpn(.''y gtg''ctg''r ngpv(''qh''tgugctej gtu''y j q''r tghgt''vq''eqpvkpwg''gzr mtkpi ''y g''eqpxgpvkqpcn'\gej pks wgu.''cpf'' cntgcf { "j { dtkf "u{ uvgo u'kpeqtr qtcvkpi "dqvj "crrtqcej gu"ctg"cnuq "dgkpi "tgrqtvgf 0 Ugg'cnuq<

OCEJ KPG/CKFGF "VTCPUNCVKQP ="OCEJ KPG" VTCPUNCVKQP." CRRNKECVKQPU="OCEJ KPG" VTCPUNCVKQP." OGVJ QFQNQI [ 0

#### Hwt yj gt 't gcf kpi

Dwej o cpp'3; : 9="J wej kpu'3; : 8."3; : : .'3; ; 5."3; ; 8="P ci cq'3; : ; 666: ="P ktgpdwti "gv'cn0hqtyj eqo kpi ="Rwi j '3; ; 4=" Y cty ken'3; : 90

J CTQNF 'NUQOGTU

# O cej kpg'tt cpurckqp

#### o gyj qf qnqi {

Cu'cp'gpf gcxqwt''y cv'uvtcf f rgu''y g'hkgrf u'qh'nkpi wkuvkeu''cpf 'eqo r wgt 'uekgpeg.''O V'j cu.''kp''kwu''

uj qtv'j knqt {."pqv'qpn("tghrgevgf "dw'cnq"kphrwgpegf "ej cpi gu'kp"dqvj "yj gug'hkgrf u0Kp"rkpi wknkeu."O V"j cu" r tqxkf gf "c"r qkpv'qhh'qewu'hqt "uqo g'nkpi wknwu."y j q"j cxg'hqwpf "c"r tcevkecn'cr r necvkqp"hqt "yj gkt "yj gqtgvkecn" uwf kgu0Kfvku'uwtgn("pq"eqkpekf gpeg"yj cv'yj g'kpurki cvqt "qhl'yj g"o quv'r tqhqwpf "tgxqnwkqp"ntpi wknvke"uekgpeg"j cu" gxgt "uggp"\*P qco "Ej qo um( +"cpf "qpg"qh'yj g"o quv'ko r qtvcpv'qh'yj g"r kqpggt "O V"tgugctej "ygco u'y gtg'nqecvgf "cv' yj g'uco g'kpurkwwkqp"\*O KV+0Cnyj qwi j "j g"f kf "pqv'y qtm'qp"O V"j ko ugrh "Ej qo um( xu'kppqxcvkxg"xkgy u"qp"u{ pvcz" ctg"engctn("kphrwgpegf"d{"yj g"pggf "hqt"tki qwt"cpf "hqto cnk cvkqp"yj cv'eqo r wygtu"ko r qug0Kp"eqo r wygt"uekgpeg." Dgtpctf "Xcws wqku"qh'yj g"I tgpqdrg"O V"tgugctej "ygco "y cu"c"o go dgt"qh'yj g"i tqwr "y j kej "kpxgpvgf "CNI QN/8:" cpf "y kyj "ky'yj g":r tqegf wtcm'r tqi tco o kpi "uv{ rg"y j kej "tgxqnwkqpkl gf "eqo r wygt"uekgpeg"kp"yj g"3; 92u."y j krg"yj g" pqy "r qr wrct "nqi ke"r tqi tco o kpi "rcpi wci g"Rtqnqi "y cu"kpxgpvgf "gzr nlekn("hqt"yj g"r wtr qugu"qh'O V0Kp"yj g" pcttqy gt"f qo ckpu"qh"P cwtcn'Ncpi wci g"Rtqeguukpi "cpf "Ctvkhkekcn'Kpvgnki gpeg."yj g"kppqxcvkqpu"tguwnkpi "htqo "y qtm'qp"O V"ctg'vqq"pwo gtqwu"vq"o gpvkqp0

Cu'y kỷ "cp{"qpi qkpi "gpf gcxqwt."ý gtg"j cxg"dggp"c"pwo dgt"qh'\tgpf u."gcej "pgy "qpg"f gxgmr kpi "qw'qh'qt"kp" tgur qpug"\q"ý g"r tgxkqwu"qpgu0K/ku"ý gtghqtg"eqpxgpkgpv'\q"eqpukf gt"ý gug"\tgpf u"kp"tqwi j n{ "j kuvqtkecn" r tqi tguukqp0

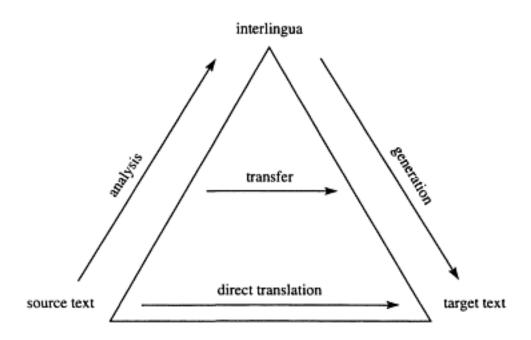
#### Fkt gev'tk uvgo u

Vj g'gctrkguv'O V'u{ usgo u'y gtg'guugpvkcm( "f kevkqpct {/dcugf ":f ktgevtgr reego gpvg'u{ usgo u. 'ktgOttcpurcvkqpu'y gtg'' fqpg'qp'c'tqwi j n( "y qtf/d{/y qtf 'dcuku.'y ksj 'gzegr vkqpu'cpf 'qvj gt 'pgeguuct { 'tgcf lwno gpwi'ecr wtgf 'kp'vj g'' u{ usgo ug'dkrkpi wcrif kevkqpctkguONkpi wkrwi'cpf 'tcpurcvqtu'y krittgeqi pkt g'kpuvcpw( "vj g'ikngn( "f kthkewrkgu'kp'vj ku'' cr r tqcej .'dw'kv'uj qwrf 'dg'tgo go dgtgf 'vj cv'vj g'gctn( "O V'tgugctej gtu'y gtg'pgksj gt 'lrkpi wkrwi'pqt 'tcpurcvqtu='' vj g{ 'y gtg'eqo r wsgt'uekgpvknvi\*kQo'o cvj go cvkekcpu'qt 'grgevtkecn'gpi kpggtu+"uqo g'qh'vj j qo ''j cf 'mpqy rgf i g'qh'c'' repi wci g'qpn( 'd{ 'f kpv'qh'dgkpi 'lktuv''qt 'ugeqpf/i gpgtcvkqp'ko o ki tcpwo'V) gkt'rc{ 'cr r tqcej 'vq'tcpurcvkqp'y cu'' tqwi j n( "vj cv'hqwpf 's'gxgp"vqf c{+'co qpi 'o qpqi mv'vqwtknvi'y j q'dtcxgn( "vt { 'vq'o cmg'vj go ugrxgu'wpf gtuvqqf 'kp'' ltqki p'eqwpvtkguOVj g'y genpguugu'qh'vj ku'y ctf/dcugf 'cr r tqcej 'y gtg'eqo r qwpf gf 'd{ 'vj g'wpuqr j knkecvgf " r tqi tco o kpi "yej pks wgu'y gp'cxckrcdrg. "uq'vj cv'y g'vf r kcrivtcpurcvkqp'r tqeguu'y qwf 'kpxqnxg'uqo g'kpytpcn' cpcn(uku'qhl'kpf kxlf wcn'y qtf u'\*o qtr j qmi {+'f kevkqpct { 'mqm/wr 'vq'hkpf 'vj g'vcti gv'rcpi wci g''gs wkxcrgpv.'cpf 'vj gp'' uqo g'y qtf/qtf gt'o cpkr wrcvkqpu'qp''y g'dcuku'qh'mqerd'gpxktqpo gpvO'Vj g'etwf g'dktkpi wcn'mqm/wr 'r tqegf wtgu'' qhxgp'rgf 'vq'o knxcrgu'uvej 'cu'vj g''sp+lco qwu'o knxtcpurcvkqp'qh'vj g'T wunkcp'O { 'iv gdwgo 'o kt c'cu''-y g'f go cpf'' vj g'y qtff ø|kpuvgcf 'qh''-y g'y cpv'r gcegø'cpf 'o cp{ 'qvj gt. "r gtj cr u'rguu'uvctvkpi .'gttqtuO'Vj g''gs wcm{ 'etwf g'y qtf/qtf gt'twrgu'o ki j v'eqttgevn( 'tgcrki p'y g'pqwp''cpf 'cf lgevkxg'vq'i kxg'Htgpej 'wp''ej cv/pqkt''hqt''-e''drcemiecva''dw'' vj gp'wp''t ''' u'' g'' cy'y g'' y cpv'r gcegø'cpf 'o cp{ 'qvj gt. 'r gtj cr u'rguu'uvctvkpi .'gttqtuO'Vj g''g wcm{ 'etwf g'y qtf/qtf gt'' wrgu''s wlernf 'tcgri pk' gf O'I koo g''eoo o grvevytuô paycdo''. I gi gui wc''Dct/L kmm''i g''

Vj g"pc¹xgv{ "qh"y ku"crrtqcej "y cu"s włemn{ "tgeqi pk gf 0Uqo g"eqo o gpvcvqtuô pqvcdn{ "I gj quj wc"Dct/J kmgn"y g" y qtnf øu"hktuv'O V"tgugctej gtô tcyj gt"i mqo kn{ "uwi i guvgf "y cv"eqo r wygtu"y qwrf "pggf "vq"j cxg"c"j wo cp/nkmg" wpf gtuvcpf kpi "qh"cp{ "vgzv"y g{ "y cpvgf "vq"tcpurcvg."dgecwug"y g"cdktk{ "vq"kf gpvkh{ "kp"c"ugpvgpeg"nkmg"Vj g"dqz" y cu"lp" y g"r gp"y g"eqttgev'o gcpkpi "cpf"j gpeg"tcpurcvkqp"qh"y g"y qtf "r gp"tgs wktgu"tgcn/y qtnf "mpqy ngf i g"qh"y g" tgrvkxg"uk gu"qh"dqzgu. "y tkkpi "r gpu"cpf "r rc{r gpu"\*Dct/J kmgn"3; 82+="cpf"nkmgy kug"y g"f khhgtgpeg"dgw ggp"Vj g" o cp"ucy "y g"i ktnly ky "t gf "j ckt." y j kej "o ki j v'dg"tghrgevgf "kp"c" f khhgtgpv"cti gv rcpi wci g"uxtwewtg0P gxgty grguu. "kv"y cu"hgnv"y cv"o cp{."kh"pqv"cm"qh"y g"rtqdrgo u"eqwrf"dg" qxgteqo g"y ky "lwuv"c"urki j vn{ "o qtg"uqrj kuxkecvgf"hpi wkuvke"crrtqcej "kp"y j kej "y g"kpr wv"yzv"vpf gty gpv'uqo g" cpcn{ uku."y g"tguwn"qh"y j kej "eqwrf"dg"y g"dcuku"qh"c"nkygtcnlcpf "o qtg"tcvkqpcnlvtcpurcvkqp"cpf "u{ py guku"qh" y g"vcti gv'yzv0Vj wu"y g"kf gc"qh"y g"-kpf ktgev'crrtqcej ø'y cu"dqtp0

## Ugeqpf /i gpgt cvlqp'lpf lt gev'i( uvgo u

Vj g'hwpf co gpvcn'kf gc''dgj kpf ''y g''kpf ktgev'crrtqcej ''ku''y cv''y g''uqwteg''vgzv''ku''tcpuhqto gf ''kpvq''y g''vcti gv''vgzv'' kpf ktgevn( ''xkc''cp''kpvgto gf kcvg''tgrtgugpvcvkqp0'Vj ku''o c{ ''r wtrqtv'vq''dg''c''tgrtgugpvcvkqp''qh'y g''o gcpkpi ''qh'y g''vgzv''ku''i grug.''tcyj gt''nguu''co dkklqwun( .''c''tgrtgugpvcvkqp''qh'y g''u{pvcevke''uvtwewtg''qh'y g''vgzv'\C''hwtyj gt''f kurkpevkqp'' ku'y j gyj gt''y g''vcti gv''vgzv''ku''i gpgtcvgf ''f ktgevn( ''htqo ''y g''tgrtgugpvcvkqp''qh''

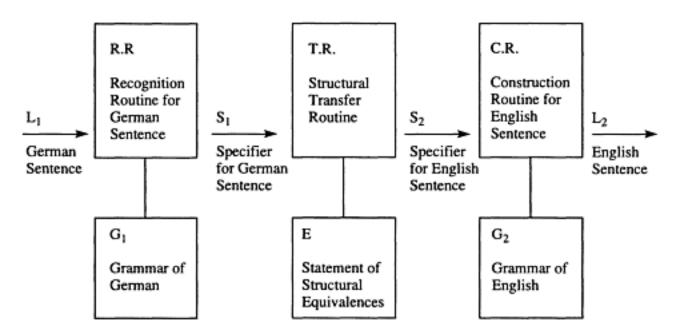


 $Hhi\ wtg''4$  <"Vj g''r {tco kf 'f kci tco .''r tqdcdn{ 'hktuv'wugf 'd{ "Xcws wqku'\*3; 8: +" y g'f ggr gt" y g''cpcn{ uku''y g''hguu''vtcpuhgt 'ku''pggf gf .''y g''kf gcn'ecug''dgkpi ''y g''kpvgtnkpi wc''cr r tqcej " y j gtg''y gtg''ku''pq''vtcpuhgt ''cv''cm

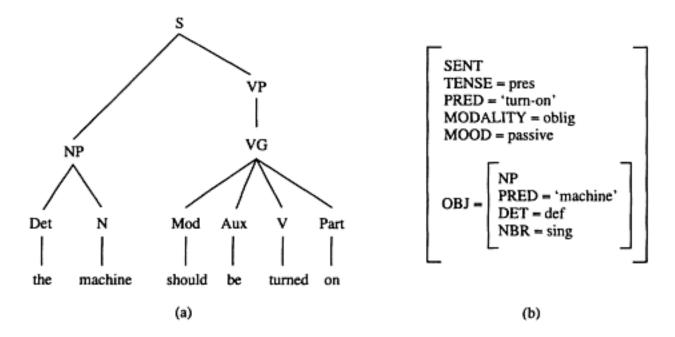
yj g'uqwteg'\gz vô yj g'uq/ecmgf '**lp vgt rhpi wc n**'crrt qcej ô qt 'yj gyj gt 'yj gtg'ku'cp'kp vgt xgpkpi 'uvci g'qh' **vt cpungt** "dgwy ggp''yy q'ncpi wci g/ur gekhke''t gr t gugp vc kqpu0'V j g'f khngt gpeg''d gwy ggp''yj g''yy q''crrt qcej gu'ku'k nwu vt cvgf 'd { "yj g'y gm/npqy p'r { tco kf 'f kci tco '\stackstar' kn w u g''4+0

J kunqtkecm ("gctnkgt." vj g'**kpvgt nkpi wc**" crrtqcej "tgrtgugpvu" c" vj gqtgvkecm ("r wtgt" cpuy gt" vq' vj g'f tcy dcemu "qh' vj g" hktuvi gpgtcvkqp"crrtqcej 0'Ukpeg"cp"guugpvkcm{ 'y qtf/hqt/y qtf "crrtqcej "o czko kt gu'y g'kpvgthgtgpeg'htqo "y g" uqwteg'hcpi wci g. 'kv'y cu''y qwi j v''y cv''c'tgr tgugpvcvkqp''y j kej 'eqo r ngvgn{ 'pgwxtcnkt gf ''y g''kf kqu{ petcukgu''qh''y g'' uqwteg'hcpi wci g'y qwrf "qhhgt"c'uqnwkqp0"Vj wu. "yj g'kpvgtrhpi wcn't gr t gugpvcvkqp"ku"cp"cduvtcev't gr t gugpvcvkqp"qh" yj g"o gcpkpi "qh'yj g'uqwteg"\gzv."ecr wtkpi "cm'cpf "qpn("yj g"hkpi wkuke"kphqto cwqp"pgeguuct { '\q'i gpgtcvg"cp" crrtqrtkcvg'\cti gv\vgzv.'y ky 'pq'wpf wg'kphrwgpeg'htqo 'vj g''qtki kpcn'\vgzv0'Vj ku'\wtpu''qw'\vq''dg'xgt{ 'f khhkewn'\vq'' cej kgxg'kp'r tcevkeg.'j qy gxgt0Gxgp''y g''xgt{'f ggr guv'qh'tgr tgugpvcvkqpu''y cv'hkpi wkuvu'j cxg''eqo g''wr ''y kyi ''ctg'' unkmitgrtgugpvcvkqpu'qh'vgzv.'pqv'qh'o gcpkpi.'cpf'kv'uggo u'kpgxkcdrg'vjcv'c'vtcpurcvkqp'u{uvgo 'o wuv'dg'dcugf'qp'' c"o gej cpkuo "y j kej "trcpuliqto u"y g"ilipi wkurke "untwewntgu"qh"qpg"incpi wci g"kpvq"y qug"qh"y g"qy gt0"Vj ku"ku" wphqtwpcvg'lp'c'y c{."cu'vj gtg"ctg"o cp{"cf xcpvci gu'qh'cp'lpvgtrlpi wcn'cr r tqcej ."gur gelcm("y j gp"qpg"vj lpmu'qh" o wnkrkpi wcn'u{ uvgo u''tcpurcvkpi ''dgwy ggp''o cp{ ''rcpi wci g'rcktu'\*eqpukf gt''vj cv'c'u{ uvgo ''vq''tcpurcvg''dgwy ggp." uc{."33"qh'yi g"qhhkeken'hepi wei gu"qh'yi g"Gwtqr gep"Wpkqp"y qwrf "pggf" 'vq"f gen'y kyi "332"f khhgtgpv'hepi wei g"r cktu+." dwi'y g''dguv''cwgo r wi'vq''ko r ngo gpv''y ku''kf gc''uq''hct''j cxg''j cf ''vq''dg''ecttkgf ''qwv''qp''c''xgt { ''uo cml'uecng. ''cpf ''j cxg'' i gpgtcm{"wtpgf"qw/\tcpurkpi wcn'r ctcr j tcugu'tcyj gt"\yi cp"\tcpurc\kqpu0Vj ku'kuuwg"j cu'dggp'y kf gn{"f kuewuugf 'kp" yj g'hkgtcwtg<ugg'kp'r ctvkewrct 'Ctpqrf 'gv'cr0\*3;; 6< 2ht0+"cpf 'J wej kpu'cpf 'Uqo gtu'\*3;; 4<93ht0+0 Vjg"oqtg"rtcevkecn'uqnwkqp"jcu'dggp"vjg"**vtcpulgt**"crrtqcej."yjkej"xkgyu'vtcpuncvkqp"cu'c'vjtgg/uvcig'rtqeguu" lpxqrxlpi <"c+"cpcn(uku"qh'yi g'lpr wi'lpvq"c"uqwteg/rcpi wci g'u{pvcevle"uvtwewtg"tgrtgugpvcvlqp."\*d+"vtcpuhgt"qh'yi cv" tgrtgugpvcvkqp'kpvq''y g'eqttgurqpfkpi ''cti gv'ncpi wci g'untwewtg. "cpf '\*e+'u{pyi guku'qh''y g'qwr wi'htqo ''y cv' unt wewnt g0'Qhogp" yi qwi j v'vq" j cxg"dggp"r tqr qugf "qpn{"cu"c"tgcevkqp"vq" yi g"3; 88"CNRCE"Tgr qtv\\*ugg" OCEJ RG" VTCP UNCVKQP. "J KUVQT[ +: "yj g"ctej kgewtg"y cu"kp"hcev"f guetkdgf "cu"gctn{ "cu"3; 79. "cu" Hki wtg"5" uj qy u0 Ki'ku'f khhewn'vq'uj qy 'y j cv'c'v(r kecn'kpvgto gf kcvg'tgrtgugpvcvkqp'o ki j v'nqqm'rkng. "cu'vj gug'f khhgt'uq'o wej " dgwy ggp"u{uvgo u0J qy gxgt."vj g{"ctg"wuwcm{"dcugf"qp"vj g"mkpf"qh"rj tcug/uvtwewxtg"tgrtgugpvcvkqp"hco knkct"vq"

ntpi wkuwi "cu'lip" Hki wtg'6c+. ''vj qwi j ''wuwcm{ ''y ky ''o qtg'kphqto cvkqp'kp''y go . ''cpf ''qhvgp''o qtg''cduvtcev "Hki wtg'6d+0 Cpqvj gt''vj gqtgvkecn'kuuwg'lip"vj g'f guki p"qh''cp''O V''u{uvgo ''ku''y g''eqo r wcvkqpcn'qpg''qh''j qy ''vq''eqo r wwg''cpf ''o cpkr wrcvg''y g'tgr tgugpvcvkqpu''f guetkdgf ''cdqxg0'Ukpeg''y gtg''ctg''dtqcf n{ ''vy q''r tqdngo u'j gtgô y j cv''vq''f q''cpf '' j qy ''vq''f q''kv''y j g''nqto gt''nkpi wkuvke. ''y g''ncwgt''eqo r wcvkqpcn''cwgo r wu''ctg''qhvgp''o cf g''vq''ugr ctcvg''y g''y q''d{ ''r tqxkf kpi ''eqo r wcvkqpcn''hqto cnkuo u''qt''r tqi tco o kpi ''ncpi wci gu'y j kej ''c''nkpi wkuv''ecp''gcukn{ ''ngctp''cpf ''y qtm'' y ky 0'Vj ku''wuwcm{ ''o gcpu''hqto cnkuo u''y j kej ''ctg''xgt{ ''uko krct''vq''y g''



Hki wtg"5<":C"htco gy qtmlhqt"o gej cpkecn'\tcpurc\kqpø'htqo "[ pi xg"\3; 79\0' -T geqi pkklqpø'cpf ":Eqpuvt\we\kqpø'y qwrf "dgeqo g"mpqy p"cu":Cpcn{ukuø'cpf ":U{pyj gukuø "cpf "\j g":Ur gekhkgtuø'cu":Tgr tgugp\c\kqpuø'qt":U\t\we\wtguø="\j g"kf gc"qh" -I tco o ctuø'cpf "::U\t\we\wtcn'Gs \wkxcrgpegø't\wrgu'ku"c"ercuuke'hgc\wtg'qh''ugeqpf / i gpgtc\kqp"u{u\go u



Hki wtg'6<'Vy q'r quukdng'rkpi wkurke't gr t gugp vc klapu'hqt ''y g''ugp vgpeg''Vj g''o cej kpg'' uj qwrf''dg''wtpgf''qp0Pqvkeg''j qy ''\*d+''ku'c'':f ggr gtø't gr t gugp vc klap. ''kp''y cv''wtp''qp''ku'' t geqi pk| gf ''cu'c''ngz kecn'wpkv.''cpf ''y g''eqo r ngz ''xgtd''i t qwr ''ku't gr t gugp vgf ''cu''c''dwpf ng'' qh''u{ pvcevke''hgcwt gu. ''gve0

i too o ct'hqto chuo u'hqwpf 'hp''y gqtgwlecn'hlpi wkurkeuODw''y gtg'ku'c'hwty gt''y gqtgwlecn'f kurkpevkqp''dgwy ggp''
f genetewlog''cpf 'r tqegf wten'hqto enkuo uOKp''e'T genetewlog'hqto enkuo .''y g'hqi wkuru'j exg''vq''y kpnikp''yto u'qh''
urevle 'tgnevkqpuj kru''epf 'heevu.''epf 'ngexg'kr''vq''y g'eqo r wgt''vq''hki wtg''qwy''j qy ''vq''eqo dkpg''y go .''y j gtgeu'y ky ''e'
rtqegf wten'hqto enkuo ''y g{''j exg''vq''dg''o qtg''gzrnlekr'edqwr'y j ev'vq''f q'epf ''y j gpOVj ku''eep''dg''gzgo rnkhlogf''
s wkwg''geukn(<'eqpukf gt''y g'heev'y ev'o keg'ku''y g'r nwten'qh'o qwugOY g'o ki j v'wug''y ku'kphqto evkqp''kp''e'pwo dgt''qh''
f khhgtgpv'r tqegf wtgu.''hqt''gzco rng''kp''eqphkto kpi ''y ev'y g'uwdlgev'qh''e'uppvgpeg''ei tggu'y ky ''y g'xgtd.''kp''
f gygto kpkpi ''j qy ''q''tepurevg'o keg''\*y j kej 'ku''pqv'kp''y g'dkhpi wen'f kevkqpet{+."qt''y j gp''tepurevkpi 'kpvq'tey gt''
yi ep''qw''qh''Gpi nkuj O'Uq''y gtg'ku''ep''qdxkqwu''ef xepvei g''kp''uvevkpi ''y ku''r kgeg''qh''-f genetevkxgø'kphqto evkqp''
kpf gr gpf gpvn( ''qh''y g'r tqegf wtgu''y j kej ''wug''ko'Hwty gto qtg.''y g'r tqegf wtgu''enwf gf ''q''edqxg''etg''y go ugnxgu''
xgt{''i gpgten'epf ''uq''y gwf ''dg''gzr tguugf ''kp''o qtg''i gpgten'vgto u ''gO''-kfreevergu''eu'[ .''epf ''Zø'ku''y g''r nwten'
qh''Z.''y gp''vq''i gv'y g''tepurevkqp''qh''Zø''\*pqto em(+''veng''y g''r nwten'qh''[ ØO

Vj gug'kf gcu'j cxg'dggp'tgcnkj gf 'kp'f khlgtgpv'y c{u'kp'O V'u{uvgo u'cpf 'j cxg'tghrgevgf 'f gxgrqr o gpwi'kp'eqo r wyt'' uekgpeg0'kp'r ct wewct. 'y g'pqvkqp'qh''-xum'ur gekhleø'r tqi tco o kpi "gpxktqpo gpwi'j cu'uvtqpi n{ 'go gti gf 'kp''y g'rcuv' 52"{ gctu'qt'uq<'y g''tcf kklqpcn'xkgy "qh''y g''eqo r wyt''cu'c''o cej kpg'y j kej 'uko r n{ 'ecttkgu'qwd'qpg''chvgt''y g''qy gt'' kpuvtwevkqpu''y j kej 'j cxg''vq''dg''gzr tguugf 'f ktgew( 'kp''yto u'qh''y g''dcuke''nqy /ngxgn'ecnewcvkqpu''cpf 'f cvc'' o cpkr wcvkqpu''y j geqo r wyt'kuugh'ku'ecr cdng''qh'j cu'dggp''tgr megf 'd{ 'vy g''pqvkqp''qh''r tqi tco o kpi 'hcpi wci gu''cpf 'hqto cnkuo u''y j kej ''gzr nkekn( 'ugr ctcvg''y g''-y j cv'vq''f qø'cpf 'vy g''-j qy 'vq''f q'kø'cur gevu. ''cpf ''gzr tguu''y gug''kp''c'' o qtg''wugt/htkgpf n{ 'o cppgt0O gpvkqp''j cu''cntgcf { 'dggp''o cf g''qh''-nkpi wkuvhtkgpf n{ o'hqto cnkuo u.''y g''o quv'' y gmmpqy p''r gtj cr u''dgkpi ''y g''F ghkpkg'Encwug'I tco o ct'\*FEI +'hqto cv'hqwpf 'kp''y g''Rtqmi ''r tqi tco o kpi '' mcpi wci g.''y j gtg''-twguø'ctg''cmo quv'kf gpvkecn'vq''y g''r j tcug/uvtwewtg''i tco o ct''twgu''hqwpf 'kp''uvcpf ctf 'hkpi wkuvku'' yzv''dqqmu0Qvj gt''hqto cnkuo u''y cv'j cxg''dggp''f gxgrqr gf ''ctg''o qtg''r tqegf wtcn''dw''cm'cko ''cv'tgr tgugpvkpi ''kp''y g'' o quv'i gpgtcn'y c{ ''r quukdrg''y g''kplqto cvkqp''y cv'y g''eqo r wyt''pggf u'vq''dg''cdrg''vq''cpcn{ug''y g''kpr w.''eqpxgtv'ky' kp''y g''hqtgki p''cpi wci g.''cpf ''i gpgtcvg''y g''cti gv'yzv0

#### Vj gqt gwecherrt qeej gu

Y kj kp''j g''i gpgtch'crrtqcej ''qwrkpgf' 'cdqxg.''j gtg''j cxg''dggp''ugxgtch'guugp\kcm( "gzr gtko gpvch'tgugctej ''r tqlgew'' f guki pgf ''r tko ctkn( "'\q''\guv\c''hpi wkuke''qt''eqo r wcxkqpch''j gqt { 'tcy' gt''j cp''dg''j g''dcuku'qh'c''y qtnkpi "u{ uxgo 0' Qhxgp''\*yj qwi j "pqv'cny c{u+''yj gkt''f guki pgtu''f q''pqv''gxgp''cko "cv'dwkrf kpi "c''r tg/kpf wuxtech'r tqvqv{r g'y kj "j wi g" ngzkeqpu''cpf ''dtqcf ''eqxgtci g0'Uqo g'qh''yj g''o qtg''uki pkhkecpv'crrtqcej gu''ctg''dtkghn( "qwxkpgf ''dgmy 0 O cp{ ''eqo o gpvcvqtu''j cxg''cmwf gf ''vq''y g''pggf ''hqt'tgcny qtrf ''mpqy ngf i g''kp''cp''O V''u{ uxgo ."cpf ''uqo g" tgugctej gtu''j cxg''tgur qpf gf ''vq''y ki''d{ ''dwkrf kpi "mpqy ngf i g''kp''cp''O V''u{ uxgo ."cpf ''uqo g" cdqw''y g''gzv'y g{ "ctg''t { kpi "'q''tcpurcvg0'Cp"gzco r ng''qh''y ku'ku''y g''Gpi nkuj / Icr cpgug''MDO V''u{ uxgo "f gxgnqr gf " cv'Ectpgi kg''O gmqp''Wpkxgtukx{ "\*A qqf o cp''cpf ''P ktgpdwti "3; ; 3+"y j kej ''kpenxf gu''cp''qpvqmi kecn'o qf gn'' eqpvckpkpi "npqy ngf i g''cdqww'y g''crrnkecvkqp''f qo ckp''\*eqo r wxgt''kpuxcmcvkqp''o cpwcm+'kp''ygto u''qhl'eqpegr w." gxgpvu''cpf ''cevkqpu'' cpf ''tgrcvkqpuj kr u''dgw ggp''y go 0'Vj g''u{ uxgo "wugu''y kn''mpqy ngf i g''q''tguqnxg''eq/qtf kpcvkqp'' co dki wkxkgu''\*g0 0'pwo gtke'mg{ rcf ''cpf ''o qwug+: ''eqttgevn(''kf gpvkh{ ''rtqpqwpu'\*g0 0'Qrgp''y g''hf ''qh'y g''y qrrgt''cpf '' nqcf ''ky'y kj ''rcrgt+: ''cpf ''o cp{ ''qy gt''rqyppvkcm( ''co dki wqwu''eqpuxtwevkqpu0'Cnj qwi j "y g''MDO V''u{ uxgo "j cu'' dggp' l'cknn{ ''tweeguuhwn''y gt''g'' g''y kp''f tcy dcenn''qh'y g'' y o cp''ghtqv''pggf gf ''q''gpeqf g''cm'y g'' npqy ngf i g''kp''y g''hktuv'r nceg. "cpf ''y g''s wguvkqp''qh'uecnkpi "'y g''u{ uxgo ''w <'y g'EO W'u{ uxgo ''j cu''nguu'y cp''3222" y qtf u'kp''ku''pgleqp0

Ukpeg''qpg''qh''y g''o clqt''qxgtj gcf u'kp''O V''u{ uvgo 'f gxgmr o gpv'ku'ku''i tco o ctu.''y gtg''j cu''dggp''uqo g''kpvgtguv'kp'' y g''kf gc''qh''c''**t gxgt ukdng'i tco o ct.**''klg0'c''i tco o ct''y j kej ''ecp''dg''wugf ''dqvj ''hqt''cpcn{ uku''cpf 'i gpgtcvkqp''qh''y g'' r ctvkewrct''rcpi wci g0'Vj ku''kf gc''vcngu''y g''f genctcvkxg1''r tqegf wtcn'f kuvkpevkqp''qwwkpgf ''cdqxg''vq''ku''nko kv.''ukpeg'' uwej ''c'i tco o ct''y qwrf ''j cxg''vq''dg''s wkwg''kpf gr gpf gpv'qh''y g''r tqegf wtgu''y j kej ''ctg''wukpi ''kv.''qt''gnug''y qug'' r tqegf wtgu''y go ugnxgu''y qwrf ''j cxg''vq''dg''hwm(''tgxgtukdng0'Vj g''r tqdngo ''ecp''dg''crr tgekcvgf ''kp''uqo g''ugpug''kh''y g''

eqpukf gt "vj cv"vj g"Higpej "y qtf u"j gwt gwz"cpf "j gwt gwug"dqvj "vtcpurcvg"kpvq"Gpi rkuj "cu"j  $crr\{=$ kh"y g"tgxgtug"vj g" twrgu"y j kej "uvcvg"vj ku."y g"i gv"cp"crrctgpv"co dki wkv $\{$ ."ukpeg"kp"i qkpi "htqo "Higpej "vq"Gpi rkuj "y g" $\neq$ vj tqy "cy c $\{\emptyset'$  vj g"i gpf gt "f kuvkpevkqp."uq"kp"vj g"qrrqukvg"f ktgevkqp"y g"j cxg"vq"i gv"vj cv"kphqto cvkqp"htqo "uqo gy j gtg0"Xctkqwu" u $\{$ uvgo u'\*ugg"g0 0"Kucdgrng"gv"cn03; :: ."Tqugwc"3; ; 6+"j cxg"cwgo r vgf "vq"vcerng"vj ku"rtqdrgo ."y j kej "ku"erqugn $\{$ " tgrcvgf "vq"vj g"s wguvkqp"qh"vpkxgtucnli tco o ct"kp"rkpi wkuvkeu0

#### Pgy 'rctcf li o u

Kp"tgegpv"{gctu."ugxgtcn'korqtvcpv'pgy "cpf"s wkwg"fkhhgtgpv'crrtqcejgu'vq'OV"jcxg"gogtigf."wyq"qh"yjkej"ctg" yqtyj"uwooctk|kpi"jgtg<"gzcorng/dcugf"OV"cpf"uvcvkuvkeu/dcugf"OV0

Kp'tgeqi pkkqp'qh'uqo g'qh'vj g'r tqdrgo u'qh'rkpi wkurke'twrg/dcugf 'O V.'ugxgtcn'tgugctej gtu'j cxg'dggp'f gxgmr kpi "
gzco rrg/dcugf "u{ uvgo u'dcugf "qp'c's wkxg'f khlgtgpv'uvtcvgi {<"vtcpurcvkqp'ku'r tqf wegf "d{ "eqo r ctkpi "vj g'kpr w"
y kyj "c'eqtr wu'qh'v{r kecn'vtcpurcvgf "gzco r rgu."gzvtcevkpi "vj g'emuguv'o cvej gu'cpf "wukpi "vj go "cu'c'o qf grlhqt'vj g"
vcti gv'vgzv0'Vj gtg'ctg'vj wu'vy q'uvci gu<":o cvej kpi ø'vj g'kpr wv'y kyj "vj g'gzco r rgu."cpf ":tgeqo dkpkpi ø'vj g'vcti gv
rcpi wci g'htci o gpvu'vj wu'gzvtcevgf 0'Vj ku'crrtqcej "ku'uckf "vq'dg'o qtg'rkrg'vj g'y c{ "j wo cpu'i q'cdqw'vtcpurcvkpi ."
cpf "ku'cnuq'ercko gf "vq'tguvrv'kp'o qtg'uv{rkuj ."rguu'rkvgtcn'vtcpurcvkqpu."ukpeg'kv'ku'pqv'guugpvkcm{"dcugf "qp"
uvtwewtcn'cpcn{uku'qh'vj g'kpr wv0}

Ko r ngo gpvc kqpu"qh" y ku"untovgi { "xct { "kp"c"pwo dgt "qh"cur gew0"Hqt"gzco r ng. "kp"c" \ddtkf ø'u { uvgo ." y g" vgej pks wg" o c { "dg" wugf "qpn { "hqt"ecugu" y j kej "ctg" r ct wewnetn { "r tqdngo cvke" hqt" vtcf kkqpcn" o gyi qf u" vg0 0"Uwo kxc" cpf "Kxf c" 3; 3 \ddtkp" y gug" cpf "qyi gt" u { uvgo u." y g"dkhpi wcn" gzco r ngu" o c { "dg" j cpf / r kengf" uq" cu" vq" dg" tgr tgugp vc vk g" qh" y g" r ct vkewnet" r tqdngo u" cf f tguugf ." y j kng" qyi gt" u { uvgo u" vg0 0"Uqo gtu" gv" cn0"3; ; 6 \ddt ctg" dcugf "qp" c" eqtr wu" qh" pc wtcm { "qeewtt kpi "vgz v0" Vj g" o gyi qf" qh" o cvej kpi "y g" kpr wv" vq" y g" gzco r ngu" qhvgp" kpxqnx gu" c" j kgt ctej kecn" y gucwt wu" \*P ci cq" 3; : 6 \ddt Uvo kc" cpf "Kxf c" 3; ; 3 \ddt "y qwi j "qyi gt" vgej pks wgu" ctg" r quukdng" vg0 0"Ucf ngt" 3; : ; \ddt cpf "f q" pqv" f gr gpf "qp" y g" cxckredkn { "qh" c" y gucwt wu0}

Vj g'qvj gt''o ckp''pqp/rkpi wkrke''vgej pks wg''yi cv'j cu''dggp''r tqr qugf 'ku''yi g''**uwc vkrkeu/dcugf** ''crr tqcej ''qh''yi g''**k**DO '' i tqwr ''\*Dtqy p''gv'cr0'3; ; 2+θ'Dcugf ''qp''c''r ctcmgn'eqtr wu. ''kp''yi ku''ecug''yi g'Ecpcf kcp''r ctrkco gpvct { "r tqeggf kpi u''kp'' Gpi rkuj ''cpf ''Htgpej .''yi ku''u{uvgo ''cwgo r wi'vq''vtcpurcvg''htqo ''Gpi rkuj ''kpvq''Htgpej ''r wtgn{ ''qp''yi g''dcuku''qh'' r tqdcdkrkkgu''ecrewrcvgf ''d{ ''eqpukf gtkpi ''o kntqpu''qh'y qtf u''qh'r ctcngn'\vgz v0'Vj g''uvc\kurkecn'r tqdcdkrkkgu''f gvgto kpg'' ej qkeg''qh''rgz kecn''gs wkxcngpwi'\*vcmkpi ''kpvq''ceeqwpv''-hgtvkrkv{ ø''yi cv'ku''yi g''ej cpeg''yi cv'qpg''Gpi rkuj ''y qtf '' eqttgur qpf u''q''o qtg''yi cp''qpg''Htgpej ''y qtf .''g0 0'ko rngo gpvgf ô o ku''gp''crrnkecvkqp+"cpf ''yi g''vcti gv'ncpi wci g'' y qtf ''qtf gt''\*vcmkpi ''kpvq''ceeqwpv''-f kuvqtvkqpø''yi cv'ku''yi g''hcev'yi cv'Gpi rkuj ''cpf ''Htgpej ''y qtf ''qtf gt''ku''pqv'' kf gpvkecn+0

C"o clqt"cf xcpvci g"qh"dqyi "crrtqcej gu."gzco r ng/dcugf "cpf" uvckurkeu/dcugf. "ku"yi cv."q"yi g"gzvgpv"yi cv"yi g{"fq" pqv"kpxqnxg"cp{"hpi wkurke"yi gqt{."yi g{"fq"pqv"tgs wktg"hpi wkuru"vq"eqo r kng"i tco o ctu"qt "ngzkeqpu<"cm"yi ku"ku" fqpg"cwqo cvkecm{0"Vj ku"o cmgu"yi g"u{uvgo u"j ki j n{"rqtvcdng."ukpeg"yi g"rtqi tco u"f gxgnqrgf "hqt"qpg"ncpi wci g"rckt"ctg"gpvktgn{"uwkvcdng"hqt"cp{"qyi gt"ncpi wci g"rckt."lwuv"cu"nqpi "cu"yi g"tcy "fcvc"\*kQy0"rctcngni\vgzvu+"ku" cxckrcdng0"Vj g"f kucf xcpvci g"ku"yi cv'uq"hct"yi g"vtcpuncvkqp"s wcnkv{"qh"yi g"pqp/nkpi wkurke"u{uvgo u"uggo u"vq"dg" kphgtkqt"vq"yi cv'qh"yi g"vtcf kkqpcn"u{uvgo u."cpf"uq"c"f gdcvg"ku"pqy "tci kpi "cu"vq"y j gyi gt"c"r wtgn{"pqp/nkpi wkurke" crrtqcej "ecp"rquukdn{"yqtm"sugg"hqt"gzco rng"VO K3;; 4+0

Ki'ku's wkg'untknipi ''y cv'uq'hct''y gtg'tgo ckpu'c'eqpukf gtcdrg'i wrhi'dgw ggp''y gqtgvkecn'O V'tgugctej 'r tqlgewi'cpf'' eqo o gtekcn'\(\) ("cxckrcdrg''r tcevkecn'\(\) (uvgo u0Vj g''o qtg''uweeguuhwrieqo o gtekcn'\(\) (uvgo u''ctg''cm quv'cmi'o qf gmgf ''qp'' y g''+tglgewgf ø'hktuv' i gpgtcvkqp''ctej ksgewtg.''y qwi j ''qhvgp''y ky ''uqo g''nhpi wkurke''uqr j kurkecvkqp''cpf ''o wej '' eqo r wcvkqpcni'ergxgtpguu0Vj wu.''y g{ ''urkmi'vtcpurcvg''guugpvkcm( ''d{ ''o gcpu''qh''c'uo cmi'co qwpv'qhi'pqv'xgt { ''gzcev'' cpcn(uku'\*tgeqi pl\) kpi ''nkmgn( ''pqwp''cpf ''xgtd''i tqwr u.''ej genkpi ''hqt''uwdlgevxgtd''qt''cf lgevkxg/pqwp''ci tggo gpv'kh'' y g''ugpvgpeg''untwewtg''ku''pqv''vqq''eqpxqnwgf +''cpf ''dcukecm( ''y qtf/hqt/y qtf ''f kevkqpct { ''mqmwr ''\*y kj ''o wej '' rtqxkukqpp''hqt''kf kqo u.''kg0'cp{ yi kpi ''y cv'ku''pqv'rksgtcn="yj g''tguwnkpi ''vtcpurcvkqpu''ctg''tgr qtvgf n( ''-y qqf gpø'qt'' uvknvgf .''yj qwi j ''pgxgtyj grguu''cf gs wcvg''hqt''o cp{ ''cr r nkecvkqpu.''qt''uwkcdrg''hqt''nki j v'tgxkukqp0'Ki'tgo ckpu''q''dg''uggp'' y j gyj gt''uqnkf ''yj gqt { ''y kmi'}

gxgpwcm( 'hgcf '\q'dgwgt'tguwmu'\j cp'engxgt 'gpi kpggtkpi 0 Ugg'cniq<

OCEJ KPG/CKFGF "VTCPUNCVKQP ="OCEJ KPG" VTCPUNCVKQP. "CRRNKECVKQPU="OCEJ KPG" VTCPUNCVKQP." JKUVQT[0

## Hwt vj gt 't gcf lpi

Ctpqrf "gv'cr03;; 6="J wej kpu"cpf "Uqo gtu"3;; 4="P ktgpdwti "gv'cr0hqtyj eqo kpi 0

J CTQNF 'NUQO GTU

# O gwerj qt 'qh'tt epure vkqp

Vtcpurckqp'ku'o quv'eqo o qpn('yj qwi j v'qh'cu'c'r tcevkecn'cevkxk{''yj cv'kpxqnxgu'wtpkpi "qpg'rcpi wci g'kpvq" cpqyj gt0'ki'ku'cnuq''y g'uegpg'qh'c'untknlpi "o gvcr j qtleu0'Hqt'gzco r ng."tcpurcvqtu'cpf "yj gqtknuj'j cxg'kpxqngf" o gvcr j qtu'qh'hkf grk{.'ugtxkrk{.'dcuvctf k| cvkqp'qt'wwtrcvkqp''q'hki wtg''yj g'tgrcvkqpuj kr'dgwy ggp'vgzvu'\*ugg" I GPFGT'O GVCRJ QTKEU'RP "VTCP UNCVKQP +0'Uqo gvko gu'yj g''tcpurcvgf "vgzv'kugrh'ku'xkgy gf "cu'c" o gvcr j qt'hqt''yj g'hqtgki p'vgzv''cu'y j gp''I tgi qt { "Tcdcuuc''cti wgu'yj cv''÷e''y qtf 'ku'pqyj kpi "dw'c'o gvcr j qt''hqt''cp" qdlgev'qtí hqt''cpqyj gt''y qtf ø''cpf "yj cv''tcpurcvkqp''ku''÷e''hqto "qh'cf cr vcvkqp."o cmkpi "yj g'pgy "o gvcr j qt''hk''yj g'' qtki kpcn'o gvcr j qtg'\*3; : ; 364+0'Hqt''Tcdcuuc."\tcpurcvkqp''ku''yj g''r kgekpi "vqi gyj gt''qh'o gvcr j qtu."kp''qtf gt''vq'' eqpurtvev'cpqyj gt''gpvkv{'yj kej 'ku''cnaq'c'o gvcr j qt''cu'c'o gvcr j qt''hqt''tcpurcvkqp0'Cy ctgpguu''qh''y g'' o gvcr j qtu''y tqwi j "y j kej 'kr'cavkkqpgtu''cpf "yj gqtknui'hki wtg''yj g''r tci o cvkeu''qh''tcpurcvkqp''o wuv''j qy gxgt''dg'' fkurkpi wknj gf 'htqo "yj g''ewttgpv'y kf gur tgcf 'wug''qh'tcpurcvkqp''cu''c'o gvcr j qt''q''f knewnu''tgrcvkqpu''dgw ggp''qdlgewu'' qyj gt''yj cp''rcpi wci gu0'Vj wu."vq''i kxg''cp''cewcn'cpf 'r gtvkpgpv'gzco r ng."yj gtg''ku''uqo gvko gu''vcmi'qh''+cpurcvkpi "qpg'' ewmvtg''kpvq''ygto u''kpygnki kdng''q''cpqyj gtø'V'j g''f khlewn/ ''y kj "yj ku'urcvgo gpv."cu''y kj "Tcdcuncøu''o ko gvle''o qf gn'' ku''yj cv'kv'tgo ckpu''cp''qxgtuko r nkhlecvkqp<'kv'f go cpf u'c''o qtg''yj gqtgykecm("tki qtqwu''cpcn(uku''qh''yj g''tgrcvkqpu'' kpxqnxgf 0

J qy gxgt. "c"pwo dgt "qh"tgegpv"r quv eqmpkcn"etkkeu "go rm{"tcpurckqp"cu"c"o gvcrj qt"kp"vgto u"vj cv"cmqy "hqt" urkrrci g"dgw ggp"c"uvtkevn("rtci o cvke"xkgy "qh"vtcpurcvkqp"cpf"qpg"y j kej "rkpmu"kv"o qtg"rtgekugn("vq"vj g"uqekcn" qtf gt "cpf "vj wu "vq"c"r qrkkecrif ko gpukqp0"Vq"dqttqy "Tchcgnøu"y qtf u.": ]v\_tcpurcvkqp "kp"vj ku "ecug"kpxqrxgu "pqv" uko r n( "'y g"cdkrkx{ "'vq"ur gcmlkp"c"rcpi wci g"qy gt"'y cp"qpgøu"qy p"dwv"y g"ecr cekx{ "'vq"tguj cr g"qpgøu''y qwi j wu'cpf " cevlqpu'lop"ceeqtfcpeg"y kyj "ceegr vgf 'hqto uø'c"r tqeguu'vj cv'lopxqnxgu":gkyj gt "chhkto cvkqp"qt "gxcukqp"qh'vj g'uqekon" qtf gtø'\*Tchcgn'3; :: 432643+0'Vj g''y tkklpi u''qh'Tchcgn''Dj cdj c.'P ktcplcpc''cpf 'Ej g{hk\| 'kp'r ctvkewrct''uggm'\q'' ct when cy": tcpurc who po cu'c "egp tcn'r tod ngo cwe "kp" y g"cpcn ( uku 'qh 'gy pke 'cpf "ewnwtcn' tcpuhgtu. 'tghwukpi "y g" vtcf kkqpcn'Gprki j vgpo gpv'r qukkqp''qh''wpf gtuvcpf kpi ''vj g''÷Qvj gtø'dwv'\t{kpi 'kpuvgcf ''vq''vj kpm'vj tqwi j ''y j cv'' Ej g{hk/| 'vgto u''-yj g'f khhewn/r qrkkeu'qh'\tcpurcvkqp. 'tcyj gt'yj cp''yj g'r qrkkeu'qh'\tcpurcvkqp''yj cv'tgr tguugu''yj ku'' fkhlewn'r qrkkeuø'\*3;; 3<zkz+0Tchcgnøu'uwf { "eqpulf gtu' ij g'tgrcvkqp"dgwy ggp"Ej tkukcp"eqpxgtukqp"cpf" vtcpurcvkqp'kp'gctn(''Urcpkuj 'eqnqpk cvkqp'qh'vj g'Rj krkrrkpgu'\*Tchcgn'3;::+0'Hqt''Dj cdj c'\*3;;2+:'vtcpurcvkqp'' pco gu'c'j {dtkf 'kpvgtewnwtcn'ur ceg. 'y j krg'hqt'P ktcplcpc'cpf 'Ej g{hk/ 'kv'ku'c'uki pkhecpv'vgej pqmi { ''qh'eqmpkon' f qo kpcvkqp'kp'Cpi m/Kpf kcp'tgrcvkqpu'\*P ktcplcpc'3; ; 4+"cpf 'kp'Cpi m/Co gtkecp'hqtgki p'cpf 'f qo guvke'r qrke{" htqo "yj g"ukz vggpyj "egpwt{"qpy ctf u"\*Ej g{hk\| "3; ; 3+0"Hqt"cm'yj gug"etk\keu."-xtcpurcvkqpø'ku'wpf gtuvqqf "r tko ctkn{" kp"vgto u"qh"c"rqy gt"tgrcvkqp<kv"ku"rkpi wkuvke"vtcpuhgt"kp"vjg"ugtxkeg"qh"gorktg0[gv"vjgkt"yqtm"cnuq"ftcyu" uki pkhkecpvn("qp"o gvcr j qtkecn'wugu"qh'\tcpurcvkqp<"cu"\tcpur qtvcvkqp. 'hki wtcvkqp. 'y g"cnkgpcvkqp"qh'r tqr gtv("qt"y g" r tqeguugu'qh'Ej tkukcp'eqpxgtukqp0

Ki'ku'uqo gvko gu''cti wgf ''vj cv'vj gug''wuci gu'ecppqv'r tqr gtn{ ''dg'eqpukf gtgf ''wpf gt''vj g'twdtke''qh''vtcpurcvkqp''ukpeg'' yj g{ ''f q''pqv''qwej ''qp''ku''o gvj qf qrqi kecn'eqpegtpu='vj ku''ku''gur gekcm{ ''vtwg''qh''yj qug''yj q''÷cmg''Vtcpurcvkqp''Uwvf kgu'' ydg''c''dtcpej ''qh''nkpi wkuvkeu''qt''eqo r ctcvkxg''nkgtct{ ''etkskekuo ''eqpegtpgf ''gzenwukxgn{ ''y kyj ''uvtwewvtgu''qh'' gs wkxcrgpegø'\*Tqdkpuqp''3; ; 5≪3; +0'Vj ku''qdlgevkqp.''cpf ''kxu''r tguwr r qukxkqp''cdqww''yj g''f kur rcego gpv''qh''yj g'' ± tqr gtø'hqewu''qh''tcpurcvkqp''uwvf kgu. ''ku''ewtkqwun{ ''r qkpvgf ''wr ''kp''f gh'kpkkqpu''qh''o gvcr j qt0'I gqti g''Rwwgpj co ''kp''

Vj g'Ct vg''qh'Gpi nkuj ''Rqgukg''\*37: ; +'f ghkpgu''→O gvcr j qtcø'cu''→c''mkpf g''qh''y tguvkpi ''qh'c''ukpi ng''y qtf 'htqo ''j ku''qy p'' tki j v'uki pkhlecvkqp."\q"cpqvj gt"*pqv'uq"pc wt cm*"dwv"{ gv'qh'uqo g"chhlpkkg"qt"eqpxgpkgpekg"y kyj "kxø"\Rctmgt"  $3;:95: \verb|=||gorj|| \verb|cuku|| \verb|cf|| fgf +0||Rctcf|| qz ||kecm|| ||\hat{o}|| dgecwug || \verb|vtcpumcw|| qpu|| vj go ugnxgu ||ctg|| eqpxgpw|| qpcm|| || eqpu|| fgtgf || vq'|| || eqpxgpw|| qpcm|| || eqpu|| fgtgf || vq'|| || eqpxgpw|| qpcm|| eqpxgpw|| eqpx$ dg'f kur neegf "y qtmuô yi g'rkvgtcn'cevkxkv{ "qh'vtcpuncvkqp"ku'uggp"cu'pcwtcn'cpf "r tqr gt. 'y j gtgcu'kvu'hki wtcvkxg'wug." f gur kg'ku'chhkpkx{ 'y kj 'y g'rkgtcn'ugpug.'ku'uggp''cu'wppcwtcn'cpf 'kortqrgt0'Y j krg''j gtg''ctg'korqtvcpv'tgcuqpu'' hqt"s wgurkqpkpi "kpf kuetko kpcvg"o gvcr j qtkecn'wugu"qh"yj g"vgto "-xtcpurcvkqpø "pqv'rgcuv'yj g'hcev'yj cv'tgrcvkqpu''ctg" qhygp "nghy" wpur geldigf. "ky"ku "et welch'yq" ej cmgpi g" yj g" cuuwo r ykqpu "yj cv" wpf gty tlag "yj g" r tgugpy o qo gp wu "j ligtctej {" qh'uki pkhecvkqp0'Vj g'hqmqy kpi 'ku'cp''cwgo r v'vq''cti wg'hqt''vj g''xcnwg''qh''ewttgpv'o gvcr j qtkecn'wugu''qh''vtcpurcvkqp." gur gekcm{ "cu'yi g{ "eqpegtp"tgrcvkqpu"qh"r qy gt."d{ "f tcy kpi "qp"yi g"xgt{ "uxtwewxtg"qh"o gvcr j qt "kuugnh0 Ctkurqvrgøu'hoo qwu'f ghkpkklqp''kp''j ku''Rqgvkeu'encko u''yi cv''÷O gvcr j qt''eqpukuvu'kp''i kxkpi ''yi g''yi kpi ''c''pco g''yi cv'' dgrqpi u''vq''uqo gyi kpi "grug="yi g''ttcpuhgtgpeg''dgkpi "gkyi gt'htqo "i gpwu''vq''ur gekgu."qt''htqo "ur gekgu''vq'i gpwu."qt" htqo "ur gekgu" 'vq" ur gekgu. "qt" 'qp" i tqwpf u"qh" cpcnqi {ø" \*Tkeò wt" 3; 9: ≥55 = "Rctngt" 3; : 9 ≤ 8 + 0 Kp" o gvcr j qt" c" vgto "ku" we will open the property of the content of thetgugo dropeg'i wotopvggkpi 'vj g'f geqtwo ''qh'uwej ''c''\topur qtvcvkqp''\*Ej g{hk/ '3; ; 3<57+0'Gv{o qmi {''opf ''j kuvqt{'' y km'dg"wugf "j gtg"\q"dtkpi "qwv'yj g"tgugo drepeg"dgwy ggp"\yj g"wug"qh"-xtcpurcxkqpø'hqt"\yj g"tgrexkqpu'dgwy ggp" rkpi wkuke 'urtwewtgu'cpf 'ku'hki wtckxg'wug'hqt'tgrckqpu'qh'r qy gt. "cpf "yj wu'tgkpuetkdg'yj g'pqkqp'qh'f geqtwo "cpf" qh''÷pgy 'r gt vlpgpegø'\*Tkeò wt'3; 9: ≥66+'vj cv'qdvckpu'kp''encuukecn'f ghkpkklqpu'qh'o gvcrj qt. "gxgp'y j krg"  $cempqy \ ngfi \ kpi \ ''yj \ cv''yj \ g''ewttgpv'o \ gvcrj \ qtkecn'wugu''qh''tcpuncvkqp''y \ kyj \ kp''yj \ g''hkgnf \ ''qh''tcpuncvkqp''uwvf \ kgu''j \ cxg''$ ghhgevgf 'c'twr wxtg''qh''y cv'f geqtwo 0

## Vt cpurc vkqp'cu'o gvcr j qt < j kwqt { 1hi wt g1'gv{ o qrqi {

yj ku'j cu'uwi i guvgf "c'j kuvqtkecn'kf gpvkhkecvkqp"\*dwv'ugg"Eqr grcpf "3;; 3457+0[ gv. "cu'Ej g{hk/ "cti wgu. "Iwuv" dgecwug''y g''xgtd''o gwrj gtq''ecp''tghgt''\q''dqyj 'kpygtrkpi wcrl'\tcpurc\kqp''cpf ''y g''\tcpuhgtgpeg''qh'ugpug''y kyj kp''c'' nepi wci g. 'y cv'kupøv'uko r n{ 'y j cv'÷dtkpi u''y g''kf gc''qh''o gver j qt''y ky kp''y g''eqpvgzv''qh''tcpuncvkqp''qt''y g''kf gc''qh'' vtcpurcvkqp'y ky kp''y g'eqpvgzv'qh'o gvcrj qtø'\*3;; 3<58+0'Hqt''kv'ku'r tgekugn('Ctkuvqvrgøu'tghgtgpeg''vq''y g'' wcpuhgtgpeg"qh"cp"cnkgp"\*cmqvtkqw"pcog"vj~cv"uj~qy~u"j~qy~"o~gvcrj~qt"i~tqwpf~u"kugnh"kp"c"vgttkqtkcn"ko~r~gtcvkxg."kp"c'f kxkukqp''dgwy ggp''yj g'f qo guvke''cpf ''yj g'hqtgki p0'Y kyj kp''Ctkuvqvrgøu''yj gqt { ''qh''o gvcr j qt''yj gtg'ku''c''yj gqt { ''yj cv' j cu'ˈgzgt vgf "cpf "eqp vkp wgu' ˈvq "gzgt v'∹c "eqp vt qmkpi 'hqteg 'qp 'vj g'y c{ "Y guvgt pgt u'vj kpm'cdq wv'ncpi wci g. 'vj g'' hki wtcvkxg"dgeqo gu"yi g"hqtgki p. "qt"uvtcpi g="yi g"r tqr gt"dgeqo gu"yi g"pcvkqpcn"qt"pqto cm/\*kdkf 0+0 Kp''o gf kgxcn'j kuvqtkqi tcrj { ''y g'eqpegr v'qh''u cpuncukq''\*tcpuhgtgpeg+'wpf gty tqvg''o gf kgxcn'pqvkqpu'qh'Go r ktg." ngctpkpi 'htqo 'Cyi gpu'qt'Tqo g'\q'Rctkı+.'ewttgpv'htqo 'cv'ngcuv'yi g'pkpyi 'egpwt{'\*Ewt\kwu'3; 9; ∢; ='Mgm{'3; 9: =' Iqpi nggu'3; 89="Rctngt"3; : 9-66+0Cu'Ej g{hk} "encko u."-htqo "ku'dgi kppkpi u'yj g'ko r gtkcrkuv'o kuukqp'kuí qpg'qh" vtcpurcvkqp<"yi g"\tcpurcvkqp"qh'\yi g"\qyi gtø'kpvq"\yi g"\gto u"qh'\yi g"go rktgø'\3;; 3♂34+0Eqrgrcpf "uj qy u"j qy " o gf kgxcn'xgtpcewrct "tcpurcykqp"ku"o gvcr j qtke "kp"uvtwewstg. "kpuqhct"cu'kv":kpugtvu 'kvugnh'kpvq' vj g'kf gqmi kecn' rtqlgev'qh'vtcpurcvkq'buwfkk'cu'c'pgy 'nkpi wkunke'o gfkwo 'hqt'ectt{kpi 'qxgt'yi g'ngctpkpi 'qh'yi g' cpekgpwø'\*3;; 3<28+0'Y j krg''y g''xgtpcewrct"ecp"ej crrgpi g''y g''qhhkekcn'ewnwtg''qh''Ncwkpkv{ ''d{ "gzr qukpi "÷y g" kf gqnqi kecn'hkevkqpu'qh'yi cv'ewnwtgø "pco gn{ 'vj cv'kv'ecp'tgxgcn'yi g'j kuvqtkecn'f kueqpvkpwkv{ 'y j kej 'kv'ku'yi g'r tqlgev' qh'llo r gtlcrluo ''vq''eqxgt''wr .''pgxgt yi grguu''yi g'':uwduvkwvkxg''unt wewt gø'qh''xgt pcewrct ''gzgi guku'':tgr t gugpvu''yi g'' o curgt { "cpf" crrtqrtkcrkqp" qh'c" rtkxkrgi gf" fkueqwtugø \*\*Eqrgrcpf" 3;; 3<28+0 Kp'Gpi rkuj .''y g'xgtd''u cpurc vg'\*gctrkguv't geqtf gf ''wuci g''e @ 522 <'QGF + "cpf ''y g''pqwp''u cpurc vkqp''\*e @ 562 + 'ectt { " w q'dcuke'o gcpkpi u<r j {ukecn'\tcpuhgtgpeg'\text{kpenwf kpi ''y g'tgo qxcn'qh'dkuj qr u'htqo ''qpg'\ugg'\q'cpqyj gt.''cpf ''qh'' yj g''dqf { ''qt ''tgrkeu''qh''c 'uckpv''vq''cpqyj gt 'r rceg''qh''

kpvgto gpv+."cpf "gs wkxcrgpeg"qh'rkpi wkuvke "uvt wewst gu0'Htqo "vj g"r qkpv'qh'rkgy "qh'c"j kuvqt kecri'ugo cpvkeu. "rcvgt" vj gqt kgu"qh'vtcpurcvkqp"j cxg"j cf "vq"y t guv'vj gkt "+r tqr gtø'o gcpkpi u"htqo "vj g"y kf gt "ugo cpvke 'tcpi g. 'tcvj gt "vj cp"vj g" qvj gt "y c{ 'tqwpf 0'Hqrgpc"\*3; 95+"gzr rqt gu'uqo g"qh'vj g"y c{ u"kp"y j kej "c"vgej pkecri'vtcpurcvkqp"xqecdwrct { "\*g0 0' kpvgt r t gvcvkq="ko kvcvkq+"f gxgrqr u"kp"vj g"Kcrkcp"T gpckuucpeg"cu"c"t guwnv"qh'r t guuwt g"qp"vj g"y kf gt "ugo cpvke "hkgrf" f guki pcvgf "d{ "vtcpulgt t g0

#### ÷Vj g'tcumiqh'tj g'tt cpurc vqt ø

-Vj g'\cum'qh'\j g'\tcpurc\qt\ø'\ku'\pq\v'qh'\eq\tug'\o g\crj qt\ecn'\kp'\j g'\ugpug'\kp'\y j \lej '\j ku'\gp\t { '\kp\gpf u. '\ukpeg'\kv'  $r\,tghcegu''Dgplco\,kpøu''tcpurcvkqpu''qh''Dcwf\,grcktg''cpf\,''ku''yi\,\,wu''c''uvcvgo\,\,gpv''qh''uqo\,\,g''uqt\,v''cdqww''yj\,\,g''r\,tci\,\,o\,\,cvkeu''qh''$ vtcpurcvkpi O'Uvkm 'kv'ctvkewrcvgu'c'xkgy "qh'vj g'uki pkh{kpi "r qy gt"qh'hcpi wci g\*u+"cpf "pqvkqpu"qh" VTCP UNC VCDKNKV[ "cpf "wpvtcpurcvcdkrkv{"y j kej "j cxg"r tqxgf "gzvtgo gn{"uwi i guvkxg"hqt"r quv'uvt wewtcrkuv" etkks wgu''qh''rcpi wci g."o gcpkpi ''cpf 'tgr tgugpvcvkqp0'Ceeqtf kpi ''vq''Dgplco kp."÷Gxgp''y j gp''cm'yj g''uwthceg''eqpvgpv'' j cu'dggp"gzytcevgf"cpf" ttcpuo kwgf. 'y g'r tko ct { "eqpegtp"qh'y g'i gpwkpg" tcpurcyqt" tgo ckpu 'gnwukxgø' 3; 45 47 +0' Vtcpulgt 'ecp'pgxgt'dg'\qvcn'dgecwug'\j gtg'ku'cp'grgo gpv'÷j cv'f qgu'pqv'rgpf 'kwgrh'\q'\tcpurcvkqpø'\kdkf 0\0'Wprkng'' yj g'y qtf u''qh''yj g''qtki kpcn''yj ku''grgo gpv'ku''pqv''\tcpurc\cdrg.''∺dgec\wg''yj g''tgrc\kqpuj kr''dgyy ggp''eqp\gpv'cpf'' ncpi wci g'ku's wksg'f khlgtgpv'kp''y g''qtki kpcn'cpf ''y g''tcpuncvkqpø'\*kdkf 0+0'Hqt''y g'r quv'eqnqpkcn'yi gqtkuvu.''y ku'' grgo gpv'hwpevkqpu'cu'c'o gvcr j qt'hqt'y g'f khhkewn/r qrkxkeu'qh'ewnwtcri/tcpuhgt0Hqt'gzco r rg.'kp'Tchcgnøu'uwf { ''qh'' Hkrkr kpq"Vci crqi "ewnwtg"wpf gt"Ur cpkuj "Ej tkurkcp"twrg" y ku "grgo gpv'o ki j v'dg "eqpurtwgf" cu' y cv'y j kej "crqy u'hqt" c'eqphqwpf kpi "qh'yj g'o kuukqpctkguø'gzr gevcvkqpu<"÷yj g'"Vci cmi uø'cwgo r vu'vq'tgcf "cpf "crrtqrtkcvg'Ej tkuvkcp/ eqriplicn'f kueqwtug'kp''y gkt''qy p''rcpi wci g''ygf gf ''vq''ej cpi g''y g'o gcpkpi ''qh'y cv'f kueqwtug''cpf ''j gpeg''y g''xgt { " uj cr g'cpf 'hggn'qh' y g'eqnqpkcn'ngi ce{ "cu'c' y j qngø'\*Tchcgn'3; :: <'zkk+0Ej g{hk\ 'cnuq'kf gpvkhkgu'c'tgukuvcpeg' vq' y j g" ko r gtkerkuv'r tqlgev'qh'v t e pure vkq'ko r gt kk'gv'uwf kk'kp'Dgpleo kpøu'eguvj gvke'f tgeo ''qh'e' wpkxgtuen'repi wei g.'kpuqhet'' cu'hqt'Dgplco kp'hcpi wci gu'ctg'kpeqo r ngvg<'y g{ "tgn( "qp"gcej "qyj gt. "tgukukpi "yj g'o cuvgt { "qh'c "wpkxgtucn" ncpi wci g'\*3; ; 3<57+0P ktcplcpc''gpi ci gu''y ky 'f geqpuxtwevkxg''tgcf kpi u''qh'Dgplco kp'\*d{ 'F gttkf c''cpf 'f g''O cp+''vq'' uj qy "j qy "vj g{ "uy gtxg" htqo "vj g"eqpegtp"y kyj "-j kuvqt {ø"kp" Dgplco kpøu" vgz v0 Dgplco kpøu "eqpegr v"qh" vj g" vtcpurcvcdkrkv{ "qh"yi g"\gzv"tgr tgugpvu"hqt"P ktcplcpc"c"ercko "qp"j wo cpmkpf "yj cv"ecp"dg"\wpf gtuvqqf "kp"\gto u"qh" j kwytkecn'o cystkorkuo 0.7 ku'ttqrg"qh'yjg'htci o gpysf"corjqtc."hqt"gzcorg."tgxgcnu'yjg"kpuvcdkrkx{"qh'qtkikpu'cpf" eqpvkpwvo u. 'r ctcngrkpi 'j ku'yj gqt { ''qh'j kuvqtkekv{ ''cpf 'j gnr kpi ''wu''÷vq'f geqpuvtvev'yj g''vqvcrkv{ ''qh'j kuvqt { ''yj cv' F gttlf c'uggu'cu'c'hqwpf lpi 'o gwr j qt'qh'nqi qegpvt kuo ø'\*3; ; 4384+0 Fg'O cpau'tgcfkpi "qh'Dgplcokpau'guuc{"rtqdrgockl gu'vjg'xgt{"pqkqp"qh'vtcpurckqp"cu'ogvcrjqt"d{"qhhgtkpi"c" etkks wg"qh"y g"vqvcnk kpi "r tqlgev"qh"tj gvqtkecn"vtqr gu0"kp"Dgplco kpøu"guuc { . "f g"O cp"encko u. "vtcpuncvkqp"ku"pqv"c" o gver j qt "hqt" vj g"qtki kpen'vgzv "cu' Tedeuwe "uwi i guvu+. "f gur kvg" vj g"enqug" gv { o qmi keen't grevkqpuj kr "dgwy ggp" Adgt ugv/gp" "ugvlr rceg" qxgt. "vtcpurcvg+"cpf" I tggmlo gvcrj qtgkp" = ectt { "qxgtø+0" Vtcpurcvkqp" ku'c" o gvcrj qt 'vj cv"

f guvcdkrk gu'y g'ttcf kkqpcn't grcvkqpuj kr 'dgyy ggp'hki wtg'

cpf "o gcplpi "'y cv'lu'uwr r qugf "'\q'l\pj gtg'l\p''\tqr g''qt''o g\cr j qt0'\Vtqr gu''\teny c { u'l\o r n\ '\q\cr\k c\lqp\p\c\v' j g\ ''\teqp\xg\ '' c''r lew\tg''qh''\q\cr\k gcplpi .''qh''eqo r ng\cy''cf gs \coe { ''dg\cong ggp'h\ti \cong gcplpi .''c'h\ti \cong gcplpi .''c'h\ti \cong gtplpi .''c'h\ti \cong gtplpi .''c'h\ti \cong gtplpi g''\teq\cong ggp'h\ti \cong gcplpi \p''\teq\cong gtplpi .''c'h\ti \cong gtplpi g''\teq\cong gti gu.''d\ '' y j lej ''\ti g''r ct\cong t\ti g''\ti g''r ct\cong gtplpi g''\ti g''\t

#### Rquv/eqnplcnit cpurcvlqp'cu'o gvcrj qt

Y j gtgcu'hqt'Tkeò wt"÷o gvcr j qt'ku'vj g't j gvqtkecn'r tqeguu'd { "y j kej "f kueqwtug" wpngcuj gu'vj g'r qy gt "vj cv'egtvckp" hevkqpu'j cxg'\q'tgf guetkdg'tgcrkx{ ø'\*3; 9: �+.'hqt'r quv'eqmpkcn'y gqtkrvu'y cv'tj gvqtk/ecn'r tqeguu'cpf 'r qy gt''qh'' tgf guetkr vkqp"ctg"wpf gtuvqqf "r qrkxkecm(."cmpi "y kij "y g"f geqpuvtwevkqp"qh"yi g"pqvkqp"qh"tgr tgugpvcvkqp"ko r nkekv" kp'Tkeò wtøu'f guetkr vkqp'\* vj cv't gcrkv{ 'ku'vt cpur ct gpv+0Dj cdj cøu'wug''qh'vt cpurcvkqp'ku''vj g''o quv'o gvcr j qt kecn'qh'vj g'' yj tgg"etkkeu. "dgkpi "eqpegtpgf" pqv"y kjj "tcpurcvgf" vgzvu"cpf" vj gkt hwpevkqpu"dww"y kjj "vj g"r quukdkrkv{ "qh"ewnwtcn" kpvgtctvkewrcvkqp"kp"tcfkecm{ "fkhgtgpv"vgto u"htqo "nkdgtcn"vtcfkvkqpu"qh"o wnvkewnvvtcnkuo 0J g"fgtkxgu"htqo " Dgplco kpøu "guuc { "vj g"pqvkqp" vj cv'cm'hqto u "qh'ewnwtg" ctg" kp "uqo g"y c { "tgrcvgf" vq "gcej "qvj gt "dgecwug" ewnwtg" ku "c" uki pkh{kpi "qt"u{o dqnke"cevkxkv{0"Hqt"j ko ." vj g"ctvkevncvkqp"qh"ewnvxtgu"ku"r quukdng"pqv'dgecwug"qh'vj g'uko knctkv{"qh" eqpvgpvu'\*ewnwtgu'fq'pqv'uj ctg'cp''gs wkxcrgpeg''qh'uwdlgevo cwgt+.''dw''dgecwug''cm'ewnwtgu''ctg''-iu{o dqrhqto kpi " cpf 'uwdlgev'eqpurkwrkpi .'kprgtr gmcrkxg'r tcerkeguø'\*3; ; 242; ó32+0'Dj cdj c''dqttqy u'htqo ''vj g''urt wewtg''qh'' o gvcr j qt "vj g"pqvkqp"qh"c": f kur ncego gpv"qt "rko kpcrkv{ø'y j kej ";qr gpu" wr "vj g"r quukdkrkv{ "qh"ct vke wrc vkpi "f kt/lgt gpv." gxgp'kpeqo o gpuwtcdrg. 'ewnwtcn'r tcevkegu'cpf 'r tkqtkkguø 'uwej "cu' y g'gxgpvu'uwttqwpf kpi 'y g'r wdrkecvkqp'qh' Ucm cp'Twij f kgøu''*Ucvcpke'Xgt ugu*'\*3; ; 2432633+0'Vj gug'r tqeguugu'qh'f kur mego gpv'cpf ''vtcpuhqto cvkqp''y kj kp'' cpf "cetquu"ewnwtgu"r tqf weg"y j cv"Dj cdj c"ecmu"÷y g"y ktf "ur cegø<"cp"kf gpvkhkecvkqp"tcy gt"y cp"cp"kf gpvkx{."y j gtg" yj gtg"ecp"pgxgt"dg"c"hwm'\tcpurc\kqp"qh'\uwdlgewi'qt"qh'hqto u'qh'ewnwtg."dw'y j kej "ku'j {dtkf"cpf"y j kej "dgctu." rkng'c'\tcpurc\kqp.'\tcegu'qh'hqto gt'o gcpkpi u'\j c\'i kxg'tkug'\q'pgy "ctgcu'qh'pgi q\kc\kqp'qh'o gcpkpi "cpf" tgrtgugpvcvkqp."dwv"pgxgt"kp"cp"guugpvkcrkt gf 'hqto 0

Dqy "Ej g{lkk| "cpf "Pkcplcpc"uj qy "j qy "kcpurckqp"cpf "kcpurcyf" "gz wi'hwpekqp"cu'kput wo gpw'qh'eqnqbcn' f qo kpckqp0'Vj gkt'kpygtgw'kp"gyj pqi tcr j { "ku'kp"yj g"r j knquqr j kecn'tcf kkqp"qh'S vkpg"\*3; 82='ugg"CPCN[ VKECN" RJ KNQUQRJ [ "CPF"VTCPUNCVKQP +0Ftcy kpi "qp"yj g"hqtgy qtf u"cpf "r tghcegu"qh'tcpurcyf "vgz wi"d{ "Gpi rkuj " eqnqpk gtu"kp"kpf kc. "Pkcplcpc"f go qpwtcygu"j qy "yj g"r tqlgev'qh'tcpurcykqp"ku'vq "kpugtv'yj g"eqnqpkcn'uwdlgev'kpvq"c" j knqt { "htqo "y j kej "ulj g"ku'f gdcttgf ."qeenxf kpi "yj g":xkqrgpeg"yj cv'ceeqo r cpkgu'yj g"eqpuvtwevkqp"qh'yj g"eqnqpkcn'uwdlgev%3; ; 4 4 0 Uj g"cti wgu'hqt "tcpurcykqpcn'r tcevkegu'yj cv'y knikpuetkdg'uwdxgtukqp"hqt "uwdcngtp"uwdlgew0Hqt" Pktcplcpc. "tcpurcykqp"ku'c"r tcevkeg"yj cv'ku'o kf y c{ "dgwy ggp"kpygtr tgvcykqp"cpf "tgcf kpi ."r ctykekr cykpi "kp"dqyj "cpf" { gv'hwn{ "pgkj gt."cpf" yj wuô rkng"o gvcr j qtô c'hqto "qh'f kuwtdcpeg"qt "f kur rcego gpv0'Vj g"ukwcykqp"qh'yj g"r quv' eqnqpkcn'uwdlgev'ku":kp"tcpurcykqpø0

Ej g{hk\| 'h\pf u'\p''y g'Tgpckucpeg'tj gyqtkecn'ygto 'hqt'o gwrj qt''\*tcpuwvkq+'cp''cr v'hki wtg'hqt'yj g'eqmpkcnkuv' ko r qukklqp'qh'qtf gt''qp'\kpf ki gpqwu'ewnwtcn'\tej cqu\(\text{a}\) "c''o qf gn'yj cv'j cu'\kphqto gf ''Cpi m/Co gtkecp''hqtgki p''cpf'' f qo guvke''r qnke{''Itqo ''yj g''ukz vggpyj ''egpwxt{''yq''yj g''r tgugpv'f c{0O qxkpi ''dgwy ggp''yj g''Oxtqr gcp''eqmpk\| cvkqp''qh'' yj g''P gy ''Y qtnf''kp''yj g''ukz vggpyj ''egpwxt\| guy''cpf ''ewttgpv'tgncvkqpu''dgwy ggp''yj g''Wpksgf ''Uvcvgu''cpf'' P cvkxg''Co gtkecpu.''Ej g{hk\| ''cpcn\| ugu''c'pwo dgt''qh''nksgtct{''vgz wi'htqo ''yj g''r gtkqf ''\*pqxgnu.''urcxg''pcttcvkxgu.''r rc{u.'' kpenwf kpi ''Vj g'Vgo r guv+0'Hqt''Ej g{hk\| .''tcpurcvkqp''kn''cp''cr v'o gwrj qt''hqt''hqtgki p''r qnke{.''dgecwug''dqy'' wtcpurcvkqp''cpf ''o gwrj qt''ctg''dcugf ''qp''yj g''hqtgki p''r qnke{''ctvkewrwgf''kp''Ctkuvqvg\| wu''g'' ghkpkkqp''qh''o gwrj qt.'' yj g''hki wtg''qh''yj g''+tqr gt\| y' g''hqtgki p''r qnke{''ctvkewrwgf''kp''Ctkuvqvg\| wu''g''y' g''' tggkw\| 0'' Ej g{hk\| \lambda wu''cpcn\| uku''qh''o gwrj qt'' yi g''hqtgki p''r tgekugn\| "'d\| ''dnwtt\| yi g''ttq tqt'' yo gwrj qt'' o ctmu''yj g''htqpk\| t''gy ggp''y g''f qo guvke''cpf''yj g''hqtgki p''r tgekugn\| "'d\| ''dnwtt\| yi 'yi cv''dqwpf ct\| \lambda ''s; ; 3< 6+ ''dw''j g'' ur gemu''htqo ''c''xgt\| ''f khtgtgpv'r reeg0'Hqt''Ej g{hk\| .''y g''o wuv'cm'dg''kp''tcpurcvkqp''dgwy ggp''ewnwtgu''kh'y g''ctg''q'' wpf gtuvcpf''yj g''f {pco keu''qh''qwt''ko r gtkcnku 0}

Retengn'encko u'hqt '\tepune\kqp'\q'hwpe\kqp''cu'c'o gwr j qt'hqt 'kpvgtewnwten'tgne\kqpu'er r get '\q''dg''uwtheekpi 'kp'' et geu'qh'\tepune\kqp''uwf kgu''

www.cm{ 'tgukuvcpv'vq'rj krquqrj keq/yj gqtgvkecn'crrtqcej gu0'Vj wu'Tqd{pu. 'c'f guetkrvkxg'vj gqtkuv. 'cti wgu'hqt'' vtcpurcvkqp"cu"f kuewtukxg":kpvgthgtgpegø"uj qy kpi "j qy "vj g"o qf gu"cpf "o gvj qf u"qh"y j cv"j g"ecmu":vtcpurcvkqp"kp" yj g'uvtkevguv'ugpugø'ctg'f gvgto kpgf 'd{ 'y kf gt'f kuewtukxg'f qo ckpu'\*Tqd{pu'3; ; 6+0'Kugt'cti wgu'hqt''yj g'xcnwg'qh'' wukpi ''yi g''eqpegr v''qh''tcpurcvcdkrkv{ ''cu''÷c''eqwpvgt/eqpegr v''vq''yi g''qyi gty kug''r tgxckrkpi ''kf gc''qh''ewnwtcn'' j gi go qp{ø'\*3; ; 7<52+0J g''grcdqtcvgu''c''u{uvgo u''vj gqt{''o qf gn'qh'lkpvgtewnwtcn'vvpf gtuvcpf kpi .''hkpf kpi ''kp''vj g'' pqvkqp"qh'vtcpurcvkqp"dgw ggp"ewnwtgu'c"ej cmgpi g"vq"vj g'cf gs wce { "qh'j ku'eqpegr v'qh'vj g'j gto gpgwke"ekterg0 [ gv'kv'y qwrf "dg'y tqpi "vq"eqpenwf g"vj cv'vj gtg"ku'cp"kuqo qtr j kuo "dgwy ggp"f guetkr vkxg'vj gqtkuvu'nkng'Tqd{pu'cpf" Kugt "qp" y g"qpg" j cpf "cpf" y g"r quv eqmpken'y gqtkıxu "qp" y gt0 Eqpxgpvkqpcm { ."vtcpurcvgf 'vgzvu''ctg" dgrkgxgf" vq'r tqxkf g'c''tcpur ctgpv'y kpf qy ''qpvq''y g''ewnwtgu''y g{ ''tgr tgugpv'cpf ''vq'hcekrkcvg''etquu/ewnwtcn'wpf gtuvcpf kpi " \*Pktcplcpc'3;;4="Rctngt'3;:9="Xgpwk'3;;4+."c"rtguwrrqukkqp"vjcv'vq"uqog"gzvgpv'kphqtou'Tqd{puø'cpf"Kugtøu" -ilf gcm/o qf gnu. "gur gelcm( "kp" yj gkt "\tcpuegpf gpeg"qh'xkqngpeg0Dj cdj c. "P ktcplcpc"cpf "Ej g{hk\| "j cxg"gzr nqf gf " yj ku'Gprki j vgpo gpv'kf gqrqi {.'hqtekpi ''yj g'tgcf gt''vq''cempqy rgf i g''yj g'tqrg''qh''\tcpurcvgf ''vgzw'kp''ko r qukpi " j gi go qpke "ewnwtcn'xcnwgu"cpf "o cunkpi "eqmpkcn'xkqrgpeg0"Y j cv'ku"cv'uvcng "kp" vj g"s wguvkqp"qh' vtcpurcvkqp"cu" o gvcr j qt "ku"c "hceg/qhh":-dgwy ggp "vtcpuncvkqp"cu"c "vgej pkecn"r tqdngo "i qxgtpgf "d{ "hqto cn"eqpxgpvkqpuí cpf" vtcpurcvkqp"cu"c"r qrkkecri'r tqdrgo "vj cv"o ktgu"wu"kp"vj g"kpks wkxkgu"qh"ewnwtcri'eqpvcevø"\*Tqdkpuqp"3;; 5 < 343+." eqpegr vu'vpf gty tkvgp'd { 'tcf kecm { 'f kthgtgpv'r qrkskecn'r tqi tco o gu. 'cpf 'y j kej 'vj gtghqtg'qthgt'tcf kecm { 'f kthgtgpv' y c{u'qh'eqpegr wcnk kpi ''tcpurcvkqp0'Vj cv'kp'kxugrh'ku'r ctv'qh'vj g'f khhewn'r qrkkeu'qh'vtcpurcvkqp.''cpf 'kh ''cu'' Ejg{hkv| 'uc{u.'r qrkvleu'ku'cdqw'r wwkpi 'j kuvqt{'cpf 'vj gqt{'kpvq'r rc{'\*3;;3<zz+'vj gp'kvøu'gs wcm{'vt wg'vj cv' y gtgøu'pq'y c{ ''qw''qh''y cv0

Ugg"cnuq<

I GPFGT'O GVCRJ QTKEU'KP'VTCPUNCVKQP="O WNVKNKPI WCNKUO 'CPF'VTCPUNCVKQP="RWTG"
NCPI WCI G="UVTCVGI KGU'QH'VTCPUNCVKQP0"

#### Hwt yj gt 't gcf kpi

Dcppgv'3; ; 5="Dgplco kp"3; 45="Dj cdj c"3; ; 2="Ej g{hk/ "3; ; 3="Eqr grepf "3; ; 3="P ktcplcpc"3; ; 4="Rctngt"3; : 9="Tchcgn" 3; : : = Tleò wt"3; 9: = Tqdkpuqp"3; ; 5="Xgpwk"3; ; 40

TWJ 'GXCPU

## Ogverjteug

Vj g"vgto "o gver j teug. "wugf "hqt"cp"cr r tqeej "vq"vtepunevkqp. "ku"o quv'heo krket "vq"wu'htqo "Iqj p"FT[FGP øU'38: 2" r tgheeg"vq"j ku'vtepunevkqp"qh"Qxkf øu'*Gr kuvrgu*'\*ugg"<u>DTK/KUJ "VTCF K/KQP</u>+<"j exkpi "r tqo kugf "vq"tgf weg"em" vtepunevkqp"vq"j tgg"j gef u."j g"hktuv'o gpvkqpu"÷o gver j teug. "qt"wtpkpi "cp"ewj qt"y qtf "d{"y qtf."cpf "rkpg"d{"rkpg." htqo "qpg"repi wei g"kpvq"cpqvj gtø="vj g"qvj gt" y q"j gef u"etg"RCTCRJ TCUG"cpf "KO K/VCVKQP 0"Ft{f gp" eqpukf gtgf "o gver j teug. "cmpi "y kvj "ko kevkqp. "qpg"qh"÷vj g"y q"gzvtgo gu"y j kej "qwi j v"vq"dg"cxqkf gf ø"cpf "kp" y etpkpi "ci ckpuv"kv"f guetkdgf "vj g"o gver j teuv"qt "rksgterkuv."heo qwun{."cu"c"kki j vtqr g/y cmgt"y kvj "dqwpf "hggv<

Kp''uj qtv.''yj g'xgtdcn'eqr kgt''ku''gpewo dgtgf ''y kyj ''uq''o cp{ 'f khhkewnkgu''cv'qpeg.''yj cv'j g''ecp''pgxgt'' f kugpvcpi rg''j ko ugrh'htqo ''cm0'J g'ku''vq''eqpukf gt.''cv'yj g''uco g''ko g.''yj g'yj qwi j v'qh''j ku''cwj qt.''cpf ''j ku'' y qtf u.''cpf ''vq''hkpf ''qw''yj g''eqwpvgtr ctv''vq''gcej ''kp''cpqvj gt''ncpi wci g="cpf.''dgukf gu''yj ku.''j g''ku''vq'' eqphkpg''j ko ugrh''vq''yj g''eqo r cuu''qh''pwo dgtu.''cpf ''yj g''urcxgt{ ''qh''tj {o g0'÷Vku''o wej ''nkng''f cpekpi ''qp'' tqr gu'y kyj ''hgwgtgf ''ngi u<'c'o cp''o c{ ''uj wp''c'hcm''d{ ''wukpi ''ecwkqp="dw''yj g''i tceghwrpguu''qh''o qvkqp''ku'' pqv''q''dg''gzr gevgf <'cpf ''y j gp'y g''j cxg''uckf ''yj g''dguv'qh''kv.''øku''dwv'c''hqqrkuj ''vcum<''hqt''pq''uqdgt''o cp'' y qwrf ''r wv'j ko ugrh''kpvq''c''f cpi gt''hqt''yj g''cr r ncwug''qh''guecr kpi ''y kyj qw''dtgcnkpi ''j ku''pgen0

Dw'F t {f gp'f kf pøv'kpxgpv'y g'vgto 0'K'y cu'hktuv'wugf ''d { ''Rj krq'Lwf cgwu'kp''F g'xkx''Oquku'\*42''DE+''-{ gv'y j q'f qgu'' pqv'mpqy ''y cv'gxgt { ''rcpi wci g. ''cpf ''I tggm'gur gekcm{ .''cdqwpf u'kp''vgto u. ''cpf ''y cv'y g'uco g''y qwi j v'ecp''dg'r ww'kp'' o cp{ ''uj cr gu''d { ''ej cpi kpi ''ukpi rg'y qtf u''} o gwrj o y gwrj o y gwrj o gwrj

o gwrj teug"cpf "r ctcrj teug."ctg"r kengf "w "d{"S wkpwklep"kp"Kpukwwgu"qhQtcvqt{"\*CF"A, 7+lhqt"yq q"f knkpev" cr t tqcej gu"vq"yj g"r gf ci qi kecni'r tcevkeg"qhiko kcvlqp."tgy qtmkpi "encuule"vgzvu"d{"ej cpi kpi "qpg"y qtf "cv'c"klo g" \*o gwrj teug+"qt"qpg"rj teug"cv'c"klo g"\*r ctcrj teug+"cpf "nevgt"d{"c"npi "iknv'qhi Tgpckuucpeg"cpf "pgqeneuulecni" rgf ci qi wgu"cpf "tcpunevkqp"yj gqtknuc"Hcwnvq"Ugdcuvkcpq"kp"F grio qf q"f g"nq"st cf wt tg"f øwpc "hpi wc "hp"cmt c" ugeqpf q"ng"t gi crg"o quat cvg"f c"Ekegt qpg"\*3778+"Ncy tgpeg"J wo rj tg{"kp"Kpvgtrt gwcvkq"hpi wc two "ugwf g" tcvkqpg"eqpxgt vgpf k"gv"gzrrhecpf k"cwnqt gu"wco "ucet qu"s wco "rt qrj cpqu"\*377; +"Tqi gt"Cuej co "kp"Vj g" Lej qqno cungt "\*3792+"Cpf tgcu"Uej qwwu"kp"Vvnnkcpct wo "S wc guskqpwo "f g"kpuwwt cpf c "Ekegt qpku"ko kcvkqpg" \*3832+"cpf "Rkgttg/F cpkgn"J wgv"kp"F g"kpvgtrt gwcvkqpg"\*3883+0Ft {f gp."3; "{gctu"chygt"J wgv"ku"yj wu"qpn("qpg"qh"c" npi "urkpi "qh"yj gqtknu"yj q"wug"o gwrj teug"kp"tqwi jn("yj g"ugpug"qh'y qtf /hqt/y qtf "tgy qtmkpi "qt"\tcpunevkqp0 Vj g"ygto "r ctcrj teug."qh"eqwtug."j cu"tgo ckpgf "kp"qtf kpct{"wug."yj kng"o gwrj teug"j cu"pqv"yj kej "j cu"o cf g"kv" rqr wnt"co qpi "uqo g"tgegpv\tcpunevkqp"yj gqtknu"yj q"etcxg"c"yto kpqni {"yj cv'ku"dqy "pgy "cpf "qrf ."enuulecni" cpf "wpeqpwo kpcvgf"d{"yj g"ygxgt{f c{"eqppqwcvkqpu"qh"hkgtcnkno "%qt"r ctcrj teug+"+Hct"hqo "dgkpi "yj g"o quv" qdxkqwu."twf ko gpvct {"o qf g"qh'tcpunevkqp."önksgtcnkno ö"qt"cu"F t{f gp"ecmgf"kw"o gwrj teug."ku"kp"hcev'yj g"ngcuv" cwckpcdngo\*\*I gqti g"Uxgkpgt"3; 97<52: +0

#### Hwt vj gt 't gcf lpi

Uj cf f { '3; : 6="I gqti g"Ugkpgt '3; 970

FQW NCUTQDKPUQP

# O qf gnu'qh'tt cpurc vlqp

Cnj qwi j "o qf gn'y gqt { "ku"c 'hkgnf "qh'uwxf { 'kp"kwgnh "c"eqo r tgj gpukxg"f ghkpkkkqp"qh'y g"eqpegr v'qh'o qf gnitgo ckpu" r tqdngo cvlecn0'V j ku'ku'r ctvn{ "dgecwug"o qf gnu'ecp"dg"qh'xgt { "f khngtgpv'nkpf u "tcpi kpi "htqo "keqpke"qt" f kci tco o cvle 'tgr tgugpvcvkqpu'\*mpqy p"cu"cpcmji wg'o qf gnu+'vq"eqpegr wcn'cpf "y gqtgvkecn'o qf gnu "cpf 'r ctvn{ "cnuq"dgecwug"y gtg"ku'nkwng"ci tggo gpv'co qpi "y gqtkwu'cdqww'y g"encuukhecvkqp"qh'o qf gnu'kpvq'v{ r gu0' P gxgty gnguu."uqo g"eqo o qp"r tqr gtvkgu"qh'o qf gnu'ecp"dg"f kuvkpi wkuj gf 0

Hktuv."c"o qf gn'ku"cny c{u"c"o qf gn'qh'uqo gyi kpi ."ecngf "yi g"qdlgev."qt"yi g"qtki kpcn"qt"yi g"rtqwqv{rg0Kp"yi ku" ugpug."c"o qf gn'y j gp"r gtegkxgf "kp"vgto u"qh'kw"o qf gnkpi "hwpevkqp."ku"c"xkectkqwu"qdlgev."k0g0'c"uwduvkwwg0'Ki" tgr tgugpvu."tgr tqf wegu. "tghgtu"vq"uqo gyi kpi "gnug."y j kej "ku"pgeguuctkn{"cpvgtkqt"vq"ko0O qf gn'cpf "r tqvqv{rg" yi gtghqtg"j cxg"c"f khhgtgpv'qpvqmi kecn'uvcwu"y j kej "ctkugu"htqo "yi g"hcev'yi cv'qpg"tgr tgugpvu"y j krg"yi g"qyi gt"ku" tgr tgugpvgf 0P gkyi gt"o qf gn'pqt"r tqvqv{rg"pggf "vq"dg"rj {ukecn'tgcnkkgu<"yi g{"ecp"dg"cduvtcev."o gpvcn'qt" j {rqyi gvkecn'gpvkkkgu0

Ugeqpf ."c"o qf gmlpi "tgrcvlqp"ku"pqv"cp"qdlgevlxgn("i kxgp"lcev"qt"c"uvcvg"qhl'chrcktu"gzkuvlpi "pcwtcm("dgwy ggp"wy q" gpvkvlgu0C"o qf gmltgs wktgu"c"j wo cp"uwdlgev."y j q"o c{"dg"c"eqmgevlxg."\q"tgeqi pk g"kv"cu"c"o qf gmlqhl'uqo gyj kpi 0' Vj cv'ku."c"o qf gmlecp"qpn("dg"c"o qf gmlqhl'uqo gyj kpi "khl'yj gtg"ku"uqo gqpg"y j q"r gtegkxgu"kv"cu"uwej ."cpf "y j q" tgeqi pk gu"yj g"crrtqrtkcvg"tgrcvlqp"dgwy ggp"o qf gmlcpf "rtqvqv{rg0Vjg"o qf gmlpi "qrgtcvlqp"yj gtghqtg"kpxqnxgu" yj tgg"eqo rqpgpvu<"c"rtqvqv{rg."c"o qf gm"cpf "c"j wo cp"uwdlgev0

Vj ktf.''y g''o qf gn'tgr tgugpvu'kvu'r tqvqv{r g''y tqwi j "crr tqzko cvkqp0'K'ku''pqv'c''tgr tqf wevkqp''qh''y g''r tqvqv{r g''kp''kvu'' gpvktgv{ "cpf "kp''cm'kvu''cur gevu0'Vj g''o qf gn'tgf wegu''y g''eqo r ngzkx{ "qh''y g''r tqvqv{r g''d{ ''tgvckpkpi ''qpn{ "egtvckp'' hgcwtgu''qh''kv.''cpf ''kp''uq''f qkpi ''guvcdnkuj gu''c''egtvckp''uko krctkx{ "qt''eqttgur qpf gpeg''dgw ggp''kvugrh''cpf ''y g''qdlgev''vq'' y j kej ''kv'tghgtu0'Vj g''uko krctkx{ ''ku''qh''c''egtvckp''mkpf ''\*hqt''gzco r ng''kuqo qtr j ke+:'f ggo gf ''d{ ''y g''j wo cp''uwdlgev''vq'' dg''hwpevkqpcm{ ''tgngxcpv="cpf ''y g''o qf gn'gzj kdkvu''y ku''r ctvkewrct''mkpf ''qh''uko krctkx{ ''kp''c''egtvckp''o cppgt''cpf ''vq''c'' egtvckp''f gi tgg0

Hqwtyi."y j krg'htqo "yi g'r qkpv'qh'xkgy "qh'yi g"o qf gmkpi "tgrcvkqp"qpn{ "yi g'tgr tgugpvcvkqpcn'cur gewi'qh'c"o qf gn'ctg" pqto cm{ "tgi ctf gf "cu'r gtvkpgpv."gxgt { "o qf gn'qh'pgeguukv{ "cnuq"eqpvckpu"qyi gt."pqp/hwpevkqpcn'qt"÷eqpvkpi gpvø' hgcwtgu0

Ki'ku'r quukdrg''vq'eqpukf gt''y g'tgrgxcpeg''qh'o qf gru'kp''y g'eqpygzv'qh''vtcpurcvkqp''htqo 'hqwt''

#### f khhgtgpv'cpi rgu<

eqpegpytcyg'y gkt ghhqtyu'ceeqtf kpi n(0

\*c+'y g'wug'qh'y gqtgwecn'o qf gnu'cu'j gwtkuwe'vqqnu'kp'vtcpurcwqp'uwwf kgu
\*d+'y g'wug'qh'f kci tco o cwe''qt''cpcmqi wg''o qf gnu'vq'tgr tgugpv'egtwkp''cur gewu''qh'wtcpurcwkqp
\*e+'y g'xkgy ''qh'wtcpurcwkpi ''cu''c''o qf gmkpi ''cewkxkw{
\*f+'y g'tgrcwkqp''dgwy ggp''o qf gnu''cpf ''P QTO UO

#### Vj gqt gweenb qf gnu

Vj gqtgvlecn "qt" eqpegr wcn "o qf gnu" ctg" j{r qvj gvlecn "eqpuvt we vu" y j kej "ctg" f gtkxgf "htqo "cp" guvcdrkuj gf "hkgnf" qh" mpqy ngf i g'cpf "vj gp"\gpvc\kxgn("rtqlge\vgf"\qpvq"c"pgy ."y j qm("qt"rct\vn("\wpmpqy p"f qo c\kp0'Dgec\wug'\vj g"o qf gn'ku" hktuv'o crrgf "qp"qpg"hkgnf "cpf" y gp"crrnkgf "vq"cpqy gt. "kv"gornq { u"ncpi wcig"crrtqrtkcvg" vq" y g"hktuv"hkgnf "vq" ur gcm'cdqw'y g'ugeqpf 0'Vj ku'ku'y j cv'gpcdrgu'c'eqpegr wcn'o qf gn'yq'hwpeylqp'j gwtkuylecm(<'y g'tgugctej gt'o c{"  $f \ gtkxg''eqi \ pkkxg''i \ ckp''htqo \ ''f \ gr \ m\{kpi \ ''j \ g''o \ qf \ gn'cu''cp''cekxgn( \ ''r \ tqdkpi \ ''kpuvtwo \ gpv.''c''r \ tkuo \ ''qt''ugctej \ /nki \ j \ v''$ y j kej "cmqy u"j ko "qt"j gt"\q"ugg"pgy "vj kpi u."qt"\q"ugg"vj kpi u"kp"c"pgy "nki j v0C v"vj g"uco g"vko g."vj gqtgvkecn'o qf gnu" kpgxkcdn ("eqpuntwev'y g''qdlgev'kp''y gkt''qy p''ko ci g < 'y g ("crrn ("y gkt''qy p''vgto u."ecvgi qtkgu''cpf''f kunkpevkqpu''vq'' length ("eqpuntwev'y g''qdlgev'kp''y gkt''qy p''ko ci g < 'y g ("crrn ("y gkt''qy p''vgto u."ecvgi qtkgu''cpf''f kunkpevkqpu''vq'' length ("eqpuntwev'y g''qdlgev'kp''y gkt''qy p''ko ci g < 'y g ("crrn ("y gkt''qy p''vgto u."ecvgi qtkgu''cpf''f kunkpevkqpu''vq'' length ("eqpuntwev'y g''vgto u."ecvgi qtkgu''cpf''g kunkpevkqpu''vq'' length ("eqpuntwev'y g''vgto u."ecvgi qtkgu''cpf''y gkt''qy p''vgto u."ecvgi qtkgu'''y gkt''y gkt'yj g'pgy "f qo ckp. "kmwo kpcvkpi "egtvckp"cur gevu'y j krg"qduewtkpi "qyj gtu0 Kp"tcpurcvlqp"uwf kgu. "c"pwo dgt "qh"vj gqtgvkecn"o qf gnu"f gtkxgf "htqo "qvj gt"f qo ckpu"cpf "f kuekr nkpgu"j cxg"dggp" Ugxgtcn'qh'vj gug'kp'wtp'o cng'wug'qh'vgto u'cpf 'eqpegr w'ko r qtvgf 'htqo 'qvj gt'f kuekrnkpgu'uwej 'cu'r j knquqr j {." j kunqt { "qt"uqekqmqi {0 Kp"gcej "ecug. "r ct wewrct"ewttgpvu"qh"yj qwi j v"y kyj kp"yj g"hkgnf u"eqpegtpgf "j cxg"ugtxgf "cu" o qtg"tghkpgf "tgugctej "vqqnu0"Hqt"gzco r ng. "vj g"nkpi wkuvke"o qf gn"j cu"i gpgtcm( "vgpf gf "vq"ugg"vtcpuncvkqp"r tko ctkn( " cu'c'hpi wkuke'qr gtckqp'\*ugg'<u>NP I WKUVKE'CRRTQCEJ GU</u>O'Y kj kp''y ku'dtqcf 'eqpegr wch'htco g." unt wewnt crkuv'rkpi wkunke "o qf gnu "qh 't cpurc vkqp "hqewu "qp "t grc vkqpu "dgwy ggp "rkpi wkunke "u { uvgo u. "y j krg "vgz √rkpi wkunke " o qf gnu'eqpegpytcyg'qp''y g'r tci o cykeu'qh'i kxgp'eqo o wpkecykxg'ukwcykqpu. 'cpf 'r u{ ej qrkpi wkuyke''o qf gnu'nqqm'cy' nkpi wkunke "cur gevu"qh" yi g"o gpvcn"qr gtcvkqpu" kpxqnxgf "kp" yi g"vtcpuncvkqp"r tqeguu" "vugg" <u>VGZ V"NKP I WKUVKE U</u>=" FKUEQWTUG'CPCN| UKU'CPF"VTCPUNCVKQP="RTCIOCVKEU'CPF"VTCPUNCVKQP=" RU EJ QNKP I WKUVKE IEQI P KVKXG"CRRT QCEJ GU+0"Ugo kqvke "o qf gnu"ugg"vj g"hkgnf "qh"gps wkt { "cu"gz vgpf kpi " vq"hqto u"qh"vtcpuhgt"dgw ggp"uki pkh{kpi "u{uvgo u"qyi gt"yi cp"pcwtcnhcpi wci gu"\*ugg"<u>UGO KQVKE"</u> CRRTQCEJ GU+0'Uqekqewnwtcn'o qf gnu'cpf 'uqekcn'cevkqp''yj gqtkgu''vgpf 'vq''go rj cukt g''eqpvgzwcn'hgcwtgu''qh'' vtcpurcvkqp"cpf "vj g"kpvgtcevkxg"uqekcn'y gd"qh'y j kej "vj g"xctkqwu'r ctvkekr cpvu"kp"vj g"vtcpurcvkqpcn'eqo o wpkecvkqp" ctg"c"r ctv"\*ugg"<u>EQO O WP KECVKXGIHWP EVKQP CN"CRRTQCEJ GU</u>+0Nkgtct{"o qf gnu"j cxg"cr r tqcej gf" vtcpurcvkqp'kp'vgto u'qh'vj g'ecvgi qtkgu'qh'\*r ctvkewrct'mkpf u'qh+'rksgtct{ "etkkekuo .'rksgtct{ "j kuvqt{ "cpf 'rksgtct{ " yj gqt {."gur gekem{ "unt wewt crkuo "cpf" r quv'unt wewt crkuo O'Kp" t gegpv" { get u"i gpf gt "unwf kgu. "ewnwt cri'unwf kgu. "u { ungo u" Ki'y qwrf ''dg'hwkrg''vq''cwgo r v'c''ergetn( 'f ghkpgf 'hkurkpi ''qh''vj gqtgvkecn'o qf gnu''qh''vtcpuncvkqp0'Vj g''o qf gnu''ctg''  $eqo\ r\ ngo\ gpvct\ \{\ ''cpf\ ''qhvgp''qxgtrcr\ ''cpf\ ''eqphrhevO'Kp''o\ cr\ r\ kpi\ ''yj\ g'f\ qo\ ckp''qh''vtcpurcvkqp''kp''yj\ gkt''qy\ p''vgto\ u''yj\ g\ \{\ ''\ p''vgto\ u''yj\ g\ ''vgto\ u''yy\ ''vgto\ u''yy\ ''yj\ ''yj\$ cnuq'f grko k/k/kp'f khhgtgpv'y c{u."qt"j ki j rki j v'r tgekugn("vj g'r tqdngo cvkecn'pcwtg"qh'uwej "f grko kvcvkqp0"Y kij kp" yj gkt "qy p"r ctco gvgtu" yj g{ "ctg" hkngn{"vq"r tkqtkxkt g"egtvckp" nkpf u"qt" cur gevu" qt" ctgcu" qh" vtcpurc vkqp. "cpf"

#### Cpcmi wg'b qf gnu

Cpcmqi wg"o qf gnu"ctg"wugf "vq"tgr tgugpv"vj qug"ej ctcewgtkurkeu"qh"c"r tqvqv(r g"y j kej "ctg"eqpukf gtgf "tgngxcpv"kp"c" i kxgp"eqpvgzv0Vj g{ "ugtxg"cp"kpvgngewcn"cpf "r gf ci qi ke"r wtr qug"kp"xkurwcm( "hqtgi tqwpf kpi "r gtvkpgpv"hgcwtgu" y j krg"ki pqtkpi "qvj gtu0Kp"vj g"uwf { "qh"vtcpurcvkqp."hqty "ej ctvu"cpf "qvj gt"f kci tco o cvke"tgr tgugpvcvkqpu"ctg"o quv" eqo o qpn( "wugf "vq"tgr tgugpv"egtvckp"r tqeguugu"cpf "tgrcvkqpu0 Vj g"eqo o wpkecvkxg"r tqeguu"kpxqnxkpi "vtcpurcvkqp"ku"qhxgp"tgr tgugpvgf "cu"cp"gzvgpukqp"qh"vj g"uej go g" +ugpf gt o guuci g tgegkxgtø"y kvj "vj g"vtcpurcvqt"hktuv"cevkpi "cu"c"tgegkxgt"cpf "vj gp"cu"vj g"ugpf gt"qh"c"pgy "\*vtcpurcvqf +"o guuci g"vq"c"pgy "tgegkxgt="j gpeg<"+ugpf gt"3 "o guuci g"3 tgegkxgt"3? vtcpurcvqt? ugpf gt" 4 o guuci g"4 tgegkxgt"4ø0Grcdqtcvkqpu"qh"

y ku'dcuke'uej go g'\{ r kecm\ "dtkpi "kpvq"xkgy "c'pwo dgt"qh'eqpvgzwcn'hgcwtgu'cpf "tgrcvkqpu."cu'y gm'cu'y g"cewcn' vtcpukkkqp"htqo "qpg"uki pkh\ kpi "u\{uvgo "vq"cpqyi gt"dtqwi j v'cdqwv'd\ "y g"tcpurcvqt0"Vj ku'hcwgt "cevkxk\\ ."y g" vtcpurcvkqp"r tqeguu'kugrh "ku"c"o gpvcn'qr gtcvkqp"pqv'qr gp"vq"f ktgev'qdugtxcvkqp0KVj cu'pgxgtyi grguu'dggp" j {r qyi gvkecm\ "tgeqpuvtwevgf ."gur gekcm\ "d\ "r u\{ej qnkpi vkuru."cpf "tgr tgugpvgf "d\ "o gcpu"qh'f kxgtug"f kci tco o cvke" hqto u."o quv'eqo o qpn\ "hqy "ej ctvu0"Y j krg"yj g"kpr wv'\*yj g"uqwteg"wwytcpeg"cpf "ku'tgegr vkqp+"cpf "yj g"qwr wv'\*yj g" i gpgtcvkqp"qh'yj g"vcti gv'wwytcpeg+"vgpf "vq"tgo ckp"uvcdng"kp"yj gug"tgr tgugpvcvkqpu."eqpukf gtcdrg"f kthgtgpegu"gzkuv' gnigy j gtg"co qpi "yj g"f kci tco u'cpf "tghrgev'f kthgtgpv'cuuwo r vkqpu"cdqw'yj g"y c\ "kp"y j kej "yj g"j wo cp"o kpf "r tqeguugu"yj g"uqwteg'\gzv."dtkpi u"cdqwv'c"eqpxgtukqp"qh'qpg"nkpf "qt"cpqyj gt "cpf "eqpuvtwevu"c"pgy "wwytcpeg"kp" yj g"qyj gt"o gf kwo 0

F kci tco u'ctg''cnuq'htgs wgpvn{ 'wugf 'vq'o cr 'c'xctkgv{ 'qh'vgzwcn'hkkcvkqpu.'vgzwcn'cpf 'eqpvgzwcn'tgrcvkqpu'' dgw ggp''uqwteg''cpf 'vcti gv'wwgtcpegu''cpf 'vj g'eqo o wpkecvkxg''tgrcvkqpu'y ky kp''cpf ''dgw ggp''vj g''w q''u{ uvgo u'' kpxqnxgf 0'Y j krg'hrqy ''ej ctw'r wtr qtvkpi ''vq''tgr tgugpv'vj g''tcpurcvkqp''r tqeguu''ugtxg''c'eqi pkxkxg''r wtr qug.''f kci tco u'' qh''\*eqp+vgzwcn'cpf ''eqo o wpkecvkxg''tgrcvkqpu''ctg''o quvn{ ''r gf ci qi kecn''cu''y g{ ''j ki j rki j v'tgrcvkqpu''tgi ctf gf ''cu'' rgi kxko cvg''qdlgevu''qh''tgugctej 0

#### Vtcpurcylpi 'cu'o qf gmlpi

Vtcpurckpi "ecp"dg"uggp"cu"c"o qf gmkpi "cekkxkv{ "kp"vj cv"vj g"tguwnv"qh"vj g"qr gtckkqp. "k0g0vj g"\tcpurcvgf "\vgzv." eqo o qpn("encko u."gzr nkekn("qt"ko r nkekn(."\q"tgr tgugpv'cp"cpvgtkqt"f kueqwtug"kp"c"y c{"eqo r ctcdng"\q"vj g" tgrtgugpvcvkqpcn/hwpevkqp"qh"o qfgnu0Vjku"o cngu"c"vtcpurcvkqp."wpfgt"kxu"curgev"cu"tgrtgugpvcvkqp."c"xkectkqwu" qdlgev."c"uwduvkwwg"qt"cv"rgcuv"c"o gwcygzv0Cnq."rkng"c"o qf gn "c"vtcpurcvkqp"ku"c"f gtkxgf."ugeqpf/qtf gt"r tqf wev." uq"ij cv"ij g"tgncvkqp"dgwy ggp"ij g"tcpuncvkqp"cpf "kxu"r tqvqv{r g"ku"pgkxj gt"u{o o gvtkecn"pqt"tgxgtukdng0O qtgqxgt."c" vtcpurcvkqp"ecp"uvcpf"cu"c"tgrtgugpvcvkxg"qt"uvvduvkvvvg"qh"c"uqvteg"vgzv'qpn{ 'kh"c"\*eqmgevkxg+"uvvdlgev"y km" tgeqi pk g'kv'cu'uwej 0'Kp"qyi gt"y qtf u. "c"\tcpurc\kqp"\yi cv'i qgu"\wptgeqi pk gf "cu'c"\tcpurc\kqp"ku. "hwpe\kqpcm{" ur gcmkpi . "pqv'c "tcpurcvkqp" cv'cm'dgecwug 'kxu'o qf gmkpi "cur gev'tgo ckpu'kpqr gtcvkxg0 Kpxgtugn(. "c'\tcpurcvkqp" y j kej "f qgu"r wtr qtv"vq"tgr tgugpv"c"uqwteg"vgzv"cpf "ku"ceegr vgf "cu"uwej "ku. "hwpevkqpcm{ "ur gcmkpi ."c"vtcpurcvkqp." gxgp'lh'pq'r tqvqv{r g'ecp'dg'lhf gpvlhlgf = 'y ku'lku'y g'ecug'y ky 'uq/ecngf 'RUGWF QVTCP UNCVKQP U0 Kp"eqpvtcuv'vq"o qf gnu. "tcpurcvkqpu"o c{"tgr rceg"cpf "gxgp"f kur rceg"vj gkt"r tqvqv{r gu. "dwv'vj ku'ku"o ckpn{ "dgecwug" vtcpurcvkqp"v{r kecm{ "kpxqrxgu"qpg"qt"o qtg"ugo kqvke"vtcpuhqto cvkqpu."cu"c"tguwrv'qh'y j kej "vj g'uqwteg"vgzv'ku"rghv" cv'y g"qy gt"ulf g"qh"cv'ngcuv'qpg"qh'y gug'ugo lqvle"dcttlgtu"\*g0 0c"pcwtcn'ncpi wci g+"cpf "o c{ "y wu'dgeqo g" kpceeguukdrg'\q'\j qug'qp'\j ku'ukf g'qh'\j g'dcttkgt0'Vj g'o qf gmkpi 'tgncvkqp'kxugm'j qy gxgt'ku'pqv'chhgevgf 'd{ '\j ku0' Cpqyj gt "qdlgevkqp"o ki j v'dg"yj cv"vtcpurcvkqpu. "cu"qr r qugf "vq"o qf gnu. "eqpuvkwwg"qdlgevu"qh"yj g"uco g"qtf gt "cu" yj gkt 'r tqvqv{r gu0J qy gxgt. 'o cp{ 'ewnwtgu'o ckpvckp''yj g''qpvqmi kecn'f kurkpevkqp''d { "cuuki pkpi 'f kthgtgpv'r ncegu'kp" xcnwg"cpf"encuulthecvkqp"u{uvgo u'vq'vtcpuncvgf"kp"eqpvtcuv'vq'pqp/vtcpuncvgf'vgzvu0Vj g'vy q'mkpfu'qh'vgzv'ctg" rkngn( ''vq''dg''tcpi gf 'kp''yi g''uco g'encuu''qpn( 'kp''ewnwtcn'ukwcvkqpu''y j gtg''cm''vgzvu''ctg''r gtegkxgf ''guugpvkcm( ''cu'' vtcpuhqto cvkqpu'qh'qvj gt''vgzvu0Kp''vj qug''ecugu.''vj g''pqvkqpu''qh''vtcpuncvkqp''cpf ''qh'tgncvgf 'hqto u''qh''vgzvvcn' r tqeguukpi "cpf "o qf gmkpi "\gpf "\q"gpeqo r cuu "xkt wcm{ "cm'\gz v'r tqf we kqp0 Y j krg'vpf gt''y gkt''t gr t gugp vc vkqpcn'cpf 't gr t gugp vc vkxg''c ur ge vu''vt cpurc vkqpu''ecp''dg''uggp''c u''crr t qz ko c vkqpu''qh'' yj gkt 'r tqvqv{r gu. 'cm'\tcpumc\kqpu'cnuq'gzj kdkv'eqpvkpi gpv'hgcwxtgu≺c'o cvgtkcn'uwtr nwu'pqv'tgf wekdng'\q'\yj g''

#### O qf gm'cpf 'pqto u

o qf gmkpi 'hwpevkqp0

Vq''y g''gzvgpv''y cv''tcpurcvkpi 'kpxqrxgu''c''r tqeguu'qh'F GEKUKQP 'O CMKPI 'y j kej ''cmgu''r rceg'kp''c'' eqo o wpkecvkxg''eqpvgzv.''y g''cevkxkv{ 'ku''i qxgtpgf ''d{ ''P QTO U0P qto u''o c{ ''dg''tgi ctf gf ''cu''uqekcri'tgi wrcvkqp'' o gej cpkuo u'y j kej ''o cmg''egtvckp''ej qkegu''cpf ''f gekukqpu''d{ ''y g''tcpurcvqt''o qtg''rkngn{ ''y cp''qy gtu0'Vj g{ ''eqpukuv'' qh''y q''r ctvu<''c'f ktgevkxg''cur gev'y j kej ''gzgtvu''r tguuwtg''qp''o go dgtu''qh''c''eqo o wpkv{ ''vq''dgj cxg''kp''egtvckp''y c{ u.'' cpf ''c''-eqpvgpvø''y j kej ''ku''cp''kpvgtuwdlgevkxg''pqvkqp''qh''eqttgevpguu. ''klg0'c''pqvkqp''qh'y j cv'ku''r tqr gt''qt''eqttgev'kp'' r ctvkewrct''ukwcvkqpu0'Dgecwug''pqvkqpu''qh''eqttgevpguu''ctg''cduvtcev'xcnvgu.''o qtg''eqpetgvg''o qf gnu''qh''

eqttgev'dgj cxkqwt"ctg"f gtkxgf "gkxj gt 'f ktgevn{ 'htqo "vj g"xcnwgu"cpf "cwkwf gu"y j kej "o cng"wr "vj g"eqttgevpguu" pqvkqpu"qt 'htqo "kpf kxkf wcn'kpuvcpegu"cpf "qeewttgpegu"y j kej "j cxg"eqo g"vq"dg"tgi ctf gf "cu"gzgo r nkh{ kpi "uwej " pqvkqpu0"Vj gug"o qf gnu. "y j kej "tgr tgugpv'eqttgevpguu"pqvkqpu. "ecp"kp"wtp"ugtxg"cu"r tqvqv{ r gu"vq"dg"ko kxcvgf "cu" gzco r ngu"qh"i qqf "r tcevkeg0"Vj g{ "r nc{ "c"uvtcvgi ke"tqng"kp"yj g"f { pco keu"qh"ewnwtg"kp"yj cv'yj g{ "ctg"ko r nkecvgf "kp" yj g"j kgtctej kecn'uvtwewtg"qh"eqo o wpkxkgu"cpf "kp"yj g"r qy gt"uvtwi i ngu"dgw ggp"kpf kxkf wcnu"cpf "i tqwr u"yj cv'o c{ "gpuwg0

Kp"tcpurckpi ."eqo r ncpeg"y kij "c"ugv'qh"tcpurckqpcn'pqto u'tgi ctf gf "cu"r gtkpgpv'kp"c"i kxgp"ewnwtcn'u{uvgo " o gcpu"yi cv'yi g"r tqf wev."kQ0'yi g"tcpurckqp."ku"hkngn( "vq"eqphqto "vq"yi g"tgngxcpv'yzwcn'qt "f kuewtukxg"o qf gm"u+." cpf "yi gtghqtg"ceeqtf "y kyi "yi g"tgngxcpv'eqttgevpguu"pqkqpu0J qy gxgt."guvcdnkuj kpi "eqphqto kx{"y kyi "tgngxcpv" o qf gmi"qeewtu"pqv'qpn( "cv'yi g"ngxgn'qh'yi g"tcpurckqp"cu"tgr tgugpvckqp."kQ0'yi g"o qf gmkpi "cur gev'qh'yi g" vtcpurckqp."dw"cnq"cv'yi g'ngxgn'qh'ku"eqpvkpi gpv'hgcwtgu."kQ0'yi qug"vgzwcn'gngo gpvu"y j kej "ctg"pqv"f ktgevn( " tgngxcpv'htqo "yi g"r qkpv'qh'xkgy "qh'yi g"o qf gmkpi "hwpevkqp"qh'yi g"vtcpurcvkqp"\*cu"j cr r gpu. "hqt"gzco r ng. "kp" ugngevkpi "uvqr i cr u"kp"c"tj {o kpi "xgtukqp"qh'c"r qgo +0Dqyi "o qf gmkpi "hgcwtgu"cpf "eqpvkpi gpv'hgcwtgu"tgs wktg" yi g"ugngevkqp"qh'egt vckp"o gcpu"qh"gzr tguukqp"kp"r tghgtgpeg"vq"qyi gtu. "y kyi "c"xkgy "vq"cwckpkpi "egtvckp"i qcnu"uvej " cu"hwrhkmkpi "eqpvtcewcn"qdnki cvkqpu."r tqo qvkqp."eqo o gtekcn'uweeguu."etkvkecn'ceencko ="yi ku"ugngevkqp"r tqeguu"ku" i qxgtpgf "d{"pqto u"cpf."dgj kpf "yi go ."d{"o qf gmt'tgr tgugpvkpi "eqttgevpguu"pqvkqpu0

Ukpeg'ewnwtcn'u{ uvgo u'cpf ''uwdu{ uvgo u'ctg'j ki j n{ ''eqo r ngz ''gpvkkgu. ''y g{ ''o c{ ''dg''gzr gevgf ''vq''eqpvckp''c'tcpi g''qh'' eqo r gwpi .''eqphrkevkpi ''cpf ''qxgtmr r kpi ''pqto u'cpf ''o qf gnu''go dgf f gf ''kp'f khhgtgpv'ur j gtgu''qh''cevkxkv{ .''y j kej " yi go ugnxgu'hqto ''r ctv'qh'ej cpi kpi ''j kuvqtkecn'eqphki wtcvkqpu0'Vj g''o qvkxcvkqpcn'cpf ''f ktgevkxg'hqteg''qh''pqto u'cpf ''o qf gnu. ''yi gtghqtg. ''f gr gpf u''qp''yi gkt ''pcwtg''cpf ''ueqr g. ''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''o cti kpcnkv{ .''yi gkt ''tgncvkxg''y gki j v.''yi gkt ''egpvtcnkv{ ''qt''yi g''cumu''qh''yi gkt ''pcwtg'' tcpurcvkqp''uwf kgu''vq''kf gpvkh{ ''r ctvkevrct ''enwuvgtu''qh''vtcpurcvkqpcn''pqto u'cpf ''o qf gnu''cpf ''vq''gzr nckp''yi gkt ''pcwtg'' cpf ''hwpevkqpkpi 0

#### Hwt vj gt 't gcf kpi

Dctwej '3; : 9="F \( \text{PC}\) Cpf tcf g'cpf ''Utcww'3; ; 4="J gto cpu'3; ; 3.'3; ; 5="Rc| wnj kp'3; : 9="Ucej qy kcm'3; 870

VJ GQ'J GTO CP U

# O wnkkpi wcrkto 'cpf 'tt cpurc kqp

Cnj qwi j "dqvj "ctg"y kf gur tgcf "kpygtewnwtcnir j gpqo gpc."o wnkrlpi wcrkuo "cpf "tcpurcvkqp"ctg"pqv"wuwcm(" eqpulf gtgf "kp"eqppgevkqp"y kij "gcej "qvj gt0"Y j gtgcu"o wnkrlpi wcrkuo "gxqngu"vj g"eq/r tgugpeg"qh"vy q"qt"o qtg" repi wci gu"\*kp"c"i kxgp"uqekgv{."\gzv"qt"kpf kxkf wcn+."\tcpurcvkqp"kpxqnxgu"c"undurkwwkqp"qh"qpg"repi wci g"hqt" cpqvj gt0Vj g"tcpurcvkpi "eqf g"pqv"uq"o wej "uwr r rgo gpw"cu"tgr reegu"vj g"tcpurcvgf"eqf g."cpf "tcpurcvkqpu"ctg" tctgn{"o gcpv"vq"dg"tgcf "ukf g"d{"ukf g'y kyj "yj g"qtki kpcn"vgzvu"\*gzegr v"r gtj cr u."kp"c"ercuutqqo "ugwkpi +0"Uwtgn{." Htkgf tkej "UEJ NGKGTO CEJ GTøu"kf gcn"tgcf gt."÷y j q"ku"roo krkct"y kyj "yj g"hqtgki p"repi wci gø"{gv"vq"y j qo "÷yj cv" repi wci g"cny c{u"tgo ckpu"hqtgki pø'\*s wqvgf "kp"Nghgxgtg"3;; 4d<374+."tgo ckpu"vj g"gzegr vkqp."pqv"yj g"twrg"\*ugg" I GTO CP "VTCF kvkQP +0"Hct"htqo "j cxkpi "ku"qtki kp"kp"÷c"egtvckp"cdktx{"hqt"kpvgteqwtug"y kyj "hqtgki p" repi wci guí co qpi "yj g"f wecvgf"r ctv"qh"vj g"r qr wrcvkqpø'\*kdlf 0+."\tcpurcvkqp"ku"vqf c{"o qtg"eqo o qpn{"j grf "vq" ecvgt"vq"o qpqnkpi wcn"tgcf gtu"d{"f kuenqukpi "wpnpqy p"hkgtcwtgu"vq"yj go ."vj wu"ghtgevkxgn{"tguvkevkpi "dktkpi wcn" eqo r gvgpeg"vq"yj g"tcpurcvqtu"yj go ugrxgu0

Vj gtg'ku'cpqvj gt''ugpug'kp''y j kej ''vj g''eqpegr v'ecp''r tqxg''wughwi'vq''tcpurcvkqp''uwwf kgu0Kp''rkvgtct{''r qgvkeu.'' → wwkrkpi wcrkuo ø'uvcpf u'hqt''vj g''wug''qh''vy q''qt''o qtg''rcpi wci gu''y kyj kp''vj g''uco g''vgzv0'Vj qug''rcpi wci gu''ctg''pqv'' cry c{u''-hqtgki pø''j qy gxgt0'Vj g''o gf kgxcri'j cdkv''qh''kpvgtur gtukpi ''xgtpcewrct''r qgvt{''y kyj ''Ncvkp''r j tcugu.''cpf ''vj g'' eqf g''uy kej kpi ''dgwy ggp''Ur cpkuj ''cpf ''Gpi rkuj ''kp''tgegpv'Ej kecpq''y tkkpi ''dqvj ''cvvguv''vq''c''drwttkpi ''qh''rkpi wkurke'' dqwpf ctkgu0O gf kgxcri'Ncvkp.''vj qwi j ''uvtkevn( ''ur gcrnkpi ''pqdqf {øu''o qvj gt''qpi wg.''y cu''o qtg''vj cp''c''f gcf ''qt'' hqtgki p''rcpi wci g''\*\ wo vj qt''3; 85< 46333="

#### Rqgvleu'cpf 1qt 'r qrkvleu

Vj g"gz vgpv'vq"y j kej "repi wei gu"j exg"dggp"r wv'vq"wug"kp"rkvgtewtg"xctkgu"i tgevn{0'Y j krg"y g"r tgugpeg"qh"c"ukpi rg" mqcpy qtf "ecp"y gqtgvkecm{"dg"eqpukf gtgf "c"o kpko cn"tgs wktgo gpv"hqt"c"vgzv"vq"dg"kf gpvkhkgf "cu"o wnkrkpi wen " yi gtg"uggo u"vq"dg"pq"qdlgevkxg"rko ko"Newtgpeg"Uvgtpgøu"Vt kurt co "Uj cpf {"\$3982+"hqt"kpuvcpeg."eqpvckpu"ugxgten" rei gu"qh"Nevkp"f ki tguukqpu0U ku"eqpvgo rqtet {"F gpku"F kf gtqv"kpeqtrqtevgf "gpvktg"wpvtcpurevgf "retei ter j u"qh" Gpi rkuj ."Ur cpkuj "cpf "Kenkep."cu"y gm"cu"qh"Nevkp."kp"j ku"dcy f {"Dklqvz"kpf kuet gw"\\$3969+."vj wu"gej qkpi "Htep±qku" Tedgrekuø'Repvei t wgn'\\$3754+."y j qug"i mquuqrenke"ej etcevgt "Repwti g"teo drgf "qp"kp"pq"rguu"yi cp"yi ktvggp"vqpi wgu." uqo g"qh"yi go "gpvktgn{"ctvkhkeken0

Tgi ctf kpi "vj gug"vgzvu."c"hgy "vj kpi u"ecp"dg"ko o gf kcvgn("r qkpvgf "qw0"Hktuv"qh"cm"vj g"uvwf { "qh"vgzwcn" o wnakrapi wcrłuwo "f qgu "pqv" lipxqnxg" c "enqug" gzco lapcał qp" qh" y j g"y tkagtaju" cewch "ncpi wci g" unakmu. "r ceg" uvcago gpau" a " yj g"ghhgev"yj cv":]v\_j g"cwyj qtøu"qy p"nho kxcvkqpu"pcwtcm{ "eqpuvtckp"yj g"ncpi wci g"qh"yj g"pcttcvqt"cpf "yj cv"qh"yj g" ej ctcevgtu"o quvø'\*Vtcwi qw'3; : 3-343+0"Y tkgtu"j cxg"dggp"npqy p"vq"eqpuwnv'gkvj gt"vj gkt "gpvqwtci g"qt"c"pgctd{" rkdtct{"\*qt"dqyi +:"cpf "r j knqnqi kuxu"uwej "cu"LOTOTOVqmkgp."y j q"f gxkugf "cp"kpi gpkqwu"hkpi wkuxke"u{uvgo "hqt"Vj g" Nqtf "qh'vj g'Tkpi u'\*3; 7667+." \gpf "\q"dg"tctg0Gxgp"kh"c"dkqi tcr j kecn'nkpm'ecp"dg"uj qy p'\q"gzkuv."kv'ku's wguvkqpcdrg" y j gyj gt 'ky'gpj cpegu'qwt 'wpf gtuvcpf kpi 0'F qgu'Ej ctmwg'Dtqpyuøu'uvc { 'kp'Dtwuugnu.'hqt 'kpuvcpeg.'tgcm{ 'gzr rckp'' yj g'tqng''qh''Cf³ ngợu''Htgpej 'kp''Lcpg'G{tg'\*3: 69+A'Ugeqpf. 'y tkkpi ''y cv'o cngu'wug''qh'o qtg''y cp''qpg'hcpi wci g'' f qgu'pqv'pgeguuctkn{ 'r tguwr r qug'c'r qn{ i mqv'r wdnke. "vj qwi j "kwu'f gekr j gtkpi "o qtg"qhvgp" yj cp"pqv'tgs wktgu'uqo g" ko ci kpcvkqp'\*eqo r ctg'Hqtuvgt''3; 92-34635'\q'Dcgvgpu'Dgctf uo qtg''3; 9: < 5''cpf ''Uvgtpdgti ''3; : 3-448+0'Y j krg''k√ pq"f qwdv"cf f u"vq"vj g"r rgcuwtg."qpg"pggf "pqv"mpqy "T wuukcp"vq"gplq { "Cpvj qp { "Dwti guuxu" C"Erqemy qt mQt cpi g" \*3; 84+"qt"Ncvkp"hqt"Wo dgtvq"Geqøu"*Vj g"Pco g"qhl\j g"Tqug"\*Kilpqo g"f gnc"t quc=*"3; : 2+0"Vj ktf."htqo "\j g"xcpvci g" r qkpv'qh'vgz wcn'cpcn{ uku. 'kv'o cwgtu'tgrcvkxgn{ 'nkwrg'y j gyj gt'f kcrgevu. 'urcpi . 'ercuukecn 'pcvkqpcn'qt'kpf ggf'' ct while ken'hepi wei gu'o eng'wr ''yi g'o wnwrkpi wen'ugs wgpegu0'Vj g''ko r cev'\*tj gvqt keen 'uv{ rkuwke. ''gve0+''qh'nkpi wkuwke'' xctkgvkgu'f gr gpf u'cu'o wej ''qp''y g''y c{u'kp''y j kej ''y g{ ''ctg'xkuwcm{ ''go dgf f gf 'kp''y g''qxgt/cm'\gzv'cu''qp''y g'' xcnwgu'cwcej gf "vq"yj go "kp"gzvtc/vgzwcn'\*k0g0tgcn+"uqekgv{0'Ugnh/tghrgzkxkv{ "dgkpi "qpg"qh'yj g"j cmo ctmu'qh' \*o qf gtp+"rkxgtcwxtg."o wnxkrkpi wcrkuo "ku"d{"pq"o gcpu"rko kxgf"vq"vj g"tgr qtvgf"ur ggej "qh"vj g"ej ctcevgtu."dw" crrgctu'lp''y g'pcttcvkxg''cu'y gm'cu'lp'rctw'qh'c''yzv'y cv'guecrg'pcttcvqtkcn'eqpvtqnk'rtghcegu.''vkvrgu'cpf'' grki ter j u'qh'kpfkxkf wen'ej er vgtu. "gzr repevqt { 'hqqvpqvgu'epf 'i mquvetkgu0

Xqnxktgøu''Kpi ² pw'cm'ur gcm'y gkt 'o cuvgtøu'ncpi wci g0'Uko krctn{ .''y g'Nqwkukcpc''Etgqrgu'f gr kevgf 'kp''Mcvg'' Ej qr kpøu''Vj g''Cy cmppkpi '\*3: ; ; +"gej q"[ cpmgg''cuuko krcvkqpkuv'r qrkxkeu.''y gkt''Htgpej ''ceegpv'dgkpi ''÷qpn{ "f kuegtpkdrg''y tqwi j 'kvu'wp/Gpi rkuj ''go r j cuku'cpf ''c''egtvckp''ectghwpguu''cpf ''f grkdgtcvkqpø'\*\*Ej qr kp''3: ; ; 1" 3; : 8 $\le 28 + 0$ 

Vj gtg'ku'pq'pggf 'hqt'nkpi wkuvke''qyj gtpguu'vq''dgeqo g'kpxkukdng.''j qy gxgt0F gur kvg'Tqo cpvkekuo ''cpf ''pcvkqpcn'' wpkhlecvkqp. "Kichcp"y tkigtu"j cxg"tgo ckpgf "pqvqtkqwun("cy ctg"qh"hcpi wci g"fkhlgtgpegu. "htggn("lwz vcr qukpi " tgi kqpcn'cpf "r qr wrct "xctkgvkgu"qh"Kcnkcp"cu"y gm'cu"hqtgki p"vqpi wgu"kp"vj gkt "r qgvt { . "hkevkqp"cpf "f tco c0"Vj gktu"ku" c"o kzgf "hkpi wkurke"j gtkrci g. "hqt"dqyj "r qrkskecn"cpf "ewnwtcn"tgcuqpu<"o wrskrlpi wcrkuo "j cu"dggp" ÷gpf go keø'\*Rceeci pgmc'3; : 5⊲3; +'kp''Kkcn{øu'nkvgtct{"jkuvqt{"ukpeg"yjg"ukzvggpyj"egpwxt{"kh'pqv'ukpeg'Fcpvg0" Cwj qtu'rkng'Tw| | cpvg'cpf ''Vgqhknq''Hqngpi qô yj g'hcyj gt''qh'uq/ecngf "÷o cectqpkeø'xgtugô j cpf gf 'f qy p'c"  $\label{thm:continuous} $$ \tcf kkqp"qh"repi wei g"drgpf kpi "vj ev"j eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ "uegpg"*Ugi tg"3; 9; ="Hqrgpc"3; : 5+0' | left kkqp"qh"repi wei g"drgpf kpi 'vj ev"j eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ "uegpg"*Ugi tg"3; 9; ="Hqrgpc"3; : 5+0' | left kkqp"qh"repi wei g"drgpf kpi 'vj ev"j eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ "uegpg" left kkqp"qh"repi wei g"drgpf kpi 'vj ev"j eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ ("uegpg" left kqp"qh"repi wei g"drgpf kpi 'vj ev"j eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ ("uegpg" left kqp"qh"repi wei g"drgpf kpi 'vj ev") eu"{ gv'vq"xcpkuj 'htqo 'vj g'rksgtct{ ("uegpg" left kqp"qh"repi wei g"drgpf kqp" left kqp" left$ O kpqtkx{"y tksgtu"cnuq"tguqtv"vq"o wnxhrkpi wcrkuo "kp"qtf gt"vq"eqpxg{"yj g"nkpi wkurke"j gvgtqi gpgkx{"qh"yj gkt"ur ggej " eqo o wpkkgu0'Dwikp"cffkkqp"vq"etgcvkpi "c"rqy gthwn'tgcnkv{ "ghhgev."vj g"wug"qh"Htgpej "d{ "Hrgo kuj ."Urcpkuj "d{ " Ecvcrep"cpf 'Gpi rkuj 'd{ ''Htgpej / Ecpcf kep"cwj qtu. 'hqt 'kpuvcpeg. 'wpf gtrkpgu' yj gkt 'f gr gpf gpeg 'qp' yj g'ewnwtg\*u+" yj cv'uwttqwpf "yj go 0"Vj wu. "kp"yj g"pkpgvggpyj "egpwt {."Higo kuj "pcwtcrkuv!E {tkgrl'Dw{uug"cpf "S w² dge"Tqo cpvke" pqxgrkuv'Rj krkr r g'Cwdgtv'f g'I cur²'f kf "o qtg"vj cp"dqttqy "Htgpej "qt"Gpi rkuj "rkpi wkurke"kvgo u="vj g{ "guvcdrkuj gf " cp'kpvgtvgzwcn'f kcnqi wg'dgwy ggp'Hrgo kuj 'cpf 'Hrgpej .'S w² d² eqku'cpf 'Dtkkuj 'ewnwtcn'r cwgtpu'\*I two cp'3; ; 8+."  $tgur\ gevkxgn(0Vp"c"uwf\ \{ "qh"tgegpv"S\ wgdge"y\ tkkpi\ ."Uj\ gtt\ \{ "Uko\ qp"ecmu"uwej\ "kpeqtr\ qtcvkpi\ "qh"vgzwu"cpf\ "kpvgtvgzwu"\ peqtr\ qtcvkpi\ "qh"vgzwu"cpf\ "kpvgtvgzwu"cpf\ "kpvgtvg$ htqo "qyj gt"ncpi wci gu"c" # qgvkeu "qh" vtcpunc wqpø "y j kej . "uj g"cti wgu." #wphqnf u "kp" y g"dqtf gtncpf u "y j gtg" etgc wqp" cpf "tcpuhgt."qtki kpcrkx{ "cpf "ko kxcvkqp."cwj qtkx{ "cpf "uwdo kuukqp"o gti gø'\*3; ; 6∢2+"d{ "wtpkpi "yj g"tgrcvkqpuj kr " y kij "-ihqtgki pø'ewnwtgu'kpvq'c'r qukkxg'eqppgevkqp0

#### O wnklpi werkuo 'tt epure vgf

Vtcpurcvkqpcn'uvtcvgi kgu'kpf ggf "gplq{"c'r tkxkrgi gf "uvcwu'kp"o wnkrkpi wcn'vgzw."cmkp'vq'vj g"o ci ke"qh'hckt{"vcrgu" \*y j gtg"cpko cnu'ur gcm#'cpf "vj g'vgej pqrqi {"qh'uekgpeg'hkevkqp"pqxgnu'\*I qgwej "3; : 9-8465+0'Y j krg"eqphtqpvkpi " tgcf gtu'y krj "vj g'r gewrkctkvkgu'qh'hqtgki p'ur ggej ."cf f gf "vtcpurcvkqpu'etgcvg"c"dwhhgt"| qpg."cu'kv'y gtg."dgw ggp"vj g" ;qvj gtø'rcpi wci g"cpf "vj g"qpg"uj ctgf "y krj "vj g"y tkxgt0"Vj g{"ecp"dg'hqwpf "kp"hqqvpqvgu."dw'ctg"o qtg"qhvgp"vci i gf " qp"vq"vj g"s wqvg'kvugrh0'Eqpukf gt"vj g"uqnwkqp"hqwpf "d{"Ukt"Y cnvgt"Ueqw'kp"Y cxgtrg{"\*3: 36+0'Y j gp"tgs wguvgf "vq" i kxg"j ku'qr kpkqp"qp'vj g"qweqo g"qh'vj g"Iceqdkxg'wr tkukpi ."vj g"r gf cpvke"Dctqp"qh'Dtcf y ctf kpg"ecmu'wr qp'vj g" cwyj qtkx{"qh'c'Tqo cp"j knvqtkcp<

Y j { ."{qw'mpqy ."Vcekwu'uckj "-*Hp't gdwu'dgmkeku'o czko g'f qo kpc wt "Hqt wmpc ø* "y j kej "ku" gs wkr qpf gtcvg"y kij "qwt "qy p"xgtpcewrct "cf ci g.":Nwem'ecp"o ckuv'kp"yj g"o gmggø0

\*Ueqw'3;:7<557+

Y g"ctg"htgg"\q"gkj gt"\unkr "qt"\unqr "\q"t\gcf "\j g"\unkr"\upprygpeg\0D{"\j g"\upprygpeg\0D\"\j g"\upprygp\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\j g"\upprygpeg\0D\"\upprygp\0D\"\upprygpeg\0D\"\upprygp\0D\"\upprygp\0D

Uqo g'w gpwlgyj /egpwt { 'y tkwlpi 'y cu'wq'r ctqf { ."qt"cdcpf qp"cnwqi gyj gt."yj ku'r tcewleg"qh"

f gecpvkpi "eqpvgpv'htqo "qpg'hcpi wci g'\q'cpqvj gt0O qf gtpknv'r qgw'\VUUGrkqv.'G| tc'Rqwpf +'cpf 'pqxgrknw'\Loo gu" Lq{eg+'cmqy gf ''vj g'o clqt 'Gwtqr gcp'hcpi wci gu'\q'r rc{hwn{ 'lpvgtcev'y kj ''gcej ''qvj gt.''y j krg'\y j gkt''cxcpvi ctf g'' eqngci wgu'y gpv'cu'hct''cu'\q'y tkg'htpi wkn\ecm{''j {dtkf ''r qgo u'\Hqtuvgt''3; 92\966; 8\0O quv.'kh'pqv'cm''qh'\y gug'' gzr gtko gpwu'dgur gcm'c'i tqy kpi ''eqpuekqwupguu'qh'hcpi wci g''cu'c''o cvgt\cn'kp''cpf ''qh'kwgth ''pqv'o gtgn{''c''o qwrf'' hqt''y qwi j wu'qt''c''\tcpur ctgpv'o gcpu'qh'hkgtct{''tgr tgugpvc\kqp0F 0 0\Ncy tgpegøu''Y qo  $gp''kp''Nqxg'^*3$ ; 43+'ku'c''ecug'' kp''r qkpv0Y j gp''Wtuwc''Dtcpi y gp''ecmu'\y g'f qo kpcpv'dgj cxkqwt''qh'c''o crg''ecv'-e''nwuv'hqt''dwm{kpi ô c'tgcn'Y kng'' wt''Ocej v0 uq''dcug.''uq''r gw{ $\phi$ 'T wr gtv'Dktnkp''qdugtxgu'\\*Ncy tgpeg''3; 431; 82389+

D{"lqkpkpi "tcpurckqpu"\j cv"j cxg"twej "c"f khtgtgpv"tkpi "kp"Gpi nkuj "{gv"ctg"twr r qugf "\q"o gcp"\j g"tco g"kp"I gto cp" cpf "kp"Htgpej "\*rc "xqrqpv² "f g"r qwxqkt "dgkpi "\j g"gs wkxcrgpv"qh"P kg\ uej gøu"f kg"Y knrg" wt "O cej v+: "Dktmkpøu" eqo o gpv"dgeqo gu"\twn{"o gvcnkpi wkrde "kp"pcwtg0"Y j krg"\j g"j ctuj "I gto cp"tqwpf u"twi i guv"xkqrgpeg."\j g"Htgpej " rcpi wci g"eqphkto u"kul" gpej cpv"hqt"tj gvqtkecn'pkegykgu. "cu"Wtuwr"urtguugu"kp"j gt"tgr n{ <--Uqr j knrtkgutk0 Y j cv"j crr gpu"vq"o wnkthpi wcrkuo "kp"tcpurckqpA"Ceeqtf kpi "\q"J gpt{"Uej qi v"y j q"eqo r ctgf" Y guvgtp" vtcpurckqpu"qh"\j g"Twukcp"ercuukeu."-cu"c"twrg"qpn{"iy g"o ckp"rcpi wci g"qh"\j g"gzv"ku"tgr rcegf."\j g"hqtgki p" grgo gpvu"tgo ckpkpi "wpej cpi gf ø\*3; : -336+0Cpvqkpg"Dgto cp"\*3; : 7d+"qp"\j g"qy gt"j cpf. "ercko u"\j cv"o quv" vtcpurcvqtu"y kn"tcyj gt "tgf weg"\j g"kpvgtnkpi wcn'\gpukqp"hqwpf "kp"\j g"qtk kpcn0Cp"cf f kkqpcn'eqo r necvkqp"ctkugu" y j gp"\j g"\cti gv"tcpi wci g"cewcm("ku"\j g"go dgf f gf "hqtgki p"rcpi wci g"qh"\j g"uqwteg"\gzv\0"kp"j ku"Htgpej "xgtukqp"qh" Vj qo cu'O cppøu"Vj g"O ci ke"O qwpvckpf"\y g"f knkpekqp"dgw ggp"\j g"pcttcqtøu."J cpu"Ecuvqtr øu"cpf "O cf co g" Ej cwej cwal'xqkegu."\p"urkeg"qh"\y g"hcev'\j g"rcev'\j g"rcevt'\j g"rcevt'\y g"rceyt'\y g"crtgcf {"ur qng"Htgpej "kp"\j g"I gto cp"\gzv\"Dgto cp" 3; : 7d<9; 6: 2+0Uwej "hgcvu"ctg"tctg0Wtwcm{."o wnkthpi wcn'\yz wu'wpf gti q"\j g"hcvg"qh"Nqxg" "%cy tgpegg"\j 6: 3; 96432+</td>
""Ncy tgpeg"\j 6: 3; 96432+
"""

Ig'uwku'f øceeqtf 's wg''rc''xqmpv²''f g''r wku'ucpeg''guv's wgns wg''ej qug''f g''xkri'gv'f g''o gus wkp0O cku''cxge'' O kpqw.''eøguv''ng''f² ukt 'f øco gpgt 'egwg''hgo gng''c''wp''² s wkrkdtg'uvcdng''gv'r cthckv.''c''wp''tcrrqtv'' vtcpuegpf cpv''gv'f wtcdng''cxge''ng''o  $\neg$ ng''e² nkdcvcktg0'Vcpf ku''s wg''ucpu''nwk''eqo o g''xqwu''xq{g|...''gnng''guv'' wp''uko r ng''htci o gpv'² i ct²..''wpg''r ctegng''² dqwtkht² g''gv''ur qtcf ks wg''f w''ej cqu0'Eøguv''wpg''xqmpv²''f g'' r qwxqkt.''uk''xqwu''xqwrg|..''gp''r tgpcpv''ë rqwxqkt' ''r qwt''wp''xgtdg0

Cmi\tcegu'qh'hqtgki ppguu'j cxg'dggp'eqpxgpkgpvn\ "gtcugf 0I qpg'ku'P kg\ uej gøu'I gto cp. "cpf 'y kj 'kx."\ y g'' r j kquqr j kecn'i kuv'qh'\ y g''eqpxgtuc\kqp0O qtgqxgt. "\ y g'\ uv\ nkuvke''qr r qukkqp''dgw ggp''Htgpej ''cpf ''Gpi nkuj ''ku'' pgwtcnk\ gf . "y gtg'kv''pqv'hqt ''c''hqqvpqvg''o gpvkqpkpi ''y cv'\ y g''ugeqpf ''rqwxqkt''hki wtgf ''kp''Htgpej ''kp''y g''qtki kpcn'\ ''dw'' uq''f kf ''tcrrqtv'cpf ''y g''gctnkgt'' $xqrqpv^2$ ''f g''rqwxqkt+0'Hkpcm\ . "qpg''gcukn\ "uggu''y j \ ''kp''kpuvcpegu''y j gtg''y g''wug''qh'' cpq\ y gt''ncpi wci g''j cu''r qrkkecn'qxgtvqpgu. "cu''kp''S wgdge. "kw''eqpegcm gpv''kp''\ tcpurc\kqp''r ct\kekr cvgu''kp''y j cv'' Mcyj \ 'O g| gk'ecmu'c''-\ uwdvrg''uwdxgtukqp\ o'\ 3; :: \ 35+"qh'\ y g''uqwteg/ewnwtg''d\ ''f qy pr rc\ kpi ''y g''u\ o dqrke''xcnwg''qh'' y g''qtki kpcn'o wnkrkpi wcrkuo 0

Ugg"cnuq=

DCDGN."VQY GT"QH="KFGQNQI [ "CPF"VTCPUNCVKQP="O GVCRJ QT"QH"VTCPUNCVKQP="UVTCVGI KGU"QH"VTCPUNCVKQP0

#### Hwt vj gt 't gcf lpi

Crgm² gx'3; 97='Cuj etqhv.''I tkhkj u'cpf ''Vkhkp'3; :; ='Dcuupgw'3; : 7d='Gny gtv'3; 82='I cwxkp'cpf ''I two cp'3; ; 8='I kgug'' 3; 83='I two cp'3; ; 2."3; ; 5='J qtp'3; : 3='Mrgkp/Ncvcwf ''cpf ''Y j khkgrf ''3; ; 8='MÃt $\sqrt[3]{4}$ k'3; ; 5='N{qpu'3; : 2='O ctej ''3; : 6=' R³/emi'3; : 3='Tg{gu'3; ; 3='Uctmqpcm'cpf 'J qf i uqp'3; ; 50

TCIP KGT'I TWVO CP

# P

# Pqto cvkxg'b qf gn

Cu'kv'j cu'dggp'eqpegkxgf 'kp''Y guvgtp'ewnwtg. ''tcpurcvkqp''y gqt { 'ku'pqto cvkxg0'Ukpeg'kvu'qtki kpu'kp'Ekegtqøu'' yj gkt 'tgcf gtu'pqv'vq'tgy qtmlhqtgki p''vgz vu'kp''Ncvkp''y qtf 'hqt''y qtf. 'hkng''uncxkuj ''vtcpuncvqtu. 'dwy'htggn{. 'nkng''cp'' qtcvqt'\*cu'Elegtq'uc{u+.''qt'hkng'uqo gqpg'encko kpi 'r tkxcvg'r tqr gtv{ 'kp'r wdnke'i tqwpf '\*cu'I qtceg'uc{u+0' Vtcpurcvqtu'kp''y qug'f c{u'y gtg'y qwi j v'qh'cu'drkpf 'hkgtcrkuvu. 'cpf 'dqyj 'Ekegtq'cpf 'J qtceg'y cpvgf 'vq'y ctp'' r gqr ng"\tcpunc\kpi "qtc\kqpu"qt"nk\gtct{"y qtmu"htqo "I tggm"kpvq"Nc\kp"ci ckpuv"ce\kpi "nkng"\tcpunc\qtuô pqv."kp"qyi gt" y qtf u. ''vq''qdg{ ''vj g''ko r nkekv''tcpurc vkqp''pqto ''dww''vq''f gxgnqr ''c''pgy . ''htggt. ''o qtg''etgc vkxg''pqto 0 Vj gug'lkpunt wevkqpu'y gt g'r kemgf 'wr 'd { 'IGTQO G'\*ugg'<u>NCVKP ''VTCF KVKQP</u>+'kp'j ku'ngwgt 'vq'Rco o cej kwu'\*CF " 5; 7+'cpf 'hwtyi gt 'ct wewrcygf <'y j gtg'Elegtq'cpf 'J qtceg'j cf 'wti gf 'htgg'KO KVCVKQP 'tcyi gt''y cp'y qtf/hqt/y qtf " vtcpurcvkqp. "Igtqo g'eqkpgf" 'y g'qdxkqwu'r qrct" qr r qukwg" 'q'y qtf/hqt/y qtf. "ugpug/hqt/ugpug" 'tcpurcvkqp" 'wgg" HTGG" VTCP UNCVKQP + "cpf "cti wgf "uvtgpwqwun( "hqt"kw"crrtqrtkcvgpguu' "k0g0"pqto cvkxgpguu+"gzegrv"kp" y g"ecug"qh" Uetkr wtg."-y j gtg"gxgp"yj g"y qtf "qtf gt"j qrf u"c"o {uvgt {ø0Cpf "yj g"f kg"y cu"ecuv<kp"yj g"o krgppkwo "cpf "c"j crh" ukpeg"j ku"y tkkpi "tcpurcvqtu"cpf "tcpurcvkqp" yi gqtkuxu"j cxg"hqmqy gf "yi g"ngcf "qh"Ekegtq." J qtceg. "cpf "Igtqo g"kp" cuuwo kpi "pqv'qpn( "'y cv'c'\tcpurcvkqp''uj qwrf 'dg''gkyj gt'hckyj hwrl'qt''htgg."'y qtf/hqt/y qtf ''qt''ugpug/hqt/ugpug. ''dw''y cv'' c'tcpurcvkqp''yi gqt { 'uj qwrf 'vcng'c'uvcpf 'dgwy ggp''yi qug''yy q''gzvtgo gu.'uj qwrf 'vgm'\tcpurcvqtu''j qy 'vq''\tcpurcvg0 ku'f khkewn/hqt "vj g'r tqxgtdkcn'hkuj "vq" cmi'cdqw' vj g'y cvgt "kv'uy ko u'kp0'KV ku'hct "gcukgt "vq" cmi'cdqw' vj qug'hgy " yj gqtkıxu'y j q'f q'pqv'r tguetkdg'pqto u'hqt'\tcpurcvkqp"/qt'y qwrf 'dg.'kh'y g'npgy 'o qtg'cdqw'yj go 0'Vj gtg'ctg'' r cuuci gu'lp'dqqm'vy q'qh'J gtqf qwuø'J kuqt kgu'\*hkhy 'egpwt{'DE+'y cv'f gcn'y ky ''tcpurcvkqp. 'pqvcdn{ 'y g'etgcvkqp'' qh'cp'Gi {r vkcp'kpvgtr tgvgt'eqtr u'cpf 'vj g'vtcpuo kuukqp'qh'Gi {r vkcp'tgrki kqp'vq'I tggeg='dw'dgecwug'J gtqf qwu' pgxgt "vgmu'r gqr ng"j qy "vq"vtcpuncvg. "j g"ku"pqv"vj qwi j v"qh"cu"c "vtcpuncvkqp"vj gqtkuv0"Vj gtg"ctg"cnuq"pqto cvkxg" yj gqtkıru'y j q. ''dgecwug''yj g{ ''r tguetkdg''y j gyj gt''uqo g''yzz'\*pqvcdn{ ''yj g'Dkdrg+'uj qwrf ''dg''tcpurcvgf ''dwv'pgi rgev''vq'' f kuewuu'j qy 'kv'uj qwrf ''dg''\tcpurcvgf.''ctg''pqv''pqto cm{ ''vj qwi j v''qh''cu''\tcpurcvkqp''yj gqtkuvu''gkvj gt<''vj g'y j qrg''f gdcvg'' qxgt "c"xgtpcewrct "Dkdrg"htqo "O nhtke "kp" y g"vgp y "egpwt { "vq"Ukt "Vj qo cu"O qtg"cpf "Y kmkco "V[PFCNG"kp" y g" ukz vggpyj 'ku't grgx cpv'j gt g'\*ugg'<u>DTKKU 'VTCFKKQP</u>+0

Kp'tgegpv'f gecf gu''y ku''cuuwo r wap''y cv'tcpurcwlap''y gqt { "gzkuwu''a "f gxkug''pqto cwkxg'twrgu'hqt''tcpurcwlau''a "hamy "j cu'kpetgcukpi n\" eqo g'wpf gt'hktg."cpf "c'pwo dgt''qh''y gqtkuwu''j cxg''cwgo r wf "va''wmi'cdqww''tcpurcwlap''hp" papr tguetkr wxg''y c\u0007 wg''a 'y g'kpi tckpgf "pcwtg''qh''pqto cwkxg''y kpmkpi "cdqww''tcpurcwlap."'y qy gxgt."'y ku''ku'' gcukgt "uckf "y cp"f qpg0'Ugxgtcn'f khhgtgpv'u\uvgo u''crrtqcej gu''a ''tcpurcwlap''j cxg''dggp''f gxgmr gf. "cwgo r wpi "va'' tceg''kp''f gwcki'y g''cewcn'r tqeguu''qh''tcpurcwlap."'a ''g guetkdg''j qy ''tcpurcwqtu''cewcm\u0007 ''tcpurcwg."'tcy gt''y cp''ymkpi "tcpurcwqtu''y gy ''y g\u0007 ''q''tcpurcwg0'Dw''dgecwug''tgcn'tcpurcwqtu''tcpurcwg''kp''y j cv'ku''r tqdcdn\u0007 ''cp'kphkpkg'' xctkgv\u0007 ''qh'y c\u0007 u'y gqtkgu'r gthqteg'r tqeggf''y tqwi j ''kf gcnk' cwkqp."eqpuwtwewlpi "cp''kf gcn'o qf gn'hqt'' y g''r tqeguu''qh''tcpurcwkqp''y cv'y gp''

dgeqo gu'y g'lo r nekl'pqto .'y j gy gt'dgecwug'y g'y gqtkmu'j cxg'ceegr ygf "r cuv'pqto u'hqt"j qy "tcpurckqp"qwi j v' q'r tqeggf "cpf "tcpuhqto gf "y go "kpvq"o qf gmi'y cv'qpn{ "uggo "f guetkr kxg."qt"dgecwug"y g{ "j cxg"kpvtqur gevkxgn{ "vtcegf "j qy "y g{ "cewcm{ "tcpurcvg"y go ugrxgu"cpf "tcpuhqto gf "y cv'kpvq"÷y go'o qf grihqt"cm'vtcpurcvdp.

Uqo g'u{uvgo u'o qf gm. "r gtj cr u'y g'dguv'npqy p."ctg"rkpi wkurke"cpf "e{dgtpgvke."cko kpi "cv'y g'etgcvkqp"qh'c" y qtmkpi "o cej kpg"vtcpurcvqt="y g{ "vgpf "vq"dwkrf "y gkt"o qf gmi'd{ "kf gcnk kpi "y g'ugpug/hqt/ugpug"vtcpurcvkqp"qh'uq/ecmgf "qtf kpct {/rcpi wci g'vgzvu"\*MQO"pq"r qgvt {."pqvj kpi "o gvcr j qtkecn'qt "qy gty kug'f gxkcpv'qt "f kthkevnr'vq" vtcpurcvq+"hnrg"y gcy gt "tgr qtvuOCu"c"tguvnx "ugpug/hqt/ugpug"vtcpurcvqp"qh'uwej "vgzvu"dgeqo gu"y gkt "ko r nekv" pqto ."cp"ko r necvkqp"y cv'dgeqo gu"gxkf gpv'y j gp"r tg/gf kkpi "qt"y tkkpi "UN"vgzvu"ur gekhkecm{ "hqt "y g'eqo r wygt" dgeqo gu"pgeguuct { "%cpf "kv'cmo quv'cny c { u"f qgu+ODgecwug"y g"eqo r wyt"ecp"qpn{ "r tqeguu"c"egtvckp"mkpf "qh" f kuco dki wcygf "r tqug. "y g'r gqr rg'y j q"etgcvg"vgzvu"vq"dg"vtcpurcvgf "o gej cpkecm{ "ctg"vtckpgf "vq"y tkwg"qt"gf kv" y go "hqt"y g"eqo r wygt."vq"o cng"y gkt"y tkkpi "eqphqto "vq"c"ugv'qh'eqpxgpvkqpu"f gxgnqr gf "htqo "pqto cvkxg" j wo cp"vtcpurcvkqp"hqt"pqto cvkxg"eqo r wygt"vtcpurcvkqp0

 $Qvj\ gt"u\{uvgo\ u"o\ qf\ gnu."rkng"T0\ ODcvj\ i\ cvgøu."J\ cpu"Xgto\ ggtøu."cpf\ "Lwuvc"J\ qn!\ /O\ @pw@køu."ctg"uqekqnqi\ kecn'' lender of\ gnu."ctg"uqekqnqi\ lender of\ gnu."ctg"uqekqnq$ tcj gt"j cp"e{dgtpgvke"cpf "hqewu"qp"j g"vqvcn'uqekcn'cev'qh'vtcpurcvkqp."kpenwf kpi "j g"uqekcn'uegpg"kp"y j kej "j g" vtcpurcvkqp'ku'pggf gf. 'vj g'eqo o kuukqp'\*y j q'y cpw'kk'f qpg'cpf 'y j {."cpf 'd{ 'y j gp."cpf 'j qy 'o wej 'vj g{ 'y km'r c{ " cpf "j qy ."y j q"eqpvcewi"j g"tcpurcvqt"cpf "d{"y j cv'ej cppgniô ugg"<u>UMQRQU"VJ GQT[</u> +:"y g"tcpurcvqtøu" tgugctej "\*kpenwf kpi "vj g"wug"qh"tghgtgpeg"o cvgtkcnu"cpf "r j qpg"ecmu"vq"gzr gtwu. 'vj g"cewcn"r tqf wevkqp"qh"c"VN" vgzv. 'kw'f kuugo kpcvkqp. 'cpf 'uq'qp0'Qpeg'ci ckp. 'j qy gxgt. 'vj gug'f guetkr vkxg'u { uvgo u'ctg'dcugf 'qp'kf gcn'o qf gnu' yj cv'd { "f ghkpkkqp" tgi wrcvg" xctkcdrgu" cpf "vj wu" gzenwf g"c" i tgcv" f gcn'qh' cewcn' vtcpurcvkqp" r tcevkegô cpf "vj ku" ku" ci ckp'ko r nkekn{ "pqto cvkxg."cu'ku'r gtj cr u'dguv'kmwuvtcvgf "y j gp"vj gug"o qf gnu'ctg"vtcpuhqto gf "kpvq"r gf ci qi kecn" rtqitco o gu01Ki'yi g''u{uvgo u''yi gqtkuv'fgvgto kpgu''yi cv'yi g''vqvcn'cev'qh''vtcpuncvkqp''kp''kvu''uqekcn'eqpvgzv'rcuugu'' yj tqwi j "yj g"uwci gu"qh"\gz wcn"cpcn{ uku"cpf "tgugctej ."yj gp"c"\tcpurcvqt"\tckpkpi "r tqi tco o g"dcugf "qp"\yj cv\yj gqt{" y km'vgcej "cm'qh'kxu'uwxf gpvu'vq"f q"vgz wcn'cpcn( uku'cpf 'tgugctej . "cpf 'c'vtcpurcvqt 'y j q'i tcf wcvgu'htqo 'vj cv' rtqitco o g"cpf "vj gp"f qgupøv"f q"vgz wcn"cpcn (uku"cpf "tgugctej" y km"uggo "vq"dg"f gxkcvkpi "htqo "vj g"pqto 0 Qpg"qh"yj g"o quv"r qr wrct "uej qqnu"qh"u{ uvgo u/qtkgpvgf "\tcpurcvkqp"yj gqt { 'kp'tgegpv"f gecf gu"j cu"dggp" RQN[U] UVGO "VJ GQT[."yjkej "uggmu"\q"dtgcm"cyc{"htqo "vjg"pqto cvkxg"o qfgn"d{"uvwf{kpi "vjg"eqphrkevkpi" uqekq/kf gqrqi kecn'u{uvgo u'i qxgtpkpi 'vj g'r tqf wevkqp''cpf 'kpvgtr tgvcvkqp''qh''vgzvu'kp''vj g''UN''cpf 'vj g''VN0'kp'' eqpvtcuv'y kyj "vj g"o qtg"qxgtvn( "pqto cvkxg"uwxf { "qh"vj g"kf gqmi { "qh"vtcpurcvkqp"kp"Tqo cpvke"cpf "r quv/Tqo cpvke" yj gqtkguô pqvcdn{.'kp''yj g'r cuv'hgy "{gctu.''yj qug'd{''Cpvqkpg'DGTOCP'kp''Htcpeg''\*ugg'<u>'HTGPEJ''VTCFKVKQP</u>+.'' Ncy tgpeg'Xgpwk'cpf 'Vglcuy kpk'P ktcplcpcô y j kej '\gpf '\q'r tkxkrgi g'\j g'UN'ewnwtg'cpf 'r tguetkdg'hqtgki pkuo " qt"hkygtchuo."rqn{u{uvgo "yi gqt{"\gpfu"\q"rtkxkrgi g"yi g"VN"ewnwtcn'u{uvgo."kpukuvkpi "yi cv'yi g"\cti gv'u{uvgo "y km" pcwtcm("cwgo r v'vq'hkv'c'\gzv'kv'ko r qtwl'kpvq'kwl'qy p'tgki pkpi "P QTO U0'Vj qwi j "vj ku'ci ckp'uj qy u'vtcegu'qh" pqto cvkxg" y kpmkpi ."r qn{ u{ uvgo "y gqt { "j cu"d { "cpf "ncti g"dggp" tgo ctncdn{ "uweeguuhwn'kp" uj cmkpi "qhh' y g"qnf " pqto cwxg"o qf gn0

D{"pq"o gcpu"cm'\tcpurc\kqp"\yi gqtkı\nu"ctg"cwgo r \kpi "\q"dtgcm'\htgg"\qh'\yi g"pqto c\kxg"o qf gn"\yi qy gxgt='\kpf ggf "\kv" tgo c\kpu"cu"f ggr n\{"gp\tgpej gf "cu"\kv'gxgt"\y cu."cpf "\tgi wrctn\{"\kphqto u"y tk\kpi "qp"\tcpurc\kqp"\kp"cm'\yi g"dguv" lq\tpcn\O'Uqo g"pqto c\kxg"\yi gqtkı\nu"f g\kpf "\yi g"o qf gn'\tvc\wpej n\{"cpf "ej cmgpi g'\yi gkt"cp\kpqto c\kxg"\eqngci wgu'\q" r tqf weg"\unv\khec\kqpu"\hqt"\yi gkt"cvcemu"\qp"\k\O'Uqo g"\qh'\yi gug"\unv\khec\kqpu"ctg<

''y cv'kv'ku'tgf wevkxg.''tguvtkevkxg.''y cv'kv'dmemu''vtcpurcvqtuø'ceeguu''vq''o cp{ ''htwkshwrl'o qf gnu''cpf ''crrtqcej gu'' y cv'o ki j v'dg''wughwrlkp''c''y kf g''xctkgv{ ''qh''cewcrl'ecugu

''y cv'kv'ku'r cvgtperkuvke.''deugf ''qp''y g''euuwo r vkqp''y cv'vtepurevqtu'f qpøv'mpqy ''y j cv'y g{øtg'f qkpi ''epf 'j exg'' vq''dg''vqrf ''d{ ''y gqtkuvu

"'y cv'kv'uvtguugu''y g'pgi cvkxg. 'y j gtg''vtcpurcvqtu''y gpv'y tqpi .'i gpgtcvkpi 'tgxkgy u'qh''vtcpurcvkqpu''y cv'o ckpn(" nkuv'j qy ngtu''cpf ''vtcpurcvkqp''ugo kpctu''y cv'f go qtcnk g''uvwf gpvu''d { ''j ctr kpi ''qp''y gkt''gttqtu. 'tcyj gt''y cp''

gzr mtkpi ''y g'kpvgtr tgvkxg''r tqeguugu''y cv'ngf ''\*uwwf gpv'cpf ''r tqhguukqpcn+''vtcpuncvqtu''vq'ej qqug''y g'y qtf u''cpf ''
r j tcugu''y g{ ''f kf

Ukm''y g'pqto cvkxg''o qf grif qgu'i q''qp."cpf "gxgp''y qug''vtcpurcvqtu''y j q'f kurkng''y gqt { ''dgecwug''qh'kku''r cvgtpcrkuo '' cpf ''pgi cvkxgpguu''eqpvkpwg''vq''etcxg''cf xkeg''cpf ''kpuvtwevkqp''htqo ''pqto cvkxg''y gqtkuvu0

#### Hwt vj gt 't gcf kpi

FQW NCUTQDR UQP

# Pqto u

Vj g"pqvkqp"qh"-pqto uø'y cu"hktuv"kpvtqf wegf "d{" 'y g"Kutcgrk"uej qrct" I kf gqp" Vqwt { "kp" y g"rcvg" 3; 92u" vq" tghgt" vq" tgi wctkvkgu"qh" vtcpurcvkqp" dgj cxkqwt" y ky kp"c" ur gekhke "uqekqewnwtcn" ukwcvkqp" ugg" Vqwt { "3; 9: ." tgr tkpvgf "kp" Vqwt { "3; 2c+0" Vj g"eqpegr v"r tqxgf "kphrwgpvkcn" wtkpi "y g"3; : 2u"cpf "3; ; 2u"cpf "j cu"uwr r qtvgf "y g"o quv"cevkxg" tgugctej "r tqi tco o g"kp" vtcpurcvkqp" uwwf kgu" vq"f cvg0" cp { "uwwf kgu" dcugf "qp" y g"kpxguvki cvkqp" qh" pqto u"j cxg" dggp" wpf gtvcngp" kp" tgrcvkxgn { "tgegpv" { gctu="c"tgr tgugpvcvkxg" ugrgevkqp" ecp" dg" hqwpf "kp" \nablacti g\nu" y g" kpvgtpcvkqpcn" lqwtpcn "gf kyf" d { "Vqnt { "cpf "r wdrkuj gf" ukpeg" 3; : ; "d { "Lqj p" Dgplco kpu0" }

### J knyt lec n'epf 'tj gqt gwlec n'd ceni t qwpf

Vj g'ko r gww'hqt''Vqwt {øu'y qtm'kpenwf kpi 'j ku'pqvkqp''qh'pqto u.'eco g'htqo ''y g'RQN[ U UVGO 'crrtqcej '' f gxgqr gf 'kp''y g''gctn{ ''3; 92u'd { 'j ku'eqmgci wg'Kco ct'Gxgp/\ qj ct0Rtkqt''vq''y g''f gxgqr o gpv'qh''y g''r qn(u { uvgo '' crrtqcej .''uwwf { kpi ''vtcpurcvkqp''qhvgp''eqpuknvgf ''qh''cp''gxcnwcvkxg''eqo r ctkuqp''qh'uqwteg''cpf ''vcti gv''vgxu.''kp'' kuqrcvkqp'htqo ''dqy ''y g''uqwteg''cpf ''vcti gv''eqpvgxu''qh'inkytct { ''r tqf wevkqp0Gxgp/\ qj ctøu'y qtm'ghhgevgf ''c'uj khv'' cy c { 'htqo ''y ku''vgcw gpv'qh''vtcpurcvgf ''vgxu''cu'kuqrcvgf ''gngo gpvu''cpf ''vqy ctf u'c''j kuvqtkecn'cpf ''uqekcn'' wpf gtuvcpf kpi ''qh''y g'y c { ''y g { 'hwpevkqp''eqngevkxgn{ .''cu''c'uwd/u{uvgo ''y kyi kp''y g''vcti gv''nkytct { ''u{uvgo 0Qpg''qh'' vj g''o ckp''cej kgxgo gpvu''qh''r qn{u{uvgo ''y gqt { ''y gp''j cu''dggp''vq''uj khv''cwgpvkqp''cy c { 'htqo ''y g''tgrcvkqpuj kr '' dgwy ggp''kpf kxkf wcn'uqwteg''cpf ''vcti gv'\ygzvu''cpf ''vqy ctf u''y g''tgrcvkqpuj kr u'y j kej ''gzkuv'co qpi ''y g''vcti gv'ygzvu'' vi go uenxgu0

Crctv'htqo 'f ktgevkpi 'cwgpvkqp'vqy ctf u'vtcpurcvgf 'vgzw'cu'c'dqf { 'qh'rkvgtcwtg'y qtyj 'kpxguvki cvkpi 'kp'kw'qy p'' tki j v.'vj gtg'ctg'qvj gt''cur gevu''qh''vj g'r qn{u{uvgo ''crrtqcej .''cpf 'Gxgp/\ qj ctøu''y qtm'kp''i gpgtcn''y j kej ''r tgrctgf''  $\label{eq:continuity} \textbf{y} \textbf{ g''} \textbf{i} \textbf{ tqwpf''} \textbf{hqt''} \textbf{Vqwt} \\ \textbf{(} \textbf{\textit{y}} \textbf{u''} \textbf{eqpegr v'qh''} \textbf{pqto u''} \textbf{cpf''} \textbf{y} \textbf{ g''} \textbf{tgugctej''} \textbf{o} \textbf{gyj} \textbf{qf} \textbf{qqqi} \\ \textbf{(} \textbf{'y} \textbf{j} \textbf{kej''} \textbf{j} \textbf{g''} \textbf{j} \textbf{cu''} \textbf{ukpeg''} \textbf{rcwpej} \textbf{gf''} \textbf{wpf} \textbf{gt''} \textbf{y} \textbf{g''} \textbf{g'$ wo dtgmc"qh":F guetkr vkxg"Vtcpurcvkqp"Uwfkguø"qt"F VU"hqt"uj qtv0"Vj gug"kpenwf g"cp"gzr nkek/tghwucn'vq"o cmg"c" r tkqtk'uvcvgo gpvu'cdqwv'y j cv'tcpurcvkqp'ku. 'y j cv'kv'uj qwrf ''dg. ''qt ''y j cv'mkpf u''qh'tgrcvkqpuj kr ''c''vtcpurcvgf ''vgzv'' uj qwrf "j cxg"y kij "kuu"qtki kpcn="cp"kpukuvgpeg"qp"gzco kpkpi "cm"\tcpurcvkqp/tgrcvgf "kuuvgu"j kuvqtkecm{ ."kp"\gto u"qh" yj g'eqpf kkqpu'y j kej "qr gtcvg'kp"yj g'tgegkxkpi "ewnwtg"cv'cp{ "r qkpv'kp"vko g="cpf "cp"kpvgtguv'kp"gzvgpf kpi "yj g" eqpvgzv'qh'tgugctej "dg{qpf 'vj g'gzco kpcvkqp'qh'vtcpurcvgf 'vgzvu. 'kp'r ctvkevrct 'vq'kpenvf g'gzco kpkpi 'vj g'  $gxcnwcwlxg"y\ tkwlpi\ "qp"tcpurcwlqp." hqt"gzco\ r\ ng"r\ tghcegu." tgxkgy\ u. "tghrgevkxg"guuc \{u. "cpf\ 'uq"qp0\ twlpi' tghrgevkxg"guuc \{u. "c$ Vcmkpi 'j ku'kpur ktevkqp'htqo 'vj g'y qtm'qh'Gxgp/\ qj ct. "Vqwt { 'ku'r tko ctkn { 'kpvgtguvgf 'kp'o cmkpi 'uvevgo gpvu'cdqwv' y j cv'tcpurcvkqp''dgj cxkqwt''eqpukuwu''qh'\*tcyj gt''yj cp''y j cv'kv''*uj qwrf* ''eqpukuv'qh+0O qtgqxgt.''i kxgp''yj g''u{uvgo ke'' htco gy qtm'y j kej 'r tqxkf gu'y g'y gqtgwecn'dcuku'qh'j ku'y qtm'y gug'uvcvgo gpvu'ecppqv'eqpukuv'qh'c'tcpf qo " ugrgevkqp"qh"qdugtxcvkqpu0"Vjg{"jcxg"\q"\crng"\jg"hqto "qh"igpgtcnkt cvkqpu"crrnkecdrg"\q"c"rctvkewrct"encuu"qt"  $uwdencuu''qh''rj\ gpqo\ gpc''cpf\ ''q''dg''+kpvgtuwdlgevkxgn{ ''vguvcdng} \#Vqwt{ ''3;; 7.5+0'Vqwt } \#u''pqvkqp''qh''pqto\ u''$ rtqxkf gu'j ko 'y kij 'c'f guetkr vkxg'ecvgi qt { 'y j kej 'gpcdrgu'j ko 'vq'o crrg'r tgekugn( 'uwej 'pqptcpf qo .'xgtkhkcdrg'' uvcvgo gpvu'cdqwi'v{r gu'qhi'vtcpurcvkqp''dgj cxkqwt0Tcyj gt''vj cp''cwgo r vkpi 'vq''gxcnwcvg''vtcpurcvkqpu.''vj g'hqewu''j gtg'' ku'qp'kpxguvki cvkpi 'vj g'gxcnvcvkxg''{ ctf uvkem'vj cv'ku'vvugf 'kp'o cmkpi 'uvcvgo gpvu'cdqvv'vtcpurcvkqp'kp'c'i kxgp'' uqekqewnwtcn/eqpvgzv0

kpygto gf kcyg'igxgn'idgwy ggp":eqo r gygpego'cpf ":r gthqto cpego'Eqo r gygpeg'ku'yi g'iyxgni'qh'if guetkr vkqp'y j kej " cmyy u'yi g'yi gqtkuv'yq 'ikuv'yi g'kpxgpyqt { "qh'iqr vkqpu'yi cv'ctg"cxckredng"\q" \tcpurcvqtu'kp"c'i kxgp"eqpygzv0' \textbf{Rgt hqt o cpeg'eqpegtpu'yi g'uwdugv'qh'qr vkqpu'yi cv'vtcpurcvqtu'cewcm("ugngev'kp"tgcn'ikhg0Cpf "pqto u'ku'c'hwtyi gt" uwdugv'qh'uwej "qr vkqpu-"yi g{ "ctg"yi g'qr vkqpu'yi cv'vtcpurcvqtu'kp"c'i kxgp"uqekq/j kuvqtkecn'eqpygzv'ugngev'qp"c" tgi wrct "dcuku0Yy j cv'Vqwt { "j cu'f qpg"yi gp"ku'vq"cmg"yi g'f wcrkuo "eqo o qp"kp"o ckpuvtgco "rkpi wkurkeu"cv'yi g"vko g" "eqo r gygpeg"cpf "r gthqto cpeg"kp"P qco "Ej qo um(øu'vgto u."qt"rcpi wg"cpf "r ct qrg"kp"Hgtf kpcpf "f g"Ucwuuvtgøu" yto u+"cpf "kpvtqf weg"cp"kpvgtngxgn'y j kej "cmqy u'j ko "vq"kpxguvki cvg"y j cv'ku'v(r kecn'tcyi gt'yi cp"uko r n("y j cv'ku'qt" y j cv'ecp"dg0Vj ku'kpvgtngxgn'qh'pqto u'gpcdngu'yi g"cpcn(uv'vq"o cng"ugpug"qh'dqyi "yi g"tcy "f cvc"qh'r gthqto cpeg" cpf "yi g'kf gcnk gf" r qygpvkcn'qh'eqo r gygpeg0

Vj g"pqvkqp"qh"pqto u"cuuwo gu"yi cv"yi g"vtcpurcvqt"ku"guugpvkcm("gpi ci gf "kp"c"F GE KURQP "O CMRP I "rtqeguu0' Vqwt {"\*3; ; 7+"hwtyi gt"uwi i guwu"yi cv"dgkpi "c"vtcpurcvqt"kpxqnxgu"r rc {kpi "c"uqekcn"tqng."tcyi gt"yi cp"uko r n{" vtcpuhgttkpi "r j tcugu"cpf "ugpvgpegu"cetquu"c"hipi wkuke"dqwpf ct {0"Vj g"vtcpurcvqt"hwhku"c"hwpevkqp"ur gelkhlgf "d{" vj g"eqo o wpkx{"cpf "j cu"vq"f q"uq"kp"c"y c{"vj cv"ku"eqpukf gtgf "crrtqrtkcvg"kp"vj cv"eqo o wpkx{0Ces wktkpi "c"ugv"qh" pqto u"hqt"f gvgto kpkpi "y j cv"ku"crrtqrtkcvg"vtcpurcvkqpcn"dgj cxkqwt"kp"c"i kxgp"eqo o wpkx{"ku"c"rtgtgs wkuksg"hqt" dgeqo kpi "c"vtcpurcvqt"y kyi kp"vj cv"eqo o wpkx{0J qy gxgt."Vqwt{"j cu"cny c{u"uvtguugf "vj cv"pqto u"ctg"c"ecvgi qt{" qh"f guetkr vkxg"cpcn(uku"cpf "pqv."cu"yi g"vgto "o ki j v"ko r n{."c"rtguetkr vkxg"ugv"qh"qr vkqpu"y j kej "ctg"yi qwi j v"d{"vj g" cpcn(uv"qt"uej qrct"vq"dg"f guktcdng0Qpg"kf gpvkhkgu"pqto u"qh"vtcpurcvkqpcn"dgj cxkqwt "d{"uwwf {kpi "c"eqtr wu"qh" cwj gpvke"vtcpurcvkqpu"cpf "kf gpvkh{kpi "tgi wrct"r cvygtpu"qh"vtcpurcvkqp."kpenwf kpi "v{r gu"qh"uxtcvgi kgu"yi cv"ctg" v{r kecm{"qr vgf "hqt"d{"y g"vtcpurcvqtu"tgr tgugpvgf "kp"yi cv"eqtr wu0

 $Vqwt \{ \text{'*3}; 9: 13; : 2c < 7569 = 3; ; 7 < 78683 + \text{'f knewnugu''y} tgg''v \{ \text{r gu''qh''v tcpurc v kqpcn'pqto u c'kpk kcn'pqto u.''r tgnko kpct } \{ \text{"pqto u'cpf ''qr gtc kqpcn'pqto u0} \}$ 

Vj g'**lpkkcripqto** 'kp''tcpurcvkqp'kpxqrxgu'c''dcuke''ej qkeg''dgw ggp''cfj gtkpi ''vq''y g''pqto u'tgcrk gf 'kp''y g''uqwteg'' vgzv'\*y j kej 'tghrgev'y g''pqto u'qh''y g''uqwteg''rcpi wci g''cpf ''ewnwtg+''cpf ''cfj gtkpi ''vq''y g''pqto u'r tgxcrgpv'kp''y g'' vcti gv'ewnwtg''cpf ''rcpi wci g0'Cfj gtgpeg''vq''uqwteg''pqto u'f gvgto kpgu'c''tcpurcvkqpøu''cf gs wce{ ''y kj 'tgur gev'vq'' y g''uqwteg''ygzv=''cfj gtgpeg''vq''pqto u''qtki kpcvkpi ''kp''y g''vcti gv'ewnwtg'f gvgto kpgu'kvu'ceegr wcdktk{ ''y ky kp''y cv'' ewnwtg0'\*Eh0'y g''o qtg''r qrkvkek gf ''pqvkqpu''qh'hqtgki pk kpi ''cpf''f qo guvkecvkpi ''uvtcvgi kgu=''UVTCVGI KGU''QH'' VTCP UNCVKQP+0

Rt grło łpct { 'pqto u'eqpegtp''y g''gzkuvgpeg''cpf 'pcwtg''qh''c''tcpurcvkqp''r qrke { '\%kp''vgto u''qh''y g''ej qkeg''qh''uqwteg'' vgzv'.\{ r gu. 'l\pf kxkf wcrl'uqwteg''vgzvu. 'cwnj qtu. ''uqwteg''rcpi wci gu. ''gve0+''cpf ''y g''f ktgevpguu''qh''tcpurcvkqp. ''k\g0'c'' r ctvkewrct ''uqekgv\{ øu''qrgtcpeg''qt''kpvqrgtcpeg''vqy ctf u''c''tcpurcvkqp''dcugf ''qp''c''vgzv'kp''cp''kpvgto gf kcvg''rcpi wci g'' tcyj gt''y cp''qp''yj g''uqwteg''rcpi wci g''vgzv0

Cpf "hkpcm(."qr gt c vkqpcnipqt o u'eqpegtp" f gekukqpu" o cf g" f wtkpi ."tcyj gt "yj cp" r tkqt "vq." yj g" cewcnicev" qh" vtcpurcvkqp0" Vqwt { "f kuewuugu" yq "v(r gu" qh" qr gtcvkqpcnipqto u<" c+" o cvt kelcnipqto u." yj kej "j cxg" vq" fq" ykj "yj g" yc { "vgz wcni' o cvt kcniku" f kurtkdwgf." jq y" o wej "qh" yg" vgz v" ku" vtcpurcvgf." cpf "cp { "ej cpi gu" kp" ugi o gpwckqp." hqt" gz co r ng" cu" c" tguwn v" qh" ncti g" uecng" qo kuukqpu. "cpf" v" d+" vgz vwc n' npi wku ke" pqto u." yj kej "eqpegtp" yj g" ugngevkqp" qh" ur gelthe "vgz wcni' o cvgt kcni' vq" hqto wrcvg" yj g" vcti gv' vgz v' qt "tgr nceg" r ct vke wrct "ugi o gpwu" qh" yj g" uqwteg" vgz v0

Vtcpurcvkqpcni' pqto u" ecp" dg" kpx gurki cvgf" wukpi "yq" o ckp" uqwtegu "vgz wcni' uqwtegu." pco gn(" yj g" vtcpurcvkqp" lp" yj go ugnx gu." cpf "gz vtc vgz wcni' uqwtegu." klg0' yj gqt gykecni' cpf" et kkecni' ucvgo gpwu" o cf g" cdqw' vtcpurcvkqp" lp" i gpgtcni'qt" cdqw' ur gelthe "vtcpurcvkqpu0

## $Dg\{qpf'Vqwt\{\not au'y\ qt\ m$

Kp'tgegpv'{ gctu. "c'pwo dgt "qh'uej qrctu'j cxg'cwgo r vgf "vq'gzr mtg'uqo g'qh'vj g'vj gqtgvkecn'cur gewi'qh'vj g'pqvkqp"qh" pqto u. "o crkpi "c'f kuvpevkqp"kp'vj g'hktuv'kpuvcpeg'dgw ggp"pqto u'cpf "eqpxgpvkqpu"cpf "vj gp"dgw ggp"eqpuvkwvkxg" cpf "tgi wrcvqt { "pqto u'\*Ej guvgto cp"3; ; 5="J gto cpu"3; ; 3c."3; ; 5."3; ; 8="P qtf"3; ; 3d."3; ; 9+0'Vj g'f khhgtgpeg" dgw ggp"pqto u'cpf "eqpxgpvkqpu"ku'vj cv'vj g'rcvgt "ctg'pqv'dkpf kpi "cpf "qpn("gzr tguu'r tghgtgpegu0'kp'vgto u'qh'vj g" f kuvkpevkqp"dgw ggp"eqpuvkwvkxg'cpf "tgi wrcvqt { "pqto u."vj g'hqto gt"eqpegtp"y j cv'ku'qt'ku"

pqv'ceegr vgf "cu'vtcpurcvkqp" "cu'qr r qugf "vq" cf cr vcvkqp. 'hqt 'kpuvcpeg+. "cpf "vj g" hcwgt "eqpegtp" vtcpurcvkqp" ej qkegu 'cv' Ej guvgto cp"\*3; ; 5+"cwgo r w'vq"tghkpg"yj g"pqvkqp"qh"pqto u"hwtyj gt"d{ "f kuvkpi wkuj kpi "dgw ggp"r tqhguukqpcn" pqto u'cpf "gzr gevcpe { "pqto u0 **Rt qhgurlqpcripqt o u**'go gti g'htqo "eqo r gvgpv'r tqhgurlqpcri'dgj cxkqwt "cpf "i qxgtp" yj g"ceegr vgf "o gyj qf u"cpf "uvtcvgi kgu"qh"yj g"vtcpurcvkqp"r tqeguu0Vj g{ "ecp"dg"uvd/f kxkf gf "kpvq"yj tgg"o clqt"v{ r gu<" ceeqwp w dkts { 'pqt o u'ctg'gyj kecn'cpf 'ecm'hqt'r tqhguukqpcn'uvcpf ctf u'qh'kpvgi tk { 'cpf 'vj qtqwi j pguu=' eqo o wplecvkqp'pqto u' & tg''uqekcn'cpf''go rj cuk g''yj g''tqpg''qh''yj g''tcpurcvqt''cu''c''eqo o wplecvkqp''gzr gtv=""t gre vkap 'pato u'ctg'rkpi wkuke "cpf "tgs wktg' vj g' vtcpurc vqt "vq "guvcdrkuj "cpf "o ckp vckp" cp "crrt qrt kcvg "tgre vkap" dgwy ggp 'uqwteg 'cpf '\cti gv\\gz \u'qp '\j g 'dcuku'qh'j kulj gt 'wpf gtu\cpf kpi 'qh'\j g 'kp\gp\kqpu'qh'\j g 'qtki kpcn'y tk\gt 1 eqo o knukqpgt. "yj g'r tqlgevgf "tgcf gtuj kr "cpf 'yj g'r wtr qug 'qh'yj g'vtcpurcvkqp" \*kdkf 0.5: ó; +0 Gzr gewcpe{ 'pqto u'+ctg" guvcdrkuj gf "d{ "vj g"tgegkxgtu"qh"vj g"tcpurcvkqp. "d{ "vj gkt"gzr gevcvkqpu"qh"y j cv"c"vtcpurcvkqp" "qh"c"i kxgp"v{r g+"  $uj \ qwf \ "dg'rkng."cpf \ "y \ j \ cv'c"pc\ kxg"\ yz\ v'\ "qh'c''i \ kxgp"\ v' \ r \ g+\ "kp"\ y \ g'\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'\ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ wci \ g''uj \ qwf \ "dg''nkngø'' \ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ "kdkf 0''; \ +0\ "kp" \ "y \ g''\ vcti \ gv'ncpi \ "y \ g''\ vcti \ gv'ncpi \ "y \ g''\ vcti \ g$ cwgo r whoi "vq"eqphqto "vq"yi g"gzr gevcpe { "pqto u"qr gtc/wpi "kp"c"i kxgp"eqo o wpk/{ ."c"/tcpurc/qt"y km" uko wncpgqwun("dg"eqphqto kpi "vq"yj g"r tqhguukqpcn'pqto u"qh'yj cv'eqo o wpkx("\*kdkf 0<32+0 Vj g'eqpegr v'qh'pqto u'wnko cvgn{ 'i kxgu'r tkqtkx{ ''vq'vj g'vcti gv'vgzv.'tcvj gt'vj cp'vj g'uqwteg'vgzv.''cpf 'j cu'vj gtghqtg'' ghhgevkxgn("tgrncegf 'GS WKXCNGP EG"cu'vj g"qrgtcvkxg"vgto "kp"vtcpuncvkqp"uvwf kgu'\*Jgtocpu'3;; 7∢39+0'Oqtg" korqtvcpvn{."vjg"eqpegrv'qh'pqtou"÷cuuwogu'vjcv'vjg"rtkoct{"qdlgev'qh'cpcn{uku'kp'\tcpurcvkqp'uwvfkgu'ku'pqv'cp" kpfkxkfwcn'\tcpurcvkqp"dw'c'eqjgtgpv'eqtrwu'qh'\tcpurcvgf"\gzvuø'\Dcngt'3;;5462+0'Vjku'rqukkqp'jcu'jcf'hct/ tgcej kpi "eqpugs wgpegu'kp" vgto u'qh'r tqxkf kpi "cp"gzr nkek'f ghkpkkqp"qh'yi g'qdlgev'qh'uwxf { 'kp''yi g'f kuekr nkpg"cpf " r tqxkf kpi ''y g''dcuku'hqt''c''tgrgxcpv'tgugctej ''r tqi tco o g0'KVj cu''cnuq''dggp''kpuvtwo gpvcn'kp''r tgr ctkpi ''y g''i tqwpf '' hqt"eqtr wudcugf "y qtm"c"r tqo kukpi "f gxgnqr o gpv"y j kej "j qnf u"o wej "j qr g"hqt"kpxguvki cvkpi "WP KXGTUCNU"QH"

#### Hwt yj gt 't gcf kpi

VTCP UNCVKQP 'kp'r ct kewrct'\*ugg'<u>EQTRQTC'KP'VTCP UNCVKQP'UVWF KGU</u>+0

Dengt''3; ; 5="Ej guvgto cp''3; ; 5="J gto cpu''3; ; 3c.''3; ; 5.''3; ; 7.''3; ; 8="Nco dgtv'cpf 'xcp''I qtr ''3; : 7="Vqwt{''3; 9: ='3; : 2c="3; ; 70

O QP C'DCMGT

## R

# Reterjteug

Kp"eqo o qp"wuci g"cu"c"vgto "hqt"nqug"tgy qtf kpi ."uc{kpi "uqo gyi kpi "kp"{qwt"qy p"y qtf u."r ctcr j tcug"ku"dguv" mpqy p"kp"vtcpurcvkqp"yi gqt{"htqo "Lqj p"FT[FGP øu"38: 2"r tghceg"vq"j ku"vtcpurcvkqp"qh"Qxkf øu"Gr kungu"\*ugg" DTKVKU "VTCFKVKQP +<"j cxkpi "r tqo kugf "vq"tgf weg"cm"vtcpurcvkqp"vq"yi tgg"j gcf u"cpf "dgi wp"y kyj "OGVCRJ TCUG."qt"y qtf/hqt/y qtf "vtcpurcvkqp."j g"o qxgu"qp"vq"j ku"ugeqpf "j gcf <"÷Vj g"ugeqpf "y c{"ku"yi cv"qh" r ctcr j tcug. "qt"vtcpurcvkqp"y kyj "hcvkwf g."y j gtg"yi g"cwyi qt"ku"ngr v"kp"xkgy "d{"yi g"vtcpurcvqt."uq"cu"pgxgt"vq"dg" muv."dw"j ku"y qtf u"ctg"pqv"uq"uvtkevn{"hqmy gf "cu"j ku"ugpug="cpf"yi cv"vqq"ku"cf o kvgf "vq"dg"co r nhkgf."dw"pqv" cnygtgf ØVyj g"yi ktf"j gcf "ku"KO KVCVKQP 0

Dw'ukpeg''gxgt { "icpi wci g'ku'uq'hwn'qh'kuu'qy p'r tqr gt kgu. 'y cv'y j cv'ku'dgcwkhwn'kp''qpg. 'ku'qhwgp'' dctdctqwu. 'pc { 'uqo gvko gu'pqpugpug. 'kp''cpqy gt. 'kv'y qwf ''dg''wptgcuqpcdng''vq''tko kv'c''tcpuncvqt''vq''y g'' pcttqy ''eqo r cuu''qh''j ku''cwj qtøu'y qtf u<''÷ku''gpqwi j ''kh'j g''ej qqug''qw''uqo g''gzr tguukqp''y j kej ''f qgu'' pqv''xkkcvg''y g''ugpug0'Kuwr r qug''j g''o c { ''uvtgvej ''j ku''ej ckp''vq''uwej ''c''ncvkwf g=''dw''d { ''kppqxcvkqp''qh'' y qwi j vu. ''o gyj kpmu''j g''dtgcmu''kv0'D { ''y ku''o gcpu''y g''ur ktkv'qh''cp''cwj qt''o c { ''dg''tcpuhwugf . ''cpf ''{ gv'' pqv''nquv0}

I kxgp"iy g"ewttgpe{"qh"rctcrj tcug"kp"qtf kpct{"Gpi rkuj."kv"ku"qhxgp"wugf "kp"iy gqtgylecnif kuewunkqpu"qh"tcpurcykqp" hqt"nqug"qt"htgg"tgpf gtkpi u"y kyj qwv"ur gelkhe"tghgtgpeg"\q"Ft{f gp0Pqt"f kf"Ft{f gp"kpxgpv"y g"ygto 0'ki"y cu"hktuv" wugf "d{"Rj krq"Lwf cgwu"kp"Fg"xkw"Oquku\*\42"DE+z"-{gvyjq"upvhnpqy"y cv"gxgt{"rcpi wci g."cpf"I tggm" gur gelcm(."cdqwpf u"kp"ygto u."cpf "y cv"y g"uco g"y qwi j v"ecp"dg"r wvkp"o cp{"uj cr gu"d{"ej cpi kpi "ukpi rg"y qtf u" lo gwcrj tc/qpwc\_"cpf "y j qrg"r j tcugu"]rctcrj tc/qpwc\_"cpf "uwkkpi "y g"gxr tguukqp"\q"y g"qecukqp\%\4-5: +0' Vj gug"w q"yto u."o gwcrj tcug"cpf "rctcrj tcug."ctg"r kengf "w "d{"S wkpwklcp"kp"kpukwwgu"qhQtcvqt{"CF"A, 7+"hqt" w q"f knvkpev"cr rtqcej gu"\q"y g"r gf ci qi lecnir tcevkeg"qhllo kcvkqp."tgy qtnkpi "enculle"\yzwi"d{"ej cpi kpi "qpg"y qtf" cv"c"\wo g"\*o gwcrj tcug+qt"qpg"r j tcug"cv"c"\wo g"\*r ctcr j tcug+"cpf "ncvgt"d{"c"npi "iknv"qh"T gpcknucpeg"cpf" pgqencullecnir gf ci qi wgu"cpf "tcpurcykqp"y gqtknux"Hcwnq"Ugdcurkcpq"\yo "F g"lo qf q"f g"nq"tcf wt tg"f ønpc "hqi wc" kp"cmtc" ugeqpf q"ng"t gi cng"o quatcvg"f c"Ekegt qpg"\yo "3778+"Ncy tgpeg"J wo r j tg{"kp\yo ytr t gwckq"hqi wc two "ugw" f g"tcvkqpg"eqpxgt vgpf k"gv"gzrnkecpf k'cwnqt gu"co "ucet qu's wco "rtqrj cpqu"\yo "77; +"Tqi gt"Cuej co "kp"Vj g"

Lej qqno cungt "\yo "792+"Cpf tgcu"Uej qwwu"\yo "Vwmkcpctwo "s wc gunkqpwo "f g"kpuwcwt cpf c"Ekegt qpku"ko kcvkqpg" \yo "3832+"cpf "Rkgttg/F cpkgriJ wgv"kp"F g"kpytrt gwckqpg"\yo "8883+0Ft { f gp."3; "{gctu"chyt"J wgv."ku"y wu"qpn("qpg"qh"c" nqpi "urkpi "qh"y gqtknu"y j q"wug"r ctcr j tcug"kp"tqwi j nf "y g"ugpug"qh"c" gt"y gt hybi "kufu" "qt" "tcpurcyqp" cv"r tqeggf u" ugpvgpvkcm(."vcmkpi "cu"ku"etkgtlcnlugi o gpvu"y j qng"ugpvgpegu"tcyj gt"y cp"kpf kxlf wcnyq qtf u0

C''nguu''yej plecn'wug''qh''y g''yto "±r ctcr j tcugø''y cv'tgo ckpu''lp''ceeqtf''y ky ''ku''Ncvlp'f ghlpkkqp.''ku''\q''f guetkdg''c" y qtm'y cv'ku''pqv'\tcpurcvgf 'f ktgevn( 'htqo "c'hqtgki p''qtki kpcn'dw''tgy qtf gf 'htqo "c'r tgxkqwu''\tcpurcvkqp''kp''y g" uco g''ncpi wci g''\*y j cv'ku''uqo gvko gu''ecmgf "c''±xctkcvkqpø+0'Vj wu.'hqt''kpuvcpeg.''y g''cwj qtu''qh''Vj g''Nkxkpi ''Dkdrg'' f guetkdg''kv'cu''c''±r ctcr j tcugø'tcyj gt''y cp''c''\tcpurcvkqpô y j cv'qpg''o ki j v'ecm'cp''kpvtcrkpi wcn'r ctcr j tcug''cu'' qr r qugf ''vq''cp''kpvgtrkpi wcn'vtcpurcvkqp0'Dqy ''wuci gu''f gtkxg'htqo ''S wkpvkrkcp0

#### Hwt yj gt 't gcf kpi

Uj cf f { '3; : 6="I gqti g"Uyglpgt"3; 970

FQW NCUTQDR UQP

# Rqgvleu'qh'vt cpurc vkqp

Fgtkxgf'htqo'Ctkuxqvrgøu'*Rqgvkeu*''yig''÷rqgvkeu''qh''vtcpurcvkqpø'tghgtu''vq''yig'kpxgpvqt{''qh'igptgu.''yigogu''cpf'' rksgtct{"f gxkegu'yj cv'eqo r tkug"cp{"rksgtct{"u{uvgo 0'Kp"\tcpurcvkqp"uvwf kgu."yj g"\gto "cnuq"tghgtu'\q"yj g"tqng"c" nksgtct{"u{uvgo "r rc{u"y kyj kp"vj g"rcti gt"uqekcn"u{uvgo "cpf lqt"j qy "kv"lpvgtcevu"y kyj "qvj gt"\*hqtgki p+"rkvgtct{"qt" ugo kqvke 'uki p'u{ uvgo u0Cu'c'eqo rctcvkxg'hkgnf.''vj g'rqgvkeu'qh'vtcpurcvkqp'ku'eqpegtpgf'y kvj ''vj g'tgrcvkqpuj kr'' dgwy ggp" y g"r qgwleu" qh"c" uqwteg" ygzv" llp" kwu" qy p"rkwgtct {"u { uvgo "cpf" y cv" qh" y g" vcti gv" ygzv" llp" c"f khlgtgpv" u { uvgo 0 Vtcf kkqpcm{.'\tcpurc\kqp'\uej qrctu'\rangler tgLcmqduqp+'cwgo r vgf '\q'ko ci kpg''cpf 'f ghkpg''y j cv'nkvgtct{ '\tcpurc\kqpu'' uj qwf "dg0Kp"eqo r ctkpi "vj g"uqwteg"cpf "vcti gv"vgzvu"kp"qtf gt "vq"gxcnwcvg"vj g"s wcrkv{ "qh"vtcpurcvkqp. "uwej "uej qrctu" v{r kecm{ "tguqtvgf" 'vq"c"eqpegr v'qh'hckj hwrpguu'qpg"dcugf "rguu"qp"hpi wkuke "ceewtce { "vj cp"qp"hkf grkv{ "vq" yj g" ugpug"qt"urktkv"qh"vjg"qtkikpcn0"Vjg"kfgc"jgtg"ku"vjcv"kh"c"rctvkewnct"rqgvke"hqto "ecp"qpn("gzkuv"ykyjkp"vjg" dqwpf ctkgu'qh'kwu'qy p'hcpi wci g."\j gp"\j g"i qcn'qh'\tcpurc\kqp"o wuv'dg"\q"ecr wtg"\j g'ugpug'qh'\j g"qtki kpcn'kp"cp" cpcnqi qwu'tcyj gt''y cp'kf gpvkecnlhqto .''qpg''y cv'hwpevkqpu'kp''c''uko krct'hcuj kqp''y kyj kp''y g''vcti gv'ewnwtg0 Vqfc{."\tcpurc\kqp"uejqnctu"\readuqp+"d{"cpf"nctig"cwgorv'\q"fkueqxgt"cpf"fguetkdg'yjcv'\tcpunc\kqpu" ctg"tcyj gt"yj cp"y j cv"yj g{"uj qwrf"dg0"Qdugtxkpi "r qgvke"f gxkegu"kp"vtcpurcvkqpu"u{pej tqpkecm{"cpf" f kcej tqpkecm{ ."vj g{ "i q"dg{ qpf "qpg/ vq/qpg"eqo r ctkuqpu' vq" wpeqxgt "r qgvke"eqppgevkqpu' vq. "cpf "f gxkcvkqpu' htqo ." yj g'hkvgtct{"\tcfkklqpu''qh''dqyj ''uqwteg''cpf''\cti gv'\gzvu0'Uwej ''gorktlecn'uwvfkgu''jcxg''ujqyp''yjcv'hckyjhwnpguu.'' y j gyj gt 'htpi wkuke 'qt 'hwpeklqpcn 'ku't ctg0'Ukpeg 'tcpurcvqtu'v r kecm ('y cpv'vj gkt 'tcpurcvkqpu'vq'dg'wpf gtuvqqf 'cpf'' ceegr vgf "kp" vj g" vcti gv"ewnwtg. "vj g{ "vgpf "vq"eqphqto "vq" vj g"r qgvke"eqpuvtckpvu "qh" vj g"tgegkxkpi "ewnwtg" tc vj gt" vj cp" rksgtcm( "tcpuhgttkpi "yj g'rksgtct { 'f gxkegu'qh'yj g'uqwteg'\sgzv\\*dw\ugg'\uVTCVGI KGU'QH'VTCPUNCVKQP+0 J wpftgfu''qh'rtguetkrvkxg''o qfgnu''fguetkdkpi ''vjg''r qgvkeu''qh''vtcpuncvkqp''gzkuv0'Uqog''qh''vjg''o qtg''kphnwgpvkcn'kp''vjg'' Gpi rkuj "rcpi wci g'tcpi g'htqo "Iqj p'FT[ FGP øu":Rtghceg'\q" Qxlf øu'Gr kurguø'\38: 2+"cpf 'Crgzcpf gt'Rqr gøu" #Rtghceg'\q'\j g''Klkcf''qh'J qo gtø'\*38: 9+:'\j tqwi j 'C(H)'V[ VNGTøu'Guuc{"qp"\j g'Rtkpekrngu''qh'Vtcpurc\kqp'\*39; 3." ugg'<u>DTKKU 'VTCFKVKP+</u>'O cwj gy 'Ctpqrføu''÷Qp''Vtcpurcvkpi 'J qo gtø'\*3: 83+'vq'o qtg'o qf gtp'crrtqcej gu'' uwej "cui'Rcwn'Ugrkgtøu''*Vj g'Ctv'qh'Vt cpurc vkpi "Rqgvt {* "\*3; 88+"cpf 'E0F c { "Ngy kuø'*Qp 'Vt cpurc vkpi "Rqgvt {* "\*3; 92+0" Uwo o ctkgu'qh'vj g'r qgvkeu'qh'vtcpurcvkqp'kp'vj g'Htgpej ."I gto cp. "cpf 'Gpi rkuj 'vtcf kxkqpu'ecp'dg'hqwpf 'kp'' J qti wgrkp"\*3; : 3+. "Nghgxgtg"\*3; 99+. "cpf" "VUUgkpgt"\*3; 97+. "tgur gevkxgn(0"Y j krg"i tgcvn("ckf kpi "qwt" wpf gtuvcpf kpi " qh'y g'tcpurcvkqp'r tqeguu. 'y g'eqpvtkdwkqp'qh'y gug'y tkgtu'vq'c'r qgvkeu'qh'vtcpurcvkqp'j cu'dggp'hct'htqo " eqortgj gpulxg0Icogu'J qmoguø':-Vjg'Pcog'cpf'Pcwtg'qh'Vtcpuncvkqp'Uwfkguø'\*3;94197+:'ykfgn{'ceegrvgf'cu' y g'hqwpf kpi 'f qewo gpv'hqt' y g'f kuekr nkpg''qh' 'tcpurcvkqp' 'uwwf kgu''cu''r tcevkugf 'kp' 'Rtci wg. 'Dgri kwo.' J qmcpf.' 'cpf'' Kutcgn'hqwpf'cm'uwej 'crrtqcej gu'hcktn{ 'pcttqy 'kp'ueqrg0

O qf gtp'tgugctej 'uwi i guvu''y cv'hgy ''tcpurcvqtu''cewcm( 'hqmqy ''r tguetkr vkxg''o qf gnu'qh'cp{ 'mkpf 0'Gxgp''o qtg'' ko r qtvcpv.'kv'j cu'uj qy p''y cv'y g''f kurkpevkqp''dgwy ggp''qtki kpcn'cpf ''vtcpurcvkqp''ku''pqv'cu''engct/ewv'cu''r tguetkr vkxg'' o qf gnu'\gpf ''vq''cuuwo g0'Y g''pqy ''mpqy .''hqt''kpuvcpeg.''y cv''vtcpurcvkqpu''qhrgp''j kf g''kp''qyj gt''rkvgtct { ''vgzwi''\*uwej ''cu'' Ej cwegtøu''Ecpvgtdwt { ''Vcrgu+.''yj cv'RUGWF QVTCP UNCVKQP '\*hqt''gzco r ng''J qtceg''

Y cm qngơu" Vj g'Ecung" qh' Qư cpuq + "ku" pqv' wpeqo o qp. "vj cv' kpf kt gev' vt cpunc vkqp" ku" o qt g'r t gx cngpv' vj cp" i gpgtcm {" cuuwo gf "hqt" gz co r ng' NWV J GT Ø Lô ugg" I GT O CP "VT CF KV KQP o Dkdng" ku "dcugf "kp" ict i g'r ct v' qp" GT CUO WU vô xgtukqpô ugg" FWVE J "VT CF KV KQP + "cpf" vj cv' xgtukqpu' G tc" RQWP Fô ugg" CO GT KE CP " VT CF KV KQP + "cpf" ko kc vkqpu' T qdgt v' Nqy gm+"ctg" y kf g/ur tgcf 0 Kpf ggf . "vj g"o cti kpu" j cxg" dgeqo g"uq" f khhwug" vj cv'o wej "uq/ecngf" qt ki kpcn'y tkkpi "ku" pqy "xkgy gf" cu" kpeguwqwun ("tgnc vgf" vq" vt cpunc vkqp" ugg" O WNVKNP I WCNKO "CPF" VT CP UNC VKQP +0

 $\label{thm:controller} Vj\ g'f\ gxgmr\ o\ gpv'qh'go\ r\ ktlecn''r\ ctvlewrctn{"vcti\ gv'qtkgpvgf"cr\ r\ tqcej\ gu''q''y\ g''r\ qgvkeu''qh''tcpurcvkqp''j\ cu''i\ ckpgf" o\ qo\ gpwo 'kp''tgegpv'{gctu0Gxgp/\ qj\ ct'*3; 9:\ d+''mqmu''cv'j\ qy ''vgzw''ctg''uggevgf 'hqt''tcpurcvkqp''cpf 'j\ qy ''ksgtct{"pqto\ u''ctg''cf\ qr\ vgf 'kp''y\ g''cti\ gv'ewnwtg''*ugg''RQN| U| UVGO ''VJ\ GQT| +=''Vqwt{'*3; : 2c+''cwgo\ r\ w''vq''kf\ gpvkh{"vcpurcvkqp''kgg''PQTO\ U}='J\ gto\ cpu''*3; : 7+''dtkpi\ u''\ vj\ g''tkgtct{.''hpi\ wkuvke.''cpf ''kf\ gqmi\ kecn'hcevqtu''y\ j\ kej ''i\ qxgtp''tcpurcvkqp''*ugg''PQTO\ U='J\ gto\ cpu''*3; : 7+''dtkpi\ u''\ vi\ g'' g''t''y g'''y g''t''y g'''y g$ 

Vj g'\cum\qh'\kpxgu\ki c\kpi '\j g'r qg\keu'\qh'\tcpurc\kqp'\ku'o cf g'o qtg'eqo r ngz'\d\{ '\j g'\tcev'\j cv'r\kpi \ku\keu'\cu'c'' f \ku\ke\keu'\qp'\gy p'c'\tgn\kev\peg'\q'cf f tguu'\j \ku'\ku\kg.'\j \wi'etgc\kpi 'c' f \kx\ku\qp'\dgw ggp'\pqp/r\kgtct\{ '\formalian qy p'c'\tgn\kev\peg'\q'cf f tguu'\j \ku'\ku\wg.'\j \wi'etgc\kpi 'c' \ku'\upq g\ke ggp'\pqp/r\kgtct\{ '\formalian qy \text{outch}qp'\cy g' \ku'\tgn\key ggp'\pqp/r\kgtct\{ '\formalian qw'\tgn\key ggp'\pqp/r\kgtct\{ '\formalian qw'\tgn\key ggp'\pqp/r\kgtct\{ '\formalian qw'\tgn\key ggp'\pqp/r\kgtc\{ '\cy gr\wey gp'\pqp/r\kgtc\{ '\cy gr\wey ggp'\pqp/r\kgtc\{ '\cy gr\wey ggp'\pqp/r\kgtc\{ '\cy gr\wey gp'\pqp'\r\\ gr\wey ggp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\pq\\ gr\wey ggp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\pqp'\r\kgtc\{ '\cy gr\wey gp'\r\kgtc\{ '\cy gr\wey gp'\r\kgtc\{ '\cy gr\wey gp'\r\kgtc\{ '\cy gr\wey gp'\r\kgtc\{ '\cy gr\wey gp'\r\kgtc\{

#### Cp'kpxgpvqt { 'qh'r qgvke'f gxkegu

Vj g'o quv'u{uvgo cvke'kpxguxki cvkqp'qhir qgvke'f gxkegu'kp'ircpi wci g'eco g'htqo 'uej qrctu'y qtmlkpi 'kp''y g'hqto gt'' E| gej qurqxcmc'cpf 'y j q'y gtg'y gmixgtugf 'kp'T wurkcp'Hqto cnkwo <Tqo cp'Icmqduqp.'Ik ¶NGX '\*igg''E\ GEJ '' \
\text{VTCF KVKQP} + 'Htcpvk-gmiO kmq. 'cpf 'Cpvqp''RQRQXK '\*igg''UNQXCM'VTCF KVKQP +0'Vj g''Rtci wg''i tqwr 'y cu'' rguu'kpytguvgf 'kp'c'i gpgtcnihkgtct { ''tcpurcvqtuø'r gtur gevkxg.'y j kej ''qhxgp''cunwo gf 'c''-r qgvkeøkpwkkkqp'y ky '' ceeguu'vq'y g''ur ktk'qhi'y g''qtk kpcn''cpf 'o qtg'kpytguvgf 'kp'f guetkdkpi ''uvthceg/uvtwewtg'hgcwtgu'qh'hrpi wci g.'' gur gekcm( ''y qug''y cv'f gvgto kpgf ''c''yzvxu'hkgtct { ''uvcwu0'Vj g{ ''y gtg'r ctvkewrctn( 'kpvgtguvgf 'kp''guvcdrkuj kpi ''y g'' o cppgt''kp''y j kej ''y go gu''cpf ''k gcu'y gtg''gzr tguugf ''kp''yzvu0'Vj gkt''hqto cn'crr tqcej ''cpcn( ugf ''y g''kpvtkpuke''cpf '' gzvtkpuke''grgo gpvu''y cv'o cf g''egtvckp'hkgtct { ''yzvu'wpks wg''kp''y g''ugpug''qh''dgkpi ''f khtgtgpv'htqo ''gzvu''cntgcf { '' gzkurkpi ''kp''c''kkgtct { ''tcf kkqp0'Dqttqy kpi ''y g''eqpegr v'qh''y g''ur cpgpkg''qt''-f glco khtctk cvkqpø'f gxkeg'htqo '' Twurkcp''Hqto cnkro '\*Uj mqxumkk'3; 39. 'tcpu0'3; 88+:"Icmqduqp''cpf ''j ku''eqmgci wgu''go dctnrgf ''qp''y g''o co o qyi '' vcun'qh'kuqrcvkpi ''cpf ''ecvcrqi wkpi .''kp''c'xctkgv( ''qh''rcpi wci gu.''y g''ur gekhke'hqto cn'hgcwtgu''y cv'f kuxhpi wknj ''kkgtct { '' yzr tguukqpu'htqo ''pqto cn'qpgu'\*Lcmqduqp.''3; 5566.''3; 7; .''3; 82='Ngx ''3; 85.''3; 89='O kmq''3; 8; .''3; 92=''Rqr qxk '' 3; 92='O kmq''cpf ''Rqr qxk ''3; 98+0

Htcp:k-gniO knqøu'3; 92"ct klerg."+Nc"yi ² qtkg"f g"3øgzr tguukqp"gv'ire"ktcf wekqpø"ku"c"i qqf "gzco r rg"qh'yi g"nkpf "qh" tgugctej "eqpf wevgf "d{"yi ku'i tqwr 0O knq"cwgo r wi'kp"yi ku'ct klerg"\q"tgrevg"\yi g"hqto cn'hgcwt gu'qh'yi g'uv{ rg"qh'c" r ct klewret "yez v'vq"uko kret "yej pks wgu'wugf "kp"cpqyi gt "iksgtct { "ktcf kkqp0J g"uwi i guwi'yi cv."j qy gxgt "go qxkqpcn'qt" ktckqpcn"uwdlgevkxg"s wcrkkgu"r gtegkxgf "qp"yi g"dcuku'qh'kpwkkkqp."kpenwf kpi "uwdwg"f gxkegu'uwej "cu'y qtf r re { " cpf "ktqp{."ecp"dg"f gygto kpgf "d{ "tghgtgpeg"vq"yi g"hqto cn'r cwgtpkpi "qh'yi g"ygzv0Cnyi qwi j "cy ctg"qh'yi g"gpqto kx{" qh'yi g"ycum'cpf "yi g"uwdwgv{ "qh'yi g"pwcpegu."O knqøu'tgugctej "r tqeggf gf "hct"gpqwi j "vq"i gpgtcyg"cpf "f guetkdg" \*hqto cm(+"o cp{ "grwukxg"ecvgi qtkgu'uwej "cu'co dki wkx{."f kugs wkrdtkwo ."kttcvkqpcrkx{."cpf "uxtgco "qh" eqpuekqwupguu0J g"cnq"o cf g"eqppgevkqpu'dgwy ggp"hgcwtgu'eqo o qp"vq"dqyi "rkygtct{ "yzvu."y j kej "O knq" pettqy n{ "f ghkpgu'cu"-i tgcv'y qtmøx"cpf "qy gt 'hqto u"qh'f kueqwtug."uwej "cu'lqwtpcrkuo ."ur ggej gu."cpf "r qr wret" hkevlqp0"Y j krg"o cnkpi "etquu/ewmwtcn'i gpgtcrk cvkqpu'cdqw'yi g"r qgykeu'qh'\tcpurcvkqp."O knq"cnuq'o ckpvckpgf "yi cv' gzr tguukxg'hgcwtgu'y gtg"cny c{u"

uwdlgev'\q"gxqnwkqp"cpf 'y gtg'r ctv'qh'cp"gxgt/ej cpi kpi 'u{ uvgo ''qh'r qgvkeu0

Vj ku'\{r g'qh'cr r tqcej 'ku'eqpukuygpv'y kj ''tcpure\dqp'uwf kgu'cu'kv'dgi cp'\q'vcng'\ij cr g'\lp'\j g''3; 92u'cpf ''3; : 2u0' Ko r qtvcpv'r wdrkec\dqpu'cpcn\ukpi ''\j g''r qg\keu'qh'\tcpure\dqp''f wt\pi ''\j ku''r gt\qf '\lpen\f g'\Nghgxgtg'\3; 97+'\Dcunpgw' \dangle 3; : 2+''J gto cpu'\dangle 3; : 7+''cpf '\Nco dgtv'cpf 'xcp''I qtr '\dangle 3; : 7+\OC'o gyi qf qmi \{ "gxqnxgf '\lp''y j kej ''\j g''cwj qt. '\gzv'' tgcf gt. "cpf 'r qg\ke''pqto u'qh'qpg''r\kgtct\{ "u\uxpo "ctg''\uxvcr qugf 'y kj ''\j qug''qh'c'\ugeqpf 'u\uxpo 0'D\{ 'mqm\pi 'cv' y g''\uxpo g''\uxp

### Vj g't qng'qhi'vj g'iksgt ct { 'u\{ usgo 'kp''vj g'ict i gt 'uqekcniu\{ usgo 'kp''vj g''vj g''vj

Tgugctej "ecttkgf" 'qwi'y kij kp" i ku'htco gy qtm'uwi i guwu'i cv. 'httqo "dgkpi "c"o cti kpcn'gzgtekug. "tcpurckqp" cevkxk/ "ku'etweken'iq" i g'hqto cvkqp" qh'gpvktg" rkvgtct { "u{ uvgo u0 Vqwt {øu'y qtm'qp" i g'go gti kpi "r qgvkeu'qh'iy g'iy gp" ÷y gemø' Kutcgnk'ikvgtct { "u{ uvgo .'hqt "gzco r ng. "kmwntcvgu'iy g'egpvtcn'ko r qtvcpeg" qh'hqto u'ko r qtvgf "xkc" tcpurcvkqpu" \*3; 99."3; : 2c+0 Nkmg/y kug. "Dtkkuj "ewnwtcn'j knvqt { "kp" i g'hknggpyi "egpwt { "ku'i gpgtcm { "tgi ctf gf "cu'ircenkpi "kp" i tgcv'y qtm="{ gv'vtcpurcvkqp. "gur gekem { 'htqo "I tggm'cpf "Tqo cp" vgzvu." iy tkxgf. "cpf "iy g'r qgvkeu'ko r qtvgf 'htqo " uqwteg" u{ uvgo u'r ckf "gpqto qwu'f kxkf gpf u'kp" vgto u'qh'iy g'f gxgmr o gpv'qh'qtki kpcn'y tkxkpi "kp" i g'ukzvggpyi " egpwt { "\*O cwj kguuqp"3; 53+0 Ecug'uwf kgu'qh'pgy "cpf "f gxgmr kpi "pcvkqpu'uj qy "iy g'xkcn'tqng" iy cv'vtcpurcvkqpu" r nc { "kp" guvcdrkuj kpi "c'f qo kpcpv'r qgvkeu. 'hwtyi gt'dnwttkpi "iy g'rkpg'dgw ggp" i g'pcvkxg'r qgvkeu'qh'cp{ "qpg'pcvkqp" cpf "iy g'r qgvkeu'qh'vtcpurcvkqp" \*Dtkuugv'3; ; 2="O cewtc'3; ; 2+0

Tgugctej "qp" y g"uwdxgtukxg" pcwtg" qh' vtcpurc vlqp "ku" i ckpkpi "o qo gpwo "kp" y g'hkgrf "cpf "ku"

rcti gn{ "rgf "d{ "c'i tqwr "qh'Cpi rq/Co gtlecp"uej qrctu"cwtcevgf "vq"kpuki j vu"i ckpgf "d{ "vtcpurcvqtu"qh"r quv'uvtwewtcn" vgzw0'÷Vj g"Vcum'qh'vj g"Vtcpurcvqtø"Y cnvgt 'Dgplco kpøu'3; 45 "guuc{ "vj cv'ecmu'hqt'tcf kecn'hkgtcrkuo . "ugtxgu'cu'c" ur tkpi /dqctf "hqt"c"xctkgv( "qh"qhvgp"kpvgtf kuekr nkpct { "\*gur gekcm( "r j knquqr j kecn"cpf "r qnkskecn+"kpxguvki cvkqpu"\*ugg" <u>RWTG'NCPI WCI G</u>+0'Xgpwk'\*3;; 4"cpf '3;; 7c+"dqttqy u'vj g'vgto 'cdwkxg'hlf grkx{ 'htqo 'Ngy ku'\*3;: 7+"vq'uj qy " j qy "\tcpurc\kqpu"ctg"fqwdn("cdwukxg<"tgeqpuntwevkpi "\jg"uqwteg"\gzv"cpf"tgukuvkpi "\jg"fqokpcpv"ewnwtcn"xcnwgu" kp''y g''vcti gv'repi wei g0'Uw| cppg'Ikm'Ngxkpg'\*3; : 5."3; ; 4+'uggu''vtcpurevkqp'kp'Iqti gu'Nwku''Dqti guø'vgto u.''y cv'ku'' cu'cpqyi gt 'hqto ''qh'r ctqf {. ''qpg''yi cv''y kıxu''y qtf u'cpf ''tgxgcnu''yi g''wpuvcdrg''pcwstg''qh''rcpi wci g0P gxgtyi grguu." gzco r ngu'qh'uweeguuhwn'uwdxgtukqp'tgo ckp'y g'gzegr vkqp'tcy gt'y cp'y g'twng00 quv'Gwtqr gcp'uej qnctu'cti wg'' yj cv'r qgvke 'u{ uvgo u'ctg'eqpuvtwevgf 'vq'xcnvg'cpf 'kpxqng'guvcdrkuj gf 'pqto u'ci ckpuv'ko r qtvgf 'qpgu'\*ugg' <u>UVTCVGI KGU'QH'VTCP UNCVKQP</u> +0'Kp''yi g'r tghceg''vq''j ku''uqpøu''vtcpurcvkqpu'htqo ''Uj cmgur gctg.''Xkevqt''J wi q'' uwi i guwu'yi cv'o go dgtu'qh'c'pcwlqp'i gpgtcm( 'r gtegkxg'\tcpurcvlqp'cu'cp'cev'qh'xkqrgpeg'ci ckpuv'crtgcf { " guvcdnkuj gf "r qgvke"eqpxgpvkqpu"\*3: 87</kktókx+0Vj g"Kurco ke"s culf cj. "cti wgu"Nghgxgtg."j cu"pqv"hqwpf "c"urqv"kp" Gwtq/Co gtkecp'r qgvke'u{uvgo u'dgecwug'rkvgtct{ "etkkeu'xkgy "yj g'r qgvkeu'qh'uqwteg'ewnwtgu'cu'kphgtkqt."cp" gxcnwcvkqp"nqcf gf "y kj "Y guvgtp"r tglwf keg"\*3; ; 4c<'956: 8+0"Vqwt { "\*3; ; 3+"uggo u"gur gekcm{ 'kpukuvgpv'qp"cti wkpi " y cv'rksgtct { "tcpurcskqpu'\gpf '\q'eqphqto '\q''y g'\cti gv'ewnsstgøu'r qgskeu'tcy gt''y cp'kpstqf weg'pgy "cpf" guvtcpi kpi "grgo gpvu"cpf "ku"r tgr ctgf "vq"qhhgt"-ircy uø'vq" yi cv"ghhgev" vgg" WP KXGTUCNU "QH"VTCP UNCVKQP +0 Y j kng''uqo g'f guetkr vkxg''uej qnctu''uwej ''cu''xcp''Ngwxgp/\ y ctv'\*3;:6.'3;;3+''cti wg''vj cv'o qtg'f guetkr vkxg''y qtm' pggf u'\q'dg'f qpg'dghqtg'dtcpej kpi '\qq'hct'qwi'kpvq'ewnwtcn'uwf kgu'cpf '\j gqt { .'kviku'dgeqo kpi 'kpetgcukpi n( " fkhlewn/'vq"fkxqteg"yjg"uwf{"qh'yjg"rqgvkeu"qh'vtcpurcvkqp"htqo"gzvtc/nkygtct{"hcevqtu"\*Upgm/Jqtpd{"3;::=" Douupgw'cpf 'Nghgxgtg'3; ; 2="Nghgxgtg'3; ; 4e+0"Htqo "+kpulfgø'c"f kueqwtug"qt"u{uvgo "qh'r qgvkeu."egtvckp"vj go gu." i gptgu. "cpf" uv{nkuvke" fgxkegu" crrgct" vq" vtcpuegpf" dqyi" vkog" cpf" ewnwtcn 'dqwpfctkgu0 [gv'tgugctej" ujqyu' vjcv' yjg" r qgvkeu 'qh'c 'ewnwtg'f q'ej cpi g. 'qhvgp'y kij ''yi g'ko r qt vcvkqp 'qh'pqp/pcvkxg'hqto u'cpf ''gzrtguukxg'hgcwtgu''yi tqwij " vtcpurcvkqp0'Ewttgpv'\tgpfu'kpp'tcpurcvkqp'tgugctej 'uj qy 'nkwrg'kpvgtguv'kp'hkpfkpi 'wpkxgtucn'r qgvke'fgxkegu'qt' hqto crluej go gu'hqt'f guetkdkpi 'kpetgcukpi n{ 'uwdvrg'uj khwu0'kpuvgcf.''vj g'hkgnf 'ku'r ncekpi 'kpetgcukpi 'go r j cuku'qp'' grcdqtcvkpi "j qy "vj g"r qgvkeu"qh"vtcpurcvkqp"dqvj "f gr gpf "qp"cpf "eqpvtkdwg"vq"nkvgtct { . "nkpi wkuvke."cpf "ewnwtcn" ej cpi g0

Ugg"cn.q<

NKVGTCT[ "VTCP UNCVKQP."RTCEVKEGU<u>NKVGTCT[ "VTCP UNCVKQP</u>."TGUGCTEJ "KUUWGU<u>"</u>RQN[ U UVGO "VJ GQT[ 0

### Hwt vj gt 't gcf lpi

Dcuupgw'3; : 2='Gxgp/\ qj ct'3; 9: d='I gpv| rgt'3; ; 5='J gto cpu'3; : 7='J qro gu'3; : : ='Nghgxgtg'3; ; 4c.'3; ; 4e='Vqwt{" 3; : 2c='Xgpwk'3; ; 7c0

GFYKP"IGPV\NGT

# Rqgvt { 'vt cpurc vkqp

Vj g'\tcpurc\dp\'q\t'\t qwt { 'ku'i gpgtcm\ 'j grf '\q'dg'\j g'o quv'f \th\text\text\text\ fo cpf \text\ pi .'cpf 'r quu\th\ ('tgy ctf \text\ pi '\hqto 'qh' \text\ tcpurc\dp\'k\ j cu'\dggp'\tj g'\twdlgev'\qh'c'i tgcv\f gcn'\qh'f \text\ kwwu\dp\.''r ct\\text\ cwctn\ 'y kj \text\ p'\tj g'\hgrf '\qh'\NKVGTCT\ \text\ VTCP UNCV\QP .''y j gtg'\hct''o qtg'j cu'\dggp'\y tk\wgp''cdqww'\tj g'\tcpurc\dp\'qh''r qgvt\ ''\topurc\dp\'g\ g'\text\ gt'' tqug'\qt'' \text\ FTCO C0O wej ''qh'\tj g'\f kuewu\dp\ p''\text\ gqtg\ kecn's wgu\dp\ pi ''\text\ gy\ g'\ty g'\t

#### \*Ko +r quukdkoks{ 'qh'yj g'vcum

Ki'ku'y kf gn{ 'o ckpvckpgf 'vj cv'r qgvt { "vtcpurcvkqp"ku'c'ur gekcn'ecug'y kj kp'nksgtct { 'vtcpurcvkqp"cpf 'kpxqnxgu'hct" i tgcvgt 'f khhewnkgu 'vj cp 'vj g 'vtcpurcvkqp 'qh'r tqug0 Vj g 'hcpi wci g 'qh'r qgvt { ''y km'cny c { u 'dg 'hwt vj gt 't go qxgf 'htqo " qtf kpct { "hcpi wci g" y cp" y g" o quv" grcdqtcvg" r tqug. "cpf" y g"r qgvke" wug" qh" hcpi wci g" f gxkcvgu" kp" c" pwo dgt" qh" y c { u" htqo "qtfkpct{"wug0Rqgvt{"tgrtgugpvu"y tkkpi "kp"kxu"o quv"eqo rcev."eqpfgpugf"cpf"jgki jvgpgf"hqto."kp"y jkej" yj g'hopi wci g'ku'r tgf qo kpcpwl ("eqppqwwkqpcnltcyj gt"yj cp"f gpqwwkqpcnlcpf "kp"y j kej "eqpvgpv"cpf "hqto "ctg" kpugr ctcdn('nkpngf 0'Rqgvt ('ku'cnuq'kphqto gf 'd ('c''÷o wukecn'o qf gø'\*Tchhgn'3;; 3 < 7 + "qt'kppgt'tj (yjo. 'tgi ctf rguu'' qh'y j gyj gt 'yj gtg'ku'cp{ 'hqto cn'o gytg''qt 'tj {o kpi 'r cwgtp. 'y j kej 'ku''qpg''qh'yj g''o quv''gnwukxg''{ gy''guugpykcn' ej ctcevgtkuvkeu "qh" vj g"y qtm" vj g" vtcpurcvqt" ku "ecrngf" vr qp" vq" vtcpurcvg0 Cpf" kp" cffk kkqp" vq" vj g" fkhkewrukgu" kpxqnxgf "kp"ceeqwpvkpi 'hqt"eqpvgpv'cpf 'hqto. "uqwpf u"cpf "cuuqekcvkqpu." yj g"vtcpuncvqt "qh'r qgvt { 'ku"cnuq"qhvgp" gzr gevgf "vq"r tqf weg"c"vgzv"vj cv"vj kmlhwpevkqp"cu"c"r qgo "kp"vj g"VN0"Uq."cmj qwi j "kv"ku"et wekcn"vj cv"vj g"qtki kpcn"dg"tgeqi pl{ cdrg'lp''yi g''tcpurcvlqp'\*lh'y g''ctg''vq''vcml'qh''tcpurcvlqp''cpf 'pqv'lo kcvlqp''qt''CFCRVCVIQP +. 'c'hwtyi gt'' etkgtkqp'hqt'c'uweeguuhwn'tcpuncvkqp'ku'ij cv'qh'ij g'kpvtkpuke'r qgvke'xcnvg'qh'ij g'tcpuncvgf 'vgzv0'Kp'uj qtv.''÷y j cv'cp'' Gpi nkuj /qpn{ 'tgcf gt''y cpvu'ku'c'i qqf''r qgo 'kp'Gpi nkuj ø'\*I cmci j gt'3; : 3♂6; +0'Uko knctn{ .'kv'ku'qhvgp''uwi i guvgf'' yj cv. 'wprkng'qyj gt'hqto u'qh'rksgtct { "tcpurcskqp." yj g"tcpurcskqp"qh'r qgst { "o wuv'uvcpf "qp"ksu'qy p"cu'c'r qgske" ygzv." vq"c"rcti g"gzvgpv"vpuwr r qtvgf "d{"i nquugu"qt"eqo o gpvct{."y j gyj gt"vj g{"vcng"vj g'hqto "qh'hqqvpqvgu"qt"ctg" go dqf kgf "kp" y g" \gz v0J qy gxgt. "P cdqmqx." c 'hkto "dgrkgxgt" kp" y g" ko r quukdkrkv ("qh'r qgvkecn' \tcpurc vkqp." y qwrf" f kuci tgg<":Ky cpv'\tcpurc\kqpu'y kj "eqr kqwu'hqqvpqvgu."hqqvpqvgu'tgcej kpi "wr 'rkng'um( uetcr gtu'vq''y g'\qr "qh''y ku" qt"yj cv'r ci g'uq"cu'vq"rgcxg"qpn( "yj g'i rgco "qh'qpg"vgz wcn'rkpg"dgw ggp"eqo o gpvct { "cpf "gvgtpkx{ ø'\*P cdqnqx" 3; 77⊲34+0

Vj g"qhvgp"kpuwto qwpvcdrg"f khhkewnkgu"kpxqrxgf"j cxg"rgf"o cp{."rkng"Pcdqmqx."vq"yj g"eqpenwukqp"yj cv"rqgvt{"ecp" qpn("dg"tgpf gtgf "nkgtcm(0C"uko krct"xkgy "ku"cwtkdwgf "vq"Tqdgtv"Dtqy pkpi "\*kp"Ugnxgt"3; 8848+."pco gn("vj cv" r qgvt { "\tcpurc\kqp":qwi j v\'\q"dg"cduqnwgn( "nkytcn"y kj "] yj g\_"gzcev'tgpf gtkpi "qh'] yj g\_"y qtf u."cpf "\yj g"y qtf u" r megf 'kp''y g''qtf gt''qh''y g''qtki kpcn0Qpn( 'c'tgpf gtkpi ''qh''y ku''uqtv'i kxgu''cp{ 'tgcn'kpuki j v'kpvq''y g''qtki kpcn0Tqo cp'' Icmqduqpøu'tguqnwg'dgnlgh'vj cv'r qgvt { 'ku'd { 'f ghlpkkqp'wpvtcpurcvcdng'ngf 'vq'vj g'uqo gy j cv'f khlgtgpv' o gyj qf qnqi kecn'cr r tqcej "vj cv'qpn("∹etgcvkxg" vtcpur qukxkqpø 'tcyj gt "vj cp" vtcpurcvkqp. "ku'r quukdrg" y j gtg'r qgvke "ctv" ku'eqpegtpgf "3; 7; 45: +0"Uj gmg{."vqq."dgnkgxgf "guugpvkcm{ "kp"vj g"ko rquukdkrkv{ "qh'rqgvkecn'vtcpurcvkqp."cpf "{gv" j g'r tqf wegf 'ugxgtcn'xgtug' 'tcpurc kqpu'htqo 'I tggm' Nc kp. 'Ur cpkuj 'cpf 'Kcrkcp'r qgvt { 'cpf 'ku'c'i qqf '' tgrtgugpvcvkxg"qh"gctn("y tkvgtu"qp" y g'uwdlgev." y j q"vgpf gf "vq" go r j cukt g" y g'hwkrkv("qh" y g'wpf gt vcnkpi "y j knuv" wpf gt vcmkpi 'kv'pqpg''y g'hguu#C''eqpvgo r qtct { "vtcpurc vqt."Y kmkco "Vtcum'r gtj cr u'uwo u'wr ''y ku'c wkwf g" uweekpevn(''y j gp''j g''uc{u<''+ko r quukdrg.''qh''eqwtug.''vj cvøu'y j {''K'f q''kvø''\*kp''J qpki ''3; : 7 < 9 + 0Vj g'xkgy "vj cv'kv'ku'ko r quukdng'vq"vtcpuncvg'r qgvt { 'tgeqi pkt gu'vj cv'kv'ku'ko r quukdng'vq'ceeqwpv'hqt"cm'vj g'hcevqtu"  $$kpxqnxgf "cpf "'q"eqpxg{ "cm'y g'hgcwtgu'qh'y g''qtki kpcn'kp''c'hcpi wci g''cpf 'hqto "ceegr wcdng''y g''y g''wti gv'hcpi wci g''}$ ewnwtg"cpf "tcfkkqp0J qy gxgt. 'htqo "tjku"uqdgtkpi "ceegr vcpeg"qh"tjg"fkhkewn{ "kpxqnxgf"cpf"qh"tjg"gpqtokx{ "qh" y g"vcumleqo gu"c"ugctej "hqt"uvtcvgi kgu"y j gtgd{"cu"o wej "cu"r quukdng"qh"y g"qtki kpcn'r qgvt{"o c{"dg"ucxgf "kp"y g" vtcpurcvkqp0

#### Crrtqcej gu≺rtci o cvke'cpf 'vj gqtgvkecn

Crrtqcej gu'\q'\j g'rtqdrgo u'lpxqrxgf 'lp'\tcpurc\lpi 'rqgvt { 'hcm'lpvq'\y q'dcuke''ecvgi qtkgu<'\j g'rtci o cvke''cpf '\j g'' y gqtgvkecn0'Vj g'rtci o cvke''crrtqcej 'ku'hcxqwtgf 'd { "o quv'rtcevkukpi ''\tcpurc\qtu.'y j krg'\j gqtgvkecn'o qf gnu''qh'\j g'' rtqeguu''ctg'o clpn(''\j g''y qtm'qh'nkpi wkuvu0

C''v{r kecn'gzco r ng'qh'vj g'r tci o cvke''cr r tqcej 'ku'vj g'xkgy ''gzr tguugf ''d{ ''Y 0.000 gty kp''kp''Y gkuudqtv'3; : ; <35; +<' -Keqpvkpwg'kp'vj g''dgrkgh''{qw''npqy .''vj cv'Kf qpøv''npqy ''j qy ''vq''vtcpurcvg.''cpf ''vj cv'pqdqf { ''f qgu0'K''ku''cp'' ko r quukdng''dw''pgeguuct{ ''r tqeguu.''vj gtg'ku''pq''r gthgev'y c{ ''vq'f q'kv.''cpf ''o wej ''qh''kv'o wuv'dg''hqwpf ''hqt''gcej '' r ctvkewrct''r qgo ''cu''y g''i q<0''

Vj gtg'ku. 'kp'hœv.'c'pqvkegcdrg'tgvkegpeg'qp'vj g'r ctv'qh'r tcevkukpi 'vtcpurcvqtu'vqy ctf u'cwgo r vu'd { 'rkpi wkuvu'vq' rtqxkfg"c"hqtocn'dcuku"hqt"yjcv"jcu"vtcfkkqpcm{"dggp"eqpukfgtgf"c"jkijn{"uwdlgevkxg"cpf"cf"jqe"cevkxkv{0"Hqt" gzco r ng. "Rgvgt "Ic { "\*lp" Y gkuudqt v'3; : ; <96+" y tkgu<"-Koxg" pqv" { gv"eqo g"cetquu"cp { "'y gqtgvkecn'r tgegr v'y cvou" j grr gf "o g"o cmg"c"nkpg"qh"cp{"\tcpurc\kqp"tkpi "\twg0b"Rtce\kukpi "\tcpurc\qtu"\gpf"\q"y tkxg"qh"\j g"ur gekhke"r tqdrgo u" yj g{ "gpeqwpvgt"kp" \tcpurcvkpi "c"r ctvkewrct"r qgv'cpf "qh'\yj g'\uqnwkqpu'\yj g{ 'hqwpf ô qhvgp'kp"\yj g'hqto "qh'cp"cr qmi { " hqt"y g"tcpurcvkqpô qt"tghrgev'qp"y g"xctkqwu'uvci gu'y g{ "r cuu"y tqwi j "kp"y g'r tqeguu'\*cu'kp"Dn{ "3; : 6+0" Vtcpurcvqtu.'j qy gxgt.'tctgn('mggr'pqvgu'cdqw'vj g'r tqeguu'qh'vtcpurcvkpi ''qt''cp{ ''tgeqtf ''qh'vj g''ej qkegu'o cf g''kp'' yj g'r tqeguu0Gxgp'kh'\tcpurcvqtu'eqwrf'r tqxkfg'fguetkr vkqpu'qh'uqnwkqpu'cpf'uvtcvgi kgu'vjg{"jcxg'gorm{gf'kp" f gcrkpi 'y kj 'ur gekhe' tcpurc kqp'r tqdrgo u. 'y g's wgurkqp't go ckpu'y j gy gt 'cp'gzco kpc kqp'qh'c 'unkrrgf'' vtcpurcvqtøu'r gtuqpcn'gzr gtkgpeg'ecp'r tqxkf g'hqto cn'uvtcvgi kgu'cpf 'j gpeg'dg'qh'r tcevkecn'xcnvg'vq'qvj gt" vtcpurcvqtu0Y j cv'ku'uvtguugf "eqpvkpwcm("d{"rtcevkukpi "vtcpurcvqtu."qxgt"cpf "cdqxg"cp{"rctvkewrct"crrtqcej "qt" o gyj qf qnqi { .'ku''yj g''pggf 'hqt''eqpuvcpv'tgy qtmlqpi ''cpf ''tgcuuguuo gpv''qh''yj g''tcpurcvgf ''vgzv'llqp''cp''cwgo r v''vq''o cmg'' k/eqttgur qpf "vq"yj g"qtki kpcn'r qgvke"vgz v'qp"cm'rgxgnu. "qt"tcyj gt"qp"cu'o cp{ "rgxgnu"cu'r quukdrg0 J qy gxgt. "cnyj qwi j "umkngf "tcpurcvqtuø" tghrgevkqpu "qp" yj g"r tqeguu "qh" tcpurcvkqp" o c{ "dg" wptgrkcdrg. "kv" ku" rtgekugn ('kpuki j vu'kpvq''yj ku'rtqeguu''yj cv'ctg''o kuukpi 'htqo ''o quv''yj gqtgvkecn'o qfgnu''cpf''crrtqcej gu''vq''yj g'' vtcpurcvkqp"qh"r qgvt {0P kf c"\*3; 86<368+"r tgugpvu"c"f kci tco "qh"j qy "c"o guuci g"kp"yj g"UN"ku"f geqf gf "d{"yj g" tgegr vqt"cpf "tg/gpeqf gf "kpvq"c"o guuci g'kp" y g"VN. "Vj g'egpvtg" qh' y g'f kci tco "ku' y g'r tqeguu' y g'ncdgnu 'vt cpulgt'' o gej cpkno."cpf "kv"ku" y ku"uvci g"qh" y g"r tqeguu" y cv"ku" y g"o quv"f khhkewn "q"cpcn { ug0O quv'o qf gnu"qh"r qgvt { " vtcpurcvkqp'hqewu'qp'gkvj gt''y g'f geqf kpi ''qh''y g''UV''qt''y g'r tqf wev'qh''y g'tg/gpeqf kpi 'kp''y g''VN0Cp''crrtqcej " qhygp "cf qr vgf "ku" 'vq" eqo r ctg" qpg" qt" o qtg" 'tcpurc vkqpu" qh" c'r qgo "y kyj "uqo g" pq vkqpcn" kf gcn' vtcpurc vkqp. "y kyj "y g" gpuwkpi "wpcxqkf cdrg"cpf "uwdlgevkxg"xcnwg"lwf i go gpw0C"uqo gy j cv'o qtg"wughwn'crrtqcej "ku'vq"eqo rctg" ugxgtcn'tcpurctkqpu'qh'y g'uco g'r qgo ."pqv'kp"qtf gt"vq"o cng"xcnwg"lwf i go gpvu."dwv'vq"gzco kpg'y g'f kthgtgpv'  $uvtcvgi\ kgu'go\ r\ m\{gf\ 0Nghgxgtg'*3;\ 97+"gzco\ kpgu'f\ khhgtgpv'vtcpurcvkqpu'qh'c''r\ qgo\ 'd\{'Ecwmwu'cpf'f\ kuvkpi\ wkuj\ gu''\}$ ugxgp"untcvgi kgu. 'vj qwi j "kv"ku"tctg"kp"r tcevkeg"vq"hkpf "cp{"qh"vj g"untcvgi kgu"j g"f kuewuugu"wugf "gzenwukxgn(0Fg"  $Dgcwi\ tcpf\ g'*3;\ 9:\ +'hqto\ wrcvgu'c''o\ qf\ gn'qh'r\ qgvke''vtcpurcvkqp''dcugf\ ''pqv'qp''c''eqo\ r\ ctkuqp''qh'vgzv''$ nkpi wkunkeu'cpf "untcygi kgu'qh'\gz wcn'gs wkxcngpeg. "hqewukpi "r tko ctkn{ "qp" yi g"cpcn{ uku'cpf "eqo r tgj gpukqp" qh' yi g" UV'cpf 'qp'tgcf gt/qtkgpvgf 'vj gqtkgu'qh'nksgtcwtg0J gtg'ci ckp. 'j qy gxgt. 'vj g'cewcn'r tqeguu'qh'vtcpurcvkpi 'ku'nquv' uqo gy j gtg'kp''y g''o c| g''qh''y g''eqo r ngz''f kci tco u''qh''j ku''o qf gn'\*3; 9: 465+0C''o qtg''go r ktkecn'o qf gn'qh''y g'' rtqeguugu'lpxqnxgf 'lp'\tcpunc\lpi 'rqg\t{'ku'rtqxkfgf''d{'Iqpgu'\3;:; +.'yjq''uwiiguvu'yjtgg'oclp'uvciguk'yjg''  $wpf\ gtuvcpf\ kpi\ 'uwci\ g.'y\ j\ kej\ 'kpxqnxgu'enqug'cpcn(uku'qh''yj\ g''uqwteg''yzv='yj\ g''kpvgtr\ tgwckqp''uwci\ g.''y\ j\ gtg''yj\ g''$ vtcpurcvqt"y qtmu"kvgo "d{"kvgo ."vj qwi j "y kvj "eqpvkpvcn"tghgtgpeg"\q"uqvteg"cpf "\cti gv'\gzvu="cpf" vj g"etgcvkqp" uvci g. "y j gtg" y g" vcti gv" vgz v" ku 'hcuj kappf "cu" cp" ct vghcev" y cv" ecp" dg" x cnkf "kp" vcti gv ewnwtg" vgto u0 KV ku 'kp vgt guvkpi " vq"pqvg"j qy "vj ku"o qf gn"qh"vj g"r tqeguu"eqkpekf gu"y kvj "o wej "qh"vj g"gzkuvkpi "tghrgevkqpu"d{ "unkrngf "tcpuncvqtu"qp" yj gkt 'y qtm0 Vj g"tgrcvkqpuj kr "dgw ggp" vj gqt { "cpf 'r tcevkeg" kp'r qgvt { "vtcpurcvkqp" j cu" cny c { u"dggp" r tqdngo cvke 0 Hgy "vj gqtkgu"

Vj g'tgrcvkqpuj kr ''dgwy ggp''vj gqt { "cpf "r tcevkeg"kp"r qgvt { "vtcpurcvkqp"j cu'cny c { u''dggp"r tqdngo cvke0'Hgy "vj gqtkgu" ecp "ceeqwpv'hqt ''vj g''eqo r ngzkskgu''kpxqnxgf ''kp "cewcn''r tcevkeg"qt ''kpf ggf ''hqt ''vj g''tguqwteghwnpguu''pggf gf ''d { "vj g" vtcpurcvqt="cpf "cnvj qwi j ''kv'o c { "dg'wptgcnkuke"vq"gzr gev'vj cv'c"vj gqtgvkecn'o qf gn'qh'r qgvt { "vtcpurcvqt"uj qwrf " uqnxg"cm'vj g''r tqdngo u''c ''vtcpurcvqt"gpeqwpvgtu. "uwej "c'o qf gn'uj qwrf "cti wcdn{ "r tqxkf g''c ''f guetkr vkqp"qh'vj g''ugv'qh" uvtcvgi kgu''cxckrcdng''hqt"crr tqcej kpi ''vj gug''r tqdngo u''cpf ''r tqegf wtgu'hqt ''f gcnkpi ''y kyj ''vj g''xctkqwu''hcevqtu'' kpxqnxgf 0'O quv'uej qnctu'y qwrf ''r tqdcdn{ "ci tgg'y kyj "f g''Dgcwi tcpf g'\*3; 9: 6+'vj cv'-Egtvckpn{ "vj g''xgt { "wpgxgp" swcnkv{ "qh'o wej "vtcpurcvgf" r qgvt { "uwi i guvu'vj g''r tguukpi "pggf 'hqt"o qtg'f ghkpksg''cpf "tgi wnct"r tqegf wtguØ)

### Vj g'þcvvt g'þh'vj g'vcum

 $\label{eq:continuous} Cp\{ \text{''tcpurc'kqp''qh''c''r qgo ''y km''tgs wktg''cwgp'kqp''vq''gcej ''qh''y g''xctkqwu''ngxgnu''qp''y j kej ''c''r qgo ''hwpevkqpu<math>0$ Qp'' y g''ugo cpvke''ngxgn''c''

r qgo "ecttkgu"uqo g"o guuci g"qt"uvcvgo gpv"cdqwv"yj g"tgcn"y qtnf "qt"yj g"cwyj qtøu"tgcevkqp"vq"kx."cpf "yj ku"ku"qhvgp"  $eqpulf\ gtgf\ ''y\ g''eqtg''y\ j\ kej\ ''cp\{''tcpurc\ kqp''o\ wuv'tgr\ tqf\ weg0J\ qy\ gxgt.''y\ g''o\ guuci\ g''qh''c''r\ qgo\ ''ku''qhvgp''ko\ r\ nkek''$ cpf "eqppqvcvkxg"tcvj gt"vj cp"gzr nlekv"cpf "f gpqvcvkxg." i kxkpi "tkug"vq"f khhgtgpv"tgcf kpi u"cpf "o wnxhr ng" kpvgtrtgvcvkqpu0KV'jcu''dggp''rqkpvgf''qwv'tgrgcvgfn(''\*hqt''gzcorg''kp''Htcygg{''3;:6c<'6;=''Dcuupgw'3;:2<323+''vjcv'' kpygtrtgvcvkqp"cpf "tcpurcvkqp"qh'kx0"Vjg"tcpurcvqt. "kp'hcev. "tcpurcvgu"jku 'qt 'jgt 'qyp'kpygtrtgvcvkqp. 'vjqwij" vjku" uj qwrf "r tghgtcdn( "dg"cp"kphqto gf "qpg0Cnxgtpcvkxgn( ."uqo g"uej qrctu"uwi i guv'yj cv'yj g"vtcpurcvqt "cwgo r wu'vq" tgetgcvg''yi g'r qgvke''vgzv'qp''yi g''dcuku''qh''yi g''cwyi qtøu''kpvgpf gf ''o gcpkpi .''k0g0'j qy ''yi g''tcpurcvqt''dgrkgxgu''yi g'' cwj qt"y qwrf "j cxg"gzr tguugf "j ko 1j gtugrh"j cf "j g"qt"uj g"dggp"y tkklpi "kp" j g"vcti gv'hcpi wci g"\*Nghgxgtg" 3; 97&25=I cmci j gt"3; : 3&6: +0J qy gxgt." y g"cwj qtøu'kpvgpvkqp'ku'tctgn( "qdxkqwu''qt'kphgtcdng''y kyj "cp{ 'i tgcv'' f gi tgg"qh"egtvckpv{."cpf "yj gtg"ku"pq"tgcuqp"vq"uwr r qug"yj cv"yj g"vtcpurcvqt"j cu"r tkxkrgi gf "ceeguu"vq"kx0"Qpg"o ki j v" ku'uvkm'cnkxg. "dww. "cu' Uqetcvgu'tgncvgu'lkp" Vj g'Crqnqi {. "tgcf gtu'ctg" qhvgp" o qtg'lkphqto gf "vj cp" cwj qtu. "cpf 'vj g" o gcpkpi "qh'c'r qgo "rkgu'pqv'y kj "yj g"cwj qt"dw'y kj kp"yj g"vgzv'kugrh'cpf "yj g'tgcf gtøu'kpvgtr tgvcvkqp"qh'ks0 C''y qtqwi j ''uv{nkuvke''cpcn{uku''qh''y g''vgzv'ku''c''r tgtgs wkukg''kp''r qgvt { ''vtcpurcvkqp0'Uv{ng''ku''qpg''qh''y g''hgcwtgu''y cv'' f kurkpi wkuj gu'nksgtct { "tcpurc klapô cpf 'kp'r ct vke wrct 'r qg vke 'vtcpurc vkapô htqo 'qvj gt 'hato u'ah' vtcpurc vkap. "cpf " ukpeg'tgcf gtu'gzr gev'\q'hkpf 'kp'c'\tcpurc\qp'\yi qug'r ct\kewrct'ej ctcevgtkukeu'\yi cv'o ctm'\yi g'\gzv'cu'dgmpi kpi '\q'c'' r ct whew ct "r qgv." c'r qgwle "t cpurc wlqp" pgeguuct kn{ "kpxqnxgu" enqug" cwgpwlqp" \q"o cwgtu" qh'uv{ ng0" Uqo g"uej qnctu" eqpulf gt 'r qgvle 'vtcpurcvlqp' uweeguulnwriqpn ( 'kh'uv ( rg' j cu'dggp 'eqpxg ( gf 'vqi gyi gt 'y kij 'eqpvgpv' Dqcug/Dgkgt '' 3; ; 7♂: 6="f g"Dgcwi tcpf g"3; 9: < : +:"cpf "c"uv{ rkurke"cpcn{ uku"ecp"j grr 'yj g"\tcpurcvqt 'vq"guvcdrkuj "r tkqtkkgu'kp'yj g" f gekukqp/o cmkpi 'r tqeguu'qp''yi g''o ketq/ngxgn0'Uwej "cp''cpcn{ uku'ku''qhvgp''ecttkgf ''qwv''wpeqpuekqwun{ ''qt''kpwkxkxgn{ '' d{"gzr gtkgpegf"\tcpurcvqtu"cpf"\ugpukkxg"tgcf gtu0Nghgxgtg"\3; 97<; +"uwi i guvu"\yj cv"\yj g"tgcuqp"y j {"o quv" vtcpurcvkqpu. "xgtukqpu"cpf "ko kscvkqpu"ctg" wpucvkulcevqt { "ku" yj cv" yj g{ "vgpf "vq"eqpegpvtcvg" gzenwukxgn{ "qp"qpg" cur gev'qh'y g'uqwteg'yzv.'tcy gt'y cp'qp'y g'yzv'cu'c'y j qrg.'r tguwo cdn{ 'dgecwug'qh'cp'kpcf gs wcvg'uv{ rkurke'' cpcn(uku'qp'y j kej '\q'dcug'o gyj qf qrqi kecn'etksgtkc0

Tgrcvgf "vq" i g"s wgurkqp" qh"uv{ rg"ku"cpq i gt"s wgurkqp" r tgxcrgpv" lp" i g"f kuewuukqpu" qp" r qgvt { "tcpurcvkqp." pco gn{ " y j gi gt"xgtug" i j qwf" 'dg" tcpurcvgf "kpvq" xgtug" qt" r tqug0Cu" o ki j v"dg" gzr gevgf. "dgrkgxgtu" lp" i g" ko r quukdkrkv{ "qh" r qgvke" tcpurcvkqp" vgpf "vq" cuugtv" i cv" kh"r qgvt { "ku"vq" dg" tcpurcvgf" cv" cm" r tqug" ku" i g" qpn{ "o gf kwo "hqt" i cv" r wtr qug0Qpg" cf xqecvg" qh" i g" tcpurcvkqp" qh" xgtug" lpvq" r tqug" ku" Uvcprg{ "Dwtpuj cy." y j q." lp" Vj g" Rqgo "Kugrhi" \*3; 82+" i kxgu" i g" r qgo "kp" i g" qtki kpcn" i cp i wci g." f kuewuugu" kv" cpf" i gp" i kxgu" c" rkxgtcn" r tqug" tgpf gtkpi 0 J g" cf xcpegu" i g" xlgy "i cv" i g" qpn{ "y c{"vq" gzr gtkgpeg" i g" r qgvt{"qh" cp" crlxpp" rcpi wci g" ku" vq" j gct" i g" uqwpf u"qh" i g" qtki kpcn" y j krg" tgcf kpi "rkxgtcn" r tqxf g" i g" r qgvt{"qh" cp" crlxpp" rcpi wci g" ku" vq" j gct" i g" uqwpf u"qh" i g" qtki kpcn" y j krg" tgcf kpi "rkxgtcn" r tqxf g" i g" r qgvt{"qh" cp" crlxpp" r qgvt{"ecppqv" dg" r qgvkecm{" vcpurcvgf." i g" o quv" ucvkulrevqt{"r tqegf wtg" ku" vq" r tqxf g" i g" tgcf gt" y kij "c" ngzkecn" cpf "eqpvgzwcn" eqo o gpvct{" cpf" cp" cf" xgt dwo. "pqprkxgtct{"tcpurcvkqp" cmpi ukf g" i g" qtki kpcn" y gtgd{"gpcdrkpi "i g" tgcf gt" vq" gzr gtkgpeg" y g" uqwteg" \gzv" hqt" j ko lj gtugrh0

Rtkqt"vq"y g"vg gpvkgy "egpwt {."y g"vtcpurcvkqp"qhlxgtug"kpvq"r tqug"y cu'tctgn{ "f ghgpf gf ="y g"r tgxckrlpi "xkgy "y cu" y cv"-xq"cwgo r v c"vtcpurcvkqp"qhl"c"n{tke"r qgo "kpvq"r tqug."ku"y g"o quv'cduwtf "qhl"cmlwpf gtvcmkpi u."hqt"y qug"xgt {" ej ctcevgtu"qhl"y g"qtki kpcnly j kej "ctg"guugpvkcnl\q"kv."cpf "y j kej "eqpuvkwwg"kuu"j ki j guv'dgcwkgu."khl\tcpuhgttgf "\q"c" r tqug"vtcpurcvkqp."dgeqo g"wpr ctf qpcdrg"drgo kuj guø"V{ vrgt"39; 2 < 35364 + 0Uko krct"xkgy u"eqpegtpkpi "y g" pgeguukv{"qhl"r tgugtxkpi "c"r qgo øu"hqto cnl'tj {o gu"cpf "o gvtg"ctg"uvkml"j gnf "d{"o cp{"kp"y g"w gpvkgyj "egpwt{0" Lqugr j "Dtqf um{."hqt"gzco r ng."o ckpvckpgf "y cv"-o gvtgu"kp"xgtug"ctg"mkpf u"qhl'ur ktkwcnlo ci pkwf gu"hqt"y j kej " pqy kpi "ecp"dg"uwduvkwwgf í "Vj g{"ecppqv'dg"tgr ncegf "d{"gcej "qy gt"cpf" gur gekcm{"pqv'd{"ht gg"xgtugø"\*s wqvgf" kp"Dqppghq{"3; 9; < 596 + 0Ugg"cnq"Tchhgnl\si3; :: d<45 +"cpf"O qhhgv'\skp"Y gkuudqtv'3; :; < 366 + 0

K'kı'pqv'qpn("yi g'kpf kxkf wcn'y qtf u'qh'c'r qgo "dw'cnıq'ku'hqto "y j kej "cewi'cu'c'uki pkhkgt'y kıj "c'uki pkhkgf "yi cv' ej cpi gu'htqo "ewnwtg''q'ewnwtg''cpf 'htqo "ci g'\q'ci g0'Kp"qy gt'y qtf u. "yi g'o gcpkpi "qh'c'r qg\ke'hqto "ej cpi gu" y kıj "yi g'r cuuci g'qh'\ko g''cpf "yi g'\tcpuhqto c\kqp"qh'\uqekcn'xcnwgu."cpf "o c{"pqv'dg"ghhge\kxg"kp"cpqyi gt "ci g''cpf" ewnwtg0'Hqt"gzco r ng. "yi g'\uqppgv'hqto "f qgu'pqv'uki pkh{ 'hqt "yi g''eqpwo r qtct{"P qtyi "Co gt\kecp"tgcf gt'y j cv'kv'f ff" hqt"Rg\tctej \alphau'eqpwo r qtct\kgu"\p'hqw\uggpyi /egpwt{"Kcn{0\text{Wukpi "yi g''uco g'hqto "hqt"c''\tcpurc\kqp"\p'c"f khhgtgpv'' ci g''cpf "c'f khhgtgpv'ewnwtg"o c{"yi gtghqtg''ectt{"s wkxg"c'f khhgtgpv'o gcpkpi "cpf "r tqf weg'yi g''qr r qukxg''qh'c'hckyi hwi' tgpf gt\pi 0\Qpg"uqnwkqp'\ku''\q''nqqm'hqt"c''ewnwtcn'gs wkxcngpv\%uwej "cu'yi g''Gpi nkıj "kco dke''r gpwco gyt''hqt"Htgpej "Cngzcpf tkpgu+"qt"c''yo r qtcn'gs wkxcngpv\%o qf gtp'htgg'xgtug'hqt "encukecn'xgtug'hqto u'qh'yi g''r cuv\to'Vj g''hqto "qh'c" r qgo "j cu'\q''dg''\tcpurc\yf. "kng"cm'kwu'qi gt''cur gevu."cpf ."y kıj qw'i qkpi "cu'hct"cu'Dqppghq{"\q'uc{"yi c' \yi o' kw'o ww'dg" \tcpurc\yf "kpq''htgg'xgtug."\tcpurc\yf \yi go "cpf "yi g" uvtcyi kgu''y g{"j cxg'cv'yi gkt"f kır qucn0'J qno gu'\x3;:: \47+"kf gp\xhl\gu'hgu'\hqwt"uwej "uvtcyi kgu."\tcf k\xhqpcm{"go r nq{gf" hqt'yi g''tcpurc\yfp''qh'xgtug''qh'x u\c

\*c+'o ko gyle.'y j gtg''y g''qtki kpcnlhqto 'ku'tgvckpgf

\*d+'cpcmi lecn'y j gtg'c'ewnwtcm{ 'eqttgur qpf kpi 'hqto 'ku'wugf

\*e+''**qticple.**''y j gtg''y g''ugo cpvle''o cvgt kcrl'ku''cmqy gf ''vq''÷vcmg''qp''kxu''qy p''wpks wg''r qgvle''uj cr g''cu''y g'' vtcpurcvlqp''f gxgmqr uø

\*f+'**f gxkcpv**'qt''**gzvt cpgqwu**''y j gtg''y g'hqto "cf qr vgf 'ku'kp"pq"y c{ 'ko r nkek'kp"gkvj gt''y g'hqto "qt"eqpvgpv'qh" y g''qtki kpcn0

Vj g'ej qlæg''qh'untcvgi {.''qh'eqwtug.''ku'kwigh'c'tghrgevlqp''qh'vcti gv'ncpi wci g'PQTOU'cpf''y g'r tghgtgpegu'qh'c'' r ctvlæwrct''ewnwtcn'eqo o wpkv{''cv'c'r ctvlæwrct'r qlpv'lp''vko g0

Rqgvt { "f qgu'pqv'qpn( "hwpevkqp"kp" vgto u"qh'ugo cpvke" eqpvgpv'cpf "cguvj gvke" hqto ="qhvgp." kv'ku'kpvgpf gf "vq" ctqwug" ugpvko gpv'cpf "vq" r tqf weg"go qvkqpcn'ghhgev0'Vj ku'r tci o cvke "f ko gpukqp"qh'c'r qgo "ku'r gtj cr u'vj g"o quv'f khhkewn' vq" ceeqwpv'hqt "kp" vtcpurcvkqp0'Kb'vj gtg" ku'f kuci tggo gpv'cu'vq"y j cv'eqpuvkwwgu'ugo cpvke "cpf "hqto cn'gs wkxcngpeg" kp" r qgvt { "vtcpurcvkqp." kv'ku"gxgp"j ctf gt "vq"f ghkpg"r tci o cvke "\*f { pco ke+"gs wkxcngpeg0'[ gv'vj g"i gpgtcn'dgnkgh'lku'vj cv' vj g"vtcpurcvqt" uj qwrf "vt { "vq" cej kgxg" cp" ;gs wkxcngpv'ghhgevø'cpf "vj cv' ;vj cv'vtcpurcvkqp" ku"dguv'y j kej "eqo gu"pgctguv" vq" etgcvkpi "kp"ku" cwf kgpeg'vj g"uco g"ko r tguukqp" cu'y cu'o cf g"d { "vj g"qtki kpcn'qp" ku"eqpvgo r qtctkguø" \*T kgw." s wqvgf "kp" Nghgxgtg"3; 97<325+0

C'hwpf co gpvcn'r tqdngo. "j qy gxgt. "ku" y g'ncem'qh" c" y gqtgvkecn'dcuku "hqt" uvcpf ctf u "qh" GS WKXCNGP EG" kp" r qgvt {" vtcpurcvkqp. 'r ctvn( 'dgecwug' vj gtg'ku'pq' qxgtcm'ci tggo gpv'cu' vq' y j cv'kp'c' r qgvke' vgz v'eqpuvkwwgu' vj g'dcuke' WP KV'' QH'VTCP UNCVKQP 0Cmj qwi j 'gs wkxcngpeg'tgo ckpu'cp'ko r qt vcpv'hcevqt'kp'f kuewuukqpu'cdqw'vtcpuncvkqp. 'yj gtg' ku'f kuci tggo gpv'cu'\q"y j cv'v{r gu'qh'gs wkxcrgpeg"ctg"o quv'etwekcn'i kxgp"yj cv'kv'\gpf u'\q"dg"f kthkewnv'\q"cej kgxg" qp"gxgt{"rgxgr0"Hqt"gzcorrg."kp"qtfgt"\q"ockpvckp"gswkxcrgpeg"qh'uqwpf"rcwgtpu."kv'ykrn'wuwcrn("dg"pgeguuct{"\q" ucetkhleg"gs wkxcrgpeg"qp"c"u{pvcevke"qt"ugo cpvke"rgxgr0Fg"Dgcwi tcpfg"\*3; 9: <323hl0+"cpf"Nghgxgtg"\*3; 97< 8+" hcxqwt "gs wkxcngpeg "qp"c "eqo o wplec wkxg "ngxgr0P q "vtcpurc wqp "qh "c "r qgo . "vj qwi j . "ecp "gxgt "dg" ÷yj g "uco g "cuø' vj g" r qgo 'kwugnh'cpf'y j cv'y g'\tcpurcvqt''uj qwrf''uvtkxg''hqt."ceeqtfkpi '\q'Jqmogu'\3;:: ₹6+."ctg''÷eqwpvgtrctvuø'qt'' ÷o cvej kpi uø "d{"y j kej "J qno gu"o gcpu"y qtf u"cpf "qvj gt "gngo gpvu"y j kej "hwhkn'hwpevkqpu"kp"vj g"ncpi vci g"qh"vj g" we consider the properties of the propertiesyj g'y qtf u'cpf 'uxtwewtgu'qh'yj g'uqwteg'r qgo 'kp'yj g'hcpi wci g'cpf 'ewnwtg'qh'kuu'qy p'tgcf gtu0 Vj g'qpi qkpi 'f krgo o c''qh''y g''tcpurcvqt''qh'r qgvt { 'ku''j qy ''vq''ceeqwpv''cu''ceewtcvgn( ''cu'r quukdrg'hqt''y g'' ej ctcevgtkuvke 'hgcwtgu''qh''vj g''qtki kpcn'cpf ''cv''vj g''uco g''vko g''etgcvg''c''r qgvke ''vgzv'kp''vj g''VN''vj cv'y km'j cxg''c''uko knct'' rtci o cvke "ghhgev"qp" vj g"tgcf gt0" Vj g"uko wnxcpgqwu" cej kgxgo gpv"qh" gs wkxcngpeg "qp" cm" vj g" ngxgnu" qp" vj kej "c" r qgo 'hwpevkqpu'ku'kp'r tcevkeg'ko r quukdrg. 'uq''yi g''vtcpurcvqt''ku'eqpvkpvcm('hcegf''y kyi 'ej qkegu''cpf'eqo r tqo kuguO' Rqgvt { "\tcpurcvkqp" j cu'dggp" ecrogf "\yi g" ctv'qh' eqortqokug" \qquad Iqpgu" 3; :; ∅; 9+" cpf "kxu' uweeguu" y km' cnyc { u'dg' c" s wguvkqp"qh'f gi tgg0"Vj g''tcpurcvkqp"y km'cny c{u'kpewt''nquu'kp''tgrcvkqp''vq''yj g''qtki kpcn''kttgur gevkxg''qh'y j gyj gt'' yj gtg"o c{"dg"i ckp"kp"yj g"tcpurcvkqp."kp"yj g"ugpug"yj cv"yj g"tcpurcvkqp"o c{"dg"eqpukf gtgf"c"dgwgt"r qgo 0"Khi'yj g" i qcn'qh'gs wkxcngpeg''qp''cm'ngxgnu''qh''c''r qgo ''ku''

ko r quukdng. 'kv'hqmqy u''yi cv'pq''qpg''\tcpurc\kqp''ku''y j qm{ ''cf gs wc\ygô c''r qkpv'y j kej ''eqwrf ''r gtj cr u''dg''o cf g''qh''cm'' \tcpurc\kqp. ''yi qwi j ''kv'ku''engctn{ ''o qtg''qdxkqwu''kp''r qg\t { ''\tcpurc\kqp0'K''cn\q''hqmqy u''\yi cv'\ugxgtcn'\tcpurc\kqpu''qh'' \yi g''\uco g''r qgo ''y km''dg''cdng''\q''cej kgxg''y j cv''pq''qpg''\tcpurc\kqp''ecp''f q. ''\yi cv'\ku''j ki j nki j v'f kh\u00e4\gp\v'cur gewu''qh''\yi g'' \uco g''r qgo .''cpf ''\yi gtg'\ku''c''i qqf ''ecug'\vq''dg''o cf g'\u00e4\qu''\tcpurc\kqp\u''\qt''\yi g''\uco g''r qgo '\w10e4\qq\u00e

#### Rqgv/vtcpurcvqtu'cpf 'vtcpurcvqt/rqgvu

Vj gtg'j cu'cny c{u'dggp'c'enqug'eqppgevkqp'dgw ggp'y tkkpi 'qtki kpcn'r qgvt{'cpf 'vtcpurcvkpi 'kx.'cpf 'o clqt'r qgvu' ctg"qhvgp"vj go ugnxgu"vtcpuncvqtu"cpf "eqpegtpgf"y kij "vj g"vj gqtgvkecn"kuuvgu"kpxqnxgf0'Ocp{"y tkvgtu" "hqt"gzcorng" Tchhgn'3;; 3<: +'j cxg'encko gf ''y cv'qpg''o wuv'dg''c'r qgv''vq''tcpurcvg''r qgvt {.''y qwi j 'kv'eqwrf ''cnuq''dg''uckf ''y cv'gxgp'' kh'y g'tcpurcvqt'ku'pqv'c'r qgv'kp'j ku'qt'j gt'qy p'tki j v.'j g''qt''uj g''dgeqo gu''qpg''kp''y g''r tqeguu0'Ki'ctvkuvke''cdkrkx{ ''ku'' pggf gf "vq"r tqf weg"cp"qtki kpcn'r qgo . "vj gp"c"xgt { "uko krct"ct vkuvke"i khv"ku"tgs wktgf "kp" vtcpurcvkpi "kv."cpf "vj g"pco gu" qh'qtki kpcn'r qgvu'cpf ''vj gkt ''tcpurcvqtu'ctg''vj gtghqtg'htgs wgpvn{ 'hkpngf 'kp''vj g'hkgtcwxtg0'F gur kg''vj g''vtcf kkqpcn' xkgy "qh''y g''tcpurc qt "qh'r qgvt { "cu"c 'ugeqpf ct { "qt 'hckrgf 'r qgv'hggf kpi "qhh'y g'cej kgxgo gpvu'qh'qy gtu. 'kv'ku" y kf gn{ "tgeqi pkţ gf "yj cv'r qgvt { "tcpurcvqtu"ctg"j ki j n{ "i khvgf ."hqt"yj g{ "÷o wuv'r gthqto "uqo g"\*dwv'pqv'cm+"qh'yj g" hwpevkqpu"qh"c"etkke."uqo g"\*dwv"pqv"cm+"qh"yi g"hwpevkqpu"qh"c"r qgv."cpf "uqo g"hwpevkqpu"pqv"pqto cm{ "tgs wktgf "qh" etkke"qt"r qgvø'\*J qno gu'3; :: <33+0Rgtj cr u'kk'ku''yj gug''qyj gt'hwpevkqpu'tgs wktgf ''qh''c''\tcpurc\qt/r qgv''yj cv''gzr nckp'' y j { "o cp{ "r qgv/vtcpurcvqtu"o c{ "dg"i tgcv'r qgvu"dwv'pqv'pgeguuctkn( "i tgcv'vtcpurcvqtu00 cp{ "y gm/mpqy p"r qgv vtcpurcvqtu'\gpf "\q'\korqug'\j gkt"qy p'\uv\rg"uq'\j qtqwi j n\rqp"\j g"\tcpurcvgf "rqgo u'\j cv'\j gug'tgugo drg'\j gkt"qy p" r qgo u'tcyj gt''y cp'tghrgevlpi ''y g'r ctvlewrct''ej ctcevgtkuvleu''qh''y g''cwyj qt0'Hqt''gzco r ng. 'G| tc'RQWP F øu'' -tcpurcvlqpuø' "ugg' COGTKECP "VTCFKVKQP +"ctg" Rqwpf "cpf "ctg" tgcf "hqt" yi cv'tgcuqp. "cpf "Nqy gm'cfo kwgf "vq" rtqf wekpi "pqv"∹vtcpuncvkqpuø'dwv"∹ko kvcvkqpuø0'Kv"ku "kpvgtguvkpi "vq"pqvg"vj cv'uqo g"rqgv/vtcpuncvqtu. "nkng"Nqy gm" wug'tcpurcvkqp'cu'c'mkpf 'qh'y qtmuj qr 'hqt'r tcevkukpi ''y gkt'etchv'y j gp''y gkt''qy p'y qtm'j cu'tgcej gf 'cp''ko r cuug0' Uko krctn{.'kx'ku'r quukdrg'hqt'c'r qgv'y j q'ku'ki pqtcpv'qh'y g'uqwteg'rcpi wci g'vq'r tqf weg'c'r qgvke'vgzv'dqy " cguyj gykecm("r ngcukpi "cpf 'kpwkykxgn("ceewtcyg."cu'kp''yj g'ecug''qh'Rqwpf øu''ytcpuncykqpu'htqo "Ej kpgug0'Vj ku''ku" y j q'r tgr ctgu'c'r tko ct { ''qt ''f tchv'\tcpurc\kqp.''uqo g\ko gu'npqy p''cu'et kd '\ttcpurc\kqp0 Vj gtg'j cu'dggp'o wej 'f kuewuukqp'qp''yj g'f go ctecvkqp'hkpgu'dgw ggp''vtcpurcvkqp. 'CF CRVCVKQP 'cpf'' KO KVC VKQP. "cpf "vj g"f kthgtgpeg"uggo u"vq"tkg"kp"vj g"f gi tgg"qh"kpvgtr tgvcvkqp0Ceeqtf kpi "vq"Nghgxgtg"\*3; 97<98+." ÷Vj g'\tcpurc\qt'r tqr gt'ku'eqp\gpv\q'tgpf gt'\j g'\qtki kpcn'cwj qtøu'kp\gtr tg\c\qp'\qh'c'\j go g'ceeguukdrg'\q'c" f kthgtgpv'cwf kgpeg0'Vj g'y tkgt 'qh'xgtukqpu'dcukecm( 'mggr u'vj g'uwduvcpeg'qh'vj g'uqwteg'vgzv.''dw'ej cpi gu'kwu' hqto 0'Vj g'y tkgt"qh'ko kcvkqpu'r tqf wegu. "vq"cm'kpvgpvu'cpf 'r vtr qugu. "c"r qgo "qh'j ku"qy p. "y j kej 'j cu'qpn( "vkvrg" cpf 'r qkpv'qh'f gr ctwtg. 'kh'vj qug. 'kp'eqo o qp'y kj ''y g''uqwteg''vgz vØKVku''vtwg''y cv'c''nqv'qh'vj g''nkvgtcwtg''qp''r qgvt{'' vtcpurcvkqp'ku'cdqw'xcnwg'lwfi go gpwi'dcugf 'qp''y g'etkkecn'o gyi qf 'qh'eqo r ctkuqp'y kyi ''y g''qtki kpcn''y kyi ''y g'' tguwn''y cv'ko kcykqpu'cpf 'cf cr vcykqpu'hctg''dcf n{ 0Gxcnwcykqp''o wuv.'j qy gxgt.''cnuq''dg''dcugf ''qp''y g''y cpurcyqtøu'' cko u0°C "tcpurcvkqp" j cu'vq"dg" lwf i gf "kp" vgto u'qh ku "eqpukuvgpe { 'y kj "vj gug" cko u "cpf "pqv"qp" uqo gvj kpi "kv" y cu" pgxgt"o gcpv"vq"dg0"Kl"ecppqv"uko r n{ "dg"cuuwo gf "vj cv"vj g"\tcpurcvqtøu"cko "ku"cny c{ u"vq"tgr tgugpv"vj g"qtki kpcn"cu" eqo r ngvgn{"cu'r quukdng0Cm'cko u'ctg'xcnkf"r tqxkfgf"vjg{"ctg"engctn{"uvcvgf"cpf"o qvkxcvgf0Yjcv'ku"pqv" ceegr vcdrg'ku'kpeqpukuvgpe{ ''y ky ''y gug''cko u.''o kuvcngu''kp''f geqf kpi ''cpf ''gpeqf kpi .''qt ''nquu''y cv'ku''f wg''vq'' kpeqo r gvgpeg''qp''yi g'r ctv''qh''yi g''\tcpurcvqt'\*'ugg''Nghgxgtg''3; 97<32365'hqt''c'hkxg/r qkpv'kpxgpvqt{'hqt''cuuguukpi " yj g'eqo r gvgpeg''qh''c''hkvgtct { ''\tcpurcvqt+0

Vtcpurcvqtu'qhvgp''uvtguu''y g''pggf 'hqt''c''ugpug''qh''chhlpkv{ ''y kj ''y g''r qgv''y g{ ''ctg''vtcpurcvlpi .''cpf 'hqxg'hqt''y g'' r qgv¢u'y qtm'vqi gyi gt''y kj ''uqo g''f gi tgg''qh''lpur ktcvlqp''ctg''ko r qtvcpv'hcevqtu''wuwcm{ ''o kuulpi 'htqo ''o qf gnu''cpf '' y gqtkgu''qh'r qgvt { ''vtcpurcvlqp0Cu'Qevcxkq''Rc| ''uwi i guvu.''÷pgkyi gt''ctg''uwhhlekgpv.''dw''dqyi ''ctg''kpf kur gpucdngø'''kp'' J qpki ''3; : 7 ≪ 82 + 0 Rgtj cr u'kv'ku''y ku''r tqhqwpf ''go qvkqpcn'lpvxqnxgo gpv'lp''

vtcpurcvkpi "r qgvt{"yj cv'o qvkxcvgu'\tcpurcvqtu"cm quv'vq"yj g"r qkpv'qh"cffkevkqp'vq"gpi ci g"kp"y j cv'uqo g"j cxg" vgto gf"÷yj g"ctv'qh'yj g"ko r quukdrgø0

Ugg'cnuq<

RQGVIEU'QH'VTCPUNCVKQP="UETIRV"IP "VTCPUNCVKQP="UVTCVGLIGU'QH'VTCPUNCVKQP0"

### Hwt vj gt 't gcf kpi

FCXIF 'EQPPQNN[

# Rqn(u(uvgo 'vj gqt {

Qtki kpcm{ "ctkukpi "htqo "vj g"y qtm'qh'c"i tqwr "qh'T wuukcp 'rksgtct { "vj gqtkuxu."vj g"eqpegr v'qh'vj g" $\pm$ r qn{ u{uxgo ø'j cu" tgegkxgf "eqpulf gtcdrg"cwgpvkqp"kp" y g'y qtm'qh'egtvckp"i tqwr u'qh'vtcpurcvkqp"uej qrctu"ukpeg" y g'o kf/3; 92u0' Y j krg"qhhgtkpi "c"i gpgtcn'o qf gn'hqt"wpf gtuvcpf kpi ."cpcn{ ukpi "cpf "f guetkdkpi "vj g"hwpevkqpkpi "cpf "gxqnwkqp"qh" rksgtct { "u{uvgo u."kuu'ur gekhle"cr r nlecvkqp"vq" y g"uwwf { "qh'vtcpurcvgf "rksgtcwtgô cp"ctgc"htgs wgpvn{ "o cti kpcnk gf" d{ "rksgtct { "vj gqt {ô j cu'i kxgp"tkug"vq" o wej "wughwn'f kuewuukqp"cpf "tgugctej 0}

### Vj g'qt ki kpu'qh'vj g'r qn( u( uvgo 'o qf gn'cpf 'vj g'y qt m'qh' Kco ct 'Gxgp/\ qj ct

Kp"yj g"gctn("3; 92u."Kco ct"Gxgp/\ qj ct."c"uej qnct"htqo "Vgn'Cxkx."f gxgnqr gf "yj g"r qn(u{uvgo "o qf gn'qp"yj g"dcuku" qh"j ku"y qtm'qp"J gdtgy "rkxgtcwxtg0Ku"tqqvu."j qy gxgt."rkg"kp"yj g"y tkkpi u"qh"yj g"ncvg"T wuukcp"Hqto crkuvu"Lvxtkl"  $V\{plcpqx."Tqo\ cp"Lcmqduqp"cpf\ "Dqtku"Glmj\ gpdcwo\ 0O\ cvglmc"cpf\ "Rqo\ qtumc"*3; 93+"r tqxkf g"c"i\ qqf\ "Gpi\ rkuj / ncpi wci g"kpvtqf wevkqp"vq"yj g"kf gcu"qh'T wuukcp"Hqto crkuo\ 0$ 

Cmj qwi j "o cp{"cur gewi'qh'vj gkt"vj kpmkpi "ctg"vcmgp"wr "d{"Gxgp/\ qj ct."r tqdcdn{"vj g"o quv'uki pkhkecpv" eqpvtkdwkqp"qh'vj g"Hqto cnkwu'ku'vj g"pqvkqp"qh'wt www 0"Vj ku'vgto ."vj kej "y cu'qtki kpcm{"f ghkpgf "d{"V{plcpqx" \*3; 4; +"y cu'wugf "vq"f gpqvg"c"o wnk/nc{gtgf "untwewtg"qh'gngo gpwu"y j kej "tgncvg"vq"cpf "kpvgtcev'y kej "gcej "qvj gt0' Cu"c"eqpegr v."vj ku'y cu'nrgzkdng"gpqwi j "vq"dg"cr r nkecdng"vq"r j gpqo gpc"qp"xctkqwu'ngxgnu."vj wu'gpcdnkpi "V{plcpqx"vq"xkgy "pqv'qpn{"kpf kxkf wcn'y qtmu."dw'cnuq"y j qng"nkvgtct{"i gptgu"cpf "vtcf kkqpuô cpf "wnko cvgn{" gxgp"vj g"gpvktg"uqekcn'qtf gtô cu'u{uvgo u"\*qt"gxgp":u{uvgo u"qh'u{uvgo u\vert kp"vj gkt"qy p"tki j v0'Hwtvj gto qtg."y kej kp" vj g"y kf gt "htco gy qtm'qh'j ku'y qtm'qp"vj g"r tqeguu"qh'nkvgtct{"gxqnwkqp"\*V{plcpqx"3; 93+."vj g"wug"qh'vj g"u{uvgo ke" eqpegr v'ngf "vq"y ku'r tqeguu"dgkpi "xkgy gf"cu'c":o wcvkqp"qh'u{uvgo u\vert kp"y u\vert ky u\vert kp"vj ku'r tqeguu"dgkpi "xkgy gf"cu'c":o wcvkqp"qh'u{uvgo u\vert kp"y u\vert kp"vj ky kp"

Wukpi ''y g'y qtm'qh'V{plcpqx''cpf ''qyi gt'Hqto cnkunu''cu'j ku'unctvkpi 'r qkpv.''Gxgp/\ qj ct''qqm'wr ''y g'u{ungo ke'' cr r tqcej 'kp''y g'gctn( '3; 92u'o qtg'qt''nguu'htqo ''y g'r qkpv'y j gtg''y g{ ''j cf ''nghn'qhh0J ku'ko o gf kcvg''cko ''cv''y g''v g'' y cu''vq''tguqnxg''egtvckp''r tqdngo u'eqppgevgf ''y kyj ''vtcpuncvkqp''y gqt { ''cpf ''y g''j kuvqtkecn'untvewtg''qh''J gdtgy ''nkgtcwtg.''cpf ''j ku''cr r nkecvkqp''qh''y g''Hqto cnkunuø'kf gcu''kp''y gug''ctgcu''tguwnvgf ''kp''y g''hqto wncvkqp''qh'y j cv'j g'' vgto gf ''r qn( u\ ungo '\y gqt { 0}

Kp'Gxgp/\ qj ctøu'y tkkpi u." yj g'vgto u'u{uvgo "cpf "r qn{u{uvgo "ctg"\q"c"ncti g"gzvgpv'u{pqp{o qwu0J qy gxgt." yj g" ncwgt "vgto "y cu"r tqr qugf "kp"qtf gt "vq"uvtguu' yj g"f {pco ke"pcwtg"qh"j ku"eqpegr vkqp"qh"yj g"±u{uvgo ø'cpf "vq"f kuvcpeg" kv"htqo "yj g"o qtg"uvcvke"eqppqvcvkqpu" yj kej "yj g"vgto "j cf "ces wktgf "kp"yj g"Ucwuuvtgcp"vtcf kkqp="cp"ceeqwpv"qh"yj g" r tqxgpcpeg"cpf "tcvkqpcng"qh"yj g"vgto "r qn{ u{ uvgo 'ecp"dg"hqwpf "kp"Gxgp/\ qj ct"\*3; ; 2< 635+0"KVuj qwrf "cnuq"dg" r qkpvgf "qwv"yj cv"Gxgp/\ qj ctøu"wug"qh"yj g"vgto u'u{ uvgo 'cpf "u{ uvgo ke'ku's wksg"f kuvkpev"htqo "yj cv"cuuqekcvgf "y kyj "O kej cgn"J cnkf c{øu"hwpevkqpcnô qt"u{ uvgo keô i tco o ct." yj kej "hqto u'yj g"yj gqtgvkecn'dcuku"qh"Ecvhqtf øu"\*3; 87+" o qf gn"qh"vtcpurcvkqp0

Ceeqtf kpi ''vq''Gxgp/\ qj ctøu'o qf gn''yj g'r qn{u{uvgo 'ku'eqpegkxgf ''cu''c''j gvgtqi gpgqwu.''j kgtctej kţ gf ''eqpi mo gtcvg'' \*qt''u{uvgo +''qh''u{uvgo u'y j kej 'kpvgtcev'vq''dtkpi ''cdqwv'cp''qpi qkpi .'f {pco ke''r tqeguu'qh''gxqnwkqp'y kyj kp''yj g'' r qn{u{uvgo ''cu''c'y j qng0'Htqo ''vj g''hktuv'r ctv'qh''yj ku'f ghkpkkqp.''kv'hqmqy u'vj cv'r qn{u{uvgo u'ecp''dg''r quwwcvgf ''vq'' ceeqwpv'hqt''r j gpqo gpc''gzkuvkpi ''qp''xctkqwu''ngxgnu.''uq''yj cv'yj g''r qn{u{uvgo ''qh''c''i kxgp''pcvkqpcn'hkvgtcwtg'ku'' xkgy gf ''cu''qpg''gngo gpv'o cmkpi ''wr ''yj g''rcti gt''uqekq/ewnwtcn''

r qn{u{uvgo ."y j kej "kugnh"eqo r tkugu"qvj gt"r qn{u{uvgo u"dgukf gu"vj g"nkvgtct { ."uvej "cu"hqt"gzco r ng"vj g"ctvkuvke."vj g" tgnki kqvu"qt"vj g"r qnkvkecn0'Hvvt vj gto qtg."dgkpi "r ncegf "kp"vj ku"y c{ "kp"c"ncti gt"uqekqevnvvtcn"eqpvgzv."inkvgtcvvtgø" eqo gu"vq"dg"xkgy gf "pqv"lvvv"cu"c"eqnngevkqp"qh"vgzvu."dvv"o qtg"dtqcf n{ "cu"c"ugv"qh"hcevqtu"i qxgtpkpi "vj g" r tqf vevkqp."r tqo qvkqp"cpf "tgegr vkqp"qh"vj gug"vgzvu0

Cnj qwi j "uq/ecngf "nqy "hqto u''gpf "\q'tgo clp"qp"\j g'r gtlr j gt {."\j g'uvlo wnwu''y j lej "\j g{"i kxg"\q"\j g"ecpqpk gf" hqto u''qeewr {lpi "\j g"egpvtg"ku''qpg"qh'\j g"o clp"hcevqtu''y j lej "f gygto lpgu"\j g'y c{"lp"y j lej "\j g"r qn{u{uvgo "gxqnxgu0"\j wu'hqt"Gxgp/\q j ct "hkytct {"gxqnwkqp"ku''pqvff tkxgp"d{"c'ur geldhe"i qcn'dwi'ku'tcvj gt "dtqwi j v'cdqw'cu'c" eqpugs wgpeg"qh'-\j g"wpcxqkf cdng"eqo r gykkqp"i gpgtcvgf "d{"vj g"uvcy"qh'j gygtqi gpgkx{\phi\*3;; 2<3+0Cpq\j gt "hceyv"qh'\j ku''eqo r gykkqp"ecp"dg"uggp"kp"\j g"hwt\j gt "ygpukqp"y j lej "gzknvu'dgw ggp"rt ko ct {"%ppqxcykxg+"cpf" ugeqpf ct {"\*eqpugtxcykxg+"hkytct {"r tkpekr ngu<"qpeg"c"r tko ct {"hqto "j cu''dggp"ceegr vgf "kpvq"\j g"egpvtg"cpf "j cu" o cpci gf "\q"cej kgxg"ecpqpk gf "uvcwu"d{"o clpvckpkpi "ku''r qukkqp"\j gtg"hqt"uqo g"\ko g."kv'y km'\gpf "\q"dgeqo g" kpetgculpi n{"eqpugtxcykxg'cpf "lphngzkdng"cu'kv'cwgo r wu'\q'hki j v'qhh'ej cmgpi gu'htqo "pgy gt."go gti kpi "hkytct {" kf gcu0I qy gxgt."kv'y km'gxgpwcm(ô cpf "kpgxkycdn(ô uweewo d"\q"c"pgy gt"o qf gn'y j lej "y km'wnko cygn("gxkev'ky' htqo "kwu'r tkxkrgi gf "r qukkqp"cv'\j g"egpytg"qh'\j g"r qn(u{uvgo 0

### Rqn(u(uvgo 'vj gqt { 'cpf 'vt cpurcvlqp

 $Y j krg' \dot{y} g''r qn (u \{uvgo "eqpegr v'y cu''f guki pgf "ur gekhlecm ("kp"qtf gt" vq"uqnxg"egtvckp"r tqdngo u"eqppgevgf "y kj" utcpurcvkqp."kv'ku''engct''htqo "vj g''cdqxg''vj cv''cu''c''vj gqt { "kv''ceeqwpvu''hqt''u {uvgo ke''r j gpqo gpc''qh''c''eqpukf gtcdn { "oqtg''i gpgtcn''pcwtg0J qy gxgt."owej "qh''Gxgp/\qj ctøu''y tkkpi "ku''f gxqvgf "vq''c''f kuewuukqp''dqvj "qh''vj g''tqng''y j kej "utcpurcvgf "nkygtcwtg''r nc {u'kp"c''r ctvkewnct''nkygtct { "r qn {u {uvgo ."cpf "cnuq"qh''vj g''y kf gt''vj gqtgvkecn''kor nkecvkqpu" y j kej "r qn {u {uvgo "vj gqt { "j cu''hqt''utcpurcvkqp''uwvf kgu''kp''i gpgtcn'}}$ 

Tgi ctf kpi "'y g'hktuv'qh''y gug''s wguvkqpu. 'Gxgp/\ qj ct"cti wgu'hqt"'y g'tgeqi pkkqp"qh'nko kgf "u{uvgo ke'tgrcvkqpuj kr u" dgwy ggp"'y g'uggo kpi n{ 'kuqrcvgf "vcpurcvgf "vgzwi'y j kej "gzkuv'kp"c'i kxgp"nkvgtct{ "r qn{u{uvgo "\*3; ; 2 € 768 +0 Vj gug" tgrcvkqpuj kr u"eqpegtp"'y g''r tkpekr ngu"qh'ugngevkqp"ko r qugf "qp"r tqur gevkxg"vtcpurcvkqpu"d{ "'y g'f qo kpcpv'r qgvkeu." cpf "cnuq" y g'vgpf gpe{ "hqt"vtcpurcvgf "vgzwi'vq"eqphqto "vq" y g'nkvgtct{ "pqto u"qh" y g'vcti gv'u{uvgo 0 J cxkpi "guvcdrkuj gf "'y g'u{uvgo ke'uvcwwu"qh'vtcpurcvgf "hkvgtcwtg. "Gxgp/\ qj ct" y gp"r tqeggf u'vq"f kuewuu'kvu'tqng"cpf "uki pkhkecpeg'y ky ky kp" y g'nkvgtct{ "r qn{u{uvgo 0}

Cnj qwi j 'k/o ki j v'dg'\go r \kpi ."qp'\j g"dcuku'qh'\j g'\uecpv'cwgp\kqp'\tcf kkqpcm{ "ceeqtf gf "\q'\tcpurc\gf "hkgtcwtg" d{ "o quv'dtcpej gu'qh'hkgtct { 'uwwf kgu. "\q'eqpenwf g'\j cv'kv'y km'kpxctkcdn{ "qeewr { "c'r gtkr j gtcn'r qukkqp'kp'\j g" r qn{ u{ uvgo ."kv'y qwrf 'kp'hcev'dg'c'o knvcng'\q'f q'uq0'Y j krg'c'r gtkr j gtcn'ukwc\kqp'ku'qh'eqwtug'pqto cn'Gxgp/ \ qj ct'kf gp\khkgu'\j tgg'ugwu'qh'ektewo uvcpegu'\p'y j kej "\tcpurc\gf 'hkgtcwtg''ecp''qeewr { "c'o qtg''egp\tcn'r qukkqp" \ \*3; ; 2-686: +0'Vj g'hktuv'qh'\j gug'\kpxqnxgu'\j g'ukwc\kqp'\p'y j kej "c''\{ qwpi ø'rkgtcwtg'\kp'\j g''r tqeguu'qh''dg\pi " guvcdrkuj gf "j cu''pqv'\{ gv'dggp''et { uvcn\k} gf "

kpvq"c"r qn(u{uvgo 0Kp"yi ku"ecug."tcpurcvgf "iksgtcwtg"dgeqo gu"qpg"qh"ku"o quv"ko r qtvcpv"u{uvgo u"cu"yi g"go gti kpi "nkgtcwtg"nqmu"vq"qyi gt. "qnf gt"iksgtcwtgu"hqt "kpkkcn"tgcf {/o cf g"o qf gnu"hqt"c"y kf g"xctkgv{ "qh"vgzv"v{r gu0"Vj g" ugeqpf "hpuvcpeg"kp"y j kej "tcpurcvgf "iksgtcwtg"o c{ "qeewr {"c"egpvtcnir qukkqp"kp"c"i kxgp"iksgtct{"u{uvgo "ku"y j gp" yi g"qtki kpcniiksgtcwtg"qh"yi cv"u{uvgo "ku"÷r gtkr j gtcm"qt"÷y gcma"cu"hqt"gzco r ng"qeewtu"y j gp"yi g"nksgtcwtg"qh"c" uo cmipcvkqp"ku"qxgtuj cf qy gf "d{"yi cv"qh"c"rcti gt"qpg0"Vj g"yi kf "ugv"qh"ektewo uvcpegu"qeewtu"cv"o qo gpw"qh" etkuku="cv"uwej "wtpkpi "r qkpvu"kp"yi g"gxqnwkqp"qh"c"r qn(u{uvgo ."yi g"xcewwo "nghv"y j gp"qnf gt. "guvcdnkuj gf "o qf gnu" egcug"vq"dg"vgpcdng"ecp"htgs wgpvn("qnn("dg"hknrgf"d{"cp"kphnwz"qh"pgy "kf gcu"xkc"tcpurcvkqp0Cv"ko gu"qyi gt"yi cp" yi gug. "j qy gxgt."tcpurcvgf "y qtmni'vgpf "vq"dg"tgr tgugpvcvkxg"qh"o qtg"eqpugtxcvkxg. "ugeqpf ct {"P QTO U."cpf" eqpugs wgpvn("eqo g"vq"cev"cu"c"o gcpu"qh"o ckpvckpkpi "tcf kkqpcn"gxgp"qwf cvgf "o qf gnu0J qy gxgt."kv"uj qwf "dg" r qkpvgf "qwv"yi cv"tgi ctf nguu"qh"yi g"qxgtcmlvvcyg"qh"yi g"nksgtct {"r qn(u{uvgo ."yi g"tcpurcvgf"hkgtcwtg"y kyi kp"kv"y kni" pqv"pgeguuctkn("cmidgi cxg"kp"yi g"uco g"y c{."cu"nkng"cp{"qyi gt"nksgtct{"hqto "kv"eqo r tkugu"ku"qy p"uvtcvkhkgf"" r qn(u{uvgo 0

I kæp''y g'heev'y cv'ttcpurevgf ''hægtcwtg''ecp''cmg''qp''c''xctlæv{ "qh'tqngu'hp''y g''vti gv'r qn{ u{ uvgo ô gky gt'' eqphqto kpi "\q''cntgcf { "gzknkpi "o qf gni'qt "gng'\pvtqf wekpi "qtki kpcn'gngo gpwi'lpvq''y g''u{ uvgo ô kv'\pgxkscdn{" hqmy u''y cv'y g'y c{u''hp''y j kej "'tcpurevkqp'ku'' tcevkugf "hp'c''i kæp''ewnwtg''ctg''y go ugnægu'f kevægf "d{ "'y g'' rqukkqp''y j kej "'tcpurevgf "hægtcwtg''qeewr kgu''y ky kp''y g''r qn{ u{ uvgo 0Vq''wug''Gxgp/\ qi ctøu''y qtf u. "≒tcpurevkqp''ku'' pq''nqpi gt''c''r j gpqo gpqp''y j qug''pcwtg''cpf "dqtf gtu''ctg''i kæp''qpeg''cpf "hqt''cm''dw''cp''cevkxkv{ "f gr gpf gpv'qp''y g'' tgrevkqpu'y ky kp''c''egtvckp''ewnwtcn'u{ uvgo ø'\*3; ; 2√3+0'Vj ku''pgy "kpuki j v'kpgxkscdn( "ngcf u''q'c''y kf gpkpi "qh''y g'' f ghkpkkqp"qh''tcpurevkqp''kwgnft0Rcuv'f ghkpkkqpu''j cxg''ttgs wgpvn{ "dggp''hqto wrevgf "kp''j ki j n( "rtguetkr vkæg''yto u." cpf "vgzwu''pqv'eqphqto kpi "\q''ceegr vgf "'y gqtgvkecn'r tgeqpegr vkqpu''j cxg''ttgs wgpvn{ "dggp''f gpkgf "'y g''nmn'uvcwu''qh'' →tcpurevkqpuø' "kpuvgcf "dgkpi "f wddgf "ko kcvkqpuø''-cf cr vcvkqpuø'qt''-xgtukqpuø'0'Vj g''y qtm'qh''Gxgp/\ qj ct. "qp''y g'' qq' gt''j cpf. "wi i guvu'y cv'wr "\q''pqy "tcpurevkqp''uej qnetu''j cxg''dggp''cunkpi "'y g''y tqpi "s wguvkqpu."cpf "cko u'cv'c" pgy "f ghkpkkqp"qh''y g'' kuekr nkpg''kugnh'd{ "cempqy ngf i kpi "'y g''hcev'y cv'y g''r ctco gygtu'y ky kp''y j kej "'y g'' vtcpurevkqp''r tqeguu'ku''ecttkgf "qw''kp'c''i kægp''ewnwtg''ctg''y go ugnægu''f kevcyf "d{ ''y g''o qf gn''y j kej "'ctg''ewttgpvn{ "qr gtcvkxg''y ky kp''y g''cti gv'hkgtct{ "r qn{ u{ uvgo 0'Vj ku''hwpf co gpvcm{ "pqp/r tguetkr kxg''cr r tqcej "j cu''ng''y tgg'' gzvtgo gn{ "ko r qtvcpv'kpuki j vu0

Vj g'hktuv'qh''y gug'ku''y g'uwi i guvkqp''y cv'kv'ku'o qtg'r tqhkxcdrg''vq''xkgy "\tcpurcvkqp''cu''qpg''ur gekhke''kpuvcpeg''qh''y g'' o qtg'i gpgtcn'r j gpqo gpqp"qh'kpvgt/u{uvgo ke'\tcpuhgt0'Vj ku'j cu'vj g"cf xcpvci g"pqv'qpn("qh'gpcdnkpi 'wu'vq" gzco kpg"tcpurckqp"y kj kp"c"y kf gt"eqpvgzv."dwvcnuq"qh"cmqy kpi "vj qug"hgcwtgu"y j kej "ctg"i gpwkpgn{ "r gewrkct"vq" vtcpurcvkqp"\q"uvcpf "qw'ci ckpuv'\yi g"dcenf tqr "qh'\yi ku'y kf gt"eqpvgzv'\*ugg"Gxgp/\ qj ct'3; ; 2\95\66+0'Vj g"qyi gt"\y q" kpuki j vu'hqmqy "qp'htqo "vj ku'hktuv'qpg0'Vj g'ugeqpf "eqpegtpu"qvt "eqpegr vkqp"qh'vj g'vtcpurcvgf "vgzv0'Kpuvgcf "qh" nko kukpi "yi g"f kuewuukqp"\q"yi g"pcwtg"qh"yi g"GS WKXCNGP EG"y j kej "gzkuvu"dgwy ggp"uqwteg"cpf "cti gv"\gzv."yi g" vtcpurcvkqp"uej qrct "ku"pqy "htgg"vq"hqewu"qp"vj g"vtcpurcvgf "vgzv"cu"cp"gpvkx{ "gzkrvkpi "kp"vj g"vcti gv"r qn{ u{ uvgo "kp"ku" qy p'tki j v0'Vj ku'pgy "**vcti gv/qtkgpvgf**"crrtqcej."pqy "ej kghn{"cuuqekcvgf"y kyj "vj g'pco g''qh'I kf gqp"Vqvt{."j cu'ngf" vq"c"hcti g"xqnwo g"qh"f guetkr vkxg"y qtm"kpxguvki cvkpi "vj g"pcwtg"qh"vj g"vcti gv"vgzv."hqt"gzco r ng"kp"vgto u"qh"vj g" hgcwxtgu'y j kej 'f kunkpi wkuj 'kv'htqo 'qvj gt''vgzwu'qtki kpcvkpi 'y kvj kp''c'r ctvkewrct''r qn{ u{ uvgo = hwtyj gto qtg." vtcpurcvef "vgzvu"egcug"vq"dg"xkgy gf "cu"kuqrcvef "rj gpqo gpc."dwv"ctg"tcyj gt"vj qwi j v"qh"cu"o cpkhguvcvkqpu"qh"  $i \; gpgtcn'tcpurc\cdot kqp" \\ \div t \; tqegf \; wtguø'y \; j \; kej \; "ctg"f \; gvgto \; kpgf \; "d \{ \; "\dot{y} \; g"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp"\dot{y} \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp" \ v \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp" \ v \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp" \ v \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrgpv"kp" \ v \; g"vcti \; gv"eqpf \; kkqpu"ewttgpvn \{ \; "r \; tgxcrqpv"ewttgpvn \} \}$ r qn{u{uvgo "\*Gxgp/\ qj ct"3; ; 2<9667+0"Vj g"vj ktf "kpuki j v"eqpegtpu"vj gug"vtcpurcvkqp"r tqegf wtgu"vj go ugnxgu0" Qpeg'k/j cu'dggp'tgeqi pk gf ''y cv'y g'\cti gv'\gzv'ku'pqv'uko rn(''y g'rtqf wev'qh'ugngevkqpu'htqo ''ugvu'qh'tgcf {/o cf g''  $\label{thm:continuity:continuit$ ncpi wci g'uxtwewtg"dw/cnq. 'hqt"gzco r ng. 'y kj "s wguxlqpu"qh'i gptg"cpf 'nkgtct { 'vcuvg+: 'kv'dgeqo gu'r quukdng'vq" uwi i guv'gzr repeskqpu'hqt "stepureskqp"r j gpqo gpc "\*uwej "cu'yi g"er r getepeg "kp"e "stepuresgf "sgz v'qh'hwpeskqpu'peskxg" qpn{"vq"yi g"uqwteg"u{uvgo +"y kyi kp"yi g"o qtg"i gpgtcn"eqpvgzv"qh"kpvgt/u{uvgo ke"vtcpuhgt"\*kdkf0297699+0

### Hwt vj gt 'f gxgmr o gpw

 $C''pwo\ dgt''qh''o\ kpqt''r\ tqdrgo\ u'kpj\ gtgpv'kp''r\ qn\{u\{uvgo\ ''j\ gqt\{''j\ cxg''dggp''tckugf\ ''d\{''xctkqwu''uej\ qrctuO'Hwtyj\ gt''\ pwo\ dgt''qh''o\ kpqt''r\ tqdrgo\ u'kpj\ gtgpv'kp''r\ qn\{u\{uvgo\ ''j\ gqt\{''j\ cxg''dggp''tckugf\ ''d\{''xctkqwu''uej\ qrctuO'Hwtyj\ gt''\ pwo\ dgt''qh''o\ kpqt''r\ tqdrgo\ u''kpj\ gtgpv''kp''r\ qn\{u\{uvgo\ ''j\ gqt\{''j\ cxg''dggp''tckugf\ ''d\{''xctkqwu''uej\ qrctuO'Hwtyj\ gt''\ pwo\ dgt''qh''o\ kpqt''r\ tqdrgo\ u''kpj\ gtgpv''kp''r\ qn\{u\{uvgo\ ''j\ gqt\{''j\ cxg''dggp''tckugf\ ''d\{''xctkqwu''uej\ qrctuO'Hwtyj\ gt''\ pwo\ dgt'' pwo\ dgt'' pwo\ dgt'' pwo\ dgt'' pwo\ dgt'' pwo\ dgt'' pwo\ dgt''' pwo\ dgt'' pwo\ dgt''' pwo\ dgt'' pwo\ dgt'$ u{uvgo ke"eqpegr vu"j cxg"dggp"r tqr qugf "vq"uwr r rgo gpv"yj g"o qf grk"Nghgxgtg"\*3; : 5d<"3; 6+; "hqt"gzco r rg. "uwi i guvu" yj g"cffkkqp"qh"pqkqpu"qh"r qrctkx{."r gtkqfkekx{"cpf"r cxtqpci g0°C"pwo dgt"qh"uej qrctu"j cxg"s wguxkqpgf"yj g" pgeguukv{ "qh''y g''r tho ct{ lugeqpf ct{ 'f kuvkpevkqp'\*Nghgxgtg'3;  $: 5 \triangleleft 3$ ; 6=I gpv| rgt''3;  $: 5 \triangleleft 44 + 0$ I gpv| rgt'hwtyi gt'' uwi i guwu''yi cv''yi g'kphnwgpeg''qh'T wuukcp''Hqto cnkuo ''ku''vqq''uvtqpi .''cpf ''yi cv'r qn{ u{ uvgo ''yi gqt { ''pggf u''vq''dtgcm'ht gg'' htqo "uqo g"qh"ku"o qtg"tguvtkevkxg"eqpegr vu"\*3;; 5<34465+011 qy gxgt." yi g"kphrwgpeg"qh"Gxgp/\ qj ctøu'yi kpmkpi "j cu" dggp "eqpulf gtcdrg." 'y g "pgy "crrtqcej "y j lej "kv"j cu "gpi gpf gtgf "dglpi "rct vlewrctn("cuuqelcvgf "y kij "i tqwru "qh" uej qrctu'kp'Kutcgn'Dgri kwo 'cpf''y g'P gyj gtrcpf u0'Rtqdcdn(''y g'o quv'uki pkhecpv'gz vgpukqp''qh''y g'o qf griku'hqwpf''  $\protect\pro$ PQTO Uô yi g'hcevqtu'cpf 'eqpuntckpuu'y j kej 'uj cr g'uncpf ctf ''ntcpunckqp''r tcevkegu'kp''c'i kxgp''ewnwntgô ku'' kpvtqf wegf "cpf "f gxgrqr gf "\*Vqwt {"3; ; 7"ku"c"eqpvkpwcvkqp"qh"vj ku"y qtm+0J gto cpuø'\*3; : 7+"eqmgevkqp"qh"rcti gn{" f guetkr vkxg"guuc { u'd { "c'xctkgv{ "qh'uej qrctu'ku'cpqyi gt'korqtvcpv'gzrtguukqp"qh'yi ku'tgrcvkxgn( 'pgy "crrtqcej." eqpvtkdwkpi 'kp'r ctvkewrct''y g'pqvkqp''qh''tcpurcvkqp''cu''y g''o cpkrwrcvkqp''qh''rkxgtcwxtg0 Gxgp/\ qj ctøu'r qn{ u{ uvgo "vj gqt { "ku'pqv'c'eqo r rgvg."y cvgt vki j v'r cenci g'dw'tcvj gt "c'r qkpv'qh'f gr ctwtg'hqt" hwt yi gt "y qt n0 Cu'hqpi "cu'kv'ku'xkgy gf "cu'uwej . "kv'ku'hkngn{ "vq"eqpvkpwg"vq"i kxg"t kug"vq"ht wkshwnlkpxguvki cvkqp. "qh" dqyi "c"yi gqtgykecn"cpf "c"f guetkrykxg"pcwxtg0/Cnyi qwi j "kv"tgo ckpu"xgt{"o wej "÷y qtm"kp"r tqi tguuxa"qr gp"yq"hwtyi gt" o qf khkecvkqp"cpf "tghkpgo gpv."yj g"eqpvtkdwkqp"qh"r qn(u{uvgo "yj gqt { "vq"qwt "wpf gtuvcpf kpi "qh"yj g"pcwtg"cpf "tqrg" qh'tcpurcvkqp'j cu'dggp'uki pkhecpv'cpf 'j ki j n( 'kphrwgpvkcn)

#### Hwt vj gt 't gcf kpi

OCTM'UJ WVVNGY QTVJ

# Rtci o cweu'cpf 'ttcpurcwqp

Kp"3; 77"cv"J ctxctf ."\j g"ru{ej qmi knu"y gtg"dw| | kpi "y kj "gzekgo gpv'cdqw\'\j g"ngewtgu"dgkpi "i kxgp"d{"P qco " Ej qo um{"qp"j ku"\j gqt{"qh"Vtcpuhqto cwqpcn"I gpgtcvkxg"I tco o ct0\"\p"\j g"uco g"{gct."\j g"Dtkkuj "r j knquqr j gt" Lqj p"Cwuwp"y cu"cmq"cv"J ctxctf "f grkxgtkpi "\j g"r tguwki kqwu"Y knkco "Lco gu"ngewtgu"cpf "r tgugpvkpi "y j cv"y cu"vq" j cxg"cp"gs wcm{"untqpi "ko r cev'qp"c"y kf g"tcpi g"qh"f kuekrnkpgu0\"Vj ku"y cu"c"pgy "r gtur gevkxg"y j kej "y cu"vq" tcf kecm{"tguj cr g"qwt"xkgy "qh"ncpi wci g"cpf"\j g"y c{"kv"qr gtcvgu0\"Ukpeg"\j gp."\j g"f qo ckp"qh"r tci o cvke"kps wkt {" j cu"go gti gf "cu"c"f kuekrnkpg"\p"ku"qy p"tki j v."cwgpf kpi "\q"uwej "o cwgtu"cu"\"\j g"uwxf {"qh"\j g"r wtr qugu"hqt"y j kej " ugpvgpegu"ctg"wugf ."qh"\j g"tgcn"y qtnf "eqpf kkqpu"wpf gt"y j kej "c"ugpvgpeg"o c{"dg"cr r tqr tkcvgn{"wugf "cu"cp" wwgtcpegø\"Ucpcngt"3; 94-5: 2+0\"Vj ku"pgy "r gtur gevkxg."cpf "uqo g"qh"ku"o ckp"hlpf kpi u."uqqp"hqwpf "\j gkt"y c{" kpq"\j g"hkgtcwtg"qp"\tcpurcvkqp0

#### Urggej 'cew

Ur ggej "cewi'ctg''y g''cewi'y g''r gthqto "y j gp."hqt"gzco r ng."y g''o cng''c''eqo r nckpv''qt "c''tgs wguw."cr qmi kt g''qt "r c{" uqo gqpg''c''eqo r nko gpv0'Vj g''r tci o cvke"cpcn{uku"qh''ur ggej "cewi'uggu''cm'wwgtcpegu''kp''yto u''qh''y g''f wcn'hwpevkqp" qh''::uvcvkpi ø'cpf "::f qkpi "y kpi uø''qh''j cxkpi "c''o gcpkpi "cpf "c''hqteg0'Cp''wwgtcpeg."kp''y ku''xkgy ."j cu<

\*c+'c 'lugpug''qt 't ghgt gpeg''vq 'ur gekhle 'gxgpvu. 'r gtuqpu''qt ''qdl gew

\*d+'c'hqteg'y j kej 'o c{ ''qxgttkfg''rkxgtcn'ugpug''cpf''y wu'tgnc{ ''cffgf''ghhgevu''uwej ''cu''y qug''cuuqekcvgf''y ksj.''uc{.'' c''tgs wguv''qt''cfo qpkklqp

\*e+"cp"qxgtcm"**ghhgev**"qt"eqpugs wgpeg"y j kej "o c{"qt"o c{"pqv"dg"qh"y g"nkpf "eqpxgpvkqpcm("cuuqekcvgf"y kj " y g"hpi wkuvke"gzr tguukqp"qt"y g"hwpevkqpcn"hqteg"kpxqnxgf0

Hqt"gzco r ng." 'uj w' 'yj g'f qqt" ku'kp"c" ugpug"cp'ko r gtc\kxg' yj cv'eqwrf "eqpegkxcdn("ectt { "'yj g'hqteg"qh''c 'tgs wguv." v i kei 'kp' wtp''eqwrf ''de' wuef"

uko r n{ ''vq"cppq{ ''y g''j gctgt0'Vq"y gug''y tgg''cur gewl'qh'o guuci g''eqpuvtwevkqp. 'Cwuvkp''\*3; 84+''cuuki pgf ''y g''rcdgnu'' **mewkqp.'kmqewkqp**''cpf ''**r gt mewkqp.**''t gur gevkxgn{0

Cu'hct'cu'kpygtr tgykpi 'ku'eqpegtpgf .'ecugu'qh'eqo o wpkeckqp''dtgcmf qy p'f wg''q''o kukpygtr tgyckqp'qh'ur ggej ''cewi' j cxg''cniq'hgcwtgf ''r tqo kpgpvi( 'kp''y g'hkgtcwtg0'Vq''cmg''qpg''r tceykecn'gzco r ig. 'kp''tgur qpug''q''y g''s wgurkqp'' Y j cv'y gt g''y g'eqpygpw''qh'y g''ngwgt''[qw'] cpf gf ''vq''Mpi ''Hcj cf A ''c''Vwpkulcp''o kpkuyt''ku''tgr qtygf ''q'' cxg'' tgr nkgf ''tcyj gt''ewt vi( ''y j cv'uj qwrf ''j cxg''dggp''kpygtr tgygf ''cu''÷Vj ku'ku'c''o cwgt''uqign( ''hqt''y g''Ucwf ku''\q''eqpulf gt0'') P qv''cy ctg''qh'y g''r tci o cyke''o gcpkpi ''kpxqnxgf .''y g''kpygtr tgygf tgygf tgy g''y g''qtki kpcn'Ctcdke''ugpygpeg''nkgtcm( ''cu'' Vj ku''o cwgt ''eqpegt pu'y g''Ucwf ku''O'y g''ucvgo gpv'y cu''qdxkqwun( ''kpygpf gf ''vq''ectt { ''y g''r tci o cyke''i nquu''+F q''pqv'' r wtuwg''y ku''hpg''qh''s wgurkqpkpi ''cp { ''hwt y gtø''c''o gcpkpi ''y j kej ''y g''Gpi nkuj ''lqwtpcrkuv'y qwrf ''j cxg''pq''f qwdv'' crrtgekcygf 0J qy gxgt. ''hwt gf ''d { ''y g''nkpf ''qh''kpxkkpi ''cpuy gt''j g''tgegkxgf ''y tqwi j ''y g''kpygtr tgygt. ''y g''lqwtpcrkuv'' f kf ''r wtuwg''y g''kpkkcn'ikpg''qh''s wgurkqpkpi .''qpn( ''vq''dg''tgdwngf ''y g''ugeqpf ''ko g''tqwpf ''\*J cyko ''3; : 8='J cyko ''cpf '' O cuqp''3; ; 9+0

Kp"cuuguukpi "\j g"r q\gp\kcn'qh'ur ggej "cev'cpcn\uku."\tcpurc\kqp"\j gqt\kuu'\uj ctgf "uqo g'qh'\j g'o kui kxkpi u'gzr tguugf "
d\{"etkkeu'qh'ur ggej "cev'\y gqt\{0\Vj g'\y gqt\{"y cu'r tko ctkn\"o qtg'eqpegtpgf "y ky "eqo dc\kpi "cn\gtpc\kzg"
r j knquqr j kecn'xkgy u'\y cp'y ky "cwgpf kpi "\q'\y g'r tce\kecn'cur gewi'qh'f gcn\pi "y ky "rcpi wci g'\wug'\p'pcwtcn'
ukwc\kqpu0P cwtcnpguu'\ku'c''ng\{"\gto "hqt"\y g'r tce\ku\pi "\tcpurc\qt"\qt"\kp\gtr tg\gt."cpf "cewcn'\wug'\qh'\rcpi wci g'ecp"
cpf "f qgu'\y tqy "\wr "f kh\gtgp\nh\pt gp\nh\pt tqdrgo u'\ntqo "\y qug'\y cv'ur ggej "cev'\y gqt\{"y qwrf "y kuj "\wu'\q'\nq\wiqp0'
Hqt"\gzco r rg. "\y gtg'\ku'c'' w g'f kh\gtgpeg''dgw ggp"cew'\uvej "cu''\rtqo ku\pi \g'\qt"\righty tgc\gp\pi \g'\y g'\qp\"\y g

#### Crrtqrtkcvgpguu'eqpfkkqpu'dg{qpf''vjg'ukpi ng'urggej''cev

Kp"cwgo r wpi "vq"cr r n( "ur ggej "cev"yj gqt { "vq"vtcpurcvlqp"cpf "kpvgtr tgwpi ."o ckpurtgco "vtcpurcvlqp"yj gqtkmu"uqqp" dgeco g"cy ctg"qh"yj g"hcev"yj cv"c"vgzv"ku"pqv"c"qpg/f ko gpukqpcn "rkpgct"uweeguukqp"qh"grgo gpwu" nwgf "qpg"vq"yj g" qyj gt "gxgpn(="tcvj gt "kv"ku"c"eqo r ngzn("eqpurtwevgf "gf khkeg"y kyj "uqo g"grgo gpwu"gplq { kpi "c"j ki j gt"eqo o wpkecvkxg" uwcwu. "uqo g"c"nguu"r tqo kpgpv"qpg. "y kyj kp"cp"go gti kpi ."gxqnxkpi "j kgtctej kecn"qti cpk cvkqp" f g"Dgcwi tcpf g" 3; 9: +0"Ki"ku"yj ku"kpuki j v"kpvq"yj g"y c { "vgzvu"ctg"r gtegkxgf "y j kej "wpf gtr kpu"cp"kphrwgpvkcn"dqf { "qh"y qtm"qp"yj g" gzvgpukqp"qh"ur ggej "cev"cpcn( uku0"Dqyj "yj gqtgvkecm( "cpf "kp"xctkqwu"f qo ckpu"qh"cr r nkgf "r tci o cvkeu. "kv"j cu"dggp" f go qpurtcvgf "yj cv"yj g"kpvgtr tgvcvkqp"qh"ur ggej "cewi"f gr gpf u"etwekcm( "qp"yj gkt"r qukxkqp"cpf "uvcwu"y kyj kp" ugs wgpegu0"Vj g"xctkcvkqp"kp"uvcwu"y j kej "wpf gtrkgu"yj g"kpvgttgncvkqpuj kr "qh"ur ggej "cewi"y kyj kp"ugs wgpegu"ngcf u" vq"yj g"pqvkqp"qh"yj g"kmqewkqpct { 'int wewt g"qh"c"vgz v"f gygto kpkpi "kw"r tqi tguukqp"cpf "f ghkpkpi "kw"eqj gtgpeg" "Hgttctc"3; : 2+0

i mdcn'ugs wgpeg''gpxgmr kpi ''y<br/>i g''gpvktg''vgzv'\* J $\ qtpgt''3;\,97-0$ 

Kp"cp"cwgo r v'vq"gzvgpf "vj g"cpcn{ uku"dg{ qpf "vj g"kpf kxkf wcn'ur ggej "cev."vj gtg"j cu"dggp"c"eqpukf gtcdng"uj khv'qh" hqewu"kp"vj g"cpcn{ uku"qh'vj g"vtcpurcvkqp"r tqeguu"cpf "gpvktg"vgzvi'hqto cvu"dgi cp"vq"dg"eqpukf gtgf "htqo "vj g"xkgy " r qkpv'qh'r tci o cvkeu0'Hqt"gzco r ng. "cti wo gpvcvkxg"vgzvu"j cxg"dggp"hqwpf "vq"f kur nc{ "c'i nqdcn'r tqdngo /uqnxkpi " uvt wewtg."y kyj "vj g"r tqdngo "ugevkqp"dgkpi "v{ r kecm{ "÷cuugt vkxgø"kp"ku"knqewkqpct { "xcnwg."cpf "vj g"uqnwkqp" ugevkqp"v{ r kecm{ "÷f ktgevkxgø0'Uwej "i nqdcn'ej ctcevgtk| cvkqpu"ctg"kphqto gf "d{ "dqvj "hwpevkqpcn'cpf "j kgtctej kecn' etksgtkc"i qxgtpkpi "vj g"xctkqwu'ur ggej "cevu'kpxqnxgf ."cpf "qwi j v'vq"dg"j ggf gf "kp"vj gkt "i nqdcnkv{ "d{ "vj g"vtcpurcvqt" \*Vktmnqpgp/Eqpf kv'3; : 8+0

Kp''vzv'v{r g/qtkgpvgf "vtcpurcvkqp"uwf kgu."c"o clqt"kuwg"cff t guugf "j cu'dggp"vj cv'qh'vj g'kpf gvgto kpce{"y j kej "c" r ctvkewrt "ur ggej "cev'ecp"gzj kdk/cpf "y j kej "ecp"qpn{"dg'tguqnxgf"d{"tghgtgpeg"vq"vj g'i nqdcn'qti cpk cvkqp"qh'vj g" vgzv0'Hqt"gzco r ng. "f guetkdkpi "c"i kxgp"r gceg"r ncp"cu"*urki j vn{"dgwgt*"vj cp"vj g'r tgxkqwu"qpgu"eqwrf "r tci o cvkecm{" o gcp"-qpn{"urki j vn{"cpf"vj gtghqtg"pgi nki kdn{"dgwgtø'qt"-cr r tgekcdn{"dgwgtø"f gr gpf kpi "qp"vj j gvj gt"vj g"qxgtcm" uvcpeg"ku"r tq/"qt"cpvk/r ncp0'Vj g"kpkkcn'ugs wgpeg"ku"kpf gvgto kpcvg"cpf "ku"ugwngf "qpn{"y j gp"y g"uwdugs wgpvn{"tgcf" vj gtg"ctg"t gcuqpu"hqt"j qr g0'Vj gtg"ctg"ncpi wci gu."uwej "cu"Ctcdke."y j kej "j cxg"vq"o ctm'uwej "f knvkpevkqpu."cpf" y j gtg"c"pwo dgt"qh"cnvgtpcvkxg"ngzkeq/i tco o cvkecn'untwewtgu"ctg"cxckrcdng"vq"ecvgt"hqt"vj g"cnvgtpcvkxg"tgcf kpi u" kpxqnxgf"\*J cvko "cpf"O cuqp"3; ; 2."3; ; 9+0

## Kornlef'o gcplpi'cpf'yj g'Eqqrgtcvlxg'Rtlpekrng

Qpg"qh"y g"dcuke"cunwo r wqpu"qh"r tci o cwke"cpcn( uku"kn"y cv."kp"eqo o wpkecwqp."dgkpi "ukpegtg"ku"c"uqekcn" qdrki cwqp"%C wurkp"3; 84="Ugctrg"3; 8; +0J qy gxgt."rcpi wci g"wugtu"ecp"gxqng"cpf "kpygtr tgvko r rkgf "o gcpkpi u"d{" rgcxkpi "egt vckp"y kpi u"wpuckf "%cu"ur gcngtu+"qt "kpygtr tgvkpi "y j cv'ku"uckf "ci ckpuv'y g"dcemi tqwpf "qh"y j cv'eqwrf" j cxg"dggp"uckf "%cu"j gctgtu+0I kxgp"y ku'r qvgpvkcnl'nqt"i gpgtcvkpi "cpf "tgvtkgxkpi "o gcpkpi u"qy gt"y cp"y qug"y cv" ctg"uvvgf "gzr rkeknf."I tkeg"\$3; 97+"cwgo r vgf "vq"ceeqwpv'hqt"y j gtg."j qy "cpf"y j {"vj g"uo qqy "qpi qkpi pguu"qh" kpvgtcevkqp"ku"kpvgpvkqpcmf "vj y ctvgf."rgcf kpi "vq"xctkqwu"mkpf u"qh"ko r rkecwt g0J g"urkr wcvgf "c"Eqqr gt cvkg" Rt kpekr rg"y j kej "i wkf gu"j wo cp"kpvgtcevkqp"qp"vj g"dcuku"qh"c"pwo dgt"qh"O czko u"vq"y j kej "ncpi wci g"wugtu" eqpxgpvkqpcmf "cf j gtg."wprguu"y j gtg"ku"c"i qqf "tgcuqp"hqt"vj go "pqv"vq"f q"uq0Vvj gug"O czko u"ctg"S wcpvkg" "\*O cng" {qwt"eqpvtkdwkqp"cu"kphqto cvkxg"cu"ku"tgs wktgf +:"S wcrkgf "\*F q"pqv"uc{"vj cv'hqt"y j kej "{qw'ircemicf gs wcvg" gxkf gpeg+:"T grgxcpeg'\*Dg"tgrgxcpv+."cpf "O cppgt "\*Dg"eqo o wpkecvkxgnf "qtf gtnf +0"Vj g"O czko u."I tkeg"cti wgf." o c{"dg"qdg{gf"qt"f kuwtdgf."cpf "f kuwtdcpeg"ecp"vcng"vj g"hqto "qh"hrqwkpi "qt"f kuqdg{kpi "vj g"twrgu"kp"c" o qvkxcvgf."f grkdgtcvg"o cppgt0

Vj g"pqvkqp"qh"ko r n'ecwtgu"ctkukpi "htqo "vj g"f gnkdgtcvg"hnqwkpi "qh"vj g"eqqr gtcvkxg"O czko u"j cu"r tqxgp" r ctvkewctn{ "j gnr hwn"vq"r tcevkukpi "vtcpuncvqtu"cpf "kpvgtr tgvgtu0Kp"r wtgn{ "tgegr vkxg"vgto u."cr r tgekcvkqp"qh"ko r nkgf "o gcpkpi "hcekrkxcvgu"eqo r tgj gpukqp"vj j kej "y qwnf "qvj gty kug"dg"dnwttgf 0Kp"vgto u"qh"tg/r tqf wekpi "vj g"o guuci g"kp" vj g"vcti gv"ncpi wci g."qp"vj g"qvj gt"j cpf."vj g"o gcpkpi u"vj j kej "ctg"ko r nkgf "cpf "pqv"uvcvgf "eqwnf "dg"vj g"ncuv"eqwtv"qh" cr r gcn"kp"cuuguukpi "cf gs wcvg"gs wkxcngpeg0Vj ku"ncuv"r qkpv"ku"r ctvkewnctn{ "tgngxcpv"kp"y qtnkpi "y kj "ncpi wci gu" y j kej "ctg"dqvj "ewnwtcm{ "cpf "nkpi wkuvkecm{ "tgo qvg"htqo "gcej "qvj gt."y j gtg"f khngtgpv"r tci o cvke"o gcpu"o c{ "j cxg"vq"dg"qr vgf "hqt"vq"cej kgxg"c"i kxgp"wnko cvg"ghngev0

Y kj kp''y ku'etquu/ewnwtcn'f qo ckp''qh'r tci o cvke''cpcn{uku'cu''cr r nkgf ''\q''\tcpurcvkqp.''c''r ncwukdng''cuuwo r vkqp'' gpygtvckpgf 'hqt''uqo g''ko g''pqy ''j cu''dggp''y cv.''d{ ''gzco kpkpi ''y g''xctkqwu''twrgu''y cv'i qxgtp''uweeguuhwr'' r gthqto cpeg''kp''cp{ ''i kxgp''rcpi wci g.''kv'o ki j v'dg''r quukdng''\q''o cmg''r tgf kevkqpu''tgi ctf kpi ''y g''r quukdkrk\{ ''qt'' qy gty kug''qh'tgeqpurtvevkpi ''y g''uco g''kpf ktgevkqp''kp''cpqy gt''rcpi wci g'\*Dnwo /Mwmc''3; : 3+0'C''ecug''y cv''ur tkpi u'' q''o kpf ''j gtg''ku''y cv.''y tqwi j 'hcknwtg''q''cuuguu''y g''ghhgevkxgpguu''qh''cti gv'tgpf gtkpi u''kp''r tgugtxkpi ''ko r nkgf'' o gcpkpi u''kp''y g''uqwteg''\gzv.''Gf y ctf ''Uckf øu''\Qt kgpvcrhuo '\*3; 9: +'j cu''egtvckpn{ ''nquv'o wej ''qh''kwi'ktqp{ ''kp''y g'' r wdrkuj gf ''tcpurcvkqp''kpvq''Ctcdke'\*J cvko .''3; ; 9+0'Hqt''gzco r ng.''kp''y g''uqwteg''\gzv''gngo gpv''kh'y gug''rcew''ctg'' krew ''cv''ngcuv'qpg''o czko ''j cu''dggp''hnqwsf.''y cv'qh''S wcrk\{ .''y kj ''y g''tguwncpv'ko r nkecwtg''kp''y g''

tgngxcpv'eqpvgzv'qh'-y j q'ku'Dcnqwt'nkf f kpi .'kv'ku'c'r cem'qh'nkguø0'kp''y g''Ctcdke''vtcpurcvkqp.''c'nkvgtcn'tgpf gtkpi 'ku'' qr vgf 'hqt''cpf 'c'uko krct'o czko 'ku''quvgpukdn( 'hrqwygf 'kp''y g''j qr g''y cv'cp''gs wkxcngpv'ko r nkecwtg'y qwrf 'tguwno' Tgi tgwcdn( .''y ku''j cu''pqv'dggp''y g''ecug.''cpf ''y g''r tci o cvke''r tqegf wtg''cf qr vgf ''uko r n( ''o kuhtgf 0'Kp''uwej ''c'' eqpvgzv.''hrqwkpi ''S wcnkv{ ''eqwrf ''qpn( ''r tqf weg''y g''qr r qukvg''ghhgev'kp''Ctcdke.''k0g0'cej kgxkpi ''go r j cuku''cpf ''ngcf kpi '' vq''c'uvcvgo gpv'qh'eqpxkevkqp0'Vq''gpuwtg''y cv'uctecuo .''ktqp{ .''gve0'ctg''qr vko cm( ''r tgugtxgf .''y g''vtcpurcvqt''eqwrf '' j cxg''o qtg''hgnkekqwun( ''hrqwygf ''y g''o czko ''qh''S wcnkv{ ''\*d{ ''dgkpi ''wppgeguuctkn( ''xgtdqug+0

#### Rankgpguu'cpf 'ko rnkecwtg

O qvkxcvgf ''f kuqdgf kgpeg''qh''cp{ ''O czko ''y kıj kp''ıj g'Eqqr gtcvkxg''Rtkpekr ng. ''y gp. ''i kxgu''tkug''vq'ko r nkecwtgu0' Qdg{ kpi ''y g''o czko u. ''j qy gxgt. ''f qgu''pqv''pgeguuctkn{ ''i wctcpvgg''y cv'ko r nkgf ''o gcpkpi u''y kni'pqv''dg''i gpgtcvgf 0'  $\pm$ Ko r n{ kpi ø'cu''qr r qugf ''vq'' $\pm$ gzr nkekn{ ''uvcvkpi ø'ku''r quukdng''gxgp''y j gp''c''i kxgp''o czko ''ku''cf j gtgf ''vq. ''r tqxkf gf ''uwej '' cf j gtgpeg''ku''qr vgf ''hqt''kp''eqpvgzwi'y j gtg''pqp/cf j gtgpeg''y qwrf ''dg''y g''gzr gevgf ''pqto 0'Qpg''uwej ''eqpvgzv''o c{ '' dg''knwurtcvgf ''d{ ''y g''hqnqy kpi ''gzco r ng''htqo ''Cev'Kqh''Dgtpctf ''Uj cy øu''[ qw'Pgxgt'Ecp'Vgnt'\*3: ; : +''cpcn{ ugf ''kp'' Nggej '\*3; ;  $4 \pm 48465 \pm 0$ 

FGP VKUV<" "Y j { "f kf pøv" { qw'ngv'o g"i kxg" { qw'i cuA} [ QWP I "NCF [ <'Dgecwug" { qw'uckf "kv'y qwrf "dg'hkxg" uj kmkpi u"gz vtc0 FGP VKUV<'] uj qengf \_''Qj ."f qpøv" uc { "vj cv0" Kv'o cngu" o g'hggn" cu"kh" Kj cf "j wt v" { qw'hqt "vj g"ucng" qh'hkxg" uj kmkpi u0 [ QWP I "NCF [ <'] y kj "eqqn" kpuqngpeg\_" Y gm "uq" { qw'j cxg0 }

 $V\{r \text{ kecn'qh'F qm(} \text{ \&u'dnwpvpguu'qh'ej ctcevgt.'' y g'O cz \text{ ko ''qh'S wcnk}{ ''ku'o gwewnqwun( ''cf j gtgf ''vq''cpf ''vtwy ''ku''xcnwgf ''pq''o cwgt''y j cv''kv''ku''ur genkpi ''y j gp''ct'y j kwg''nkg''y qwrf ''fq.''j qy gxgt.'' y cv''kp''kwu''qy p''y c{ ''eqpurkwwgu''c'' hrqwkpi ''qh'uqo g''r tkpekr ng''qt''qyj gt''i kxkpi ''tkug''vq''cp''ko r nkecwtg''cm'y g'uco g0'Y j cv''ku''dgkpi ''hrqwwgf ''j gtg''ctg'' pqto u''qh''r qrkxgpguu.''y j kej ''ucpevkqp''hrqwkpi ''S wcnkv{ ''cu''c''pqto ''cpf ''f ggo ''pqv'f qkpi ''uq''c'f gxkcvkqp''hrqo '' ceegr vcdrg''uqekcn''dgj cxkqwt''*Nggej ''3; ; 4+0$ 

Vj ku'cpf 'uko krct 'gzco r rgu'tckug'ko r qt vcpv's wguvkqpu'hqt 'c'vtcpurcvkqp''y gqt { ''y cv'uggmu'vq'eqphtqpv'etquu/ewnwtcn'r tci o cvkeu'cpf 'ceeqwpv'hqt''y g'r tqdrgo u''y tqy p''wr ''d { ''y ku'r ctvkewrct 'ctgc''qh'hrcpi wci g''wug0'kp'' vtcpurcvkpi ''c''r rc { ''nkng''Uj cy øu'kpvq''Ctcdke''qt'Icr cpgug. ''hqt''gzco r rg. ''y g''j { r qy guku''y kf gn( ''ceegr vgf ''kp'' r tci o cvkecm(/qtkgpvgf ''y gqtkgu''qh''vtcpurcvkqp''ku''y cv'y g''o qtg''rcpi wci g/dqwpf ''y g''twrgu''i qxgtpkpi ''y g'' r gthqto cpeg''qh''cp{ ''kpf ktgev'ur ggej ''cev.''y g''nqy gt''y g'f gi tgg''qh''vtcpurcvcdkrk{ ''\*Dnwo /Mwmc''3; : 3+0

#### Tgrgxcpeg'lp'ttcpurcvlqp

I wwi3; ; 3+'tkgu''q'f guetkdg''tcpurckqp''kp''gto u'qh'c'i gpgtcn'i gqt { "qh'j wo cp'eqo o wpkeckqp0'Vj ku'dwkrf u'qp" y g'dcuke''r tgo kug''y cv'y g''cdkrk\{ "qh'j wo cp''dgkpi u''\q''kphgt''y j cv'ku''o gcpv'o c { "dg''ceeqwpvgf "hqt''kp''yto u''qh'' qdugtxkpi "y g''r tkpekr ng''qh''t gngxcpeg."f ghkpgf "cu''cej kgxkpi "o czko wo "dgpghkv'cv'o kpko wo "r tqeguukpi "equv0' Vy q''dcuke''nhpf u''qh''ncpi wci g''wug''ctg''f kurkpi wkuj gf <'f guet kr vkxg''wug."kpxqnxkpi "tghgtgpeg''qpn\{ "vq''gpvkxkgu''kp''y g'' tgcn'y qtrf ."cpf 'hpvgt r t gvkxg''wug. 'kpxqnxkpi "tghgtgpeg''\q''gpvkxkgu''cu''y gm''cu''vj qwi j wi'cpf "gzr tguukqpu''qh'' y qwi j v0I ww''uwi i guvu''y cv''tcpurcvkqp''ku''cp''kpuvcpeg''qh''kpvgtr tgvkxg''wug''cpf ''y cv''tcpurcvkqpu''uggmi'vq''tgugo dng'' y gkt''qtki kpcni'kpvgtr tgvkxgn\{ 0'Vtcpurcvkqp''ku''eqpuvtckpgf "d\{ "y g''r tkpekr ng''qh''tgngxcpeg''kp''y g''ugpug''y cv

Khi'y g'cumikp'y j cv'tgur gewi'yi g'kpvgpf gf 'kpvgtr tgvcvkqp''qh'yi g''tcpurcvkqp''uj qwrf 'tgugo drg''yi g'' qtki kpcn''yi g''cpuy gt''ku<'kp''tgur gewi'yi cv'o cng''kv'cf gs wcvgn( 'tgngxcpv''vq''yi g''cwf kgpegô yi cv'ku.''yi cv'' qhhgt ''cf gs wcvg''eqpvgz wcn'ghhgew='kh'y g''cum'ji qy ''yi g''tcpurcvkqp''uj qwrf ''dg''gzr tguugf .''yi g''cpuy gt''ku<'' kv''uj qwrf ''dg''gzr tguugf ''kp''uwej ''c''o cppgt''yi cv'kv''{ kgnf u''yi g''kpvgpf gf ''kpvgtr tgvcvkqp''y kyi qwv''r wwkpi ''yi g'' cwf kgpeg''vq''wppgeguuct{ ''r tqeguukpi ''ghh'qtvO

\*I ww'3;;3<32364+

Ugtkqwu't gugtxcvkqpu'cdqw'y g'xcnwg'qh't grgxcpeg'y gqt { 'kp'\tcpurcvkqp''j cxg'dggp''gzr t guugf 'd { 'c'pwo dgt'qh'' uej qrctu'\g0 0'Vktmqpgp/Eqpf k\'3;; 4.''O cro m\\\alpha t'\'3;; 4.''Vj qo cu'\'3;; 6+\'qp''c'pwo dgt'\qh'\i tqwpf u.'\kpenwf kpi '\y g'' xgzgf 's wguvkqp'\qh'\j qy ''cpf ''d { 'y j qo ''y g'xctkqwu'\-\text{tcpmkpi u'qh't grgxcpegø'ctg''}

Ugg"cnuq<

EQOOWPKECVKXGIHWPEVKQPCN'CRRTQCEJGU=FKUEQWTUG'CPCN|UKU'CPF'VTCPUNCVKQP="NKPIWKUVKE'CRRTQCEJGU=VGZV'NKPIWKUVKEU'CPF"VTCPUNCVKQP0

#### Hwt yj gt 't gcf lpi

DCUKN'J CVKO

# Rugwf qvt cpurc vkqp

Rugwf qvtcpurcvkqp'ku'c'vgto "ewttgpv'kp" i g'nksgtcwtg" cv'ngcuv'ukpeg' Cpvqp' Rqrqxk '\*3; 98 42 + 'y j q'f ghkpgf 'kv'cu'c' +hevkskqwu'vtcpurcvkqpø<" Cp"cwj qt 'o c{"r wdrkuj 'j ku'qtki kpcn'y qtm'cu'c'hevkskqwu']qt"r ugwf q\_vtcpurcvkqp'kp"qtf gt" vq'y kp"c'y kf g'r wdrke. 'vj wu'o cmkpi 'wug'qh'vj g'tgcf gtuø'gzr gevcvkqpu0'Vj g'cwj qt'vtkgu'vq'wkrkt g'vj g''+vtcpurcvkqpø' dqqo 'kp"qtf gt"vq'tgcnkt g'j ku'qy p'nksgtct{"r tqi tco 0'Htqo 'vj g'uvcpf r qkpv'qh'vgzv'vj gqt{.'vj g'hkevkskqwu'vtcpurcvkqp" o c{"dg"f ghkpgf 'cu'vj g'uq/ecmgf 's wcuko gvcvgzv'kg0'c'vgzv'vj cv'ku'vq'dg'ceegr vgf 'cu'c'o gvcvgzv0'Vj g'hkevkqpcn' vtcpurcvkqpu'ctg"qhvgp'o qvkxcvgf 'uvdlgevkxgn{@

C'r ugwf qvtcpurcvkqp'ku'vj gtghqtg'pqv'qpn('c'\gzv'r tgvgpf kpi .''qt'r wtr qtvkpi .''qt'htgs wgpvn('vcngp'\q'dg'c'' vtcpurcvkqp. "dw/cnuqô i kxgp" 'y g" co dki wkv{ "qh" ÷c" 'yzv" y cv" ku" 'vq" dg" ceegr vgf "cu" c" o gvcvgzvøô c" 'vtcpurcvkqp" y cv' ku" htgs wgpvn( "vcngp"vq"dg"cp"qtki kpcn'y qtnOI gpgtcm( "ur gcmkpi ."vj cv'ku."c"r ugwf qvtcpurcvkqp"o ki j v'dg"f ghkpgf "cu'c" y qtm'y j qug'uvcwu'cu":qtki kpcnø'qt":f gtkxcvkxgø'ku. 'hqt'y j cvgxgt'uqekcn'qt'\gzwcn'tgcuqp. 'r tqdngo cvke0 Vj ku'etgcvgu'kppwo gtcdrg'r tqdrgo u'hqt'f ghkpkkqp.'pqv'qpn('dgecwug'kv'ku'pqv'cny c{u'ergct'y j cv'c'uq/ecrrgf'tgcn' qt"cwj gpvle"\tcpurcvlqp"ku."dw'dgecwug"uqo g"\gzvu"j cxg"dggp"r tgugpvgf "qpg"y c{"d{"\j gkt"cwj qtu"cpf"\cngp" cpqvj gt"y c{"d{"vj gkt"tgcf gtu0Vj g"Nkxkpi "Dkdrg."hqt"gzco r rg."y cu"gzr rkekxn{"r tgugpvgf "cu"cp"Gpi rkuj "r ctcr j tcug" qh'y g'Dkdrg. 'pqv'cu'c 'tcpurcvkqp<ku'cwj qtu'gzr rckpgf 'kp''y gkt'r tghceg'y cv'y g{ 'j cf 'pqv'eqpuwngf 'y g'qtki kpcn' J gdtgy .'Ctco cke'cpf 'I tggm\gzvu'dw'j cf 'y qtngf 'htqo 'gzkuvkpi 'Gpi nkuj '\tcpurcvkqpu'\q'enctkh{ ''y gkt'o guuci g'' kp"qtf kpct { "gxgt { f c { "Gpi rkuj 0'Dw'kk'ku "wuwcm { "tgcf "cu "c "tcpurc kqp="yj g "wug"qh "yj g "ygto "r ctcr j tcug "hqt "ky"f qgu" pqv'r tgenwf g'ku'dgkpi 'tgcf 'cu'c'\tcpurc\kqp="cpf 'Tqo cp'Icnqduqpøu'\gto kpqmi { 'y qwf 'cmqy 'wu'\q'encuukh{ 'kv'cu' cp'**lpvt crlpi werl't cpure vkqp**'\*ugg'<u>UGO KQVKE 'CRRT QCEJ GU</u>+0'Uq'ku'kv'c'r ugwf qvt cpure vkqp. ''qt 'kupøv'kvA Vjg'\gz\dqqm'ecug''qh'rugwfq\tcpunc\kqp'ku'rtqdcdn{'Icogu'Ocerjgtuqpøu'\39586;8+"-\tcpunc\kqpø'qh'Quukcpke" r qgo u."*Ht ci o gpw'qh'cpekgpv'r qgvt { "\t cpurc vgf 'ht qo '\j g'I c grke ''qt ''Gt ug'hcpi wci g'\**3982+."hqmy gf ''d { 'hwt y gt'' Vgo qt c"\*3985+0Quukcp"y cu'y g'Cpi nkek gf":Quukcpkeø'eqmgevkqpu'kp"Hkpi cn'\*3984+"cpf "pco g"\*r qr wrctk gf "d{" O cer j gtuqp+"qh"Qkr"p. "c"ngi gpf ct { "Kkuj "y cttkqt/r qgv"htqo "vj g"Hgpkcp"e { eng"qh"j gtq"vcngu"vj cv"tgncvgf "vj g"  $cf\ xgpwtgu'qh'Hpp''cpf''j\ ku''dcpf''qh''y\ cttlqtu.''yj\ g''Hlcppc''Gltcpp0'Vj\ g''\{qwpi\ 'O\ cer\ j\ gtuqp''j\ cf''r\ wdrkuj\ gf''qtki\ lpcn''$ r qgvt { "vj cv'cwtcevgf "pq"cwgpvkqp. 'kp"j ku'eqmgevkqp"Vj g"J ki j mpf gt "\*397: ±"uj qtvn{ "chvgty ctf u'j g"dgi cp" eqngevkpi "I cgnke"o cpwwetkr wi'cpf "qtcnlr qgo u."cpf "f tgy "qp" yj go "kp"

y tkkpi "j ku'Quukcp"r qgo u. "y j kej "j g"ecngf "\tcpurc\kqpu'htqo "cp"cewcn'\j ktf/egpwt{"I cgrke"r qg\0\K\'y cu'pq\" mpqy p"c\'\j g"\ko g. "pqt"y qwrf "k\'dg"hqt"cpq\j gt "egpwt{."\j c\'pq"I cgrke"o cpwuetkr wu'f cvg"dcem'gctrkgt "\j cp"\j g" vgp\j "egpwt{="d{"\j g"gpf "qh'\j g"pkpgvggp\j "egpwt{"k\'y cu'hkpcm{"guvcdrkuj gf "\j c\'y g'I cgrke"qtki kpcnu'htqo " y j kej "O cer j gtuqp"uwr r qugf n{"y qtmgf."cpf "y j kej "j cf "dggp"r wdrkuj gf "chvgt"j ku'f gc\j ."y gtg"cewcm{" O cer j gtuqp\'y p"\tcpurc\kqpu'kp\q"dcf "I cgrke"qth'j ku'qtki kpcn'Gpi rkuj "r qgo u0

Ukm "y g"Quukcp"r qgo u"j cf "cp"gpqto qwu'ko r cev'qp"r qgw"cpf "y kpmgtu"kp"Gpi mpf ."I gto cp{"cpf "gmgy j gtg." o cp{"qh'y j qo "go dtcegf "y go "cu"y g"cwj gpvke"qwr qwtkpi "qh"c"r tlo kkxg"hqmiko ci kpcvkqp0Vj gkt"cwj gpvkek{" y cu"cwguvgf "vq"d{"y g"kphrwgpvkcn't j gvqtkekcp"J wi j "Dmkt."cpf "y j krg"y gtg"y gtg"o cp{"uegr vkeuô kpenwf kpi "y g" hqto kf cdrg"F t"Iq j puqp"y g{"dgeco g"c"mkpf "qh'nkygtct{"uki pr quv'hqt "y g"o qxgo gpv'y cv'y qwrf "dgeqo g"
Tqo cpvkekuo ."gxkf gpeg"y cv'nkygtct{"i tgcvpguu"f kf "pqv'tgs wktg"cm'y g"vtcr r kpi u"qh"cp"cf xcpegf "ekxkrk cvkqp."
gf wecvkqp."uqr j kurkecvkqp."ectghwn{"eqpvtqmgf "encuukecn'hqto ."dw'eqwrf "cpf" uj qwrf +"ctkug'htqo "y g"eqmgevkxg"
ko ci kpcvkqp"qh"gcej "kpf kxkr wcn'r gqr rg."htqo "y g"r gcucpvt {"qt"eqo o qp"hqmt)Ergctn{."y g"Tqo cpvkeu"j cf"c"
xguvgf "kpvgtguv'kp"y g"cwj gpvkek{"qh'y gug"vtcpurcvkqpu"cpf" y gtg"r tgf kur qugf "q"dgrkgxg"kp"y go ="cpf" y j krg"y g"
ctg"vqf c{"kpenkpgf "vq"ecm'O cer j gtuqpøu"eqmgevkqpu"j qczgu"qt"htcwf u."qt"cv'dguv'r ugwf qvtcpurcvkqpu."kv'ku"gs wcm{"ergct"y cv'y gkt "gzco r rg"kpur ktgf "o cp{"r gqr rg"cm'cetquu'Gwtqr g"cpf" y g"Wpkxgf "Uvcvgu"q"uggm'qw'o qtg"
cwj gpvke"uco r rgu"qh'hqmm'r qgvt{."cpf" y wu"q"i kxg"dkty "vq"y g"f kuekr rkpg"qh'hqmmqtkuvkeu0

 $C''uko~kmt''dww'o~qtg''r~tqdngo~cvke''ecug''qh''r~ugwf~qvtcpuncvkqp''o~ki~j~v'dg''J~gpt~\{''Y~cf~uy~qtvj~'Nqpi~hgmqy~\emptysetu''*3:~296:~4+''$ *J kcy c vj c* '\*3: 77+0 Kpur ktgf 'kp'r ctv'd{ 'vj g'Quukcp'r qgo u. 'Grkcu'N¾pptqv'\*3: 246: 6+'kp'Hkprcpf 'j cf 'eqrrgevgf 'vj g''  $hqmlr qgvt \{ \text{"'y cv'j g''gf kgf ''kpvq''c''eqj gtgpv''gr ke''e } \{ \text{erg''y j kej ''j g''ecngf ''y g''} \text{Mc} \textit{rgxcrc'''} \text{"3} : 57. \text{"3} : 66 + 0 \text{Kp''y g''} \text{Wr r gt''} \} \}$ Rgpkpuwrc"qh'O kej ki cp. "I gpt { "Tqy g" Uej qqretch y 39; 563: 86+" j cf "eqregevgf" cpf. "y ky "j ku" j crh/Ej kr r gy c'y khg" \*Lopg'Lqi puvqp''Uej qqretchv.'f cwi j vgt 'qh'c'hwrdrqqf gf 'Ej kr r gy c'y qo cp''cpf 'c'y j kg'\tcr r gt 'pco gf 'Lqi p'' Lqj puvqp+:"tcpurcvgf "kpvq"Gpi rkuj "vj g"Ej kr r gy c"rgi gpf u"vj cv"j g"r wdrkuj gf "kp"c"ugt kgu"qh"dqqmu"kp"vj g"3: 62u"cpf " 3: 72u0Nqpi hgmqy "y cu"c"r qn{i my'y j q"j cf "cntgcf { "ngctpgf "gpqwi j "qh'yi g"Uecpf kpcxkcp"ncpi wci gu"vq"tgcf " cpekgpv'P qtf ke''gr keu''kp''y g''qtki kpcn'y j gp''j g'f gekf gf ''vq''ngctp''Hkppkuj = kp'3: 57. ''y g''{ gct''N pptqv'r wdrkuj gf ''y g'' hktuv'gf kskqp"qh'yj g"*Mcrgxcrc*. "Nqpi hgrnqy "y cu'kp"Uqenj qro "vcmkpi "Hkppkuj "rguuqpu'htqo "N¾pptqvøu'dtqyj gtkp/ rcy."cpf "y qwrf "egtvckpn( "j cxg"j gctf "cdqw'y g"*Mcngxcrc* "htqo "j ko 0'Ukpeg"Nqpi hgmqy "pgxgt"ngctpgf "gpqwi j " Hkppkıj "\q'tgcf "\j g'gr ke'kp"\j g''qtki kpcn"j qy gxgt. "y j gp"j g'\ucv'f qy p"\q'y tkg'cp'Co gtkecp''pc\kqpcn'gr ke'kp'\j g" gctn('3: 72u'j g'y qtngf 'htqo 'ugxgtcn'\tcpurc\kqpu.'\yi g'Uej qqretchwø'Gpi nkuj '\tcpurc\kqpu'\qh'\yi g'Ej kr r gy c'' ngi gpf u'cpf ''y g'I gto cp'cpf ''Uy gf kuj ''tcpurc\kqpu''qh''y g''Mcrgxcrc='cpf ''y j krg''y g''tguwrw.''J kcy cyj c.''y cu''pgxgt'' r tgugpvgf "cu"c" tcpurcvkqp"qh"gkvj gt"Kpf kcp"qt"Hkppkuj "qtki kpcnu. "kv"f qgu"eqpvckp"pwo gtqwu"r cuukpi "ttcpurcvkqpu" htqo 'dqyi 'yi g'Uej qqretchy'cpf 'yi g'N¾pptqy'o cygtkcn0Cpf 'Nqpi hgmqy øu'qy p'f guetkr vkqp'qh'yi g'r tqlgev'j cu'' kpvgtguvkpi 'tguqpcpegu'y kij 'tgegpv'gs wkxcngpeg/qh/ghhgev'vj gqtkgu'qh'vtcpuncvkqp<'-kp''õJ kcy cvj cöø'j g'y tqvg'kp'' Pqxgo dgt "3: 77." uj qt vn{ "chvgt "vj g"gr keøu"r wdnkecvkqp." Kj cxg"vt kgf "vq"f q"hqt "qvt "qrf "Kpf kcp" ngi gpf u'y j cv" y g" wpmpqy p"Hopkij "r qgwi'j cf "f qpg'hqt" yj gktu. "cpf "kp"f qkpi "yj ku"Kj cxg"go r m{gf "yj g"uco g"o gvgt. "dw'qh"eqwtug" j cxg'pqv'cf qr vgf 'cp{ 'qh'vj gkt 'ngi gpf uø0

Vj gtg'ku'cnıq'c'i tqwr 'qh'nksgtct { 'y qtmı. 'gur gekcm { 'pqxgnı. 'y cv'wug'r ugwf qvtcpurcvkqp''cu'c'f grkdgtcvgn { " vtcpur ctgpv'gz vgpukqp''qh''y g''-hqwpf /o cpwuetkr vø'eqpegkv''go r nq { gf 'd { 'uq'o cp { 'pqxgrknu0}Ukpeg''y g''pqxgri'y cu'' dqtp''qw''qh''c''ugo k'lqwtpcrkuvle 'urleg/qh/rkbg''tgcrkuo . ''cpf ''gxgp''y j gp''y g''o quv'hcpvcuvle ''qhvgp''o qemugtkqwun { " r tgvgpf gf ''q''dg''dcugf ''qp''twg''unqtkgu. ''c'y j qrg''tcpi g''qh'rksgtct { 'f gxkegu'y cu'f gxgnr gf 'hqt''uggo kpi ''vq''i tqwpf ''c'' r tqug''pcttcvkxg''kp''tgcrkv { ''y g''htuv'r gtuqp''ceeqwpv. ''y g''gr kuvqrct { 'hqto . ''y g''tgr qtvci g. ''cpf . ''cv'c''hwty gt''tgo qxg'' htqo ''y g''cewcn'gxgpvu. ''y g''hqwpf ''o cpwuetkr v.''y j qug''ercko u''vq''cwyj gpvkekv { 'ecp''dg''f qwdvgf ''d { ''y g''gf kqt''\*y j q'' ku''cewcm { ''y g''cwyj qt+'y ky qwv''gpvktgn { ''pgi cvkpi ''y g''yzvyu''i tqwpf gf pguu''kp''cewcrkv { 0'Kp''y ku''nksgtct { ''vtcf kkqp. ''c'' r ugwf qvtcpurcvkqp'ku''o gtgn { ''c''hqvpf ''o cpwuetkr v'y cv'j cr r gpu''\*qt''ku''ercko gf +'vq''j cxg''dggp''y tkwgp''kp''c''hqtgki p'' rcpi wci g<'y j gp''O ki wgn'f g''Egtxcpvgu''Uccxgf tc'\*376963838+."

hqt"gzco r ng."encko u'vj cv"j ku'dqqm'Gnlpi gplquq"j kf cni q"F qp"S wkzqvg"f g"nc"O cpej c"\*3827."3837+"y cu'c"Ur cpkuj " vtcpurcvkqp"htqo "vj g"Ctcdke"qh'Gn'Ekf "Dgpgi cnk"j g"ku"pqv"gzcevn{"ugwkpi "j ko ugnh'wr "cu'c"vtcpurcvqt."cu'Ico gu" O cer j gtuqp"j cf "f qpg="j g"ku"r nc{hwn{"r wwkpi "f kurcpeg"dgw ggp"j ko ugnh'cpf "j ku"qy p"nkgtct{"etgcvkqp"kp"qtf gt" uko wncpgqwun{"vq"gpj cpeg"cpf "vq"wpf gto kpg"ku"cwj gpvkekv{"cu"c"tgeqtf "qh'hcev0

Kp"cp"gxgp"o qtg"eqo r ngz "ur kp/qhh'qh'vj ku. "vj g'Cti gpvkpkcp"y tkgt"Iqti g"Nvku"Dqti gu"\*3: ; ; ó3; : 8+"y tkgu"c"uvqt{" cdqw"c"hkevkkqwu"Htgpej "y tkgt"pco gf "Rkgttg"O gpctf ."y j q"ugwi"j ko ugnh'vj g"i cti cpwcp"cum'qh"-y tkkpi ø"

Egtxcpvguø'pqxgn'\*-Rkgttg'O gpctf ."Cwj qt"qh"vj g"S wkzqvgø+ô pqv'y tkkpi "c"Htgpej "vtcpurcvkqp"qt"cf cr vcvkqp"qh"

cdqw'c'hevkkqwu'Htgpej 'y tkspt'pco gf 'Rkgttg'O gpctf.'y j q'ugwi'j ko ugrh'y g'i cti cpwcp'cum'qh''÷y tkspi ø'
Egtxcpvguø'pqxgn'\*÷Rkgttg'O gpctf.'Cwj qt'qh'y g"S wkzqvgøô pqv'y tkspi 'c'Htgpej ''tcpurcvkqp'qt''cf cr vcvkqp'qh''
kx''dw'tgy tkspi ''kv'kp''Ur cpkuj .'d{ ''ngctpkpi ''Ur cpkuj .'hkxkpi ''c'hkhg'uko krct''vq''y cv'qh'Egtxcpvgu.''cpf ''gxgpwcm{ ''
dgkpi ''cdng''vq''tgetgcvg''y j qng''r cuuci gu'htqo ''y g''qtki kpcn'Ur cpkuj ''pqxgn'xgtdcvko .'y ky qww'eqr {kpi 0'Kp'Dqti guøu''
uvqt {.'O gpctf ''cewcm{ ''uweeggf u'y ky ''c'hgy ''uj qtv'r cuuci gu.''cpf ''Dqti gu''tgxkgy u'hqt''wu''y g''urknkpi ''f khhgtgpegu''
dgw ggp'kf gpvkecn'r cuuci gu'y tksvgp'kp''Ur cpkuj ''d{ ''c'Ur cpkctf ''kp''y g''gctn{ ''ugxgpvggpyj ''egpwt{ ''cpf ''d{ ''c''}
Htgpej o cp'kp''y g''pkpgvggpyj ô cp'ktqpke''eqo o gpvct{ ''qp''y g''qnf ''ej guvpw''y cv'i tgcv'qtki kpcn'y qtmu'f qpøv'ci g''
dw''vcpurcvkqpu'f q0'Kp''c'ugpug.''y j cv'Rkgttg'O gpctf ''ugv'qw''vq''f q'ku''vq''y tksg''cp'kpvtcnkpi wcn'vtcpurcvkqp'qh''y g''
S wkzqvg''kp''y j cv'y cu'hqt''j ko ''c'hqtgki p''rcpi wci g.''y j kej ''kpxqnxgf ''vtcpurcvkpi ''j ku''gzr gtkgpegu'htqo ''j ku''qy p''
pcvkxg''Htgpej ''kpvq''Ur cpkuj 0'Kpvgtguvkpi n{ .'Dqti gu'y cu''uq''uvggr gf ''kp''Gpi nkuj ''cpf ''Co gtkecp''tksgtcwtg''cm''
y tqwi j ''j ku''thg''y cv'j ku''Ur cpkuj ''ku''qhygp''f guetklgf ''cu''gxgt {y j gtg''uj qy kpi ''uki pu''qh''kpygthgtgpeg''htqo ''Gpi nkuj .''

cu'lh'Dqti guøu'qtki kpen'Ur cpkuj 'y qtmu'y gtg'\tepurc\kqpu'ltqo 'Gpi rkuj 0

Vj g'eqpegr v'qhi'r ugwf qxtcpurcvkqp'kn'lpvgtguvkpi 'kp''rti g'r ctv'dgecwug''kv'ecmu'kpvq''s wgurkqp''uqo g'qhi'qwt''o quv'' ej gtkuj gf ''dgrkghu. ''gur gekcm( ''yj g''dgrkghi'lp''yj g''cduqnwg''f khlgtgpeg''dgwy ggp''c''xtcpurcvkqp''cpf ''cp''qtki kpcn'y qtm''fp'' Tj grqt ke. ''J gt o gpgwkeu. ''cpf ''Vtcpurcvkqp''kp''yj g''Okf f ng'Ci gu'\*3; ; 4+. ''Tkc''Eqr grcpf ''nqmu''enqugn( 'cv'c'pwo dgt'' qh'o gf kgxcn'ygxu''yj cv'ygzkuv'lp''c''uxtcpi g''i tg{ ''ctgc''dgwy ggp''y j cv'y g''yj kpm'qh'cu''xtcpurcvkqpu''cpf ''qtki kpcn'y qtm''0' Vj g{ ''kpenxf g''yj g''Oxfg''g ot ctn'x². ''xctkqwu''Htgpej ''cpf ''Gpi nkuj ''gzr cpf gf li nquugf ''xgtukqpu'qh'Dqgyj kxuø'' Eqpuqncvkq''rj knquqrj kcg. ''yj g''rc'' Tqug. ''I gqhttg{ ''Ej cwegtøu'\*x355263622+"Ngi gpf ''qh'I qqf 'Y qo gp'' cpf ''Iqj p''I qy gtøu'\*x35526362: +"Eqplguukq''co cpvku0'Vj g{ 'ergctn( ''eqpvkp. ''cpf ''rcti gn( ''eqpuknv'qh ''xtcpurcvkqpu'' ltqo ''y qtmu''kp''qy gt ''rcpi wci gu. ''dw'qhgp''ugxgtcn'twej ''y qtmu''cv'qpeg="yj gug''xtcpurcvgf ''r cuuci gu''ctg'kpvgty qxgp'' y ky '' i nquugu. ''xctkqwu''hqto u'qh'eqo o gpvct{ ''yj cv'ctg''pqv''yf qi tcrj kecm( ''qt''qy gty kug''o ctngf ''qhh'ltqo ''yj g'' vtcpurcvkqpu''yj cv'yj g{ ''uwr r qugf n( ''i nquu="cpf ''yj g{ ''ctg'' tgugpvgf ''q''yj g'' wdrke''cu''eqo o gpvctkgu. ''qt''cu''qtki kpcn'' y qtmu''\*gur gekcm( ''yj g''rcygt''qtygu''qt'' yg gt+'qt. ''o quv'kpvgtguvkpi n( ''qh'cm''uko r n( ''r tgugpvgf .''pqv'' f ghlpgf ''cu''eqo o gpvctkgu''qt ''xtcpurcvkqpu''qt''qtki kpcn''y qtmu''Nkgtct{ ''j kvqtkgu''qh''y ku''qt''wpf gtueqtg''y g''y g''y g''y j kej ''qwt''eqr {tki j v'rcy. ''y j kej ''T knxlpi wknj gu''uq''engctn( ''dgw ggp'''tcpurcvkqpu''cpf ''qtki kpcn'y qtmu. ''tcpurcvqtu'' cwy' qtu. ''kn''c ''uqekcn'hevkqp'' t''gegpv''xgpwgô cpf ''uq. ''d{ ''eqttgrcvkqp. ''kn''yj g''r ctcukke''eqpegr v'qh'' r ugwf qvtcpurcvkqp0

### Hwt yj gt 't gcf lpi

Vqwt{'3;:6.'3;;70

FQW NCUTQDP UQP

# Ru{ ej qrlpi włuwe l'eqi plaksg'crrt qcej gu

Cv'ku'uko r nguv.''\tcpunc\kqp'kpxqnxgu''\j g'\tcpuhgt''qh''o gcpkpi 'htqo ''c'\\gzv'kp''qpg''ncpi wci g'kpvq''c'\\gzv'kp''cpq\j gt0' Vj ku'\\tcpuhgt''eqpuvkwwgu''c''o gpvcn''r tqeguu'y j kej ''tgrkgu''qp''uqr j ku\kec\\gf ''kphqto c\\qp''r tqeguukpi ''unkmu0'Ukpeg''cm' j wo cp''eqo o wpkec\\qp''tgrkgu''qp''\j g''cdkrk\{ ''\q''r tqeguu'kphqto c\\qp.''r u\{ ej qrkpi wku\ke''uwxf kgu''qh'\\tcpunc\\qp'' guugp\\cm\{''ugv''qw''\q''guvcdrkuj ''j qy ''\tcpunc\qtu''cpf ''kp\\gtr tg\\gtu''r tqeguu'kphqto c\\qp.''dq\j ''cu''f ku\\pev'htqo ''q\j gt'' ur gcmgtu''cpf ''y tk\\gtu''cpf ''cu''f ku\\pev'htqo ''gcej ''q\j gt0

C'ru{ej qmi kecm{'r ncwukdng'o qf gn'qh'\tcpunc\kqp'\y gp'o wuv'tghrgev'y j cv'ku'ewttgpvn{''

npqy p"cdqwl" wo cp"lphqto cwlqp"rtqeguulpi "cpf" o go qt {."vcmlpi "o qpqrlpi wcnieqo o wplecwlqp"cu"c"uvctwpi "rqlpv'y j krg"tgeqi pkl kpi "vj cv'tcpurcwlqp"cpf "kpygtrtgwlpi "ctg'ur gelchillpuvcpegu"qh'dlkrlpi wcnieqo o wplecwlqp0'k" pggf u"q"cfftguu"kuwgu"uwej "cu"yj g"gzvgpv'vq"y j kej "tcpurcwlqp/ur gelkhe"rtqeguugu"ctg"go dgffgf"y kyj kp"c"rcti gt" o qfgriqhi'j wo cp"eqo o wplecwlqp."j qy "yj g"eqpuvtckpwu"wpfgt"y j kej "tcpurcwlqtu"qrgtcvg"fkhtgt"htqo "yj qug"y j kej "kphwgpeg"qy gt "eqo o wplecwlqtu."yj g"gthgewu"yj gug"eqpuvtckpwu"cpf "fkhtgtgpegu"j cxg"qp"yj g"rtqeguugu"kpxqnxgf." cpf "j qy "y g"o ki j v'i ckp"ceeguu"vq"yj g"rtqeguugu"by"s wguwlqp"kp"qtfgt"vq"gzrnckp"yj cv'tcpurcwlqtu"cewcm("fq0'kp" vgto u"qh"xctkgv("qh'icewkxkkgu"cpf"rtqeguugu."c"ru{ej qrkpi wkuwle"o qf griqhi'vtcpurcwlqp"pggfu"vq"ceeqwpv'hqt"yj g" vtcpurcwlqtw"cdklw{"q"ij khv'htqo "y tkwgp"ygzv'vq"y tkwgp"ygzv'\*cu"kp"qtf kpct {"tcpurcwlqp"pggfu"vq"ceeqwpv'hqt"yg" ur qngp"ygzv'vq"y tkwgp"ygzv'vcu"kp"pqvg/vcmkpi."rtqd" "y tkwgp"ygzv'vq" ur qngp"ygzv'vq"y tkwgp"ygzv'vcu"kp"pqvg/vcmkpi."rtqt"vq"eqpugewkxg" vtcpurcwlqp"qt"vq"rtqf welpi "c"y tkwgp"tcpurcwlqp"qh'c"ur qngp"ygzv'vcu"kp"uko wncpgqwu'kpygrrtgwlpi +0 Vtcpurcwlqp"qt"yg"ytkyppi "cpf" thqo"ur qngp"ygzv'vcu"kp"uko wncpgqwu'kpygrrtgykpi +0 Vtcpurcwlqp"eqo dlpgu"yj g"cevkxkkgu'qhitgcf kpi lrknygpkpi "cpf"y tkkypi "ur gcmkpi."cpf"y tgg"ku'gxkfgpeg"q"uwi i gw' yj cv'tcpurcwlqp"yj g"qrgcvyvkpfgf" "gef""cffkhtgtgpv'ug'yhleqpuvtckpw0Vj tgg"ugwl'qh'eqpuvtckpwu'wcpf"qw'cu" rctwlewctn("dleecwug'yj g{"qrgtcyg'vfpfftcpurcwlqp"\*fcpf"ytkgpt'ugvlyfh'eqpuvtckpw0Vj tgg"ugwl'qh'eqpuvtckpwu'wcpf"qw'cu" rctwlewctn("dleecwug'yj g{"qrgtcyg'vfpfftcpurcwlqp"\*fcpmu'spf"ytkgp"ugv'yffeqpuvtckpw0Vj tgg"ugwl'qh'eqpuvtckpwu'wcpf"qw'cu" rctwlewctn("dleecwug'yj g{"qrgtcyg'vfpfftcpurcwlqp"\*fcpmu'spf"yffeqpuvtckpw0Vj tgg"ugwl'qh'eqpuvtckpwu'wcpf"qw'cu" rctwlewctn("dleecwug'yj g{"qrgtcyg'vfpfftcpurcwlqp"\*fcpmu'spf"yffeqpuvtckpw0Vj tgg"ugwl'qh'eqpuvtckpwu'wcpf"qw'cu"

\*c+'**vcum**'y g'cevkxkv{ 'y j kej 'y g'\tcpurcvqt'ku'tgs wktgf '\q''ectt { ''qwv'cpf ''y g''eqpvgzv'kp'y j kej ''y ku''cevkxkv{ ''vcmgu'' r reg

\*d+'vgzv.'yi g'htpi wkuke'cpf 'f kueqwtucn'untwewtg'qh'yi g'uqwteg'vgzv

\*e+'**vt cpurc vqt.**'vj g'hlpi wkurke 'cpf 'pqp/nkpi wkurke 'mpqy ngf i g'cpf 'umkmu'qh'vj g'r gtuqp 'ectt { kpi 'qwv'vj g'' vtcpurc vkqp0

Vj g''ngzkecn'cpf ''un{nkuke ''untwewst g'nh' y g''unqwteg''ygzv''r qugu''hwty gt ''eqpuntckpun'qp'' y g''stcpurcyt.''cpf ''y gtg''ku'' gxkf gpeg'' y cv'o qpqnkpi wcni''cpf ''dkhpi wcni''r tqeguu''ygzw'tcyj gt ''f khhgtgpyn(0'Vj g''o qpqnkpi wcni'eqo o wpkecyt'' nkuygpu''qt ''tgef u''hqt ''teqo r tgj gpukqp.''y j krg''y g''stcpurcyt''nkuygpu''qt''tgef u''hqt''stcpurcykqp0'Dqyj ''ctg''gpi ci gf ''kp'' i cyj gtkpi ''kphqto cykqp''htqo ''y g''ygzv''dww.''hqt''y g''o qpqnkpi wcn''y cy'ku''y g''r tko ct{''i qcn0'Vj g''stcpurcyt.''qp''y g'' qyj gt''j cpf.''j cu''yq''dg''cdng''yq''tgeqi pkl g''stcpurcykqp/tgngxcpv''gngo gpwu''qh'y g''ygzv'y j kej ''o c{''eqpurkwyg''r tqdngo u'' qt''y j kej ''uki pcn'uki pkhkecpv'xctkcdngu.''uwej ''cu''ygpqt.''yj cv'qwi j v''q''dg''tghngeygf ''kp''y g''ycti gv'ygzv0'Hqt''y g'' o qpqnkpi wcn''c''r ctykewrct''wstp''qh''r j tcug''o c{''r ngcug.''dchng''qt''cppq{='yj g''stcpurcyqt''o c{''tgcev'kp''yj g''uco g'y c{''' dw''y kyj ''y g''f khhgtgpeg''yj cv'uwej ''y qtf kpi ''o c{ ''y gml'eqpurkwwg''c''r tqdngo ''y j kej ''j cu''q''dg''uqnxgf ''cpf.''kp''y g'' ecug''qh'yj g''uko wncpgqwu''kpygtr tgygt.''uqnxgf ''kpurcpvn(0

 $\label{thm:condition} Vj g'tqngu'qh'vj g'vy q'cu'tgegkxgtu'qh'o guuci gu'cnuq'f khhgt0'Vj g'o qpqnkpi wcn'ku'guugpvkcm{ 'ugpf gt/qtkgpvgf .'' \\ r c { kpi "cwgpvkqp"vq"vj g'ur gcngt ly tkxgtøu'o guuci g'kp"qtf gt "vq'tgur qpf "vq'kv'd { "ci tggkpi lf kuci tggkpi ."tgr n{ kpi .'' cpf "$ 

uq"qp0"Vj g"tcpurcvqt."qp"yj g"qyj gt"j cpf. 'ku"guugpvkcm{ "tgegkxgt/qtkgpvgf."rc{kpi "cwgpvkqp"vq"yj g"ur gcngt 1 y tkvgtøu"o guuci g"kp"qtf gt "vq"tg/vtcpuo kv"kv"vq"yj g"tgegkxgtu"qh"yj g"vcti gv"vgzv."cpf "vj gtghqtg"uwr r tguukpi ."qt"cv" ngcuv'eqpvtqmkpi ."r gtuqpcn'tgcevkqpu"vq"yj g"o guuci g0"Vtcpurcvqtu"vgpf "vq"dgnkgxg"yj cv"yj g{ "uj qwrf "f kuekr nkpg"yj gkt" wpf gtuvcpf kpi "uq"cu"vq"gzenwf gô cu"hct"cu"ku"r quukdngô r gtuqpcn'tgcevkqpu"vq"y j cv"ku"dgkpi "uckf "qt"y tkwgp"cpf" r tkxkngi g"yj g"gzr gevcvkqpu"cpf "cuuwo r vkqpu"qh"yj g"enkgpv"cwf kgpeg"hqt"y j qo "yj g"kpvgtr tgvkpi "qt"vtcpurcvkpi "ku" dgkpi "r tqxkf gf "\*Ugngumqxkej "3; 9: +0

Uq"o wej "hqt" y g"t gegr wxg"cur gewi'qh'kpvgtr tgvkpi "cpf "vtcpurcvkpi 0Vj g"r tqf wevxg"cur gewi'ctg"cnq"ur gekcn' kpucpegui'qh'y g"i gpgtcn'r tqeguui'qh'j wo cp"eqo o wpkecvkqp"dw'y ky "f khhgt gpegui'y j kej "ugtxg"vq"f kuvkpi wkuj " vtcpurcvkqp"cu'dkhpi wcn'tcy gt "y cp"o qpqnkpi wcn'eqo o wpkecvkqp0Eqo r ctg. "hqt"gzco r ng. "c"o qpqnkpi wcn'ur qngp" f kcmi wg"y ky "kpvgtr tgvkpi 0Tkp" y g"htuv'ecug. "y g"-cpuy gtkpi ø'wtp"y qwrf "c+"dg"kp" y g"uco g"ncpi wci g. "cpf" pqto cm("y g"uco g'uv( ng"cu'y g"r tgxkqwu'ur gcngt "wugf." "cpf "d+"eqpvckp"f khhgt gpv'ugo cpvke"cpf. "y gtghqtg." u{ pvcevke"cpf "r tci o cvke"eqpvgpv0Vj g"vtcpurcvqtøu"dgj cxkqwt "ku'y g"qr r qukvg"qp"dqy "eqwpvx'y g"wtp" c+"ku'vcngp" kp"c"f khhgt gpv'ncpi wci gô y cv'qh'y g"vcti gv'cwf kgpeg"tcy gt"y cp"y g"qtki kpcn'ur gcngt ly tkvgt. "y g"ncwgt"dgkpi "y g" pqto cn'cwf kgpeg"hqt"o qpqnkpi wcn'gzej cpi gu. "cpf "d+"eqpvckpu" y g"uco g"ugo cpvke"eqpvgpv'cu'y g"qtki kpcn"cu" uvqtgf ô y ky "r qwgpvkcn'o qf khlecvkqpuô kp"y g"o gpvcn'tgr tgugpvcvkqp"qh'y g"encwug"kp"y g"y qtnkpi "o go qt {"qh'y g" vtcpurcvqt0

C'o qf gn'qh'y g''tcpurcykqp''r tqeguu. 'y gp. 'kpgxkcdn( 'tgr necvgu'cm'y g'ej ctcevgtkurkeu'qh'c'i gpgtcn'o qf gn'qh'' j wo cp''eqo o wpkecykqp. 'y ky ''y g''cf f kxkqp''qh''uqo g''eqo r qpgpvu'y j kej ''ctg''tcpurcykqp/ur gekhke. ''r ctykewrctn( '' eqo r qpgpvu'y j kej ''tgr tgugpy''r tqdrgo /tgeqi pkxkqp''cpf ''y g''uxtcygi kgu''go r m{gf 'hqt'r tqdrgo /uqnxkpi 0'Kp'' f kuewrukpi ''cp{ ''o qf gn'qh'y g''tcpurcykqp''r tqeguu. ''yto u''ntng''pgzv''o c{ ''j cxg''vq''dg''wugf . ''dw''y gug''ctg''pqv''vq''dg'' vcngp''nkytcm( ''cu'kpf kecykqpu'qh''c''wpkf ktgeykqpcn''dcmkurke''r tqeguu'y j kej ''vcngu''y g''uqwteg/rcpi wci g''ygzv''cpf'' r wuj gu''kv''y tqwi j ''gcej ''uvci g''kp''c''tki kf ''qtf gt''wpxhrlkv''go gti gu''cv'y g''gpf ''cu''y g''vcti gv/rcpi wci g''ygzv'\b''Hct''htqo ''kv=''tgxkulkqp''cpf ''dcemtcenkpi ''\*v{r kecm{.''dw''d{ ''pq''o gcpu''gzenwukxgn{.''kp''tcpurcykpi +''ctg''y g''pqto ''tcyi gt''y cp''y g'' gzegr vkqp0

#### Uwci gu.'r t qdrgo u'cpf 'tm c vgi lgu

Vj gtg'ctg'vy q'guugpvkch'uwci gu'ur gekhke'vq'vj g'r tqeguugu'qh'vtcpurcvkpi "cpf "kpvgtr tgvkpi .'cpf "c'hwtyi gt'uwci g"
cxckwcdng'qpn("vq'vj g'vtcpurcvqt'y qtmkpi "y kyj "vj g'y tkvgp"vgzv\Voj gug'ctg<cpcn(uku'u) (pvj guku'cpf 't gxkulqp0'
F wtkpi "vj g'vcpcn(uku'u) (g. "vj g'vtcpurcvqt'tgcf ulrkuvgpu'vq'vj g'uqwteg'vgzv'f tcy kpi "qp"dcemi tqwpf ."gpe{emqr gf ke"
mpqy ngf i gô kpenwf kpi "ur gekchku'f qo ckp'mpqy ngf i g'cpf 'mpqy ngf i g'qh'vgzv'eqpxgpwkqpuô vq'eqo r tgj gpf "
hgcwtgu'eqpvckpgf "kp"vj g'vgzv\Voj ku'tgs wktgu'r tqeguukpi "cv'vj g'u{pvcewe."ugo cpvke"cpf "r tci o cvke"ngxgnu."cu'y gm'
cu'lp'vgto u'qh'o ket q/"cpf "o cet q/"cpcn(uku'qh'vj g'cewcn'vgzv<o qpkqtkpi "hqt"eqj gukqp"cpf "eqj gtgpeg."cpf "
ej gemkpi 'hqt"eqj gtgpeg'dgw ggp'vj g'cewcn'vgzv'co qpkqtkpi 'hqt"eqj gukqp"cpf "eqj gtgpeg."cpf "
ej gemkpi 'hqt"eqj gtgpeg'dgw ggp'vj g'cewcn'vgzv'co qpkqtkpi 'hqt"eqj gukqp"cpf "eqj gtgpeg."cpf "
ej gemkpi 'hqt"eqj gtgpeg'dgw ggp'vj g'cewcn'vgzv'co qpkqtkpi 'hqt"eqj gukqp"cpf 'lgtget cvkqp."
tgur gevkxgn(0V) gtg'ku."kp"qvj gt'y qtf u."c"vtcf g/qhh'dgw ggp"yj g'o ketq/kdqwqo /wr "cpcn(uku'qh'vj g'vgzv'cv'encwug"
ngxgn'cpf "vj g"o cetq/kqr/f qy p"cpcn(uku'qh'vgzv'cu"cp"gpvkv(0F wtkpi "uf pvj guku "vj g'vcti gv'vgzv'ku'r tqf wegf .'Ng0'
y tkwgp."uki pgf .'ur qngp."cpf "vj gp"gxcnwcwgf "lp"vgto u'qh'vj g'ugpf gtøu'o gcpkpi "cpf "kpvgpvkqp"%cu'kpvgtr tgwgf "d{"
y g'vtcpurcvqt+"y g'vtcp

Cm'\gzv'r tqeguukpi 'ku.'\q'c'ncti g''gzvgpv.''c''o cwgt''qh''r tqdngo /uqnxkpi 0'Vtcpuncvqtu.''lwuv'nkng''qvj gt'\gzv r tqeguuqtu.''gpeqwpvgt''r tqdngo u'qh'eqo r tgj gpukqp.''kpvgtr tgvcvkqp''cpf ''gzr tguukqp''cpf ''gxqnxg''uvtcvgi kgu''hqt'' eqr kpi ''y kyj ''y go 0'Y j cv'c'uwf { ''qh''y g''tcpuncvkqp''r tqeguu''o wuv'kpxgurki cvg''ku''y g''nkpf ''qh'r tqdngo u'y j kej '' qeewt ''kp''tcpuncvkqp''cpf ''y g''htgs wgpe { ''y kyj ''y j kej ''y g''ur gekhke''uvtcvgi kgu''y cv''tcpuncvqtu''go r mq { ''kp'' tgeqi pk kpi ''cpf ''tguqnxkpi ''y gug''r tqdngo u.''y g''htgs wgpe { ''y kyj ''y j kej ''egtvckp''uvtcvgi kgu''ctg''go r mq { gf .''cpf ''y g'' nkpf ''qh'r tqdngo ''kpf kecvqtu'y j kej ''ecp''dg''qdugtxgf ''kp''y g''tcpuncvkqp''eqpwgzv'\*Mtkpi u'3; : 9+0

C'tt cpurc vkqp'r t qdrgo 'ku'uqo g'r ct v'qh'y g'r t qeguu'qh'vt cpuhgt. 'y j gy gt 'f gt kx kpi 'ht qo 'y g't gegr vkqp'qh'y g'' uqwteg'\gzv'qt'\j g'rtqf we\kqp''qh'\j g'\cti gv'\gzv.''y j kej ''o cmgu'cpcn{ uku''qt''u{ pvj guku''pqp/cwqo c\ke0'Uvej " r tqdrgo u'o c{ "dg"cpvkekr cvgf "cv"dqvj "vj g"o cetq/"cpf "vj g"o ketq/rgxgnu0'Qp"vj g"dcuku"qh"vj ku"f ghkpkkqp."c" vt cpurc vlap 'twt cvgi { 'ku'c'r qvgp vlcm{ "eqpuekqwu'r tqegf wtg'hqt'uqnxkpi "c'r tqdrgo 'hcegf 'kp''vtcpurc vlpi "c''vgz v.''qt'' cp{"ugi o gpv'qh'kv'\*N¾uej gt"3; ; 3c<98+0Ergctn{."i kxgp"vj g"f kuvkpevkqp"dgw ggp"o ketq/"cpf "o cetq/rgxgn" r tqdrgo u. 'untcvgi kgu'vqq'ecp'dg'f kxkf gf 'dgwy ggp''yj qug'y j kej ''ctg'hqecrl™f gcrkpi ''y kyj ''vgzv'ugi o gpvu+''cpf ''yj qug'' y j kej "ctg"i nqdcnl\*f gcnlpi "y kyj "y j qng"\gzvu+0'Gs wcm(. 'nqecn'cpf "i nqdcn'uvtcvgi kgu'llpvgtcev'y kyj 'tgngxcpv'  $grgo \ gpw'qh'y \ g''wcpurcvqt \not eu''dcemi \ tqwpf \ 'mpqy \ rgfi \ g''etkkecn'cy \ ctgpguu'qh'y \ g''uv{ \ rg''cpf''eqpvgpv'qh'uko \ krct''vgzwu.''}$ qh'eqpxgpvkqpu'qh'ur gmkpi .'r wpewcvkqp.'cpf 'i tco o ct.'qh'eqo r cvkdkrkv{ ''qh'gngo gpwl'f ghkpkpi 'tgi kuvgt.''cpf '' kpwkkqpu'cdqw'y j cv'eqpukwyu'y g'\cti gv'rcpi wci g'\U'i wkpqv'3; : ; ≤5; +0 Qpg'qh'yi g'hwpf co gpwn'r tqdrgo u'yi g''tcpurcvqt'\*cpf.'kp''r ctvkewrct.'yi g'kpvgtr tgvgt+'hcegu'ku'yi cv'qh'o go qt{" nko kscvkqp0'Vgzv'cpcn(uku'cpf 'u{pyj guku'ku'ecttkgf 'qp'c'encwug'cv'c'\ko g.'cpf 'vj g'o clqt'r tqdrgo 'hqt'vj g'\tcpurcvqt" y j q'y kuj gu'\q'kpetgcug'\j g'uk g'qh'\j g'WP KV'QH'VTCP UNCVKQP ''qt'tgf weg'\j g'r tqeguukpi '\ko g'ku'\j g'uo cm' ecr cekv{ "qh"y g"y qtmkpi luj qtv'vgto "o go qt { "kp"y j kej "cpcn{ uku"cpf "u{ py guku"\cng"r rceg0"Vj g"\tcpurcvqt"j cu." yj gp."cp"qxgtcm"pggf "hqt"uxtcvgi kgu"y j kej "tgf weg'r tguuwtg"qp"yj g"y qtmkpi "o go qt{."dwv"yj g"xtcpurcvqt"y qtmkpi " y ký "c'y tkwgp"\gzv\gpf u'\q"cwgo r v'\q"uqnxg"\j g"r tqdrgo "d{ "hktuv'tgcej kpi "cp"wpf gtuvcpf kpi "qh'\j g'o gcpkpi "qh" yj g'uqwteg'\gzv'dghqtg'r wwkpi '\j cv'o gcpkpi 'kpvq'y qtf u'cpf '\j gp'tgwtpkpi '\q'\j g'\gzv'cu'o go qt { 'hcf gu0'Vj gtg'ku'

c'uki pkhkecpv'fkhhgtgpeg'j gtg'dgwy ggp'\tcpurc\kpi "cpf'kpvgtrtgvkpi.'yjgtg'vjg'qrrqukkg'\cngu'rnceg'\*Ngfgtgt" 3; : 3⊲34; +<"kpvgtrtgvkpi "qrgtcvgu"cv"vjg"hgxgn"qh"vjg"hgzkecn"kvgo "wpvkn"c"dtgcm"qeewtu"kp"vjg"urgcngtøu"qwwrwoocp" cewcn'ukrgpv'r cwug''qt "c''r qkpv'cv'y j kej "y g'kpvgtr tgvgt "ku''cdrg''vq''r tgf kev'j qy 'y g''encwug''y km'dg''eqo r ngvgf "cpf " yj gp"tcpurcyg"qp"yj g"rgxgn'qh"o gcpkpi "\*Kuj co "cpf "Ncpg"3; ; 5"r tqxkf g"go r ktkecn'gxkf gpeg"kp"uwr r qtv'qh'yj g" encwug'cu'yi g'wpkv'qh'tgecm+0'kpvgtrtgvgtu. 'r ctvkewnctn('uko wncpgqwu'kpvgtrtgvgtu. ''ctg''gurgekcm('ugpukkxg''vq''yi g'' kphnwgpeg'qh'yi g'':nci 'vko gø'lk0g0'yi g'f gnc{ ''dgwy ggp'kpr w''cpf ''qwr w0'kp''uko wncpgqwu'kpvgtr tgvkpi .''yi ku''ku'' pqto cm("dgw ggp"w q"cpf"ukz"ugeqpf u."vj qwi j "rci u"qh"wr "vq"32"ugeqpf u"j cxg"dggp"tgeqtf gf 0"Uj qtv"rci u"vgpf "vq" tguwn/kp"o qtg"gttqtu"\*qo kuukqpu. "cf f kkqpu. "ej cpi gu+"kp"hqto . "y j krg"nqpi "rci u'\gpf "\q"ecwug"o qtg"qo kuukqpu "qh" eqpvgpv. "dgecwug" vj g"y qtmlqpi "o go qt { "ku"qxgtmqcf gf "y kyj "lqphqto cvlqp" \*Kuj co "cpf "Ncpg" 3; ; 5 465+0 vtcpuncve"y ky qwilipvgttwr vkqp"hqt"cu"nqpi "cu"r quuldng."\*d+"eqttgev"uwthceg"gttqtu"lo o gf kcvgn( "\*vj ku"ku"qhvgp" o ctngf 'd{ 'j gukekqp='v{ r kpi 'ev'e 'unqy gt 'tevg' 'y ep' wuwen+'dw' 'ngexg' 'gttqtu' 'kpxqnxkpi 'o gepkpi 'wpkn'e 'pewten' dtgcm'qeewtu."v{r kecm{"cv'vj g"gpf "qh'c"encwug"qt"ugpvgpeg."cpf "\*e+'ngcxg"vj g"o qpkqtkpi "hqt"s wcrkxcvkxg"qt" uv{nkuvke"gttqtu"kp"vjg"vgzv"vq"vjg"tgxkukqp"uvcig0"Vjg"rtkpekrng"qh"ngcuv"ghhqtv"uggou"vq"dg"kp"hqteg"jgtg0"KVku" gcukgt "vq"eqttgev"gttqtu"cu"vj g{ "eqo g"vq"eqpuekqwupguu"vj cp"vq"cwgo r v"vq"j qnf "vj go "kp"uj qtv vgto "o go qt{ "vq"dg" f gcn/y ky "nevgt0O cp{"\tcpunevqtu"cnuq"crrtqcej "\y g"\cuniqh"\tcpunevkpi "d{"tgcf kpi "\y g"uqwteg"\gzv'\y tqwi j "qpeg" qt"ugxgtcn"vko gu. "uggmkpi "r qvgpvkcn"r tqdrgo u"cpf "eqo kpi "vq"c"f gekukqp"qp"j qy "vj g"vtcpurcvkqp"uj qwrf "dgi kp0" Cewcn'v{r kpi 'uvctwi'cu'uqqp''cu'c'f gekukqp''j cu'dggp'tgcej gf 'qp''j qy 'vq'tgpf gt'vj g'hktuv'r ctv'qh'vj g'hktuv'ugpvgpeg''

cpf "eqp\kpwgu."hqt"cv'rgcuv'hqwt"y qtf u."dghqtg"c"r cwug"qeewtu0

Utcvgi kgu"qh"vj ku"v{r g"ctg"kpxguvki cvgf "gkxj gt"d{"o gcpu"qh"VJ kP M/CNQWF "RTQVQEQNU"\*y j gtg"vtcpurcvqtu" ctg"cungf "vq"kpvtqur gev'cpf "xgtdcnk g"y j cv'vj g{"f q"cu"vj g{"f q"kx+"qt"vj g{"ctg"kphgttgf "htqo "vtcpurcvqt"dgj cxkqwt0" Hqt"gzco r ng."kpf kecvkqpu"qh"kpvgtpcn"r tqeguukpi "ctg"htgs wgpvn{"kphgttgf "htqo "r cwugu"\*kpvgttwr vkqpu"kp"vj g"v{r kpi "qh"vj g"vtcpurcvkqp"qt"dtgcmu"kp"ur gcnkpi "f wtkpi "kpvgtr tgvkpi +"cpf" j gukcvkqpu"\*c"unqy kpi "f qy p"qh"v{r kpi ."pqvg/vcnkpi "qt"ur gcnkpi "ur ggf +"cu"y gm'cu"htqo "qvj gt"o ctngtu0"Uqo g"qh"vj gug"o ctngtu"ctg"xgtdcnk gf ."hqt"gzco r ng"kp" vj g"hqto "qh"cp"gzr nkek'uvcvgo gpv'qh"vj g"r tqdngo "cu"kp"cukf gu"uwej "cu"kf qp\ph/mpqy "j qy "vq"vtcpurcvg"vj cv."y j krg" qvj gtu"ctg"quvgpukxg"cpf "kpenwf g"vj g"qxgtcm"tcvg"qh"r tqf wevkqp."vj g"vko kpi "cpf"f wtcvkqp"qh"kpvgttwr vkqpu"vq" r tqf wevkqp."cu"y gm"cu"cevkqpu"uwej "

cu'tghgttkpi ''vq'c'f kevkqpct{."o ctmkpi 'r tqdngo u'kp''y g''vgzv."gf kkkpi ."etquukpi ''qwi'hcnug''uvct wu."cpf ''eqttgevkpi ''gttqtu0/Qyj gtu''uvkm'ctg''uki pcngf ''yj tqwi j ''yj g''o cppgt''qh''ctvkewncvkqp."cu'kp''unkr u."ugnh/tgr cktu."cpf ''uq''qp0

#### Rt qdrgo u'lp'lpxgudi cvlpi 'vj g'r t qeguu'qh'vt cpurcvlqp

 $\label{thm:control} Vy\ q''o\ ckp'' lpxgurki\ cvkxg'' untcvgi\ kgu''ctg'' wugf'' q''qxgteqo\ g''y g''kpj\ gtgpv'r tqdrgo\ ''qh''kpxgurki\ cvkpi\ ''tcpurcvqt/dgj\ cxkqwt.''y j\ gtg''y g''eqppgevkqp''dgw ggp''y g''uqwteg''cpf ''vcti\ gv'\vzxu''ku''cp''kpf\ ktgev''cpf\ ''eqxgtv''qpg. ''kpngf''d\{''c''\ rtqeguu''y j\ kej ''ku''o\ gpvcn''tcy'\ gt''y cp''r j\ ukecn'\\ Rt\ qf\ wev/dcugf\ ''twwf\ kgu''r tqeggf\ ''htqo\ ''c''eqo\ r\ ctcvkxg''cpcn\ uku''qh''\ uqwteg''cpf\ ''vcti\ gv'\vzxu''cpf\ ''wug'\vzxwcn''f\ khtgtgpegu''wpeqxgtgf\ ''f\ wtkpi\ ''y g''cpcn\ uku''cu''o\ gcpu''qh''ceeguukpi\ ''y g''o\ gpvcn''r tqeguugu''go\ r\ m\{gf\ 'f\ wtkpi\ ''vtcpurcvkqp\ORt\ qeguu'\ dcugf\ ''twwf\ kgu'\ wug''o\ gy\ qf\ u''uwej\ ''cu''\ VJ\ kP\ M'CNQWF\ ''RTQVQEQNU.''o\ gcuwtkpi\ ''y g''g\{g/o\ qxgo\ gpwi''qh''vtcpurcvqtu''cu''y\ g\{''tgcf\ .''xkf\ gqkpi\ ''y\ go\ ''cu''\ y\ g\{''y\ qtm''curkpi\ ''y\ go\ ''q\ ''khrl\ kp'ugh\ 'tgr\ qtv''s\ wgurkqppcktgu''qp''y\ gkt\ ''cwkwf\ gu''q''cur\ gewi'qh''kkgtct\{\ ''*\M'\p'\pk\ ''cpf\ ''\ Xgtpqp''3\; :\ 4+''cpf\ ''pqp/rkgtct\{\ ''*\Dgm'3\; ;\ 6+'\tcpurcvkpi\ .''cu''\ y\ gm''cu''xctkqwu'\ 'yej\ pk\ wgu''hqt''f\ gxgrqr\ kpi\ ''\ r\ qthgtu''c''\ qqf\ ''uwxg\ ''qh''uqo\ g''qh''y\ gug''o\ gy\ qf\ u\)$ 

Crctv'htqo "'y g'f khhkewn{ "qh'qdugtxkpi "y j cv'ku"guugpvkcm{ "c"o gpvcn'cevkxkv{ ."c'hwtyi gt"r tqdrgo "tgrcvgu'vq"yi g" f cpi gt "qh'hcem'qh'tgr tgugpvcvkxgpguu'kp" yj g'uco r ng "qh'kphqto cpvu'qt'kp" yj g'vcumu' yj g{ "ctg"cungf "vq"f q0'Htcugt" \*3; ; 8+"f kuewuugu 'xctkqwu'r tqdrgo u'tgrcvkpi "vq" y g"pcwtg" qh" y g"f cvc" wugf "kp"r tqeguu/qtkgpvgf "tgugctej 0"Hqt" gzco r ng. "o quv'qh'y g'\tcpuncvqtu'uwxf kgf "uq'hct" j cxg'dggp'\tckpggu. "y qwi j "Htcugtøu'\3;; 5+"y qtm'y ky " gzr gtkgpegf "r wdrke 'ugtxkeg' 'tcpurc vqtu'uvcpf u'qw'cu'c'r ctvkewrctn ("xcnvcdrg 'gzegr vkqp0 Ki'ku 'ergct' vj cv'f khygtgpv' i tqwr u"qh"dkrlpi wcnu. "kpenwf kpi "tcpurc kqp"uwwf gpwu"cpf "gzr gtkgpegf"r tqhguukqpcn'tcpurc vqtu. "ecp"f khhgt" o ctmgf n( "kp" y g"urtcvgi kgu" y g{ "cf qr v0" Uko krctn( ." y gtg" cr r gctu" \q" dg" c" eqpukf gtcdrg" f khgtgpeg dgw ggp" y g" r tcevkegu'qh'yi g'dkrkpi wcn'ej krf "gpi ci kpi 'kp'kpvgtr tgvkpi "cpf 'yi g'r tqhguukqpcn'vtcpurcvqt lkpvgtr tgvgt 'qp'yi g'qpg'' jcpf."cpf" y g"ncpiwcig" uwwfgpv"cpf" pqp/rtqhguukqpcn" y cpunc yqt" qp" y g" qy gt" \*N3/tuejgt" 3;;4-+0 Ceeqtfkpi" yq" N³/tuej gt. "yj g"v{r kecn'uvtcvgi { "qh'vj g"dkrkpi wcn'ej krf "cpf "vj g'r tqhguukqpcn'vtcpurcvqt lkpvgtr tgvgt "ku'ugpug/ qt lgpvgf."o cmkpi "wug"qh"\qr/f qy p"r tqeguukpi ."y kj "yj g"hqewu"qp"hwpevkqp"tcvj gt"yj cp"hqto ."cpf "f tcy kpi "qp" r tqegf wtcn'mpqy ngf i g0Hqt''yj gug''wy q''i tqwr u.''vtcpuncvkqp''eqpukuvu''qh''yj g''f geqpuvt wevkqp''qh''uki pu''kpvq''ugpug''cpf'' yj g't geqpuvt we vkqp"qh'ugpug"kpvq"uki pu0"Vj gkt "dkrkpi wcrkuo "ku"o gf kcvgf "d{"yj g'r quuguukqp"qh'c"ukpi rg'uvqt g"qh" mi kecn'cpf "gpe { emr gf ke "gpvtkgu'hqt "eqpegr vu'dw'f kuvkpev'ncpi wci g/ur gekhke 'uvqtgu'qh'ngzkecn'gpvtkgu'hqt "y g" mpi wci gu'kpxqnxgf 0'D{ 'eqpytcuv.''y g''v{r kecn'uytcygi { ''qh''uwxf gpv''cpf ''pqp/r tqhguukqpcn''ytcpurcyqtu''\*qp''y j qo '' o quv'go r ktkecn'kpxguvki cvkqp"j cu'dggp"ecttkgf "qwx+"ku'uki p/qt lgpvgf."o cnkpi "wug"qh'dqwqo/wr 'r tqeguukpi " y j kej 'hqewugu'qp'hqto 'tcvj gt''y cp'hwpevkqp. "cpf 'f tcy kpi "qp'hcewcn'f genctcvkxg'hpqy ngf i g0'Hqt''y go ." vtcpurcvkqp"eqpukuvu"qh"\*ugo k/+cwvqo cvke"ngzkecn"vtcpuhgt."cpf "vj g"uki p"kp"vj g"vcti gv"hcpi wci g"ku"ecngf "wr "d{ "vj g" uki p'kp''yi g'uqwteg'hcpi wci g'tcyi gt''yi cp''d{ "'yi g''tgrgxcpv''eqpegr v0

Rtqdrgo u'qh'tgr tgugpvckxgpguu'qh'f cvc'cpf "f khhewn ("qh'ceeguukpi "o gpvcn'cekxkkgu'pqw kij uvcpf kpi ."vj g" hkpf kpi u'qh'go r ktecn'tgugctej ."vj qwi j "hct'htqo "wpkqto "qt"eqpenwukxg."f q''uwi i guv'tgpf u'kp''y g'y c { "vtcpurcytu" vtcpurcy."vcemg'r tqdrgo u'cpf "lwwkh ("vj gkt"f gekukqpu0'ki'y qwrf ."qh'eqwtug."dg''wpy kug''vq''o cmg''gzci i gtcvgf "qt" wpy cttcpvgf "encko u'hqt''y g'hyuki j wi'r u{ej qrqi { "ecp"qhhgt "vtcpurcvqp"uwrf kgu. "ukpeg"cu"Y knuu'\*3; : 4-43: +'y ctpu" wu."+P gkyj gt "r u{ej qrkpi wkukeu'pqt "pgwtqrqi { "ecp"cu"{ gv'r tqxkf g'tgrkcdrg "kphqto cvkqp"qp"j qy "rkpi wkuke"f cvc"ctg" uvqtgf "kp''y g''dtckp."j qy "rkpi wkuke"o cvej kpi "r tqegf wtgu''vcrg'r neg"cpf "y j cv'o gpvcn'untwewtgu'ctg''cevkxg''kp" tgecnkpi "rhpi wkuke"kphqto cvkqp06'J qy gxgt."c"f gecf g'qt"o qtg'qp. "gpqwi j "ku'pqy "npqy p'vq''dgi kp''y g''vcun'qh'' etgcvkpi "c"o qf gn'qh'y g''r tqeguu'y j kej 'tgxgcnu'y g''rqi kecn'wpf gtr kppkpi "qh'y g''cev'qh''vtcpurcvkqp 'kugrhc'cp" cpcrqi { "qh'y g''uvci gu''cpf "uvgr u'y j kej "o wuv'dg''ceeqwpvgf "rht'kh'y g''ctg''q"gzr nckp"j qy "vtcpurcvkqp''ku''r quukdrg''cu'' c"j wo cp"cevkxkv{0'Uwej "c"o qf gn'ecp"j grr "wu'tgcej "dg{qpf "vj g''pqvkqp"qh''vtcpurcvkqp''y gqt { "cu''-j grr hwn'j kpwl'nqt" vtcpurcvqtuø'vq''c"tcpi g''qh'eqpuekqwpguu/tckukpi "kpuki j wu'kpvq''c"r tqeguu'y j kej "ku."r ctcf qzkecm{ ."cv'qpeg''dqyi "wpks wg"

FGEKUKOP 'O CMKPI 'KP 'VTCPUNCVKOP = VJ KP MCNOWF 'RTQVQEQNUO

### Hwt vj gt 't gcf lpi

TQEGT'VDGNN

# Rwdrkij kpi 'tot cvgi kgu

Vj g"vgto "±r wdrkuj kpi "uvtovgi kguø'tghgtu"vq"vj g"ur gewrokxg"r tqeguu"d{"y j kej "dqqmu"ctg"ej qugp"vq"dg"vtopurovgf " cpf "r wdrkuj gf "kp"qvj gt "rcpi wci gu<"f gur kvg"vj gkt "ewnwtorluki pkheopeg."vj g"r tqf wevkqp"qh"dqqmu"ku"i gpgtom{" tgi wrovgf "d{"gpvktgn{"eqo o gtekorlhqtegu0Cnvj qwi j "vj g"tguwnwu"qh"vj ku"ur gewrovkxg"r tqeguu"ctg"wpgxgp"dqvj "kp" j kuvqtkeorlvgto u"cpf "cetquu"ewnwtorldqwpf ctkgu."vj g"r tqeguu"kuugrh"ku"pgkvj gt "topf qo "pqt"wpo qvkxovgf 0"kpf ggf." ceeqtf kpi "vq"Xgpwk"v3;; 7c+."vj g"xgt{"ej qkeg"qh"c"hqtgki p"vgzv"vq"vtopurovg"ku"f gr gpf gpv"qp"f qo gurke"ewnwtorl xcrwgu"vugg"\forall VTCVGI KGU"QH"VTCP UNCVKQP +0Cnvj qwi j "vj ku"gpvt{"rcti gn{"cf f tguugu"vj g"kuuwg"y kvj kp"c" Gwtqr gcp"cpf "Pqtvj "Co gtkecp"eqpvgzv."uko krct"wpf gtn{kpi "r tkpekr rgu"o c{"dg"uggp"kp"qr gtcvkqp"gnugy j gtg0"

### Vt cpurc vlqp't cvg. 'ecvgi qt { 'cpf 'hqy

Vj g'pwo dgt 'qh'dqqmu'r wdrkuj gf 'gxgt { ''{gct 'kp'\tcpurcvkqp'xctkgu'uki pkhkecpvn{ 'htqo 'eqwpvt { ''vq'eqwpvt { 0'Kp'3; ; 3." hqt"gzco r ng. "cnnj qwi j "uqo g'89"84: "dqqmu"y gtg"r wdrkuj gf "kp"Dtksckp. "qpn("5"r gt"egpv"qh"yj gug"y gtg"vtcpuncvkqpu" \*38: ; '\kwgu+0\fo'I gto cp{.''c'eqwpvt{'y ky 'c'eqo r ctcdrg'qwr w:'uqo g'89': ; 2'dqqmu'y gtg'r wdrkuj gf.''qh'y j kej " 36'r gt "egpv'y gtg" 'tcpurc kqpu'\*; 779' \kxrgu+0O gcpy j krg. "kp'Rqtwi cn "cnj qwi j "qpn{ '8652'dqqmu'y gtg'r wdrkuj gf." 66'r gt 'egpv'qh'y gug'y gtg'kp'tcpurcwlqp'\*4: 2; ''wargu+0'Hcrnkpi 'dgwy ggp'y gug'gz t go gu'qh'j ki j ''qwar walrqy '' vtcpurcvkqp'tcvg'cu'tgrtgugpvgf'd{'Dtkckp'cpf'vjg'Wpkgf'Uvcvgu.'cpf'nqy 'qwrwvl'jkij'vtcpurcvkqp'tcvg'cu' tgrtgugpvgf "d{"Rqtwi cn"y g"hkpf "eqwpvtkgu"uwej "cu"Kcn("\*62"6: 9"dqqmu"r wdrkuj gf."qh"y j kej "48"r gt"egpv"y gtg"kp" vtcpurcvkqp+."Urckp'\*65": ; 8"dqqmu."qh'y j kej '46'r gt'egpv'y gtg'kp''vtcpurcvkqp+."cpf "Htcpeg'\*5; '747'dqqmu."3: "r gt" egpv'kp''tcpurcvkqp='y gug'cpf 'qy gt'uvcvkuvkeu.'wprguu'qy gty kug'uvcvgf.'ctg'ftcy p'htqo 'y g'DKRG'Eqpugkr'3;;5+0 Cnj qwi j ''y g''tcpurcvkqp''tcvg''o c{ ''dg''dtqcf n{ 'kpf kecvkxg''qh''y g''ewnwtcn'ceegr vcpeg''qh''tcpurcvkqp''kp''c''r ctvkewrct'' eqwpvt { .'htqo ''vj g''r qkpv'qh''xkgy ''qh''r wdrkuj kpi ''uvtcvgi kgu''vy q'hwtvj gt''ugvu''qh''uvcvkuvkeu''ctg''tgs wktgf ''dghqtg''kv'ku'' r quuldng'\q'ftcy "cp{ "i gpgtcn'eqpenxulqpu<"yi g"ecvgi qt{ "qh'y qtmi'r wdrkuj gf "\*g0 0'uelgpvlhle"cpf "vgej plecn='uqelcn' uekgpegu="rksgtcwtg+"cpf" 'tcpurcvkqp" hqy "\*kg0'yi g"rcpi wci g"qh" qtki kp"qh" 'tcpurcvkqpu+0'Y kyi 'tgur gev'vq" ecvgi qt{." hqt"gzco r ng. "qh'yi g"vqvcn'pwo dgt "qh'dqqmu'r wdrkuj gf "kp"Dtkxckp"kp"3; ; 2"85": 89"vkxngu+. "yi g"uqekcn'uekgpegu" ceeqwpvgf "hqt"53"r gt"egpv="uekgpeg"cpf"vgej pqnqi {"4; "r gt"egpv="nkvgtcwtg"3; "r gt"egpv="ej knf tgpøu"dqqmu"; "r gt" egpv="cpf" uej qqn'dqqmu'5"r gt"egpv0kp"Dgni kwo ."qp" yi g"qyi gt" j cpf ."y j kej "r wdrkuj gf '93: 4"dqqmu'kp"3; ; 3" \*crrtqzko cvgn('j' cnh'kp''Htgpej 'cpf'j cnh'kp''Hngo kuj +:'uekgpeg'cpf''vgej pqnqi {'ceeqwpvgf'hqt''qpn('8'rgt'egpv'qh'' dqqmı'r wdrkıj gf 'y j krg'ej krf tgpøu'rksgtcwtg'tgr tgugpvgf '66'r gt 'egpv0 Kp"vgto u"qh"vtcpurcvkqp"hrqy ."82"r gt"egpv"qh"vtcpurcvkqpu"r wdrkuj gf "kp"Gwtqr g"ctg"qh"y qtmu"qtki kpcm("y tkwgp"kp"

Kp 'vgto u'qh'\tcpurc\kqp'hrqy.'82'r gt 'egpv'qh'\tcpurc\kqpu'r wdrkuj gf 'kp 'Gwtqr g'ctg'qh'y qtmu'qtki kpcm{ 'y tkwgp'kp''
Dtkkuj "qt 'Co gtkecp'Gpi rkuj ="c'hwtyj gt'36'r gt "egpv'ctg"qtki kpcm{ 'y tkwgp'kp 'Htgpej 'cpf 'cpqvj gt'32'r gt 'egpv'kp''
I gto cp0P qpg'vj g''rguu.'kv'ku'r quukdrg'vq'f kuvkpi wkuj "; qpgu'qh'kphrwgpegø'ur gekhke'vq''

r ctvlewrct "rcpi wci g"ctgcu0kp" i g"rksgtct { 'hkgrf ."hqt"gzco r rg. "iy g"ewnwtcn'eqj gukqp"qh'pqt iy gtp 'Gwtqr gcp" eqwpvtkgu'\*Dgri kwo ."F gpo ctm'cpf "iy g"P gyj gtrcpf u+"ku"f go qpuvtcvgf "id { 'iy g'hcev'iy cv'I gto cp"ku'iy g'ugeqpf "o quv' vtcpurcvgf "rcpi wci g"chvgt "Gpi rkuj ."y j krg"kp"uqwj gtp "Gwtqr g"Htgpej "ku"gxgt { y j gtg"iy g'ugeqpf "o quv' vtcpurcvgf " rcpi wci g0'Qdxkqwun{ ."kv'ku"pqv'r quukdrg"j gtg"vq"r tgugpv'c"r kewntg"qh'vj g"i rqdcn'r wdrkuj kpi "kpf wunt { ."dw'kv'ku" rkngn{ "y cv'cp"cpcn{ uku"qh'r wdrkuj kpi "r tcevkegu"kp"qvj gt"tgi kqpu"ceeqtf kpi "vq"vtcpurcvkqp"tcvg. "ecvgi qt { "cpf "hrqy " y qwrf "tgxgcn'uko krct"r cvygtpu0

Uwej "uwckunkeuô y j kej "eqpegcn'pwo gtqwu'uqekcn"j kunqtkecn'cpf "ewnwtcn'hcevqtuô j cxg"uki pkhecpv" eqpugs wgpegu"cu'hct "cu''y g"qti cpk cvkqp"qh''y g"r wdrkuj kpi "kpf wuxt { "qh''c "eqwpvt { "ku''eqpegtpgf 0'V j g'j ki j " r tqr qtvkqp"qh''ej krf tgpøu''dqqmu''r wdrkuj gf "kp''Dgni kwo ."hqt "gzco r ng. "ku'kpf kecvkxg"qh'y g'hcev'y cv'y g'r wdrkuj kpi " kpf wuxt { "vj gtg"\*v{r kecn'qh'uo cm'eqwpvtkgu'kp''ncti gt''ncpi wci g"ctgcu+"ku''f qo kpcvgf "d{ "hqtgki p'r wdrkuj kpi "j qwugu" y j kej "j cxg''hqtegf "nqecn'hkto u'kpvq''ur gekcnk kpi ."kp''y ku''ecug'kp''uwej "i gptgu''cu''y g''eqo ke''uvtkr 0'Uko krctn{ ."vj g" nqy "'tcpurcvkqp''tcvg''qh''Dtksckp''cpf "y g''Wpksgf "Uvcvgu''j cu''htgs wgpvn{ "dggp''cwtkdwgf "vq''y g''ugrh/uwhhkekgpe { "qh''y g" Gpi rkuj "o ctngvu0

#### I gpgt ch't cf g'r wdrkuj gt u

I kxgp''yi g''gzvgpv''qh''Cpi m/Co gtkecp''j gi go qp{'\*pqv''qpn{'kp'Gwtqrg''dwv'cnuq''kp''Chtkec.'Cukc''cpf''Uqwj'' Cogtlec+: 'kv'oc{ "dg'wughwn'\q'f kuewuu'\jg'qticpk|cvkqp"qh'\jg'r wdnkujkpi'kpf wuxt{ 'kp'Dtksckp'cpf'\jg'Wpksgf'' Ucvgu'lp'tgegpv'{gctu0Cu'Hgcyj gt'\*3;;5<393+'j cu'r qkpvgf ''qwv.''y g'hcuv'vy q'f gecf gu'j cxg''dggp''ej ctcevgtk gf 'lp'' dqyi "eqwpvtkgu"d{"c"r cwgtp"qh"eqpi rqo gtkt cvkqp0"kp"Dtkxckp."hqt"gzco r rg."yj g"kpf wuxt{"ku"f qo kpcvgf "kp"yj g"rcvg" 3; ; 2u'd{ "hqwt"o clqt"i tqwr u<"Tcpf qo "Egpwt{ "\*etgcvgf "d{ "yj g"co cni co cvkqp"qh'yj g"P gy "[ qtmlhkto "qhlTcpf qo " J qwug''y kyj ''yj g'Cpi mp/Co gtk/ecp''eqpuqtvkwo ''qh''Egpwt{/J wej kpuqp≠"J ctrgtEqmkpu'"\*etgcvgf ''kp''yj g''gctn{" 3; : 2u'd{"vjg"\cng/qxgt"qh'Eqnrkpu"kp"Dtksckp"cpf"Jctrgt"cpf"Tqy"kp"vjg"Wpkgf"Uvcvgu"d{"Pgyu"Kpvgtpcvkqpcn⊨" Rgctuqp'\*y j kej 'ces wktgf 'vj g'Nqpi o cp'go r ktg'kp'vj g'gctn( '3; 92u+="cpf 'Tggf 'Kpvgtpcvkqpcn'\*y j kej 'eqpvtqnı' Qevqr wu'Dqqmu'cpf "I gkpgo cpp+0/Cnj qwi j "cml'j gug"eqpi nqo "gtcvgu'j cxg"uvtqpi "kpvgtguvu'kp" j g'r wdrkuj kpi "qh" i gpgtcn'tcfg'dqqmu. 'uqog'j cxg'r ctvlewrct'uvtgpi yj u'kp''yjg'oqtg'hwetcvkxg''gf wecvkqpcn'cecfgoke''cpf''Uekgpvkhle." Vgej plecn'cpf 'O gf lecn'\*UVO +'hlgrf u0'Ugxgtcn'ctg'cnuq'gzvtgo gn('cevlxg'lp'qvj gt'hqto u'qh'o gf lc'\*g0 0P gy u' Kpvgtpcvkqpcn+0Kp"vj g"eqwtug"qh"vj ku"r tqeguu"qh"eqpi mo gtk cvkqp."c"ncti g"pwo dgt"qh"kpf gr gpf gpv'r wdrkuj gtu."  $uqo~g'y~kj~'j~kuvqtkgu'f~cvkpi~'dcem'422''\{~gctu''qt''o~qtg.'j~cxg'f~kucr~r~gctgf~'kpvq''qvj~gtuc''Dqf~rg\{~'J~gcf~.''Ej~cwq''cpf~''~qvj~gtuc''Dqf~rg\{~'J~gcf~.''Ej~cwq''cpf~''~qvj~gtuc''Dqf~rg\}$ Y kpf wu'cpf 'Iqpcyi cp'Ecr g. 'hqt'gzco r rg. 'cm'pqy 'dgrqpi ''vq''yi g'Tcpf qo 'Egpwt { 'I tqwr 0'Vj g'r wtuwky'qh'r tqhkô qt."o qtg"rtgekugn(."vjg"tgfktgevkqp"qh"kpxguvo gpv"vqy ctfu"o qtg"rqvgpvkcm("rtqhkxcdrg"ctgcu"qh"c"eqpi rqo gtcvgøu" cevkx kukguô ecp 'ngcf "vq 'vj g 'genkr ug 'qh 'ewnwtcm ( 'uki pkhkecp v 'ko r t kp vu. 'kpenwf kpi 'vj qug 'ur gekcnk kpi 'kp '' vtcpurcvkqpu0'Vjg'tgegpv'dw{qwv'qh'Jctxkm'\*ces wktgf'd{'Eqmkpu'kp'3;7;+'tgrtgugpvu'c'oqtg'rqukxkxg'uqnwkqp<' J ctxkmøu 'nkuv'kpenwf gu'pwo gtqwu'vtcpurcvkqpu. 'hqt 'gzco r ng'qh'y qtmu'd { 'Dqtku'Rcuvgtpcm'cpf 'Cngzcpf gt'' Uqn j gpku{p0

Kp"y g"3; 42u."y g"Co gtkecp"r wdrkuj gt"Cnttgf "CoMpqr h"tgi wetn("ttexgngf "cu"het "chkgnf "cu"Uy gf gp."P qty c{." F gpo ctm"I gto cp{"cpf "Uqwj "Co gtkec"kp"ugetej "qh"cwj qtuk"j ku"hkto øu"3; 47"kuv."hqt"gzco r ng. "kpenwf gf "Mpw" J co uwo ."Cpf t² "I kf g"cpf "Vj qo cu"O cpp"\*Vgddgn"3; : 9-44; 653+0Gxgp"chygt"Y qtnf "Y ct"Vy q. "Co gtkecp" r wdrkuj gtu"uvknieqpvkpwgf "\q"kunwg"c"-inti g"dw"ugngev"dqf {"qh"tcpurcvkqpu"o quvn("htqo "Gwtqr gcp" nepi wei guø"\*Xgpwkk"3; ; 4-7+0Ukpeg"yj gp."j qy gxgt."yj gtg"j cu"dggp"c"uvgef {"f genkpg"kp"yj g"r wdrkuj kpi "qh" tcpurcvkqpuô c"f genkpg"yj kej "j cu"eqkpekf gf "y kyj "yj g"eqpi mo gtkl cvkqp"qh"yj g"Co gtkecp"r wdrkuj kpi "kpf wuxt {0 Vj g"gf kqt"ku"engetn("c"egpvtcn"hki wtg"kp"yj g"r wdrkuj kpi "kpf wuxt {0 Wp"reti gt"hkto u."ur gekchuv"gf kqtu"ctg" tgur qpukdng "hqt"f khtgtgpv"r ctw"qh"yj g"hkn0"Y kyj "tgur gev"q"yj g"uqekcn"uekgpegu. "hqt"gzco r ng. "yj g{ "htgs wgpvn("xkukv" cecf go ke "kpurkwwkqpu"kp"qff gt "q"uggm"qw"r qvgpvkcn"cwj qtu0"Gf kqtu."yj q"ctg"qhwgp"qpn("dtkpi "r tgurki g"vq"yj g"hkto "dw"cnnq"r tqxg"vq"dg"r tqhkcdng0Eqpugs wgpvn(."yj g"y km"qpn("cmg"qp"cwj qtu"yj q"j exg"cntgef {"guvcdrkuj gf" eqpukf gtcdng"tgr wcvkqpu"kp"yj gkt"qy p"eqwpt {"cpf."r tghgtcdn(."j cxg"cntgef {"dggp"tcpurcyf"kpqn"

#### Ewnwtchcpf 'cecf go le'r t gurgu

Xgpwk'\*3;; 4♂+'j cu'uwi i guvgf 'vj cv'vj g'uo cm'tkug'kp''vj g'pwo dgt''qh'Gpi rkuj /rcpi wci g''vtcpurcvkqpu''dgkpi ''dtqwi j v' qw'd{ 'Cpi m/Co gtlecp'r wdrkuj gtu'vqy ctf u'vj g'gpf 'qh'vj g'3; : 2u'y cu'c 'eqpugs wgpeg'qh'i gpgtcn'vtcf g'r wdrkuj gtu' dgkpi "hqtegf"∹q"eqo r gvg"ci ckpuv'pgy "\tcpurcvkqp"kpkxkcvkxgu"cv'wpkxgtukv{"cpf"uo cmlr tguuguø0Cnyi qwi j "\yi g"\qvcn" pwo dgt "qh"\kuruvgf "gcej "{ gct "d{ "cecf go ke"cpf "y j cv"o ki j v"dgwgt "dg"\gto gf "÷ewnwtcnø'r tguugu "ku"uo cm"kp" eqo r ctkuqp"\q"\j cv'cej kgxgf "d{"i gpgtcn'\tcfg"r wdnkuj gtu."\j g{"ctg"y qt yj "f kuewuukpi "j gtg"ukpeg"eqmge\kxgn{"cpf" gxgp. 'kp''uqo g''ecugu. 'kpf kxkf wcm{ ''y g{ ''ctg''ecr cdrg''qh''gzgt kpi ''c''pqv'kpeqpukf gtcdrg''ewnwtcrlkphrwgpeg0 Htqo "c"r wtgn( "geqpqo ke"r qkpv'qh'xkgy ."r wdrkuj kpi "qhhgtu"c"pwo dgt"qh'cf xcpvci gu0'Rwdrkuj kpi ."wprkng'r tkpvkpi ." ku'pqv'ecr kcn'kpvgpukxg='y g'gpvtgrtgpgwt'ecp'eqpegpvtcvg'qp'fgxgnqrkpi 'c'urgekcnkuv'qt'pkejg'octngv=' cnygtpcvkxg"o ctnygvkpi "uvtcvgi kgu. "uwej "cu"o ckri'qtf gt. "o c{ "j grr "o czko k| g"r tqhkvu="cpf "qxgtj gcf u"o c{ "dg" o kpko kļ gf. "gur gekcm ("kh'vj g'r wdrkuj gt "qr gtcvgu'htqo "j kulj gt "qy p'r tgo kugu0O qtg'i gpgtcm (.'vj g'geqpqo kgu'qh' ncti g/uecng'xgpwtgu'ctg'pqv'uq'i tgcv'cu'vq'r tgenxfg'uo cmuecng''qr gtcvkqpu<'c'i gpgtcn'vtcfg'r wdrkuj gt''o ki j v' eqpulf gt"c"rtlpv"twp"qh"5222"cu"hlpcpelcm{"wplwwlthlcdrg="c"ewnwtcn"rtguu"o kijv"lwfig"c"uko krct"rtlpv"twp"c"itgcv" uweeguu0Cpf 'hkpcm{. ''yj gtg''ctg''pq'ko r gf ko gpvu''vq''gpvgtkpi ''yj g''o ctmgv0P qpg''yj g'hguu. ''yj g'hkpcpekcn'gzkuvgpeg''qh'' uwej 'r tguugu'pqv'qpn( 'kp' y g'Wpksgf 'Ucvgu'cpf 'y guvgtp'Gwtqr g'dw'gnugy j gtg'ku'qhsgp'r tgectkqwu. 'cpf 'y qug'' kpxqrxgf "y j gyj gt "cu"r wdrkuj gtu. "tcpurc vqtu"qt "cwj qtu+"htgs wgp vn{ "f gr gpf "qp"uwdukf kgu"htqo "i qxgtpo gp vcn" ci gpekgu'cpf lqt'ucnctkgu'gctpgf 'htqo 'cevkxkkgu'uwej 'cu'vgcej kpi 0 Ki'ku'j ctf n{ 'uwtr tkukpi .'yj gtghqtg.'yj cv'qh'yj g'4222'r wdrkuj gtu'kp'gzkuvgpeg'kp'Dtksckp.'yj g'o clqtkv{ 'o ki j v'dg''

K'kı'j ctf n 'uwtr tkukpi .''y gtghqtg.''y cv'qh'y g'4222'r wdrkıj gtu'kp'gzkurgpeg'kp'Dtkckp.''y g'o clqtk\ 'o ki j v'dg''
f guetkdgf 'cu'ewnwtcri'r tguugu0Ko o wpg'htqo ''y g'gzki gpekgu'qh'eqtr qtcvg'hkpcpeg.''o cp{ ''cmg'c'nqpi / yto ''xkgy ''qh''
y gkt''qy p''uweeguu'cpf ''pqv'c'hgy ''ctg'o qvkxcvgf ''r tko ctkn\ 'd\ ''c''s wguv'hqt''r tguvki g.''y j gyj gt''qp''dgj crh'qh''y gkt''
hqwpf gtu.''y gkt''cwy qtu''qt.''o qtg'i gpgtcm\ .''y g''nkgtct\ ''qt''r qnkkecn'vgpf gpe\ ''y j kej ''y g\ ''cf xcpeg0E wnwtcn''
r tguugu.''j qy gxgt.''ctg''ecr cdng''qh''r tqf wekpi ''y qtmu''qh''e'j ki j n\ ''kppqxcvkxg''pcwtg.''r ctvkewrctn\ ''kp''y g''hkgrf u''qh''
eqpvgo r qtct\ ''hkgtcwtg'\*\*Ipenwf kpi ''tcpurcvkqp''cpf ''r qgvt\ +.''ur gekcnltgi kqpcn'lkvytguvu.''cpf ''uqekcnlr qnkkecn''
eqo o gpvct\ O'Kpf ggf .''cu''Uej wng'\*3;; 2-4+'j cu''tgo ctngf .''-Vj g''dwtf gp''qh''dtkpi kpi ''pgy ''kpvgtpcvkqpcn'y tksgtu''
qpvq''y g'Co gtlecp'']cpf .''qpg''uj qwrf ''cnq''cff r.''Dtkkuj \_'o ctngv'hcmu''wr qp''y g''uo cm''r tguugu\ Hqt''ewnwtcn''
r wdrkuj gtu''qh''y ku''nhpf .''y g''ugngevkqp''qh'o cvgtlcn'cpf ''y g''kf gpvkhkecvkqp''qh'pgy ''cwj qtu''r tqxkf g''y g''hqewu''hqt''
y gkt ''cevkxkkgu0J cxkpi ''y gkt''qy p''ur gekhke''ewnwtcn''ci gpf c.''y g\ ''f q''pqv'pgeguuctkn\ ''tgn\ ''qp''uqnkekkpi ''pgy ''
o cpwuetkr wi'htqo ''y g''i gpgtcn'r wdrkeO'Kpuvgcf .''cu''y g\ ''f tqy .''y g\ ''f gxgrqr ''cp''kphqto cn'\*y qwi j ''qhvgp''gz vgpukxg+''
pgy qtm'qh''hng/o kpf gf ''kphqto cpu''q'eqo r ngo gpv'y g''gf kqtkcn'cewo gp''qh'y gkt''hqwpf gtu0

Cnj qwi j "ewnwtcn'r wdrkuj gtu'ctg'tgur qpukdrg'hqt'qpn{ "c'htce-kqp"qh'vj g'pwo dgt"qh'vkngu'r tqf wegf "gcej "{ gct." vj g{ "o c{ "dg'nqngf "vqy ctf u'd{ "egtvckp"i tqwr u'hqt "c'ur gekhe "nkpf "qh'vkng"pqv'cxckrcdrg"gnugy j gtg0'Vj ku."vqq."ku" j ki j n{ "ko r qtvcpv'ukpeg"vj g'hqto cvkqp"qh'pcvkqpcrkuvke "rksgtct{ "ecpqpu"vgpf u"vq"f kuetko kpcvg"ci ckpuv'vtcpurcvkqp0' Kp'Dtksckp. 'hqt"gzco r rg. "HOT ONgcxku"cf xcpegf "hqt"o cp{ "{ gctu"c "j ki j n{ "r gtuwcukxg"\*vj qwi j "pqy "rcti gn{ " f kuetgf kxgf +"pqvkqp"qh"cp"Gpi rkuj "÷vtcf kxkqpx0'Uej wnxg"cti wgu"vj cv'vgcej gtu"cpf "wpkxgtukx{ "rgewtgtu."htgs wgpvn{ " r gtegkxgf "cu"c"rkngn{ "o ctngv'hqt"pgy "rksgtct{ "y qtmu"kp"vtcpurcvkqp."vgpf "vq"dg'wpcf xgpwtqwu"kp"vj gkt"tgcf kpi " j cdkxu"cpf "wprkngn{ "vq"kpenwf g"c"r ctvkewrct"y tkxgt"qp"c"ewttkewnwo "wpvkn'ulj g"j cu"cntgcf { "tgegkxgf"y kf gur tgcf" cecf go ke"cr r tqxcn0

Cecf go le'r tguugu'ctg'ikngy kug'tgnc\kxgn{ 'ko o wpg'\q'eqo o gtekcn'r tguuwtgu. 'y qwi j 'uqo g'i gpgtcvg'eqpukf gtcdng'' tgxgpwgu'\Qzhqtf 'Wpkxgtukx{ ''Rtguu'j cu'c'\wtpqxgt'qh'o qtg'\y cp'\Q322''o knkqp'r gt''cppwo +0'V j g''gzkuvgpeg''qh'' uwej ''c'r tguu'dtkpi u'r tguvki g''cpf ''etgf kdkrkx{ ''\q''y g''j quv'kpuvkwwkqp''cpf ''y g''o gcpu''qh'r ct\kekr c\kpi ''kp''cecf go ke'' f gdcvg0'Cnyi qwi j ''y g''r wdrkuj kpi ''qh''tcpurc\kqpu.''y j gyi gt''qh''c''rkgtct{ ''qt''uej qnctn{ ''pcwtg.''ku''pqv'\y j gkt''o ckp'' ce\kxkx{ .''cecf go ke''r tguugu''f q''pqpg''y g''rguu''kuwwg''c''pwo dgt''qh''ko r qtvcpv'\yzvu''kp''tcpurc\kqp''gxgt{ ''{gct0'Gs wcm{ ''uki pkhkecpvn{ .''y g''nwf qu''qh''c''wpkxgtukx{ ''ko r tkpv''ecp''j gnr 'tckug''y g''r tqhkrg''qh''c''r ct\kewrct''y tkxgt''qt''uej qqn'qh'' y qwi j v'cpf ''uq''r rc{ ''c''o clqt''r ctv'kp''y g''tghqto wrc\kqp''qh''ecpqpu0

#### Uwdulf lgu'hqt 'ilsgt ct { 'tt cpurc vlqp

F go qetcekgu'\gpf "\q'xkgy "ucvg'kp\gtxgp\kqp"kp"r wdrkuj kpi "y kj "uqo g"o kutwuv'cu'ej ctcevgtkn\ke"qh'\qvcn\kct\cp"
tgi ko gu'\frac{\text{Hgc}}{3}; 5\frac{\text{896}}{3}: 40\frac{\text{V}}{3}; fankkecn'cpf "uqekcn'ej cpi gu'y j kej "j cxg''uy gr v'yj tqwi j "Egpvtcn'Gwtqr g'kp"
yj g''ncuv'f gecf g"j cxg''ngf "\q''yj g"f kukpvgi tcv\qp"qh'o wej "qh'\yj g''ucvg''cpf "r ctcuvcvn'r wdrkuj kpi "cr r ctcwu'y j kej ."
hqt'o qtg'\yi cp"j cm''c"egpwt{."j grf "c"pgct"o qpqr qn{ "qp"dqqm'r tqf wev\qp"\qp"y j qug"eqwpvt\gu0'Dgukf gu''uggm\pi "\q"
r tqo qvg'\ku''qy p"r qrk\kecn'kf gqmi { "kp"qy gt"eqwpvt\gu''d{ "o gcpu"qh'\tcpurcv\qp."y cv'cr r ctcwu''pqpg"\y g''rguu''
qeecu\qpcm("uwr r qtvgf "\y g'\tcpurcv\qp"qh'\ugt\qwu''nkgtct{"y qtm'\nqt}"gzco r ng"qh'\pqxgnu''d{ "cwy qtu'\uvej "cu"
I tcj co "I tggpg''qt"Y knkco "Hcwmpgt'\pqu''o kpqtkv("repi wci gu'\uvej "cu''Guvqpkcp0O cp{ "\tcpurcv\qtu'y qtn\pi i'\p"
yj qug''eqwpvt\gu''f gxgmr gf "i qqf "tgncv\qpu' o kpqtkv("repi wci gu'\uvej "cu''Guvqpkcp0O cp{ "\tcpurcv\qtu'y qtn\pi i'\p"
yj qug''eqwpvt\gu''f gxgmr gf "i qqf "tgncv\qpu' o kpqtkv("repi wci gu'\uvej "wcy"r wdrkuj kpi "j qwugu."\uvej "\y cv'yj g{ "y gtg"
kp"c'r quk\qp"\q' tgeqo o gpf "\kurgu'y j kej "cr r gcngf "\q'\y go 0'Y ky "\y g''f ger\pg'q'\uvej "r ctcuvcvn'r wdrkuj kpi "
j qwugu'\forwin yi qw j "uqo g''j cxg"tgo qf gnngf "\y go ugnxgu''qp"eqo o gtekcn'r wdrkuj kpi "j qwugu'\cpui "Y guvgtp''h\pgu+"
yj qug''tcpurcv\qtu''j cxg''i gpgtcm("j cf "\q'\wtp"\y gkt''cwgp\qp"\q''o qtg''r qr wct''\kurgu0'\pg''Rqncpf ."\nt "gzco r ng."\y gtg''
ku''c'hcuv'i tqy kpi "o ctngv'\nt "\tcpurcv\qpu''qh'\pqv''qpn("\y tkngtu''cpf "\cdot\uveygngtu\uveydw''\cpurcv\qpu''\text{y qo gp\uveya''ki j v'tqo cp\ke"}
Hev\qp. "cmpi "\y g''\tgygu''qh'\y cv'r wdrkuj gf "d{ "J ctrgs w\py"\wveyf''\text{y kmu''cpf "\cdot\uveya'\text{y my}}
Hev\qp. "cmpi "\y g''\text{y ctry wdrkuj gf "d{ "J ctrgs w\py"\wveya'\text{y kmu''cpf "\cdot\uveya'\text{y my}}

Cnj qwi j "o cp{"eqo o gpvcvqtu'vgpf "vq"xkgy "uwej "ej cpi gu'y kj "f kurkuv." 'y g"f kurkpevlqp"dgwy ggp":rksgtct{ø'cpf" ir qr wrctø'hkevlqp"ku'pqpg" y g"nguu'pqv'cny c{u'gcu{"vq"lwurkh{."gknj gt"eqo o gtekcm{"qt"cgunj gvkecm{0'Uqo g" f kurkpevn{":rksgtct{ø'cwnj qtu."uwej "cu'O cti wgtksg'F wtcu."eqo o cpf "rcti g"o ctngvu." y j kurv'uqo g'uq/ecngf" ir qr wrctø'y tksgtu"ctg"pqv'y knj qw'rksgtct{"o gtkx."hqt"gzco r ng'Twnj "Tgpf gm'0Vj gug'w q"gzco r ngu"ctg"pqv'ej qugp" cv'tcpf qo <'Twnj "Tgpf gm'cpf "O cti wgtksg'F wtcu'y gtg"cti wcdn{"y g"w q"o quv'r qr wrct"y tksgtu"qh'hkevlqp"kp" Gwtqr g"kp"3; ; 3"\*vj g"o quv'tgegpv'f cvg"hqt"y j kej "eqo r ngvg"hki wtgu"ctg"cxckrcdng+."y knj "tgur gevkxgn{"524"cpf"49: "wkngu"kp"r tkpv'cetquu''y g"y gp+"pkpg"hpi wknke"| qpgu"qh'y g'Gwtqr gcp"Wpkqp0

C'ho kgf 'pwo dgt''qh'uwdukf kgu''ctg''cxckrcdrg''dq'y ''kp''Gwtqr g''cpf 'Pqt'y 'Co gtkec''\q''uwr rqtv'\tcpurc\kqp0'Y ky kp'' y g''Gwtqr gcp''eqpwgzv.''hqt''gzco r rg. ''uwdukf kgu''qhhgt gf ''d{ ''y g''Gwtqr gcp''Eqo o kuukqp''wpf gt ''y g''Mcrgkf queqr g'' Rtqi tco o g''uggmi'vq''r tqo qvg''y g''tcpurc\kqp''qh''eqpwgo rqtct { ''y qtmu''\*kpenwf kpi ''f tco c+'htqo ''cpf ''kpvq''o kpqtkx{ '' rcpi wci gu0'Vtcpurc\kqp''egpvtgu.''f guki pgf ''vq''uwr rqtv''cpf ''r tqo qvg''\tcpurc\kqp''y qtm''j cxg''cnuq''dggp''guvcdrkuj gf '' wpf gt ''y ku'rtqi tco o g''kp''c''pwo dgt''qh''Gwtqr gcp''eqwpvtkgu0'Uqo g''eqwpvtkgu.''tgeqi pk kpi ''y cv''uwdukf k kpi '' vtcpurc\kqp''ku''qpg''qh''y g''o quv''equv' ghlgevkxg''o gcpu''qh''r tqo q\kpi ''y gkt''qy p''pc\kqpcn'hkgtcwtg''cpf ''ewnwtg.''cnuq'' twp''r ctcngn'uej go gu0'Nkngy kug. ''ewnwtcn'ci gpekgu'\*'uwej ''cu''y g'P c\kqpcn'Gpf qy o gpv'hqt''y g''Ctw''kp''y g''Wpksgf '' Ucvgu.''y g''Ecpcf kcp''Ctw''Eqwpekn''cpf ''y g''Ctw''Eqwpekn'qh''Gpi rcpf ''kp''Dtksckp+'j cxg''uj qy p''y knkpi pguu''q'' uwr rqtv'ur gekhe''\tcpurc\kqp''r tqlgew0

NKVGTCT[ "VTCPUNCVKQP."RTCEVKEGU="UVTCVGI KGU"QH"VTCPUNCVKQP0

#### Hwt yj gt 't gcf kpi

DKRG'Eqpugkrl'3;; 5="Hgcvj gt"3;; 5="Uej wng"3;; 2="Vgddgrl'3;: 9="Xgpwk'3;; 4."3;; 7c."3;; 7d0

VGTT[ 'J CNG

# Rwt g'hepi wei g

K gcu'cdqw'r wtg'hcpi wci g'kp''tcpurckqp''y gqt { "f gtkxg'htqo "'y g"guuc { "d { "Y cngt "Dgplco kp."÷Vj g"Vcuniqh''y g" Vtcpurcvqtø'\*3; 45+."'y g"r tghceg''y lu'tcpurcvkqp"qh'Dcwf grcktgøu''Vcdngcwz''RcthukgpuO'Vj g'r tghceg''j cu'dgeqo g'c" egpvtcn'\gzv'kp''y g'f gxgmr o gpv'qh''y g'eqpvgo r qtct { "f kuewuukqp"qh''y g''pcwtg"qh'\tcpurcvkqp."cpf "'y ku''egpvtcnkv{" r ctwf "ctkugu'htqo "'y g''ko r qtvcpeg''qh'Dgplco kp''cu''c''y kpngt''cdqw''uqekgv{ "cpf "ewnwtg''hkxkpi "'y tqwi j "'y g" Gwtqr gcp"etkuku''qh''y g''3; 42u''cpf "3; 52u. "c''etkuku''y cv''ngf "j ko "'vq''vcng''j ku''qy p''nkbg'lp''3; 620J g'y cu''qpg''qh''c" i tqwr "qh''Gwtqr gcp''kpvgngewcnu''i tcrrnkpi "y ky "'y cv'wto qkn'qh''j kuvqt { "kp''y g''eqpvgzv'qh''vtcf kkqpu''qh''ctv'' r j kquqr j { "cpf "rkygtcwtg'y j kej "hcegf "f guvtwevkqp''kp''y g''gtc''qh''j { r gtkphrcvkqp"cpf "'y g''tkug''qh''Hcuekuo 0J ku''kf gcu'' qp''r wtg''ncpi wci g''eqo g''kphqto gf "d { "'y g''lci i gf "gf i gu''qh''j kuvqtkecn'gzr gtkgpeg''cpf "ctg''kpko kecn'vq''cp { "pqvkqp''qh'' dmqf "qt''tcekcn'r wtkv{0

Y cnigt 'Dgplco kp'ku'qpn( 'tgcm( 'eqpegtpgf 'y kj 'tcpurckqp''y cv'tgcej gu'qwi'vq''y g'r wtg'rcpi wci g'y j kej 'ku' r qvgpvlcm("r tgugpv'lkp"c"ugrgev'dqf { "qh'y tkxkpi "kp"cp{"rcpi wci g0"Hqt"j ko ."r wtg"rcpi wci g'ku"c"hqteg"j kf f gp"y kyj kp" egtvckp"\gzvu."c"r qgvke"r qvgpvkcn"c"ngtpgn"vj cv"ku"uvtkxkpi "\q"i q"dg{qpf" vj g"ko o gf kcvg"uj gm"qh"y qtfu0"KV"ku"vj g" wum'qh'y g'tcpurcyqt'yq'tgcej ''qw'yq''cpf 'tgrgcug'y cy'r qygpykcrky{ O'Dgplco kp''wtpu'eqo o qpugpug'pqykqpu'qh' GS WKXCNGP EG'kp'ttcpurcvkqp'wrukf g'f qy p0'Y j gp'j g'cumu'kh'c'y qtmlku'ttcpurcvcdrg.'j g'ku'pqv'y kpmkpi 'cv'cm'qh' yj g'eqo o wpkecvkqp'qh'eqpvgpv'qt'qh'kphqto cvkqp0'Ki'yj g'eqo o qp'ewttgpe{ "qh'nkpi wkurke"gzej cpi g'cdqwpf u. 'yj cv' uki pkhkgu''y g'hcpi wci g'ku'tgo qvg'htqo ''y g''ægpvtch'tgekr tqech'tgrcvkqpuj kr ''dgwy ggp'hcpi wci guø'\*3; 45<94+''cpf ''cu'' uwej "ku"wpytcpurcycdrg="c"rcpi wci g"ytcpuceykqp."dwy'pqy'c"ytcpurcykqp."ku"tgs wktgf 0'VTCP UNC VCDKNKV[ "ku'cdqwy" htpf kpi "co qpi "vj g"tgcf gtu"qh"c"r ctvkewrct "y qtm"cp"cf gs wcvg"vtcpurcvqt "y j q"ecp"cwgo r v"vq"o cmg"vj g"j kf f gp" uki pkhkecpeg. 'yi g'r qvgpvkcn'r tgugpeg. 'xkukdrg0'Vj ku'r qvgpvkcn'ku'yi g'xkdtcvkqp"qh'r wtg'hcpi wci g. 'y j kej 'o ctmu'yi g'' r qkpv'qh'kpvgttgrcvkqpuj kr 'y j gtg'hcpi wci gu'eqpxgti g'cpf 'gzrtguu'y j cv'ku'dg{qpf 'gzrtguukqp'cpf 'j kuvqt{0'Uvej " c":-mkpuj krø'qh'ncpi wci gu'nkgu'kp":-yj g'kpvgpvkqp"wpf gtn{ kpi "cm'ncpi wci gu'cu'c'y j qngí cp'kpvgpvkqp'y j kej "pq" ukpi rg'hcpi wci g'ecp''cwckp''d{ ''kugrh 'tgcrkt gf ''qpn(''d{ ''yi g'\qvcrkv{ ''qh'\yi gkt 'kpvgpvkqpu'\uwr r rgo gpvct { ''vq''gcej '' qyi gt <r wtg'hcpi wci go'\*kdkf 0.496+0.10j ku'O guukcpke''s wguv'hqt''c''o { uvke'hcpi wci g''cv'yi g''ngtpgn'qh''cm'hcpi wci gu''cpf " tgcrk gf "d{"\tcpurc\kqp"j cu'rgf "I gqti g'Uygkpgt"\3; 9713; ; 4\8869+'\q'cpej qt'Dgplco kpô y kj 'j ku'pquvcri kc'hqt" yj g"qpgpguu"qh"Y qtf."I qf "cpf "O cwgt"dghqtg"yj g"Hcm"dghqtg"DCDGNô htto n( "kp"Igy kuj "Mcddcrkuvke" vtcf k.kqp0 Vtcpurckqp. "vj gp. "ku cdqw tgxgcrkpi "vj g"xkdtckqp"y ky kp "gcej "rcpi wci g. "vj g'xkdtckqp"vj cv uj qy u vj g "rcpi wci g" ku'tgcej kpi 'dg{ qpf 'kugrh<'y g'o wuke 'etgcvgf 'd{ 'egtvckp''r qgw'rkng'O cncto 2 'o ctmkpi 'qw'y gkt 'eqo dkpcvkqpu'qh' y qtf u'htqo "y g'eqo o qp'ewttgpe{ "qh'ncpi wci g'qh'gxgt{fc{ "wuci g0J qy gxgt."Dgplco kpøu"o {uvkecn'hrki j vu''ctg" vgo r gt gf "d{ "c"ugt kgu"qh"s wcukr ctcf qzkecn'uvc vgo gpvu"cdqw"vj g"o qxgo gpv"qh"hcpi wci g"qxgt "kko g<"vj g"vcum"qh"vj g" vtcpurcvqt "ku' yi qtqwi j n{ 'ur ktkwcnk gf. 'f khhgtgpvkcvgf 'htqo 'yi g'uetkdg' y kyi 'c'f kevkqpct {. 'cpf 'yi gp' ku'r ctvn{ " tgkpugtvgf 'kpvq'c'j kuvqtkecn'r tqeguu0

Vtcpurckqp."hqt"Dgplco kp¢u"tcpurcqt."ku"pqv"cdqw"untkxkpi "hqt"c"ikngpguu"qh"y g"qtki kpcn"dgecwug"y g"qtki kpcn" wpf gti qgu"ej cpi gu0Y qtf u"o cwtg."ej cpi g"y gkt"o gcpkpi ="y g"ugpug"qh"c"y tksgt¢u"un{ rg"ecp"dg"o qf khkgf."y j cv" y cu"htguj "o c{"dgeqo g"j cenpg{ gf 0Ncpi wci g"ku"r ctv"qh"c"nkxkpi "r tqeguu0Y j krg"y g"repi wci g"qh"y g"qtki kpcn" ej cpi gu."uq"f qgu"y g"o qy gt"qpi wg"qh"y g"tcpurcvqt0Kp"y ku"f kcrgevke"qh"repi wci g"o qxgo gpv"qxgt "vko g"c" vtcpurcvqtp"ku"hct"tgo qxgf "htqo "dgkpi "y g"eqo kpi "qi gy gt"qh"f gcf "hqtegu."qh"gpgti kgu"y cv"j cxg"dggp" guugpvkcrk gf 0KVku"r tkxkrgi gf "d{"Dgplco kp"y ky "÷y g"ur gekcn'o kuukqp"qh"y cvej kpi "qxgt"y g"o cwtkpi "r tqeguu"qh" y g"qtki kpcn"rcpi wci g"cpf "y g"dkty "r cpi u"qh"ku"qy pø\*3; 45<95+0C"vtcpurcvgf "y qtm"ecp"y wu"tgpgy "y g"qtki kpcn" y qtm"d{"i kxlpi "kv"o {tlcf "÷chvgt/nkxguø"cpf "kp"uq"f qkpi "etgcvg"pgy "hpi vkrvke"hqto u"y ky kp"c"xctkgv{ "qh"vcti gv" repi wci gu."pgy "cr r tqzko cvkqpu"q"y g"j kf f gp."wpf gtn{kpi "r wtkx{ "qh"y g"r qgvke"wpur qngp<"y cv'ku."cp" cr r tqzko cvkqpu"q"y g"j kf f gp."wpf gtn{kpi "r wtkx{ "qh"y g"r qgvke"wpur qngp<"y cv'ku."cp" cr r tqzko cvkqpu"q"y g"j kf f gp."wpf gtn{kpi "r wtkx{ "qh"y g"r qgvke"wpur qngp<"y cv'ku."cp" cr r tqzko cvkqp"q"r wtg"repi wci g0

Dgplco lpøt"eqpetgwg"gzco r ng"qh'vj gug"vgpulqpu"cpf "qr r qukklqpu"cv'yj g"j gctv'qh'y qtf u"ctg"dt qv'cpf "r c lp"\*dtgcf +0" Vj gug"y qtf u"o gcp"f lhtlgtgpv'yj kpi u"vq"yj g"Htgpej "cpf" I gto cp"yj qwi j "vj g{"o gcp"yj g"wco g"kp"tgncvkqp"vq"yj g" qdlgev'yj g{"tghgt"vq0Vq"f go qpuvtcvg"yj ku"f lhtlgtgpeg"j g"f kuvkpi wkuj gu"dgw ggp"yj g"y qtf "cu"c"tghgtgpeg"vq"c" eqpetgwg"qdlgev."yj g"xpypf gf "qdlgeva"yj g"y qtf "hkngf"y kyj "vj g"hypphqp"qh'yj g"wgt."cpf "vj g"r qvgpvkcn'y kyj kp" yj gy qtf ."kpf gr gpf gpv'qh"wugt "cpf "qdlgev'cpf "dgnqpi kpi "vq"ncpi wci g."yj g"o qf g"qhlpvgpvkqp0%vhuy ig o qf g"qh" kpvgpvkqp"yj cv"vtcpuncvkqp"uggmu"vq"i tcur. "cpf "d{"i tcur kpi "y j cv'ku"j kf f gp"y kyj kp"yj g"wptcpuncvgf "ncpi wci g"o cng" eqpvcev'y kyj "yj g"r wtg"ncpi wci g."yj g"j kf f gp"-j cto qp{"qh'cm'yj g"xctkqwu"o qf gu"qh"kpvgpvkqpo"\*klulf 0296+0Y j cv'ku" tgo qvg"ku"dtwi j v'enqug"vq"tgxgncvkqp0%p"yj ku"y c{."tcpuncvkqp"ku"gzcnxgf"cu"c"vgo r qtct{"tcpungyf gpeg"qh'yj g" hqtgki p"dw"kv'tgo ckpu"vgo r qtct{."cu"c"hdgtcvkpi "cpf" tguxtkevkpi "xkukqp"cpf"cu"c"tgetgcvkqp"qh'yj g"qtki kpcn'qp"yj g" tqcf "qr gpgf"wr "vq"yj g"tgcm "y j gtg"ncpi wci gu"y kn'dg"tgeqpekngf"y kyj "Ncpi wci g."Rwtg"Ncpi wci g0Vyj g"tcpuncvqt" hwthxu"j kulj gt"o kuukqp"y j gp"pqv'o gtgn("eqo o wpkecvkpi "eqpvgpv'dwttgcej kpi "qw"vq"-xj g"gngo gpv'yj cv'f qgu"pqv' ngpf "kugth'vq"tcpuncvdkkv("ku"cdqw'o qxkpi "yj g"f kxkpg"vqwej "qh'r qgxt{"kp"yj g"qtki kpcn'kpvq"c"pgy" nkpi wkuke"cpf "ewnwtcn'tcpulqto cvkqp0Ki"j cu"pqyj kpi "vq"f q"y kyj "o qtg"eqo o qp"pqvkqpu"qh'vtcpuncvcdkkv("qh" hkf gnkv("cpf"gs wkxcngpeg0

Lww'y j gp'kv'uggo u'Dgplco kp"j cu'wtpgf "y g"tcpurcyt 'kpyq"j gtq."f guetkdkpi "tcpurcytp"cu'c"o qxgo gpv'yqy ctf u" y g'kf gcn"j g"f tcy u'c'hkto "f kurkpevlqp"dgw ggp"r qgv'cpf "tcpurcyt."y g'qtki kpcn'cpf "y g"f gtkxcvkxg."y tqwi j "c" ugtkgu'qh'ko ci gu'egpvtkpi "qp"y gkt "f khrgtkpi "tgrcylqpuj kr "yq"eqpvgpv'cpf "rcpi wci g."dcugf "qp"cp"ktqpke"f kurcpeg0'kp" y g'qtki kpcn'kv'ku'irkng"y g'ht vkv'cpf 'kuu'unhp."y g'ncpi wci g'qh'vtcpurcylqp"ku'irkng"c"tq{cn'tqdg'tqwpf 'kuu'eqpvgpvu="c" r qgv'y qtmu'kp"y g'o kf uv'qh'y g'rcpi wci g'hqtguv."y g'vtcpurcylt 'ku'qp"y g'qwukf g'y qtnkpi 'y kj "y g'vqvckv{"qh" rcpi wci g."vt {kpi "vq"r tqf weg"÷y g"gej q"qh'y g'qtki kpcno'kp"y g'rcpi wci g'kpvq"y j kej "ulj g'ku'vtcpurcykpi 0'Vtcpurcylqp" ku'o qtg'kpvgmgewcn"tcykqpcrk kpi ."f kurcpegf ."rguu'ur qpvcpgqwu."i tcr j ke "cpf "r tko ct { "y cp"qtki kpcny tkkpi 0'Vj g" vtcpurcyt 'ku'gpf qy gf 'y ky "c'vqvcrk kpi "tqrg'y ky "cp"qxgtcm'xkgy "{ gv'kpvgtxgpkpi "cv'etwekcn'o qo gpvu'y j gp" i tqy y "ur wtw'ctg'r quukdrg0

Dgplco kp¢u'cti wo gpv'uj khu'dcen'cpf 'hqtyj 'dgecwug'y j krg'yj ku'ktqpkecn'f kucpekpi ''qh'\tcpurcvkqp''o c{ ''r tqxqng''c'' hkuwtg''dgwy ggp''eqpvgpv''cpf 'hcpi wci g.'kv'ku''etgcvkpi ''c''uwr r ngo gpvgf 'hcpi wci g'yj cv'ku''cp''gr kuqf g''kp''yj g''i tgcv'' wpkh{kpi "gpvgtr tkug''qh''-kpvgi tcvkpi "o cp{ ''vqpi wgu''kpvq''qpg''twg''ncpi wci gø0'Vj g'f qo kpq'f kcngevke''qh''qtki kpcn'cpf "f gtkxcvkxg''yj tqwi j ''vtcpurcvkqp''ngcf u''vq''yj g'hcpi wci g''qh''vtwj .''yj g'hcpi wci g''qh''ukngpeg.''yj g''r wtg'hcpi wci g'yj kej "npqy u''pq''vgpukqp0'Cpf 'kv'ku''yj ku''r wtg'hcpi wci g'yj kej ''hkgu''eqpegcngf 'kp''vtcpurcvkqpu.''-yj ku'xgt{ ''ncpi wci g.''yj qug'' f kxkpcvkqp''cpf ''f guetkr vkqp''ku''yj g''qpn{ ''r gthgevkqp''c''r j knquqr j gt''ecp''j qr g'hqtø'\*3; 45-99+0

J cxkpi "uecngf "vj g"r kppceng"qh"r j knquqr j kecn'vt wj ."Dgplco kp"cf o ku"j g"j cu"o cf g"vj g"vcuniqh"vj g"vtcpurcvqt"uggo "ko r gpgvtcdng"cpf "vj g"r tqdngo "qh"tkr gpkpi "vj g"uggf "qh"r wtg"ncpi wci gø"kpuqnwdng"\*kdkf 0+0 J g"f guetkdgu"j qy "vj g" uggf "ecp"dg"tkr gpgf "d{"o qxkpi "f gekukxgn{"ci ckpuv'ur gekqwu'y qtf/hqt/y qtf 'hkf gnkv{"cpf 'tgpf gtkpi "qh"o gcpkpi <" vj g"hwpevkqpcn'eqo o wpkecvkqp"qh"c"o guuci g"o wuv'i kxg"y c{"\q"cp"kpeqtr qtcvkqp"qh"htci o gpw"qh"vj g"qtki kpcn'vj cv" y kn'io cng"qtki kpcn'cpf "f gtkxcvkxg"c"htci o gpv'qh"c"i tgcvgt "ncpi wci g0 kp"vj ku"y c{."\vj g"vtcpurcvqt "o wuv'i q"chvgt"vj g" o qf g"qh"kpvgpvkqp"qh"vj g"

qtki kpcn"cpf "d{"tgcej kpi "vqy ctf u"vj ku"kpf ghkpcdrg"r qgvke"tgcm "cff"vq"vj g"ncpi wci g"y j gtg"vj cv"j cto qp{"pqy "hkpf u"kugrh"gzr tguugf 0

Y cngt 'Dgplco kp''dgi kpu''j ku'r tghceg''y kij ''c'f genctckqp''y cv''y g'tgcf gt''uj qwrf ''pqv'dg''eqpukf gtgf 'kp''cp''
crrtgekckqp''qh'c'y qtm'qh'ctvOJ g''dgnqpi u''vq''y g''o qf gtpkuv'eco r''y j q''qrrqug''pcwtcnpguu''cpf ''hnwgpe{''cu''i qcnu''
qh''y g''tcpurcvqt''cpf ''gzrnkekn('tglgevu''y g''kf gc''y cv''y g''j ki j guv'rtckug''hqt''c''tcpurcvqt''ku''vq''uc{''y cv'y g''
vtcpurcvkqp''÷tgcf u''cu''kh''qtki kpcm(''y tkwgp''kp''y g''vcti gv''rcpi wci gø'\*kdkf 0.49; ="ugg''\uverred"\uverred\uverred"\uverred"\uverred\uverred"\uverred\uverred\uverred\uverred"\uverred\uverred\uverred\uverred\uver

VTCP UNC VKQP +0 Uwej "r tckug"qdrkxgtcvgu" i g"j ki j gt"uwr r rgo gpvct { "tqrg"qh" vtcpurcvkqp." i g"y c { "kv"cf f u"vq"ku" repi wei g"i g"grgo gpv"qh" i g"r wtg" kp" i g"qtki kpcn" i g"r qgvke" rqpi kpi "chvgt" wpkx{ 0 Vj g"vtcpur ctgpe { "qh" tgcn" vtcpurcvkqp" ku"pqv" i cv"y j kej "o cngu" i g"o gcpkpi "vtcpur ctgpv." dw" qpg" y j kej "f qgu"pqv" dmqem" qw" i g"nki j v"qh" i ku" r wtkx{ 0 Cpf "i cv"ku" dguv" f qpg" d { "c"rkxgtcn" tgpf gtkpi "qh" u { pvcz." c"tgpf gtkpi "i cv"r tkxkrgi gu" y qtf u"qxgt" u { pvcz 0 Kp" cm" rcpi wci g"cpf "rkpi wkroke" etgcvkqp." j g"eqpvkpwgu." i gtg" ku"uqo gi kpi "-dg { qpf "eqo o wpkecvkqpí s wkxg" erqug" { gv" kphkpkgn{ "tgo qvgí uqo gi kpi "i cv"u { o dqrk gr" uqo gi kpi "u { o dqrk gf "klokf 0 0 Vj g"u { o dqrk kpi "u { o dqrk gf" eqpvckpu" i cv" pwergwu" qh" r wtg" rcpi wci g" i cv" cv" cp" qpn{ "dg" tgercko gf" kp" vtcpurcvkqp0

Y j krg"cti wkpi "hqt"y g"o {urkecn'tgrki kqwu'tqrg"qh''vtcpurcwlqp"cpf "y tkkpi "kp"r wtuwk'qh''r wtk\{ lko r wtk\{."} Dgplco kpøu"qhvgp"qr cs wg"uj khvu"qh"cti wo gpv'j cxg"o cf g"::Vj g"Vcum'qh"Vj g"Vtcpurcvqtø'c"eqpuvcpv'r tqxqecwlqp"vq" eqpvgo r qtct { "vtcpurcwlqp"yj gqtkuvu"y cpvkpi "vq"gprkuv"j ku"r quvj wo qwu"cmgi kcpeg"qt"f get { "j ku"o crgxqrgpv" kphrwgpeg0J ku"² rkkuo "cpf "gur qwucn'qh'dqf krguu"rcpi wci g"ku"rco gpvgf "\*Tqdkpuqp"3; ; 3+"j ku"qduewtgô wpvtcpurcvcdrgô f kuewuukqp"qh'vtcpurcvcdkrkv{ "dgeqo gu"c"tj gvqtkecn'r rc{"y ky kp"c"r rc{"hqt"Rcwrlif g"O cp"\*3; : 8+" j ku"go r j cuku"qp"y j g"o qxgo gpv'kp"cpf "dgwy ggp"rcpi wci gu"ku"tgeqi pkkqp"qh'y g"f geqpuvtwevkqpkuvøu"y qtrf "qh" rkpi wkuvke"kpuvcdkrkv{ "cpf "hrwz"\*F gttkf c"3; : 213; : 7d+"cpf "cp"cf xqece{"qh'hqtgki pk| kpi "vtcpurcvkqpu"\*Xgpwk' 3; ; 4+"yj g"ko r wtkv{"qh'j ku"r wtg"rcpi wci g"dgeqo gu"r ctv'qh'c"o cvgtkcrkuv'tgcf kpi "qh" rcpi wci g"cpf "c"ej co r kqpkpi "qh'yi g"j {dtkf kv{"qh'ewrwtg."r ctvkewrctn{"y j gp"egtvckp"yj tgcf u"kp"yj g"guuc{"ctg" kpvgtr tgvgf "kp"yi g"rki j v'qh'j ku"rvgt"o qtg"o cvgtkcrkuv."rguu'O guukcpke"y tkkpi 0

Ugg"cniq<
DCDGN."VQY GT"QH="O GVCRJ QT"QH"VTCP UNCVKQP="UGO KQVKE"CRRTQCEJ GU="UVTCVGI KGU"QH"
VTCP UNCVKQP="VTCP UNCVCDKNKV] 0

### Hwt yj gt 't gcf kpi

Dgplco kp''3; 45='f g'O cp''3; : 8='F gttkf c''3; : 21'3; : 7d='P ktcplcpc''3; ; 4='Xgpwk''3; ; 40

RGVGT 'DWUJ

# S

# S werky 'qh'tt cpurc vlqp

Vtcpurckqp"s workx{ "cuuguuo gpv'r tguwr r qugu"c" yi gqt { "qh" \tcpurckqp0"Vj wu"f khhgtgpv'x kgy u"qh" \tcpurckqp"kugh" ngcf "\q"f khhgtgpv'eqpegr vu"qh" \tcpurckqp"s workx{ ."cpf "f khhgtgpv'y c { u"qh" cuuguukpi "kv0"Vj g"hqmqy kpi "f kuewuukqp"qh" xctkqwu"cr r tqcej gu"\q" \tcpurckqp"y km'hqewu"qp" y q"kuuwgu<"y g"tgrckqpuj kr "dgwy ggp" \uqwteg" cpf "\cti gv'\gzv."cpf " yi g"tgrckqpuj kr "dgwy ggp" hgcwtgu" kp" yi g"\ugwteg" kuugh" cpf "j qy "yi g{ "ctg" gtegkxgf "d{ "j wo cp"ci gpvu0

### Crrt qcej gu'\q'\tcpurc \dqp'\s \wcds\{ 'cuuguto gpv

Crrtqcej gu'\q'\tcpurc\qp's wcrkx{ "cuuguuo gpv'hcm'kpvq"c"pwo dgt "qh'f kuxkpev'ecvgi qtkgu<cpgef qvcn'cpf "uwdlgevkxg. "kpenwf kpi "pgq/j gto gpgwke"crrtqcej gu='tgurqpug/qtkgpvgf "crrtqcej gu='tyzv/dcugf "crrtqcej gu0

### Cpgef qvc n'cpf 'lwdlgevkxg'crrt qc ej gu

Cpgef qvcn'cpf 'uwdlgevkxg''\tgcvkugu''qp''\tcpurcvkqp''s wcnkv{ 'j cxg''nqpi ''dggp''qhhgtgf ''d{ 'r tcevkukpi ''\tcpurcvqtu." r j knquqr j gtu. 'r j knquqi kuw. 'y tkvgtu''cpf ''o cp{ ''qvj gtu0C''egpvtcn'r tqdngo ''kp''uwej ''\tgcvo gpvu''ku''vj g'' qr gtcvkqpcnk| cvkqp''qh''eqpegr w''uwej ''cu''-hckij hwpguu''vq''vj g''qtki kpcnø''qt''-vj g''pcwtcn'hnqy ''qh''vj g''\tcpurcvgf ''\gzvo'' Uwej ''kpwkkkxg''\tgcvo gpvu''qh''\tcpurcvkqp''s wcnkv{ ''ctg''cvj gqtgvkecn'kp''pcwtg. ''cpf ''vj g''r quukdkrkv{ ''qh''guvcdnkuj kpi '' i gpgtcn'r tkpekr ngu''hqt''\tcpurcvkqp''s wcnkv{ ''ku'i gpgtcm( ''tglgevgf ''\*\ugg''hqt''gzco r ng'Ect { ''cpf ''Lwo r gnv'3; 85. ''Ucxqt { ''3; 79+0'Rtqr qpgpvu''qh''y ku''crrtqcej ''\ugg''vj g''s wcnkv{ ''qh''c'\tcpurcvkqp''cu''f gr gpf gpv''qp''y g'\tcpurcvqt''cpf '' j kulj gt''r gtuqpcn'mpqy ngf i g. ''kpwkkkqpu''cpf ''ctvkurke''eqo r gvgpeg0

Cp"gs wcm{"uwdlgevkxg"cpf "kpwkxkxg"vtgcvo gpv'qh'vtcpurcvkqp"s wcrkx{"j cu"o qtg"tgegpvn{"dggp"r tqr qugf "y ky kp"y g" ;pgq/j gto gpgwkeo'cr r tqcej "\*g0 0'Uvqn g"3; ; 4+: "y j gtg"y g"j gto gpgwke "kpvgtr tgvcvkqp"qh'y g"qtki kpcn'cpf "vj g" r tqf wevkqp"qh'c"vtcpurcvkqp"ctg"kpf kxkf wcn "etgcvkxg"cevu"y cv"f gh{"u{uvgo cvk cvkqp."i gpgtcnk cvkqp"cpf "vj g" f gxgmqr o gpv'qh'twrgu0'Kp"Uvqn gøu'xkgy ."c" i qqf ø'vtcpurcvkqp"ecp"qpn{"eqo g"cdqwv'y j gp"vj g"vtcpurcvqt "kf gpvkhkgu" j ko 1"j gtugnh'hwm{ 'y ky "y g"vgzv'vq"dg'vtcpurcvgf 0"Y j gy gt"uwej "kf gpvkhkecvkqp"gpcdrgu"qt"kp"hcev'i wctcpvggu"c" vtcpurcvkqp"qh's wcrkx{ ."cpf "j qy "vj ku"s wcrkx{ "o ki j v'dg"cuuguugf ."tgo ckpu"wpergct0

### Tgurqpug/qtkgpvgf.'ru{ej qnkpi wkuske'crrtqcej gu

Tgur qpug/qtkgpvgf "cr r tqcej gu"vq"gxcnwcvkpi "vtcpurcvkqpu"ctg"eqo o wplecvkxgn( "qtkgpvgf "cpf "hqewu"qp" f gvgto kpkpi "vj g"f {pco ke'gs wkxcngpeg" pkf c"3; 86+"dgw ggp"uqwteg"cpf "vtcpurcvkqp."k0g0 y g"o cppgt "kp"y j kej " t t gegr vqtu"qh"y g"vtcpurcvgf "vgzv"tgur qpf "vq"k/o wuv"dg"gs wkxcngpv"vq"y g"o cppgt "kp"y j kej "y g"t gegr vqtu"qh"y g" uqwteg"vgzv"tgur qpf "vq"y g"uqwteg"vgzv0 pkf c"r quwwrvgf "vj tgg"etkvgtkc"hqt"cp"qr vko cn'vtcpurcvkqp<" gpgtcn" ghkekgpe{"qh"y g"eqo o wplecvkxg"r tqeguu."eqo r tgj gpulqp"qh"kpvgpv."cpf "gs wkxcngpeg"qh"tgur qpug0 Wr qp"enqugt" uetwkp{."y gug"etkvgtkc"r tqxg"vq"dg"cu"xci wg"cpf "pqp/xgtkhcdng"cu"y qug"wugf "d{"r tqr qpgpvu"qh"y g"kpwkkxg/cpgef qvcn"cr r tqcej 0 pkf c"cpf "Vcdgt"\*3; 8; 395+"r tqr qug"cpqy gt"ugv"qh"etkvgtkc<"y g"eqttgevpguu"y ky "y j kej "y g" o guuci g"qh"y g"qtki kpcn'ku"wpf gtuvqqf "y tqwi j "y g"tcpurcvkqp."y g"gcug"qh"eqo r tgj gpulqp"cpf "y g"kpxqnxgo gpv" c"r gtuqp"gzr gtkgpegu"cu"c"tguwn'qh"y g"cf gs wce { "qh"y g"hqto "qh"y g"vtcpurcvkqp0 Dwv"y g"vguvu"wi i guvgf "hqt" ko r ngo gpvkpi "uwej "etkvgtkc."uwej "cu"en| g"vguvu"qt "gnlekvcvkqp"qh"c"tgegr vqtvu"qf"y fkhgtgpv"

vtcpurcvkqpu."ctg"pqv"tki qtqwu"gpqwi j "vq"dg"eqpukf gtgf "vj gqtgvkecm( "xcrkf "qt"tgrkcdrg0

Kp"yi g"3; 82 u."r u{ej qrkpi wkuvu'uwej "cu'Ecttqm'\*3; 88+"uwi i guvgf "yi g"wug"qh'dtqcf "etkvgtkc"rkmg":kpvgmki kdkrkv{ø'cpf " :kphqto cvkxgpguuø'hqt"cuuguukpi "vtcpurcvkqp"s wcrkv{."vqi gyi gt"y kyi "c"pwo dgt"qh'vguvkpi "o gyi qf u'uwej "cu'cumkpi " yi g"qr kpkqp"qh'eqo r gvgpv'tgcf gtu."gve0

Vj g'o clqt'y gempguu'qh'em'uwej 'tgur qpugdeugf 'uwi i guvlqpu'hqt'gxenwevlpi 'ttepurevlqp's werkv{ 'ku'yi g'uco g'' y gempguu'y j kej 'ej etcevgtk| gu'em'dgj exkqwtkuvle'errtqeej gu<'y g''-dreem'dqzø''y g'j wo ep'o kpf.'ku'pqv'vengp'kpvq'' eeqwpv.'uq'yi ev'vguvu'kpxqnxkpi 'gzrgtv'lwf i gu.'hqt'gzeo rng.'uko rn{ 'veng'egtvekp'etkvgtke'hqt'i tepvgf 'yi ev'etg'pqv'' f gxgmrgf 'qt'o ef g''gzrnkekv'kp''yi g'hktuv'rneeg0'Vj ku'errtqeej 'ku'enuq'tgf wevlqpkuv'kp''yi ev'yi g''qxgtem's werkv{ ''qh'e'' tepurevlqp'ku'o ef g''f grgpf gpv'qp''o geuwtgu'qh 'hqt'gzeo rng.'kpvgnki kdkrkv{ ''epf 'kphqto evkxgpguu0'Hwtyi gt.''y j ev'ku'' o kuukpi 'j gtg'ku'e'pqto ''ci ekpuv'y j kej ''yi g''tguwwu'qh''ep{ ''dgj exkqwten'vguv'ku''q''dg''lwf i gf 0

### Vgz v/dcugf 'crrt qcej gu

Vgz√dcugf "crrtqcej gu"o c{"dg"kphqto gf "d{"hkpi wkukeu."eqorctcvkxg"hkvgtcwxtg"qt"hwpevkqpcn"o qf gnu0 Kp"hkpi wkuwkecm{/dcugf "crrtqcej gu."rcktu"qh"uqwteg"cpf "vcti gv"vgzvu"ctg"eqo rctgf "y kxj"c"xkgy "vq"fkueqxgtkpi" u{pvcevke."ugo cpvke."uv{nkuvke"cpf"rtciocvke"tgi wrctkvkgu"qh"vtcpuhgt0Cp"gctn{"cpf"kphrwgpvkcn'vgzvdcugf" crrtqcej "\q'\tcpurc\lqp"s wcrkx{ "cuuguuo gpv'ku'Tgkuu'\s3; 931'3; 9: +0Tgkuu'\twi i guvgf "\j cv'\j g"o quv'ko rqtvcpv" kpxctkcpv'kp''\tcpurcvkqp''ku''yj g''\gzv'v{rg''\q''yj kej ''yj g''uqwteg''\gzv'dgrqpi u.''cu''kv'fgvgto kpgu''cm'qvj gt''ej qkegu''c'' vtcpurcvqt"j cu'vq"o cng0Uj g"r tqr qugf "vj tgg"dcuke"vgzv"v{r gu"qp"vj g"dcuku"qh"DÃj ngtøu"\*3; 56+"vj tgg"ncpi wci g" hwpevkqpuk'eqpvgpv/qtkgpvgf. 'hqto/qtkgpvgf.'cpf'eqpcvkxg0Jqygxgt.'gzcevn{'jqy'hcpi wci g'hwpevkqpu'cpf'uqwteg' wgzv'v{r gu'ecp'dg'f gwgto kpgf.'cpf'cv'y j cv'ngxgn'qh'f gnkece{.'ku'nghv'wpgzr nckpgf 0'P qt'ku'y g'gzcev'r tqegf wtg'hqt" uqwteg'\gzv'cpcn(uku'i kxgp'kp''wy q''qvj gt'kphnwgpvkcn'r wdnkecvkqpu0'Vj g'hktuv.''Y knuu'\si3; : 4+.''uvtguugu''vj g'ko r qtvcpeg'' kp"\gz wcn'cpcn{ uku"qh":pqto u"qh'wci go"kp"\j g"\y q"ncpi wci g"eqo o wpkkgu"cpf "uwi i guwi'\j cv"f gxkcklqpu"htqo " yi gug'pqto u'dg''cmpp''cu'kpf kecvqtu''qh''tcpurcvkqp''f ghkekgpekgu0Vj g''ugeqpf.''Mqmgt''\*3; 9; 13; ; 4+''uwi i guvu''yi cv''yj g"gxcnwcvkqp"qh"c"\tcpurcvkqp"uj qwrf "r tqeggf "kp" yj tgg"uvci gu<"c+"uqwteg"\gz v"etkwkekuo ."y kyj "c"xkgy "\q"  $\label{thm:linear_control_control} $$ tcpuhgtcdkrk{ 'kpvq''y g''cti gv'hcpi wci g.'*d+'vtcpuhcvkqp''eqo r ctkuqp.''vcmkpi ''ceeqwpv'qh'y g''o gyi qf u'wugf ''kp''y g''} $$$ rtqf wevkqp"qh"c"i kxgp"tcpurcvkqp."cpf "\*e+"tcpurcvkqp"gxcnwcvkqp"qp"yj g"dcuku"qh"pcvkxg"ur gcngt"o gvcnkpi wkurke" lwfigogpvu. "dcugf" qp" yjg" vgz√ur gelthle" hgcwtgu" guvcdrkuj gf" kp" uvci g" "c+0 Jqygxgt" kpulki j vhwn 'yjku'r tqr qucn' tgo ckpu'r tqi tco o cvke'kp'pcwtg0

Kp"crrtqcej gu"y j kej "f tcy "qp"eqo rctc\kxg"hkgtcwtg."\y g"s wcnk\{ "qh"c"\tcpunc\kqp"ku"cuuguugf "ceeqtf kpi "\q"\y g" hwpevkqp"qh"yi g"vtcpurcvkqp"kp"yi g"u{uvgo "qh"yi g"vcti gv"rcpi wci g"rkvgtcwxtg"\*ugg"<mark>RQN[U]UVGO "VJ GQT[</mark>+0Vj g" uqwteg'\gzv'ku'\j wu'qh'nkwrg'ko rqt\cpeg'kp'\j ku'crrtqcej. "cpf'\j g'j {rqyj guku'\j cv'-xtcpurc\kqpu'ctg'hcew'qh'qpg" u{uvgo "qpn(ø'\*Vqwt{"3; : 7♂; +:"pco gn("yj g'hkgtct{"u{uvgo "qh'yj g'\cti gv'ewnwtg."f gvgto kpgu"j qy 'yj g'kuuvg'qh" vtcpurcvkqp"s wcrkv{ "cuuguuo gpv'ku'\q"dg'\cemrgf </hktuv'\j g'\tcpurcvgf '\gzv'ku'etkkek gf 'y ki qwv'tghgtgpeg'\q"\j g" uqwteg'\gzv."yj gp'\ur gekhe'\uqnwkqpu'qh'\tcpurc\kqp'r tqdrgo u'ctg'cpcn(ugf 'd{ "o gcpu'qh'\yj g"\io gf kc\kpi 'hwpe\kqpcn' tgrcvkqpcn'pqvkqp''qh''vtcpurcvkqp''gs wkxcrgpegø'\*\*Vqwt{''3; : 743+0'Uwej ''uqnwkqpu.''j qy gxgt.''f q''r tguwr r qug'' nkpi wkuwkecm ("f ghkpgf" 'uqwteg" cpf "vcti gv" wpkuu' yi cv" ecp" dg" t gncvgf" 'vq" qpg" cpqyi gt 0 Hwt yi gt. 'kv" ku 'pqv" engct 'j qy "qpg" ku'\q'f gvgto kpg'y j gp"c"\gzv'ku'c"\tcpurcvkqp"cpf"y j cv'etkvgtkc"qpg'ku'\q'\wug'hqt"gxcnwcvkpi "c"\tcpurcvkqp0  $\label{thm:control_problem} \begin{tabular}{l} Kp''yi~gkt''hwpe-kqpcn'yi~gqt { ''qh''tcpurc-kqp.''Tgkuu''cpf''Xgto~ggt''\f3; : 6+''encko~''yi~cv'kk''ku''yi~g''umqr~qu.''klg0'yi~g''r~wtr~qug''} \end{tabular}$ qh'c 'tcpurcvlqp.'y j kej 'ku'cm'ko rqtvcpv'\*ugg''<u>UMQRQU'VJ GQT[</u>+0'Vj g'y c{ 'vj g'\tcpurcvgf 'vgzv'ku'cf cr vgf 'vq'' wti gv'ncpi wci g'cpf 'ewnwtg'pqto u'ku'y gp'vcmgp'cu'y g"{ctf uxlemlhqt 'gxcnxcxlpi 'c'xtcpurcxlqp0'Vj g'cwj qtu' f kurkpi wkuj 'dgw ggp'GS WKXCNGP EG"cpf 'cf gs wce { 0 Gs wkx crgpeg't ghgtu'vq'vj g't grcvkqpuj kr 'dgw ggp'cp'' qtki kpcn'cpf "kxu"\tcpurc\kqp."y j gtg"dqyi "hxrhkn'yi g"uco g"eqo o wpkec\kxg"hxpe\kqp="cf gs wce{ "ku"\j g"tgrc\kqpuj kr " dgwy ggp"uqwteg"cpf "tcpurcwlqp"y j gtg"pq"hwpewlqpcn'o cvej "qdvckpu"cpf "vj g"-imqr quo"qh'vj g"tcpurcwlqp"j cu"dggp" eqpukuvgpvn{"cwgpf gf "vq0"Y j gvj gt "uwej "c"vgto kpqnqi kecn"f kuvkpevkqp"ku"pgeguuct { "cpf "uqwpf "ku"qr gp"vq"f gdcvg0" Qh'o qtg'tgrgxcpeg'j gtg'ku'y g'hchrwtg'qh'y g'cwy qtu'vq'ur gm'qw'gzcevn( 'j qy ''qpg'ku'vq'f gvgto kpg'y j gy gt'c'' vtcpurcvkqp'ku'gkij gt'cf gs wcvg''qt''gs wkxcrgpv.''rgv''

cmpg'j qy ''vq''cuuguu''kvu''*umqrqu0*/Cnuq.'i kxgp''y g''etwekcn'tqng''cuuwo gf ''d{ ''y g''r wtrqug''qt''*umqrqu*''qh''c''tcpuncvkqp'' kp''y ku''o qfgn''kv'hqmqy u'y cv'y g''uqwteg''\gzv'ku''qh''ugeqpfct{ ''korqtvcpeg="kp'hcev.''kv'ku'fgitcfgf''vq''c''o gtg'' -uqwteg''qh'kphqtocvkqpø'y cv'y g''tcpuncvqt''o c{ ''ejcpig''cu'uljg''uggu'hkv0

D{ "ku"xgt { "pcwtg." 'tcpurc\dp" ku"uko wncpgqwun{ "dqwpf" 'vq" yi g"uqwteg" 'yzv"cpf" 'vq" yi g"r tguwr r quk\dqpu" cpf" eqpf k\dqpu" i qxgtpkpi "ku" tgegr \dqp" kp" yi g" vcti gv"nkpi wku\de" cpf "ewnwtcn" u\go 0Cp { "cwgo r v"cv" gxcnwc\dpi" utcpurc\dqpu" o wuv" cmg" yi ku" dcuke "hcev" cu" c"uvct\dpi "r qlpv0" Y j cv" ku" pggf gf "yi gp" ku" c"o qf gn" y j kej "cwgo r wu" q" utcpuegpf "cpgef qvcn\uo." 'tgf we\dqp\uo. "r tqi tco o c\de" uvc\uo gpwu" cpf "l\pwk\dxgn\uo gpw" cpf "ko r ncw\ud gr" eqpu\uf gf" eqpu\uf gtc\dqpu" qh" yi g" uqwteg" qt" vcti gv'\uzvycnqpg0" U\ue j "c" o qf gn" y qwrf "r tqx\und g" c" hqpi wku\ue "guet\und ku\ue "gr c" eqpu\uf gtc\und qp" qh" yi gyi gt" cpf "j qy "c" \tcpurc\und qp" ku" gs wkxcngpv" q" ku" uqwteg0 Qpg" cwgo r v'cv' ugw\und pi "wr" uwej "c" o qf gn" ku" uku\und kghn\und "qwx\und pgf" dgny 0

## C'hwpevlqpcn'r t ci o cvle'o qf gnllqt't cpurcvlqp's wcnls{'cuuguuo gpv

J qwug'\*3; : 3. '3; ; 9 'cpf 'hqtyj eqo kpi +'r tqr qugu'c 'o qf grl'dcugf 'qp'r tci o cvke 'yj gqtkgu'qh'ncpi wci g'wug='yj ku' o qf gn'r tqxkf gu'hqt''yi g'cpcn{ uku'qh'yi g'nkpi wkuvke/ukwcvkqpcn'r ctvkewrctkkgu''qh'uqwteg''cpf 'vcti gv'vgzvu.''c'' eqo r ctkuqp"qh"yj g"y q"\gz uu"cpf "yj g"tguwncpv"cuuguuo gpv"qh"yj gkt "tgncvkxg"o cvej 0"Vj g"dcuke "tgs vktgo gpv"hqt" gs wkxcrgpeg"qh"qtki kpcn"cpf "tcpurcvkqp"kp"yj ku"o qf gn"ku"yj cv"yj g"tcpurcvkqp"uj qwrf "j cxg"c"hwpevkqp"\*eqpukuvkpi " qh'cp'kf gcvkqpcn'cpf "cp'kpvgtr gtuqpcn'hwpevkqpcn'eqo r qpgpv.'kp'vj g'J cmkf c{cp'ugpug+'y j kej 'ku'gs wkxcngpv'vq'' y cv'qh'y g'qtki kpcn0'Vj g'\tcpurc\kqp'\uj qwrf ''cnuq''go r m{ 'gs wkxcrgpv'r tci o c\ke''o gcpu'hqt''cej kgxkpi ''y cv'hwpe\kqp0 Vj g''qr gtcvkqp''qh''yj g''o qf gn'kpxqnxgu''kpkklem{ "cp''cpcn{ uku''qh''yj g''qtki kpcn'ceeqtf kpi ''vq''c''ugv''qh''ukwcvkqpcn''  $f \ ko \ gpulqpu.''hqt''y \ j \ kej ''nkpi \ wkunke''eqttgrevgu''ctg''guvcdrkuj \ gf \ 0'Vj \ g''tguvnnkpi ''vgz weri'r tqhkrg''qh''y \ g''qtki \ kpcri'$ ej ctcevgtk gu'ku'hwpevkqp. 'y j kej 'ku' j gp'vcmgp'cu' j g'pqto 'ci ckpuv'y j kej '' j g'vtcpurcvkqp'ku' o gcuwt gf = 'j g' f gi tgg"\q"y j kej "\j g"\gzwcn"r tqhkrg"cpf "hwpevkqp"qh"\j g"\tcpurcvkqp"\cu"f gtkxgf "htqo "cp"cpcmqi qwu"cpcn(uku+" o cvej "y g"r tqhkrg"cpf "hwpevkqp"qh"y g"qtki kpcn"ku"y g"f gi tgg"vq"y j kej "y g"vtcpurcvkqp"ku"cf gs wcvg"kp"s wcnkx{0 Kp"gxcnwcvlpi "vj g"tgrcvlxg"o cvej "dgwy ggp"qtki kpcn"cpf "vtcpurcvlqp."c"f kuvlpevlqp"ku"o cf g"dgwy ggp"f ko gpulqpcn" o kuo cvej gu'cpf "papf ko gpukapen'o kuo cvej gu0 **F ko gpukapen'o kuo cvej gu**'ctg'r tei o cvke "gttatu" vj ev'j exg" va "f q" y ký "hopi wci g"wugtu"opf "hopi wci g"wug="pqp/f ko gpukqpodo kno ovej gu"otg"o kno ovej gu"kp" ý g"f gpqvovkxg" o gcpkpi u'qh'qtki kpcn'cpf "tcpurckqp"grgo gpvu'cpf "dtgcej gu'qh'vj g'vcti gv'rcpi vci g'u{ uvgo "cv'xctkqwu'rgxgru0Vj g" hlpen's werkevkxg'Iwf i go gpv'qh'y g'tepurevkqp"eqpukuvu'y gp"qh'e'rkuvkpi "qh'dqyj "v{r gu'qh'gttqtu'epf "qh'e'uvevgo gpv" qh'y g'tgrcvkxg'o cvej 'qh'y g'vy q'hwpevkqpcn'eqo r qpgpvu0

Vj g"o qf gnj cu'dggp"f gxgmr gf "qp"yj g"dcuku'qhl'eqpvtcukxg"I gto cp/Gpi nkuj "f kueqwtug"cpcn(ugu"\*I qwug"3; ; 8+0' Go r ktecn'y qtm'y kj "yj g"o qf gn'j cu'tguwngf "kp"c"f kukperkqp"dgw ggp"w q"dcuke"v{r gu'qhl'vtcpurcvkqp."qxgt v't cpurcvkqp "ku'tgs wktgf"y j gpgxgt"yj g'uqwteg'vgzv'ku'j gcxkn{" f gr gpf gpv'qp"yj g"uqwteg"ewnwtg"cpf "j cu'kpf gr gpf gpv'uvcwu'y kj kp"k="c"eqxgtv'vtcpurcvkqp"ku'tgs wktgf"y j gp" pgksj gt "eqpf kkqp"j qnf u. 'ktg0'y j gp"yj g"uqwteg"vgzv'ku'pqv'uqwteg"ewnwtg"ur gekhe0'Hwperkqpcn'gs wkxcmpeg"ku'qpn{" r quulkdng"kp"eqxgtv'vtcpurcvkqp."y j kej "ku"o qtg"f khhkewn'yj cp"qxgtv'vtcpurcvkqp"dgecwug"f khhgtgpegu'kp"yj g"ewnwtcn" r tguwr r qukkqpu"qh'yj g"uqwteg"cpf "vcti gv'ncpi wci g"eqo o wpkkgu"o c{"tgs wktg"yj g"vtcpurcvqt"vq"cr r n{"c"ewnwt cn' r tgtwr qukkqpu"qh'yj g"uqwteg"cpf "vcti gv'ncpi wci g"eqo o wpkkgu"o c{"tgs wktg"yj g"vtcpurcvqt"vq"cr r n{"c"ewnwt cn' r tgf kur qukkqpu"qh'yj g"bqwteg"cpf "vcti gv'ncpi "yj kej "o go dgtu"qh'yj g"y q"ewnwtgu"f khhgt "kp"uqekqewnwtcn' r tgf kur qukkqpu"cpf "eqo o wpkecvkxg"r tghgtgpegu0'Vj ku'cnuq"o cngu"gxcnwcvkqp"f khhewn'dgecwug'kv'kpxqnxgu" cuuguukpi "yj g"s wcnkv{"qh'yj g"ewnwtcn'hkngtu"kpvtqf wegf "kp"vtcpurcvkqp0

### Tgegpv'cpf 'r qvgpvlcnff gxgmqr o gpw

Kouki j wi'kpvq''y j cv'i qgu''qp''kp''tcpurcvqtuø'j gcf u''ecp''dg''wugf ''dqyi ''vq''uwr r ngo gpv''tcpurcvkqp''gxcnwcvkqp''cpf ''vq'' xcnkf cvg''j {r qvj gugu''cdqw''vj g''etquu/ewnwtcn'lf ko gpukqpu''vj cv''ej ctcevgtk| g''ewnwtcn'lfknvgtu0'Uwej 'kpvtqur gevkxg'' uwwf kgu''qh''vj g''tcpurcvkqpcn'r tqeguu''\*hqt''gzco r ng''Mtkpi u''3; : 8=\nowname{N}\tuej gt''3; ; 3+\ctg'r qvgpvkcm\{ ''wughwn'kp''yj cv'' vtcpurcvqtu''kpf kecvg''j qy ''cpf ''y j { ''vj g{ ''ej qqug''egtvckp''qr vkqpu''qt''vtcpurcvkqpcn''

utcvgi kgu. "y wu'o cmkpi "y g'f gekukqp"r cy "kp"y g'r tqeguu'qh'tcpurckqp"o qtg"tcpur ctgpv"iugg"

RU EJ ONKPI WKUVKE IEQI P KVKXG"CRRT QCEJ GU="VJ KP M/CNQWF "RTQVQEQNU-0"Y j krg"tcpurckqp"
s wcrkx{"cuuguuo gpv'ku'qdxkqwun{"cpf "pgeguuctkn{"r tqf wevdcugf ."uwej "r tqeguu/qtkgpvgf "y qtm'ku'ko r qtvcpv'cu'kv'
ecp"uj gf "hki j v'qpvq"y g"o {uvgtkqwu'ecwug/cpf/ghhgev'ej ckp"kp"tcpurckqpcn'dgj cxkqwt0

Hwwtg"y qtm'qp"tcpurckqp"s wcrkx{"cuuguuo gpv'pggf u'vq"f gxgmr "dg{qpf "uwdlgevkxg."qpg/ukf gf "qt"f qi o cvke"
lwf i go gpvu"d{"r qukkpi "kpvgtuwdlgevkxgn{"xgtkhkcdng"gxcnwcvkxg"etkgtkc"qp"y g"dcuku"qh'mti g/uecng"go r ktlecn'
uwf kgu0Ncti g"eqtr qtc"qh"vtcpurcvkqpu"htqo "cpf "kpvq"o cp{"f kthgtgpv'mpi wci gu'o wuv'dg"cpcn{ugf "kp"qtf gt "vq"
hqto wrcvg"j {r qvj gugu'cdqw'y j {."j qy ."cpf "vq"y j cv'f gi tgg"qpg"vtcpurcvkqp"ku"dgvygt "vj cp"cpqvj gt0

Ugg"cnq<

GS WKX CNGP EG="NKP I WKUVKE "CRRT QCE J GU="TGX KGY KP I "CP F "ETKVKE KUO 0

### Hwt yj gt 't gcf kpi

LWNKCP G'J QWUG

# S wtø p'\*Mqtcp+'ttcpurcvkqp

Vj g'S wtø p'ku'ý g'j qn{ "dqqn'qh'Kurco "cpf "ý g'o quv'ko r qtvcpv'qh'ý g''ý tgg'uqwtegu'qh'cwý qtk\{"y j kej "wpf gtr kp" O wurko "tgrki kqwu'rkhg."ý g''qý gt''y q''dgkpi "ý g''tgxgrcvkqp''tgegkxgf "d{"ý g''Rtqr j gv Muhammad "f wtkpi "j ku'rkhg'\*\* hadīth.":-uc{kpi uø+'cpf "ý g''Rtqr j gvzu''qy p''r tcevkeg''\*\texppc.":-tcf kkqpø+0Vj g''ko r qtvcpeg''cwcej gf "vq''y g''S wtø p" uvgo u'htqo "ý g''dgrkgh'ý cv'kv'eqpvckpu."xgtdcvko ."ý g''Y qtf "qh'I qf."cu''tgxgcrgf "r kgego gcn'vq' Muhammad "d{"ý g" Cpi gn'I cdtkgn'dgw ggp'832"cpf '854"CF0Kvku'ý gtghqtg''eqpukf gtgf "kpko kcdrg."cpf "ý ku'j cu'ko r qtvcpv' ko r necvkqpu''hqt "dqy "ý g''igi kko ce{"cpf "ý g''\*cwy qtkl gf +'o gý qf u'qh''tcpurcvkpi "ko0 Vj g''S wtø p''eqpukru''qh'336"\und c \*u+\*\*ej cr vgtu+."gcej "f kxkf gf "kpvq"c{c\*u+\*\*xgtugu+0Ccej "\und c" c" c" c" c" c" c" c" c" g''\*qt'' gzco r rg' al-fātiha.":-iy g''qr gpkpi ø''cn/dcsctc.":-iy g''eqy ø+0Y kj "ý g''gzegr vkqp''qh' al-fātiha.":c'uj qtv'\und c''y j kej " cny c{u''cr gctu'hktuv'kp''r tkpvgf "gf kkqpu."ý g''tguv'qh'ý g''wnc \*u+"ctg''wncm("qtf gtgf "d{"rgpi ý "tcy gt''y cp" ej tqpqnqi kcm{."y kj "ý g''nqpi guv'cr r gctkpi "cv'ý g''dgi kppkpi "cpf "ý g''uj qtvguv'cv'ý g''gpf 0Vj g'y qtf "S \und v\und p" kugh'o gcpu"+tgekcvkqpø"cpf "ý g''\und c \*u+"ctg"kp''hcev'o gcpv'hqt"qtcn'tgekcvkqp."y kj "o cp{"y tkvgp''kp''tj {o kpi " r tqug0}

 $\begin{tabular}{l} eWjo p'kdp'eChh p'*f 0878+.''y g''y ktf''I wkf gf''Echr j .''y cu''t gur qpukdrg''hqt''qtf gtkpi ''c''i tqwr ''qh''uej qrctu''vq'' rtqf weg''c''ecpqpkech'y tkwgp''ygzv'qh''y g'S wtø p.''y j kej ''j g''y gp''ugpv''vq''cm'o clqt''ekkgu.''qtf gtkpi ''y go ''vq''dwtp'' cp{''wpcwj} qtkl gf ''xgtukqpu''y g{''o ki j v'r quuguu0P gxgtyj grguu.''y gtg''ctg''ukm'ugxgp''ngi kko cwg''tgcf kpi u' ''ahruf') ''kp'' ektewrckqp.''y j kej ''f khrgt''o ckpn( ''kp''y g''o cppgt''kp''y j kej ''y g''xgtugu''ctg''tgekxgf ''qtcm( ''cpf ''y g''kpvgtr rc{''dgw ggp''y g''tgekxgf ''cpf ''y tkwgp''hqto u0CdwrlCuy cf ''crF wcn( ''*e'8276: : +'cpf ''cn'Mj cnn'kdp''Cj o cf ''*e'93: 6: 8+'y gtg'' tgur qpukdrg''hqt''f gvgto kpkpi ''y g''gzcev'cpf ''pqy ''y kf gn( ''ceegr vgf ''ur gmkpi ''qh''y g''S wtø p0F ktgevn( ''qt''kpf ktgevn( .'' vj g{''cnnq''j cf ''c'uki pkhecpv'ko r cev'qp''f gvgto kpkpi ''y g''r tqpwpekckqp''qh''y g''y qtf u0'Vj gtg''ctg''ukm'uqo g''tgukf wcn'' f khrgtgpegu''dgw ggp''y g''tgcf kpi u''kp''ektewrckqp.''o quvn( ''cv'y qtf ''ngxgn''dw''y gug''ctg''o kpqt''cpf ''y gtg''ctg'' y gtghqtg''pq''-xgtukqpuø'qh''y g''S wtø p''kp''y g''uxtkev'ugpug''qh''y g''y qtf .''cu'wugf ''kp''y g''eqpvgzv''qh''y g''P gy ''Vguvco gpv'*\ kf cp''cpf '\ kf cp''3; ; <math>3 \label{eq:character}$ 

Nkpi wkurkecm{ "cpf "uv{nkurkecm{." yi g'S wtø p"ku" yi g"o curgtr kgeg"qh" yi g"Ctcdke" rcpi wci g0 Ku" i tco o cvkecn' urt wewt g. "hqt" kpurcpeg. "ku" ur gekhke "q"kv" cpf "kp" o cp{" y c{u"f khhgtgpv'htqo "yi g"i tco o cvkecn' urt wewt g"qh" pqp/S wtø pke "Ctcdke0 Uq" o wej "uq" yi cv' yi gtg" ku. "hqt" gzco r ng. "c"hkgnf "qh" uwf {"f gf kecvgf "vq" S wtø pke "i tco o ct" cpf" u{pvcz0 Kp" qyi gt" y qtf u" yi gtg" ku" Ctcdke" cpf "yi gtg" ku" S wtø pke "Ctcdke0 KV" ku" yi ku" o ktcewnqwu" ej ctcevgt "qh" yi g" nkpi wkurke" eqo r qukukqp" qh" yi g" S wtø p" yi j kej "O wurko u" ekxg" cu" = yi g" urt qpi guv" cti wo gpv" kp" hcxqwt "qh" yi g" i gpwkpgpguu" qh" yi gkt "hcky ø\* J kwk" 3; 59 13; 92 < 3 ± "cpf" uqo g" uej qnctu" yi gtghqtg" uwi i guv" yi cv" = yi g" vtkwo r j "qh" Kurco "y cu" q" c" egtvckp" gz vgpv" yi g" vtkwo r j "qh" c" rcpi wci g." o qtg" r ctvkewnctn{"qh" c"dqqnø\* kdkf 0+0

## Vj g'tt cpurc vcdkrkv{ 'cpf 'igi kolo ce{ 'qh'tt cpurc vlpi 'tj g'S wtø p

Y j gtgcu' hadith '\*vj g'uc{kpi u'qh'vj g'Rtqr j gv+"o c{ ''dg''\tcpurc\yf ''cpf ''s wq\yf ''kp'\tcpurc\kqp. ''kv'j cu'\tcf kkqpcm{ " dggp"eqpulf gtgf "kmgi kwo cvg"vq"tcpuncvg"yi g"S wtø p0"Vj g"s wkpvguugpvkcm{ "f kxkpg"pcwtg"qh'yi g"S wtø p"cpf "yi g" ergctn("j wo cp"ej ctcevgt"qh"vj g'hadith "ctg"dcukecm("vj g'tgcuqp"hqt"vj gug"vy q'f kci qpcm("qrrqugf "xkgy u"vqy ctf u" vtcpurcykpi "vj go 0"Vj g"kuuwg"qh"ngi kuko ce{ "ku"f khhkewn/"vq"ugr ctcvg"htqo "vj g"o qtg"i gpgtcn"s wguvkqp"qh" VTCP UNC VCDKNKV[ 'kp'f kuewuukqpu'qh'y g'S wtø p0'Rtqr qpgpvu'qh'y g'cduqnwg'wpvtcpurcvcdkrkv{ ''qh'y g'S wtø p'' htpf "gzr ntekv'uwr r qt v'qh''y gkt 'xkgy "kp"c{c"pwo dgt"4"qh'y g"uwt c"qh'/[ wuwhk"÷Y g"j cxg"ugpv'kv'f qy p1"Cu'cp"Ct cdke" S wtø pø'\*Vj g'J qn('S wt pø'xgtukqp''qh''y g''Rtgukf gpe{''qh'Kurco ke''T gugctej gu.''r 0845='go r j cuku''cf f gf +0 Gxgp'\qfc{.'\j gtg'\ku'u\km'c'\uxtqpi 'cpf '\kphn\ypv\kcn'uej qqn'qh'\j qwi j v'y j kej 'uwduet kdgu'\q'\j g'xkgy '\j cv'\j g'' Swtøp"ecppqv"dg"\tcpurcvgf"cpf"\jcv"cp{"gzkuvkpi":\tcpurcvkqpuø'qh'kv"ctg"kmgikkvocvg0Ocp{"dgrkgxg"\jcv."kh'kv"ku" vq'dg'\tcpurcvgf "cv'cm'\j g'S wtø p'ecp'qpn('dg'\tcpurcvgf 'd{ "c'O wurko 0'Uq'o wej 'uq'\j cv'kp'\j g'eqpvgzv'qh'\j g" S wtø p''y g''yto "-tcpurcylapø'cpf "cm'kvu'f gtkxcykxgu''uj qwrf "dg'r rcegf "dgwy ggp''s wqycylapp''o ctmu''qt''uqo g''uwej " i tcrj ke"o ctngt"vq"rqkpv'qwv'yj cv'yj g"vgto "ku'wugf"kp"c"wpks wgn{"eqpvgz√ugpukkxg"ugpug0'Qpg"uki pkhkecpv'tguwn/'qh" yj gug'xkgy u'cpf "yj g'uvtgpi yj 'kp"y j kej 'yj g{ "ctg"j grf 'ku'yj cv'pqp/Ctcd'O wurko u. 'hqt "gzco r rg'Kpf kcp'O wurko u." jcxg"vq"ngctp"vq"tgcf"cpf"tgekxg"vjg"Swtøp"kp"Ctcdke0"Kh"cpf"yjgp"wugf."vtcpuncvkqp"yqwnf"hwpevkqp"ogtgn{"cu"c" eqo o gpvct { ."gzr mkpkpi "qt"r ctcr j tcukpi "vj g"uqwteg"vgz v"dwv"pqv"tgr mekpi "kv0  $Vj \; g''dgn'kgh''kp''yj \; g''kmgi \; kklo \; ce \{ \; ''qh''tcpunc'kpi \; \; ''yj \; g''S \; wt \emptyset \; p''j \; cu''cny \; c \{ \; u''j \; cf \; ''kw''qr \; r \; qpgpw. \; ''j \; qy \; gxgt. \; ''gxgp''kp''yj \; g'' \; and \; ce \}$ gctn("f gecf gu"qh"Kurco 0 Abu Hanīfa. "vj g"Kcs k'uej qrct "cpf "vj gqrqi kcp"\*e@22689+. "dgrkgxgf "kv"y cu"rgi kwo cvg"vq" vtcpurcve"cm'y g'xgtugu'qh'y g'S wtø p'kpvq'c'hqtgki p'vqpi wg'dw'-kv'y cu'pqv'rcy hwn'vq'r wv'y g'y j qrg'vqi gyi gt'kp" qpg'xqnxo g'wprguu'y g'Ctcdle''yzv'y cu'r reegf ''qr r qukxg''y g''tcpurcvkqp''y tqwi j qww/\*Rlemj cm'3; 53-644+0' Oqtgqxgt.' Abu Hanīfa 'f genctgf ''y cv'kv'ku'':r gto kuukdng'hqt ''qpg''y j q''eqwrf ''pqv'ur gcm'Ctcdke''\q''gzr tguu''y g'' o gcplpi "qh'yj g'Ctcdle"y qtf u'lpp"j ku'qy p"ncpi wci g'y j gp"tgekslpi "yj g'r tguetldgf 'r tc{gtuø'\*ldlaf 0+0'Dw'j g" tgr qt vgf n( 'tgvtcevgf 'vj ku'tcf kecn'x kgy 'cv'c' hevgt 'uvci g'epf 'hqmqy gf 'vj g'o qtg'qt vj qf qz 'nkpg'\*O qwuc'epf Dahroug'' 3; ; 4-348hh0+: "ceeqtf kpi '\q'y j kej "cp{ 'O wurko 'y j q'ecppqv'tgcf '\j g'S wtø p'kp'Ctcdke'ku'f ggo gf 'xktwcm{ " kmkvgtcvg0

Cp{"cwgo r v'cv'\tcpurcvkpi "yj g"S wtø p'ku'guugpvkcm{"c'hqto "qh'gzgi guku."qt"cv'ngcuv'ku'dcugf "qp"cp"wpf gtuvcpf kpi "qh'yj g"vgzv'cpf "eqpugs wgpwt" r tqlgevu'c "egtvckp"r qkpv'qh'xkgy ="j gpeg"yj g"r tghgtgpeg"i kxgp"vq"O wurko "cu'qr r qugf" vq"pqp/O wurko "vtcpurcvqtu0Vgto u'uwej "cu"-gzr rcpcvkqpø"-kpygtr tgwcvkqpø'cpf "+r ctcr j tcugø'vcng"qp"gzgi gvke" j wgu'lp"yj g'eqpvgzv'qh'vtcpurcvkpi "yj g'S wtø p."cpf "yj ku'j cu'ko r rhecvkqpu'hqt "ngi kwo kj kpi "cp{"uwej "cwgo r v0" Cpf cnw/dqtp"ko co "Shatby "\*e\B3556; 5+"hqt "gzco r ng. "dcugf "j ku'xkgy "yj cv'yj g"S wtø p"ku'wpvtcpurcvdng"qp"yj g" r tgo kug'yj cv'yj g"dqqm'j cu"-ugpuguø'yj cv'ctg"gzenwkxg"vq"S wtø pke "Ctcdke."uq"yj cv'gxgp"cwgo r vkpi "vq "tgpf gt "uwej " ugpugu'kp"pqp/S wtø pke "Ctcdke ku'f qoo gf "vq 'hcknvtg"\*O gj cppc"3; 9: +0J g"f kf "pqv"j qy gxgt."qdlgev'kp'r tkpekr ng" vq"vtcpurcvkpi "yj g"S wtø p"r tqxkf gf "uwej "tcpurcvkqp"cu'o c{"dg"r tqf wegf "ku'uggp"cu'c" "tcpurcvkqp"qh'yj g" -o gcpkpi uø'qh'yj g"dqqm"kQ0c"r ctcr j tcug"qt "dcuke "kpygtr tgvcvkqp0Vyj ku'y qtf kpi "eqpvkpwgu'vq 'hwpevkqp"cu'c" eqpf kkqpø'cwcej gf "vq"cwj qtkj gf "tcpurcvkqpu="Rkemj cm\3; 53-654+"tgrcvgu'j qy "yj g'T gevqt"qh'cn/C| j ct"\*yj g" cwj qtkvckxg. "tcf kkqpcn'egpvtg"qh'Kurco ke"uwf kgu'kp"Ecktq+"i cxg"j ku'eqpugpv'qpn("yj gp"j g'y cu'vqnf "yj cv' Rkemj cm'y qwf "pqv'ecm'j ku'3; 52"vtcpurcvkqp":-\Cn\S wtø pø'dw'y qwf "ecmikv"-\O c "\*xpkwøn'\S wtø'cpkøn'\Co'llef \phi\*v'j g" qdlgevkqp\O

Vj g'f gecf g''qt''uq''dgi kppkpi 'kp''3; 47''cpf 'gpf kpi 'kp''3; 58''kp''Gi {r v'y kpguugf 'uqo g'r ctvkewrctn{ 'xki qtqwu'' r qrgo keu''eqpegtpkpi ''y g''ngi ksko ce{ ''qh''utcpurcvkpi ''y g''S wtø p0Ugpkqt''C| j ct''r gtuqpcrkskgu''gzr tguugf ''uxtqpi '' xkgy u.''cti wkpi ''hqt''qt''ci ckpuv''y g''ngi ksko ce{ ''qh''uwej ''cp''gpvgtr tkug0O quv'y gtg''kpkskcm{ ''qr r qugf ''vq''y g''xgt{ ''kf gc'' qh''utcpurcvkpi ''y g'S wtø p.''cpf ''o cp{ ''uwr r qtvgf ''y g''dcppkpi ''cpf ''dwtpkpi ''qh''cp''Gpi rkuj ''tcpurcvkqp''d{ ''c'O wurko .'' Muhammad ''Crk'y j kej ''j cf ''cttkxgf ''kp''Gi {r v'cv'y g''sko g=''y g''stcpurcvkqp''ku''ekvgf ''xctkqwun{ ''cu''dgkpi ''r wdrkuj gf ''kp'' 3; 39''qt''3; 3: '\*O gj cppc''3; 9: +0'Vj g''

f gekukqp''d{ "y g''Vwtnkuj ''uvcvguo cp''Mgo cn'CvcvÃtm'\*3:: 363; 5: +''vq''eqo o kuukqp''c''tcpurcvkqp''qh''y g''S wtø p''kpvq'' Vwtnkuj ''o cf g''o cwgtu'y qtug<'qpg''xkgy 'j grf ''cv'y g''ko g'y cu''y cv'y g''tcpurcvkqp'y cu''f guki pgf ''vq''f kuvcpeg'' O wurko ''Vwtmu'htqo ''y gkt''j qn{ ''dqqn'lkp''ku''qtki kpcn'rcpi wci g'\*O gj cppc''3; 9: 49+0Kp''y g''i gpgtcn'eqpvgzv'qh'' CvcvÃtnøu'r qrkekgu. 'kv'y cu''cnuq''r gtegkxgf ''cu''cp''cwgo r v''vq''ugxgt''y g''vgu''dgwy ggp''Vwtng{ ''cpf ''y g''Ctcdke/ ur gcmkpi 'O wurko ''y qtnf ''kp''qtf gt''vq''o qxg''emugt''vq''Gwtqr g0

Rtqpqwpego gpwi'd{"tgrki kqwu''ngcf gtu''cukf g."yi g'untqpi "rhpmidgw ggp"yi g'S wtø p"cpf "yi g"v{r g"qhi'Ctcdke"kp"y j kej "k" cu'tgxgcngf "o gcpu"yi cv'yi g"f khhgtgpeg'idgw ggp"yi g'tgxgcngf "dqqmicpf "qpg"qh'ku''tcpurcvkqpu"\*y j gyi gt" cwij qt k gf "qt "pqv+"j cu'pgxgt"i qpg "wppqvkegf 0'Vj wu. "tgcf gtu"qh'yi g"I qur gmi'kp"c "rcpi wci g"uwej "cu'Gpi nkuj "o c{" j cxg"uqo g"cy ctgpguu"yi cv'yi g"xgtugu'dgkpi "tgcf "ctg"c"tcpurcvkqp"qh'uqo g"qtki kpcn'vgxv."dw'yi ku'cy ctgpguu" y qwf "pqv'r ctvkewrctn("o ct"yi g"vgzv'eqpegtpgf "qt"f gvcev'htqo "ku'cwij qtkx{0'Kp"yi g"g{gu'qh'c'O wurko ."d{" eqpvtcuv."yi g"f khhgtgpeg'dgw ggp"yi g"S wtø p"cpf "cp{"qh'ku'vtcpurcvkqpu'ku'wnko cvgn("yi g"f khhgtgpeg'dgw ggp"I qf" cu'yi g"Cwij qt. "Cwij qtkx{"cpf "Uqwteg"qp"yi g"qpg"j cpf ."cpf "o cp"cu'c"o gtg"tcpurcvqt llpvytr tgvyt "qp"yi g"qyi gt0' Rkemj cmi\*3; 53-645+"cuugtwi'yi cv':P q"pqp/Ctcd'O wurko ui gxgt"j cf "yi g"ngcuv'kf gc"qh'ignxcvkpi "c"tcpurcvkqp"qh" yi g"Uetkr wtg"]k00'yi g"S wtø p\_"kp"yi gkt "rcpi wci g"q"yi g"r qukkqp"qh'yi g"Gpi nkuj "tcpurcvkqp"qh'yi g"Dkdng"co qpi "Gpi nkuj /ur gcmkpi "Rtqvguccpv'Ej tknkcpuô yi cv'ku'vq'uc{"qh'upi ng'vtcpurcvkqp"qh'yi g"qtki kpcn\b'Cv'c"o qtg"r tcevkecn' rgxgn"yi gtg'ku "d{"ko r necvkqp."pq"wpkxgtucm{"tgeqi pk| gf "ukpi ng'vtcpurcvkqp."qt"gf kkqp"lp"vtcpurcvkqp."qh'yi g" S wtø p0

## Vt cpure vlapu'qh'vj g'S wtø p<'c'j kwqt lecn'qxgt xlgy

Gctn{ "o guuci gu'htqo "yi g'Rtqr j gv' Muhammad "vq"r qnkdecn't wgtu'qh'yi g"vko g. "uwej "cu'Go r gtqt" J gtcenkwu'\*e0832663+"qh'yi g'Gcuvgtp" Tqo cp"Go r ktg"cpf "cn'O ws cy s ku. "j ku'x kegtq{ "kp"Eqr vke "Gi {r v."i gpgtcm{ "kpenwf gf "cp"c{c" htqo "yi g'S wtø p0'K/ecp"qpn{ "dg"cuwo gf "yi cv'y tcpurcykqpu"qh'yi gug"o guuci gu'y gtg"wpf gt vcngp"d{ "ytcpurcytu" go r m{gf "d{ "yi g'tgegkxgtu."qt"cv'ngcuv'd{ "r gtuqpu'hco krkct"y kyi "Ctcdke"kp"yi gkt"eqwpyt{0'Vj g'hktuv'c{c"y j kej "o c{"j cxg"dggp"ytcpurcyf"kp"yi ku'hcuj kqp"ku'nkngn{ "vq"dg"pwo dgt"86"kp"yi g"t0 "t0 "t0 "t0 "t0 "kemj cm'\*3; 5213; t0 "4-"ytcpurcygu'kv'cu'hqmqy ut0 "kemj cm'\*3; 5213; t0 "kemj cm'\*3; 5216; t0 "kemj cm'\*4 "kemj cm'\*4 "kemj cm'\*4 "kemj cm'\*4 "kemj cm'\*5 "kemj cm

 $\begin{tabular}{ll} $Uc $ & V \Box{\colored} & V$ 

Hki j v'vj qug'y j q'f q'pqv'dgrkgxg'kp'I QF 'cpf 'vj g'Ncuv'F c $\{$ .'y j q'f q'pqv'hqtdkf 'y j cv'I QF 'cpf ''J ku'' O guugpi gt''j cxg'hqtdkf f gp.''cpf 'f q'pqv'cf qr v'vj g''Vtwg'T grki kqp''\*Kurco +''htqo ''co qpi ''vj g''r gqr rg''qh'' gctrkgt''Uetkr wxtg.''wpvkri'y g $\{$ ''r c $\{$ ''vj g''Lk $\}$  {cj '\*'xcz+''y kyj ''y krrkpi ''uwdo kuukqp''cpf 'hggri'y go ugrxgu'' uwdf wgf 0

Vj g'hktuv'∺vtcpurcvkqpuø'qh''yj g'S wtø p"crrgctgf 'kp'Rgtukcp"f wtkpi ''yj g'tgki p''qh''yj g'Cddcukf u'\*e@72ó347: +0' Wpf gtvcngp''d{ "

Rgtukcp"eqpxgtwi'vq"Kmco."'y gug'y gtg'r tko ctkn{"eqo o gpwtkgu."dwi'y g{"pqpg'y g'rguu'eqpvckpgf"o wej "y qtf/hqt/y qtf"'tcpurcvkqp"'\*ugg'"RGTUKCP"VTCFKWQP+0'Vj g'hktwi'÷r tqr gtø'vtcpurcvkqp"qhi'y g'hwmi'vgzv."d{"Tqdgtv'qhi" Ej guvgt."y cu'kpvq"Ncvkp="kv'y cu'ur qpuqtgf"kp"3365"d{"Rgvgt"y g"Xgpgtcdrg."Cddqv'qhiEnwp{."y kj "y g"gzr nkeki" cko "qhi'tghwkpi "y g"dgrkghu'qhi'Kmco "\*J kwk'3; 5913; ; 2<348+0'Ukpeg"y gp."y g"dqqmij cu'dggp"vtcpurcvgf "kpvq"cm quv' cm'y g'rcpi wci gu'qhi'y g'y qtrf."cpf "o qtg"y cp"qpeg"kpvq"o cp{"qhi'y go 0'Vj g'Ctcdke"vgzv'qhi'y g'S wtø p'y cu'hktwi' r tkpvgf "kp"Xgpkeg"kp"3752."hqmqy gf "uj qtvn{"d{"y g'Ncvkp"vtcpurcvkqp"qh'Tqdgtv'qhi'Mgwqp"kp"Dcurg'kp"3765"\*Y cw' cpf "Dgmi'3; 92+0

Vj g'hktuv'tcpurcvkqp'kpvq'Gpi rkuj ''y cu'o cf g'd { ''y g'Ueqwo cp'Crgzcpf gt'Tquu'kp'386; 0'Vj ku'y cu'cp'kpf ktgev' tcpurcvkqp.''dcugf ''qp''c'Htgpej ''xgtukqp''d { ''y g'Ukgwt'f w'T { gt'\*Y cw'cpf ''Dgm'3; 92 < 423 = 32 kwk'3; 5913; ; 2 < 348 + 32 cpf .''hkng''y g'Ncvkp''tcpurcvkqp''ur qpuqtgf ''d { ''y g'Cddqv'qh'Enwp { .'j cf ''f wdkqwu''cko u. ''cu''ecp''dg''uggp''htqo ''kwu''vkng'' = 3248 cpf ''pgy n { ''Gpi rkuj gf .''hqt''y g'ucvkuhcevkqp''qh''cm''y cv'f guktg''vq''nqqm'kpvq''y g'Vvtmkuj ''xcpkxkguø0'O qtg''ectghwi' cpf ''uej qrctn { ''tcpurcvkqpu''hqmqy gf 0'P qvcdrg''co qpi ''y gug''y gtg''y g''vtcpurcvkqp''kpvq''Ncvkp''d { ''Nwf qxkek'O cttceek' kp'38; : .''cpf ''kpvq''Gpi rkuj ''d { ''I gqti g''Ucrg''kp''3956''cpf ''Dgm'kp''3; 591'3; 5; '\*Y cw''cpf ''Dgm'kdkf 0'Ej cr vgt''33''cpf'' r r 0'42263+0

Dgmźu''tcpurc\kqp''ku''qh''r ct kewrt''kpygtguv'ukpeg''kv'y cu''pqv'l\wv''c''\tcpurc\kqp''dw''cnq''c'' $\pm$ tkkecn'tg/cttcpi go gpv'qh'' y g''Uxtcj uø''kldkf 0£'399+0'D{ "cpf "rcti g." y gtg''ku''eqpugpuwu''co qpi "o quv''S wtø pke''tcpurc\qtu'\q''wug''cu''uqwteg''yzv'' y g'' $\pm$ Wy o cpke'Tgegpukqpø''k\g0'y g''ecpqpkecn'xgtukqp''ucpe\kqpgf "d{ ' $\pm$ Wy o p'kdp' $\pm$ Chh p'kp''y g''ugxgpyj "egpwt {." y j kej "j cu''c''ugv'qtf gt''dcugf "o ckpn{ "qp''y g''ngpi y "qh''gcej "uwt c''0Dgm'y cu''qpg''qh''c''uo cm'pwo dgt''qh''\tcpurc\qtu." kpenwf kpi "Tqf y gm'\*3: 83+"y j q''ucy 'hkv'\q''tgcttcpi g''y g''uwt c''u+"qh''y g''S wtø p''qp''ej tqpqmi kecn'i tqwpf u0'O quv'' vtcpurc\qtqpu''kp''r t\pv'f q''pqv'l\wv''nqmy ''y g''qtf gt''qh''y g''Wy o cpke'Tgegpukqp''dw''cn\q''gpuwtg''y cv'y g'kpf kxkf wcn'' c{c\*u+"kp''gcej "uwt c"ctg''i kxgp''pwo dgtu''kp''y g''uco g'hcuj kqp''cu''y g''Ctcdke'\gz\w.'y j kej "o cngu''hqt''gcug''qh''etquu'' tghgtgpekpi 0Tqf y gm'\*3; 2; +"cpf 'Ctdgtt{ '\*3; 77+"ctg''co qpi ''y qug''y j q'f q''pqv'hqmy ''y ku''r tce\keg0'

## Uv{ ng'cpf 'list c vgi lgu'qh'S wtø ple 'tt cpurc vlqp

Kp"\gto u"qh"uv{ rg. "Ctdgtt {øu"\3; 77+"\tcpurc\kqp"\tkgu"\q"go wrc\g"\j g"\s wcrk\{ "qh"\j g"\qtki kpcn\K\f qgu"uq"\y ky "uqo g" uweeguu"cpf "uggo u."cv"rgcuv"r ct\kcm{\."\q"j cxg"\lphn\wgpegf "q\j gt"\tcpurc\lqpu"\j cv"cko gf "cv"\j g"\uco g"ghhgev."\uwej "cu" y g"\tgegpv\tcpurc\lqp"\d{"\ kf cp"cpf"\ kf cp"\3;; 3+0\Tqf y gm\vu"\3; 2; +"\s wcuk\xgtu\lh\gf"\tcpurc\lqp"\tkgu"\q"\dcrepeg" ceewtce{"y kj "\j g"\pggf "\q"\tgr tqf weg"c"\uko krct "ghhgev'\qp"\j g"\cti gv\tgcf gt\0\R\emi cm"\3; 52+"\ku"\eqpu\kf gtgf" r ct\lewrctn{"uweeguuhwri\"\ugg. 'hqt"gzco r rg." J kv\k'3; 591"\3; 92\349+."\uj qy kpi "gt\wf k\kqp"\cpf "\ugpu\kk\k\q\0"\und\"\ugg. 'hqt"gzco r rg"\qh"\cp"\cr r tqcej "\j cv"\cwgo r \u"\q"\q'dg"\k\sgtcn'cv"\ko gu"\y j krg"\gpf kpi "\q"\qxgt/\tcpurc\g"\cv\q\j gt\u"\Kx\kpi "\3; ; 4\z\xk\h\h\0\0

O quv'tcpurckqpu'qh'y g'S wtø p'ctg'uqwtegqtkgpwgf ="ceeqo o qf ckpi ''y g''cti gv'cwf kgpeg'ku'pqv'i gpgtcm{ "hcxqwtgf 'i kxgp''y cv'y g'S wtø p'ku'y g''Y qtf ''qh'I qf .'tgxgcngf 'kp'Ctcdke''vq''y g''Rtqr j gv' Muhammad ()'Vj ku'o c{ "gzr nckp''y g''gz vgpukxg''wug''qh''pqvgu'kp''o cp{ ''tcpurckqpu.''cpf ''y g''ngpi y { 'kpvtqf wevkqpu''y cv''vgpf ''vq''r tgegf g''y go 0 Gxgt{ ''tcpurckqp''qh'y g'S wtø p''j cu''j cf ''vq''eqphtqpv''y g''kuwg''qh'kw''qy p''ngi kko ce{ ''cv'uqo g''r qkpv.''kp''cf f kkqp''vq'' y g''wwcn's wgukqpu''qh''ceewtce{ .''tgngxcpeg''cpf ''uv{ rkuke''ko r cev0'Dw'y tqwi j qw'kw''nqpi ''j knqt{ .''kv'j cu''dggp''y g''

 $s \ wguvkqp"qh"yj \ g"xgt { ''tcpurcvcdkrkv{ ''qh"yj g"S wt \emptyset p"y j kej "j cu"o quv"f qo kpcvgf "'yj g"f gdcvg"kp"yj ku"r ct vkewrct" vtcpurcvkqp"eqpvgzv0}$ 

Ugg"cnuq<

DKONG"VTCP UNCVKQP = VQTCJ "VTCP UNCVKQP 0

## Hwt yj gt 't gcf lpi

 $Cnk'3; ; 4="cn'Dwpf cs '3; : 5="Hkuej gt 'cpf 'Cdgf k'3; ; 2="O gj cppc '3; 9: ="Rkemj cm'3; 53="Y cw'3; ; 6="Y cw'cpf 'Dgm'3; 92="cn'\ ch'\ h'3; : 60$ 

HASSAN MUSTAPHA"

# T

# Tgxlgy lpi 'cpf 'et klekn

Tgxkgy kpi "cpf" etkkekuo "ctg"gxcnwckxg"r tcekegu" y cv"r tqxkf g"f knkpev'dwv'kpugr ctcdng'tgur qpugu'\q'r wdrkuj gf" nkgtct {"tcpurckqpu"\tcpurckqpu"qh'ikgtcwtg"kp" y g"dtqcf guv'ugpug"qh'pqv'qpn("ko ci kpckxg" y tkkpi "dw'cnq"pqp/hekqp"cpf "qvj gt"o cvgtkcm'kp" y g"j wo cpkkgu+0Qp" y g"qpg" j cpf ."vj g"f khtgtgpegu"ekgf "eqpxgpvkqpcm("dgw ggp" y g"wy q"hqto u"qh'gxcnwckqp" qnf "ttwg"hqt"tcpurckqp"cu" y gmx'y g"tgxkgy gt"cngtwic"tgcf gt"\q"pgy "dqqmu." f guetkdkpi "y go "cpf "r cuukpi "lwf i go gpv'cu"\q"y j gy gt "y g{"ctg"y qt y 'tgcf kpi "cpf "dw{kpi ='y g"etkke"cf f tguugu" dqqmu" y cv'o c{"qt"o c{"pqv'dg"pgy ."eqpukf gtkpi "y go "kp"f gckricpf "wwcm("cuwo kpi "c'tgcf gtøu"hco khctkx{"y kyi" y go "\"Qcvgu"3; ; 2=\"Ngqpctf" Y qqnh'3; 5; \( \sq\); =\"Xkti kpkc" Y qqnh'3; 5; \( \sq\)+\"OQp" y g"qy gt" j cpf ."pgky gt" y g"tgxkgy kpi "pqt" y g"etkkeko "qh'ikgtct{"tcpurckqpu" cu"f gxgnqr gf "hwn{"cu"cp"ctvô wprkng" y g"tgxkgy kpi "cpf "etkkeko "qh" rkgtcwtg0" y ku"ecp"dg"gzr rckpgf "qpn{"kp"r ctv'd{"y g"o wnkr ng"f khtkewnkgu"r tgugpvgf "d{"cp{"cwgo r v'vq"cpcn{ug" cpf "r cuu"lwf i go gpv"rckn{"qppercekxg"cekxkx{0"Vj g"i gpgtcn'rcem'qh'xcnwg"cuuqekcyf "y kyi "tcpurckqp"kp"y g" y guv'j cu'wpf qwdvgf n{"dggp"cp"cf f kkqpcn'rcevqt"cpf "cp"gs wcm("f gvgto kpcpv'qpg"\"Dcuupgw'3; : 2\32=\"Ucpvq{q" 3; : 7\4: 658=\"J qmo gu'3; : : \( \sq\) = "Xkrkmqxum "3; : : \( \sq\)40\"Cu"Ngki j vqp"\"3; ; 3\"zkozkzhh0\"j cu"lpf kecyf ."lp"c"pcxqpcn/ewnxtcn'eqpf kkqp"y j gtg'tcpurckqp"ku"j ki j n("guvggo gf ."cu"kp"y g"hqto gt"Uqxkgv'Wpkqp."tcpurckqp"etkkekno "hqwtkuj gu0

F gur kg"ji g"-iwo drkpi "drqemø'ji cv'gxcmxckqp"r tgugpvu. "ktcpurcvqtu"cpf "ktcpurcvkqp"uej qretu"crkng"kpetgcukpi n $\{$ " tgeqi pk $\{$ g"ku"ko r qtvcpeg $\{$ 0Cu"c"-itr gekcn'inkpf "qh'etkkecn'icevkxkv $\{$ g\*Xkrkmqxum "3; ::  $\emptyset$ 6+: "kv'o wuv'dg"f kurkpi wkuj gf "Itqo "yj g"hqto u"qh'etkkekuo "ko r rkekv'kp"yj g"cevkxkv $\{$ "qh''tcpurcvkqp"kugrhi "Dtqgemi3; : 7-83="Nghgxgtg"3; : 9="f k" Ughcpq"3; : 4="Dgto cp"3; : 8="3; ; 4-9."63+0Cv'rgcuv'qpg"uej qret"j cu"uwi i gurgf "yi cv'vtcpurcvkqp"etkkekuo "dg" eqpukf gtgf "c"ugr ctcvg"ctgc"qh'cr r rkgf "tcpurcvkqp"uwf kgu" qro gu"3; ::  $\emptyset$ :  $\emptyset$ 0Qvj gtu"j cxg"uvtguugf "kur'ko r qtvcpeg" cu"c"-irkpmø'dgwy ggp"vtcpurcvkqp"yj gqt $\{$ "cpf "r tcevkeg"  $\emptyset$ P gy o ctm'3; ::  $\emptyset$ :  $\emptyset$ 0Qvj gtu"j cxg"uvtguugf "kur'ko r qtvcpeg" cu"c"-irkpmø'dgwy ggp"vtcpurcvkqp"yj gqt $\{$ "cpf "r tcevkeg"  $\emptyset$ P gy o ctm'3; ::  $\emptyset$ :  $\emptyset$ 1 ch''c "j ggf "hqt"tgxkgy u"yj c" r tqhguulqpg $\emptyset$ \*F qf f u"3; ;  $\emptyset$ 2 ch''c "gxkgy gtu"qh'inkgtct $\emptyset$ 3 cy"c"ukpi rg"cf lgevkxg"cpf "tghtckp"htqo "tcuj kpi "c"tcpurcvqt $\emptyset$ 4" y qtm'qp"yj g"dcuku"qh'kuqrcvgf "gttqtu"\*F qwo c"3;  $\emptyset$ 4-"Ej tkrv'3; :  $\emptyset$ 4-"O ckgt"3; ;  $\emptyset$ 4-"Uj g"uwxf $\emptyset$ 4 "qh''c cu'gxcnwcvkxg" r tcevkegu. "qf"kwewukqpu"cdqw"yj g"etkytkc"cr r tqr tkcvg"hqt"yj g"gxcnwcvkqp"qh'vtcpurcvkqpu. "cpf"vq"yj g"uetwkp $\emptyset$ 4 "qh''e ewttgpv'vtgpf u"p'tgxkgy kpi "cpf"etkkekwo 0

 $\label{thm:power} Vj g''uwf \{''qh'r cuv'gxcnwcvkxg''r tcevkegu''r tgugpw''c''r ctvkewrct''ugv'qh'ej cmgpi gu0Vj g''cdugpeg''qh'c'':wpkxgtucn'ecpqp'' ceeqtf kpi ''vq''y j kej ''vgzw''o c<math>\{''dg''cuuguugf \phi''^3Dcuupgw''3; : 2< +''cpf ''y g''ej cpi gu''y cv'qeewt''eqpvkpwcm{''kp''y g''etkgt kc''wugf ''vq''o gcuwtg''y g''uweeguu''qt''xcnwg''qh''vtcpurcvkqpu''o cmg''kv'f khhkewn''vq''kf gpvkh{''hkzgf ''r cwgtpu''cpf ''vtgpf u0Iqj p'FT[FGP'''ugg''\DTKVKU ''VTCFKVKQP''-'voc{''j cxg''ur qmgp''eqphkf gpvx{''cdqw''-i qqf ø'cpf ''-idcf ø''vtgpguugu''*38: 7+. ''dw''y g''f kuvkpevkqp''dgwy ggp''y go ''j cu''cny c{u''f gr gpf gf ''qp''-igyj pqegpvtke''crrtqcej gu''vq''y g''vcun'iqh''etkkekuo ø'*Mgm{''3; 9; <69+0Rgtj cru''gxgp''o qtg''korqtvcpvx{''o cp{''qh''y g''gxcnwcvkqpu''y cv'j cxg''r tqxgf''o quv''kphrwgpvkcn''ctg.''rkng''vtcpurcvkqp''kugnh ''pqv'ko o gf kcvgn{''xkukdng0'Hqt''y g''wpy tkwgp''j kuvqt{''qh''vtcpurcvkqp''tgxkgy kpi ''cpf ''etkkkekuo ''ku''ej ctcevgtk| gf ''pqv''qpn{''d{''y g''wpcempqy ngf i gf .''eqxgtv.''kornkekv.''cpf''}}$ 

```
xgtdcn'cevu'qh'gxcnwcvkqp''yi cv'qeewt'kp''cm'gxcnwcvkxg''r tcevkegu'\*Uo kyi '3; : 93: 364+.''dww'gxgp''yi g''+j ki j n{ ''
ur gelicht gf "kpurkinnkapent gf 'hat o u'ah gxennenkapø" Uo kij '3; : 93: 4+ htgs wgpvn ('eqpvckp' xenwg' lwf i go gpvu'o ef g'
y ky qw'tghgtgpeg'\q'gzrnlek'etkgtkc0'Kp''cffkklqp.''uwej 'Iwfi go gpwi'j cxg''qhvgp''crrgctgf.''cpf''eqpvkpwg'\q''
crrgct."kp"hqto u"pqv"urgekhecm{ "kfgpvkhkgf" cu"gxcnvcvkxg."uvvej "cu"vtcpurcvqtuø"rtghcegu"cpf" cppqvcvkqpu."
eqo r nko gpvct { "r qgo u'cpf "guuc { u'cdqw''yi g'y qtm'qh'qyi gt "tcpurc vqtu. "uej qrctn( "y tkukpi "cdqw''tcpurc vkqp"
yj gqt { "cpf" r tcevkeg. "cpf" crrtckucnu "go dgffgf" kp" hkevkqpcn eqo o gpvct { 0
"Vtcpurcvqtuø'r tghcegu"cpf "cppqvcvkqpu"qhvgp"r tqxkf g"kpuki j vhvvn"qdugtxcvkqpu"cdqvw"vtcpurcvkqp"r tcevkeg0P gy
vtcpurcvkqpu."j qy gxgt."ctg'htgs wgpvn{ 'wpf gtvcngp'y kyj ''yj g'kpvgpv'qh'ko r tqxkpi ''qt''gxgp''tgevkh{kpi ''gzknvkpi ''
xgtukqpu. "cpf "yj g"gxcnwcykxg"eqo o gpvu'yj g{ "eqpvckp"o wuv'yj go ugnxgu'dg"gxcnwcygf "kp"yj g'hki j v'qh'yj gkt 'r quukdng"
tqrg'kp'c'\tcpurcvqtøu'qy p'r tqlgev0'Vj g'uco g'ku'\twg'qh'y tkkpi 'd{ "\tcpurcvqtu'cdqw'\j g'y qtm'qh'qy gt'\tcpurcvqtu0'
Uwej "eqo o gpvct { "ku"qhvgp"dqyj "j ki j n{ "o gvcr j qtkecn"cpf "j ki j n{ "o qvkxcvgf "y kij "tgur gev"vq"c"\tcpurcvqtøu"ghhqtv"
qt"\q"\j g"r tqhguukqp"qh"\tcpurc\kqp"kxugrh0Vj ku"o gcpu"\j cv"eqo o gpvct { "o wuv"dg"tgcf "kp"\j g"eqpvgzv"qh"r tgxckrkpi "
tj gvqtkecn'eqpxgpvkqpu. "cpf "kv"o cngu" vj g"vcum'qh" gz vtcevkpi "i gpgtcn'r tkpekr ngu" qh" gxcnvcvkqp" vtgcej gtqwu "kh" pqv"
ko r quukdng0'Vj g'eqo r nko gpvu'hqwpf 'kp'uwej 'Tgpckuucpeg'r qgo u'cu'Eqpuvcpvklp'J w{i gpuøu'xgtugu'qp''
vtcpurcvkqpu'd { "Iceqd" Y guvgtdcgp" qt" y qug" d { "Ico gu" Y tki j v'qp" FT[FGP øu 'vtcpurcvkqpu' y gtg" kp" hcev'c"
f grkdgtcvg'uvtcvgi {"vq'ko r tqxg"vj g'uvvdqtf kpcvg'r qukvkqp"qh'vtcpurcvkqpu'*J gto cpu'3; : 7d<339+0
Oqtg"tgegpv"f kuewuukqpu"d{"\tcpurcvqtu."htgs wgpvn{"kp"c"uej qrctn{"eqpvgzv."cnuq"eqpvckp"gxcnwcvkxg"eqo o gpvct{"
yj cv'go rj cukt gu''yj g'f kthkewnkgu'ko rnkek/kp''\tcpurc\kqp0'KV'cnq''cmqy u'\tcpurc\qtu'\q''cti wg''yj g''uwr gtkqtkx{ ''qh''yj gkt''
qy p'xgtukqpu'*Tchgn'3; ; 5+0'Gxcnvcvkqpu'vj cv'r tqxg'kphnvgpvkcn'ctg'gxgp'hqwpf'kp'y qtmu'qh'hkevkqp0'Vj g'qhvgp''
tgr gevgf "uko krg'htqo "Fqp'S wkzqvg" yi ev'nkngpu'y qtmu'kp" \tepurevkqp" \q'yi g'y tqpi "ukf g'qh'e 'Hrgo kuj '\er guvt { 'ku"
r ct v'qh'c 'f kueqwtug 'qp 'tcpurc kqp. 'kp'y j kej 'F qp'S wkz qvg. 'j ko ugrh'c 'ej ctcevgt 'kp' tcpurc kqp. 'r tqxkf gu' Egtxcpvgu'
y ky ''y g''qrrqtwpk{\text{''q''r}} cuu''lwfi o gpv''qp''j ku''eqpvgorqtctkgu'{\text{''}}O qpgt''3; ; 2\sqrt{3}; 644+0
D \ "gzco \ kpkpi \ "y \ g"lwfi \ go \ gpw'qh'etkskeu'cpf \ "tgxkgy \ gtu'ltqo \ "y \ g"r \ cw."ewttgpv'vtcpurcvkqp'wej \ qrctu''j \ cxg''dgi \ wp''vq''
f qewo gpv'yi g''qhxgp''eqo r ngz''eqpygzvu''kp''y j kej ''gxcnxcykqp''qeewtu0'Vj ku''y qtm'ku''dtkpi kpi ''vq''rki j v'dqyi ''yi g''
o qvlxcvlqp"qh"llpf kxlf wcn"etkvleu"cpf "vj g"hcev"vj cv"vj glxt "cuuguuo gpvu"y gtg"qhvgp"dcugf "qp"llphqto cvlqp"crrctgpvn("
wptgrcvgf "vq" y g"cevkxkv{ "qh" vtcpurcvkqp0'Ectqn{p"Y kmkco u"3; ; 5<3: 9. '97+" j cu"cti wgf "vj cv"Crgzcpf gt"Rqr gøu"
etkkeu'lwfigf'jko "cu'c''tcpurcyqt"qh'Jqogt"kp"\gtou'qh'jku"+rqgvke"xktkrkv{ø"\wukpi "gxkfgpeg"+qpn{ "\cpi gpvkcm{"
tgrgxcpv'vq"vj gkt ''qdugtxcvkqpuø0kp'j ku'uwwf { ''qh'O cwj gy ''Ctpqrf øu'rgewtg''÷Qp''Vtcpurcvkpi ''J qo gtø''Xgpwk''
*3; ; 7<33: 667+'j cu'uj qy p'pqv'qpn{'yj cv'Ctpqnf øu'cwcem'qp''Htcpeku'P gy o cpøu'*ugg''DTK/KUJ ''VTCFK/KQP+''
vtcpurcvkqp"qh"yj g"Klkcf "ugtxgf "vq"o cti kpcrk g"P gy o cpøu"y qtm"dwv"cnuq"yj g"gzvgpv"vq"y j kej "c"r qrgo keu"cdqwv"
ceegr vcdrg"tcpurctkqp"utcvgi kgu"ecp"dg"uko wncpgqwun("qpg"cdqw"ewnwtcn'r qrktkeu0Tcej gn'O c{øu'f kuewuukqp"
cdqw/Eqpuvcpeg'I ctpgw/tgxgcni'yi cv'yi g'hqpi/nkxgf 'r qr wrctkx{ "qh'I ctpgwxu'o cp{ '\tcpurcxkqpu'htqo ''yi g'Twukcp''
fkf "pqv'tguwnv'htqo "etkskecn'ceencko "dcugf "qp"ectghwn'uetwskp{"qh"j gt"y qtn0/Tcvj gt"kv'y cu"f wg"vq"I ctpgwøu"cdknkv{"
vq'o cng'T wuukcp'y qtmu'tgcf cdng'vq'vj g'Gpi nkuj /ncpi wci g'r wdnke''cpf ''vq'vj g''wps wguvkqpkpi ''ceegr vcpeg''qp''vj g''
r ctv'qh'etkkeu'cpf 'tgcf gtu'crkng'qpeg'j gt'tgr wcvkqp'y cu'guvcdrkuj gf "*O c { '3; ; 6 < 2 \def 64 +0
Htqo 'Crgzcpf gt'Htcugt''V[ VNGT'*ugg''DTKKUJ 'VTCFKKQP+'vq'I gqti g'Uvgkpgt'cpf 'qvj gtu'y tkkpi 'gxgp''
o qtg'tgegpvn(."etkkeu"j cxg"f guetkdgf "\tcpurc\kqpu"cu"+i qqf ø'qt"+dcf ø'y kyj qwv'ugtkqwun("s wguvkqpkpi "qt"
s workh{kpi "yj qug"cf lgevkxgu."gxgp"y j gp"yj g{"cempqy ngf i gf 'yj g'tgncvkxg"pcwtg"qh"qr kpkqp"qt 'vcuvg'*V{vrgt"
3: 35<35ó36="Uvgkpgt"3; 97<5; 8+0°C√y g"uco g"√ko g." j qy gxgt." y qwi j √hwrlghqt uu" \q"dt kpi "kpet gcugf "cwgp√kqp" \q"
dgct "qp"gxcnvcvkqp"cpf "vq"guvcdrkuj "u{ uvgo cvke "gxcnvcvkxg"etkvgtkc"f q"gzkuv0"Vj gug"ghhqtvu"ctg"f khhkevnv"vq"
uwo o ctkl g'uweekpevn ("dgecwug"etkkeu"crrtqcej "tcpurcvkqp"htqo "xctkgf"f kuekrrkpgu"cpf"r gturgevkxgu"cpf"
dgecwug. "eqpugs wgpvn(." 'y g{ "f kuewuu"dqvj "\tcpurc\kqp"cpf "gxcnvc\kqp"kp"xgt { "f khhgtgpv'\gto u0'Gxgp"uq. "kv'ku"
r quukdng'\q'pqvg''egtvckp''wpcpko kxkgu''kp''ur kxg''qh''vj gug'f khhgtgpegu''d { 'hqewukpi ''qp''vy q''s wguvkqpu''vj cv''eqpegtp''
o quv'etkweu'y j q'cfftguu'gxcnxcvkxg'rtcevkegu<'vq'
```

y j cv'gzvgpv'uj qwrf "gxcnwcvkxg"etkvgtkc"dg'r tguetkr vkxg"cpf "vq"y j cv'gzvgpv'uj qwrf "gxcnwcvkqp"kpenwf g"dqvj "vj g" vtcpurcvgf "vgzv'cpf 'kvu"qtki kpcnA

Vj g"o clqtkx{ "qh'etkxkeu'gzr gev'yj cv'dqyj "f guetkr vkqp"cpf "etkxkekuo "y km'kpxqnxg"qtki kpcnu'cu'y gm'cu'vtcpuncvgf " vgz vu. "gxgp"y j gp" yj g{ "cf xqecvg"xct { kpi "f gi tggu"qh"eqo r ctkuqp. "uggm"vq"cpuy gt"f khhgtgpv's wguvkqpu. "qt" f qewo gpv'yi g'r quukdkrkv{ "qh'o qtg'yi cp"qpg"eqo r gvgpv'vtcpurcvkqp'\*P kf c"3; : 4+0'Xkrkmqxum øu"o qf griku'dcugf "qp" cp"wpf gtuvcpf kpi "qh'\tcpurc\kqp"etkkekuo "cu":cp"kpuvtwo gpv'hqt"f guetkdkpi "yi g"qdugtxcvkqpcn'hcevu"qh'kpvgtrkvgtct{" eqpvcevø'\*3; :: �6+0'Vj ku''o qf gn'eqpukuvu''qh''vj tgg''r tkpekr cn'tgncvkqpuj kr u="qpg''qh''vj go ''ku''nko kvgf ''vq''vj g''-irkvgtct{" eqpygz w'qh'y g'tcpurcykqp. "dwy'y g'qy gt "w q'tgrcykqpuj kru'kpxqrxg''dqy ''y g'qtki kpcn'cpf ''y g'tcpurcykqpô y g'' tgrcvkqpuj kr "dgwy ggp" y g":qtki kpcn'cpf "y g"o gvcvgzvø'cpf" y cv'dgwy ggp":y g"vy q'nkvgtct { "eqpvgzvuøOC" f guetkr vkqp" qh'y g'tcpurcvqtøu'o gy qf u'cpf 'c'f kuewuukqp''qh'y g'tcpurcvkqpøu''±f gi tgg''qh'cf gs wce{ø'cpf ''±rgxgn'qh' gs wkx crgpego'r gt vckp''vq''y g'hkt uv't grc vkqpuj kr'\*3; :: <96.'99.'97+0P gy o ctmou'hkxg/r ct v'o qf gri'cnuq'kpenwf gu''y g'' cpcn(uku'qh'y g'uqwteg/ncpi wci g'vgzv.'c'eqo r ctkuqp''qh'kv'cpf 'y g'vtcpuncvkqp.'cpf 'eqo o gpw'cdqw'y g'' vtcpurcvkqpøu'r qvgpvkcnltqrg'cu'c''vtcpurcvkqp="vj g'eqo r ctcvkxg''uvvf { ''ku''yj g''-j gctvø'qh''vj ku''o qf gn'\*3; :: <3:: +0' Fqffu'\*3;:7⊲;3+'fguetkdgu'yig'\tcpurc\kqp'etkke''cu'c''÷vgzv'cpcn{uvø'yjqug''yitgghqnf''cpcn{uku'owuv'gpeqorcuu'' yj g'hcpi wci g'qh'yj g'uqwteg'\gzv."yj cv'qh'yj g'\cti gv\\gzv'cpf "c'eqo r ctkuqp"dgw ggp"yj g'\w q0J c\ko "cpf 'O cuqp" \*3;; 2d<32+"qwxrkpg"c"ugv'qh"eqorctcvkxg"rctcogvgtu"vjcv"ecp"dg"wugf"vq"cpcn(ug"cpf"eqorctg"vtcpurcvkqpu0" Vj gkt 'r tkpekr cn'kpvgtguv'nkgu'kp''yj g''÷ewnwtcn'ugo kqvkeu''qh'ncpi wci gø0'Wukpi ''yj g''pqvkqpu''qh'i gptg.''f kueqwtug''cpf '' vgzv.''yj g{ 'hqewu'pqv'qp'kpf kxkf wcn'y qtf u'dwv'qp'c': yj tgcf 'qh'f kueqwtug'y j kej 'ku'uwuvckpgf ''yj tqwi j ''c'' eqo o wpłecykxg" tcpuce kqp@

Eqo r ctc\ksg"o qf gni."j qy gxgt."f q"pqv'tgr tgugpv'vj g"qpn("cr r tqcej "\q"\tcpurc\kqp"etk\kekio ."f gur kg"cp" kpuku\gpeg"qp"\j g"r ctv'qh'uqo g'uej qrctu'\j cv'\tcpurc\kqp"etk\kekio "o wuv'pqv'dg'r gthqto gf "y kij qwv'\cm\pi "\j g" qt\ki \kpcn'\kp\q"ceeq\pv\v\\*X\kr\mq\xum "3; :: \&97="f g"Dgcwi tcpf g"3; 9: \&43+0\P qt"ctg"\j g"etk\keu'\y j q"u\wf {"qpn("\j g" \tcpurc\kqp" g" \tcpurc\kqp" g"\tcpurc\kqp" g"\tcpurc\kq

Tgegpv'y qtm'lp''rksgtct { "etkkekuo "cpf "yj gqt { .''hpi wkurkeu "cpyj tqr qqqi { .''rj kquqr j { .''cpf "ewnwtcn'uwf kgu"j cu" f ktgev."cndgkv'cv'vko gu"eqpvtcf kevqt { "ko r necvkqpu"hqt "yj g"gxcnwcvkqp"qh''rksgtct { "vtcpurcvkqpu0Qp"yj g"qpg"j cpf .''pqv'' qpn( "yj g"f geqpuvtwevkqpkuvø'gpvktg"r tqlgevø'\*I gpv\ ngt"3; ; 5~68+"dwv'cnq"yj g"gpvktg"tcpi g"qh'ej cngpi gu" r tgugpvgf "d{ "r quv'uvtwewtcnkuo "vq"r tgxckrkpi "f ghkpkkqpu"qh'vgz wcn'cwyj qtkv{ "cpf "kpvgi tkx{ "j cxg"tgpf gtgf" eqpxgpvkqpcn'gxcnwcvkxg"vgto u"qduqrgvg0Qp"yj g"qyj gt"j cpf ."'yj g"y qtm'qh'r quv'eqqppkcn'uej qrctu"j cu"f qewo gpvgf " yj g"gzvgpv'vq"y j kej "vtcpurcvkqpu"ecp"i q"-yy tqpi ø"gxgp"-tgur gevhwm{ø\*Ur kxcm'3; ; 4d<'3: 5+"y j gp"kpgs wcnkvkgu"cpf" r qy gt"tgrcvkqpuj kr u"dgwy ggp"ewnwtgu"ctg"pqv'wpf gtuvqqf "cpf "cempqy rgf i gf "cr r tqr tkcvgn{0Kp"dqyj "kpuvcpegu" yj g"r tcevkeg"qh'vtcpurcvkqp"dgeqo gu'pgy n{"xkukdrg"cpf "yj g"tqrg"qh'yj g"vtcpurcvqt"ku'uetwkpk gf ="kp"dqyj "kpuvcpegu" xcnwg"lwf i o gpvu"ctg"o cf g"ceeqtf kpi "vq"pgy "cpf"uj khvkpi "etksgtkc0

F gur kış''yi g''wps wgunkqpcdırg'ht ggf qo ''yi cv''yi g'tcf kecn'f gegpvgt kpi ''cuuqekcvgf ''y kıj 'r quv'uvt wewt cıkuo ''qhhgtu'' vtcpurcvqtu. "vj g"xgt{"tgs wktgo gpv'qh"f gegpvtkpi "kwgrh"ecttkgu"c"ugv'qh"gzr gevcvkqpu"cpf "kornkekv"gxcnwcvkxg" etksgtkc0Hqt'kh'r quv'uvtwewtchuo "i tcpvu'c'pgy "ci gpe{"vq'vtcpuncvqtu'\*Xgpwk'3;;433+."kv'cnuq'ko r qugu'qp'vj go " cp'kpetgcugf "dwtf gp"qh'tgur qpukdkrkx{0Kp"yj g"cdugpeg"qh'wpkxgtucn'f ghkpkkqpu."\tcpurcvqtu"ctg"ecngf "qp"\q"o cng" gzr nkeki'y g'untcygi kgu'cpf 'i qcnı'y cy'i qxgtp'y gkt'r tcevkeg0'Vj g{ "ctg"cnuq "gpeqwtci gf "vq"y tkxg'r tghcegu." chygty qtf u. "cpf "qyj gt"hqto u'qh'eqo o gpvct {0'Gur gelcm{ "kp" y g"ecug"qh'kppqxcvkxg. "vtcpui tguukxg" yzvu. "y g{ "ctg" gzr gevgf "vq" tcpurcvg" tcpui tguukxgn (."cpf "vj gkt" y qtmlku" o gcuwtgf "ci ckpuv" y ku" pgy "etkgtkqp" qh" ÷cdwukxgø "Ngy ku" 3; : 7 < 78 + "qt" = f guvt we vkx gø" \* Eqprg { "3; : 8 < 6; + 'hkf grkv { 0 'kp 'vj ku 'o gcuvt go gpv. 'y qt f u 'n kmg 'c eewt c vg' 'cpf 'l kpeqt t gev' | ctg"pqv"tgrgxcpv0"Kpuvgcf. "hcknvtg"ku"cuuqekcvgf"y kij "cp"kpcdkrkv{ "vq"eqpvkpvvg"vj g"hkpi wkuvke"o qo gpvvo "qh"c"vgzv." y ky "cp":gzeguu'qh'tgxgtgpegø'y cv'ecp"o cmg'kv'ko r quukdng'hqt"c'\tcpurcvqt'\q":\cng''y g'pgeguuct { "f kuvcpeg'htqo " yj g"qtki kpcmô y j kej "o wuv'hwpevkqp"pqv'cu"cp"cduqnwg"dwv'cu"c"r qkpv'qh"f gr ctwxtg"\*Uctvkrkqv'3; : : ←4: +0' Vtcpurcvkqpu'qh'r quv'untwewntcrkun'\gzwi'ctg''qhngp''o gcuwtgf''cu''y gml'ci ckpuv'\ntcpurcvqtuø''qy p''y qtfu''cdqww'\nj gkt'' y qtm'qt'kp''vgto u'qh'y g'eqpvgzv'kp'y j kej ''y g'y qtm'crrgctu0'Uvej ''etkkekuo.''kp''cffkkqp''vq''eqpegtpkpi ''kvugnh'y kyj '' pgy "tcpurcvkqpu." ko r nkgu' vj g'tg/gxcnvcvkqp" qh' tcpurcvkqpu'r gthqto gf "kp" vj g'r cuv' \*Eqprg { '3; : 8 = "Rqtvgt '3; ; 3 + 0 KV' cnuq'ko r nkgu'vj g'ceegr vcpeg'qh'o wnkr ng'xgtukqpu'cpf 'vj g'gxcnvcvkqp'qh'kpf kxkf wcn'xgtukqpu'y kij 'tgur gev'vq'vj g' r wtr qugu'hqt"y j kej "gcej "xgtukqp"ku"kpvgpf gf "/÷vj g"f khhgtgpv'xcnvgu'dgj kpf 'y j cv'o cngu'c'õi qqf ö" vtcpurcvkqpø'\*Eqjgp'3;:: ♂33+0

Vj g'uko wncpgqwu'ci gpe{"cpf "tgur qpukdkrk/"ceeqtf gf "vj g''tcpurcvqt"d{"r quv'uvt wewtcrkuo "cnuq"ej ctcevgtk| gu'vj g'' vtcpurcvqtøu'y qtm'cu'f ghkpgf "d{"ttcpurcvqtu'cpf "etkkeu'y j q'r qukkrqp"vj go ugnxgu'y kij "tgur gev'vq"c"ur gekhke. 'hkzgf" mecvkqp"qt "kf gqrqi {0Hqt"y j gp"ttcpurcvkqp"ku'f ghkpgf "kp"vgto u'qh'c"÷ukg"hqt"tckukpi "s wguvkqpu"qh'tgr tgugpvcvkqp." r qy gt. "cpf "j kuvqtkekv{ø\*P ktcplcpc"3; ; 43+"vj g"gzr gevcvkqp"ku'vj cv'vj qug''s wguvkqpu'y kn'dg'tckugf 0Vj ku'ku'c" f ghkpkkqp"vj cv'ej cmgpi gu'vtcpurcvqtu'vq'tgvj kpm'vj g"eqpxgpvkqpcn'wug"qh"gs wkxcngpeg. "f khtgt gpeg. "cpf" eqo o wpkecvkqp0Kp"vj g'hceg'qh'pqv'o gtgn{"f khtgt gpeg"dw'f gekf gf "kpgs wcrkvkgu'dgwy ggp"rcpi wci gu'cpf "ewnwtgu." kv'cumu'vtcpurcvqtu'vq"eqpuvtwev'c"÷ukvgø'kp"y j kej "vj gtg'ku"÷qxgtrcr "y kvj qw'gs wkxcngpegø\*Dj cdj c"3; ; 63: 8+0' Vtcpurcvqtu'ctg'wti gf "vq"o cng"vj gkt"y qtm'pqv'hnwgpv'cpf "tgcf cdng"dw'-vj kenø\*Cr r kcj "3; ; 5+'y kvj "vj g'hcevqtu" vj cv'ecp"o cng'uo qqvj "

kpvgtcevkqp"cp"kmvukqp"qp"vj g"r ctv"qh"vj g"o qtg"r qy gthwn"r ctv{0"Vj ku"ecp"qeewt"kp"vgzvu"vj go ugnxgu"qt"kp"vj g" xctkqwu'eqo o gpvctkgu'yi cv'ceeqo r cp{"yi go "cu"÷eqo dcv'y gcr qpuø'ci ckpuv'vko g'\*O wnj gtlgg'3; ; 6≪95+."dwv'cnuq" ci ckpuv'\tcpur ctgpe{ "qp" y g"r ctv'qh" y g"\tcpurc\kqp0'Eqpugs wgp\n{."c"\tcpurc\kqp" o c{ "y gm'dg"gxcn\cvgf "pqv'qp" yj g'dcuku'qh'lkuu'tgcfkdkrk√{ 'cpf 'yj g'∺eqoo wpkec√kqpø'kv'o cmgu'r quukdrg0'Qp''yj g'eqpvtct{.'kv'oc{'dg'lwfigf'kp'' vgto u'qh'c'pgy n{ 'f ghkpgf 'rkvgtcrkuo '\*Tqdkpuqp'3; ; 5≪346='I cffku'Tqug'3; ; 7<6+'qt''vjg'gzvgpv'vq'yjkej'kv' rtqorwi'c'etkuku'kp'eqoowpkeckqp."gxgp'yjg"gzvgpv'vq'yjkej "vtcpurcvkqp'ku'ykyjgrf"\*Urkxcm'3;;4c<'3;467=" 3; ; 4d<9; 4+0"Vtcpurcvqtu'vj go ugnxgu'o c{''dg''gxcnvcvgf''kp''vgto u''qh''vj gkt''s wcnkhlecvkqpu''vq''tgrtgugpv''÷cpqvj gtø'' kf gpvkx{ "/pcvkqpcrkx{ ."tceg."tgrki kqp."i gpf gt"\*Xqrf gpi "3; : 6="Nqvdkpktg/J cty qqf "3; ; 3<35; ó; 3="Ur kxcm"3; ; 4c<" 39: ó; 4+101Kp"c"uko krct"y c{. '\tcpurc\kqpu'ecp"dg"lwfigf"kp"\gto u"qh"\jg" ku+tgrtgugpvc\kqpu."cpf"\jg"⊹gzq\ke"cpf" guugpvkenk kpi 'uvgtgqv{r guø'yi g{ "r gtr gwevg"\*Re{pg"3; ; 5-5+0'Gxenwevkqp."yi gp. "hqewugu"qp"r tgekugn{ "yi qug"\*o ku+ tgrtgugpvcvkqpu"cpf "∹drcur j go {ø'ecp"dg"f ghkpgf "cu"÷c"o qo gpv'y j gp"yj g"uwdlge√o cwgt"qt"yj g"eqpvgpv'qh'c" ewnwtcn'tcfkkqp'ku'dgkpi ''qxgty j gno gf. ''qt''cnkgpcvgf. ''kp''yj g''cev'qh''tcpuncvkqpø'\*Dj cdj c''3; ; 6∢447+0 Vj g'eq/gzkuvgpeg'qh'uwej 'pwo gtqwu'cpf 'f kxgtug'gxcnwcvkxg'etkvgtkc'cpf 'crrtqcej gu'qhhgtu'c'ej cmgpi g'vq' eqpvgorqtct{"etkkeu."tgcfgtu"cpf"vtcpurcvqtu0"Yjgvjgt"etkkeu"yqtm"vq"gxcnvcvg"eqpvgorqtct{"vtcpurcvkqpu"qt" yj qug'r gthqto gf 'kp''yj g'r cuv.''yj g{ 'hkpf ''yj go ugrxgu''qdrki gf ''pqv'qpn( ''vq'kphqto ''yj go ugrxgu''cdqw''yj g'ewnwtcri' eqpvgzv'qh'c'i kxgp"tcpurcvkqp"dw'cnuq'vq"dg'eqi pk cpv'qh'vj gkt 'qy p'gxcnvcvkxg"etksgtkc'cpf 'vj g'eqpvgzv'y kj kp" y j kej ''y g{ ''crrn{ ''y go O'Nkngy kug. 'tgcf gtu''cpf ''tcpurcvqtu''o wuv'hqto wrcvg''gxcnvcvkxg''etkvgtkc''y cv'y km'gpcdrg'' yj go "vq"cuuguu"f kxgti gpv. "gxgp"eqpvtcf kevqt { "etkskecn"gxcnwcvkqpu0"kp"Xgpwvkøu "gxcnwcvkqp. "vj g" 'tcpurcvkqp" kpvq" Gpi rkuj "qh'hkevkqp"d{ "Cti gpvkpg"y tkvgt"Lwrkq"Eqtv\* | ct"y cu"r tko ctkr{ "c"hgrkekxqwu"**hqt gki pk|kpi** "o qxg."cn j qwi j " qpg"tgcnk gf "vj tqwi j "hnwgpv." f qo guwlec wlpi "tvtcvgi kgu" "tugg" "UVTCVGI KGU" QH" VTCP UNCVKQP + "kp"r ct vke wrct" qp''y g'r ctv'qh'Rcwr'Drcendwtp.''y j q''÷uo wi i rgf ø'Eqtv³ | ctøu''y qtmlkpvq''P qtyj 'Co gtkecp''rksgtcwtg''\\$3;; 7c<'489+0' Rc{pg."qp'yi g'qyi gt'j cpf."r tckugu"pq'uweeguuhwn'hqtgki pk kpi 0J g'eqpukf gtu"Eqtv\*| ct"qpg'qh'yi g'odki 'hqwtø'qh'yi g'' Nckp'Co gtkecp'dqqo ø'y j qug'y qtm'j cu'tgkphqtegf.'tcyj gt'y cp'ej cmgpi gf.'P qtyj 'Co gtkecp'uvgtgqv{r gu'cdqw' Ncvkp'Co gtkec'\*3; ; 5<5263.'55+0

C"o qtg"gzvgpukxg"gzco r ng'ku'r tqxkf gf "d{"tgegpv'gxcnvcvkqpu'qh'vj g"y qtm'qh'Ukt"Y kmkco "LQP GU."y j qug" vtcpurcvkqpu'lkpvq'Gpi nkuj ''qh'lkpf kcp''nkvgtcwtg''y gtg''j ki j n{ ''kphnwgpvkcn'lkp''y g''rcvg''gki j vggpvj ''egpwt{ ''\*ugg'' DTKKU "VTCFKKQP +0Cu" vj g"+hqtgo quv'uej qnct" y j q"nqecvgf" cpf "vtcpuncvgf" vj g"hkgtcwtg" qh'vj g"õQtkgpvö" hqt" yj g"Y guwó" Ugpi wr vc"3; ; 7⊲382+"cpf "qpg" y j q" ÷cm quv'ukpi ng/j cpf gf n{ "ej cpi gf "yj g"Dtkkuj ."kh"pqv'Gwtqr gcp" xkgy "qh'Cukc"cpf "gur gekcm{ "Kpf kcø" Ecppqp"3; : 8 < 389 + "Lqpguøu" \tcpurc \kqpu" cxg" dggp 'uwwf kgf 'tgegp \n ("d { " xctkqwu'etkkeu0'Ecppqp'r tckugu'j ku'y qtm'y kj qw's wcrkheckqp. 'r ctkewrctn{ 'j ku'tcpurckqp'qh'Mcrkf cucøu'' Umpwn: "39:; +: "untguukpi 'Iqpguøu'tgeqi pkkqp"qh"+yj g'i tgcvpguu'qh'yj g'I wr vc'f tco cø'cpf 'yj g'hcev'yj cv'Iqpguøu" y qtmlrtqorvgf "Gwtqrgcpu'vq"j cxg"c"pgy "tgurgev"hqt"Kpfkcp"nkgtcwtg.":dtkfikpi 'vjg'ej tqpqnqikecn'cpf "ewnwtcn" i cr 'ugr ctcvkpi 'Ucpuntkv'htqo 'Gpi nkuj ø'\*3; :8≪3:3+0'Hki wgktc.'kp'c'eqo r ctcvkxg'vgzwcn'uwvf {.'hkpf u'vj cv'Lqpguøu'' vtcpuncvkqp. 'nkmg' vj qug' qh' qvj gt "vtcpuncvqtu' qh' vj g" *Ucmvpvcn*. "y cu' qhvgp" ÷gttqpgqvuø' cpf 'vj cv'kv'i gpgtcvgf" o kutgrtgugpvcvkqpu'qh'vjg'Kpfkcp'yqtn='dwv'ujg'cfoktgu'vtcpuncvqtu'hqt":uggn]kpi\_'kpurktcvkqp'dg{qpf'vjg'dqwpfu' qh'y gkt 'qy p'ewnwtg'cpf 'r tqlgev|kpi \_'y gkt 'etgcvkxg''gpgti { 'kpvq'kvø'\*3; ; 3<\(3\); : \(\delta\); \(\delta\) ktcplcpc'\*\(3\); ; 4+'cpf '' Ugpi wr w: "3; ; 7+: "j qy gxgt." qhhgt" c"uvtknkpi n{"f khhgtgpv" gxcnwcvkqp0" Ugpi wr w: "go r j cukt gu" yj g" qxgtuko r nkhkecvkqp" qh'Montfoucou'y qtm'y cv'qeewttgf "cu'Iqpgu'uj cr gf "cp"-ko ci go'hqt kv'y cv'Gwtqr gcpu'y qwrf 'hkpf "ceegr wdrg" \*3; ; 7⊲8364±"P ktcplcpc'f gwknu'j ku'r ctvkekr cvkqp. 'r tkpekr cm{ 'vj tqwi j 'vj g''÷qwwy qtmø'qh'j ku'vtcpurcvkqp. 'kp''vj g'' eqpuvt we vkqp"qh"y g"Gpi rkuj /ncpi wci g"J kpf w"ej ctcevgt."r u{ej g."cpf "y c{"qh"rkhg"\*3; ; 4<35636."82+0"Kpf kxkf wcm{." gcej "qh'vj gug"gxcnvcvkqpu"r cuugu"lwf i o gpv'qp"Lqpguøu"*Ucmvpvcnc* "d{"go r mq{kpi "c"r ctvkewrct"ugv'qh'etkvgtkc0Tgcf" vqi gyj gt "yj g{ "uwi i guv"yj g"o cp{ "y c{u"kp"y j kej "tgxkgy gtu"cpf "etkkeu"ewttgpvn{ "lwfi g"vtcpurcvkqpu"qh"rkvgtct{ " vgzw0

Ugg"cnuq< <u>S WCNKVI "QH"VTCP UNCVKQP</u> 0

## Hwt yj gt 't gcf kpi

 $f \ g'' D g c w i \ t c p f \ g'' 3; 9: \ \exists ' x c p ' f \ g p '' D t q g e m' 3; : 7 \exists ' F \ q w o \ c'' 3; 94 \exists ' J \ c w o '' c p f 'O \ c u q p '' 3; ; 2 d \exists ' J \ g c t p g '' 3; ; 3 \exists 'O \ c k g t '' 3; ; 2 \exists ' J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g ' 3; ; 3 \exists J \ g c t p g '' 3; ; 3 \exists J \ g c t p g '' 3;$ 

ECTQN'O CKGT

## U

# **Uet kr v'kp'tt cpurc vkqp**

Vjg"vqrke"qh"uetkrv"kp"vjg"eqpvgzv"qh"vtcpurcvkqp"nggpn("tckugu"vjg"s wguvkqp"qh"jqy"vq"fghkpg"vjg"pqvkqp"qh"uetkrv" kugrh 'qh'y j cv'o c{ 'r tqr gtn{ 'eqpuvkvwg'y tkwlpi 0Gzr mtkpi 'vj g'eqpegr v'qh'i tco o cvqmi { .'Lces wgu'F gttkf c'' gzr qugu'c'untqpi "Y guvgtp'r tglwf keg'ci ckpuv'uetkr vu'yi cv'ctg'pqv'r j qpgvke''qtô y qtugô pqv'crr j cdgvke.''yi gug'' qhygp"dgkpi "f gpkgf "yj g"uvcwu"qh"y tkkpi "r tqr gt0"J g"f gygevu"y j cv"j g"ecmu"c" r j qpqnqi kuo ø'yj cv"r gtukuygpvn(" wpf gttcvgu'vj g'hqto cn'tguqwtegu'qh'xkukdng'hcpi wci g'\*F gttkf c'3; 98-324="eh0F cxkgu'3; : 9-57+0Cpf "{ gv. 'ukpeg'j ku' eqpegtpu'ctg'o ckpn{ 'r j krquqr j kecn'j g'r tqr qugu'pq'y qtnrcdrg'uej go g'kp'kxu'uvgcf 0'Htqo 'c'r qkpv'qh'xkgy 'vj cv'ku' dqyi 'rkxgtct{"cpf'r tcevkecn"qpg"yi kpi 'ku'egtvckp<"j qy gxgt"tgkhkgf"cpf"uvxdugtxkgpv'vq"ur ggej "c"uetkr√v{r g"o c{"dg" \*O quvgtkc''3;;5+.'kv'o c{'pqpg''vjg''nguu'cnyc{u'hwpevkqp'kp'kxu''qyp'tkijv'cu'c'ukipkhkecpv'hcevqt'kp'c'ikxgp''vgzv.'' cpf "j gpeg"kp" y g'tcpurctkqp"qh"k:0"Vgej plecm{ ."uetkr v"guvcdrkuj gu."kh"pqyj kpi "gnug."c"tgcf kpi "qtf gt"cpf "f ktgetkqp" y j kej ."cu'lp''y g'f khlgtgpv'ecugu'qh'Ej kpgug'\*f qy py ctf u+:"gctn( "I tggml\*cnxgtpcvgn( 'nghv'vq'tki j v'cpf 'tki j v'vq'nghv." qt''dqwwtqrjgfqp+''Ctcdke''\*tkijv''q''rghv+''cpf''Gpinkij''\*rghv''q''tkijv+''oc{''owej''eqornkecvg''yig''vcum'qh'' kpvgtrkpgct"qt"r ctcmgn'vtcpuncvkqp0"kp"kf gqmi kecn'vgto u. "kv"o c{"dg"cevkxgn{"ugv"ci ckpuv"cp{"hqto "qhi'vtcpuetkr vkqp" qt"\tcpurc\lqp."cu"\kp"\yi g"ecug"\qh"\yi g"f kxkpgn("cttcpi gf"ej ctce\vgtu"\qh"\yi g"Mqtcp"\u00e4ugg"\u00aa \u2013 \u00aa \u00aaa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aaa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aaa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aa \u00aaa \u00aa \u00aa

VTCP UNC VKQP +0

Vj g'wug''qh'xkukdng'hopi wci g'o gtgn{ ''vq''eqpxg{ ''ur ggej .''kp''y j cv'Tqo cp''Lonqduqp'\*3; 7; +'j cu''yto gf ''c''eqi pkkxg'' houj kqp. 'ku'qh'eqwtug'o quv'r tqpqwpegf 'kp''crr j cdgvke'u{uvgo u='{gv'kv'ku'r tgugpv'y j gtgxgt''vj gtg''ku'r j qpgvkekuo 0' J gpeg. 'hcegf 'y kj 'cpekgpv'j kgtqi n(rj ke'uetkr wi'nkng''j qug''qh''j g'Gi {r vkcpu''cpf ''qh''y g'Oc{c.'y j kej 'ocng''cp'' wpf gpkcdrg"xkuwcn'uvcvgo gpv'kp"vj gkt"qy p"tki j v."f gekr j gtgtu"j cxg"cko gf "r tko ctkn( "cv"vj gkt"r j qpgvke"grgo gpvu." uggnlpi "vq"etcem"yi gkt "rkpi wkuvke"eqf g"\*Eqg"3; ; 4+"cu"kh"kv"y gtg"c"ecug"qh"ct vkhkekcn"hcpi wci g"wugf "hqt"o krkxct {" kpvgmki gpeg0'Cv'vj g'uco g'vko g."vj g'ej ctcevgtu'qh'cp{"uetkrv'o c{"j cxg'qt'dg'ceeqtfgf"c'pqp/rj qpgvke'xcnvg'qh" yj gkt "qy p."c'hcev'y j kej "f go cpf u'c'f khhgtgpv'qtf gt "qh'f gekr j gtkpi "qt "\tcpurc kqp0'Uvej "ku'yj g'ecug'y kyj "yj g'dt wuj/ untqngf 'lf gqi tco ''qh'c''v{r g''qh'Icr cpgug'r qgo ''npqy p''cu'j cknw. ''qt''vj g''crr j cdgvke ''ngwgt'kpvgi tcvgf ''kpvq''c''eqpetgvg'' r qgo 'd{ 'Kcp'J co knqp'Hkprc{ '\*J gpf gtuqp'3; 7: ='Dcpp'3; 99+0

Vj g'engetguv'epf 'eqo o qpguv'v{r g'qh'xenvg'vj ev'o c{'kpj gtg'kp'e'y tkvgp'ej etcevgt.'tgi etf nguu'qh'ep{'r j qpgvke'' o guuci g. 'ku'xkuvcn'qt'r kevqtkcn'ko cig.''y g'r tqr gt'tgcf kpi ''qh'y j kej ''j cu'r tqxqngf ''kpvgpug'f gdcvg''co qpi '' vtcpurcvqtu'qh'Ej kpgug'kf gqi tco u0Dgukf gu'dgkpi 'ko ci g.'c'ej ctcevgt'o c{"cnq'dg'c'ekrj gt'cpf'j cxg'pwo gtkecn' xcnwg. "rkng" y g"u{ mcdrgu"qh" J gdtgy "qt" y g"crr j cdgwle" rgwgtu"qh" I tggnOCpf "hkpcm(."c"ej ctcevgt" o c{" eqpxgpvkqpcm("eqpxg{"c"eqpegr v'vj tqwi j "cp"cwtkdwgf "pco g.'fkmg"vj qug"qh'vj g"I gto cpke"twpgu0Kp"qtf gt"vq" gzr mtg'y j cvku'cv'uvcng'j gtg'hqt''y g''tcpurcvqt.''y g''o c{ 'lp''y g'hktuv'kpuvcpeg''dguv'tghgt''vq''uetkr wi'htqo ''y g''Qrf'' Y qtrf. "ukpeg' 'vq' f cvg' 'yj gug' j cxg' dggp' hct' o qtg' 'yj qtqwi j n( "cpcn( ugf "cpf "kpvgttgncvgf 'yj cp' j cxg' yj qug' qh' yj g' P gy " \*Fktkpi gt'3; 8: = I grd'3; 96+0

## Qrf 'Y qt rf 'bet kr vık'ko ci g. 'ekr j gt 'cpf 'pco g

### Ej ctcevgt 'cu'ho ci g<'ij g'r hevgt hcnlyrgo gpv

Cu'I ctf kpgtøu'I tco o ct "eqphkto u. "Gi {r vkcp"j kgtqi n{r j u. "dgkpi "r j qpgvke." ecp"i gpgtcm{ "dg" vtcpuetkdgf "kpvq" y g" crr j cdgv'cpf '\tcpurcvgf 'y kij qw'r ctv\ewrct 'nquu0J qy gxgt. 'gctn\ 'j kgtcv\e''

wzwi'wgf "d{"rtkgwwi'kp"cpekgpv'Gi {rv.'hqt"gzcorng"\j g"o wtcm'\kp"\j g"Vj gdcp"\qo du."f grkdgtcvgn{"dtkpi "qw'\j gkt" rkeytkcn'qtki kp"cpf"s wcrkv{"cu''y cvgt."dkf."j wo cp"hceg"qt"hkij.."\q"\j g"f gi tgg"qh'ugwkpi "wr "cp"cngtpcvkxg"xknwcn'' tgcf kpi "\lambda ctkf kpgt"\lambda; 95+0Hktvj gt."egtvckp"qh'\j g"j kgtqi n{rj u'kp"cp{"ecug"rtko ctkn{"ugtxg"cu''r kewtgu'ukpeg." yj qwi j "hqto cmf" kpf knkpi wkuj cdng"hqo "\j g"tguv."\j g{"ctg"pqv'rj qpgyke"cv'cm0Vj gug"ctg"\j g"i gpgt ke" f gyto kpcvkxgu'\j cv\kpf kecvg"cp"ctgc"qh'o gcpkpi ."hqt"gzcorng."ecpcnu"qh'kttki cvgf "rcpf."o qwpvkpu"qh'hqtgki p" eqwpt{."\j g"uwp."\j g"uckhpi "dqcv'qh'\j g"i qf u'cpf "mpi u."c"ewr."\j g"tckugf "cto u'qh'j gki j v"\j g"i pcy kpi "qh'c" qqy ."qt"\j g"ci g"qh'cp"qnf "o cp"ngcpkpi "qp"j ku'urken0\kp"\j g"Dqqm'qh'\j g"F gcf."\j g"r kevqtkcn'o guuci g"ku'urtqpi n{"tgkphqtegf"\j tqwi j "\j g"xkuwcn'gej qkpi "qh'\j gug"f gyto kpcvkxgu'\lp"hki wtgu'cpf "qy gt "gngo gpwi'hgcwtgf "\p"\j g" xki pgwgu"qt"uegpgu"\j cv'\pvtqf weg"ej cr vgtu0\Qxgtcm"\j gug"ko ci gu"xkxkf n{"eqpxg{"\j g"nqi ke"cpf"dgrkghu'cunwo gf" kp"cp"qy gty kug"\hqt"\underwhty ky j"\j g"y qtnf "qh'\j g"f gcf 0\kp"j ku"gf kkqp"qh'\j ku'y qtm'htqo "\j g" Rcr {twu"qh'Cpk"Y cnku''Dwf i g"\sqs 3; 89+"qhhgtu''dqy "\eqp"pythygtn\pgct"\underchapket "\underchapket "\under

Cwij qtkkkgu'qp'Ej kpgug'uetkr v'kphqto 'wu'yj cv'y j gp'kku'ej ctcevgtu'ctg'tgcf 'tcrkfn{'yj g{'hwpevkqp'cu'mqi qi tcrj u.'' o gtg'uki pu'hqt'y qtf u'cpf "pq"o qtg'\*P ggf j co "3; 7: ="Eqqr gt"3; 9: +0J qy gxgt."y kyj "'y g'r qpf gtgf 'tgcf kpi " tgs wktgf "d{"r qgvt{"kp"cp{"rcpi wci g."'yj g"o cng/wr "qh"ej ctcevgtu"o c{"cuuwo g"uqo g"ko r qtvcpeg."uq"yj cv"kp"c" uvcp| c"cdqw'o qwpvckpu"c"y j qrg"ugtkgu"qh"ej ctcevgtu"o c{ "qeewt"kp"y j kej "y g"o qwpvckp"grgo gpv"ku"r tgugpv" \*Vggrg'3; 6; +0'Vj g'f kukpekqp.'kp'qyj gt'y qtf u.'j cu'ci ckp'\q'f q'pqv'y kj '\j g'r wc\kxg'pcwtg'qh'\j g'ej ctcevgtu'dw' y ky "vj gkt "cewcn'hwpevkqpu'kp"f khhgtgpv'mkpf u"qh'vgzw'cpf "tgcf kpi u."vj qwi j "r tqhguukqpcn'Ukpqmi kuw'eqpvkpwg'vq" kpukuv'yi cv'yi g''ej ctcevgtu''ctg''guugpvkcm{ 'pqp/r qgvke''kp''yi g''xkuwcn'ugpug0'Y kyi ''cuvqwpf kpi ''kpuki j v.'G| tc''Rqwpf'' ftgy "qp" yi g"xkuwcn" cpf "rctcvcevke" hwpevkqpu" qh" Ejkpgug" uetkrv" kp" jku" gfkkkqp" qh" Hgpgmqucøu "guuc {":-Vjg" Ejkpgug" y tkwgp"ej ctcevgt"cu"c"o gf kwo "hqt"r qgvt { $\phi$ '\*3; 58+"cpf "kp"j ku"vtcpurcvkqpu"qh"r qgvt { $\phi$ '\*2; 37+"cpf "qh" y tkkpi u'd{ 'Eqphwekwu0C v'cm'gxgpvu.''y g'ghhgev'qh'vj g'Ej kpgug'gzco r ng'qp'Rqwpføu'qy p'r qgvt{ 'ku'kpfkur wcdng<' kpf ggf ."j ku'ko ci kuv'vgej pks wgu'tcf kecm{ "vtcpuhqto gf "r qgvt { 'kp'Gpi nkuj "cpf 'ugxgtcn'qvj gt'y guvgtp'ncpi wci gu" \*[ kr '3; 8; ="Mgppgt '3; 92="I gqti g"Uvgkpgt '3; 97-57: ="Rq/Hgk'J wcpi '3; : ; +0Ej kpgug"uetkr v'nkmgy kug'r tqo r vgf 'vj g" xkuwcn'dtkmkcpeg"qh" Ecmki tco o gu. 'vj g'y qtm'qh" Rqwpf øu "Htgpej "eqpvgo r qtct { "I wkmcwo g'Cr qmkpcktg0Cu" cf cr vgf 'vq'y g'vcpnc'cpf 'qvj gt'j ki j n{ 'uxtwewtgf 'xgtug'hqto u'lp'Icr cpgug. 'vj g'uj ggt'nc {qw'qh'vj gug'ej ctcevgtu'' cpf ''y g'hpmı'dgwy ggp''y go 'hwtyi gt''nc{ ''dgj kpf ''y g''gzr gtko gpv'*Tgpi c <'c 'Ej ckp''qllRqgo u*''\*3; 8; +''y cv''  $eqqtf|\label{eq:cup-problem} eqqtf|\label{eq:cup-problem} eqqtf|\label{e$ vtcpurcvqtu'Qevcxkq'Rc|.'Lces wgu'Tqwdcwf.'Gf qctf q''Ucpi wkpgwk'cpf 'Ej ctrgu'Vqo rkpuqp'\*Vqo rkpuqp'3; 9; +0' Tgekrtqecm{."\tcpurc\kqpu'qh'Y guvgtp'xgtug'kpvq'Icrcpgug'\uetkrv'jcxg'rw'rctvkewrct'gorjcuku'qp'\ugv'uvtwewxtgu" qh'u{mcdke'ej ctcevgtu'\*Pckxq'3;;5+0

### Ej ctcevgt 'cu'ekrj gt<j kffgp 'b gcpkpi u

C'xkıwcıl'grgo gpv'cınq'lpj gtgu'lp''j g'gctı( 'uvci gu'qh''y g''Ugo kke'uetkr v'tcf kkqp''y j kej "gxgpwcm( 'kuwgf 'kpvq''y g'' cri j cdgw'qh''Gwtqr g<'y kpguu''y g''I tggm'c*rr j c*''cpf "dgw''y j kej .''wtpgf ''y tqwi j ''pkpgv( 'f gi tggu.''ctg'ukm'hgi kdrg'' cu''y g''qz''j gcf "crgr j ''cpf ''y g''qy p''dgy 0'[ gv.''y kij ''y g'hkzkpi ''qh'c'hkpkg''cpf ''uo cm'pwo dgt ''qh''u\{mcdke''uki pu'' \*eqpvtcuv'y g''436'tcf kecni'qh''y g'Ej kpgug''f kevkqpct { "V/øw'J ck+'pwo gtce { "j cu''y cf ''i tgcvgt''ko r qtvcpeg.''vq''y g'' gzvgpv''y cv'J gdtgy ''cpf ''I tggm'hgwgtu''cwqo cvkecm( 'f gpqvg''y g''ectf kpcn'pwo dgt ''qh''y gkt 'r qukkqp''kp''y g''qxgtcm'' ugtkgu0'Kp''J gdtgy .''y g''r j {ukecn'crki po gpv'qh''y g''44''ej ctcevgtu''qp''y g''r ci g''kp''tqy u''cpf ''us wctgu.''cpf ''y gkt'' gs wcvkqp''y ky ''pwo dgtu''y tqwi j ''y g''Crdco ''cpf ''Cvdcuj ''hqto wrcg.''y gtg''crngp''vq''i tgcv'hgpi y u''kp''y g''ksgtcwtg''qh'' y g''Mcddcrc.''cu'r ctv'qh'c'r j krquqr j { ''y cv'uqwi j v'vq''eqpvckp''y g''wpkxgtug''kp''c''vgzv0'Mcddcrkuvke''o guuci gu''ecp''dg'' f gekr j gtgf ''kp''y g''Qrf ''Vguvco gpv'cpf ''gxgp''kp''y g''P gy .''hqt ''gzco r ng''kp''xgtugu''kp''y g''Dqqm'qh''Lgtgo kcj '\*\*4748=" 733+''cpf ''Tgxgrcvkqp'\*\*353: +='y g''ktuv'qh''y gug''ur gekhkecm( ''kpxqngu''Dcdgn'qt''Dcd{mp.''y cv'

uqwteg"qh'uetkr v'cpf "o cyj go cvkeu"cnkng" Eqqnicpf "I kpudwti "3; 33+0Cnyj qwi j "Dkdng" tcpuncvkqpu"kpvq" Gwtqr gcp" ncpi wci gu'yj cv'wug'yj g"Ncvkp"cn j cdgv'qh'Y guvgtp" Ej tkuvgpf qo "v{r kecm{ 'hckn'vq"o cng"gzr nkek'yj ku"ekr j gtgf "xcnwg"qh'yj g"J gdtgy "vgzv."kv"j cu'hqwpf "nkvgtct { "gej qgu0Eqpukf gt."hqt"kpuvcpeg."yj g"eqpegr v'qh'yj g" Vgvtci tco o cvqp."y j kej "nkvgtcm{ "o gcpu" hqwt "ngwgtuø"cpf "tghgtu"vq"yj g"J gdtgy "pco g"qh'I qf."c"pco g"eqpuknvkpi "qh'yj g"hqwt"eqpuqpcpvu" [."J."X"cpf "J"cpf "eqpukf gtgf "vqq"ucetgf "vq"dg"r tqpqwpegf "vugg" VQTCJ "

VTCP UNC VKQP +0Vj g"Vgvtci tco o cvqp"cpf "qvj gt"ng{ "Mcddcnkuvke"eqpegr vu"ctg"hqt"gzco r ng"vtcpuncvgf "kpvq" o qf gtp"r nqvu"kp"yj g"Hkeekqpgu"qh'yj g"Ncvkp"Co gtkecp"y tkvgt" Iqti g"Nvkvu"Dqti gu"\*3; 66="3; 98+0

### Ej ctcevgt 'cu'pco g<'y g'lightt gligt gp vlic n'grgo gp v

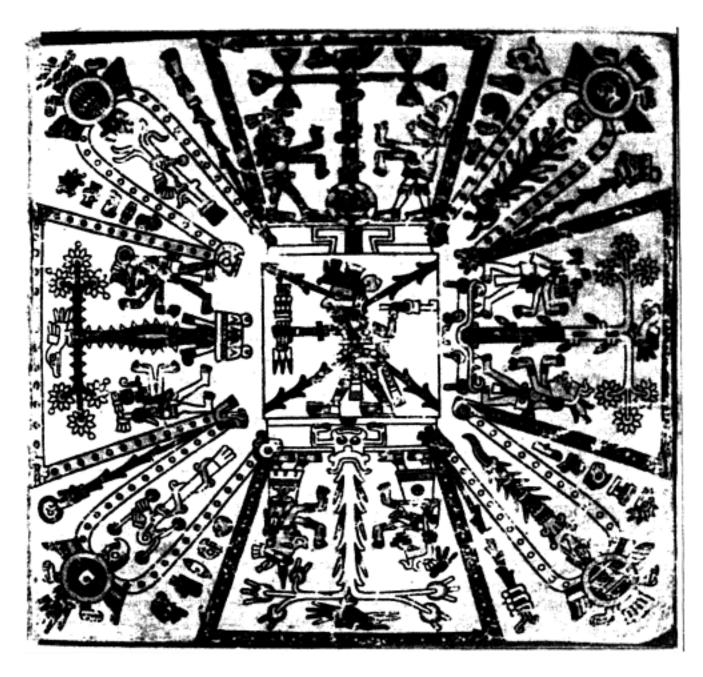
Dg{qpf "eqpxg{kpi "cp"ko ci g"qt"c"ekr j gt. "vj g"ej ctcevgtu"qh"c"uetkr v'o c{"uki pkh{" vj tqwi j "vj g"pco g"d{" vj g{" ctg"npqy p"cpf "tgeqi pk gf 0C"emuke "ecug"j gtg"ctg"vj g"twpgu"qh"pqtvj gtp"Gwtqr g"y j qug"qtki kp"tgo ckpu"kp" f kur wwg"dw"y j kej ."kp"Cpi mp/Uczqp"cpf "qvj gt"I gto cpke "rkxgtcwtgu. "ctg"r gtegkxgf "vq"tgr tgugpv"cp"cpekgpv"r ci cp" hqteg0™pqy p"cu"vj g"Hwj qte"kp"Cpi mp/Uczqp. "chvgt "kuu"hktuv"ukz "ngwgtu. "vj g"ugv"kwugh"ku"vj g"uwdlgev"qh"c"o clqt" vgzv"kp"vj cv"repi wci g"\*:Vj g"Twpke"Rqgo ø="vj ku"f tcy u"qp"vj g"o gcpkpi "qh"gcej "ngwgtøu"pco g. "qdnki kpi "vj g" vtcpurcvqt "dqvj "vq"tgvckp"vj g"qtki kpcn"pco g"cpf "vq"uwr r n{"c"vtcpurcvkqp<"Hgqj "\*:y gcnj ø+"ku"c"eqo hqtv"vq"gxgt {" o cp."cpf "uq"qp"\*Cpf gtuqp"3; 6; 3: 264="Uj kr r g{"3; 94378+0
Twpgu"cnq"r re{"cp"kpvtkecvg"tqng"kp"vj g"Cpi mp/Uczqp"tkf f rgu"kp"vj g"Gzgvgt"Dqqm0OQpg"\*pq03; +"kpugtwu"hqwt"pqwp"

Twpgu'cnq'r rc { "cp'kpvtkecvg'tqrg'kp'\y g'Cpi rq/Uczqp'tkf f rgu'kp'\y g'Gzgvgt'Dqqn0Qpg'\pq03; +'kpugt wi'hqwt'pqwp'' enwgu'\y tkwgp''dcemy ctf u'kp''twpgu'\y qtug.'o cp.'y cttkqt.'j cy m="cpq\y gt'\pq064+'kpvgi tcvgu'ugco rguun\{ "\y g'pco gu'' qh'twpgu'kpvq'\y g'\yzv'uq'\y cv'\y gekr j gtkpi 'kk'kpvqnxgu'\kf gpvkh\{ kpi "cpf "\tcpuetkdkpi "\y g'twpgu'\kp''s wguvkqp"cpf " cttcpi kpi "\y go "uq'\y cv'\y g\{ "ur gm'qw'\y g''cpuy gt''\q'\y g''tkf f rg'\rangle Tqf tki wgu'3; : 7+0C''hkpg'r kgeg'qh'r qgvt \{ '\kp''kw'' qy p''tki j v'\y ku''rcwgt'r kgeg''tghrgzkxgn\{ "f tcy u''cwgpvkqp''\q'\y g'\wr tki j v'\nqto "cpf "r qgvke'r qy gt''qh'\y g''twpg''uvcxgu." qt''ej ctcevgtu.'y j kej "tgukuv'gcu\{ "f gekr j gto gpv0Co qpi "\tcpurcvqtu'\qh'\yzvu'\kp'\y ku'\tcf kkqp.'O kej cgn'Crgzcpf gt" \rangle 3; 88+"cp''cf o ktgt''qh''Rqwpf .'ku''qpg''qh'\y g''hgy '\q''uvtkxg'\q''eqpxg\{ "\y gkt''hkgtct\{ 'kpi gpwk\} 0

### Pgy 'Y qt if 'bet kr vu

Kp"f knewnukpi "tcpurckqp"y ky "tgi ctf "\q"P gy "tcy gt"y cp"Qrf "Y qtrf "hetkr vu." y g"r tko g"f khhkewn { 'kn"y cv'hq"hgy " qh'y gug'uetkr wi'j cxg'dggp'cf gs wcvgn( 'kf gpvkhkgf ''qt'f guetkdgf '\*Dtqy gtuvqp'3; ; 4="I gnd'3; 96 f go gcpkpi "xkgy "j grf "d{"o cp{"uej qrctu+0C"eqpxgpkgpv'uvctvkpi "r qkpv'ku'r tqxkf gf "d{"yj g'j kgtqi n(r j ke 'uetkr v'qh' \*Uej grg'cpf 'O kngt'3; : 8="Eqg'3; ; 4+0"Hqt" yj ku'xgt { "tgcuqp" kv'j cu'dgeqo g"uwuegr vkdng" \q'vj g'uqtv'qh'qdugtxcvkqp" o cf g"cdqxg"cdqwd"Gi {r vkcp"cpf "Ej kpgug"uetkr v0"Kp"qyj gt"y qtf u. "cnyj qwi j "o quv"qh"yj gug"i n{r j u'wpf qwd vgf n{" tgi kuvgt"yi g"uqwpf u"qh"O c{c"ur ggej ."kp"yi g"ugs wgpeg"eqpuqpcp√xqy gn"r nwu"eqpuqpcpv"∜xqy gn+."qyi gtu"f q"pqv0" Vj g'howgt "pqvcdn( "kpenwf g'ecngpf tkecn'uki pu'cpf "vj g" ÷go dngo ø'i n(rj u'crrgpf gf "vq"vj g'rtqrgt "pco gu'qh'rgqrng" cpf 'r rcegu. 'y j kej 'o c{ 'uqqpgt 'dg'tgcf 'cu'ko ci gu0O qtgqxgt. 'y j g'xkuwcn'r qvgpvkcn'qh'y gug'pqpr j qpgvke 'grgo gpvu'' ku'qhıgp'tgkphqtegf 'd{''y g'tgi wrct'i tkf'r cwgtp''v{r kecn'qh''y g'j kgtqi n{r j ke''\gzv'cu'c''y j qng. "cpf''d{''ceeqo r cp{kpi " kmwwtcvkqpu'rkng''y qug'kp''y g''tkrqi { ''qh'r cpgnu'kpuetkdgf 'kp''y g''rcvg''ugxgpyj ''egpwt{ ''CF 'kp''j qpqwt''qh''Rcecn'' twrgt "qh" y g"ekx{ "qh" Rcrgps wg. "pgct "O gzkeqøu" dqtf gt" y kyj "I wcvgo crc0" Xkuwcn'r qvgpvkcn'ku "cnuq" dtqwi j v'qwv'd { " xctkcpv'j kgtqi n(rj ke'hqto u'y j kej 'rqtvtc{'j wo cp''cpf ''cpko cn'hki wtgu0'Vj g''o clqt''gzco rng''qh''vj ku''ncuv'' eqpxgpvkqp. 'y g'vgzv'kpuetkdgf 'qp''Uvgrc'F'cv'Eqrcp'kp'J qpf wtcu'\* Hki wtg'7 + 'uj qy u'y g'vko g'r gtkqf u'qh'y g' ecropf ct "cu'rkxkpi "etgcwtgu'rkxgtcm ("dqtpg"qt"ecttkgf "d { "qyj gt"etgcwtgu"y j q'hwpevkqp"cu"yj gkt "pwo gtkecn'eq/ ghhlekgpvu<"hqt"gzco r ng":5"{ gctuø'gzrtguugf "cu":5ø'ecttkgu''yj g'r gtkqf "{ gct0'Y j gp. "chvgt''yj g'Gwtqrgcp'kpxcukqp." yj g'j kgtqi n(rj ke'\gzvu'dgi cp'\q'dg'\tcpuetkdgf 'kpvq''crrj cdgvke'Oc{c.'kp'\yj g'Ej krco ''Dcrco ''dqqmu''qh'[ wecvcp'' cpf "qyj gt" \gz vu. "uwej "hgcwtgu" qh" O c { c"r j kmquqr j { "y gtg" qhvgp" j ki j nki j vgf "d { "y g'tgvgpvkqp" qh" egtvckp" ecrep f ct" in (rju0"Vjg"in (rjke 'uvcvgogpv'qh'vkog'cu'c'nqcf"jcu'kp'vvvtp'kphqtogf"Cogtkecp'yqtmu'cu'fkxgtug'cu'*Nqu'rcuqu''* rgtfkfqu'd{"yjg"

Hki wtg'7<"J kgtqi n(rj ke'hqto u'qh'j wo cpu'cpf 'cpko cnu'qp''Uvgnc'F 'cv'Eqrcp.'J qpf wtcu



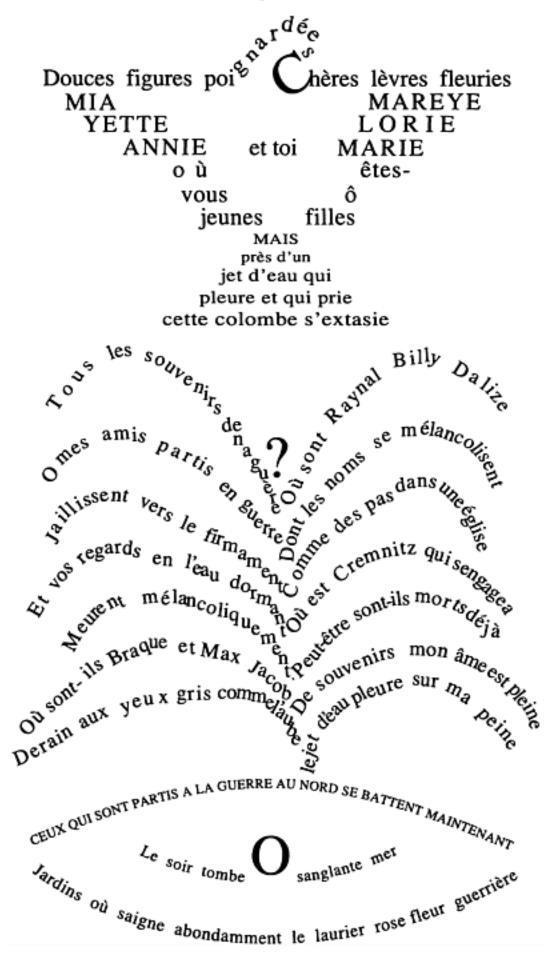
uvcvgo gpv'\*Dtqvj gtuvqp'3; ; 4/26; +0'Vj ku'uetkr v'ugtxgf "j kuvqtkecm( "cu'c'r cnko r uguv'qt'r tkqt'hqto wrcvkqp'hqt" o cp{"\gz wi'y tkwgp"uwdugs wgp vn{"kp" yi g"crr j cdgv"d{"P cj wcvn"cwyi qtu."pqvcdn("kp" yi g"i gptgu"qh" yi g"cppcnu"cpf "qh" yj g"tkwcn'dqqmu0Kp"yj g"cppcnu.'yj g"uetkr v'eqphkto u"vko g"f gr yj "yj tqwi j "go dgf f gf "pwo gtce{" "hqt"gzco r ng. "c" mpqv'hqt''y g'':v{kpi ø'qh''y g'74/{gct'e{erg+0Kp''tkwcn'dqqmu.'fc| nkpi 'ko ci gu''qh'':hrqy gt/uqpi ø'wpf gtrkg''y g'' Vy gpv{ "Ucetgf "J {o pu'cpf "vj g"r qgo u'eqmgevgf "kp"vj g" Ecpvct gu'o gzkecpqu"o cpwwetkr v. "c"o clqt "uqwteg"kp" wtp"  $\verb| hqt'o qf gtp'O gzkecp'cpf'| Egpvtcn'Co gtkecp'y tkvgtuO'kp''r tgugpvkpi''y g''Tckp''i qf''' \textit{Vrc nqe''} cu''y g'''-Lci wct/line for the property of the$ Upcngø'\*qegnq/eqcv/lkp'Pcj wcvn+."qpg'qh'yj g'Ucetgf 'J {o pu'i kxgu'yj g'ng{'vq'yj g'kpi gpkqwu'eqpuvtwevkqp'qh'j ku' r gtuqpc'kp''*nc enkrynk* ''y cv'ku''y g'tckp''y cv'tguwnu'htqo ''y g'lci wctøu''y wpf gttqct''cpf ''upcng/nkng''nki j vpkpi <'y g'' eqpurt we vkqp'ku'cnuq'ctkij o gvkecn'ukpeg. 'kp''vj g'ugv'qh''Vy gpv{ ''Uki pu'hwpf co gpvcn'vq'O guqco gtkecp'tkwcn'cpf'' ecropf theu." Vnc nqe@u"o cum'qh'tchp"ku"Uki p"3; ." vj g"uwo "qh'I.ci wct"cpf "Upcng." Uki pu"36"cpf "7"tgur gevkx.gn(0 Dg{qpf 'O guqco gtkec.''y g'P gy 'Y qtrf 'pwtwtgf 'qy gt 'gzco r rgu'qh'y tkkpi .'hqt 'y g'o quv'r ctv's wkg'' wpf gt yj gqt kl gf 'kp''Y guvgtp'uej qrct uj kr 0'Vj gug'kpenwf g''yj g'r kevqi tcr j u'hqwpf ''qp''Cni qps wkp''dktej dctm'uetqmu'' htqo "yj g"I tgcv"Ncngu"tgi kqp"\*F gy f pg{ "3; 97="Tqyj gpdgti "3; : 8∢9267+"co qpi uv"c"tcpi g"qh"vgzw"yj cv"kpenwf gu" vtgev{ 'uki pewtgu' vj ev'etg' epko en' vqvgo u' \*ep' en qps wkp' y qtf +0 e' vco r rg' ku' vtepuetkdgf 'kp' qpg' qh' vj g' hkpgt" r cuuci gu'qh'*J kcy cvj c'\*3: 77=*Ecpvq'36+<"J OY O'Nqpi hgmqy øu'vgvtco gvgtu'uweeggf 'kp'o cmkpi 'r qgvt { ''qww'qh'vj gug'' Cni qps wkp"ej ctcevgtu"d{ "tgeqtf kpi "vj g"f gvckn'qh'vj gkt "qwvrkpg."cu"ci gpvu"qh'i gpguku'\*÷cu"cp"gi i ."y kj "r qkpvu" rtqlgevkpi 1"Vq"yj g"hqwt"y kpf u"qh"yj g"j gcxgpuø+"qt"cu"cpeguvtcn"vqvgo u"\*:Hki wtgu"qh"yj g"Dgct"cpf "Tgkpf ggt.1"Qh" yj g"Vwt.vrg. "Etcpg."cpf "Dgcxgtø+0'Hkpcm{. "vq" yj g"uqwj "yj gtg"ku" yj g"j ki j n{ "uqr j kunkecvgf" mpqvvgf "uvt.kpi "uet.kr v"qh" yj g'Cpf gu'mpqy p'cu'yj g''s whr w. "qh'y j kej 'c'uej qnct 't gegpvn{ 'uckf < +Y ky 'r kgegu'qh'uvtkpi . 'yj g'Kpec'f gxgnqr gf 'c' hqto "qh"tgeqtfkpi "vj cv"hqtegu"c"tgeqpukfgtckqp"qh"y tkkkpi "cu"y g"i gpgtcm{ "wpfgtuvcpf" vj cv"vgto ø" Cuej gt"cpf" Cuej gt '3; : 3 < 7: +0 Ukm' wpf gekr j gt gf 'dg { qpf 'egt wkp' ct k j o gwech'uw yo gpw. 'y j g''s wkr w' ku'gzr nkekn { 'pco gf 'cu'' yj g'uqwteg"qh'ugxgtcn'vgzwi'kp"yj g'Kpec'hcpi wci g'S wgej wc."co qpi "yj go "c'j {o p'vq'Xktceqej c'cpf "r cuuci gu'qh'cp" grcdqtcvg''ej tqpkerg''eqo r qugf ''d{ ''I wco cp''Rqo c''\*3835+0Kp''yj g'S wgej wc''r rc{ ''Crw'Qncpw{.''yj ku''r ctvkewrct'' hqto "qh'hkgtce{"ku'tghrgzkxgn{"eqo o gpvgf "wr qp"cv'vy q"o qo gpwi'y j gp"s wkr wu'ctg"kpvtqf wegf "kpvq"vj g"cevkqp"d{" dgctgtu'qh'o guuci gu<br/>lp''y g'ugeqpf ''y g'npqui'ctg'wptcxgngf 'lp''c'nkgtcn'f gpqwgo gpv'\*Dtqy gtuqp'3; ; 4<42: ó; +0'  $Qxgtcm''y gug'Co \ gtkecp''uetkr \ w''o \ cmg''c''uxtqpi \ ''eqmgevkxg''ko \ r \ cev'kp'' \ J \ qo \ gpclg''c \ ''qu''kpf \ kqu''co \ gtkecpqu''*3; \ 8; + ''$ d{ 'Gtpguvq'Ectf gpcn'\*c'P kectci wcp'y j q'cnuq'ngctpgf 'o wej 'htqo 'Rqwpf +.''y g'j qo ci g'dgkpi 'c'ugv'qh'r qgo u' y j kej "tgur qpf "kp"f gvckn"vq. "cpf "gxgp" vtcpuetkdg. "vj g"r ct vkewrct "hqto u"cpf "s wcnkkgu "qh" vj gug "uetkr vu" Ectf gpcn" 3;;4+0

### Eqpet gvg'r qgvt { 'cpf 'ku'cpvgegf gpw

Iξ "iy g"Y guygtp" tecf klqp. "I whrewo g'Cr qrhycktgou" Ecnhi tco o gu'\*3; 3: "cpf "iy g'O gzkecp" Iqu'" Iwep" Vedref cou" 
\[
\text{NKRq}" 3; 42 = Re| "3; 88-666."66; 676+"o ctm'e "wtpkpi "r qkpv'kp" uq" tet" cu'iy g "utkxg" 'q" tgeqxgt" kp" cri j cdgyke "utkt v' kught'cp" ko ci g/xcmwg'o qtg" tgcf kn "exchedig" kp" pqp/cri j cdgyke "u (ungo uOV) tqwi j "uj ggt "re (qw'cpf "f grin {0 gpv' qh'i gwgtu'iy gug'r qgo u'tcpurcy" iy g"ghtgev'qh'iy g"r ckpyf" ej cteeytu" qh'Ej kpgug" cpf "Icr cpgug" r qgu {0 kp" Cr qm'pcktgou" ± Nc "eqnqo dg" r qki pctf 2 g"gv'ng" Igv'f \( \text{ogcwo} \) "Hi wg'8+" iy g"E" qh'Ej \( \frac{3}{2} tgu'\) nqto u'iy g''y tqcv'qh'y g"dktf" uggp" \( \text{lp y brekpi "r tqhkrg-lp" iy kl" eqpvg. v'q" tgpf gt" \( \frac{1}{2} tgu'\) cu'F gct. "cu" qpg" r wdrkuj gf "Gpi rkuj "tcpurckqp" f qgu. "uy gmu" iy g"iy tqcv'kpvq" c"i qktg" cpf "j gpeg" f ghgcu" iy g"r tko g"xkuxcn'o guuci g"qh'iy g" gzv\" 1 tggy'3; 92+0 Hqt" iy gkt" r ctv. "y g"hxg" hpgu" qh'iy g" r qgo "-Kili rgww\] "Ili wg'9+" tgef "f qp py ctf u. "hkng" qtkgpvcn'ej ctceytu "cu'iy tgef u"qh" hcm'pi "tclpOlip" iy kl" ecug'iy g"Gpi rkuj "tcpurckqp" o wn'utwi i rg'y ky "c" t tgeyt" r tqdrgo ."qh'j qy "q" eqpxg{"iy g" mxkl" flemiqh'iy g"Htgpej ."j gtg"go r j cukl gf "iy tqwi j "iy g'xgt kecn'crk po gpv\\*-knlr rgw\f gu'xqkz" f g''ngo o gu't \( \phi = \frac{1}{2} \text{ log} \) "y g" while "g'y ty cy'ceewo wreg" wpxqkegf "eqpuqpepu" cpf "i mwcn'urqr u'\\*-Kou'tclpkpi "y qo gpou'xqkegu'i \( \phi \text{ log} \text{ log} \)" y g" y cy'ceewo wreg" wpxqkegf "eqpuqpepu" cpf "i mwcn'urqr u'\\*-Kou'tclpkpi "y qo gpou'xqkegu'i \( \phi \text{ log} \text{ log "y qwf" r j {ukecm("f knqtv'y g" gxgp" lon'qh'y g" tcp'y tgef u."i kxgp"y cv'E {tkrhe"ej ctceytu'ctg'r guu'eqpuvcpv'kp'dtgef y 0 \)

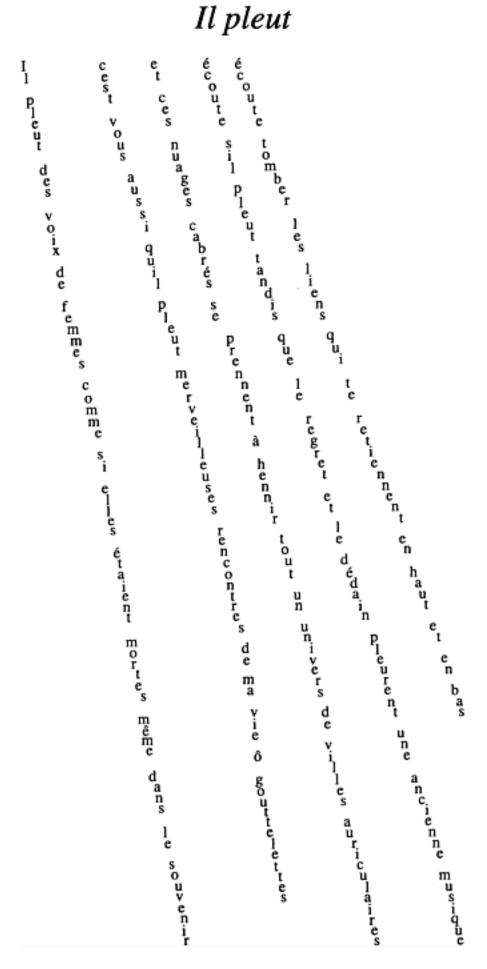
Htqo "Ecnhi tco o gu'cpf "y g"kpytxgpkpi "gzr gtko gpvcn'r recetf u'qh'y g" Uqxkgv'r qgv'Xref ko kt'O c {cmqxun(.'kv'ku' dw'c'uygr "vq'y g" "}" y "" to "y g" to "y "y g" to "y "y g" t

# La colombe poignardée et le jet d'eau



Hki wtg'8<":Nc"eqnqo dg'r qki pctf2g"gv"rg"lgv"f øgcwø

# Il pleut



Hki wtg′9<":Kair ngwø

v{r g'qh'eqpetgvg'r qgvt { ''y gqtl\ gf ''cpf ''r tcevkugf 'l\p''y g'3; 72u''d { ''Gwi gp'I qo tkpi gt''\c''Uy kuu/Rgtwxkcp+'l\p'' I gto cp''cpf ''Cwi wuvq'f g'Eco r qu''cpf ''qvj gt'o go dgtu''qh''y g'Dtc| krlcp''Pqki cpf tgu''i tqwr ''l\p''Rqtwi wgug. ''cpf '' revgt''d { ''Gf y kp'O qti cp''cpf ''Kcp''J co krwqp''Hl\pre{'\p''Cpi rkuj ''\p'Eco r qu''gv'cn'\3; 84=''Etgur q''cpf ''Dgf cvg''3; 85='' Dcpp''3; 99+0'Kp''Hl\pre{\pout{v}'' qgo ''\p'Vgrgi tco u''htqo ''o { ''y kpf qy  $\emptyset$ ''3; 87+. ''tqy u''qh''wpur cegf ''y qtf u\0 tgf''dqcv''  $dgf''dqcv\0 hqto ''uqrkf''dcpmu''dgy ggp''y j kej ''qvj gt''y qtf u''htgg/hrqcv'cu''kh''kp''c''uvtgco ''qh''eqpuekqwupguu\0 <math>ftgco''$   $uqwej'''ecvej'''uvrgr''''huj'''''wy keg+''fq''''yj tkeg+0'Vj cv'ku.''d { ''y g''uj ggt''cttcpi go gpv'qh''uetkr v'qp''yj g''r ci g.'' y ku''r kgeg''\tcpuegpf u''yj g''tki kf ''f go cpf u''qh''pqto cn'u{pvcz. ''cmkpi ''cf xcpvci g''qh'Gpi rkuj ''y qtf u''yj cv'ctg''kf gpvkecn' cu''pqwpu''cpf ''xgtdu''\f <math>tgco'''$ qwej . ''gve0+0'Hqt''yj cv'tgcuqp. ''yj g''r qgo ''f ghkgu''\tcpurcvkqp''kpvq''c''Tqo cpeg''rcpi wci g'' rkng''Ur cpkuj ''qt''Htgpej . ''yj gtg''pqwpu''cpf ''xgtdu''ctg''hqto cm( ''pqv'kf gpvkecn')

Vj g'xkıwcı'ghhgewi'qp''y g''r ci g'etgcvgf ''d{ "Cr qmkpcktg''cpf ''y g'Eqpetgvg''r qgwi'cr r gct''vq''dg''tghrgevgf ''kp''y g''y qtm'' qh''cp''ko r qtvcpv'Co gtkecp''uej qqn'qh''cpyi tqr qmi km'\tcpurcvqtu'kf gpvkhlgf 'y ky ''F gm'J {o gu''cpf ''y qug''y j q''ugv'' wr ''y g''tgxkgy ''Crej gt kpi c''kp''3; 92. ''pco gn{.'IIgtqo g'Tqyi gpdgti .'F gppkn''Vgf mem'P cyi cpkgn''Vctp''cpf ''qyi gtu'' \*Tqyi gpdgti ''3; : 7. ''3; : 8='Vgf mem'3; : ; +0'Eqpegpvtcvkpi ''qp''pcvkxg'Co gtkecp''uqwtegu.''yi gug''tcpurcvqtu'hktuv'qh'' cm'j cxg''gzegngf ''cv'tguewkpi ''xgtug''htqo ''yi g''co qtr j qwu''r tqug''qh'gzknvkpi ''tcpuetkr vkqpu''d{ ''yi g''uko r ng''dw'' f gekukxg''wug''qh''nkpg'\*\*Uy cpp''3; ; 4+0'Vj gp''yi g{ ''j cxg''i qpg''qp''q''o cng''kpi gpkqwu''wug''qh''v{ r qi tcr j { ''cpf ''nc{qw''qp'' y g''r ci g.''cr r gcnkpi ''vq''I guvcnv''cpf ''xknwcm( ''r cwgtpgf ''vgzv0P qpg''yi g''nguu.''yi gkt''r tko g''mq{cnv{''j cu''cny c {u''dggp''vq'' y g''o gf kwo ''qh''ur ggej ''tcyi gt''yi cp''uetkr v.''cpf ''cu''tcpurcvqtu'yi g{ ''j cxg''dggp''eqpegtpgf ''vq''eqpxg{ ''cu''o wej ''cu'' r quukdng''qh'qtki kpcni'yi cv''ctg''ur qngp''cpf ''uwpi ''kp''r gthqto cpeg.''yi gkt''r ceg.''r kej ''cpf ''xqnwo g0'Uq''yi cv.''tcyi gt'' yi cp''gzr nqtg''yi g''r qygpvkcn'qh'xkukdng''rcpi wci g''lp''kwi''qy p''tki j v.''kp''yi ku''gyi pqr qgyke''xgkp''yi g{ ''o gtgn{ ''eqpvkpwg''yi g'' ci g/qnf ''uvqt{ ''qh'kwi'uwdlgevkqp''q''yi g''ngcwtgu''cpf ''pggf u'qh''ur ggej 0

### Hwt vj gt 't gcf kpi

Crgzcpf gt "3; 88="Dcpp"3; 99="Dtq $\dot{y}$  gtuqp"3; ; 4="Dwf i g"3; 89="Eqg"3; ; 4="Eqqrd'cpf "I kpudwti "3; 33="Etgur q"cpf "Dgf cvg" 3; 85="J gpf gtuqp"3; 7: ="Rqwpf "3; 8; ="Vggrg"3; 6; ="Y cttgp"3; : ; 0

I QTFQP 'DTQVJ GTUVQP

# Ugo kyde'crrt qcej gu

Vtcpurckqp'uwf kgu'ku'kpetgcukpi n{ "cf qr vkpi "cp'kpvgtf kuekr nkpct { "cr r tqcej "vq'vj g'uwf { "qh'vtcpurckqp"cu" kpvgt vgz wcn'cpf "kpvgtewnwtcn'vtcpur qukkqp."cpf "uqo g'pqy "cenpqy ngf i g'vj cv'÷cnj qwi j "vtcpurckqp"j cu'c'egpvtcn' eqtg'qh'nkpi wkuke "cevkxkv{.'kv'dgnqpi u'o quv'r tqr gtn{ "vq"ugo kqvkeuø\"Dcuupgw'3; : 213; ; 3<5+0'Ugo kqvkeu'ku" i gpgtcm{ "vpf gtuvqqf "vq"eqxgt"vj g'uwf { "qh'cm'u{ uvgo u'qh'uki pkhkecvkqp"cpf "qh'vj g'xctkqwu'r tqeguugu'qh' eqo o wpkecvkqp0T gpgtcn'ugo kqvkeu'ku'eqpegtpgf "y kyj "uqo g'i gpgtcn'hgcwtgu'vj cv'ej ctcevgtk g''cm'u{ uvgo u'qh' uki pkhkecvkqp'kp'ur kyg'qh'vj gkt "qdxkqwu'f khhgtgpegu'\*Geq'3; 97."3; : 6+0

Pq"eqortgj gpukxg"i gpgtcn'yj gqt { "qh"ugo kqvkeu"gzkuvu"cv'rtgugpv0"Vj gtg"ctg."j qy gxgt."c"pwodgt"qh"f khhgtgpv'cpf" uqo gvko gu"eqphrkevkpi "crrtqcej gu"vq"yj g"uwwf { "qh"ugo kqvkeu0"Vy q"uwej "crrtqcej gu"ctg"eqpukf gtgf "dgmy "kp" vgto u"qh"yj gkt"rqvgpvkcn'hqt"rtqxkf kpi "c"yj gqtgvkecn'htco g"qh"tghgtgpeg"hqt"vtcpurcvkqp"uwwf kgu0

### Ut wevet critigo kqvleu

Ceeqtf kpi "'vq"yi g"unt wewt cn'x kgy "qh'ncpi wci g."y j kej "j cu'dggp"gz vgpf gf "htqo "nkpi wkunkeu' 'vq"qyi gt "uki p"u{ uvgo u" \*J lgm urgx"3; 65."Dctyi gu"3; 86."I tgko cu"3; 88+" :: gcej "ncpi wci g"ku"tgi ctf gf "cu"c" "u vgo "qht grc vkqpu" \*o qtg" r tgekugn{."c"ugv'qh"kpvgttgrcvgf "u{ uvgo u+"yi g"grgo gpvu"qh"y j kej ô uqwpf u."y qtf u."gve0/'j cxg"pq"xcnkf kx{" kpf gr gpf gpvn{"qh"yi g"tgrc vkqpu"qh"gs wkxcrgpeg"cpf "eqpvtcuv"y j kej "j qrf "dgwy ggp"yi go ø"N{ qpu"3; 8: ₹2+0"Hqt" J lgm urgx"\*3; 65+."yi gug"unt wewt cn't grc vkqpu"j qrf "qp"dqyi "r ncpgu"qh"Gzr t guukqp"cpf "Eqpvgpv0"Gcej "r ncpg"ur nku" kpvq"Hqto "cpf" "Uvduvcpeg0"Gzr t guukqp"Hqto "cpf" "Eqpvgpv1"Hqto "ctg"cduvtcev"v{r gu."y j krg"Gzr t guukqp" Uvduvcpeg"

cpf "Eqpvgpv'Uwduvcpeg"ctg"eqpulf gtgf "cu"r ct vlewrct "kpurcpegu"qt "vqngpu"r tqf wegf "qp" yi g"dculu"qh"c" i kxgp" u{ uvgo 0'Uvtwewtcn"rkpmu"pqv'qpn{ "j qnf "hqt"Gzr tguulqp"Hqto ""cu"lkp" yi g"uvtwewtg"qh"c"r j qpqmi lecn"u{ uvgo +"dw" cnq"hqt" yi g"Eqpvgpv'Hqto 0'Kp" yi ku"ugpug. "wukpi "c"hco qwu"gzco r ng"d{ "J lgno urgx" "kdlkf θ:" yi g"ugo cpvke"ur ceg" eqxgtgf "d{ "yi g"I gto cp" yto u" J qnt. "Dc νω "cpf" Y cnf "f qgu"pqv"eqttgur qpf "vq" yi g"ugo cpvke"ur ceg"eqxgtgf "d{ "Cpi nkuj "Y qqf ." Vt gg"cpf "Hqt guv." qt"d{ "Htgpej "Dqku." Ct dt g"cpf" Hqt ´νθ'Hqt" kpuvcpeg. "Y cnf "f qgu"pqv"qpn{ "eqxgt" yi g"ugo cpvke"ur ceg"qh"Hqt guv"cpf "Hqt ´ν'dw"cnuq"r ctv"qh" yi g"ur ceg"qh"Dqku"cpf "Y qqf uθ"V yi ku"uwi i guvu" yi cv."htqo "yi g"r qkpv"qh"xkgy "qh"vtcpurcvlqp." yi gug"u{ uvgo u"ecppqv"dg"vtgcvgf"eqo r ctcvkxgn{ 0"Kp"r tcevkeg." yi qy gxgt." yi g{"ecp" dg"eqo r ctgf "htqo "c"uvtwewtcn"r qkpv"qh"xkgy "kp"qtf gt"vq"cmyy "yi g"vtcpurcvqt." yi gp"eqphtqpvgf" yi kyi "yy q"vqngp" gzr tguulqpu"r tqf wegf "kp"y q"f khhgtgpv"ncpi wci gu." vq"o cng"cp"kphqto gf "f gekulqp"qp"yi g"o quv"cr r tqr tkcvg"ngzkecn" ej qkeg0

Koʻʻuqʻhctʻcuʻunt wewtcnʻugo kqvkeuʻcpcn( uguʻuki pʻu{ uvgo uʻkpf gr gpf gpvn( "qhʻy gʻeqo o wpkecvkqp"r tqeguu. 'kvʻecpʻdg" cti wgf ''yi cvʻkvʻf kutgi ctf uʻʻyi gʻeqpvgz wiʻqhʻr tqf wevkqpʻcpf 'tgegr vkqp. ''cuʻy gmʻcuʻkpvgtr tgvcvkqpʻcpf ''wugʻqhiʻvgz wuʻlfpʻ ygto uʻqhʻyi gʻencuukecnʻf kxkukqpʻqhʻugo kqvkeuʻkpvqʻugo cpvkeu. 'u{ pvcz ''cpf ''RTCI O CVKEUʻ\*O qttkuʻ3; 5: +"yi gʻ unt wewtcnʻcr r tqcej ''tkumuʻvpf gto kpkpi ''r tci o cvkeu0ʻHqtʻcwyi qtuʻuwej ''cuʻDctyi guʻ\*3; 92+'qtʻI tgko cuʻ\*3; 88." 3; : 5+"yi gʻunt wewtcnʻcr r tqcej 'j cuʻpgxgtyi gnguuʻr tqxgf 'ht wkhnnikpʻcpcn( ukpi ''yi gʻf ggr 'unt wewtguʻqhiʻygz vuʻcpf ''yi gʻ y c{ ''kp'y j kej ''yi g{ ''ctgʻi gpgtcvgf 0ʻVj wuʻy qʻvgz vu. ''qpgʻqhʻy j kej 'kuʻc'\tcpuncvkqpʻqhʻyi gʻqyi gt. ''ecpʻdgʻeqo r ctgf ''qpʻxctkqwuʻi tqwpf u. 'kpenvf kpi ''dcuke'ngzkecnʻej qkegu. 'kuqvqr kguʻqt'ugpugʻngxgnu. 'pcttcvkxgʻunt wewtgu. ''cpf ''yi gʻ tgncvkqpuʻdgwy ggp'ʻ-xqkeguøʻ\*Cwj qt. 'P cttcvqt. 'Ej ctcevgt. 'Koʻr nkekvʻT gcf gtʻcpf ''uqʻqp+Olcmqduqp'\*3; 82+'j cu'' uj qy pʻj qy ''c'unt wewtcm{\qtkgpvgf ''enqug'\gz wcnʻcpcn{\uku'ecp'cnnq'ceeqwpv'hqt'uv{\nturke'ej qkegu0}

## Kpvgtrtgvcvlxg'igo kqvleu

Rgkteg'\*3; 5467+'f guetkdgu'ugo kquku'cu':-cp''cevkqp."cp''kphrwgpeg."y j kej "ku."qt''kpxqrxgu."c''eqqr gtcvkqp''qh''y t gg'' uwdlgevu."uwej "cu''c'uki p. 'kwu'qdlgev'cpf 'kwu'kpvgtr t gvcpv."y ku''y t gg/t grcvkxg''kphrwgpeg''pqv''dgkpi ''kp''cp{ ''y c{ '' tguqrxcdrg''kpvq''cevkqpu''dgwy ggp''r cktuø'\*\*Eqnrgevgf''Rcrgtu''7-6: 6+0Cp''kpvgtrtgvcpv'ku''cp{ ''uki p'y j kej ''gzr rckpu'' qt'':-xtcpurcvguø'y g''hktuv''qpg<''y tqwi j ''c''f ghkpkkkqp."c''u{ pqp{o."cp''gzco r rg."c''uki p''htqo ''cpqy gt''ugo kqvke''u{ uvgo '' cpf''uq''qp."cf''kphkpkwo 0'Gxgt{ ''kpvgtrtgvcvkqp''ku''cp''kphgtgpeg0

Kogtr tgycykzgʻugo kqykeuʻj cuʻej cmgpi gʻʻy gʻpqykqpʻqhʻeqf gʻ\*f ghlpgfʻlpʻygto uʻqhʻihpi wkukeʻeqo r gygpegʻcuʻʻ ecvcmi wgfʻlpʻcʻf keykqpct {'hqto cv+cpf 'etkkek gʻ lwʻcuʻnko kgfʻld 'y gʻly gcʻqhʻgs wkxcrgpegʻcuʻu{pqp{o {'' yqi? J wpf? "ej kgp." gye000Vj gʻr tqeguuʻqhʻwpnko kgfʻugo kqukuʻr quwrcygʻld 'Rgktegʻuwi i guvuʻy cvʻqwtʻnkpi wkukeʻʻ eqo r gygpegʻkuʻdguvʻgzr nchpgfʻy kj hpʻʻy gʻlqto cvʻqhʻcpʻgpe{enqr gf kcʻtcy gtʻʻy cpʻcʻf keykqpct {0¼pʻqy gtʻy qtf u "kvʻ kuʻdguvʻuggpʻcuʻcʻv′q r gʻqhʻeqo r gygpegʻy j kej 'r tqxkf guʻhpuvtweykqpuʻqpʻj qy 'yqʻlqvygtr tgyʻ\*cpf 'gxgpʻttcpurcyg+cʻi i kxgpʻygto 'ceeqtf kpi ''qʻy gʻugpugʻkyʻces wktguʻlpʻcʻr ctykewrt'eqpygzyʻcpf kqtʻukwcykqpʻqhʻr tqf weykqpʻcpfʻ' tgegr ykqp."ceeqtf kpi ''qʻlqvygtryz wcnʻukwcykqpu."cpf 'uqʻqpʻ\*Geqʻ3; 98."3; : 6+0′Vj gʻgpe{emqr gf kcʻxkgy ''y gpʻ' eqpuqnf cyguʻy gʻugo cpykeʻcpf 'r tci o cykeʻcrr tqcej guʻqʻo gcpkpi ."o cmkpi 'kyʻr quukdngʻyqʻtgcuuguuʻy gʻeqpegr vʻqhʻ GS WKXCNGP EGʻy j kej 'j cuʻcny c{uʻtgegkxgfʻcʻi tgcvf gcnʻqhʻcwgpykqpʻkpʻtcpurcykqpʻluvyf kgu0Vtcpurcykqpʻkuʻuggpʻ' gtgʻcuʻcʻuwdur gekguʻqhlʻkpygtr tgvcykqpʻ\*yj gtgʻctg."d{ "eqpytcuv."o cp{'kpygtr tgvcykqpu'yj cy'ecppqy'dgʻuvtkevqʻ' fghlygf 'cuʻtcpurcykqpu-0Vtcpurcykqpʻy gtghtgʻf qguʻpqyʻuko rn 'kpxqnxgʻuwduxkwykpi 'lukpi ngʻygto u'y kj 'y gkt'' cmgi gf 'lufpqf o u ''pqt'f qguʻkyʻpxqnxgʻeqo r ctkpi 'luk p/u{uvgo uʻrgt'ugOʻlquvgcf.'kyʻlxxqnxguʻeqphtqpykpi 'ygz wcn' ukwcykqpu'ci ckpuv'cʻdcemi tqwpfʻqhʻf khqtgpy'\*r ctykcn-gefeq eqr gf kcu. 'yj cy'ku."qh'ur gekheʻhqto u'qh'uqekcmi ''cpf'' ewmytcmi ''tj ctgf ''npqy ngf i gʻugylpj'f khqtecnilykwcykqpu0

### Ut wevwt cricpf 'kpvgt r t gvc vkxg'igo kqvleu'cpf 'v{ r gu'qh'vt cpurc vkqp

Cp'kpvgtguvkpi 'kpuvcpeg'qh'kpvgtugevkqp'dgwy ggp'uvtwewtcn'cpf 'kpvgtrtgvcvkxg'ugo kqvkeu'y cu'r tqrqugf 'd{" Lcmqduqp'\*3; 7; +.'y j q'uwi i guvgf ''y cv'y gtg''ctg''y tgg''v{rgu'qh''vtcpurcvkqp<'kpvtcnkpi wkuvke.''kpvgtnkpi wkuvke''cpf '' kpvgtugo kqvke0'Lcmqduqpøu'f ghkpkkqp'qh'vtcpurcvkqp'f tcy u'qp''y g''Rgktegcp'kf gc''qh'kpvgtrtgvcvkqp<'j g'fqgu'kp''

heev'ur gemicdqww'y tege'mhpf u'qh''-kpygtr tgwxhqpø'qh'c'nhpi whake'uki p0'Vj g'hktuv.'hpvt chpi whake'tt cpure vhqp'qt''
tgy qtf hpi.'ku''-ep'kpygtr tgwxhqp'qh'xgtden'uki pu'd{"o gepu'qh'qyi gt'uki pu'qh'y g'uco g'ncpi wei gø='y g'ugeqpf."
hpvgt hpi whake'tt cpure vhqp'qt'tt cpure vhqp'rt qr gt.'ku''-ep'kpygtr tgwxhqp'qh'xgtden'uki pu'd{"o gepu'qh'uki pu'qh' uqo g''qyi gt''ncpi wei gø='y g''ncuv.'hpvgt ugo kqvke'vt cpure vhqp''qt''vt cpuro wwe vhqp.'ku''-ep'kpygtr tgwxhqp''qh'xgtden''
uki pu'd{"o gepu'qh'uki pu'qh'pqpxgtden'uki p''u{ uvgo uø0'Lenqduqpøu''f ghkpkkqpu''j exg''nqpi ''dggp''vt gevgf ''cu'c''r qkpv'qh''
f gr ctwt g''nqt''uwdugs wgpv'f kuewukqpu''qh'vt cpuro vhqp.''cnj qwi j ''c''hgy ''uej qnctu'hhpf''j ku'r qukkqp''vqq''ut kevn(''dqwpf''
q''c''hpi whake''r qkpv'qh'xkgy ''\*Ncy gpf qy unk'3; 9: ='Vqwt { "3; : 8d+0'Kp''qtf gt''q''ceeqo o qf cvg''Nqvo cpøu'\*3; 97+''
f knvkpevkqp''dgwy ggp''ncpi wei g''cu''c''r tko ct { "o qf gnkpi ''u{ uvgo "cpf ''ewnwtg''cu''c''ugeqpf ct { "o qf gnkpi "u{ uvgo "
'\*dgecwug''ky''f gtkxgu''htqo ''ncpi wei g+''Vqwt { ''\*kdkf 0+''r tqr qugu''q''uvduvkwwg''Lenqduqpøu''vtkcf ke ''f kxkukqp''y ky ''c''
r tko ct { ''f kxkukqp''kpvq''y q''v{ r gu'qh''tcpurcvkqp.''hpvt cugo kqvke''tcpurcvkqp0''
dgkpi ''hwty gt''uwdf kxkf gf ''kpvq''kpvtcrkpi wkuke''cpf ''kpvgtrkpi wkuke''tcpurcvkqp0

Tgwtplpi "\q"\j g"\tvtwewtcn'ugo kq\eu"qh'I Igno urgx."qpg"eqwf" "uc{"\j cv'kp"kp\tcn'pi\tcn'

### Ugo kydeu'cpf 'tj g's wgudqp'qh'tt cpurc wcdktw{

Qpg"qxgty j gm kpi "s wguvkqp"j cu"f qo kpcvgf "xctkqwu"vj gqtkgu"qh"uki pu"qxgt "vj g"egpwtkgu<"ku 'tcpurcvkqp" y gqtgvkecm("r quukdrgA"Vj ku"s wguvkqp"j cu"htgs wgpvn("dggp"cfftguugf"htqo "vy q"-tcfkecm/r qkpvu"qh"xkgy 0

### Vj g'lægr vlæcnlqt'j qnkuslæ'cti wo gpv

P cwtch'repi wei gu'j exg'f khigtgpv'uvtwewtgu'cpf "vj g{ "qti cpk g"cpf "encunkh{"vj g"y qtnf "qh'qvt "gzr gtkgpeg"kp" f kxgtug"y c{u0Gxgt{"repi wei g"\*cpf "vj g"uco g"ecp"dg"uckf "qh'qvj gt."pqp/xgtdch'ugo kqvke"u{uvgo u+"eqpuvkwygu'c" j qnkuvke"htco g"qh'tghgtgpeg."pqv'qpn{ "qp"vj g"gzr tguukqp"r repg"\*r j qpqmi { ."rgzkech'u{uvgo "cpf "u{pvevke"twrgu+." dww'cnuq"qp"vj g"eqpvgpv'r repg"\*eqpegr wen'qti cpk cvkqp+0S wkpg"\*3; 82+."kp"j ku'f kuewuukqp"qh'vj g"kpf gvgto kpce{" qh'vtcpurcvkqp."o gpvkqpu"vj cv'egtvckp"pqp/Gwtqr gcp"repi wei gu'ctg'wpcdng"vq"gzr tguu'c"r tqr qukxkqp"uwej "cu" pgwtkpqu're enlo cuu0Qp"vj g"qvj gt"j cpf ."Y j qth'\*3; 78+"cti wgu"vj cv'uqo g'Co gtkpf kcp"repi wei gu."kp"v j kej "vj g" tgrevkqp"dgwy ggp"ur ceg"cpf "vko g"ku'f khigtgpv'htqo "vj cv'r qukxgf "kp"kpf q/Gwtqr gcp"repi wei gu."ctg"r ctvkewretn{" uwkxgf "vq"gzr tguukpi "egtvckp"eqpvgo r qtct{"r j {ukecn'eqpegr wu0}

J qy gxgt. "vq'uc{"yi cv'vy q'u{uvgo u'ctg"o wwwcm{ 'kpeqo o gpuwtcdng'f qgu'pqv'o gcp"yi cv'vj g{ "ecppqv'dg"eqo r ctgf 0' Eqpukf gt"J lgno ungxøu"gzco r ng"qh'y qqf. "vt gg. "lqt guv'cpf "vj gkt" igs wkxcngpwwo'kp"qvj gt 'ncpi wci gu0'kp"vtcpuncvkpi " kpvq"I gto cp"c"Htgpej "vgzv'kp"y j kej "vj g"gzr tguukqpu"wpg"r t qo gpcf g'f cpu'ngu'dqku'cpf "wpg'unt wewt g'gp"dqku' cr r gct. "vj g"eqpvgzv'cmqy u'wu'vq"eqo r ctg'vj g"vy q"nkpi wkurke"u{uvgo u'cpf "f gekf g"vj cv'kv'ku'cr r tqr tkcvg'vq'wug" Y cnf "kp"vj g"hktuv'ecug"cpf "J qnf "kp"vj g'ugeqpf 0

### Vj g'r quwrc vg'qh'c 'r gt hgev'hc pi wci g

Htqo "y g'ugxgpy "egpwt { "qpy ctf u. "xctlqwu" Y guvgtp" y gqqi kcpu. "r j kquqr j gtu" cpf "uekgpvkuvu" j cxg" v kgf "vq" tgf kueqxgt. "vq" r quwwrcvg" qt "vq" kpxgpv" c" r gthgev" rcpi wci g0" V j g" s wguv" hqt "c" r gthgev" rcpi wci g" j cu" dggp "o qvkxcvgf "d { "c" xct kgv { "qh" tgrki kqwu. "uekgpvkhke" cpf "r j krquqr j kecn" f tkxgu" cv" f khhgtgpv" j kuvqt kecn" r gt kqf u" cpf "j cu" pcwtcm { "j cf" uqo g" ko r cev" qp" f kuewuukqpu" qh" v cpurcvkqp0 I gpgtcm { "ur gcnkpi ."r qukkpi "y g" gz kuvgpeg" qh" c" r gt hgev" rcpi wci g" j cu" rgf"

uej qrctu'\q'uwi i guv'\j cv.'kp"qtf gt'\q''\tcpurcvg'htqo 'rcpi wci g'C'kpvq'rcpi wci g'D."qpg'j cu'\q'tghgt'\q''c'r gthgev' rcpi wci g'Z 'kp''y j kej ''y g'eqpegr w'gzr tguugf 'kp''dqyj 'C''cpf 'D''ecp''dg''eqpxg{gf ''y kyj qw''cp{ ''co dki wkx{0'Dg{qpf '' yj cv. ''qr kpkqpu'xct { ''qp''yj g''pcwtg''qh''yj g''r gthgev'hcpi wci g''kp''s wgurkqp0'Uqo g''ugg''kv''cu''cp''cdurtcev. ''kf gcn'' rctco gvgt 'vq 'y j kej 'vj g'vtcpuncvqt 'tghgtu 'kp"c'uqtv'qh'o {uvkecn'y c{="vj ku 'ku 'guugpvkcm{ 'vj g'xkgy 'go dqf kgf 'kp" Y cnygt 'Dgplco kpøu'eqpegr v'qh'RWTG'NCPI WCI G''\*t gkpg'Urt cej g-ØQyj gtu''vtgcv'kv'cu'c''ur gekhke. "eqpet gvg" ncpi wci g'\*hqt'c'j kunqt { "qh'yj g'f khhgtgpv'cwgo r w'cv'gncdqtcvkpi 'yj g'gzkungpeg'qh'c'r gthgev'ncpi wci g. 'ugg'Geq'' 3; ; 5+0°Vj g'r quwnc vg''qh''c''eqpet gvg''r gthgev'ncpi wci g''ku''cnuq''r t gugpv'lkp''vj gqtkgu''qh''nqi ke''cpf ''nkpi wkukeu='kv'dgi cp'' y ky "y g"Uqkeu"ctqwpf "y g"y ktf "egpwt { "DE"cpf "ku"uwkm'r tgxcngpv"kp"eqpvgo r qtct { "CPCN[ VKECN" RJ KNQUQRJ [ 0'Y ky kp''y gug'f kuchr nlpgu. ''y g'hf gc''qh''c''r gthgev'hcpi wci g''ku'ho r nlgf ''kp''y g''uwi i guvlqp''y cv'' f khłgtgpv'gzr tguukqpu'kp'f khłgtgpv'ncpi wci gu'ecp'dg'eqpukf gtgf "o wwcn'\tcpurc\kqpu'y j gp''y g{ "gzr tguu'y g'uco g" rtqrqukkqpcn'eqpvgpv'\*ugg'cnuq'vjg'tgugctej 'qp''c''uq/ecngf''o gpwrgug. 'qt'hcpi wcig''qh'vjqwijv'kp''Hqfqt''3;97+0 Vy q"go r ktkecn'qdlgevkqpu"ecp"dg"tckugf "ci ckpuv"vj g"kf gc"qh"c"r gthgev"ncpi wci g0"Hktuv."vj gtg"ku"vj g"uko r ng"hcev"vj cv" c'r gthgev'ncpi wci g'j cu'pgxgt 'dggp'f kueqxgtgf ''qt ''guvcdrkuj gf O'Cpf ''ugeqpf .'y j krg''kv'o c{ ''dg''\twg''y cv'hqt''xgt{ '' uko r ng"gzr tguukqpu"uwej "cu"kv"t c kpu"qt"nz "pgki g"guv"dnz pej g"vj g"r tqr qukkqpcn'eqpvgpv"ecp. "y kj "uqo g" cf lwwo gpw."dg"kuqncvgf ."vj g"uco g"f qgu"pqv"j qrf "hqt"gzr tguukqpu"uwej "cu"cpf "vj g"kpvkppcdwrcvkqp"qh'vj g"dgmu." dgmu. 'dgmu'qt'Tkxgttwp. 'r cuv'Gxgøu'cpf 'Cf co øu0

C"o qtg"eqi gpv'qdlgevkqp."j qy gxgt."ku'y ku0'Ki'kv'ku'vtwg''y cv'qpg"pggf u''y g"o gf kcvkqp"qh'c'hcpi wci g'Z''vq'r cuu'' htqo "hcpi wci g'C''vq'hcpi wci g'D."y gp"qpg"y km'cnuq"pggf "y g"o gf kcvkqp"qh'c'hcpi wci g"[ "vq'r cuu'htqo "C''vq'Z." cpf "uq"qp"cf "kplkpkwo 0'V j wu''y g''r quwwrcy"qh'c'r gthgev'hcpi wci g''f qgu''pqv'gzr nckp''vtcpuncvkqp"cevkxkv{."kv' r tguwr r qugu'ko0'Vtcpuncvkqp"f qgu''vcng'r nceg'kp''ur kg''qh''f khngtgpegu''dgw ggp''ugo kqvke''u{ uvgo u0'V j ku''go r ktkecn' gxkf gpeg''ku''pqv''uqo gyj kpi "y g''pggf "vq''f go qpuvtcvg''dw''uqo gyj kpi "y g''j cxg''vq''gzr nckp."cpf "y ku''qwi j v'vq''dg''y g'' r qkpv''qh''f gr ctwxtg''hqt''cp{ "ugo kqvke''tghngevkqp"qp''vtcpuncvkqp0

### Vt cpurcykąp'cpf 'vgzy/ugo kyweu

Vtcpurcvkqp"f qgu"pqv"kpxqrxg"eqo r ctkpi "c"rcpi wci g"\*qt"cp{ "qyj gt"ugo kqvke"u{ uvgo +'y kyj "cpqyj gt"rcpi wci g"qt" ugo kqvke"u{ uvgo = "kv"kpxqrxgu"r cuukpi "htqo "c"vgzv"÷cø"grcdqtcvgf "ceeqtf kpi "vq"c"ugo kqvke"u{ uvgo "÷Cø"kpvq"c"vgzv" ÷dø"grcdqtcvgf "ceeqtf kpi "vq"c"ugo kqvke"u{ uvgo "÷Dø0

Vj g'hkgtcwtg'qp''yzvugo kqkeu'ku'eqr kqwu'cpf 'ku'pqv'j qo qi gpgqwu.'kp''y g'ugpug''y cv'kv'gpeqo r cuugu'c'pwo dgt" qh'ff kxgtug'uej qqnu'qh''y qwi j v'\*ugg.'hqt 'kpuvcpeg.'Nqvo cp'3; 92.'3; : 2='I gpgwg'3; 94='Rgv¾hk'3; : 4='Vqf qtqx" 3; 9: ='Geq'3; 9; ='Tkhcvgttg'3; : 3='I tgko cu'3; : 5+0O cp{ 'qh''y g'hwxf kgu''wpf gtvcngp''y kyj kp''y g'htco gy qtm'qh'ygzv'' ugo kqvkeu''j cxg''uqo gyj kpi ''vq''qhhgt''vq''tcpurcvkqp''uwxf kgu0Vj g{ 'ecp''r tqxkf g''vqqnu''cpf ''uwi i guvkqpu''pqv'qpn{ 'hqt'' y g'uwxf { 'qh'nksgtct { ''tcpurcvkqpu.''dw''cnnq''hqt''y g'eqwpvrguu''tcpurcvkqpu'qh'o cuu/eqo o wpkecvkqp''yzxu'y j kej "qhgp''kpxqnxg'o qtg''y cp''qpg''ugo kqvke''u{ uvgo ''cpf ''o qxg''cetquu''hpi wkuvke''cpf ''ewnwtcn'dqwpf ctkgu0'Vj gug'' kpenwf g''pgy u''r wdrkuj gf ''d{ ''r tguu''ci gpekgu.''uq/ecngf ''u{ petgvke''yzxu''uwej ''cu''ygrgxkukqp''r tqi tco o gu.''hkro.'' cf xgtvkukpi .''eqo ke''uxtkr u.''cpf ''uq''qp0'Vj g''cr r ctcwu''qh''yzwcn'ugo kqvkeu'ku''cnnq''wughwn'hqt''f gcnkpi ''y kyj ''ecugu''qh'' kpygtugo kqvke''tcpurcvkqp0

C''pwo dgt "qh''ur gekhke "eqpegr vu'htqo "vgzv'ugo kqvkeu"o c{ "r tqxg"r ctvkewrctn{ 'htvkkhwri'vq"gzr rqtg'kp"vj g"eqpvgzv'qh" vtcpurcvkqp<

ku'wwgtgf "kp"c'tgurcwtcpv'y j gtg'y g'y ckgt "cumu'y j q'j cu'qtf gtgf "c'egtvckp"f kuj 0 \*d+'Kp''pcttcvkxg''y gqtkgu. 'kv'ku''pqy "ewurqo ct{"\q'f kurkpi wkuj "dgw ggp''urqt{ 'qt'hcdwrc."o gcpkpi "y g" ej tqpqmi kecn'ugs wgpeg'qh''gxgpwu''y cv'yi g'tgcf gt"o wuv'tgeqpurtwev."r myv."yi cv'ku''y g''cttcpi go gpv'qh''y g" gxgpwu''qh''yi g''urqt{ 'kp"c'i kxgp"\yz v."cpf 'f kurqwt ug. "pco gn{ "y g'y c{ 'kp"y j kej "y g''htpi wkurke"gzr tguukqp''ku" qti cpk gf "\*Vqf qtqx"3; 9: ."Ugi tg''3; : 7. "Geq''3; ; 6+0"Vtcpurcvkpi "c''r qr wrct''f gvgevkxg''urqt{ "o c{ 'tgs wktg'' lckyi hwn'tgr tqf wevkqp"qh''y g''r my'y j krg''rgcxkpi "y g''tcpurcvqt''y ky "c''egtvckp''htggf qo 'kp''tgpf gtkpi "y g'' f kueqwtug0"D{ "eqpvtcuv."vtcpurcvkpi "c''pqxgn'd{ "Hrcwdgtv'kp''y j kej "y gtg'ku'c''ectghwn'ugctej "hqt''y g''o qv'lwurg'' y qwrf "pqto cm{ 'tgs wktg''ectghwn'cwgpvkqp''q''y g''gngo gpvu''qh''y g''f kueqwtug''y j kej ."kp"'y ku''ecug. "ctg''j ki j n{ "tgnyxcpv0

\*e+'C'i gptg."qt"\gzv\v(rg."tgrtgugpvu"\; j g"\lorn\ekv'cpf"tgs wkukg"\eqpf kklqpu"\qh'\j g"\gzv\v(\*T\lhc\gttg"3; : 7+0'V) g" cdktk\{ "\q"\lf gp\lh\{"\gz\v'cpf"f kveqvtug"i gptgu"\; wuwcm\{"uki pcmgf"d\{"eqf gf"\gz\wcn'hgcwtgu+"ku"\j gtghqtg"c" rtgtgs wkukg"\hqt"\kp\gtrtg\c\v\qp"\cpf"\tcpurc\kqp0'Vgz\v'ugo kq\keu"\pqy "j cu"c"ug\v'qh'\qqnu"\y j kej "ecp"j gm" \tcpurc\kqp"\uej qrctu"\lf gp\lh\{"cpf"grcdqtc\vg"\hgcwtgu"\qh'\gz\v'cpf "f kveqwtug"i gptgu0'J qy gxgt."\j g"i gptg" \kp\ucp\vcygf"\d\{"\j g"\uqvteg"\gz\v'f qgu"\pq\v'cny c\{u"gz\ku\v'kp"\j g"\cti gv'ewnwtg."\y j kej "o gcpu"\j c\v'k\'ku"\pq\v'cny c\{u"rquukdrg"\q'h\pf "eqttgur qpf kpi "eqpxgp\kqpcn'uki pcnu"qh'\j g"i gptg"\kp\gp\v'g v'eqo rtgi gpukdrg."\j g"\tcpurc\qt" o c\{"j cxg" \q"\lpxgp\v'u\f kxgp"\j cv'pq"\ksytch'\tcpurc\qt"\gz\v(0)

Ugg"cnuq<

FKUEQWTUG'CPCN| UKU'CPF''VTCPUNCVKQP="NKPI WKUVKE'CRRTQCEJ GU="RTCI O CVKEU'CPF"
VTCPUNCVKQP="VGZ V"NKPI WKUVKEU'CPF''VTCPUNCVKQP0

### Hwt yj gt 't gcf kpi

WO DGT VQ 'GEQ 'CPF 'UKT KP GTI CCTF

# Uj engur get g'tt epure vkqp

Vj g'hcev'ý cv'ý g'r tgugpv'xqnwo g'j cu'gpvtkgu'qp'ý g''tcpurc'kqp'qh''ý g''DkDNG''cpf 'qh''Uj cngur gctg'dw'pqv'qh''
uc{."I qo gt."Egtxcpvgu."Tcekpg."qt'Lq{eg'r tqdcdn{"j cu''o qtg''vq''f q''y ký "ý g'wpks wg''ewnwtcnhwpevkqpu"
Uj cngur gctg''cpf "ý g''Uetkr wtgu''j cxg'hwhkngf."gcej "kp''ý gkt''qy p''y c{."cetquu''y g''ci gu''y cp''y ký "cp{ "eqpegtp'hqt"
y g'kpvtkpuke'f khhewnkgu''kpxqnxgf "kp''tcpurc'vkpi "ý go 0'Vj g''ewnwtcn'ko r qtvcpeg''qh''Uj cngur gctgcp''tcpurc'vkqp''
eqwf "dg''o gcuwtgf "kp''s wcpvkcvkxg''ygto u'\*\*Uj cngur gctg''dgkpi "co qpi "ý g''o quv'y kf gn{ "tcpurc'yf "y tkgtu''cpf "ý g''
o quv'htgs wgpvn{ "r gthqto gf "r rc{y tki j wi'kp''y qtnf "hkytcwtg+"cu''y gm''cu''kp''s wcnkcvkxg''ygto u'\*\*y ký "tgur gev'vq''y g''
y c{ "kp''y j kej "j ku''y qtm'j cu''j grr gf "tij cr g''ewnwtcn'kf gpvkkgu. "kf gqmi kgu."cpf "hpi wknke"cpf "hkytct{ "tcf kkqpu+0'K''
ku''tghrgevgf "kp''y g''r rgyj qtc"qh''r wdnkecvkqpu''f gxqvgf "vq''y g''uvdlgev'cpf "hwty gt "cwgurgf "d{ "vj g''hcev'y cv'o cp{ "
vcpurc'kqp''uej qrctu''j cxg''grgevgf "vq''ygn''y gkt''xkgy u''ci ckpuv'y g''ecug''qh'Uj cngur gctg''kp''tcpurc'kqp. "wukpi "kh'cu''c"
vqwej uvqpg''hqt''y g''tgrgxcpeg''cpf "xcnkf kk{ "qh''y gkt''y gqtgykecn'eqpurt werkqpu0'K'ku''j qy gxgt''wughwn''y "dg''cy ctg''qh''
y g''kpvtkpuke''f khtgtgpegu''co qpi "cm'y gug''etkkecn'y tkkpi u."gcej "j cxkpi "dggp"y tkwgp"y kj "c''egtvckp''r wdnke''cpf "
r wtr qug''kp''o kpf "cpf ."eqpuekqwm{ "qt''wpeqpuekqwm{ ."kpeqtr qtcvkpi "egtvckp"'y gqtgykecn''r tguwr r qukkqpu''qt "gxgp"
xcnwg''lwf i o gpw0

### Pqto cvlxg'cpf 'f guet kr vlxg'cvvlxwf gu'vq'vj g'vt cpurcvlqp'qh'Uj cngur gctg

O cp{"uwf kgu"qh"Uj cngur gctg"kp"\tcpurc\kqp"ctg"P QTO CVKXG"kp"\yi cv\'yi gkt"r gtegr \kqp"qh"gz\ku\kpi "\tcpurc\kqpu" ku"f gvgto kpgf "d{"c"r tgf ghkpgf "eqpegr v'qh"y j cv\'tcpurc\kqp"\ku"qt"\uj qwrf "dg0"Vj ku"pqto cv\kzg"uvcpeg"o c{"uj qy "kp" gzr rkekn("r tguetkr \kzg"uvcvgo gpw"qh"\yi g"nkpf "\\\-Vj ku"\ku"j qy "\q"\tcpurc\g"Uj cngur gctg"hqt"\yi g"uvci g0\\"K\'o c{"cnuq" o cpkhguv'kugrh"o qtg"uvdvn(<'hqt"\kpuvcpeg"\kp"f kuewuukqpu"qh"\yi g"uq/ecngf "\wpvtcpurc\g"dkr\\{"qh"Uj cngur gctg\g"u" y qtm"\kp"\xctkqwu"cwgo r \ui'\q"f tcy "\yi g"dqtf gtrkpg"dgw ggp"CF CRVCVKQP "cpf "\tcpurc\kqp."qt"\kp"\yi g"o cp{" j kuvqt\kecn'ceeqwpvu"f guetkdkpi "\yi g"f gxgmr o gpv'qh"Uj cngur gctg"\kp"\tcpurc\kqp"\kp"\yto u"qh"c"r tqi tguu"qt"i tqy yi "

yj g"et wf gn{ "f kut gur ge vhwi hkt uv'c wgo r vu' 'vq' 'yj g' 'uej qnct n{ "ceewt ce { "qh'eqp vgo r qt ct { "vt cpunc vkqpu0'U wej "ceeqwp vu" vgpf "vq' ht qy p' 'wr qp. "qt "gxgp' r cuu "qxgt. "vj qug' xgt ukqp u'y j kej "uwr r qugf n{ "ecwugf "c' 'uvci pc vkqp" qt "c' 't gncr ug' kp' 'yj g'' r t qeguu0

 $Y j kg' ks'ks''s wkg''pewterliqt''r gqr rg''q''j exg''utqpi ''xkgy u''cdqw''Uj engur getg. ''qt''kpf ggf ''cdqw''tepurekqp''kp'' i gpgten''y g''j kuqtkecm(/qtkgpygf 'uej qret'y kn'iqdxkqwun( ''dgpghks'htqo ''c''o qtg''f gwej gf ''cpf ''tgrevkxkrke''cwkwf g0' Dw''o cp{ ''uej qretu''j exg''hgns'eengf ''wr qp''q''cdepf qp''y gkt''f guetkr vkxg''r qukklqp''cpf ''eqo g''q'y g''Detf øu''tguewg0' Hqt''y kn''tgeuqp. ''tepurekqpu''qh''Uj engur getg'y j kej ''ewgo r v'vq''cej kgxg''ceegr wedkts( ''*kp''y g''ugpug''qh''cfj gtkpi ''vq'' y g''pqto u''qh''y g''veti gv''repi wei g''cpf ''ewnwtg+j'' exg''wwxm( ''hqwpf ''hxwg''hexqwt.''r ctvkewretn( ''y kyj ''uej qretu''y j q'' j exg''cp''kpuskwskqpen'deemi tqwpf ''kp''Gpi nkuj ''Uwf kgu0'Vj wu. 'wpvkn'tgegpvs(.''y g''pgqercuukeen'vtef kskqp''kp'' Uj engur getgep''vtepurevkqp''y eu''i gpgtem( ''gkyj gt''ki pqtgf ''qt''vtgevgf ''y kyj ''f kuf ckp0'Qpg''uqo gsko gu''j getu'r rgeu''nqt'' o qtg''etgevkxg''qt''y gevtkeem( ''ceegr vedrg''vtepurevkqpu''qh'Uj engur getg. ''wwxm( ''eqo kpi ''htqo ''r gqr rg''y kyj ''c'' deemi tqwpf ''kp''y g''y gevtg'y j qug''eqo o ko gpv'vq''tgxkxenk kpi ''Uj engur getg''hqt''y g'' of gtgp''uvci g''ko r nkgu''c'' tglgevkqp''qh''y g''ny g''y gevtg'y j kej ''y g{ ''kggn'ku''y g''qweqo g''qh''r j knqni keen'qty' qf qz { ''kp'' vtepurevkqp0'Vy ku''ewkwf g''v r keem( ''uwtheegu''y j gp''y g''vtepurevqtu''kp''s wguvkqp''j qn'' c''eepqpkk gf ''r qukkqp''kp''y g'' vti gv'hkgtewtg''qt''y gevtg.''y j kej ''ku''engp''q''gpvkxrg''y go ''q''y g''r tkxkrgi g''qh''c' o qtg''r gtuqpen'tgur qpug''q'' Uj engur getg''kp''y gevtg''y j kej ''ku''engp''q''gpvkxrg''y go ''q''y g''r tkxkrgi g''qh''c' o qtg''r gtuqpen'tgur qpug''q'' Uj engur getg''kp''tepurevkqp.''uwej ''eux'y j ev'nkpf u''qh'vtepurevkqpu''y gtg''o ef g.''d{ ''y j qo .''nqt''y j qo .''y j { .''epf ''y ky i'' y j ev''ghlgevA}$ 

### Vt cpurc vlpi 'Uj cngur gct g<'tj g'tgej plecrktlgu'cpf 'dg{ qpf

Vj g'tcpi g'qh'vgej plecn'r tqdrgo u'vj cv'vj g''tcpurcyt''qh''Uj cmgur gctg'o c{ ''dg'hcegf ''y kej ''ku''s wksg'hqto kf cdrg.'' kpenwf kpi ''cu'vj g{ ''f q'vj g''o cp{ ''vgz wcn'etwzgu.''vj g''qduewtg''ewnwtcn'cmwukqpu.''Uj cmgur gctgøu''ctej ckuo u'cpf ''f ctkpi ''pgqmi kuo u.''j ku''eqpvtcuvkxg''wug''qh''y qtf u''qh'Cpi m/Uczqp''cpf 'Tqo cpeg''qtki kp.''j ku''wug''qh'j qo gn{ ''ko ci gu.''qh''o kzgf ''o gvcr j qtu''cpf ''qh''kvgtcvkxg''ko ci gt{ .''vj g''tgr gvkkqpu''qh''yi go cvke''mg{ ''y qtf u.''yj g'' r gtuqpkhkecvkqpu''\*yj kej ''kp''uqo g''rcpi wci gu''o c{ ''ngcf ''vq''eqpvtcf kevkqpu''dgw ggp''pcwtcn'ugz''cpf ''i tco o cvkecn'' i gpf gt+.''Uj cmgur gctgøu''r wpu.''co dki wkkgu''cpf ''o crcr tqr kuo u.''j ku''r rc{ ''y kej ''/ ''cpf ''y /hqto u''qh''cf f tguu.''j ku'' gnkr vkecn'i tco o ct''cpf ''i gpgtcn'eqo r cevpguu''qh''gzr tguukqp.''j ku'hrgzkdrg''kco dke''r cwgtpu''\*pqv''gcukn( ''tgr tqf wekdrg'' kp''egtvckp''qvj gt''r tquqf ke'u{uvgo u+:'vj g''o wukecrkv{ ''qh'j ku''xgtug.''vj g''r tgugpeg''qh''r gthqto cpeg/qtkgpvgf ''vj gcvtkecn' uki pu''kpuetkdgf ''kp''yj g''ygzv.''cpf ''uq''qp0

Tgcnˈgpqwi j ''yi qwi j ''yi gug' 'yej pkecnˈr tqdrgo u''o c{ ''dg'kp''o cp{ ''ecugu. ''yi g{ ''ctg'pqv''yi g''dg/cm'cpf ''gpf/cm'qh''yi g'' s wgurkqp"qh"\tcpurc\kpi "Uj cngur gctg0"Ugxgtcn"ctg"ur gekhke"\q"r ct\kevrct"rcpi wci g"r cktu"qpn(00 qtgqxgt."\yi g" rtqdrgou'gzrgtkgpegf'd{''tcpurcvqtu'kp'rtcevkeg'jcxg'c'tgrcvkxg'uvcwu'\*Vqwt{'3;:7+'kp'uq'hct'cu'vjg{'ctg'cnyc{u' uwdlgev'vq"egtvckp"r tkqt"cpf 'j kgtctej kecm{ 'j ki j gt"f gekukqpu<"yj g"f khhkewnv{ "qh"hkpf kpi "cp"qr vko cn'r tquqf ke" gs wkxcrgpv'hqt''Uj crgur gctgøu'kco dke''xgtug''qdxkqwun(''f gr gpf u''qp''vj g''r tgrko kpct { ''ej qkeg''qh''c''xgtug''vtcpurcvkqp'' qxgt"c"r tqug"tcpurcvlqp0"Hxtyi gto qtg."tcpurcvqtu"qh"Qxkf "qt"Tcdgrcku"ctg"hkngn( "vq"eqphkto "yi cv"pqpg"qh"yi g" r qvgpvkcni'r tqdngo u'hkuvgf "cdqxg"ku'hko kvgf "vq"vj g"ecug"qh"Uj cngur gctg0'Kv'ku"cnuq"wughwn'vq"dgct"kp"o kpf "vj cv" o cp{"qh"yj g"hgcwtgu"kp"s wgunkqp"j cxg"cv"uko gu"f kuwtdgf "Uj cmgur gctgøu"Gpi nkuj /ur gcmkpi "tgcf gtu"cpf "tgy tkvgtu" cu'y gm'cr r gctkpi 'pq'nguu'r gtr ngzkpi ''qt''wpceegr wdng''\q''y go ''y cp''\q''j ku''\tcpunc\qtu0Tgi ctf nguu''qh'\y g'' s wguvkqp"qh"y j gyj gt"Gnk cdgyj cp"Gpi nkuj "cpf"eqpvgo r qtct { "Gpi nkuj "ctg"f khhgtgpv"ncpi wci gu" y gpeg" y g"pggf "hqt"  $o\ qf\ gtp/repi\ wei\ g'xgtulqpu''qh''y\ g''\ \textit{U}\ \textit{c}\ \textit{ngur}\ \textit{get}\ g'\ \textit{O}\ \textit{c}\ f\ g'\ \textit{Geu}\ (''nlqpf\ .''y\ j\ lej\ ''lqpf\ ggf\ ''gz\ kuv''epf\ ''uggo\ ''q''hwhkn''e''tgen''$ hwpevkqp+."kv"ku"qdxkqwu"yj cv"yj g"wpf gtuvcpf kpi "cpf "gxcnwcvkqp"qh"Uj cmgur gctg"tguvu"qp"\gz wcn"ewnwtcn"cpf " kf garqi kecnleqf guly j kej "ctg"s wkxg"kpf gr gpf gpv'htqo "vj g"rkpi wkuxke"dcttkgt"cpf "vj gtghqtg"vgpf "vq"eqphtqpv" gfkqtu."etkkeu."fktgevqtu."cfcrvgtu."cpf"qvjgt"Gpinkuj/urgcmkpi"tgytkxgtu"qh"Ujcmgurgctg"ykyj"o wej "vjg"ucog" fkrgo o cu'cu'vjg'\tcpurcvqtu'cdtqcf0Cp{'eqorctkuqp''qh'Gpinkuj'xgtukqpu'rtgrctgf'hqt''vjg'uvcig''qt''etkklecn' gf kklqpu'y kj "tcpurcvkqpu'f qpg"cdtqcf "y km'tgxgcn'y g"gzvgpv'vq"y j kej "y g'hcevqt"qh'nkpi wkuvke eqpxgtukqp"cu" uwej "pggfu''vq''dg''r ww'kpvq''r gtur gevkxg0Cpf. "d{ "'yj g''uco g''vqmgp. "kv'j ki j/nki j wu''yj g''pgeguukv{ "'vq''t gncvg''yj g'' vtcpurcvkqpu'vq''y g''y kf gt''ewnwtcn'eqpvgzv'kp''y j kej ''y g{ "ctg'r tqf wegf "cpf ''j cxg''vq'hwpevkqp0

## Vj g'lpvgt pcvlqpcnf lo gpulqp

Vtcpurcvqtu'wuwcm{ "r tghgt'vq"uvctv'htqo 'vj g'ewttgpv'etkklecn'gfkklqpu'qh'Uj cmgur gctgøu'vgzvu'tcvj gt'vj cp'htqo 'vj g' qtki kpcn's wctvqu'cpf 'hqrkqu0'Vj ku'o gcpu'vj cv'o cp{ ''tcpurcvkqpu'uqo gy j cv'dgrcvgf n{ 'tghrgev'ttgpf u'kp'Gpi rkuj " vgz v'gf kkpi 0'Hqt "gzco r ng. 'vy gpvkgvj /egpwt { "gf kkqpu 'uwej "cu 'vj g" Ctf gp" Uj c ngur gct g" qt 'Iqj p 'F qxgt "Y knuqpøu" Pgy 'Eco dt kf i g'U cmgur gct g'j cxg'egt vckpn( 'dggp'kpurt wo gpvcn'kp''y g'\tcpurc vqt øu'i tqy kpi 'cy ctgpguu'qh'egt vckp'' uwd vrg vlgu 'qh'Uj cmgur gctgøu 'xgtdcn' vgz wxtgu. 'kpenwf kpi 'y qtf r nc { . "co dki wkv{ . "ko ci gt { . "cpf 'vj g'hkng0'Kp'hcev. "vj g" f gr gpf gpeg'qh'\tcpurc\kqpu'qp'etkkecn'gf kkqpu'r tqo r w'egtvckp'hwpf co gpvcn's wgukqpu'cdqwv'y g'kf gpvkv{ "cpf" uvcdkrkv{ "qh" yi g"uqwteg" vgz vu" kpuqh" ct "cu" yi g"ej cpi kpi "gf kvqtkcn" cpf "etkkecn" vtcf kvkqpu "eqpvkpvyg" vq" kpvgtr qug" yj go ugnxgu'dgwy ggp"yj g"gnxulxxg'Grl\ cdgyj cp"Uj cmgur gctg"cpf "j ku"vtcpuncvqt0 Xgt { "qhvgp. "kv" wtpu 'qwv'yi cv'tcpurcvqtu'j cxg" pqv'qpn { "wugf "Gpi nkuj "gf kvkqpu 'qh'yi g'qtki kpcn 'dwv'cnuq" kpygto gf kcyg"tcpurcykqpu"kp"yj gkt"qy p"qt"gxgp"cpqyj gt"rcpi wci g0Ugxgtcn"tcpurcyqtu"qh"Uj cmgur gctg"j cxg" cewcm("dggp"npqy p"\q"r quuguu'nkwrg"qt"pq"Gpi nkuj 0"Hct"htqo "dgkpi "c"o gtg"ewtkqukv(."kp"egt\ckp"ukwc\kqpu." kpenwf kpi "gki j vggpyj /"cpf "pkpgvggpyj /egpwxt { "Gwtqr g."kpf ktgev"tcpurcvkqp"qh"Uj cmgur gctg"y cu'yj g'twrg"tcyj gt" y cp'y g'gzegr wqp0kp'y g'fc{u'qh'y g'pgqencuukecn'j gi go qp{.'U cngur gctg'y cu'ko r qtvgf 'kpvq'Gvtqr g'cpf" dg{qpf 'mti gn{ 'xkc'Htcpeg0'Hqt'gzco r ng. 'yj g'myg'gki j yggpyj /egpwt{ 'pgqemuukecn'xgtukqpu'd{ 'Lgcp/Htcp±qku'' F weku'y gtg'hwtyi gt''tcpurcygf''kpvq'F wej .''Kicrkcp.''Rqrkuj .''Rqtwi gug.''Twukcp.''Ur cpkuj .''cpf'''Vwtnkuj = 'y g'' lpeqo r ngvg'r tqug'\tcpurvkqpu'd{ 'Rkgttg/Cpvqkpg'f g'nc'Rrceg'\*39686; +'hqwpf 'tgcf gtu'cpf 'tgy tkgtu'cm'qxgt'' Gwtqrg."cpf "uq"fkf" 'y g"o qtg"uqwteg/qtkgpygf"rtqug"xgtukqpu"qh"cm"y g"rnc{u"d{"Rkgttg"Ng"Vqwtpgwt"\*39986: 5+0" Htcpeg'j qy gxgt'i tcf wcm{ 'mquv'kwi'i tkr 'qp''yi g'tgegr vkqp''qh''Uj cmgur gctg'kp''Gwtqr g''cu''qr r qukvkqp''vq''yi g'' pgqercuulecn'f qo kpcvkqp'dgeco g'uvtqpi gt0'Y kj 'I gto cp{'j cxkpi 'go gti gf 'cu'vj g'ej co r kqp'qh'cpvk/ercuulekuo .'' vtcpurcvqtu'kpetgcukpi n{ "wtpgf "vq"I gto cp"kpvgto gf kcvg" \tcpurcvkqpu"qh"c"o qtg": hcky hwnø'nkpf 0'Vj g" \tcpurcvkqpu" d{'Ej tkunqrj'O 0'Y kgrcpf'\*398468+.'Iqj cpp'Iqcej ko 'Guej gpdwti'\*39976: 4+.'Htkgf tkej 'Nwf y ki 'Uej t¾ gt'\*hqt'' gzco r ng" J co ngv. "3998+." Htkgf tkej "Uej kngt" hqt "gzco r ng" O cedgyj. "3: 22+." cpf "C wi wuv" Y knj gno "UEJ NGI GN" \*ugg'<u>I GTO CP 'VTCF KVKQP</u> +'cpf 'Nwf y ki 'Vkgem'\*39; 963: 55+'dgi cp'\q'kphrwgpeg'\tcpurc\qtu'gnugy j gtg'kp'' hqt"c"xkcdrg"crrtqcej "\q" y g" \cum'qh"\tcpurc\pi "Uj cngur gctg0 kp" y ku" y c{."kp\gtpc\ptqpcn'pg\y qtmu"qh"tgrc\ptqpu" eqppgevkpi "vj g'xctkqwu'uq/ecngf 'pcvkqpcn'Uj cngur gctgcp'vtcfkxkqpu'kp'Gwtqr g'engctn('tghrgev'vj g'uj khxkpi 'r qy gt''

tgrcvkqpu'co qpi 'kxu'ewnwtcn'eqo o wpkxkgu0 Vj g"vkgu"dgwy ggp"ewnwtcn"qt"r qrkxkecn"gpvkxkgu"cpf" yj g"f qo kpcpv"pcvkqpcn"rcpi wci g"ur qmgp"kp"gcej "eqo o wpkx{" ctg"\qq"gcukn("\cngp"hqt"i tcp\ygf <'Htgpej 'ku'pqv'\yj g"qpn("hcpi wci g"ur qngp"kp"Htcpeg"hqt"kpuvcpeg."pqt"j cu'kxu'wug" dggp"tguvtkevgf "vq"yi cv"ctgc0"Vj ku"kpuki j v"r qkpvu"vq"{gv"cpqyi gt "cur gev"qh"Uj cmgur gctgøu "equo qr qrkxcpkuo "d{" ftcykpi "cwgpvkqp"vq"÷pqp/vtcpuncvkqpø'cu"c"o gcpu"qh"fgcnkpi "ykyj" yjg"ncpi wci g"dcttkgt0"Vjg"uvcwuu"qh"Gpinkuj." Htgpej ."cpf "I gto cp"cu"c"hpi wc"htcpec 'kp"egt vckp"ctgcu"cpf "cv"egt vckp" \wo gu"j cu"uvtqpi n{ "f gvgto kpgf "vj g" kpygtpcykqpcn'urtgcf "qh''Uj cmgurgctgøu'y qtmu. "ngcfkpi "vq"dkrkpi wcrkuo "cpf "dkewnwtcrkuo "kp" yj gcytkecn'qt "rkxgtct{" nkhg"cpf "uq"dtkpi kpi "cdqw"c"eqo r ngz "kpvgtr nc { "dgwy ggp"f khhgtgpv"vtcpuncvkqp"vtcf kxkqpu0"Vj g"wug"qh"c"hqtgki p" nkpi wc'htcpec'cmpi ukf g."qt"cu'c'uwdukwwg'hqt."vj g'mecn'xgtpcewrct"ku'xgt{"qhvgp"gphqtegf"d{"c'r qrkkecm{" uvtqpi gt"cpf lqt"ewnwtcm{ "o qtg"r tguvki kqwu"i tqwr "tcyi gt"yi cp"dgkpi "yi g"qweqo g"qh"c"htgg"ej qkeg0"Vj ku"ncti gn{" ceeqwpwi'hqt''y g'ko o gpug'y qtnf y kf g'uweeguu'qh'wpvtcpurcvgf "Uj cngur gctg.'pqv'ngcuv'kp'Dtkxckpøu'\*hqto gt+" eqripkgu"cpf "f gr gpf gpekgu." y j gtg" y g'tgrc kxg"uvcdkrkv{ "qh" y g'ucetqucpev qtki kpcnu ecp "dg" wugf "\q" ugtxg" Y guvgtp" ko r gtkenkuo "cpf" exgtv'y g"f cpi gt"qh"Uj engur getg"dgkpi "er r tqr tkevgf" d{ "y g"nqeen'ewnwtgu0Hqt"uqo gy j ev" fkhogtgpv'tgcuqpu. 'y g'r gthqto cpegu'd { 'Gpi rkuj 'xkukkpi '\tqwr gu'kp''gki j vggpvj / 'cpf 'pkpgvggpvj / egpwt { 'Gwtqr g'' y gtg"r qukkkxgn("y greqo gf "cu"c"ecvcn(uv"y j kej "eqwrf "ur ggf "wr "y g"crtgcf { "gzkuvkpi "ttgpf "vqy ctf u"c"o qtg" Grk cdgyj cp'cpf "wpcf wrugtcygf "Uj cngur gctg0"

## Eqphlev'cpf 'ceewnwt cwlqp

Ki'ku'c''eqo o qpr rceg''qh''f tco cvke''j kuvqt{''yi cv'Uj cmgur gctgøu''y qtm'r tgugpvu''c''drgpf ''qh''I tgeq/Tqo cp''cpf '' r qr wrct''xgtpcewrct''grgo gpvu0'Vj ku''wpf gtrkgu''Uj cmgur gctgøu''co dkxcrgpv'tgrcvkqpuj kr ''

y kpguu'j ku'lwz vcr qukkqp"qh'j ki j "vtci gf { "y ky "dtqcf "hcteg"cpf "qh'r tqug"y ky "xgtug." j ku'lki pqtcpeg"qh'uqekcn' f geqt wo ." j ku'f kutgur gev'hqt "y g"wpkkgu'qh'r meg. "vko g"cpf "cevkqp." y g"dmqf uj gf "cpf "ur gevcewrct "ghhgevu"qp" uvci g. "y g"kpf gegpekgu." y g"y qtf r mc { ." y g"wpf kuekr nkpgf "ko ci gt { "cpf "xgtdcn'qduewtkv{ ." cpf "uq"qp0"Vj ku" kpeqo r cvkdkrkv{ "y ky "pgqercuulecn'r qgvkeu" j ctf n( "o cwgtgf "kp" y g"hktuv'uvci g"qh"Uj cmgur gctgøu"t gegr vkqp"kp" Gwtqr g0F wtkpi "Uj cmgur gctgøu"hkgvko g"cpf "y g"pgzv'hgy "f gecf gu." y g"Gpi nkuj "uvtqmkpi "r mc { gtu"dtqwi j v" uko r nkhlgf "uvci g"xgtukqpu"qh"Uj cmgur gctg"vq"y g"Eqpvkpgpv."hktuv'kp"Gpi nkuj "y ky "uvtqni "f gr gpf gpeg"qp"dqf { "mcpi wci g"cpf "ur gevcewrct "uvci g"cevkqp"cpf "mcyt"hqmy gf "d { "vtcpurcvkqpu0"Vj gug"r mc { gtu"mcti gn( "qr gtcvgf" qwulf g"y g"qhhlekcn'y gcvtkecn'cpf "nkygtct { "ektevku0"

Uj cngur gctgøu'pco g'i tcf wcm{ 'dgi cp'\q'go gti g'\p'ecpqpk gf 'Gwtqr gcp'ewnwtg. 'pqv'ngcuv'xkc'o gpvkqpu'\p' vtcpuncvgf 'Gpi nkuj ''ur gevcvqtkon'o ci c| kpgu''cpf ''pqxgnu' \*hqt''gzco r ng''d { ''Uco wgn'Tkej ctf uqp''cpf 'J gpt { ''Hkgnf kpi +'' cpf "vj tqwi j "Xqnxcktgøu"y kf gn{ 'kphnwgpvkcn'etkkekuo "\*hqt"kpuvcpeg"kp"j ku"*Ngwt gu"r j krquqr j ks wgu*. "3956+0"Vj ku" kpekr kgpv'kpvgtguv'kp''Uj cngur gctgøu'y qtmlrgf ''vq''y g''gctrkguv'r wdrkuj gf ''vtcpurcvkqpu.''kpenwf kpi ''y qug''d { ''Rkgttg/ Cpvqkpg'f g'Nc'Rrceg'kp'Htcpeg'cpf 'EOY (xqp'Dqtemou'l gto cp''xgtukqp''qh'/Lwkwu'Ecguct'kp''3963."cpf 'y cu'' hwt yi gt "gpeqwtci gf "d{" 'yi go 0'J qy gxgt. "i tqy kpi 'hoo krketkx{" 'y kyj "Uj engur getgøu" y qtm'enuq "dtqwi j v'j qo g' yi g" gzvgpv'qh'kw'wpceegr vcdkrkv{ "d{ "pgqercuukecn'uvcpf ctf u. "dcttkpi "yj g'y c{ "vq'yj g'r tguvki kqwu''yj gcvtgu''gzegr v'kp" uttqpi n{"cf cr vgf "xgtukqpu."cpf 'hgcf kpi "vq"hkgteg"eqpvtqxgtu{"dgw ggp"f gvtcevqtu"cpf "f ghgpf gtu"qh"Uj cngur gctg." y j q'r quvj wo qwun( "dgeco g"vj g"uvcpf ctf/dgctgt "qh"vj g"cpvkencuulecn'eco r cki p0O cp{ "gki j vggpvj / "cpf "pkpgvggpvj / egpwt{"etkkeu"cpf" \tcpurcvqtu"wugf" jku'y qtmu"cu"c"\guvkpi" i tqwpf 'hqt"rkgtct{"cpf" yj gcvtkecn'gzr gtko gpvcvkqp." qhygp"cnki pkpi "yi go "y kıj "qyj gt"kppqxcvqt { "\tgpf u"qt"i gptgu"qh"Gpi nkuj "r tqxgpcpeg. "kpenwf kpi "pqp/f tco cvke" y qtmı'uwej "cu''y g'i qy ke''pqxgn''Quukcpke''r qgvt { . "qt''y g'j kuvqtkecn'pqxgn')Uko krctn( . "o cp { 'Gwtqr gcp'y tkvgtu'kp'' pqp/ftcocvke"i gptgu"crrgcngf "vq"vjg"cwjqtkv{ "qh"vjg"Ujcngurgctgcp"oqfgn"cpf "cfcrvgf"kv"hqt"vjgkt"qyp" r wtr qugu="yj ku'r j gpqo gpqp"ecp"gxgp"dg"qdugtxgf "kp"yj g"pqp/xgtdcn'ctw0Engctn(."y j cv'y cu'dgkpi "ej cmgpi gf "kp" Uj cngur gctgøu'pco g'y cu'pqv'lwuv'c'r ctvlewrct'eqpegr v'qh'vj g''vtci gf { .''dwv'yj g''gpvltg''i gptgu{uvgo .''lof ggf 'vj g'' y j qng'ewnwtcn'cpf 'r qnkkecn'r ctcf ki o "qh'pgqencuukekuo "y j kej "yj g"\tci gf { "gr kqo k∤ gf "cu'kku"o quv'tgur gevcdng" i gptg0Kp"cp{"ecug."yj g'uq/ecmgf"tgcn"Uj cmgur gctg"yj cv"yj g"\*r tg/+Tqo cpvkeu"vtkgf "qt"r tgvgpf gf "vq"tguwttgev" tgo ckpgf "cdqxg"cm"c"y tkgt "qh"cpyj qmi { "r kgegu"cpf "enqugv"f tco cu<"yj g"htgg"pgqencuukecn"tgy tkkpi u"qh"yj g" gki j vggpvj "egpwt { "eqpvkpwgf "vq"f qo kpcvg" vj g"uvci g"wpvkn'y gm'kpvq" vj g"pgzv'egpwt { 0 Vj g''qrrqukkqp''dgw ggp''Uj cngurgctgcp''cpf''Htgpej ''pgqercuukecn'rqgkeu''y cu'engctn(''c''xgt{''ghhgekxg'hqteg0' Co qpi "qyj gt" y kpi u. "kv" grr u" wu' wpf gturcpf "y j { "y g" tgegr vkqp" qh" Uj cmgur gctg" tgo ckpgf "ncti gn( "tgurtkevgf "vq" uqo g'qh'j ku'tci gf kgu'hqt'c'nqpi 'tko g. "gpvckrkpi 'tj g'r ct tkcn'gzenwukqp''qh'tj g'eqo gf kgu. 'tj g'j kurqt kgu''cpf ''gxgp'' o qtg"yi g"pqp/ftcocvke"y qtm="tcpurcvkqpu"qh"yi g"*Uqppguu*."hqt"kpuvcpeg."u{uvgocvkecm{"crrgctgf"ovej"cvgt"cpf" qhvgp'j cxg''vq''dg''cuetkdgf ''vq''cp''kpvgtguv'kp''yj gkt''r tguwo gf ''cwvq/dkqi tcrj kecn'eqpvgpv0Gxgp''uq. ''qpg''uj qwrf ''tgukuv'' yj g'vgo r vcvkqp"vq"tgf weg"vj g"qr r qukxkqp"dgwy ggp"Uj cmgur gctg"cpf "pgqencuukekuo "vq"c"tcf kecn'qt 'uvcvke"r qnctkv{" cpf "uq"qxgtmqm"yj g'r ctvlewrctu"qh"gcej "eqpetgvg"ukwcvlqp0"Hktuv."yj qug"y j q"wugf "Uj cmgur gctg"vq"nkdgtcvg"yj gkt" ewnwtg'htqo ''Htgpej ''twrg''d{''tt{kpi ''vq''etgcvg''c''ttwn{ ''pcvkqpcn'vj gcvtg. ''nkvgtcwttg. ''qt''gxgp''ncpi wci g'y gtg''cevkpi ''kp'' yj gkt "qy p"kpvgtguv"cpf "pqv"kp"Uj cmgur gctgøu0Cm quv"kpgxkxcdn("vj ku"o gcpv"vj cv"vj g"etkkeuø"cpf "vtcpurcvqtuø"  $xgtukqpu''qh''Uj\ cmgur\ gctg''y\ gtg''ugngevkxg''cpf\ ''dkcugf\ ''kp''ceeqtf\ cpeg''y\ kxj\ ''r\ tgxcknkpi\ ''r\ gtuqpcn'qt''o\ qtg''eqmgevkxg''$ eqpxlevlqpu0Hqt"gzcorg."kp"yjg"I gtocp"eqpvgzv"Ujcngurgctg"tgcm("dgecog"c"rcyp"kp"yjg"uvtcvgikgu"qh"yjg"

r tqo qvqtu'qh'vj g'f qo guvke'vtci gf { .''vj g''Uwto "wpf "Ftcpi" o qxgo gpv.''vj g'enqugv'f tco c.''vj g''pqvkqp''qh'r qr wrct" r qgvt { .''vj g''Y gko ct''r tqf wevkqp''uv{ ng. "cpf "uq' hqt y 0Gxgp" yj g'egngdtcvgf "Uej ngi gnô Vkgem'vtcpurcvkqpu.''y j kej " r kqpggtgf ''yj g'xkgy "qh'Uj cngur gctgøu'r qgvt { "dgkpi "qti cpke"cpf ''yj gtghqtg''tgs wktkpi 'hwm'vtcpurcvkqp"qh'hqto u'cu" y gm'cu'o gcpkpi u. "ctg"pq"gzegr vkqp"vq''yj ku'twng'kp"uq'hct"cu''yj g{ "r tqxg"uvtqpi n{ "vtkdwct { "vq"yj g''twrkpi "uv{ nkuvke" eqpxgpvkqpu''qh''yj g''t qgyj g''gtc0'Ugeqpf .''pgqencuukecn'tgy tkygtu'uwej "cu''Xqncktg''qt''F weku'y gtg''pqv''yj g''ctej /

eqpugtxcvkxgu'vj g{ "ctg"wuwcm{ "o cf g"qwv'vq"dg<'vj g"vtwyj "ku"

yj cv'yj g{ "y gtg"wukpi "Uj cmgur gctg" 'vq" tgpgy "yj g"encuukecn' tci gf { "htqo "y kij kp"d { "dqttqy kpi "Uj cmgur gctgcp" grgo gpwl'uwej "cu'o qxgo gpv'cpf "ur gevcerg"cpf "cffkpi "grgo gpwl'qh'yj g'dqwti gqku'ftco c0'Vjktf."kp"o cp{"pcwlqpu" Uj cngur gctg"cnuq"ecvgtgf "hqt"gzr cpf kpi "o kf f ng/encuu"cwf kgpegu"kp"r qr wrct "vj gcvtgu"y j kej "eqwrf "o qtg"uchgn{" ki pqtg''yi g''eqpxgpvkqpu''qh''j ki j ''pgqencuukecn'\tci gf { ''cpf ''y gneqo g''c''xctkgv{ ''qh''cf cr \c\kqpu''\tuvej ''cu''eqo gf kgu.'' rtqug'xgtukqpu."qrgtcvke'xgtukqpu."rctqfkgu."ognqftcoc."cpf'xcwfgxkng+."yjqug'uweeguu'rctcfqzkecm('hcxqwtgf'' yj g"cpvk/encuulecn'untkxlpi "hqt'yj g"cwyj gpvle"Uj cngur gctg"d { "wpf gtewwlpi "yj g'uncwuu"qh"pgqencuulecn'r qgvleu0 Ki'ku'pqv'r quukdng'\q'f y gml'qp'r quv/tqo cpvke'\tcpuncvkqpu''qhl'Uj cmgur gctg''kp''yj ku''eqpvgzv0'Uvcvkuvkeu''uj qy .'' j qy gxgt." 'y cv'chygt" y g"Tqo cpyke" f gdcygu'r gygtgf "qwy'cpf" o gti gf "kpyq" pgy "cguyj gyke" f gxgmr o gpyu" kp" o quy" ewnwtgu. "y g'pqy "ugewtg'uvcpf kpi "qh'Uj cngur gctg"cu'c i gpkwu'j cu'dqquvgf "gxgp'hwtyj gt'y g'r tqf wevkqp"qh'pgy " vtcpurcvkqpu0'Uqwteg/vgzvqtkgpvgf '\tcpurcvqtu'ecp'pqy 'r tqhk/htqo 'vj g'tguqwtegu'qhhgtgf 'd{ 'o qf gtp'uej qrctuj kr." y j krg'uweeguuhwn'etgcvkxg'xgtukqpu'cnuq'eqpvkpwg'vq'dg'o cfg0'Vjg'vtcpurcvkqp'qh'Ujcngurgctg'hqt'hkro'cpf'' vgngxkukqp"j cu'dggp"c"o clqt"pgy "crrnkecvkqp0"Xgt{"dtqcfn("urgcmkpi."kp"eqorctkuqp"ykj"yjg"rtgegfkpi "wyq" egpwtkgu." y g"tcpurckqp"qh"Uj cmgur gctg"kp"Gwtqr g"uggo u'\q"j cxg"dggp"f gvgto kpgf "uqo g/y j cv'nguu'd { "ttgpf u" chłge klpi "gp ktg"r gt kqf "eqf gu"qt"i gptg"eqf gu. "cpf "o qtg"d { "vj g"r tkx cvg"r qg kleu"qh klpf kx kf wcn ktcpurc vqtu 0 klp" fkhgtgpv'ctgcu. 'j qy gxgt. 'Uj cmgur gctg'uvkm'r nc{u'cp'ko r qtvcpv'tqng'kp''yj g'hqto cvkqp''qh'pgy 'ewnwtcn'kf gpvkkkgu0' Vj ku'wuwcm( "qeewtu'kp'r qrkkecm( "ugpukkxg"eqpvgz vu. "uwej "cu'S wgdge"\*Dtkuugv'3; ; 2. '3; ; 8+"cpf "vj g"o cp{" go gti gpv'r quv'eqnqpkcn'ewnwtgu0

Vtcpurckqpu'qhvgp"r tqxg"vq'dg'hqpi gt/nkxgf "qp"yi g"uvci g"qt"kp"tgr tkpwi'qt"tgxkugf "xgtukqpu'yi cp"yi g"pgy eqo gtu" y j kej "cmgi gf n( "uwr gtugf gf "yi go ."htgs wgpvn( "tguwnkpi "kp"yi g"uko wncpgqwu'eqgzkuvgpeg"qhlf khhgtgpvhqto u'qhl" Uj cmgur gctg'kp"tcpurckqp0'Vj g"eq/r tgugpeg"qhlf kukpev'tcf kkhqpu'wuwcm( "uj qy u'engctn( "kp"yi g"f khhgtgpvkckqp" dgw ggp"xgtukqpu'hqt"yi g"r ci g"cpf "yi qug'hqt"yi g"uvci g."y kyi "yi g"ncwgt"qhvgp"o qtg"eqpugtxcvkxg"yi cp"yi g"hqto gt0' P qv'uwtr tkukpi n( ."yi g"j gvgtqi gpgkx{ "qhl'cp{ "ewnwtg" hqt"gzco r ng"kp"vgto u"qhlr j gpqo gpc"dgkpi "ctvkurke"qt"pqp/ctvkurke."eqpugtxcvkxg"qt"kppqxcvkxg."j ki j dtqy "qt"nqy dtqy ."eqmgevkxg"qt"kpf kxkf wcn "cpf "uq"qp+"y kni'dg"tghngevgf "kp"yi g"j gvgtqi gpgkx{ "qhl'ku'etkkecn'cpf "tcpurcvkqpcn'tgur qpugu"q"Uj cmgur gctg0Vj ku'kpxcnkf cvgu'cp{ "uko r nkurke" cwgo r v'cv'r gtkqf k| cvkqp"qt"cv'guvcdnkuj kpi "c'qpg/f ko gpukqpcn'ej tqpqmqi { "qh"Uj cmgur gctg'kp"tcpurcvkqp0C "hwm' cpf "u{ uvgo cvke"ceeqwpv'qh'yi ku'gzvtgo gn{ "eqo r ngz"uvcvg"qh'chhcktu'y km'tgs wktg"o wej "o qtg"go r ktkecn'tgugctej ." dw'kp"tgwtp"qhhgt "kpxcnwcdng"kpuki j wu'kpvq"yi g"qti cpk cvkqp"qh'qwt"r quv/tgpckuucpeg"ewnwtgu0

Ugg"cnuq<

FTCOC"VTCPUNCVKQP0

### Hwt yj gt 't gcf kpi

Dewgt "gv'cn03; : : = "Dtkuugv'3; ; 2="F gredeurkec'3; ; 5="F gredeurkec'epf "Føj wnuv'3; ; 5="J g{ rgp"3; ; 5="J qho epp"3; : 2="Netuqp" epf "Uej grgg"3; : ; = O qpeeq'3; 96="Uej edgtv'3; ; 4="Uj engur get g"Vt epurevkqp"3; 96/="Uvgki gt"3; : 9="Y kmko u'3; ; 20'Drkpp" 3; ; 5"epf "RewnIUej wny g"3; ; 3"qhhgt "kpf kur gpuedrg "dkdrkqi ter j keenli wkf epeg0"

F KTMF GNCDCUVKVC

# Uj khu'qh'tt cpurc vkqp

Vj g'\gto '\uj \understand \un

y cv'÷uj khw/ku'pqv'c'ecvgi qt { "qh'eqo r gvgpeg0Vj g'f guetkr vkqp"cpf "gzr ncpcvkqp"qh'uj khwi'kp"vtcpuncvkqp"cu" r gthqto cpeg'y gtghqtg"qwi j v'vq"dg"eqpegtpgf "y kyj "y g'f { pco keu'qh'ewnwtg'tcyj gt "y cp"y g'uvcvke"eqpvtcuvkxg" f guetkr vkqp"qh'ncpi wci gu'cpf "ewnwtgu. 'y j kej "vcngu'r nceg"y kyj kp"y g'htco gy qtm'qh'xctkqwu'eqo r ctcvkxg" f kuekr nkpgu'\*qp"y gug'r qkpvu. "ugg"Vqwt { "3; : 2c<"3363: +0

### Uj khu'cpf 'kpxct kcpeg

Vtcpurckqp."hmg"gxgt{"tcpuhgt"qr gtckqp."hpxqnxgu"cp"-kpxctkcpv'wpf gt"tcpuhqto ckqpø\*eh0Vqwt{"3;: 2c<34+0' Vj g"tcpuhqto ckqp"y j kej "ku"qeecukqpgf"d{"y g"tcpurckqp"r tqeguu"ecp"dg"ur gekhgf "kp"ygto u"qh"ej cpi gu"y kj " tgur gev'q"y g"qtki kpcn"ej cpi gu"y j kej "ctg"ygto gf "-nij khwø0Vj g"y q"eqpegr w"qh"kpxctkcpv'cpf "uj khv'ctg"y gtghqtg" kpygtf gr gpf gpv."uwej "y cv'cp{"encukhkeckqp"qt"f ghkpkkqp"qh"uj khu"gpvcku"c"f ghkpkkqp"qh"y g"kpxctkcpv\*Dcmmgt" cpf "P ccklngpu"3;; 3-42667+0F ghkpkkqpu"qh"y g"eqpegr v"qh"kpxctkcpv\*\*klg0'y qug"grgo gpw"y j kej "tgo ckp" wpej cpi gf "kp"y g"r tqeguu"qh"tcpurckqp+"pgeguuctkn{"ugtxg"c"egtvckp"y gqtgykecn"r wtr qug. "y j krg"r tguwr r qukpi "c" egtvckp"r qkpv'qh"xkgy 0C"xgt{"tqwi j "cpf "uej go cke"f kxkukqp"ecp"dg"o cf g"dgyy ggp"y qug"eqpegr vkqpu"qh" kpxctkcpeg"kp"y j kej "y g"r qkpv'qh'xkgy "hgu"-dghqtgø'tcpurckqp"\*dg"kv'cewcn'qt "kf gcn+"cpf "y qug"kp"y j kej "kv'nkgu" -chngtø'y g"hcev0fp"ceeqtf cpeg"y ky "y ku"f kxkukqp. "y q"encuugu"qh"f ghkpkkqpu"qh"y g"kpxctkcpv'ecp"dg" f knkpi wkuj gf 0Vj g"htuv'eqpukuw'qh'y qug"f ghkpkkqpu"kp"y j kej "y g"kpxctkcpv'ku"r quwrcvgf "cu"c"pgeguuct{" eqpf kkqp"vq"dg"o gv'dghqtg"y g"tcpuhgt"qr gtckqp"ecp"s wchkl "cu"tcpurckqp="j gtg."y g"kpxctkcpv'eqlpekf gu'y ky "y g"ygtvkvo "eqo rctckqpkit'qh'tcpurckqp"\*eh0f gqt g"Uygkpgt"3; 97-53; "cpf "Nghgxgtg"cpf "Dcuupgw'3;; 2-5+0ffo" f ghkpkkqpu"qh'y g"ugeqpf "\{r g. 'y g"kpxctkcpv'ku"o gcpv'hqt "wug"cu"c"f guetkr kxg. "r wtgn{"j gwtknke"eqpuntwev=j gtg." y g"lygtvkvo "eqo rctckqpkit'ku"c"f gxkeg"kp" ig "o gy qf qmi {"qh"y g"f guetkr kxg."r wtgn{"j gwtknke"eqpuntwev=j gtg." y g"lygtvkvo "eqo rctckqpkit'ku"c"f gxkeg"kp"y ig "o gy qf qmi {"qh"y g"f guetkr kxg."r wtgn{"j gwtknke"eqpuntwev=j gtg." y g"lygtvkvo "eqo rctckqpkit'ku"c"f gxkeg"kp"y ig "o gy qf qmi {"qh"y g"f guetkr kxg."r wtgn{"j gwtknke"eqpuntwev=j gtg."

### Kpxctkcpeg'f ghkpgf'+rtkqtø'vq'vtcpurcvkqp

Y j gp"c"egtvckp" $\$  r g"qh"kpxctkcpeg"ku"eqpukf gtgf "c"tgs wktgo gpv"hqt"crrtqrtkcvg"\tcpurc\kqp"dgj cxkqwt."\j g" eqttgur qpf kpi "pq\kqp"qh"uj khv"ku"hkngn( "\q"dg"c"pqto c\kxg"qt"rtguetkr\kxg"qpg0"Vj g"f ktge\kxg"uvcyo gpw"kp"y j kej " y ku"pq\kqp"ku"hqwpf "ecp"dg"ecuv"gkj gt"kp"cp"chhkto c\kxg"hqto "cu"f q."qt"kp"c"pgi c\kxg"hqto "cu"f  $\$  qp $\$  v"xcp"Ngwxgp/ y ct $\$  y ct $\$  3; ; 2d+0"Vj g"ej qkeg"qh"gkj gt"\j g"r qukkxg"qt"\j g"pgi c\kxg"hqto wc\kqp"f gr gpf u"qp"\j g"y c{"\j g"kpkkcn" f kthgtgpegu"dgwy ggp"uqwteg"cpf "\cti gv"eqf gu"qt"u{uvgo u"ctg"\cngp"kpvq"ceeqwp $\$  v"qh"uy f"qu"\j g"r gu"qh"uxcyo gpv"\j g" eqpegr v"qh"uj khv"ku"gur gekcm( "tgrgxcpv"\q"\j g"cr rrkgf"dtcpej gu"qh"\tcpurc\kqp"uwxf kgu<"\tcpurc\kqp"F KF CEVKEU" cpf "etk\kekuo "\ugg"\TGXKGY KPI "CPF"ETK\KEKUO +0

Ko"pgi cvksg"hqto wævkqpu."\uj khu"ctg"hqngf "\wr qp"cu"\wpy greqo g"tguwnu"qh"\uj g"\tcpuævkqp"cev"cu"\upo g\u) kpi "\q"dg" cxqkf gf <"\uj g"\upo r nkgf "r gthqto cpeg"kputwevkqp"ku"y qρφνΟVj g"\upo ckp."\uj gp."tghgtu"\upo k\upo gp"tu"\upo ckqpu"qh"egtvckp" uqwteg"\upo zv'xcmwgu"qt"r tqr gt \upo kgu"y j kej "qwi j v'\upo ckp."\upo ckp."\upo ckpgf."\upo ckpgf."\

Kp"r qukkxg"hqto wrckqpu. "qp" yi g" qyi gt" j cpf. "uj khw" ctg" uggp" cu't gs wkt gf. "kpf kur gpucdrg" ej cpi gu" cv'ur gekhke" ugo kqvke "rgxgnu." y kyi "tgi ctf "vq" ur gekhke" cur gewi qh "yi g" uqwteg" yz v0" Vj gkt "uwr r qugf n{ "pgeguuct { . "qt "f guktcdrg." qeewttgpeg" ku'c "eqpugs wgpeg" qh" u{ uvgo ke "f khhgtgpegu0" Uj khw" ctg" yi g" o gcpu" y j kej "cmqy "yi g" vtcpurcvqt" vq" qxgteqo g" uwej "f khhgtgpegu0" Kp" qyi gt" y qtf u. "ej cpi gu" cv'c "egt vckp" ugo kqvke "rgxgri y kyi "tgur gev' vq" c" egt vckp" cur gev' qh" yi g" uqwteg" yz v'dgpghkv' yi g" kpxctkcpeg" cv' qyi gt" rgxgru" cpf "y kyi "tgur gev' vq"

qvj gt "cur gew0'Y kj "vj ku'pqvkqp"qh'uj khv."vj g"hqewu'ku'pqv'qp"f gr ctwtgu'htqo "c'i kxgp"pqto cvkxg"eqpegr v'qh" vtcpurcvcdktv{ "dw'qp"vj g"u{uvgo ke"f khtgtgpegu'y j kej ."kp"vj g"r tqlgevgf "ttcpurcvcdktv{ "o qf gn"tgo ckp"vq"dg" r tqxkf gf "hqt0'K'ku'vj gug"u{uvgo ke"f khtgtgpegu'y j kej "ctg"tgy tkwgp"kp"vgto u"qh'r gthqto cpeg"kpuvtwevkqpu" \*f q+0" Vj g"eqpegr v"qh"uj khv."vj gp. "ku'kpuvtwo gpvcn'y kj kp"c"ugv'qh'vtcpurcvkqp"r tqegf wtgu0'Gzco r ngu"qh'uj khvu'r quwwcvgf " cu"f qqu'kpenwf g"ej cpi gu"cv'vj g"ngxgn'qh"hqto cn'nkpi wkuvke"o gcpu'y j kej "ctg"dtqwi j v'cdqwv'kp"hcxqwt"qh'hwpevkqpcn" qt"vgzv'r tci o cvke"gs wkxcngpeg0'Hqt"kpuvcpeg. "P kf cqu"pqvkqp"qh'f { pco ke'gs wkxcngpeg."y j gtg"=vj g"hqewu"qh" cwgpvkqp"ku"f ktgevgf ."pqv'uq"o wej "vqy ctf "vj g"uqwteg"o guuci g."cu"vqy ctf "vj g"tgegr vqt"tgur qpugo\*P kf c" 3; 86388+"cf qr vu"c"hwpevkqpcn'r tci o cvke"eqpegr v'qh'hpxctkcpeg"cpf "r tguwr r qugu"uj khvu"cy c{ "htqo "uvcvke."qt" hqto cn'j kgtctej kgu"qh'uqwteg/vgzv'r tqr gtvkgu0'Vy q"qh'vj g"vtcpurcvkqp"r tqegf wtgu"f knewnugf "kp"Xkpc{"cpf" F ctdgnggv'\*3; 7: +"r tqxkf g"hwty gt"gzco r ngu"qh'r qukvkxg"r gthqto cpeg"kpuvtwevkqpu<"vtcpurcvkqp"o gyj qf "eqpukvkpi" y qtf "ku'tgpf gtgf "d{"c"VN"y qtf "qh'c"f khtgtgpv'y qtf "encuu."cpf "o qf wrcvkqp.":-jc\_"vtcpurcvkqp"o gyj qf "eqpukvkpi" qh'ej cpi kpi "c"r qkpv'qh'xkgy ."cp"gxqecvkqp."cpf "qhvgp"c"ecvgi qt{"qh'vj qwi j vø'\*Xkpc{"cpf "F ctdgnggv"vtcpu0'Uci gt" cpf "J co gn"3; ; 7<568+0

### Kpxct kcpeg'f ghlpgf '+chyt ø't cpurc kqp

Cu'c'f guetkr vkxg'ecvgi qt {.''uj khvu'ctg'f ghkpgf ''cpf 'kf gpvkhkgf 'tgvtqur gevkxgn(0'Vj g{ ''ctg'tgeqpuvt wevgf ''qt'' guvcdrkuj gf 'f wtkpi ''y g'f guetkr vkqp''qh''cewcn ''gzkurkpi ''vtcpurcvkqpu0'Vj g'f guetkr vkxg'hqewu'o c{ ''dg''qp''y g'' tgeqpuvt wevkqp''qh''y g''tcpurcvkqp''tq''y g''r tqf wev.''r ctvkewrctn( ''y kyj ''tgur gev''vq''kwu'tgrcvkqp''vq''y g'' uqwteg0'J qy gxgt.''y g'f kurkpevkqp''dgw ggp''r tqeguuv'qtkgpvgf ''cpf ''r tqf wev'qtkgpvgf ''f guetkr vkqp''ku''pqv'ergct/ew0' Rtqeguuv'tgrcvgf ''grgo gpvu'o c{ ''r rc{ ''c''tqrg''y kyj kp''y g''f guetkr vkqp''qh''vtcpurcvkqp''cu''c''r tqf wev.''cpf ''y g''uvwf { ''qh''y g'' r tqf wev'ku''y g''r tkpekr cn'o gcpu''hqt''f guetkdkpi ''vtcpurcvkqp''cu''c''r tqeguu0

ecwicm ("hpngf" 'vq' 'y g'f qwdrg' urcwu 'qh' 'y g' 'tcpurc kqp" cu'c' tgeqpurt we kqp" qh' cpqy gt 'vgz v'cpf 'c' vgz v'hwpe kqpkpi" kp'ku' qy p'tki j v'kp' y g' vcti gv'ewnwt g'\* ugg. 'hqt' kpuvcpeg. 'Ngx { '3; 8; <94+0

### Fghlpkskap'cpf 'encuddlecvkap'ah'tij khwikp'rt af wev/at kgpvgf 'f guet krvkapu

Echqtf "3; 87+"f kuewuugu 'uj khu'y ky kp 'yj g'htco gy qtm'qh'c 'hkpi wkuke 'yj gqt { ''qh' \tcpurc \kqp0'Y ky kp 'yj ku'' htco gy qtm"uj khul'qeewt"qp"vj g"i tco o cvkecn'cpf "rgzkecn'rgxgnu."cpf "vj gkt kpxguvki cvkqp"ku'vj gtghqtg"r wtuwgf " y ký kp''ý g''dqwpf ctkgu''qh''ý g''ugpvgpeg''cu''cp''wr r gt''tcpm0'Ecvhqtf ''f kuvkpi wkuj gu''dgwy ggp''c''**vgz wcn'gs wkxcngpv.**'' ÷cp{"VN"\gzv'qt"r qtvkqp"qh'\gzv'y j kej 'ku'qdugtxgf "qp"c'r ctvkewrct"qeecukqpí "vq"dg"vj g"gs wkxcrgpv'qh'c"i kxgp"UN" vgzv'qt'r qtvkqp"qh'vgzvø"cpf "c'hqto cheqttgur qpf gpv."÷cp{"VN"ecvgi qt{"\*wpkv."encuu. 'uvtwewtg. "gngo gpv'qh" unt wewntg. "gwe0+"y j kej "ecp"dg"uckf "vq"qeewr {. "cu"pgctn{"cu"r quukdrg. "yj g"õuco gö"r nceg"kp"yj g"õgeqpqo {ö"qh"yj g" VN'cu''y g''i kxgp''UN'ecvgi qt { ''qeewr kgu'kp''y g''UNø'\*Ecvhqtf''3; 87∢9+0J g''rko kxu''j ku''y gqt { ''qh'uj khxu''\q''kpuvcpegu'' qh'tcpurcvlqp'y j kej 'ucvluh (''j g'eqpf kxlqp''j cv''j g'tgrcvlqpuj kr''dgw ggp''uqwteg''cpf ''cti gv'wwgtcpegu'ecp''dg'' kf gpvkhkgf "d{"c"eqorgvgpv'dknkpi wcn'cu"vgzwcn'gs wkxcngpeg0"Vjg"kpxctkcpv'qh'eqorctkuqp"Ecvhqtf"gornq{u"ku" hqto cn'eqttgur qpf gpeg0'Uj khwu.'kp'j ku'f ghkpkkqp.'ctg'':f gr ctwxtgu'htqo 'hqto cn'eqttgur qpf gpeg'kp''y g'r tqeguu'qh'' i qkpi "htqo "vj g"UN"vq"vj g"VNø"kdkf0<95+01Ka"htqo "c"f guetkrvkxg"rqkpv"qh"xkgy ."c"i kxgp"VN"kpuvcpeg"ku"qdugtxgf" vq'dg'c'\gzwcn'gs wkxcngpv'qh'c'i kxgp'UN'hqto .'\j ku'f qgu'pqv'gpvckn'\j cv'hqto cn'eqttgur qpf gpeg'gzkuw'dgw ggp'' yj g'wpku'wpf gt 'eqo r ctkuqp. 'ukpeg''yj g''VN'ecvgi qtkgu'ecppqv'pgeguuctkn( ":dg''uckf "vq''qeewr { . "cu''pgctn( "cu'' r quukdrg''y g''ouco gö''r rceg'kp''y g''geqpqo { "qh''y g''VN''cu''y g'i kxgp''UN''ecygi qt { "qeewr kgu'kp''y g''UNø'\*kdkf 0.54-0' Vj g'v{r g'cpf 'f gi tgg'qh'f kxgti gpeg'dgwy ggp'hqto cn'eqttgur qpf gpeg'cpf 'vtcpurcvkqp'gs wkxcrgpeg'ecp'dg'f gvckrgf " lp"vgto u"qh"uj khnu" "ugg."hqt"gzcor ng. "Tqddgtgej v"3; : 4+0"Ecvhqtf"fkuvkpi wkuj gu"vyq"oclqt"v{rgu. "**ngxgnluj khnu**" \*y j gtg"cp"UN"kgo "cv"qpg"hpi wkuke"ngxgn 'hqt"gzco r ng"i tco o ct."j cu"c"VN"gs wkxcngpv"cv"c"f khngtgpv'ngxgn 'hqt" kpurcpeg'hgzku+"cpf "ecvgi qt { 'lij khnu.'y j kej 'kpxqnxg'\*c+"ej cpi gu'qh'urt wewtg'\*unt wevnt g'lij khnu.'hqt"gzco r ng'c" uwdlgevrtgf kecvg/qdlgev'untwewtg'o c{ "dg'\tcpurcvgf" cu'c'rtgf kecvg/uwdlgev\qdlgev'untwewtg+.'\\*d+'ej cpi gu'qh' tcpml\*wpk/lj kmu."hqt"gzco r ng"c"y qtf "o c{"dg"\tcpunc\gf"d{"c"o qtrj go g"qt"c"i tqwr "d{"c"encwug+."\*e+"ej cpi gu"qh"  $encuu'' \texttt{``encuu''} \texttt{'`lamu''} \texttt{'lamu''} \texttt{'lamu''} \texttt{'lamu''} \texttt{''lamu''} \texttt{''lamu'''} \texttt{''lamu'''} \texttt{''lamu''} \texttt{''lamu'''} \texttt{''lamu'''} \texttt{''lamu'''} \texttt{''lamu'''} \texttt{''$ \*#pvt c/u{ uvgo 'tij Hvvu 'uj khvu'y j kej 'qeewt'kpvgtpcm{.'y kij kp"c"u{uvgo .'y j gp"uqwteg"cpf "vcti gv'ncpi wci g"u{uvgo u" jcxg'vjg'ucog'hqtocn'eqpuvkwwkqp'dwv'vtcpuncvkqp'kpxqnxgu'vjg'ugngevkqp'qh'c'pqp/eqttgurqpfkpi'vgto'kp'vjg'VN' u{uvgo +"\*Ecvhqtf"3; 87<95hh0+0

Kp 'Rqr qxk '\*3; 92+''yi g'o ckp'eqpegtp'ku'y kyi 'NKVGTCT[ "VTCP UNCVKQP .'cpf ''uji khu'ctg''yi gtghqtg''f ghkpgf ''cu'' c'uv{ rkuvke ''ecvgi qt { "cpf ''gto gf ''+uj khu''qh''gzr tguukqpø/Hqt''Rqr qxk .''+c'u\{ uvgo cvke ''gxcrnxcvkqp ''qh''yi g''uj khu''qh'' gzr tguukqp''yi cv'qeewt 'kp''c ''tcpurcvkqpø ''cpf ''j gpeg''+yi g''qdlgevkxg''ercuukhkecvkqp ''qh''f kthgtgpegu'dgw ggp''yi g'' vtcpurcvkqp''cpf ''ku''qtki kpcrø'\*kdkf θ\c': 6+"\uj qwf ''dg''dcugf ''qp''c''yi gqt { "qh''gzr tguukqp."uwej ''cu''ecp''dg''nqwpf ''kp'' O knq'\*3; 92+θ'Vj g''nkpi wkuvke''o gcpu''go r nq { gf ''kp''yi g''uqwteg''cpf ''cti gv''gzwt''ecppqv''dg''eqo r ctgf ''kp''kuqrcvkqp." dw''qpn( "'-kp''tgrcvkqp''vq''yi g''gpvktg''u\{ uvgo "qh''gzr tguukqpø\*Rqr qxk ''3; 92< 6+θ'K'\ku''yi ku''u\{ uvgo "qh''gzr tguukqp'' y j kej ''crnyy u''wu''vq''f gvgto kpg''yi g''gzr tguukxg''xcrnygu'qh''yi g''tgur gevkxg''hpi wkuvke 'f gxkegu. ''c''pgeguuct { "r tgeqpf kkqp''nqt''yi g''guvcdrkuj o gpv'qh''uj khu''-kp''yi g''urj gtg''qh''uv\{ ngø\*kdkf θ\c': 5+θ'Uv\{ ng. ''hqt ''Rqr qxk .''ku''c'' o wwkrc { gtgf ''cpf ''j kgtctej kecm( "qti cpk gf ''eqpegr vθ\k''ku''dgecwug''kv''eqxgtu''cduvtcev'cpf ''i gptcrl'ecvgi qtkgu''cpf '' s wcrkxkgu. ''cu''y gm''cu''o qtg''ur gektke ''uv\{ nkuvke ''o gcpu. ''yi cv'kv''ecp''dg''wugf ''cu''cp''kpxctkcpv''nqt''yi g''eqo r ctkuqp''qh'' uv\{ nkuvke ''s wcrkxkgu. ''cu''y gm''cu''o qtg''ur gektke ''uv\{ nkuvke ''o gcpu. ''yi cv'kv''ecp''dg''wugf ''cu''cp''kpxctkcpv''nqt''yi g''eqo r ctkuqp''qh'' uv\{ nkuvke ''s wcrkxkgu. ''kp''yi g''uqwteg''cpf ''cti gv''rcpi wci gu''cpf ''ygzw0'Rqr qxk ''f kuvkpi vkuj gu''dgwy ggp''eqpuvkswxkg'' uy khuv''cpf ''lpf kxkf wcrltij khuv0'Eqpuvkswxkxg''i khuv''ctg''

u{ugo /dqwpf ."dw'\j g'eqpegr v'ku'y kf gt'\j cp'\j cv'qh'qdrki cvqt { '\ij khullRqr qxk 'f ghkpgu'c'eqpurkwkxg'\ij khv'cu'' -Cp'kpgxkxcdrg'\ij khv'\j cv'\cmgu'r reeg'kp'\j g'\tcpurc\kqp'cu'c'eqpugs wgpeg'qh'f khrgtgpegu'dgwy ggp'\j g'\y q'' repi wci gu.'\j g''y q''r qgvkeu'cpf '\j g''w q''uv{rgu'qh'qtki kpcn'cpf '\tcpurc\kqp\si'3; 98\38+0\Qpg'o ki j v'cnuq'eqpegkxg'' qh'\j gug''uj khul'cu''eqpurkwkxg'\p'\j g''ugpug'\j cv'\j g{ ''ctg''eqpurkwkxg'\hqt'\j g''uv{rg''qh'\j g'\tcpurc\kqp\si''\j g''uv{rg''qh'\j g''\tcpurc\kqp\si''\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si''\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\tq\si''\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\j g''\tcpurc\kqp\si'\tq\si'\j g''\tcpurc\kqp\si'\tq\si'\

Y kj kp''y g''o gyj qf qrqi {''qh''Vqwt {'\*3; : 2c<':; 6343.'3; : 7<54+.''y g'kpxctkcpv'qh'y g'eqo r ctkuqp'ku'y g'Cf gs wcvg'' Vtcpurcvkqp'\*CV+'cpf'y g'wpkv'qh'eqo r ctkuqp'ku'y g'vgzvgo g0Cp'Cf gs wcvg'Vtcpurcvkqp'ku'c'tgeqpuvtwevkqp''qh' uqwteg'\gzv\gzvgo gu'cpf 'eqpukuvu'qh'cp'gzrnkekscvkqp'qh'vjg'\gzwcn'tgncvkqpu'cpf 'hwpevkqpu'qh'vjg'uqwteg'\gzv0' Cu'uwej .'kv'ku'pqv'cp'cewcn'vgzv'dwv'c'j {rqvj gvkecn'eqpuvtwev.'ugtxkpi 'qpn('o gvj qfqmi kecn'r wtrqugu'\*ugg'' J gto cpu'3; ; 7,43: 642 'hqt 'c'etkkecn'cuuguuo gpv'qh' yi ku'eqpegr v+0 Vj g'f gi tgg'qh'eqttgur qpf gpeg' \cngp'cu'' kpxctkcpeg"y ky kp"y ku"o gy qf "ku"cf gs wce{"cv"y g"vgzvgo ke"ngxgn"cpf"uj khvu"ctg"f ghkpgf"cu"f gxkcvkqpu"htqo" cf gs wce{0'Vj g'r wtr qug'qh'eqo r ctkuqp'ku'vq'f gvgto kpg'vj g'f kuvcpeg'dgvy ggp'vj g'∹cewcn'gs wkxcngpegø'hqwpf " dgw ggp"uqwteg"cpf "\cti gv\\gzvu'cpf "\y g"o czko cn'pqto "qh'cf gs wcvg'\tcpurc\kqp."kpcuo wej "cu'\y ku'f kuvcpeg'ecp" dg"cwtkdwgf "\q"pqto /i qxgtpgf "\tcpurc\kqpcn'dgj cxkqwt0'Ukpeg"qdrki c\qt { "uj khwi"ctg"twrg/i qxgtpgf ."\yj g{ "ecppqv" dg'\cmpp'\q'tghrgev'\tcpurc\kqpcn'PQTOU'cpf 'ctg'\j gtghqtg'pqv'\cmpp'kpvq'eqpukf gtc\kqp='o gyj qf qmi kecm{.''yj g{" ctg"ceeqwpvgf "hqt"kp"yj g"kpxctkcpv"kuught"\*yj g"y gcmlxgtukqp"qh"cf gs wce{."ugg"Vqwt{"3;:2c<8;+0"Vj g"eqo r ctcvkxg" r tqegf wtg'uvctwu'd { "cuuwo kpi "gs wkxcngpeg"cv'yj g"vgz wcn/hwpevkqpcn'ngxgn"j gpeg"yj g"r ctco gvgt "qh'eqo r ctkuqp"ku" vgzwcn/hwpevkqpcn0'Y j gp''y g'f qo kpcpv'tgrcvkqpuj kr ''dgw ggp''vcti gv'yzzv'yzvgo g''cpf ''uqwteg/yzzv'wpkv'ku''hqwpf '' cv'vj cv'ngxgn''vj g''vtcpurcvkqpcn'tgrcvkqpuj kr 'ku'qpg''qh''cf gs wce{0'Y j gp''vj gtg''ku''pq''vgz wcn'hwpevkqpcn' eqttgur qpf gpeg. "vj g"r tqegf wtg 'ku 'vq 'nqqmlhqt 'eqttgur qpf gpeg 'c v'nqy gt 'vgz wcn'cpf 'nkpi wku ke 'ngx gnu OP qto u' f gvgto kpg''y g'r qukkqp''qh''y g''cewcn''tcpurcvkqp''gs wkxcrgpeg''dgw ggp''cf gs wce { ''cpf ''ceegr vcdkrkv{ .''cpf ''y g'' guvedrkuj o gpv'qh'kpf kxkf wen'uj khuu'wnko evgn( ''rgef u''vq''y g''guvedrkuj o gpv'qh''y g''tepurevkqpen'pqto u'i qxgtpkpi ''y g'' vgzv'kp''s wguvkqp0'Y j gp. "chygt'hwt yi gt'i gpgtcnkt cykqp"cpf "gzr cpukqp"qh'yi g'kpxguvki cygf "eqtr wu. "uj khwu"uj qy "c" egt vckp"r cwgt p"qt "uvc kurkecn't gi wrct krkgu. "yj g{ "ecp"dg"gzr rckpgf "d{ "yj g"gz kurgpeg"qh"c"j kurqt kecm{ "cpf "ewnwt cm{ " f gvgto kpgf 'RQGVKEU'QH'VTCP UNCVKQP ''qt''\tcpurcvkqp''kf gcn0

Kp''rcvgt''uvci gu''qh''Vqwt {øu''yi kpmkpi '\*3; : 7.''3; ; 2+.''yi g''cdqxg''r tqegf wtg''dgeco g''r ctv''qh''c''rcti gt''qpg''kp''y j kej ''cp'' cf f kwkqpcn'wpkv'qh'eqo r ctkuqp''y cu''kpvtqf wegf <''yi g''-eqwr ngf ''r ckt''qh''õr tqdngo - uqnwkqpøö0'Vj g''pqvkqp''qh'uj ktv'' i tcf wcm{ ''dgeco g''nguu''egpvtcn''kp''j ku''o gyj qf ''qh''f guetkr vkqp''\*ugg.''gur gekcm{ .''Vqwt { ''3; ; 7+0

Y ký kp''ý g''o gyi qf qmi { ''qh'xcp''Ngwxgp/\ y ctv'\*3; : 6."3; : ; ."3; ; 2c+"c'f knkpekqp'kn'o cf g''dgw ggp''uj khu''cv'ý g'' ngxgn'qh'c''ygzvau'o ketquutwewtg'\*eqo r ctcvkxg''o qf gn+"cpf ''ý g''ghhgew''qh''ý gug''uj khu''cv'ý g''o cetquutwewtcn'ngxgn'' \*f guetkr vkxg''o qf gn+0°Cv''ý g''o ketq/uutwewtcn'ngxgn''y g''kpxctkcpv'qh''ý g''eqo r ctkuqp''ku''ý g''ctej kutcpugo g''
\*CVT+''y j kej ''gzr tguugu''ý g''eqo o qp''f gpqo kpcvqt\*u+'kp''ý g''tgncvkqp''dgwy ggp''ur gekhke''yzwcn'wpku''qh''ý g''
uqwteg''cpf ''cti gv''yzvu=''ý gug''yzwcn'wpku''ctg''ecnngf ''wtcpugo gu0'kpcuo wej ''cu''ý g''f guetkr vkxg''o qf gn'ku''
eqo r ctcvkxg.''kv'y qtmu''y ký ''cp''kpxctkcpv''cv''ý g''o cetquutwewtcn'ngxgn''cu''y gn0'Vj g''kpxctkcpv'kp''ý ku''ecug''ku''dcugf ''
qp''c''ý gqt { ''qh''ý g''f qo ckp''qh'pcttcvkxg''yzvu''wpf gt''eqo r ctkuqp''dgmpi 0'Xcp''Ngwxgp/\ y ctv'nko ku''j gt''
o gyi qf qmi { ''vq''ý g''f qo ckp''qh'pcttcvkxg''yzvu.''cpf ''ý g''kpxctkcpv'ku''ý gtghqtg''f gtkxgf ''htqo ''ur gekhke''
pcttcvqmi kecn'eqpegr wu'uwej ''cu''-ivqt { ''ngxgnø'cpf ''-inqenk cvkqpø0'Vj g''CVT''j cu''q''dg''guvcdnkuj gf ''ugr ctcvgn( ''hqt''
gcej ''r ckt''qh''vtcpugo gu.''ý g''kpxctkcpv'cv''ý g''o cetquvtwewtcn'ngxgn'y km'dg''guvcdnkuj gf ''c'r tkqtk0

Guugp klen'vq'vj g'o gvj qf ''qh'xep' Ngwxgp/\ y ctv'ku'vj g'r tkqtkx{ ''i kxgp'vq'vj g'eqpegr v'qh'tgrexkqp0Cp{ 'eqo r ctcvkxg'' f guetkr vkqp"kpxqnxgu"guvcdrkuj kpi "vj g"tgncvkqp"dgw ggp"gngo gpvu"cu"y gm"cu"cwtkdwkpi "egtvckp"hgcwtgu"vq"vj qug" grgo gpw0Ceeqtfkpi "\q'xcp'Ngwxgp/\ y ctv."c"eqo r ctkuqp"dcugf "qp"\j g"r tkqt"cwtkdwkqp"qh'hgcwtgu'ku'qpn(" cøugeapf "f gi tgg"eqo r ctkuapø "ukpeg"k/f gr ctwi htqo "c"f guetkr vkxg"ar gtcvkap. "cpf "vj g"tgrcvkapuj kr "dgw ggp" vj g" grgo gpvu'ku'guvcdrkuj gf 'chvgty ctf u0'Kp'c'f ktgev'eqo r ctkuqp. 'vj g'qtf gt'ku't gxgtugf 0'Ceeqtf kpi 'vq'vj ku'uej go g. 'c'  $\textbf{\textit{yz} \textit{ygo}} \hspace{0.1cm} \textbf{\textit{g.}} \hspace{0.1cm} \text{'hqt''kpuvcpeg.''y} \hspace{0.1cm} \text{qwf''dg''c''wpk''qh''f} \hspace{0.1cm} \text{guetkr wkqp''tcyj} \hspace{0.1cm} \text{gt''yj} \hspace{0.1cm} \text{cp''c''wpk''qh''eqo} \hspace{0.1cm} \text{r} \hspace{0.1cm} \text{ctkuqp0C'c''yj} \hspace{0.1cm} \text{g''o} \hspace{0.1cm} \text{ketquvtwewtcn''} \hspace{0.1cm} \text{quetkr wkqp''tcyj} \hspace{0.1cm} \text{gt''yj} \hspace{0.1cm} \text{cp''c''wpk''qh''eqo} \hspace{0.1cm} \text{r} \hspace{0.1cm} \text{ctkuqp0C'c''yj} \hspace{0.1cm} \text{g''o} \hspace{0.1cm} \text{ketquvtwewtcn''} \hspace{0.1cm} \text{quetkr wkqp''tcyj} \hspace{0.1cm} \text{gt''yj} \hspace{0.1cm} \text{cp''c''wpk''qh''eqo} \hspace{0.1cm} \text{r} \hspace{0.1cm} \text{ctkuqp0C'c''yj} \hspace{0.1cm} \text{g''o} \hspace{0.1cm} \text{ketquvtwewtcn''} \hspace{0.1cm} \text{q} \hspace$ ngxgn"c"tgncvkqp"qh"eqo r ngvg"eqplwpevkqp"dgwy ggp"vj g"vtcpugo gu"cpf "ctej ktcpugo gu"\*kp"y j kej "ecug"vj gtg"ku"c" tgrcvkqp"qh"u{pqp{o {"dgw ggp"\tcpugo gu+"ku"cuuwo gf "cu"c"uvctvkpi "r qkpv."cpf "uj khvu"qeewt"y j gp"\j gtg"ctg" cur gewi'qh'f kulwpewlqp'dgwy ggp''tcpugo gu'cpf ''y g'CVT0'Xcp''Ngwxgp/\ y ctv'f kuwlpi wkuj gu''y tgg''o ckp'' ecvgi qtkguk'o qf war wkqp' y j gtg"c'uqwteg" qt "vcti gv'tcpugo g'uj qy u'qpg" qt "o qtg" cur gevu'qh'f kulwpevkqp' y kyj ''y g'' CVT="c"tgrcvkqp"qh"j {rqp{o {"dgw ggp"\tcpugo gu+:"o qf khecvkqp"\y j gtg"c"uqwteg"cpf"\cti gv\\tcpugo g"uj qy " qpg"qt"o qtg"cur gevu"qh"f kulwpevkqp"y kij "vj g"CVT="c"tgrcvkqp"qh"eqpvtcuv"dgwy ggp"vtcpugo gu+."cpf "o wwcvkqp" \*y j gtg'vj gtg'ctg'pq'cur gevu'qh'eqplwpevkqp. 'cpf 'vj gtghqtg'pq'CVT 'ecp'dg''guvcdrkuj gf = "pq'tgrcvkqp''dgwy ggp'' vtcpugo gu+0'Vj g'r wtr qug''qh''yj ku''o gyj qf 'ku''vq''cttkxg''cv'j {r qyj gugu''cdqwv''yj g'kpvgtr tgvcvkqp''cpf ''yj g''uvtcvgi {" wpf gtn(kpi 'vj g'\tcpurc\kqp'kpxqnxgf 'kp'\vj g'eqo r ctkuqp0'Cu'c'eqpugs wgpeg. 'uj khu'\vj cv'f q'pqv'tghrgev'c'' vtcpurcvqtøu'kpvgtrtgvcvkqp''qt''uvtcvgi {''ctg''pqv'\cngp'kpvq''ceeqwpv<'qpn{''qrvkqpcn'ujkhvu''cpf''uvduvcpvkcn'ujkhvu''ctg'' eqpulf gtgf 0Cu'hct'cu'y g'f kukpekqp'dgw ggp'qdrki cvqt { 'cpf 'qr vkqpcrl'uj khwi'ku'eqpegtpgf . 'xcp'Ngwxgp/\ y ctv' gzr tguugu'c'tgugtxcvkqp''cu'vq''kxu''cr r n'ecdkrkv{0'Kp''yi g'hktuv'kpuvcpeg.''yi g'f gekukqp'y j gyi gt''uj khxu''ctg''vq''dg'' eqpulf gtgf "qr vkqpcn'qt "qdrki cvqt { "ku"uwur gpf gf 0P qv"wpvkn'y g"ghhgevu"qh'y g"o ketquvt wewtcn'uj khvu"qp"y g" o cetquvtwewtcn'hgxgn'j cxg''dggp''guvcdrkuj gf ''y km'kv''dg''r quukdng''vq''f gvgto kpg''vq''y j cv''gzvgpv''vj g''uj khvu''ctg''f wg''vq'' qyi gt "yi cp"r wtgn( "hpi wkuvke hcevqtu0Kpkkcm(."cm'uwduvcpvkcn'uj khvu'ctg'pqvgf ="yi cv'ku."cm'yi g'uj khvu'yi cv'j cxg'uqo g" dgctkpi "qp"qpg"qh"yj g"uwduvcpvkcn"ngxgnu. "pco gn{"yj g"ugo cpvke. "uv{nkuvke"qt"rtci o cvke "ngxgn0"Cu"vq"u{pvcevke" uj khnu."qpn("'yj qug''yj cv'chhgev''yj gug''uwduvcpvkcn'hgxgnu''ctg''vcngp''kpvq''ceeqwpv0'Rwtgn(''hqto cn'uj khnu''ctg''  $f \ kutgi \ ctf \ gf \ 0 \ Qp'' \ j \ g'' f \ kuvlpevlqp'' dg \ y \ ggp'' hqto \ cn'cpf ''uwduvcpvlcn'u j \ khvu.'' ugg'' cnq'' xcp'' f \ gp'' Dt qgem' cpf ''Nghgx gt g''$ \*3; 9; +0

Ugg"cnuq<

GS WKXCNGP EG="NKP I WKUVKE" CRRTQCEJ GUO

## Hwt vj gt 't gcf lpi

OCVVJ KLU'DCMMGT.'EGGU'MQUVGT'CPF'MKVV['XCP'NGWXGP/\YCTV

# U i pgf 'tepi wei g'kpvgtrtgvkpi

Uki pgf "rcpi wci gu'ctg"c'ercuu'qh'y qtrf "rcpi wci gu'yi cv'ctg'tgegkxgf "yi tqwi j "yi g'xkuwcn'o qf cnk\{"cpf "gzr tguugf" yi tqwi j "o cpwcn'cpf "pqp/o cpwcn'i guwtgu0'+Uki p'Ncpi wci go'ku'c'\gto "wugf "o quw\{"d\{"rc\{"r gqr rg=\"yi gtg'\ku'pq" ulpi rg''rcpi wci g'ecref "+uki p''rcpi wci go'Tcyi gt."\yi gtg"ctg''cu''o cp\{"uki pgf "rcpi wci gu''cu'\yi gtg"ctg''f kn\kpev'F gch'' eqo o wpk\kgu''\kp''yi g'y qtrf 0'Hqt''gzco r rg. "yi g'uki pgf "rcpi wci g'hqwpf "kp'yi g'Wpkxgf "Ucvyu''cpf "o wej "qh'Ecpcf c'ku'' Co gt\ecp "Uki p"Ncpi wci g."qt"CUN=\k'\ku''pqv'tgcf kn\{"wpf gtuvcpf cdrg"\q'c''wugt"qh'DUN."qt"Dtk\kui "Uki p'Ncpi wci g0 Vj qug''y j q'\kpvgtr tgv'dgwy ggp"c'ur qngp"cpf "c'uki pgf "rcpi wci g"ctg'\q' r \ecref "ecref "+uki p"rcpi wci g"\kpvgtr tgvgtuø'' qt"+\pvgtr tgvgtu''hqt''yi g'F gchx0P gkyi gt"qh'\yi gug'\gto u'\ku'uc\kuh\\kpi ."hqt"gcej "o cngu'tghgtgpeg'\q'qpn\{"qpg'' rcpi wci g'qt"qpg'eqo o wpk\{"dgkpi "ugtxgf 0O cp\{"rtce\kkqpgtu'uko r n\{"tghgt"\q'yi go ugrkgu''cu''\shvgtr tgvgtuø'' y j qug''rcpi wci gu''y cr r gp'\q'dg."uc\{."CUN'cpf "Gpi rkuj 0Uwej "rtce\kkqpgtu'ugg'\yi go ugrkgu''cu''\guugp\kcm\{" rgthqto kpi "\yi g''uco g''vcun'\cu''kpvgtr tgvgtu'y qtm\kpi "dgwy ggp"\y q''ur qngp"rcpi wci gu0 Vq"c'rcti g''gzvgpv."yi ku'\ku'\ku'\twg0'Vj g''i qcn'qh'\kpvgtr tgv\tay\pi "tgo c\kpu''yi g''uco g<\"\quad "\tqqf g''yi g''

o guuci g'lp''y g'uqwteg'hcpi wci g'lpvq''c''vcti g√ncpi wci g'hqto cv'uq''y cv'qvj gtu'o c{ 'wpf gtuvcpf 'kv0'kp''yto u'qh'y g'' eqi pkkkxg''r tqeguugu'lpxqnxgf .''y gtg'ku'rkwng''gxkf gpeg''y cv'lpvgtr tgvgtu'y qtnkpi ''dgw ggp''CUN''cpf 'Gpi nkuj .''hqt'' kpuvcpeg.''r gthqto ''y g''vcun'lkp''c'f khhgtgpv'y c{ 'htqo ''ur qngp''ncpi wci g'lpvgtr tgvgtu'\*eh0'Kuj co ''cpf 'Ncpg'3; ; 5''cpf '' Kuj co ''3; ; 6+.''y kyj ''y g''gzegr vkqp.''r gtj cr u.''qh''y g''nqy gt/ngxgn'r tqeguulpi ''cuuqelcvgf ''y kyj ''y g'f khhgtgpv'' o qf crkkgu'\*Kuj co ''3; ; 7+0

Uqo g'f kthgtgpegu'ctg'j qy gxgt'gxkf gpv'kp'f ckn{ 'r tcevkeg0'kp'ncti g'i cyj gtkpi u'uwej "cu'eqphgtgpegu."yj g'uki p" kpvgtr tgvgt'pggf u'vq'dg'kp'hwni'xkgy "qh'yj g'F gch'cwf kgpeg."cpf "uq'uvcpf u'pgzv'vq'yj g'uqwteg/ncpi wci g'ur gcngt" tcyj gt'yj cp'ukwkpi 'kp'c'dqqyj 0'Vj wu."yj g'kpvgtr tgvgt'dgeqo gu'c'r tgugpeg'hqt'cm'r ctvkekr cpvu."yj gyj gt'yj g{ "ctg" wukpi "yj g'kpvgtr tgvkpi "ugtxkegu'qt "pqv0'Kp''egtvckp''ektewo uvcpegu."yj g'kpvgtr tgvgt'o c{ "kpvgtcev'y kyj "yj g'ur gcngt'\*qt" uki pgt+'vq'uggndenctkhkecvkqp''qt''vq''tgs wguv'c'hgy "o qo gpvu'y j krg'ulj g'eqo r ngvgu'f grkxgtkpi "c'r ctvkewrctn{" eqo r ngz "o guuci g0

Dgecwug''y g'F gch'eqo o wpk/ "gpeqwpygtu'ur gcngtu'qh'c'f khhgtgpv'ncpi wci g''qp''c'f ckn( "dcuku. 'kpygtr tgygtu" y qtnhpi "y ky kp''kv'hhpf "o quv'qh''y gkt''y qtnhp''eqo o wpk/ "ugwkpi u. 'kpygtr tgypi "kp'eqpygzvu'y j kej 'tcpi g'htqo " f qevqtuø'cr r qkpvo gpwu'vq'uej qqntqqo u. 'y gf f kpi u. 'o cttkci g''eqwpugnkpi "uguukqpu. "lqd''kpygtxkgy u. 'cpf "gxgp" r u{ ej qy gtcr { "\*ugg"cnq" EQO O WP KV | "KP VGTRTGVKP I +0'Hqt''y ku''tgcuqp. "Uo ky "\*3; : 5-95+'uvcygu''y cv'uki pgf " ncpi wci g''kpygtr tgygtu''÷o wuv'kpygtr tgy'pqv'qpn( "y g''o kpf "cpf 'kf gcu''dw''y g'' gctv'cpf 'uqwno'\Rgtj cr u''hqt''y g''uco g" tgcuqp. "uki p''kpygtr tgygtu''gctp''o wej 'nguu'y cp''ur qngp/ncpi wci g''kpygtr tgygtu'\Qpg''qh''y g''r tqdngo u''kpygtr tgygtu'' y qtnhpi "y ky "uki pgf 'ncpi wci gu'hceg''ku''eqpxkpekpi "y g'y qtnf "cv'ncti g''y cv''y g{ 'r gthqto "y g'uco g''ugtxkeg." tgy wktg''y g''uco g''tckpkpi . ''cpf ''y gtghqtg'f gugtxg''y g''uco g''uvcwu''cu''kpygtr tgygtu''y qtnkpi "uqngn( "dgyy ggp''ur qngp'' ncpi wci gu'

Cpqyi gt "f khogtgpeg "ku 'yi cv'kpvgtr tgvgtu 'qh'uki pgf 'hcpi wci gu'o c { "dg '\tckpgf 'kp 'qpg 'qt 'dqyi 'qh' 'y q '\cumu. 'mpqy p" cu 'kpvgt r t gvkpi "cpf 'vt cpurksgt cvkpi 0'Vj ku 'f ku kpe kqp "ecp "qpn { "dg "wpf gtuvqqf 'kp "yi g "eqpvgz v'qh' yi g "F gch" eqo o wpkv { 0'Vj g 'ukwcvkqp 'kp 'yi g 'Wpkvgf 'Uvcvgu 'y km'ugtxg 'cu 'c 'o qf gn 'dw' yi g 'o ckp 'r qkpw 'cr r n { "gs wcm { 'y gm'kp" o quv'f gxgmr gf "eqwpvtkgu 0

## Kpvgtrtgvkpi 'xu0vtcpurksgtcvkpi <'vj g'gzco r ng'qh'CUN

Cu'y kj "cm'o kpqtkkgu." yj gtg'ku'wwcm{"c'i tgcv'f gcn'qh'f kxgtukv{"co qpi "o go dgtu'qh'cp{"f gch'eqo o wpkv{."dw' qpg"dcuke "f kurkpevkqp"ecp"dg"o cf g0O cp{"kpf kxkf wcm'y kj "c'j gctkpi "nquu'ugg"yj go ugnxgu"cu'j cpf kecr r gf "qt" f kucdngf." cpf "v{r kecm{"ecm'yj go ugnxgu"-j gctkpi /ko r cktgf g0'Uwej "r gqr ng"v{r kecm{"nquv'yj gkt"j gctkpi "chxgt"yj g{" j cf "ngctpgf "c'ur qngp"ncpi wci g."cpf "kv'ku'yj gtghqtg" wpf gtuvcpf cdng"yj cv'yj g{" upwf "ugg"yj go ugnxgu"cu'f kucdngf." kp"yj g'ugpug"yj cv'yj g{" j cxg"nquv'yj g'cdkrkv{"vq"j gct"yj gkt"htuv'ncpi wci g'f ktgevn{0Qvj gtu."j qy gxgt."y gtg"dqtp" y kyj qwv'j gctkpi "qt"nquv'yj gkt"j gctkpi "kp"kphcpe{="uqo g"j cxg"r ctgpvu"y j q"ctg"cnuq"F gch0'Nkhg"y kyj qwv'yj g" cwf kxqt{"ugpug"ku'pqto cn="pq"ugpug"qh'nquu'ku'gzr gtkgpegf 0Uwej "kpf kxkf wcm'tghgt" vq"yj go ugnxgu."y kyj "r tkf g."cu" -F gcho'cpf "ecp"dg"uggp"cu'eqpuvkwwkpi "c'ewnwtcn'cpf "hpi wkurke"o kpqtkx{"\*Ncpg"3; : 6="Rcf f gp"3; : 2+0'Vj ku" guugpvkcn'f kurkpevkqp"j cu'hct/tgcej kpi "ko r necvkqpu'kp"vgto u'qh'ncpi wci g"ej qkeg"cpf "yj g'ugtxkegu'r tqxkf gf "d{" kpytr tgygtu0

Vj g'pcvkxg'rcpi wci g''qh'ewnwtcm( "F gch'Co gtkecpu'\*cpf "o cp{ "Ecpcf kcpu+'ku''CUN0CUN.'hmg''cmi'uki pgf " repi wci gu."j cu'ku''qy p''i tco o cvkecn'uvtwewtg''y cv'ku'f kuuko kret 'vq''y g''o clqtkv{ "repi wci g."pco gn( "ur qngp" Gpi nkij 0CUN'xgtdu'f q''pqv'gzr tguu'vgpug.'hqt 'kpuvcpeg."cpf 'vj gtg'ku''pq''r cuukxg''xqkeg0'ki'ku''c''y ki j n( 'kphrgevgf " repi wci g." cpf 'uwdlgev'qdlgev'tgrevkqpu''ctg''pqv'v{ r kecn{ 'uki pcngf 'd{ "y qtf 'qtf gt0CUN'ku''c''vqr kecnk| gf 'repi wci g." cpf 'ugpvgpegu'y kj 'Qdlgev'Uwdlgev'Xgtd'\*QUX+'uwthceg''uvtwewtg''ctg''eqo o qp. 'kp''eqpvtcuv'vq''Gpi nkij ."y j kej " hcxqwtu''UXQ'\*Dcngt''cpf 'Eqngn{ "3; : 2='Rgtro wwgt''3; ; 3+0'Vj wu. 'kpvgtr tgvgtu'y j q'y qtm'dgw ggp''Gpi nkij ''cpf " CUN'y qtm'y kj ''y q''pcwtcn'repi wci gu''y cv'ctg''f khtgtgpv'kp''uvtwewtg='o qtg''f khtgtgpv.'hqt''gzco r rg. ''y cp''Gpi nkij " cpf ''Htgpej 0C''i tqy kpi ''pwo dgt''qh''wpkxgtukkgu''kp''y g''Wpkxgf ''Uvcvgu''j cxg''kp''hcev'tgeqi pk| gf ''CUN''cu''c''hqtgki p'' repi wci g''cpf ''ceegr v'kv''cu''uwej ''hqt''y gkt''hqtgki p''repi wci g''etgf kv'u{ uvgo 0

Ocp{"j gctkpi /ko r cktgf "kpf kxkf wcnu."d{ "eqpvtcuv."f q"pqv'wug'CUN"cu"c"pcvkxg"rcpi wci g0Kpuvgcf."vj g{"j cxg" ngctpgf "qpg"xctkcvkqp"qh"c"ercuu"qh"uki pgf "u{uvgo u"i gpgtkecm{"mpqy p"cu"÷uki pgf "Gpi rkuj Ø0Xqecdwrct{"cf qr vgf "cpf"

cf cr vgf 'htqo 'CUN'ku'go r m $\{gf '\q'eqpxg\{'Gpi rkuj 'y qtf u'cpf 'f grkxgtgf 'kp'Gpi rkuj 'y qtf 'qtf gt0 kp''y ku'y c<math>\{.'' uki pu'ctg' wugf '\q'cevkxcvg' y g'wugtou'npqy rgf i g'qh'Gpi rkuj 0$ 

Kpf kxkf wcnu'y j q'r tghgt 'uki pgf 'Gpi nkuj ''cnuq'pggf 'kpvgtr tgvkpi ''ugtxkegu''kp''y g'i gpgtcn'ugpug. ''dw''dgecwug'' r tqxkf gtu''ctg''gpeqf kpi ''Gpi nkuj ''y qtf u''qp''c''o qtg''qt''rguu''qpg/vq/qpg''dcuku. ''y g{ ''ctg''npqy p''cu''**vt cpurksgt cvqt u**<'' y g{ ''vtcpurksgtcvg''Gpi nkuj ''vq''cpf 'htqo ''c''ur qngp''cpf ''uki pgf 'hqto 0'Vj g''ygto '**kpvgt r t gvgt** ''ecp''y gp''dg''tgugtxgf 'hqt'' y qug''y j q'y qtm'dgw ggp''CUN''cpf ''Gpi nkuj 0

Vjg"ukwcvkqp"ku'ukoknct"kp"qvjgt"eqwpvtkgu≺ocp{"jcxg"c"pcwtcn'ukipgf"ncpiwcig"ykvj"kvu"qyp"itcooct."cu"ygm" cu'c'u{uvgo 'hqt'eqpxg{kpi 'vj g'y qtf u'qh'vj g'o clqtkv{ 'ur qngp'hcpi wci g0'Vj wu.'kpvgtr tgvgtu'y j q'y qtm'y kj 'f gch' r gqr rg'v{r kecm{ 'mpqy "cv'rgcuv'j qy "vq'\tcpurksgtcvg="c'i tqy kpi "pwo dgt'mpqy "CUN" "qt''vj g''gs wkxcrgpv'uki pgf" ncpi wci g'kp''y g'tgngxcpv'eqwpvt { +'cpf 'ecp''y gtghqtg'r tqxkf g''dqyj ''vtcpurkvgtcvkpi 'cpf 'kpvgtr tgvkpi ''ugtxkegu0  $\label{thm:constraint} \begin{tabular}{l} Kp''yj g''Equal''yj g''Wpkygf''Uvcvgu.''cnnj qwi j''yj g''T gi knvt { ''qh''Kpvgtr tgvgtu''qh''yj g''F gch'''ugg''hqmqy kpi ''ugevkqp+''' least than the statement of the statement of$ egt whigu 'dqy 'kpvgtr tgvgtu'cpf 'tcpurkgtcvqtu. 'ugxgtcrihcevqtu' cxg'ngf 'vq"c' tgcvgt 'kpetgcug'kp' g'pwo dgt 'qh' vtcpurkgtcvqtu'y cp'CUNiGpi rkuj 'kpvgtr tgvgtu0Qpg'j cu'dggp'y cv'kpvgtr tgvgtu'ctg'gzr gevgf 'vq'y qtm' uko wncpgqwun( "\*ugg"<u>EQPHGTGPEG"CPF"UKO WNVCPGQWU"kPVGTRTGVkPI</u>+<"dgecwug"CUN"cpf "Gpi nkuj " go r mq{ "f khhgtgpv"o qf cnkxkgu. "cpf "pq"ur gekcn"gs wkr o gpv"ku"tgs wktgf. "vj g"i gpgtcn"r wdnke "j cu"f khhkewnv{ " wpf gtuvcpf kpi ''y j { ''eqpugewkxg' kpygtrtgykpi ''o ki j v'dg''r tghgttgf 0'Vtcpurkygtcykpi ô cp''qxgtyn{ 'hqto/dcugf'' crrtqcej ô crrgctu'\q'uwrqtv'yj g"o kuvcngp'xkgy 'yj cv'kpvgtrtgvkpi 'ku'o gtgn( 'yj g'cev'qh'tgrncekpi 'yj g'y qtfu'qh' qpg'hcpi wci g'y kj ''y qug''qh''cpqyj gt0'O qtgqxgt."\tcpurk\gtc\kpi ''ku."kh''cp{ yi kpi ."j co r gtgf ''d{ ''y g'f grc{ ''kpj gtgpv'kp'' eqpugewkxg'y qtmlcpf 'ku'y gtghqtg'gcukgt''q'r gthqto 'kp'y g'uko wncpgqwu'o qf g0'Vj ku 'eqo dkpgf 'y ky 'y g'hcev' yj cv'yj g'i gpgtcn'r wdnke 'gzr gewu'uki p'kpvgtr tgvkpi "vq'dg'uko wnxcpgqwu. "j cu'ngf "vq"o qtg' vtcpunkvgtcvkpi 0 Cpqyi gt 'hcevqt 'ku''yi cv'tgegpv'ngi kurcvkqp''kp''yi g''Wpkxgf ''Uvcvgu''j cu''o cf g''kv''o cpf cvqt { ''yi cv'kpvgtr tgvgtu''dg'' rtqxkfgf"wrqp"tgswguv"d{"cp{"cigpe{"tgegkxkpi"hgfgtcnhwpfu0"Vjg"fgocpf"hqt"kpvgtrtgvgtu"yjq"ecp"ugtxg"vjg" F gch'eqo o wpkx{ 'hct''gzeggf u''yj g''uwrrn{.'hgcf kpi ''vq''cp''wphqtwwpcvg''go rj cuku''qp''r tqf wekpi ''ugtxkeg''r tqxkf gtu'' s włem (OI kxgp''y cy'o cp { ''tckpkpi 'r tqi tco o gu'kp''y g'Wpkgf ''Uvcygu''cpf ''gnugy j gtg''dgi kp''y kyj ''o qpqnkpi wcn'' uwwf gpwu'cpf 'hcuv'qpn( ''yy q" { gctu' \*'ugg' 'ugevkqp' 'qp' Gf wecvkqp+. ''yj g'i qcn'qh'r tqf wekpi ''ttcpurk ygtcvqtu' ku'r gtj cru'' o qtg'tgcrkrke. "cu'uwf gpw'f q'pqv'j cxg'vq'rgctp'c'pgy 'i tco o ct0

Vj ku'uj khv'htqo ":eqo o wpkv{ "o go dgtø'vq":qdlgevkxg"r tqhguukqpcnô cpf "dcem'ci ckp"/j cu'dggp"tghrgevgf "kp"c" eqo o gpuwtcvg"uj khv'kp"yj g'y c{ "yj g'kpvgtr tgvgtøu'tqng"j cu'dggp"eqpegr wcnk gf 0O gvcr j qtu"j cxg"eqo g"cpf "i qpg" yj tqwi j "yj g"{ gctu. "kpenwf kpi ":j grr gtø.":vgngr j qpgø'cpf ":o cej kpgø."cm'cvgo r vkpi "vq"ecr wxtg"yj g"r tqr gt "hwpevkqp" qh'vj g'kpvgtr tgvgt0O qtg'tgegpv'o gvcr j qtu'kpenwf g":cf xqecvgø.":ewnwtcn'o gf kcvqtø'cpf ":cm(ø0'Vj gug'y qtf u" tghrgev'vj g'dgrkgh'd{ "o cp{ "yj cv'kpvgtr tgvgtu'y qtnkpi "y kyj "c'f kugphtcpej kugf "r gqr ng'uj qwrf "dg'kpxqnxgf "kp" go r qy gtkpi "yj go 0

## Vj g'r t qhgudqp

Kp''y g''3; 82u. "gf weckqpcn'r tqi tco o gu'hqt'F gch'ej kf tgp''y gtg''dgi kppkpi "\q''ceegr v'uki pkpi "cu''c''o gf kwo "qh" kput wekqp''kp''o cp{ "eqwpvtkgu0'Vj gug''cpf "qyi gt 'hcevqtu''ngf "\q''cp''qti cpk gf "

ghqtv'vq'r tqxkf g'r tqhguukqpcn'uki p'kpvgtr tgvgtu'hqt''y g''eqo o wpkx{0Hqt''gzco r ng.''kp''y g''Wpkxgf ''Uvcvgu''y g''
Tgi kuvt { "qh'Kpvgtr tgvgtu'qh''y g'F gch'\*T KF +'y cu'hqwpf gf 'kp''3; 860'Ki'tgr tgugpvu''r tqhguukqpcn'kpvgtr tgvgtu''cpf 'kp''
3; ; 6''j cf ''crr tqzko cvgn( ''7222''o go dgtu."qh'y j qo ''4622''y gtg''egtvkhkgf 0'Kp''cf f kxkqp''vq'ko r tqxkpi ''y g''ny'qh''
y qtmkpi 'kpvgtr tgvgtu''cpf ''tcpurkxgtcvqtu''d { ''nqdd { kpi ''hgf gtcn'cpf ''uvcvg''i qxgtpo gpv''ci gpekgu.''y g''T KF ''cnuq''
uvtkxgu''vq'ko r tqxg''y g''s wcnkx{ ''qh'kpvgtr tgvkpi ''ugtxkegu'r tqxkf gf ''d { ''kvu''o go dgtu.''kp''y tgg''o clqt''y c {u0}
Hktuv.''y g''T KF ''egtvkhkgu''kvu''o go dgtu''y tqwi j ''c''pcvkqpcn'gxcnvcvkqp''u {uvgo 0'Ki'dgi cp''vguvkpi ''kvu''o go dgtu''
hqto cm{ ''kp''3; 94='y g''gpvktg''vguvkpi ''u{ uvgo ''y cu''tgxkugf ''kp''3; : 90'Cu''kv'ku''ko r ngo gpvgf ''vqf c { .''y q''i gpgtcnkuv''
egtvkhkecvgu''ctg''qhhgtgf <'y g''Egtvkhkecvg''qh''Kpvgtr tgvcvkqp''\*EK''cpf ''y g''Egtvkhkecvg''qh''Vtcpurkxgtcvkqp''\*EV+0'Vq''
qdvckp''c''egtvkhkecvg.''kpf kxkf wcnu''o wuv'hktuv'r cuu''c''y tkvgp''gzco ''eqxgtkpi ''c''eqf g''qh''gyi keu.''npqy ngf i g''qh''y g''eqo o wpkx{ ''cpf ''npqy ngf i g''qh''y g''ewnxvtg''qh''f gch'r gqr ng0'Rcuukpi ''y g''y tkvgp''gzco ''o cngu''qpg''gnki kdng''q''
r wtuwg''y g''EK''EV.''qt''dqyi ''d{ ''vcnkpi ''y g''eqttgur qpf kpi ''r gthqto cpeg''ygu0

Vj g'T KF "cnıq" twpu" c'Egt khkecvg' O ckpvgpcpeg' Rtqi tco o g. "kp" y j kej "egt khkef "o go dgtu" ctg" tgs wktgf "vq" vcng" c" egt vckp" pwo dgt "qh" j qwtu "qh" hwt y gt "vtckpkpi "qp" c'tgi wrct "dcuku "kp" qtf gt "vq" nggr "vj gkt "egt vkhkecvg" xcnkf 0 Cpf" hkpcm{." y g'T KF "j cu" c'eqf g"qh" gy keu" tgs wkt kpi "uwej "y kpi u" cu" hkf grkv{"cpf "eqphkf gpvkcrkv{0 T KF" cnıq" j cu" hqto cn' i tkgxcpeg" r tqegf wtgu <" y wu." dtgcnkpi "y g" eqf g"qh" gy keu" o c{"ngcf" vq" y g" tgxqecvkqp" qh" y g" kpvgtr tgvgt øu" egt vkhkecvg0

Vj g'uvcwu''qh'lkpvgtr tgvkpi ''y kij ''uki pgf 'hcpi wci gu'xctkgu'htqo ''eqwpvt { ''vq''eqwpvt { 0'Uy gf gp''j cu''c''nqpi ''j kunqt { "qh'' tgur gevkpi ''y g'hcpi wci g''cpf ''ewnwtg''qh'F gch'r gqr ng''cpf ''j cu''c''y gm'qti cpk gf ''kpvgtr tgvkpi ''eqo o wpkx{ 0'Qvj gt'' eqwpvtkgu.''uwej ''cu''Uy kx gtncpf .''ctg'lwuv'dgi kppkpi ''vq''o qxg''vqy ctf u''qti cpk kpi ''y g''r tqhguukqp0 Vj g''r tqhguukqpcn'qti cpk cvkqp''kp'Ecpcf c''ku''y g''Cuuqekcvkqp''qh''Xkuwcn'Ncpi wci g''Kpvgtr tgvgtu''qh''Ecpcf c'' \*CXNKE+''hqwpf gf ''kp''3; 9; 0'CXNKE''j cu''pkpg''chhkrkcvg''ej cr vgtu''cetquu''y g''eqwpvt { ''\*T wuugm'3; ; 6+.''y kj ''qxgt'' 622''o go dgtu0'K''j cu''dggp''twppkpi ''cp''gxcnwcvkqp''u{ uvgo ''ukpeg''3; ; 20

Vj gtg"ctg"ugxgtcn'qti cpk cvkqpu'kp"Dtksckp0'Vj g"Cuuqekcvkqp'hqt"Uki p"Ncpi wci g"Kpvgtrtg"vgtu'\CUNK+'tgrtgugpvu" kpvgtrtgvgtu'kp"Gpi rcpf."Y crgu'cpf "Pqtvj gtp"Ktgrcpf."y j krg"vj g"Eqwpekrihqt"vj g"Cfxcpego gpv'qh" Eqo o wpkecvkqp"y kvj "Fgch'Rgqrrg"cfo kpkuvgtu'vj gkt "s wcrkh{kpi "gzco 0'Vj g"Ueqwkuj "Cuuqekcvkqp"qh'Uki p" Ncpi wci g"Kpvgtrtgvgtu'\UCUNK+'kp"Ueqvrcpf "egtvkhkgu"Ueqvkuj "kpvgtrtgvgtu0

O qtg'kphqto cvkqp"qp"Dtksckp"cu'y gm'cu'kphqto cvkqp"cdqwvF gpo ctm"Kgrcpf .''y g'P gyj gtrcpf u.''Uy gf gp.''
I gto cp{.'Dgri kwo .''Uy ky gtrcpf .''cpf "Hkprcpf "ecp"dg"qdvckpgf 'htqo "'y g'Gwtqr gcp"Hqtwo "qh"Uki p"Ncpi wci g"
Kpvgtr tgvgtu'\*GHUNK: 'y j kej "y cu'hqto gf 'kp"3;; 50

#### Gf wecvlqp

Køystr tgyst "gf weckqp" in u'dgj kpf "yj g"gf weckqp" qh'ur qngp/ncpi wci g'kpystr tgystu0'Vj gtg"ctg"qxgt": 2"gf weckqp" r tqi tco o gu'hqt "uki pgf/ncpi wci g'kpystr tgykpi "kp"yj g"Wpksgf "Uvcysu."dwy'yj g'i tgcv'o clqtkx{ "qh'yj gug"ctg"yy q/{gct" r tqi tco o gu'yj cv'qpg"ecp"gpyst "ko o gf kcysn{ "chyst"j ki j "uej qqn0'Ukpeg'CUN."DUN"cpf "qyj gt"uki pgf "ncpi wci gu"ctg" tgncykxgn{ "tctg"cu"c"ugeqpf "ncpi wci g."gf wecykqp"r tqi tco o gu"f q"pqv'tgs wktg"cr r necpyu"vq"dg"dkrkpi wcn0'T cyj gt." uwwf gpyu"tgegkxg"ncpi wci g"kpyytweykqp"f wtkpi "yj g"eqwtug"qh'yj g"r tqi tco o g0'Vj ku'ku'qhysp'nko kysf "vq"xqecdwct {" ngctpkpi ."hqmyy gf "d{ "kpyytweykqp"kp"ytcpyrkystcykqp0

Vj gtg'ku.'j qy gxgt.'c'i tqy kpi 'ktgpf 'kq'r tqxkf g'j ki j gt/ngxgn'f gi tggu'kp''uki p'kpvgtr tgvkpi 0°C v''y g''gpf ''qh''3; ; 6." vj gtg''y gtg''hgy gt''y cp''vgp''hqwt/{ gct'f gi tgg''eqwtugu''cv''Wpkxgtukv{ ''ngxgn'kp''y g''Wpkxgf ''Uvcvgu.''cpf ''qpn( ''qpg'' f gi tgg''eqwtug.''cv'I cmcwf gv''Wpkxgtukv{ .''cv'i tcf wcvg''ngxgn')'Vtckpkpi ''qp''y gug''r tqi tco o gu'kpenwf gu''CUN1Gpi nkuj ''kpvgtr tgvkpi .''cpf ''o gvj qf u''qh''kpuxtwevkqp''r ctcmgn''y qug''wugf ''hqt''kpvgtr tgvgtu''qh''ur qmgp''ncpi wci gu0'Rtcevkeg''kp'' eqpugewkxg'kpvgtr tgvkpi ''v{ r kecm( ''r tgegf gu'y qtm'kp''y g''uko wncpgqwu''o qf g.''cny qwi j ''pq''pqvgu''ctg''wugf ''y j gp'' y qtmkpi ''eqpugewkxgn( .''cpf ''y g''ej wpmu''ctg''y gtghqtg''pgeguuctkn( ''uj qtvgt0

Vj g"pcwtg"qh"kpvgtrtgvkpi "dgwy ggp"c"uki pgf "cpf "c"urqmgp"ncpi wci g"rtgugpwu"urgekch"ej cmgpi gu"vq"kpvgtrtgvkpi "rtqi tco o gu0Ncpi wci g"ngctpkpi "ku"rctvkewnctn("fkhhkewnv"hqt"uwwfgpwu."cu"vj gtg"ku"pq"i gqi tcrj kech'nqecvkqp"kp" yj kej "CUN"\*qt"cp{ "uki pgf "ncpi wci g+"ku"vj g"o clqtkv{ "ncpi wci g."cpf" gpeg"vqvcn'ko o gtukqp"ku"ko rquukdng0'

O qtgqxgt."o cp{ 'F gch'r gqr ng. 'y j q'ctg''y go ugnxgu'dkhpi wen 'y kn'uy kej 'kpvq'uki pgf 'Gpi nkuj 'kp'cp'cwgo r v'vq' o cng'eqo o wpkecvlqp'y ky 'ncpi wei g'hgctpgtu'gculgt0Hlpcm(.'uki pgf 'ncpi wei gu'j cxg'pq'y tkwgp'hqto 0Hqt''yi gug'' tgcuqpu."ceeguu'vq'uki pgf 'ncpi wei gu'hwej 'cu'CUN'cpf 'DUN'ku'gzvtgo gn{ 'nko kgf 'hqt''o quv'uwf gpvu0 Uwej 'kpvgtrtgvpi 'r tqi tco o gu'ctg'enaq'gzr gpulxg'vq'twp0F gch'kpuvtwevqtu'yi go ugnxgu'tgs wktg'kpvgtrtgvgtu'kp'' qtf gt 'vq'eqo o wpkecvg'y ky 'cp{ 'pqp/uki pkpi 'eqngci wgu. 'yi wu'cf f kpi 'vq'cf o kpkuvtcvlqp'equvu0Cnj qwi j 'pq'' kpvgtrtgvpi 'dqqyi u'ctg'pgeguuct{ .'xkf gq'gs wkr o gpv'ku'tgs wktgf <'xkf gqvcr gu'qh'F gch'r gqr ng'uki pkpi 'ctg'wugf 'hqt' uwf gpv'rtcevleg. 'cpf 'vcr gu'qh'kpvgtcevlqpu'dgw ggp'F gch'cpf 'j gctkpi 'r ctvlekr cpwi'ctg'wugf 'hqt'kpvgtrtgvkpi '' rtcevleg0Vj g'pwo dgt'qh'rtqhguukqpcm( 'r tqf wegf 'lgf wecvlqpcn'xkf gqvcr gu'ku'kpetgculopi 'dw'ku'unknikpuwlhlekgpv.'' cpf 'y tkwgp'o cvgtkenu'uwej 'cu'vgzvlqqmu'ctg'tctg0Xkf gq'eco gtcu'ctg'enaq'pgeguuct{ 'lp'qtf gt 'vq'tgeqtf 'cpf '' gxcnxcvg'uwxf gpv'r gthqto cpeg0Vj gug'f khhewnkgu'ctg'f kuewnugf 'lp'f gxckilp'Dtgppcp'cpf 'Dtkgp'\*3; ; 7+'y kyj '' tgur gev'vq'y g'r quvi tcf wcy'f gi tgg'r tqi tco o g'qhhgtgf 'd{ 'yi g'Wpkxgtukxf 'qh'F wtj co 'lp'Dtkclp0 Cp'qti cpk cvlqp'eqpuknkpi ''qh'kpvgtrtgvgt''gf wecvqtu'kp'P qty' 'Co gtkec.'npqy p'cu'yj g'Eqphgtgpeg'qh'Kpvgtrtgvgt'' Vtckpgtu'\*EW+:'ku'y qtnkpi ''q'gpj cpeg'yj g''s wcnkvf ''qh'lgf wecvkqp'kp''uki pgf ''lcpi wci g'kpvgtrtgvkpi 0 Ugg''cnq<

EQOOWPKV[ "KP VGTRTGVKP I = EQPHGTGPEG"CPF "UKO WNVCPGQWU"KP VGTRTGVKP I = EQWTV" KP VGTRTGVKP I 0

### Hwt yj gt 't gcf kpi

Y KNNKCO 'ROKUJ CO

# Umqr qu'\tj gqt {

Unqrqu'\i gqt{'\ku'\cp'\cr r tqcej '\q'\tcp\ur\qp\y j \ej '\y cu'\f gxgqqr gf '\q\'I gto cp{\'\lp'\j g'\rcy'\3; 92\ui\x\Xgto ggt" 3; 9: \perp\ur\cp\f'\y j \ej '\tg\nge\ui\cp\ur\cq\ui\tq\

Unqrqu''y gqt { "vengu'ugt kqwun{ "heevqtu'y j kej "j exg"eny c { u'dggp"uvtguugf "kp"cevkqp"'y gqt { ."cpf "y j kej "y gtg" dtqwi j v'kpvq"uj etr "tgrkgh'y ky "y g'i tqy kpi "pggf "kp" y g'i expt" j enh'qh'y g''y gpvkgy "egpwt { "hqt "y g''vtepurevkqp"qh" pqp/rkvgtet { "vgzv'v{r gu0'kp"y g''vtepurevkqp"qh'uekgpvkhke"epf "eeef go ke"r er gtu. "kpuvt wevkqpu'hqt 'wug. "vqwtkuv'i wkf gu." eqpvteevu. "gve0" y g''eqpvgz wen'heevqtu'uwttqwpf kpi "y g''vtepurevkqp"eeppqv'dg'ki pqtgf 0'V j gug'heevqtu'kpenwf g''y g'' ewwwtg''qh'y g''kpvgpf gf "tgef gtu'qh'y g''veti gv'vgzv'epf "qh'y g''erkgpv'y j q'' j eu''eqo o kuukqpgf "kv."epf ."kp"r et vkewret." y g'hwpevkqp"y j kej "y g''vgzv'ku''vq''r gthqto "kp'y ev'ewwwtg''hqt "y qug'tgef gtu0'Unqrqu''y gqt { "ku''f ktgevn{ "qtkgpvgf" vqy etf u''y ku'hwpevkqp0

Vtcpurcvkqp'ku'xkgy gf "pqv'cu'c'r tqeguu'qh'vtcpueqf kpi ."dw'cu'c'ur gekhle'hqto "qh'j wo cp'cevkqp0'Nkng'cp{ "qyj gt" j wo cp'cevkqp."vtcpurcvkqp'j cu'c'r wtr qug."cpf "vj g'y qtf "unqr qu."f gtkxgf 'htqo 'I tggm'ku'wugf 'cu'vj g'vgej pkecn' vgto "hqt'vj g'r wtr qug'qh'c''vtcpurcvkqp0'Unqr qu'o wuv'dg'f ghkpgf "dghqtg'vtcpurcvkqp"ecp"dgi kp="kp"j ki j rki j vkpi "unqr qu."vj g'vj gqt { "cf qr w'c'r tqur gevkxg'cwkwf g'vq'vtcpurcvkqp."cu'qr r qugf "vq'vj g'tgvtqur gevkxg'cwkwf g'cf qr vgf" kp"yj gqtkgu'y j kej 'hqewu'qp'r tguetkr vkqpu'f gtkxgf 'htqo 'vj g'uqwteg'vgzv0

Kp"cffkkqp"\q"ku"r wtr qug."cp{"cevkqp"j cu"cp"qweqo g0"Vj g"qweqo g"qh"\tcpurcvkqpcn"cevkqp"ku"c"\tcpurcv\overline{"tcp

## Xgto ggtød'ungrqu'vj gqt{

Xgto ggt'\*3; 9: <322+'r quwncvgu''y cv'cu'c'i gpgtcn'twrg'kv'o wuv'dg''y g'kpvgpf gf 'r wtr qug''qh''y g'vcti gv'vgzv'y cv' f gvgto kpgu'\tcpurcvkqp"o gyi qf u'cpf 'uvtcvgi kgu0'Htqo ''y ku'r quwncvg."j g'f gtkxgu''y g'umqr qu't wng<'J wo cp'cevkqp'' \*cpf ''ku'uwdecvgi qt{<'tcpurcvkqp+'ku'f gvgto kpgf ''d{'kwu'r wtr qug''\*umqr qu+''cpf ''y gtghqtg'kv'ku'c'hwpevkqp''qh'kwu'' r wtr qug0'Vj g'twrg'ku'hqto crk gf ''wukpi ''y g'hqto wrc<'KC\*Vtn+''? ''h\*Um+0

Vj g'o ckp'r qkpv'qh'y ku'hwpevkqpcn'cr r tqcej 'ku'y g'hqmqy kpi <kv'ku'pqv'y g'uqwteg'vgzv'cu'uwej .''qt'kwu'ghhgevu'qp" yi g'uqwteg/vgzv'tgekr kgpv.''qt''y g'hwpevkqp''cuuki pgf ''vq'kv'd { ''y g''cwy qt.''y cv'f gvgto kpgu'y g'vtcpurcvkqp''r tqeguu.''cu'' ku'r quwwrcvgf ''d { ''GS WKXCNGP EG/dcugf ''vtcpurcvkqp''y gqtkgu.''dwv'y g'r tqur gevkxg'hwpevkqp''qt''umqrqu'qh'y g'' vti gv'vgzv'cu'f gvgto kpgf ''d { ''y g''kpkkcvqt øu ''ktg0'erkgpvøu.''pggf u0'Eqpugs wgpvn { .''y g''umqrqu'ku'hcti gn { ''eqpuvtckpgf '' d { ''y g''cti gv'vgzv'wugt'\*tgcf gt lrkuvgpgt+'cpf ''j kulj gt''ukwcvkqp''cpf ''ewnwtcn'dcemi tqwpf 0

Vy q'hwt y gt'i gpgtcn't wgu'ctg'y g'eqj gtgpeg't wrg'cpf "y g'hkf grkx{ 'twrg0'Vj g'eqj gt gpeg't wrg'unkr wrc vgu'y cv'y g'' vcti gv'vgz v'o wuv'dg'uwhhkekgpwn{ "eqj gtgpv'vq'cmqy "y g'kpvgpf gf 'wugtu'vq'eqo r tgj gpf 'kv.'i kxgp''y gkt'cuuwo gf " dcemi tqwpf 'mpqy ngf i g'cpf 'ukwc kqpcn'ektewo uvcpegu. "Vj g'uvct kpi 'r qkpv'hqt'c'\tcpurc kqp'ku'c'\vgz v'cu'r ctv'qh'c" y qtrf "eqpvkpwwo ."y tkwgp'kp''y g'uqwteg'ncpi wci g0'Kt'j cu'vq''dg'\tcpurc vgf 'kpvq''c'\cti gv'ncpi wci g'kp''uwej ''c'y c{ " y cv'kv'dgeqo gu'r ctv'qh'c'y qtrf "eqpvkpwwo "y j kej "ecp''dg''kpvgtr tgvgf ''d{ "y g'tgekr kgpvu''cu''eqj gtgpv'y kyj "y gkt'' ukwc kqp''\*Xgto ggt''3; 9: ≪322+0

Vj g'**llf grlw{ 't wrg'**eqpegtpu'lpvgtvgzwcn'eqj gtgpeg'dgwy ggp'\tcpurcwo "cpf 'uqwteg'\gzv."cpf 'uvkr wrcvgu'o gtgn{" yj cv'uqo g'tgrcvkqpuj kr "o wuv'tgo ckp''dgwy ggp'\tj g'\ty q''qpeg'\tj g''qxgttkf kpi 'r tkpekr rg''qh''unqr qu''cpf '\tj g''twrg''qh'' \*lpvtcvgzwcn+'eqj gtgpeg'\tj cxg''dggp''ucvkuhlgf 0

## Vj g'i gpgt cn't cpurc vlqp'tj gqt { 'qh'Tgku'cpf 'Xgt o ggt

Ko"eqo dkpkpi "Xgto ggtøu"i gpgtcn'unqrqu''y gqt { "qh'3; 9: "y kj "'y g'ur gekhle "tcpurckqp"'y gqt { "f gxgrqr gf "d { "Mcy ctkpc "Tgkuu." Tgkuu "cpf "Xgto ggt "\*3; : 613; ; 3+"cttkxg"cv'c "tcpurckqp" y gqt { "y cv'ku'unhhlekgpvn { "i gpgtcn' \*cni go gkpg" Vtcpurckqpun y gqt kg+"cpf "unhhlekgpvn { "eqo r rgz." 'vq"eqxgt" c'o wnkwf g"qh'hpf kxkf wcn'ecugu 0 Vj g { "cdurtcev'htqo "r j gpqo gpc" y cv'ctg" ur gekhle "vq" kpf kxkf wcn'ewnwtgu "cpf "rcpi wci gu" cp" ceeqwpv'qh'i gpgtcn'hcevqtu" f gygto kpkpi "y g"tcpurckqp" r tqeguu. "vq" y j kej "ur gekcn'y gqtkgu" y cv'eqpegtp "kpf kxkf wcn'r tqdrgo u'qt" uwdhkgrf u"ecp" dg" rkpnrgf "eqpukrypvn { 0

C'vgzv'ku'xkgy gf "cu'cp"qHgt 'qhHqhqto cvkqp"\*\*folqto cvkqpucpi gdqv+"o cf g"d{"c" tqf wegt"vq"c 'tgekr kgpv0'

Vtcpurcvkqp"ku'vj gp"ej ctcevgtk gf "cu'qhhgtkpi "kphqto cvkqp"vq"o go dgtu'qh'qpg"ewnwtg"kp"vj gkt "rcpi wci g"\*vj g"

vcti gv'rcpi wci g"cpf "ewnwtg+"cdqwv'kphqto cvkqp"qtki kpcm("qhhgtgf "kp"cpqvj gt "rcpi wci g"y kyj kp"cpqvj gt "ewnwtg"

\*vj g"uqwteg"rcpi wci g"cpf "ewnwtg+0C"vtcpurcvkqp"ku'c"ugeqpf ct { "qhhgt"qh"kphqto cvkqp."ko kcvkpi "c"r tko ct { "qhhgt" qh"kphqto cvkqp0Qt."vq"dg"o qtg"r tgekug."vj g"vtcpurcvqt"qhhgtu"kphqto cvkqp"cdqww'egtvckp"cur gewu'qh'vj g"uqwteg/vgzv kp/ukwcvkqp."ceeqtf kpi "vq"vj g"vcti gv'vgzv'umqr qu'ur gekhkgf "d{"vj g"kpkkcvqt"\*Tgkuu'cpf "Xgto ggt"3; : 613; ; 3<98+0'

P gkvj gt"vj g"ugrgevkqp"o cf g"htqo "vj g"kphqto cvkqp"qhhgtgf "kp"vj g"uqwteg"vgzv"pqt"vj g"ur gekhkecvkqp"qh'vj g"unqr qu"

j cr r gpu"cv'tcpf qo ="tcvj gt."vj g{"ctg"f gvgto kpgf "d{"vj g"pggf u."gzr gevcvkqpu."gve0'qh'vj g"vcti gv'vgzv'tgegkxgtu0'

Vtcpurcvkqp"ku'd{"f ghkpkkqp"kpvgtrkpi wcn'cpf "kpvgtewnwtcn"kv'kpxqrxgu'dqvj "rkpi wkuvke"cpf "ewnwtcn'vtcpuhgt="kp"

qvj gt"v qtf u."kv'ku'c"ewnwtg/vtcpuegpf kpi "r tqeguu'\*Xgto ggt"3; ; 4<62+0

Ukpeg'unqrqu'xctkgu'y kij 'vgzv'tgegkxgtu.''yi g'unqrqu'qh''yi g'vcti gv'vgzv'cpf ''qh''yi g'uqwteg'\gzv'o c{ ''dg'f khhgtgpv0'Kp'' ecugu'y j gtg''yi g''unqrqu'ku''yi g''uco g'hqt''yi g''wy q''vgzwu.''Tgkuu''cpf ''Xgto ggt'\*3; : 613; ; 3<67+'ur gcm'qh'' Hwpmkqpunqpuxcp/ ''\*hwpevkqpcn'eqpuvcpe{+.'y j gtgcu''ecugu'kp''y j kej ''yi g''unqrqu''f khhgtu''dgwy ggp''yi g''yy q''vgzwu'' wpf gti q''Hwpmkqpuv@pf gtwpi ''\*ej cpi g''qh'hwpevkqp+0'Kp''ecugu''qh''yi g''ncwgt''v{r g.''yi g''uncpf ctf ''hqt''yi g''vcpurcvkqp'' y kn''pqv'dg''kpvgtvgzwcn'eqi gtgpeg'y kyi ''yi g''uqwteg''vgzv.''dw''cf gs wce{ ''qt''crrtqrtkcvgpguu''vq''yi g''unqrqu.''y j kej '' cnuq''f gvgto kpgu''yi g''ugrgevkqp''cpf ''cttcpi go gpv''qh''eqpvgpv0

Cnj qwi j "c''tcpurcwo "ku''pqv''kruq''lcevq''c'hckj hwilko kcvkqp"qh''y g''uqwteg''yzv.'hkf grkv{ ''vq''y g''uqwteg''yzv''ku''qpg'' r quukdrg''qt''rgi koko cvg''unqrquOUnqrqu''y gqt { ''uj qwrf ''pqv.''y gtghqtg.''dg''wpf gtuvqqf ''cu''r tqo qvkpi ''\*gzvtgo gn{+'' htgg''tcpurcvkqp''kp''cm''qt''gxgp''c''o clqtkx{ ''qh''ecuguO

Cnj qwi j ''y g''yto u''-inqr quá''-ir wtr qugơ'cpf ''-inxpevkqpơ'ctg''qhxgp''wugf ''kpygtej cpi gcdn{ ''d{ "

J qy gxgt. "dqy "Xgto ggt" "3; :; c+"cpf "Tgkuu" "3; :: +"j cxg" gzrtguugf "tgugtxckqpu" cdqw" yi g"tqrg" qh" i gptg<" yi g"uqwteg" yz v"f qgu" pqv"f gvgto kpg" yi g"t gptg" qh" yi g"vcti gv" vz v." pqt" f qgu" yi g"t gptg" f gvgto kpg" yi g"hqto "qh" yi g"vcti gv" vz v." qt. "kpf ggf." yi g"umqrqu="tcvj gt." kv" ku" yi g"umqrqu" qh" yi g"vtcpurckqp" yi cv"f gvgto kpgu" yi g"crrtqrtkcvg" i gptg" hqt" yi g"vtcpurcwo. "cpf" yi g"i gptg. "dgkpi" c"eqpugs wgpeg" qh" yi g"umqrqu. "ku" ugeqpf ct { "vq" kv" xgto ggt" 3; :; c<" 3: 9+0

### Ucwwiqhilqwteg'igzv'cpf 'tcti gv'igzv

## Etkleko 'qh'umqrqu'vj gqt{

Qdlgevkqpu'vq"*umqr qu*'vj gqt { "o ckpn{ "eqpegtp"vj g"f ghkpkkqp"qh"vtcpurcvkqp"cpf "vj g"tgrcvkqpuj kr "dgwy ggp"uqwteg" vgzv'cpf "vcti gv'vgzv0

Kt'j cu'dggp'cti wgf ''y cv'Tgkuu'cpf ''Xgto ggt.''kp''y gkt''cwgo r v''vq''guvcdrkuj ''c''twn{ ''i gpgtcri'cpf ''eqo r tgj gpukxg'' vtcpurcvkqp''y gqt { .''hqteg''vqvcm{ ''f kur ctcvg''ecugu''qh''vgzv'tgrcvkqpu''kpvq''c''htco g'y j kej ''y g{ ''cwgo r v''vq''j qrf '' vqi gy gt''d{ ''o gcpu''qh''y g''pqvkqp''qh''kphqto cvkqp''qhhgt'' $^{*}$ Uej tgkvo Ãrngt''3; ; 6 $^{3}$ 27 $^{+}$ 0Dw''y gtg''uj qwrf ''dg''c''hko kv''q'' y j cv'o c{ ''ngi kvko cvgn{ ''dg''ecrngf ''vtcpurcvkqp''cu''qr r qugf ''vq.''hqt''gzco r ng.''CF CRVCVKQP 0Kp''vtcpurcvkqp''r tqr gt'' \danger Mqnrgt''3; ; 2 $^{+}$ ''y g''uqwteg''vgzv'ku''y g''{ctf uvken'd{ ''y j kej ''cm''vtcpurcvkqpu''o wuv''dg''o gcuwtgf .''kpf gr gpf gpvn{ ''qh''y g'' r wtr qug''hqt''y j kej ''y gtg''r tqf wegf 0

Kp"y ku"eqpvgzv"kv"ku"cnuq"cti wgf "y cv."gxgp"y qwi j "c"vtcpurcvkqp"o c{"kpf ggf "hwhkriksu"kpvgpf gf "unqrqu"r gthgevn{" y gm"kv"o c{"pgxgtyj grguu"dg"cuuguugf "cu"kpcf gs wcvg"qp"qyj gt"eqwpvu."r ctvkewrctn{"cu"hct"cu"hgzkecn"u{ pvcevke."qt" uv{ rkuvke"f gekukqpu"qp"yj g"o ketqrgxgrictg"eqpegtpgf "\*c"r qkpv"o cf g"d{"Ej guvgto cp"3; ; 6<375."y j q"qyj gty kug" cempqy rgf i gu"yj g"ko r qtvcpv"eqpvtkdwkqpu"qh"unqrqu"yj gqt{+0"Uwej "qdlgevkqpu"eqo g"o ckpn{"htqo "rkpi wkuvkecm{" qtkgpvgf "crrtqcej gu"vq"vtcpurcvkqp"yj cv"hqewu"qp"dqwqo /wr "cur gewu"qh"vgzv"r tqf wevkqp"cpf "tgegr vkqp0"Hqt" gzco r rg."P gy o ctm"\\$3; ; 3d<328+"etkkek| gu"yj g"qxgtuko r nkhecvkqp"yj cv"ku"kpj gtgpv"kp"hwpevkqpcrkuo ."vj g" go r j cuku"qp"yj g"o guuci g"cv"yj g"gzr gpug"qh"tkej pguu"qh"o gcpkpi "cpf"vq"yj g"f gvtko gpv"qh"yj g"cwyj qtkv{"qh"yj g" uqwteg/rcpi wci g"vgzv0

 $\label{eq:continuity} J \ qy \ gxgt. "r \ tqr \ qpgpvu" qh" umqr \ qu" \ y \ gqt \{ \ "cti \ wg" \ hqt" c"y \ kf g"f \ ghkpkklqp" qh" vtcpurc vkqp" \ g0 \ 0 \ Tgkvu" 3; ; 2+0 \ Cu" uqqp" cu" qpg" cumu" \ hqt " y g"$ 

r wtr qug"qh'c' 'tcpurcvkqp. 'uvtcvgi kgu' 'yi cv'ctg' 'qhvgp' 'rkuvgf 'wpf gt 'cf cr vcvkqp. 'hqt 'gzco r ng' 'tghqto wrcvkqp. 'r ctcr j tcug' cpf 'vgz wcri'gzr rkecvkqp. 'y kri'eqo g'kp' 'pcwtcm{ ''cu'r ctv'qh' 'vtcpurcvkqp0Cpf ''etkskeu'qh'o ketqrgxgri'f gekukqpu'' wuwcm{ ''nkhv'yi g' 'vgz w'qw'qh'yi gkt 'tgur gevkxg' gpxktqpo gpw' hqt ''eqo r ctcvkxg''r wtr qugu. 'ki pqtkpi ''yi gkt 'hwpevkqpcn' cur gevu0

Tgkuu'cpf "Xgto ggtøu'ewnwtcn'crrtqcej 'j cu'cnuq'dggp'lwf i gf 'nguu'crrnkecdng'\q'nkgtct { ''tcpunc\kqp.''f wg'\q'\y g'' ur gekcn'uwwu'qh'c'nkgtct { ''y qtm'qh'ct\0'Upgm'J qtpd { '\*3; ; 2 < 6 +'cti wgu'\y cv'\y g''ukwc\kqp''cpf 'hwpe\kqp''qh'nkgtct { ''\gz w.''cpf ''y cv'uv\{ ng'ku'c'j ki j n\{ 'korqtwpv'hce\qt0'Vj gtghqtg.'' cnj qwi j ''umqrqu'\y gqt { ''ku'd { ''pq''o gcpu'kttgngxcpv'\q''nkgtct { ''tcpunc\kqp.''c'pwo dgt''qh'r qkpwi'pggf ''tgyi kpnkpi '' dghqtg'\y g'\y gqt { ''ecp''dg''o cf g'hwn\{ ''crrnkecdng'\q''y ku''i gptg0}

Ki'ku'cnıq'r quukdıg''vq''cti wg''y cv''vq''cuuki p''c''*umqr qu*''vq''c''rksgtct{''vgzv'ku''vq''tguvtkev'ku''r quukdkrk''kgu''qh'' kpvgtr tgvcvkqp0Kp''rksgtct{''yi gqt{''c''f kurkpevkqp''ku''qhvgp''o cf g''dgw ggp''vgzv'cu''r qvgpvkcn'cpf ''ygzv'cu''tgcnkt cvkqp." cpf ''*umqr qu*''yi gqt{''cr r gctu''vq''ugg''yi g''vgzv''qpn(''cu''tgcnkt cvkqp."cpf ''pqv'cu''c''r qvgpvkcn'y j kej ''ecp''dg''wugf ''kp'' f khngtgpv'ukwcvkqpu''y kyi ''f khngtgpv''cf f tguuggu''cpf ''j cxkpi ''f khngtgpv''hwpevkqpu0J qy gxgt.''Xgto ggt'\*3; :; c<'3: 3+" cti wgu''yi cv'y j gp''c''ygzv'ku''cewcm(''eqo r qugf.''yi ku''ku''f qpg''y kyi ''cp''cuuwo gf 'hwpevkqp.''qt''c'tguvtkevgf ''ugv'qh'' hwpevkqpu.''kp''o kpf 0'*Umqr qu*''yi gqt{''f qgu''pqv'f gp{''yi cv'c''ygzv'o c{''dg''wugf''kp''y c{u''yi cv'j cf ''pqv''dggp''hqtguggp'' qtki kpcm{.''qpn{''yi cv'c''tcpurcwo ''ku''c''ygzv'kp''kwu''qy p''tki j v.''y kyi ''kwu''qy p''r qvgpvkcn'hqt''wug0}

Unqrqu''y gqt { "j cu''j grr gf "\q''dtkpi "y g'\cti gv'\gzv'kp\q'hqewu0\Cu''c'\gzv."c'\tcpurc\kqp'ku''pqv'r tko ctkn{ "f gvgto kpgf" d{ "c'uqwteg"\gzv."dw''d{ "ku''qy p''umqrqu0\Vj ku''czkqo "r tqxkf gu''c''y gqtgvkecn'cti wo gpv'hqt''f guetkdkpi "\tcpurc\kqpu" kp''yto u''qh'qtki kpcn'\gzv'r tqf wevkqp''cpf "ci ckpuv'f guetkdkpi "y go "kp''y g'o qtg''\tcf kxkqpcn'\gto u''qh'' GS WKXCNGP EG'y ky "cpqy gt''\gzv'kp''cpqy gt''rcpi wci g'\*\ugg''cnq''Lcmqdugp''3; ; 5<378+0'Vtcpurc\kqp''ku''c''

GS WKXCNGP EG'y ky 'cpqyi gt''vgzv'kp''cpqyi gt'hcpi wci g'\*vugg''cnuq''Lcmqdugp''3; ; 5</378+0'Vtcpurcvkqp''ku'c'' FGEKUKQP 'O CMKP I 'r tqeguu0'Vj g'etksgtkc'hqt''y g'f gekukqpu''ctg''r tqxkf gf ''d{ ''y g''*unqr qu* ''k0g0'y g'eqpetgyg'' r wtr qug''cpf ''cko u'kp''c''eqpetgyg''tcpurcvkqp''eqo o kuukqp0

Vj g'uj khv'qh'hqewu'cy c{'htqo 'uqwteg'\gzv'tgr tqf wevkqp'\q'vj g'o qtg'kpf gr gpf gpv'ej cmgpi gu'qh'\cti gv\gzv' r tqf wevkqp''j cu'dtqwi j v'kppqxcvkqp''q''tcpurcvkqp''j gqt{0Cu'cwgpvkqp''j cu'wtpgf 'vqy ctf u'vj g'hwpevkqpcn'cur gewu' qh'\tcpurcvkqp''cpf 'vqy ctf u'vj g''gzr ncpcvkqp''qh'\tcpurcvkqp''f gekukqpu.''vj g''gzr gtvkug'cpf 'gvj kecn'tgur qpukdkrkv{'qh'' vj g''vtcpurcvqt''j cxg''eqo g''vq''vj g''hqtg0'Vtcpurcvqtu''j cxg''eqo g''vq''dg''xkgy gf ''cu''cti gv\gzv'cwj qtu''cpf ''j cxg''dggp'' tgngcugf 'htqo ''vj g''ho kcvkqpu''cpf ''tguvtkevkqpu''ko r qugf ''d{ ''c''pcttqy n{ ''f ghkpgf ''eqpegr v'qh'nq{ cnv{ ''vq''yj g''uqwteg'' vgzv''cmpg0}

## Hwt yj gt 't gcf lpi

Co o cpp'3; : ; 13; ; 2='P gy o ctm'3; ; 3d='Tgkuu'3; : 8.'3; : : .''3; ; 2='Tgkuu'cpf 'Xgto ggt'3; : 61'3; ; 3='Xgto ggt'3; 9: .'3; : 4.'' 3; : ; c.'3; ; 40

EJ TKVKP C''UEJ £ HHP GT

# Ur gewic daz g'errt qeej gu

C'pwo dgt"qh'ko r nekv'czqpqo kgu'kp"tcpurckqp"ecp"dg"uggp"kp"cp{"y qtm'qp"y g"uwdlgev0"Y j gp"hqtgi tqwpf gf "gzr nkekn("cu'hkpi wkuke"r j gpqo gpc"kp"kpygt/rcpi wci g"tcpuhgt."y gug"j cxg"qhxgp"dggp"r tgugpygf "cu'tcpurckqp" y gqt {0Uqo gwo gu'y g"r tgugpyckqpu"tgn("qp"f kcej tqpke"f guetkr vkqp"\*mt"gzco r rg"kp"y g"y qtm'qh'uwej "uej qrctu" cu'Nco dgtv'cpf "y g"Ngwxgp"Uej qqn'i gpgtcm(+='uqo gwo gu'qp"u{pej tqpke"uwtxg{"\*ugg"I ww."J qwug."Tgkun+0" kpxctkcdn("uwej 'hqmqy ."cu'enqugn("cu'r quukdrg."y g"utkewtgu'qh'vtcf kkqpcm("eqpegkxgf "r tqegf wtgu"qh" gzr gtko gpv'cpf "xcnlf cvlqp"cu'wugf "d{"y g"r j {ukecn'uelgpegu0"V j g{"ctg"go r ktkecpcn( we"y gqtkgu0Dw'y g"uco g" vczqpqo kgu"ecp"lwuv'cu'y gm'rgcf "q"\*c+"s wgunkqpkpi "f cvc"f gtkxgf "htqo "s wcpwkcvkxg":uelgpwkhleø'r tqegf wtgu."\*d+" s wcnkhl kpi "y gqtkgu'tguxkpi "qp"uwej "f cvc."cpf "\*e+"o qf khl kpi "qt"gxgp"tglgevkpi "r tguetkr vkxg"tckpkpi "dcugf "qp"y g" uelgpwkhle"uwf {0'Uwej "ungr vlekuo "xku/«/xku/y g"uelgpwkhle"o gy qf ."y j kej "ku'o qtg"hng"Etkklecn'Vj gqt {"\*J cdgto cu" 3; 9: +'y cp"vtcf kklqpcn'y gqt { "hgu"cv'y g"tqqv'qh'ur gewcvkxg"cr r tqcej gu'vq"vtcpurcvkqp0Kp"uj qtv."y g"f kej qvo {" kp"ceeguukpi "npqy rgf i g."ewttgpv'ukpeg"dghqtg"Mcpv."dgwy ggp"y g"go r ktlecn'cpf "y g'ur gewcvkxg."j cu'kpgxkxcdn(" chlgevgf "vtcpurcvkqp"y gqt {"

 $cpf "ceeqwpwl"hqt"o cp{ "qh"y g"s wcttgnu"co qpi "y gqtknw000 wej "qh"y g"eqpvtqxgtu{ "f gtkxgu"htqo "ncem"qh" ci tggo gpv"qp"y j cv"eqpvvkwwgu"y gqt{."j qy "kv"uj qwrf "dg"f gtkxgf."cpf."cdqxg"cm"j qy ."gxgp"y j gyj gt."kv"o ww"dg" cr r necdng"vq"r tcevleg0$ 

Ur gewicksg'tcpurckqp''y gqt { "cv'r tgugpv'r tqeggf u'htqo "y g'i ksgp''y cv'tcpurckqp."gxgp''y j gp''r gthqto gf "d { "o cej kpgu."ku''cp''cevkxkv{ "ko r gngf "d { "j wo cp''dgkpi u''kp''uqekcn'ukwckqpu0'Kv'ku''y wu''gxgp''nguu''s wcp\khkcdng''cpf "eqpukf gtcdn{ 'nguu''r tgf kevcdng''y cp''y g''uqekcn'uekgpegu0'Vtcpurckqp''cu''eqo o wpkeckqp''cpf "ugnh' gzr tguukqp'' dgw ggp''pcwtcn'hcpi wci gu''ku'c'hwpekqp''qh''y kpnkpi "cpf "ur gcnkpi."ko kckpi "cpf "etgckpi 0'Kv'ku''f { pco ke'kp'' guugpeg''cpf "ecppqv''dg''uwxf kgf "qdlgekxgn{ 0

Vcng. 'hqt 'gzco r ng. 'yy q'qh'y g'dcuke 'vczqpqo kgu'y j kej 'r gto gcvg'y g'nkvgtcwtg'qp'vtcpuncvkqp<'NKVGTCN'xu0' HTGG"cpf "\gzvqtkgpvgf "xu0'cwf kgpeg/qtkgpvgf."\j g'\ncwgt"qhvgp"gzrtguugf "cu'\uqwteg/qtkgpvgf 'xu0\cti gv\qtkgpvgf 0' VTCF KVKQP + "co qpi "qyj gtu0'Dkdrg" 'tcpurcvkqp" cnuq 'hwtpkuj gu"gzco r rgu"hqt "yj g"ugeqpf "f kej qvqo { < 'tcpurcvkqpu" ecp"o qxg"yj g"\gzv\q"yj g"\gzv\q"yj g"\tgcf gt"\NWVJ GT."\ugg"<u>I GTO CP "VTCF KVKQP</u> + "qt"o qxg"yj g'tgcf gt '\q"yj g'\gzv" \*Dwdgt "cpf "Tqugp| y gki +0'Vj tqwi j "vj g"egpwtkgu. "vj g"Ur gewrcvkxg" vj gqtkuvu "y qwrf "pqvg. "cp{ "f gxkcvkqpu "kp" vj gug" f kxkukqpu'ctg'wuwcm( 'o qtg'crrctgpv'vj cp'tgcn0F gurkg'o kpqt'ej cpi gu'kp'encuukhkecvkqp'cpf 'tgi ctf nguu'qh' eqpvkpi gpekgu'nkng'ncpi wci g."j kuvqt{."i gqi tcrj {."r wtrqug"qt"vcuvg."vj gug"ecvgi qtkgu"ctg"uvcdng0"Hqt"vj g":-J qy ø"qt" www.gdqwpf "ej ctcevgtkuvkeu." y g'ecp" o ctuj cn'go r ktkecn'uwr r qt v'chvgt "y g'hcev0Hqt" y g"÷Y j {ø'hgnv'vq" dg'Iww'cu'xcnkf.'y g'ecp'ej kghn( 'ur gewrcyg.'kp'qyj gt'y qtf u'cdcpf qp''y g'uvtkevn( 'go r ktkecn'r tqdcdrg'ecwugu'cpf " rtqeggf "d{"tgcuqp."cpcmqi {."kphgtgpeg."o gvcrjqt."gxgp"grkrjcp{"dw/tguqtvkpi"vq"kpvgtuwdlgevkxg"vguvcdkrkv{." y j krg"qhrgp"kmvo kpcvkpi . "guugpvkcm( "dgi u"vj g"s wguvkqp0"Uqo g"ecvgi qtkgu"ecp"dg"f kuegtpgf "y j gp"y g"o qxg"kpvq" y g"eqpegr wcn'lphtcuxtwewtg"qh'\tcpurc\lqp"cpf "\t{"\q"gz\tcev'qt"gz\tcr qrc\vg"cp"qxgtcm'\y gqt{"\qt"y gqt{"dwpf rg." qt"uwr r qt vkxg" y gqt { "qt" y gqt { "dwpf rg." hqt" uwej "eqpegr vu" cu" GS WKXCNGP EG. "P QTO U." qt ki kp. "r tce vkeg." r tqeguu. "tgegr vkqp"cpf "vj g"rkng0F kuegtpgf "dwv"pqv"f grko kgf. "vj g"ecvgi qtkgu"dgeqo g"gnwukxg"y j gp"y g"vt { "vq" o qxg"dg{qpf "f kcej tqpke"f guetkr vkqp"cpf lqt"uvcwu"s wq"r tguetkr vkqp"cpf "ceeqwpv"hqt"yj g"wpr tgf kevcdrg"etgcvkxkv{" qh'ircpi wci g'ej cpi g'cpf "eqpeqo kxcpv'tj gvqtkecn'o qf khkecvkqpu0

Uwej "dctgn( "hqtguggp"cpf "uqo gwlo gul'ycm ("wpgzr gevgf "f gxgmr o gpwl'hp" y g"f {pco ke"egpvtgu" y h'l' pgeguulw{"wr ugvlj kaj gtvq"ceegr vgf "pqto u"qhl'vtcpulgt." cpf "j gpeg"wpf gto kpg"wwci g/egpvtgf "tcpurcwlqp" y gqtkgu." dqyj "y qug"f gtkxgf "htqo "hkpi wkuweu"cpf "hqtgki p/repi wci g"r gf ci qi {"\*hqt"gzco r ng"Xkpc{"cpf "F ctdgrpgv"3; 7: =" J qwug"3; 99="F grkurg"3; : 2+"cpf "y qug"f gtkxgf "htqo "hkgtct{"j kwqt{"\*Gxgp/\ qi ct"3; 9: ="Vqwt{"3; : 2c="Nghgxgtg" 3; ; 4e+0Qpg"tgur qpug"vq"y ggtgtcvke"r j gpqo gpc"qh"repi wci g"cpf "tj gvqtke"kn"vq"hlo kv"y g"r wtxkgy "qh"tcpurcwlqp" yi gqt{"vq"eqpegr wcrkl gf "wuci g"i wkf gul"\*Xkpc{"3; 97="Ej gurgto cp"3; ; 5+"vq"tglgev'cu"hwkrg"cp{"uwwf {"qwukf g"y g" yzzwl"p"s wgwlqp"y cv"ku"pqv'qdlgevkxg"cpf "go r ktlecn/cpcn{ \text{vk-vgg"RQN[U]UVGO"VJ GQT[+0V]g"Ur gewrcwkzg" tgur qpug"ku"vq"cf o kv"tgcuqp"cpf "kpwkkqp."gxgp"lo ci kpcwlqp"cpf "y g"eqo r ngz"kpytcewlqp"qh"o kpf "cpf "dqf {" "Tqdkpuqp"3; ; 3+"cu"o gyj qf u"cr r tqr tkcyg"hqt"f gxkukpi "c"y gqt{"dwpf ng"hqt"tcpurcwlqp0Vtcpurcwlqp"y gqt{"d{" y ku"tgur qpug"ku"u{ usgo cwlecm{"cpf "kpypugn{"ur gewrcwlxg0Vj g"r tcewklqpgtu"dgj kpf "y ku"tgur qpug"wwcm{"eqmgev" cpf "uwf{"y g"uco g"nkpf "qh"f cvc"cu"y g"y gt" t tqwr 0J qy gxgt."y j krg"y g{"o c{."d{"cpf "rcti g."eqpulf gt" qdlgewkxk{"cf o kcdng"kp"y g"cduvtcev."y g{"nqmiwr qp"kv"cu"r tcewecm{"uwur gev"cpf "pgctn{."kh"pqv"gpwktgn{." wpqdckpcdng"kp"cp"cevkxk{"y j qtqwi j n{"f gr gpf gpv"wr qp"y wo cp"dgkpi u0C u"c"pqf "\q"qdlgewkxk{"uwej "y gqtkuru" vt {"vq"dg"j qpguv"cdqw"y j gkt"qy p"dkcu"cpf "uwdlgewkxk{0}

Vj gtg'ku'pq''Ur gewrcvkxg'uej qqrl'qh''tcpurcvkqp0'K'j cr r gpu''y cv'o cp{ 'y gm/npqy p''r tqr qpgpvu'qh''y ku''cr r tqcej "ctg'hqwpf 'kp''y g'f qo ckpu'qh'Eqo r ctcvkxg''Nkvgtcwtg.''Etgcvkxg''Y tkkpi .'Ewnwtcn'Uwf kgu.''cpf 'Eqpvkpgpvcn' Rj krquqr j {.''dw''y ku''o c{ ''dg''uko r n{ ''hqtwkxqwu0'Vj gtg''ctg.''j qy gxgt.''y kyj kp''y g''i tqwr u'y j q''o gf kxcvg''cu''o wej ''cu'' o gf kcvg.''c''hgy ''uj ctgf '\*cpf ''rcti gn{ ''ugtgpf kr kxqwu+''cuuwo r vkqpu<

\*c+"Vtcpurcvkqp" yi gqt { "ku" o wnkr ng" cpf "o wnkhcegvgf 0

\*d+'C'wpkct{"kcpurckqp"yi gqt{"ku"pgkyi gt"pgeguuct{"pqt"f guktcdrg0

\*e+"Vtcpurckqp"yi gqt{"ku"pqv'vq"dg"lwf i gf "qp"ku"ko o gf kcvg"cr r rkecdkrk\{"vq"r tcevkeg0\Qp"yi g"eqpvtct{."

ko r qukpi "cp{"etksgtkc"qh"wpcpko kx{"qt"wpkhqto kx{"cpf"cr r rkecdkrk\{"eqwf"dg"pghctkqwu."tqwkpki kpi "wuci g"

cpf "f kueqwtci kpi "etgcvkxkx{="cv"ku"y qtuv."ko r qukpi "r cwgtpu"qt"uvcpf ctf u0

\*f+"Vj g"j qtki qp"qh"vtcpurckqp"yi gqt{"uj qwrf"dg"qr gp."cpf "yi qug"y j q"uwf {"vtcpurckqp"uj qwrf"ceeqo o qf cvg"

dkcu."ej cpi g."ewnwtg0\Uwf gpwu"qh"vtcpurckqp"uj qwrf "qdugtxg"wuci g."gxgp"j grr "gzr rckp"kv."dw"rgi kurckpi "

wuci g"ku"qwukf g"yi g"r wtxkgy "qh"vtcpurckqp"yi gqt{0Kpf ggf."eqpukf gtkpi "yi cv"yi g"xcuv"pwo dgt"qh"tgeqtf gf "cpf"

uvcdkrki gf "y qtrf"rcpi wci gu"ctg"qwukf g"yi g"I tgeq/Tqo cp"qt"Lwf gq/Ej tkukcp"vtcf kkqp."y g"uj qwrf "dg"

gzvtgo gn("y ct{"qh"i wkf gu"t ckuqpp² u"vj cv"f gtkxg"htqo "Y guvgtp"rcpi wci gu0

Vj g'r wtxkgy "qh'ur gewrcwkg" yi gqtk kpi "ku"pgxgt yi grguu" gz vgpukxg0 [gv'lp"c" yi wdtku" qh'kku" qy p. "kv't kgu" uko wncpgqwun ["vq" dg" wpkxgtucricpf "vq" vtcpuegpf "yi g" wpkxgtucri0 J gtg" ku" hqwpf "eqpegtp" y kyi "yi g" pcwtg" \*guugpeg" qt" Y gugp + "qh" vtcpurcwkqp" vugg" \*RWTG" NCP I WCI G + "kwu" qt ki kpu" \*Ucr kt" 3; 6; = "Y j qth" 3; 78 + "r t qeguu" \*P kf c"cpf" Vcdgt" 3; 96 + "x crhf cwkqp" vunkppgt" 3; 75 = S wkpg" 3; 8; + "o qf crkwkgu" qh't j gvqt ke" \*Hqwecwn y 3; 93 = "X gpwk" 3; 8 = "Dgto cp" 3; ; 4 + 0 Ur gewrcwk g" yi gqt k kpi . "qh" eqwtug. "y greqo gu" yi kprngtu" yi qug" qy p" yi kprnkpi "cdqwy" repi wci g" qt" eqo o wpkecwkqp" tgrkgu" j gcxkn ["qp" yi g" f cw" r tqxkf gf" d {"vtcpurcwkqp" vUcr kt" 3; 6; = Y j qth 3; 78 = Y kwi gpuygkp" 3; 8; = I cf co gt" 3; 97 = F gttkf c" 3; : 7 = N {qvctf" 3; : : + "cpf lqt" ecuv" f qwdv" qp" qdlgevkxk {"cpf" pgwtcrkx {"\*J cdgto cu" 3; 9: +0

[ gv."cpf "pqv'uwtr tkukpi n{."uqo g"qh'yi g"o quv'r tqxqecvkxg"yi gqtkuvu"qp"yi g"Ur gewrxkxg"j qtk qp"ctg"vtcpurcvqtu0' Vj g"kpygtpcn'ecwug/cpf/ghhgev'dgwy ggp"y j cv'yi g{ "vtcpurcvg"cpf "j qy "kv"j cu"chhgevgf "y j cv'yi g{ "vj kpm'vtcpurcvkpi " ku"/cpf "y j cv'vtcpurcvkqpu"ctgô ku"j ki j n{ "kpf kxkf wcn'cpf ."wpf qwdvgf n{."kf kqu{petcvke "kp"yi g"dguv'ugpug0Dwx."kh'yi g" ceegr wdkxk{ "vguv'ku"dqttqy gf "htqo "yi g"go r ktlecn/cpcn{vke"eco r ."vj gkt "uweeguu"o cmgu"dqyi "yi gkt"r tgegr wu"cpf " gzco r ngu"ko r tguukxg0C "ugngevkxg"htuv'qh'vtcpurcvqtu'y j q"i kxg"gxkf gpeg"qh"c"eqj gtgpv'ur gewrxxxg"yi gqt{ "y qwrf " kpenxf g"yi g"hqmqy kpi "\*y kyi "qpg"qh'yi gkt"cwyi qtu"kp"r ctgpyi gugu+<"Rgygt"I ncuv/i qrf "\*y j q"vtcpurcvgu"Dqgyi kwu+." O kej cgn'I co dwti gt "\*Egrep+."Gf y ctf "MMcr ncp"\*Dcwf grcktg+."Qewxkq"Rc| "\*Y knkco "Ectnqu"Y knkco u+."
O cti ctgv'Uc{gtu'Rgf gp"\*Uqt"Lwcpc"f g"nc"Etw| +."Tkej ctf "Ukgdwtyi" "J 3/4f gtnkp+."cpf "Ncy tgpeg"Xgpwk'\*Vctej gwk+0

## Hwt vj gt 't gcf lpi

Dgto cp'3; ; 4='Rc| '3; 93='Rgf gp'3; : 4='Tqdkpuqp'3; ; 3='Xgpwk'3; : 80

OCTKN[P'I CFFKU'TQUG

# Ut cvgi lgu'qh'tt cpurcvlqp

Utcvgi kgu"qh"vtcpurcvkqp"kpxqrxg"vj g"dcuke"vcumu"qh"ej qqukpi "vj g"hqtgki p"vgzv"vq"dg"vtcpurcvg" "cpf "f gxgrqr kpi "c" o gvj qf "vq"vtcpurcvg"kv0Dqvj "qh"vj gug"vcumu"ctg"f gvgto kpgf "d{"xctkqwu"hcevqtu<br/>ewnwtcn"geqpqo ke."r qrkskecr0[ gv" vj g"o cp{"f khhgtgpv"utcvgi kgu"vj cv"j cxg"go gti gf "ukpeg"cpvks wkv{"ecp"r gtj cr u"dg"f kxkf gf "kpvq"vy q"ncti g" ecvgi qtkgu0C" vtcpurcvkqp"r tqlgev"o c{"eqphqto "vq"xcrwgu"ewttgpvn{"f qo kpcvkpi "vj g"vcti gv"rcpi wci g"ewnwtg." vcmkpi "c"eqpugtxcvkxg"cpf "qr gpn{"cuuko krcvkqpkuv"cr r tqcej "vq"vj g"hqtgki p"vgzv"cr r tqr tkcvkpi "kv"vq"uwr r qtv" f qo guvke"ecpqpu."r wdrkuj kpi "vtgpf u."r qrkskecn"crki po gpw0Cnvgtpcvkxgn{"."c"vtcpurcvkqp"r tqlgev"o c{"tgukuv"cpf" cko "vq"tgxkug"vj g"f qo kpcpv"d{"f tcy kpi "qp"vj g"o cti kpcn"tguvqtkpi "hqtgki p"vgzvu"gzenwf gf "d{"f qo guvke"ecpqpu." tgeqxgtkpi "tgukf wcn"xcnwgu"uwej "cu"ctej cke"vgzvu"cpf "vtcpurcvkqp"o gvj qf u."cpf "ewnxkcvkpi "go gti gpv"qpgu"\*qpt" gzco r ng."pgy "ewnwtcn"hqto u+0Uvtcvgi kgu"kp"r tqf wekpi "vtcpurcvkqpu"kpgxkxcdn("go gti g"kp"tgur qpug"vq"f qo guvke" ewnwtcn"ukwcvkqpu0Dwv"uqo g"ctg"f grkdgtcvgn{"f qo guvkecvkpi "kp"vj gkt"j cpf nkpi "qh"vj g"hqtgki p"vgzv."y j kng"qvj gtu" ecp"dg"f guetkdgf "cu"hqtgki plk kpi ."o qvkxcvgf"d{"cp"ko r wnug"vq"r tgugtxg"hqpi wkuvke"cpf "ewnwtcn"f khhgtgpegu"d{"f gxkcvkpi "htqo "rtgxckrkpi "f qo guvke"xcnwgu0

## F qo gudecvlpi 'tot cvgi lgu

F qo guvlecvkpi "uvtcvgi kgu"j cxg"dggp"ko r ngo gpvgf "cv"ngcuv"ukpeg"cpekgpv"T qo g."y j gp."cu"

P kgyl uej g'tgo ctngf.":-tcpurcykqp"y cu'c'hqto "qh'eqps wguyø'cpf "Ncykp"r qgul'ikng" J qtceg"cpf "Rtqr gtykwu'tcpurcygf" I tggml\gz ul'-kpvq'\yi g'Tqo cp"r tgugpyø\z'-xj g{"j cf "pq"\ko g'hqt"cml\yi qug"xgt {"r gtuqpcnl\yi kpi u"cpf "pco gu"cpf" y j cwxgt"o ki j v'dg"eqpukf gtgf "yi g'equwo g"cpf "o cumlqh'c"eky{."c"eqcuv."qt"c"egpwt {ø'\*P kgyl uej g'3; 96<359+0\Cu" c"tguwnv."Ncykp"\tcpurcyqtu'pqv'qpn{"f grgvgf "ewnwtcm{"ur gekhke"o ctmgtu'dw'cmq"cf f gf "cmwukqpu"vq"Tqo cp" ewnwtg"cpf "tgr rcegf "yi g"pco g"qh'yi g"I tggmlr qgv'y kyi "yi gkt"qy p."r cuukpi "yi g"\tcpurcykqp"qhh'cu'c"\gzv'qtki kpcm{" y tkwgp"kp"Ncykp0

Twej "untewi kgu"hopf "yi gkt "untopi guv"epf "o quv"kphnwgpvken"ef xqeevgu"ho "yi g"Htgpej "cpf "Gpi nkuj "vtepurevkqp" vtef kkqpu."r ct vkewretn( "f wtkpi "yi g"getn( "o qf gtp"r gtkqf 0J gtg"kv"ku"gxkf gpv"yi cv"f qo guvkeevkqp"kpxqnxgu"ep" ef j gtgpeg"vq"f qo guvke"hkgtet {"eepqpu"dqyi "kp"ej qqukpi "e"hqtgki p"vgzv"epf "kp"f gxgqrr kpi "c"vtepurevkqp"o gyi qf 0' P keqneu"RgttqvF øCDNCP EQWTV"\*ugg"HTGP EJ "VTCF kvVQP +"c"r tqnkhe"Htgpej "vtepurevqt"qh"I tggmicpf" Nevkp. "cti wgf "yi cv"yi g"gnkr vkeen"dtgxkx{"qh"Veekwuø'r tqug"o wuv"dg"tgpf gtgf "htggn(."y kyi "yi g"kpugtvkqp"qh" gzr nepevqt{"r j teugu"epf "yi g"f gngvkqp"qh" ki tguukqpu. "uq"eu"÷q"exqkf "qhhgpf kpi "yi g"f gnkeee{"qh"qwt"nepi wei g"epf "yi g"eqttgevpguu"qh"tgeuqpø %3862-%r tghreeg="vtepurevgf +0Vj g"f qo guvke"xenwgu"yi cv'uwej "c'untevgi {"kpuetkdgf "kp"yi g" hqtgki p"vgzv'y gtg"chhkdevgf "y kyi "cp"etkuqetevke"hkgtet {"ewnwtg" \*F øCdnepeqwtvau"vtepurevkqp"y cu"f gf keevgf "vq"j ku" eqwt "r evtqp. "Eetf kpenTlej gnkgw+"dwv'y g{"y gtg"enny"f knvkpevn{"pevkqpenknv0Wpf gt"F øCdnepeqwtvau"kphnwgpeg. "yi g" Gpi nkuj "tepurevqt"Ukt"Iqj p"F GP J CO "\*ugg"DT kvkUJ "VTCF kvkQP +"tgpf gtgf "Dqqm'4"qh"yi g"Cgpgkf "kp"j gtqke" eqwr ngvu. "cuugtvkpi "yi cv"+kh"Xkti kn'o wuv'pggf u'ur gem'Gpi nkuj ."kv'y gtg"hkn'j g'uj qwnf "ur gem'pqv'qpn("cu"c"o ep"qh" yi kn'P evkqp. "dw'cu"c"o ep"qh"yi ku''ei gø\*3878<"C5t+01fp"f qo guvkeevkpi "hqtgki p"vgzvu"F øCdnepeqwtv'epf "F gpj co "fk"pqv'uko r n("o qf gtpkl g'yi go ="dqyi "vtepurevqtu'y gtg"kp"heev'o ekpvekpkpi "yi g"htggki p"ewnwtgu"\*\ wdgt" "nkg"y j kg"eqpuntwevkpi "ewnwten'kf gpvkkkgu"hqt"yi gkt "pevkqpu"qp"yi g"dcuku"qh'etej eke 'hqtgki p"ewnwtgu"\*\ wdgt" "3; 8: ="Xgpwk'3;; 5c+0

Geappo ke "eqpukt gtckapu"uqo guko gu "wpf gtrkg" c"f qo guvkeckpi "uvtcvgi { "kp" vtcpurckapp. "dwv" yi g{ "ctg" cny c{u" s workhligf "d{"ewttgpv'ewnwtcn'cpf"r qrkulecn'f gxgrqr o gpw0'Vj g"gpqto qwu'uweeguu'yj cv'i tggvgf 'yj g'Gpi rkuj " xgtukqp'qh'Kcncp'y tkgt'Wo dgtvq'Geqøu'pqxgn'Vj g'Pco g'qh'vj g'Tqug'\*3; : 5+'f tqxg'Co gtkecp'r wdnkuj gtu'vq" r wtuwg''y g''tcpurcwlqp'tki j wi'hqt''uko krct''hqtgki p''ygzwi'cv''y g''kpygtpcwlqpcn'dqqm'hcktu'\*'O eF qy gm'3; : 5+0[ gv' y j cv'o quv'eqpvtkdwgf "vq'y g'uweeguu'qh'y g'\tcpurcvkqp'y cu'y g'uj ggt'hco knkctkx{ "qh'Geqøu'pcttcvkxg'vq'Co gtkecp" tgcf gtu'hqpf "qh'uwej "r qr wrct'i gptgu"cu'j kuvqtkecn'tqo cpegu"cpf "o wtf gt"o {uvgtkgu0D{"vj g"uco g"vqngp."vj g" Kichcp'pqxgrkuv'I kqxcppk'I wctguej k'y cu'c'dguv/ugngt'kp'Gpi rkuj '\tcpurc\kqp'f wtkpi '\j g'3; 72u'cpf '3; 82u'rcti gn(" dgecwig'j ku'uqeken'ucvktgu''qh''Kkenkep'xkmei g'nkhg''ej co r kqpgf 'Ej tkuvkep'F go qetevke''xenwgu''epf ''vj gtghqtg'' crrgcrgf "vq"Cogtlecp"tgcfgtu"cduqtdkpi "vjg"cpvk/Uqxkgv"rtqrcicpfc"qh"vjg"Eqrf"Yct"gtc0"Vjg"grqp{oqwu"jgtq" qh'I wctguej køu'hktuv'dqqm'kp'Gpi nkuj ."Vj g'Nkwrg'Y qtrf ''qh'F qp'Eco kmq'\*3; 72+.'ku'c'r tkguv'y j q''gpi ci gu'kp'' co wukpi "lif ganqi kecn'umkto kuj gu'y kij "c"Eqo o wpkuv'o c{qt"cpf "cny c{u"eqo gu"qwv'ij g"xkevqt0 F qo guvlecvlpi "tcpurcvlqp" j cu'ht gs wgpvn { "dggp"gprkuvgf "lp" vj g"ugt x leg"qh'ur gelthe "f qo guvle "ci gpf cu. "ko r gt kcrkuv." gxcpi grkecn 'r tqhguukqpcn0'Ukt "Y kmkco 'Iqpgu. 'r tgulf gpv'qh' y g'Cukcvke 'Uqelgv{ "cpf "cp"cf o lpkuvtcvqt "qh' y g'Gcuv' Kpf kc'Eqo r cp{."tcpurcvgf 'vj g'Kpuskwygu'qhIJ kpf w'Ncy '\*39; ; +'kpvq'Gpi nkuj 'vq'kpetgcug'vj g'ghhgevkxgpguu'qh' Dtkkuj "eqriplicrikuo". "eqpunt we kipi "c"t cekun ko ci g"qh" y g"J kipf wu" cu" wpt grkcdrg kip vgtr t gvgt u"qh" y gkt "pc vkx g" ewnwt g" \*Pktcplcpc'3;; 4+0'Hqt'Gwi gpg'Pkfc.'fqo guvkecvkqp'cuukuvu'yi g'Ejtkuvkcp'o kuukqpct{<'cu'vtcpurcvkqp'eqpuwnxcpv'vq'' qti cpk cvkqpu'f gf kecvgf 'vq'vj g'f kuugo kpcvkqp'qh'vj g'Dkdrg. 'j g'j cu'uwr gtxkugf 'pwo gtqwu'vtcpurcvkqpu'vj cv'÷tgrcvg'' yj g'tgegr vqt'vq"o qf gu'qh'dgj cxkqt'tgrgxcpv'y kyj kp''yj g'eqpvgzv'qh'j ku''qy p'ewnwtgø'\*3; 86♂7; ='ugg''cnuq''DKDNG'' VTCP UNCVKQP +0Vj g'o wnk/xqnwo g'Gpi nkuj 'xgtukqp''qh'Htgwf øu'\gzvu'mpqy p''cu'\j g''Ucpf ctf 'Gf kkqp'\*3; 756 96+"cuuko krcvgf "j ku'lkf gcu'vq'vj g'r qukukxkuo "f qo kpcvkpi 'vj g'j wo cp'uekgpegu'lkp'Cpi rq/Co gtkecp"ewnwtg"cpf "vj wu" hcekrkscygf "yj g'ceegr ycpeg"qh'r u{ ej qcpcn{ uku'kp''yj g''o gf kecn'r tqhguukqp''cpf 'kp''cecf go ke''r u{ ej qrqi { "\*Dgwgnj gko " 3; : 5='Xgpwk'3; ; 5d+0

## Hqt gli pk kpi 'twt cvgi kgu

C'hqtgki pk kpi 'untcvgi { 'kp''tcpurcvkqp''y cu'hktuv'hqto wrcvgf 'kp'I gto cp'ewnwtg'f wtkpi ''y g''

emukecn'cpf "Tqo cpvke"r gtkqf u. "r gtj cr u"o quv'f gekukxgn( "d{"vj g"r j krquqr j gt"cpf "vj gqrqi kcp"Htkgf tkej " UEJ NGKGTO CEJ GT "vugg" I GTO CP "VTCF KVQP + "Dgto cp"3; ; 4+0 Kp"cp"3: 35 "rgewtg" I Qp"vj g"F khhgtgpv" O gvj qf u"qh" Vtcpurcvkpi ø "Uej rgkgto cej gt"cti wgf "vj cv" I j gtg"ctg"qpn( "vy q0 Gkvj gt"vj g"tcpurcvqt" rgcxgu"vj g"cwj qt" kp"r gceg. "cu"o wej "cu"r quukdrg. "cpf "o qxgu"vj g"tgcf gt"vqy ctf "j ko I o I g"rgcxgu"vj g"tgcf gt"kp"r gceg. "cu"o wej "cu"r quukdrg. "cpf "o qxgu"vj g"cwj qt" I kp" Nghgxgtg"3; ; I co I co

Vj g'Htgpej "vj gqtkm'Cpvqkpg'DGTO CP "\*ugg'HTGP EJ "VTCF WKQP + "xkgy gf "Uej ngkgto cej gtøu'cti wo gpv'cu" cp "gyj keu "qh" tcpunc kqp. "eqpegtpgf "y kj "o cmkpi "vj g'\*tcpunc vgf "vgzv'c "ukug"y j gtg"c "ewmwtcm'qyj gt "ku" pqv'gtcugf "dw" o cpkhguvgf ô gxgp "kh" yj ku"qyj gtpguu "ecp "pgxgt "dg"o cpkhguvgf "kp "ku"qy p "vgto u. "qpn( "kp "yj qug"qh" yj g"vcti gv' mcpi wci g'\*3; : 7< 96; 3+0 Hqt "y j kng "hqtgki pk kpi "vtcpunc vkqp" uggmu "vq "gxqng" c "ugpug "qh" yj g"hqtgki p. "kv"pgeguuctkn( "cpuy gtu" vq "c "f qo guvke "ukwc vkqp." yj gtg"kv'o c{ "dg"f guki pgf "vq" ugtxg" c "ewmwtcm'cpf "r qrkvkecm'ci gpf c0' Uej ngkgto cej gt" y ku ugth" ucy "yj ku "vtcpunc vkqp" uvtcvgi { "cu "cp" ko r qt vcpv'r tce vkeg "kp" yj g"Rt wuukcp "pc vkqpc nkuv" o qxgo gpv'f wtkpi "yj g"P cr qngqpke "Y ctu<" y g"hgm'yj cv'kv'eqwrf "gptkej "yj g"I gto cp"ncpi wci g"d{ "f gxgnqr kpi "cp" nkwg" nkwgtcwt g"htgg"qh'yj g"Htgpej "kphnvgpeg" yj cv'y cu'yj gp"f qo kpc vkpi "I gto cp"ewnwt g." yj kej "y qwrf" yj wu"dg" cdng" q"tgcnk g"ku" kunqt kecn'f guvkp{ "qh'i nqdcn'f qo kpc vkqp" "Xgpwk'3; ; 3+0

[ gv'kp'uq'hct'cu''Uej ngkgto cej gt'vj gqtk gf ''vtcpuncvkqp''cu'vj g'nqewu'qh'ewnwtcn'f khhgtgpeg.''pqv'vj g'j qo qi gpgkv{ "  $\label{eq:control_control_control} \emph{y} \ \emph{cv'} \emph{j} \ \emph{ku'ko} \ \emph{r} \ \emph{g} \ \emph{ku'ko} \ \emph{r} \ \emph{n} \emph{(.''j g'y cu''ghhgevkxgn(''tgeqo o gpf kpi ''c''tcpurcvkqp''r tcevkeg''y cv'')} \\ \emph{v} \ \emph$ y qwrf "wpf gto kpg"cp{"rcpi wci g/dcugf "eqpegr v'qh"c"pc wqpcn'ewnwtg."qt "kpf ggf "cp{"f qo guwle"ci gpf c0C" hqtgki pk kpi "uvtcvgi { "ecp"uki pkh{ "vj g"f khhgtgpeg"qh"vj g"hqtgki p"vgzv"qpn{ "d{ "cuuwo kpi "cp"qr r qukkqpcn'uvcpeg" vqy ctf "y g"f qo guvke."ej cmgpi kpi "nkvgtct { "ecpqpu."r tqhguukqpcn'uvcpf ctf u."cpf "gyj kecn'pqto u"kp" y g"vcti gv" mpi wci g0J gpeg. "y j gp"hqtgki pk kpi "\tcpurc\kqp"ku"tgxkxgf "d{" 'yy gp\kgyj /egpwt{"I gto cp" 'yj gqtkuvu 'rkng" Twf qrh" Rcppy kt "cpf" Y cngt "Dgplco kp. "kt ku 'uggp" cu 'cp' kpunt wo gpv 'qh 'ewnwt cn kppqx cnkqp0 Hqt 'Rcppy kt . "÷y g' t cpurc vqt" o cmgu'c'hwpf co gpwn'gttqt'y j gp'j g'o ckpwkpu''y g'uwcyg'kp''y j kej 'j ku''qy p'hcpi wci g'j crr gpu''vq''dg''kpuvgcf ''qh'' cmy kpi "j ku'ncpi wci g'\q''dg'\utqpi n{ "chhgevgf "d{ "vj g'hqtgki p'ncpi wci gø'\*3; 39∢464="\utcpurcvgf +0 Htqo "ku"qtki kpu"kp" yi g"I gto cp" tcf kkqp. "hqtgki pk kpi "tcpurc kqp" j cu"o gcpv'c "erqug" cf j gtgpeg" 'q" yi g" hqtgki p" vgzv."c"rkvgtcrkvo "vj cv"tguvnvgf "kp"vj g"ko rqtvcvkqp"qh"hqtgki p"ewnvtcrihqto u"cpf "vj g"f gxgrqr o gpv"qh" j gvygtqi gpgqwu'f kongevu'cpf 'f kueqwtugu0Lqj cpp'J gkptkej "Xquuxu'j gzco gvygt'xgtukqpu'qh'vj g'*Qf {uug{ '\*39: 3+*'cpf " yj g"*Khcf* "\*39; 5+"kpvtqf wegf "yj ku"r tquqf ke "hqto "kpvq" I gto cp"r qgvt { ."grkekkpi "I qgyj gøu"r tckug "hqt"r wvkpi " ÷tj gvqtkecn'tj { vj o kecn'o gvtkecn'cf xcpvci gu'cv'vj g'f kur qucn'qh'vj g'vcngpvgf 'cpf 'mpqy ngf i gcdng''{ qwpi uvgt'' \*Nghgxgtg''3; ; 4d<'99+0'Htkgftkej 'J 3/4fgtrkpøu'\tcpurc\kqpu'qh''Uqrjqerguø'Cpvkiqpg''cpf''Qgfkrwu'Tgz'\\*3: 26+''ftcy'' qp"ctej cle"cpf "pqpuvcpf ctf "f kcrgevu" Qrf "J ki j "I gto cp"cpf "Uy cdkcp+"y j krg"kpeqtr qtcvkpi "f kxgtug"tgrki kqwu" f kueqwtugu. "dqyi "f qo kpcpv"\*Nwij gtcp+"cpf "o cti kpcn"\*Rkgvkuvke+"\*I gqti g"Uvgkpgt"3; 97<545655="Dgto cp"3; : 7<, 56 329+0J 3/af gtrkp "gzgo r nkhkgu" vj g"tkum'qh kpeqo r tgj gpukqp" vj cv'ku kpxqrxgf "kp" cp{ 'hqtgki pk kpi "uxtcvgi { < kp" vj g" ghtqtv'\q'uvci g'cp''cnkgp''tgcf kpi ''gzr gtkgpeg.'j ku''vtcpurcvkqpu''uq''f gxkcvgf 'htqo ''pcvkxg''nkvgtct{ ''ecpqpu''cu'\q''uggo '' qduewtg"cpf "gxgp"wptgcf cdrg"vq"j ku"eqpvgo r qtctkgu0

Hqtgki pk kpi "gpvcku"ej qqukpi "c"hqtgki p"vgzv"cpf "f gxgmr kpi "c"vtcpurcvkqp"o gyi qf "cmpi "rkpgu"y j kej "ctg" gzenwf gf "d{ "f qo kpcpv"ewnwtcn"xcnwgu"kp"yi g"vcti gv"rcpi wci g0F wtkpi "yi g"gki j wgpyj "egpwxt{. "F t"Lqj p"P qw" tghqto gf "yi g"ecpqp"qh"hqtgki p"rkwgtcwtgu"kp"Gpi rkuj "d{ "f gxkukpi "vtcpurcvkqp"r tqlgewu"yi cv"hqewugf "qp"yi g"rqxg" n{ tke "kpuvgcf "qh"yi g"gr ke "qt"ucvktg. "yi g"o quv"y kf gn{ "vtcpurcvgf "i gptgu"kp"yi g"r gtkqf 0J g"r wdrkuj gf "xgtukqpu"qh" Lqj cppgu"Ugewpf wu "P keqrckwu "3997+"Rgvtctej "3999+"J chk "39: 9+"Dqpghqpkwu "39; 9+"cpf "yi g"hktuv"dqqm/rgpi yi "eqrrgevkqpu"qh"Rtqr gtvkwu "39: 4+"cpf "Ecwnrwu "39; 7+0P qw"tglgevgf "yi g"+rcuvkf kqwu"tgi ctf "vq"f grlece{ø" yi cv"o ki j v"j cxg"

tgs wktgf "j ko "vq"f grgvg" yi g"gzr rkek/'ugzwcn't ghgt gpegu'kp "Ecwrnwuø'r qgo u. "dgecwug" j g'hgn/'yi cv"-j kuvqt { 'uj qwrf " pqv'dg'hcnukhkgf ø'\*39; 7<'z+0J ku'\tcpurc\kqp"r tqxqngf "c"o qtcn'r cpke "co qpi "tgxkgy gtu. "y j q"tgpgy gf "yi g"cwcen" f gecf gu'ncvgt "y j gp"gzr tguukpi "yi gkt"r tghgt gpeg'hqt" I gqti g"Nco døu'dqy f rgtk gf "Ecwrnwu'\*3: 43+0

### F qo gudecdoi 'xu0hqtgki pk koi 'tot cvgi kgu

F gvgto kpkpi 'y j gvj gt'c''vtcpurcvkqp'r tqlgev'ku'f qo guvkecvkpi ''qt'hqtgki pk kpi 'ergctn( 'f gr gpf u'qp'c'f gvckrgf '' tgeqpuvtwevkqp"qh"yj g"ewnwtcn"hqto cvkqp"kp"y j kej "yj g"vtcpurcvkqp"ku"r tqf wegf "cpf "eqpuwo gf ="y j cv"ku"f qo guvke" qt'hqtgki p'ecp'dg'f ghkpgf 'qpn( 'y ky 'tghgtgpeg''vq''y g'ej cpi kpi 'j kgtctej { ''qh'xcnvgu'kp''y g''vcti gvrcpi wci g'ewnwtg0' Hqt "gzco r ng. "c'hqtgki pk kpi "\tcpunc\kqp"o c{ "eqpuvkvwyg"c"j kuvqtkecn'kpvgtr tgvcvkqp"qh'vj g'hqtgki p'\gzv'vj cv'ku" qrrqugf "\q"rtgxckrlpi "etkkecn'qrlpkqp0\%p"\yi g"Xke\qtkcp"eqp\tqxgtu\{"\yi c\v'rk\vgf"\Htcpeku\P gy o cp\vu\"\%3: 78+" ci ckpuv'O cwj gy 'Ctpqrf øu'Qzhqtf ''rgewtgu''Qp'Vtcpurcvkpi ''J qo gt'\*3: 82+.''y j cv'y cu'hqtgki pk kpi ''cdqw'' P gy o cpøu'tcpurctkqp'y cu'pqv'qpn(''y cv'kv'wugf 'ctej ckuo ''vq'kpf kecvg''y g'j kuvqtkecn'f khhgtgpeg''qh''y g'I tggmlygzv.'' dww'y cv'kv'r tgugpvgf "I qo gt"cu"c"r qr wrct"tcyj gt"vj cp"cp"2 rkvg. "r qgv0P gy o cp"ecuv"j ku"vtcpurcvkqp"kp"dcmcf "o gvtg" cpf "eqpunt wevgf" cp"ctej cke "ngzkeqp" htqo "y kf gn{ 'tgcf 'i gptgu'nkng' y g'j kunqtkecn pqxgn=j g'y qwi j v'y cv'Ukt" Y cnugt" Ueqw'y qwf "j cxg"dggp"yj g"kf gcn'ytcpurcyqt"qh'J qo gt0Ctpqrf "cti wgf ."j qy gxgt."yj cv'J qo gt"uj qwf "dg"tgpf gtgf " kp"j gzco gygtu"cpf "o qf gtp"Gpi rkuj "uq"cu"vq"dtkpi "yj g"vtcpurcykqp"kp"rkpg"y kyj "yj g"ewttgpv"cecf go ke"tgegr ykqp"qh" yj g'I tggml\gz\v0\Y j gtgcu'P gy o cp'y cp\gf '\q'cf f tguu'cp'cwf kgpeg'\j cv'y cu'pqp/ur gekcrkuv'cpf 'pqp/cecf go ke." eqo r qugf "qh'f khhgtgpv'uqekcn'i tqwr u. "Ctpqnf "cko gf "\q'r ngcug"encuukecn'uej qnctu. "y j q. "j g'hgnx. "y gtg'\j g''qpn(" tgcf gtu's workhligf "\q"lwf i g"\tcpurc\liqpu"htqo "ercuulecn'hopi woi gu0P gy o cpøu'\tcpurc\liqp"u\tcvgi {"y cu"  $\label{thm:linear_problem} $$ hqtgki pk kpi 'dgecwug'r qr wrkuv='y g''tcpurcvkqp''y cv'Ctpqrf''r tghgttgf'y cu''f qo guvkecvkpi ''dgecwug''^2 rkvkuv.'' $$$ cuulo krcvkpi "J qo gt"\q'rkvgtct{"xcnvgu"j qwugf "kp"cwj qtkxcvkxg"ewnvxtcn'kpuvkvvvkqpu'nkng"vj g"vvpkxgtukv{0 Vtcpurcvkqp"uvtcvgi kgu"ecp"qhvgp"dg"f gvgto kpgf "d{"eqorctkpi "eqpvgorqtct{"xgtukqpu"qh"vj g"ucog"hqtgkip"vgzv0" Kp"yj g"gctn("3; 82u."hqt"kpuvcpeg."yj g"Co gtkecp"vtcpurcvqtu"P qto cp"Uj cr ktq"cpf "Rcwn'Drcendwtp"y gtg"dqyj " vtcpurcvkpi 'Rtqxgp±cn'\tqwdcfqwt'r qgvt {0'Eqpukf gt'\j gkt'xgtukqpu'qh'\j g'hktuv'uvcp| c'htqo 'c'r qgo 'd{'I cwegno " Hclf kx

Wu''ecxcrlgtu'uk'lc| kc'''''''''cd''rc'tg''s wg'r nwu'xqrlc=''''''''uqxgp''dck| cp''rk'f k| kc<'ô F qwuuc'tgu.''kgw's wg'' hctckA's wg/ri'lqtpu''xg''g''rc''pwg{ \| \| ''xck''''''''c{ #'s wølkgw'cwi ''s wg''rk'i ckc''etkc<'::Xkc#'uwu#'s wølkgw''xg{ ''rc'' lqtp'''''''''xgpkt''cr tgu''nøcrdcØ

\*O qw| cv'3; 87*₹*77+

C''mpki j v'y cu'y ky "j ku''ncf { 'hqpf n( 'n( kpi ô """""Vj g''qpg''j g''ej gtkuj gf ''o quvô cpf 'i gpvn( ''uki j kpi 'Cu'' j g''nkuugf ''j gt. ''eqo r nckpgf <'O { ''mxg. ''y g'f c { ''Uqqp''y km'cttkxg. ''ej cukpi ''y ku''pki j v'cy c { 0"""""Cncu#' Cntgcf { ''Kecp''j gct''y g'y cvej o cp''et { kpi <"""""Dgi qpg#'S wkemn( .''dgi qpg#'[ qw'o c { ''pq''nqpi gt''uvc { ."""""Hqt''kv'ku''f cy p0

\*Uj cr ktq'3; 84<94+

C'mpki j v'qpeg'nc{"dgukf g'cpf 'y ky '""""'y g'qpg'j g'o quv'f guktgf ."cpf 'kp'dgw ggp''y gkt'mkuugu'uckf ."
""""y j cv'uj cm'Kf q."o { 'uy ggvA

Fc{"eqo gu"cpf "y g"mpki j v'i qgu"""""Ck#Cpf "Kj gct"y g"y cvej gt"et{<""""":\Wr #'Qp"{qwt'y c{#'Kugg" fc{"eqo kpi "qp."ur tqwkpi "dgj kpf "y g"f cy p#ø

\*Drcendwtp'3; 9: *⋖*; 7+

Uj cr ktq"cf qr vu"c"f qo gurkecvkpi "uvtcvgi {0J ku"ngzkeqp."y j krg"kpvgnki kdrg"vq"eqpvgo r qtct {"Gpi rkuj /rcpi wci g" tgcf gtu."o cngu"wug"qh"ctej ckuo u"vj cv"ctg"tgeqi pk cdn("r qgvkecn"f tcy p"htqo "vj g"vtcf kkqp"qh"pkpgvggpyj /egpwt {" xgtug<"cru "dgi qpg. "ej gt kuj gf 0Cmj qwi j "j ku"xgtug"uvtwewtg."dqyj "o gvtkecn"cpf "tj {o kpi ."ku"kpvgpf gf "vq" cr r tqzko cvg"Hckf kvøu"o wukecn"uvcp| c."Uj cr ktq"ghhgevkxgn("cuuko krcvgu"vj g"Rtqxgp±cn"vgzv"vq"vj g"vtcf kkqpcn"hqto u" hcxqwtgf "d{"pqvgf "Co gtkecp"r qgvu."uvej "cu"Tqdgtv"Nqy gm"cpf "Tkej ctf "Y kndwt."y j q"j cf "

cej kgxgf 'pcklqpcn'tgr wcklqpu'd{ 'vj g''3; 82u'\*Rgtmkpu''3; : 9+0'Drcendwtp''cf qr w''c'hqtgki pk kpi 'untcygi {0'I ku'' ngzkeqp''o kzgu''y g'ucpf ctf 'f kengev'qh'ewttgpv'Gpi nkuj 'y ky ''ctej ckuo '\*\q''nkg''y ky .''o gcpkpi ''-\q''gpi ci g''kp''ugzwcn'' kpvgt/eqwtugø\; 'eqnng vkcnkuo ''\q''p''dgwy ggp. 'eqo kpi ''qp+''cpf 'hqtgki p'y qtf u'\*\yi g''Rtqxgp\; cni'ck\theta'Cnj qwi j 'j ku'' xgtug''untwewtg. ''dqvj ''tj {vj o kecn'cpf 'kpvgto kwgpvn( 'tj {o kpi .''cko u''q''crrtqzko cvg''y g''o wukecnkv( 'qh'Hckf kwu'' uvcp| c. ''Drcendwtp''cewcm{ 'cuuko krcvgu''y g''Rtqxgp\; cni'vgzv'vq''y g''qr gp''hqto u''hcxqwtgf ''d{ 'gzr gt ko gpvcn'r qgu.'' uwej ''cu''Tqdgtv'Etggrg{ ''cpf ''Ej ctngu'Qnqp.''y j q''cv'y g''ko g'y gtg''qp''y g''htkpi gu''qh''Co gtkecp''nkgtct{ ''ewnwtg'' '\*xqp''J cmlgti ''3; : 7+0'Uj crkqwu'f qo gunkecvkpi ''xgtukqp''tgnkgu''qp''ecpqpkecn'xcnwgu.''y j qug''cwyi qtk\{ 'hquvgtu'yj g'' kmwkqp''y cv'kv'ku'cp''gzcev'gs wkxcngpv'qt''c''tcpur ctgpv'y kpf qy ''qp''vq''Hckf kwu'r qgo 0'Drcendwtpou'hqtgki pk kpi '' xgtukqp''tgnkgu''qp''o cti kpcn'xcnwgu.''y j qug''untcpi gpguu'kpxkgu''y g'tgeqi pkkqp''y cv'kv'ku''c''tcpurcwqp''r tqf wegf 'hp'' c'f khtgtgpv'ewnwtg''cv'c'f khtgtgpv'r gtkqf 0'Vj g''f knkpevkqp''dgwy ggp''y gkt''untcvgi kgu'ku'r ctvkewnctn{ ''gxkf gpv'kp''y gkt'' cff kkqpu''q''y g''Rtqxgp\; cni'y g''ky' g'' ku'xgtukqp''eqphqto ''q'y g''hco khct'ko ci g'qh''y g'' gctpkpi '' eqwtvq' ''qxgt''d{ ''cff kpi ''y gwn''uki j kpi '' cpf ''eqo rnckpgf \omega' ''Drcenddwtp''ugmu''guntcpi kpi ''ghweu''y cv'y qtm'qpn(''hp'' Gpi nkuj ''d{ ''cff kpi ''y g'' rwp''qp''pki j v'kp''F c{ ''eqo gu''cpf ''y g''npki j v'i qgu ''cu''y gm'cu''y g''uwttgcn'ko ci g'qh'yi g''uwp'' urtqwkpi 0

Cu'y ku'gzco r ng'uwi i guwu. 'hqtgki pk kpi 'uwtcygi kgu'j cxg'dggp'ko r ngo gpvgf 'kp'nkvgtct { "cu'qr r qugf 'vq'vgej pkecn' vtcpurcvkqp0'Vgej geqpqo ke "gzej cpi g. 'kv'ku'eqpuvtckpgf ''d { "vj g"gzki gpekgu'qh'eqo o wpkecvkqp"cpf " vj gtghqtg'tgpf gtu'hqtgki p'vgzvu'kp'uvcpf ctf ''f kcngevu'cpf "vgto kpqnqi kgu'vq"gpuvtg'ko o gf kcvg'kpvgnki kdktkv{0' NKVGTCT[ "VTCPUNCVKQP.''kp'eqpvtcuv.'hqewugu'qp'hkpi wkuvke "ghhgewi'yi cv'gzeggf ''uko r ng'eqo o wpkecvkqp'' \*qpg.''eqppqvcvkqp.''r qn( ugo { .'kpvgtvgzwcnkv{ +'cpf ''ctg'o gcuvtgf ''ci ckpuv'f qo guvke'hkvgtct { ''xcnwgu.''dqvj '' ecpqpkecn'cpf ''o cti kpcn0'C''hkvgtct { ''tcpurcvqt''ecp'vj wu'gzr gtko gpv'kp'vj g'ej qkeg'qh'hqtgki p'vgzw'cpf ''kp'vj g'' f gxgnqr o gpv'qh'vtcpurcvkqp''o gvj qf u. ''eqpuvtckpgf ''r tko ctkn( ''d { ''yj g''ewttgpv'ukwcvkqp''kp'vj g''vcti gv'ncpi wci g'' ewnwtg0

Ugg'cnuq<

<u>CFCRVCVKQP</u>="HTGG"VTCPUNCVKQP="KFGQNQI [ 'CPF"VTCPUNCVKQP="NKVGTCN"VTCPUNCVKQP="RWTG"NCPI WCI G0

## Hwt yj gt 't gcf kpi

Drcpej qv'3; 93='Eqj gp'3; 84='Gdgn'3; 8; ='I tcxgu'3; 87='J g{ngp'3; ; 5='Nghgxgtg'3; ; 4c='Uko qp'3; : 9='Xgpwk'3; ; 7c0 NCY TGP EG'XGP WVK

# Uwdwhpi

Ukpeg''3; 4; .'y j gp''y g'hktuv'uqwpf 'hkno u'tgcej gf ''cp''kpvgtpcvkqpcn'cwf kgpeg.''y q''o gyj qf u''qh'hkno ''vtcpuncvkqp''j cxg'' dggp''f qo kpcpv<'uwdvkvrkpi ''cpf ''F WDDKP I O'V j g''ncwgt ''ku''uqo gvko gu''tghgttgf ''vq''cu''r quv'u{ej tqpk| cvkqp0 Cu'hct''cu'hkno .''VX''cpf ''xkf gq''vtcpuncvkqp''ctg''eqpegtpgf .''y g'y qtnf ''ku'f kxkf gf ''kpvq'hqwt''dnqem.<

\*c+"Uqwteg/ncpi wci g"eqwpvtkgu."Gpi nkuj /ur gcmkpi ."y ksj "j ctf n{ "cp{ "pqp/Cpi nqr j qpg"ko r qtvu0Hgy "cu"vj g{ "o c{ "dg."ko r qtvgf "hkno u"vgpf "vq"dg"uwdvkngf "tcvj gt"vj cp"f wddgf 0Vj g{ "ctg"qhvgp"÷ctvø"o qxkgu. "cko gf "cv"c" nkvgtcvg"cwf kgpeg0

\*d+'F wddkpi 'eqwpvtkgu.'o ckpn{ 'I gto cp/.''Kkcnkcp/.''Ur cpkuj /'cpf ''Htgpej /ur gcmkpi 'kp'cpf ''qwukf g'Gwtqr g0Kp'' yi gug''eqwpvtkgu.''pgctn{ ''cm'ko r qtvgf ''hkro u'cpf ''VX''r tqi tco o gu'ctg'f wddgf 0

\*e+"Xqkeg/qxgt"eqwpvtkgu."pco gn{ "Twuukc."Rqrcpf"cpf"qyj gt"rcti g"qt"o gf kwo /ukt gf "ur ggej "eqo o wpkkgu" y j kej "ecppqv"chhqtf "rkr u{ pej "f wddkpi 0"Kp"f qkpi "vj g"xqkeg/qxgt"hqt"c"hgcwtg"hkro ."qpg"pcttcvqt"kpvgtr tgwu"vj g" rkpgu"qh"vj g"gpvktg"ecuv"\*vj g"gpvktg"f kcrqi wg+="vj g"xqnwo g"qh"vj g"qtki kpcn'uqwpf vtcem'ku"wtpgf "f qy p"y j krg"ul j g"ku"ur gcmkpi 0

\*f +'Uwdvkrkpi "eqwpvtkgu.'kpenwf kpi "ugxgtcn'pqp/Gwtqr gcp'ur ggej 'eqo o wpkkgu'cu'y gm'cu'c'pwo dgt'qh'uo cm' Gwtqr gcp'eqwpvtkgu'y kyj 'c'j ki j 'rksgtce{ 'tcvg.'y j gtg'uwdvkrkpi 'ku'r tghgttgf 'vq'f wddkpi 0

## Vj g'r t qeguu'qh'imd vkripi

Uwd kwrgu. 'uqo gwlo gu't ghgtt gf ''vq''cu''ecr wlqpu ''ctg''\tcpuet kr wlqpu''qh'hkro ''qt''VX'f kcrqi wg. "

r tgugpvgf 'uko wncpgqwun( ''qp'\'y g'\uetggp0'\Uwd\kurgu'\wuwcm( ''eqpukuv'qh'\qpg''qt''\wq''h\pgu''qh''cp''cxgtci g''o czko wo " ngpi y ''qh'57''ej ctcevgtu0'Cu''c''twrg. ''uwd\kurgu''ctg''r ncegf ''cv'\'y g''dqwqo ''qh'\'y g''r kewstg''cpf ''ctg''gksj gt''egpvtgf ''qt''nghv' cnki pgf 0

Ekpgo c''uwdvkngtu''pqto cm(''y qtm'htqo 'r cr gt''vq'r cr gt.''vtcpuncvkpi 'f kcmi wg'htqo ''c''r quv'r tqf wevkqp''uetkr v.''y g'' gpf 'r tqf wev'dgkpi ''c''nkuv'qh''uwdvkngu0'Vj gug''uwdvkngu''ctg''y gp''vtcpuhgttgf ''qpvq''y g'hkno ''d{ ''qyi gtu0'Vgngxkukqp''cpf'' xkf gq''uwdvkngtu.''qp''y g''qyi gt''j cpf.''wuwcm(''y qtm'htqo ''xkf gqvcr g''vq'f kum''etgcvkpi .''gf kkpi .''cpf ''klo g/ewgkpi ''y g'' uwdvkngu''qp''c''RE/dcugf ''y qtmnvcvkqp0'J gtg.''y g''uwdvkngtøu''gpf ''r tqf wev'ku''c''hnqr r { ''f kum'tgcf { ''hqt''dtqcf ecuv0'

## Fkmpedxg'hgcwt gu'qh'imd dadpi 'cu'c'hqt o 'qh'tt cpurcdqp

 $\label{thm:linear} \begin{tabular}{ll} $U$ which is a proper of the content of$ 

### Ugo kyske 'eqo r qukskqp<'b wnskr skeks ('qh'ej cppgnu

Cp{"\tcpurc\gr "\gz\v'o \ww\"hwpe\kqp"\y \kj \kp"c\"ur \ge\kh\ke\"eqo o \wp\ke\\kg\"u\kwc\kqp\\O \qp\quo \kq\ke\"\\gz\w\"\wu\gr\"\up\gr\"\gr\"\up\gr\"\gr\"\up\gr\"\gr\"\up\gr

\*c+'y g'xgtdcn'cwf kqt { 'ej cppgn'kpenwf kpi 'f kcmi wg. 'dcemi tqwpf 'xqkegu. 'cpf 'uqo gwlo gu'n { tkeu \*d+'y g'pqp/xgtdcn'cwf kqt { 'ej cppgn'kpenwf kpi 'o wuke. 'pcwtcn'uqwpf 'cpf 'uqwpf 'ghhgewu \*e+'y g'xgtdcn'xkuwcn'ej cppgn'kpenwf kpi 'uwr gtko r qugf 'wkngu'cpf 'y tkwgp'uki pu'qp'y g'uetggp \*f+'cpf 'y g'pqp/xgtdcn'xkuwcn'ej cppgnk'r kewtg'eqo r qukwkqp'cpf 'hnqy 0

I 'y j gtg'hqtgki p/mpi wei g"f kemi wg'kı'tgr megf "d{"f qo gude/mpi wei g"f kemi wg.'y g"cwf kqxkuwen' dempeg'kı'o ekpekpgf <'y g'hqwt'ugo kqkle'ej eppgni'geej 'nggr 'y gkt'qtki kpen'ugo epvle'hqef 0'Dwl'kp'twddkrikpi .''y g" dempeg'kı'uj khngf 'htqo 'ej eppgni'e+'q'ej eppgni'e+'y g'hewgt'pqto em("pgetn("xqkf 'qh'ugo epvle'eqpvgpv0')

Cnj qwi j "twddkrikpi 'tgekpu'y g'qtki kpen'f kemi wg.'y j kej "empy u'y g'teti gv'ewf kgpeg''q'gplq{ "y g'xqkeg''s werkv{" epf 'hpvqpevkqp'qh'y g'qtki kpen'eevqtu.''y g'ewj gpvlekv{"i ekpgf 'hp'y ku'y e{ 'ku'r etvl("nquv'y j gp'kv'eqo gu'vq" tgeqpuxtwevkpi 'y g'r qn\ugo kqvle'y j qrg0'Vj g'tgegr vkqp'y qtmii qkpi 'qp'kp'y g'o kpf u'qh'y g'ewf kgpeg''f khtgtu" eqpukf gtedn("htqo "y g'qtki kpen'r tqeguu0'Y g'o ki j v'eum'hqt 'kpuvepeg.'y j gy gt'e'hkm 'y ev'ku'r etvl("tgef 'eep" eqpxg{ "y g'uco g'ko r tguukqp''cu'y g'uco g'hkm 'hkrugpgf 'vq.'y ky j' j etf n("ep{ "xkuven'xgtden'uki pu'qp'y g'uetggp0'Kp" vt{kpi 'vq''epuy gt'uwej 's wguvlqpu'y g'ergetn("lgexg''Vtepurevlqp''Uwf kgu'r tqr gt'epf "gpygt''y g'tgem 'qhi'r u{ej qmi {0' Cpf 'kp'heev'r u{ej qmi kuni'j exg''eqpukf gtgf ''y ku'kuuwg0'Ukpeg''y g'getn("3; : 2u.'y g'F gr etvo gpv'qh'Gzr gtko gpven' Ru{ej qmi {"cv'y g'Eeyj qrhe 'Wpksgtukv{ 'qh'Ngwxgp.''kp'Hrgo kuj /ur gemkpi 'Dgni kwo.'j cu'dggp''eqpf wevkpi 'uwwf kgu'' qp''xkgy gt''tgegr vkqp''qh'uwdvkngu''sugg''hqt''kpuvepeg'f of f gy emg'gv'en0'3; : 9."3; : ; ."3; ; 3+0J qy gxgt."o quv'uwf kgu'' j exg''eqpegpvtevgf 'qp''y g''o qtg''qxgtvn(''dgj exkqwtkn''cur gew'qh'y ku'kuuwg."pqvedn(''uwdlgewof'g{g'o qxgo gpvu'' y j gp''tgef kpi 'uwdvkngu''qp''y g''uetggp0'Eqi pkkxg.''hqu wknkecm(''hqwpf gf 'tgugetej 'ku'unknikp''kuu'kphepe{0}

#### Vko g'cpf'f wt c vkqp

Vj g"pqvkqp"qh'vko g"eqxgtu'vy q"r j gpqo gpc<'vko g"qh'vgzv'r tqf wevkqp."cpf "vko g"qh'vgzv'r tgugpvcvkqp'vq"vj g"vcti gv ncpi wci g"cwf kgpeg0'kp"vj ku"eqpvgzv."vko g"ku"uggp"cu"c"r qkpv"kp"vj g"eqpvkpwwo "htqo "vj g"r cuv'vq"vj g"r tgugpv0'Hqt" vj g"pqvkqp"qh"eqpvkpwqwu"vko g"\*vko g"cu"c"rkpg"tcvj gt"vj cp"c"r qkpv+"Ky km'tgugtxg"vj g"vgto "f wtcvkqp0'Vj tgg"r qkpvu"kp"vko g"ugtxg"cu":f ghkpgtuø'y kvj kp"uetggp"vtcpuncvkqp<

\*c+"V3. 'Vo g'hqt 'r tqf wevlqp"qh'vj g'qtki kpcn
\*d+"V4. 'Vo g'hqt 'r tgugpvevlqp"qh'vj g'qtki kpcn
\*cv'ngcuv'kuu'xkuwcn'ukf g+
\*e+"V5. 'Vo g'hqt 'r tgugpvevlqp"qh'vj g'vtcpurcvlqp0

Vcdng'3<'V{rqnqi {"qh'\tcpunc\kqp

| <b>Semiotic composition</b>                        | 7   | 1                                  |  |
|--|---|------------------------------------|--|
| "  | Synchronous   | Non-synchronous                    | Distemporal                                  |
| O qpq/'cpf 'kuqugo kqvke                           | "   | "                                  | н  |
| Ur ggej  | ó''ó''ó   | Tcf kq'kpvgtrt gvkpi               | ó"ó"ó  |
| Y tkkpi  | ó''ó''ó   | ó"ó"ó                              | Y tkwgp"\tcpurc\kqp                          |
| O qpq/'cpf 'f kcugo kqvke                          | п   | "                                  | 11   |
| Ur ggej  | ó''ó''ó   | ó''ó''ó                            | Dqqm'st cpurc skqp"qp"<br>cwf kqwrg          |
| Y tkkpi  | ó"ó"ó   | Kpvgtrt gvkpi 'hqt'hqt''vj g'F gch | O kpwgu'htqo 'c'o ggwpi                      |
| Rqn(/'cpf 'kıqugo kqvle                            | п   | "                                  | 11   |
| Y tkkpi - Ko ci g                                  | Vtcpurcvkqp"qh"eqo ke"dqqmu" cpf "cf xgt vkugo gpvu | ó"ó"ó                              | ó'ő'ő  |
| Ur ggej - Ko ci g                                  | ó''ó''ó   | Uo wncpgqwi'kpvgtrt gvkpi          | ó"ó"ó  |
| Ur ggej - Ko ci g- O wuke "cpf"<br>Ghigewi         | Fwddkpi   | VX'xqkeg/qxgt='VX'' eqo o gpwt{    | Ftco c''stcpurcskqp''*usci g'' rgthqto cpeg+ |
| Rqn(/cpf 'f kcugo kqvke                            | п   | "                                  | н  |
| Ur ggej - Ko ci g- O wuke "cpf"<br>Ghhgew- Y tkkpi | Undrkrkpi   | Uko wncpgqwu'iwdvknkpi             | ó'ő'ő  |

Ki'V3"r tgegf gu'V4. "cpf "V5"ku'kf gpvkecn'y ky "94. "vj g''vtcpurcvkqp'ku'u{ pej t qpqwu'y ky "vj g'qtki kpcn'kk'V3"ku" kf gpvkecn'y ky "V4. "cpf "V4"f khlgtu'htqo "V5. "cu'kp"vj g'ecug'qh'uko wncpgqwu'kpvgtr tgvkpi . "vj g''vtcpurcvkqp'ku'pqp/u{ pej tqpqwu."qhvgp"f grc{gf 0Cpf 'hkpcm{.'kh'V3"r tgegf gu'V4. "cpf "vj g''qtki kpcn'y qtm'ku'pqv'r tgugpvgf "vq"vj g''vcti gv'' cwf kgpeg. "vj g''vtcpurcvkqp'ku'f kuvgo r qtcn<"vj g''pqvkqp"qh'u{ pej tqp{"ku'uko r n{ 'kttgngxcpv0D{ "eqpvtcuv."u{ pej tqpqwu''v{ r gu'\*hqt"gzco r ng''uwdvkvkpi +"cpf "pqp/u{ pej tqpqwu''v{ r gu'\*hqt"gzco r ng'kpvgtr tgvkpi +"ctg" eqpvgo r qtcn'kg0'y g{ "ctg''eqppgevgf "vq"vj g''qtki kpcn'kp"ur ceg''cpf "vko g0

#### C'\{rqnqi \{'dcugf'\qp'\lgo kq\ke'\eqo rqukkqp'\cpf'\\j g'\ko g'\gngo gpv

xqleg/qxgt'ku'tguvtlevgf '\q'pgy u'cpf 'ej knf tgpøu'r tqi tco o gu0'Vj g'o gyj qf 'qh'eqo o gpvct{.''qhvgp''wugf 'kp'' f qewo gpvctkgu.'f grgvgu'vj g''qtki kpcn'qhh/uetggp''pcttcvkqp''cpf 'tgr ncegu'kv'y kyj ''pcttcvkqp''kp''yj g''vcti gv'ncpi wci g0

### Vj g'rtci o cvle'f ko gpulap

Ko'uwdykrlpi. ''yi g''ur ggej ''cev'ku''cny c{u''lp''hqewu='kpygpykqpu''cpf ''ghhgewi'ctg''o qtg''ko r qtvcpv''yi cp'kuqrcygf ''rgzkecn'' grgo gpw0'Vj ku''r tci o cyke''f ko gpukqp''ngcxgu''yi g''uwdykrgt''htgg''q''vcng''egtyckp''rkpi wkryke''rkdgtykgu. ''dgctkpi ''kp''o kpf'' yi cy'gcej ''uwdykrg''o wuv'dg''r j tcugf ''cpf ''ewgf ''cu''r ctv'qh''c''rcti gt''r qn{ugo kqyke'y j qrg''cko gf ''cv'wpko r gf gf'' cwf kgpeg''tgegr ykqp0'O qur''ygrgxkukqp''dtqcf ecuvgtu''f go cpf ''c''yy q/nkpg''uwdykrg''qh'82692''ej ctceygtu''yq''uvc{ ''qp''yi g'' uetggp''hqt''768''ugeqpf u. ''cpf ''r tgugpycykqp''tcygu''qh'o qtg''yi cp'34''ej ctceygtu''r gt''ugeqpf ''\*er u+''ctg''pqv''ceegr ycdrg0' I kxgp''yi cv'yi g''ur ggej ''yo r q''qp''yi g''uetggp. ''cu''kp''pqto cn'eqpxgtucykqp. 'ku''wwcm{ ''j ki j gt''yi cp''yi g''gs wkxcrgpv''qh'' 34''er u. ''c''s wcpykcykxg''f kcmi wg''tgf weykqp''ku''pgeguuct{0F wg''yq''rgzkecn'cpf ''u{ pyceyke''f khtgtgpegu''dgyy ggp'' rcpi wci gu. ''yi ku''cxgtci g''o gcuwtg''qh''tgf weykqp''o c{ ''xct{ .''dwy'kp''ygrgxkukqp''uwdykyrkpi ''yi g''ygzy'xqnwo g''ku''y{ r kecm{ ''tgf wegf ''d{ ''qpg''yi ktf 0}

J qy gxgt."c"hwn"tcpuetkr vkqp htcpurcvkqp"qh"vj g"ur qmgp"f kueqwtug"kp"hkm u"cpf "vgngxkukqp"ku"ugnf qo "f guktcdng0" Vj g"pggf "hqt"eqpekugpguu"ku"o qvkxcvgf "d{" 'wy q"hcevqtu<

\*c+'kpvgtugo kqvke'tgf wpf cpe{."y j kej "gpcdrgu'vj g"xkgy gt"vq"uwr r rgo gpv'vj g"ugo kqvke'eqpvgpv'qh'vj g'uwdvkurgu" y kyj "kphqto cvkqp"htqo "qvj gt"cwf kqxkuwcn'ej cppgnu."pqvcdn{"y g"ko ci g"cpf "r tquqf ke'hgcwtgu'kp"vj g"f kcrqi wg0 \*d+'kpvtcugo kqvke''tgf wpf cpe{ "kp"vj g"f kcrqi wg0'Gur gekcrn{"y kyj "ur qpvcpgqwu'ur ggej ."pqv'qpn{"vj g"kphqto cvkxg" eqpvgpv'dw'cnq''vj g"xgtdcn'uv{ rg'qh'vj g"ur gcrngt "ctg"dgwgt"ugtxgf "y kyj "uqo g"tgf wevkqp"kp"vj g"uwdvkurgu0'Gxgp" f grkdgtcvg''ur ggej ."kpenwf kpi "uetkr vdcugf "pcttcvkqp."o c{"eqpvckp"uq"o wej "tgf wpf cpe{"vj cv'c'urki j v" eqpf gpucvkqp"y km'gpj cpeg"tcvj gt"vj cp"ko r ckt"vj g"ghhgevkxgpguu'qh'vj g'kpvgpf gf "o guuci g0

#### V{ r gu'qh'tiwd whipi

Nkpi wkukecm{ ."vy q"v{r gu"qh"uwdvkukpi "ecp"dg"f kukpi wkuj gf <

\*c+'**Ipvt cripi wcritwd vlsripi** '\*lp''y g''qtki kpcrl'rcpi wci g+0'Vj ku'lperwf gu

"uwd vkwhpi "qh'f qo guvke"r tqi tco o gu'hqt"yj g'F gch'cpf "j ctf "qh'j gctkpi "uwd vkwhpi "qh'hqtgki p/repi wci g'r tqi tco o gu'hqt"repi wci g'rgctpgtu0

Kpvtcrkpi wcn'uwdvkvkpi 'ku'xgtvkecn'kp''y g'ugpug''y cv'kv'kpxqrxgu''vcrkpi ''ur ggej 'f qy p'kp''y tkvkpi .''ej cpi kpi 'o qf g'' dwv'pqv'rcpi wci g0

\*d+'**Ifovgt rhpi wcrlinwd vkarlpi 0**'Vj ku'v{r g'ku'f kci qpcn'kp''y g'ugpug''y cv'y g'uwd vkargt 'etquugu''qxgt'htqo ''ur ggej 'kp'' qpg''rcpi wci g''vq''y tkkpi ''kp''cpqy gt.''y wu''ej cpi kpi ''o qf g''cpf 'rcpi wci g0

Cpqyi gt 'f kurkpevkqp"ecp"dg 'f tcy p"qp"yj g'dcuku'qh'vgej pkecn'tcyj gt 'yj cp'rkpi wkurke'r tqeguugu''qh'uwdvkurkpi <

\*c+'Qrgp'liwdvlargu'\*pqv'qrvkqpcn+0'Vj gug'lpenwfg<

"elpgo c'uwdvkurgu."y j kej "ctg"gkuj gt"c"r j {ukecn'r ctv'qh'vj g'hkro "\*cu'kp'hkro u'hqt"r wdnke "xkgy kpi +"qt" vtcpuo kwgf "ugr ctcvgn( "\*hqt"gzco r ng"cv'hguvkxcn'uetggpkpi u+

'kpvgtrkpi wcn'vgrgxkukqp'uwdvkvrgu'vtcpuo kwgf 'vgttguvtkcm{ 'cpf 'dtqcf ecuv'cu'r ctv'qh'vj g'vgrgxkukqp'r kewtg0

\*d+"Enquegf 'tıwd vkvrkpi ''\*qr vkqpcn ''vtcpuo kvvgf ''cu''vgrgvgzv+0'Vj ku''v{rg'kpenwfgu<

"vgngxkukqp"uwdvkngu"hqt"vj g"F gch"cpf "j ctf "qh"j gctkpi ."ugngevgf "d{"vj g"kpf kxkf wcn'xkgy gt"qp"c"tgo qvg/eqpvtqn'wpkv"cpf "i gpgtcvgf "d{"c"f geqf gt"kp"vj g"vgngxkukqp"ugv

"kpvgtrkpi wcrl\grgxkukqp"uwdvkngu"\tcpuo kvgf "d{"ucvgrrkvg."cmqy kpi "fkhgtgpv'ur ggej "eqo o wpkkgu'\q" tgegkxg"fkhgtgpv'xgtukqpu"qh'\j g'uco g"r tqi tco o g'uko wncpgqwun{0

## Vj g'hwwt g'qh'uwd vlarlpi

Y kij "ij g'eqo kpi "qh'f ki kcri'vgrgxkukqp." vgrgvgzvi gpgtcvgf "kpvgtrkpi wcri'uwdvkvrgu'y km'hkpf "ij gkt "y c{ 'htqo 'ucvgrrkvg'' vq'vgttguvtkcri'dtqcf ecuvkpi 0J qr ghwn{."ij ku'y km'pqv'dg'hqmqy gf "d{ "qpg'hguu'f guktcdrg'r tcevkeg"qh'ucvgrrkvg'' vgrgxkukqp." pco gn{ "**r kxqv'twd vkvrkpi 0**Rkxqv'uwdvkvrkpi 'wuwcm{ "y qtmu"cu'hqmqy u0C "vgrgxkukqp'hkro "ku'uwdvkvrgf" htqo 'rcpi wci g'C'\*v{r kecm{ 'Gpi rkuj +"

kpyq'ncpi wci g'D'\*uc{ "Uy gf kıj +0Vj g'uvdvkırgu'ctg'uvqtgf." y kıj "vko g/eqf gu'lpugt vgf." hqr r { 'f kun0Vj kı" o cuvgt 'f kun1kı' vj gp'wugf 'hqt 'etgcvkpi 'ej gcr 'ur kp/qhh'xgtukqpu'kp'c'pwo dgt 'qh'vcti gv'ncpi wci gu'tgncvgf 'vq' ncpi wci g'D'\*hqt" gzco r ng'F cpkıj "cpf 'P qty gi kcp+0Vj g'o ckp'r tqdngo "kıl'vj cv'd{ "wukpi "vj g''vko g/eqf gu'cpf "f kcmi wg'uvtwewtg'qh'vj g''r kxqv'uvdvkırgu." gttqtu'kp''vj g''r kxqv'vtcpuncvkqp''o c{ "dg''vtcpuhgttgf "vq''vcti gv'ncpi wci g'' xgtukqpu." y j kej 'o c{ "cnnq'eqpvckp' wpceegr wcdng''r kxqv'ncpi wci g'hgcwtgu'qt'uvdvkırg''ugi o gpvcvkqp''r tcevkegu0 Cp'kpvtcrkpi wcn "cpf "vj wu'rguu'r tqdngo cvke." xctkcpv'qh'r kxqv'uvdvkırkpi "cr r gctgf 'kp'vj g'o kf 3; ; 2u." y j gp'c'o clqt" o gf kc'eqtr qtcvkqp''uvctvgf "gzr qtvkpi "qnf 'Co gtkecp'hgcwtg'hkro u'vq''Uqwj /Gcuv'Cukc." eqo r ngvg'y kıj "f kunu'' eqpvckpkpi "uvdvkırgu'kp'Gpi nkıj ."r tqf wegf "cpf "vko g/ewgf "kp'F gpo ctn0Vtcpuncvqtu'kp''Vj ckrcpf "cpf "Ej kpc''eqwrf "vj gp''wtp'vj g'Gpi nkıj 'hkpgu'qp''yj g''uetggp'kpvq''Vj ck'cpf 'O cpf ctkp''uvdvkırgu." y kıj qw'j cxkpi "vq''cwgpf "vq''y g'' f kcmi wg''kugnh'qt''vq'y qtt{ "cdqw''vko g/ewgkpi 0'Vq''eqo r ngvg''yj g''r kewtg." y g''Gpi nkıj 'r kxqv'uvdvkırgu''ctg''yj gp'' tgwugf 'lp''xkf gqu''cko gf "cv'yj g'F gch''cpf 'j ctf "qh'j gctkpi 'kp''Co gtkec0

Dwi'lwwi'cu''ygrygzvi'ygej pqmi {"i kxgu''qy pgtu''qh''eqo o gtekcni'ygrykwkqpu''yi g''qrrqtwpkk{''vq''dw{ "enwrytu" qh''uwd\krgu''cv''dcti ckp''r tkegu.''kv''cnuq''qr gpu''wr ''yi g''r qygp\kcni'hqt''c''f khhgtgpv''uegpctkq.''pco gn{ "**rgt uqpcni'** uwd\krhpi 0J gtg.''hqt''yi g''htuv''\ko g.''yi g''xkgy gt''ecp''ej qqug''pqv'lww''dgwy ggp''f khhgtgpv''ucti gv''rcpi wci gu.''dw''cnuq'' dgwy ggp''f khhgtgpv''uv{ rgu''qt''rgxgnu''qh''uwd\krhpi 0'Vq''y cvej ''c''hqtgki p/rcpi wci g''r tqi tco o g.''gcej ''xkgy gt''o c{ "ugrgev.''hqt''kpuvcpeg.''qpg''qh''yi g''hqmy kpi ''qr vkqpu<

\*c+'c'pq/uwdvkvkpi 'qr vkqp

\*d+'hcuv.'wpeqpf gpugf 'uwd wkrkpi

\*e+'pqto cn'ur ggf 'uwdvkrkpi

\*f +'uwd vkvrkpi 'hqt 'urqy 't gcf gtu

\*g+'r kevqi tco /uwr r qtvgf 'uwdvkvkpi 'hqt'vj g'F gch'cpf 'j ctf 'qh'j gctkpi

\*h+'uwdvkxkpi 'kp'c'f qo guvke'o kpqtkx{ 'hcpi wci g

\*i +'hqtgki p/rgctpgt''uwdvkvrkpi 'kp''vj g''uqwteg'hcpi wci g0

F gr gpf kpi "qp" yi g"kpf kxkf wcn'r tqi tco o g"cpf "kxu"gzr gevgf "vcti gv'cwf kgpeg." f khhgtgpv'enwuvgtu"qh"qr vkqpu"eqwrf "dg"qhhgtgf." yi qwrf "vgngxkukqp"eqo r cpkgu"eqpukf gt "hkxg"qt "ukz "xgtukqpu"r gt "r tqi tco o g"vqq"equvn( 0Cpf "i kxgp" yi cv" F WDDKP I "ku"37" vko gu"cu"gzr gpukxg"cu"uwd vkxrkpi "\*Nw{ ngp"gv'cn03; ; 3<327+." gxgp" yi g"hwm'tcpi g"qh"qr vkqpu" eqwrf "dg"qhhgtgf "hqt" lwuv"qxgt "qpg" yi ktf "qh" vqf c{øu"f wddkpi "dwf i gv0

Cr ctv'htqo 'uj ggt 'eqpugtxcvkuo .'vj g'qpn( 'qduvcerg'vq'ej cpi kpi 'vj g'r tgugpv'ukwcvkqpô y kj 'o clqt'ur ggej '' eqo o wpkskgu'tgxqkekpi ''cm'hqtgki p/ncpi wci g'r tqi tco o gu'cpf 'o kpqt 'eqwpvtkgu'wukpi ''-qpg/ukt g/hkw/cmø'uwdvkugu ô ku'vj g'hcev'vj cv.'gxgp'vqf c{.'cm quv'j cnh'qh'vj g'gzkuvkpi 'vgngxkukqp'ugw'ctg'pqv'gs wkr r gf 'y kj 'vj g'vgngvgzv' hcekrkskgu'pgeguuct{'hqt'tgegkxkpi 'vcknqtgf 'uwdvkurguODw'vj ku'ku'lwuv'c'o cwgt 'qh'vko g.'cv'ngcuv'kp'vj g''Y guvgtp'' y qtnf 'y j gtg. ''gzegr v'hqt'r qtvcdngu. ''cm'vgngxkukqp'ugw'uqnf 'vqf c{ 'eqo g'y kj ''vgngvgzv'cu'c'uvcpf ctf 'hgcwtgOCpf'' y kj ''pgy ''j ki j /tguqnwkqp''ej ctcevgt'i gpgtcvqtu. 'hwwtg'vgngxkukqp'uwdvkurgu'y knij cxg'c'ngwgt's wcnkv{ ''cpf 'c'' tkej pguu'kp'hqpwi'pqv'hqwpf 'kp'vqf c{ øu'uwdvkurkpi 0J qr ghwn(.'y kj 'ko r tqxgf 'vgngvgzv'vgej pqmi {.'r gtuqpcn' uwdvkurkpi 'y kni'ugv'pgy 'uvcpf ctf u'qh'ncpi wci g'vtcpulgt'kp'hwwtg'vgngxkukqp0

Ugg"cnuq<
<a href="#">F WDDIP I</a> 0

#### Hwt vj gt 't gcf kpi

J GP TKM'I QVVNKGD

## V

# Vgto 'dcpmi

 $Vj g'f guki pckqp" \div ygto kpqmi kecn'f cvc'dcpmø'qt'kwu'o qtg'r qr wrct'tgf wegf'hqto "\div ygto 'dcpmø'dtqcf n('cr r nkgu'vq'' cp{'u{uvgo 'y j kej 'uvqtgu'ur gekcnk| gf 'xqecdwrctkgu'kp''grgevtqpke'hqto 0}$ 

## O qvkxcvlqp'hqt'vgto 'dcpmf guli p

Vgto "dcpmi"gxqnxgf 'htqo "r tlpvgf "vgej plecnif kevlqpctkgu"cpf "j cxg"dggp"emugn( "htpngf "y ky "vtcpurcvlqp"ukpeg" vj gkt 'kpegr vkqp 'kp"vj g"o kf 3; 82u"cpf "gctn( "3; 92u0"kp"ur gekcnk gf "vtcpurcvlqp."kv"ku"y gm'npqy p"vj cv'vj g"ugctej "hqt" kpvgtrkpi wcn'gs wkxcrgpwi"ku"c"vko g/eqpuwo kpi "cevkxkv{."qeewr {kpi "kp"uqo g"ecugu"wr "vq"82"r gt"egpv"qh"vqcn" vtcpurcvqt "vko g0"Gctn( "vgto "dcpmi"kpenwf gf "NGZ KU"qh"vj g"I gto cp"Dwpf gw'wr t cej gpco v"v"Hgf gtcn'Qhhkeg"qh" Ncpi wci gu+:"VGCO."y j kej "ku"qy pgf "d{ "Ukgo gpu"kp"O wpkej."GWTQF KECWVQO "qh"vj g"Eqo o kuukqp"qh"vj g" Gwtqr gcp"Wpkqp"kp"Nwzgo dqwti."cpf "VGTO KWO "qh"vj g"Ecpcf kcp"Hgf gtcn'I qxgtpo gpv"kp"Qwcy c0"Vj gug" u{ uvgo u"y gtg"f gxgmr gf "d{ "vj g"tgur gevkxg"vtcpurcvkqp"f gr ctvo gpv"qh"gcej "qti cpk cvkqp"hqt"vj g"hqmy kpi " r wtr qugu<

\*c+'uwr ngo gpvkpi ''r tkpvgf ''f kevkqpctkgu''d{ ''r tqxkf kpi ''wr/vq/f cvg''o wnkrkpi wcn'vgto kpqmi {
 \*d+''r tgugtxkpi "egpvtcm("'y g''eqpukf gtcdrg''ghhqtv'qh''kp/j qwug''rcpi wci g''ur gekcrkuvu. 'kp''uqo g''ecugu''y kyj ''y g''
 kpvgpvkqp''qh''o cmkpi ''y ku''y qtm'o qtg''y kf gn("cxckrcdrg''kp''r tkpvgf ''qt ''grgevtqpke''hqto
 \*e+''r tqxkf kpi ''ci tggf .''tgrkcdrg''cpf ''wpkhkgf ''vgto kpqmi { .''y gtgd{ ''gpuwtkpi ''i tgcvgt ''vgto kpqmi kecn'eqpukuvgpe{ ''
 kp''tcpurcvkqpu'y j kej ''ctg''ur rkv'wr ''co qpi ''f khhgtgpv''vcpurcvqtu

\*f+''ur gaf kpi ''vr ''vi g''tcpurcvkqpu''r tgegruu''d{ ''i kykpi ''vi g''tcpurcvqt''c''ukpi m''althekpry'vgard'pat''tgytgykpi ''

\*f +'ur ggf kpi 'wr 'y g''tcpurcykqp''r tqeguu''d{ 'i kxkpi 'y g''tcpurcyqt''c''ukpi rg''ghhkekgpy'yqqri'hqt''tgytkgxkpi '' ur gekcnk| gf ''xqecdwrct{0

Uqo g'qh''yi gug''yto "dcpmu'ctg''pqy "gkyi gt''eqo o gtekcm{ "cxckrcdrg''\*VGTO KWO."hqt"gzco r rg. "ku'cxckrcdrg''qp" EF/TQO +"qt"ecp"dg"ceeguugf "d{"yi ktf" r ct\kgu."cu'kp"\yi g''ecug''qh''VGCO "cpf 'GWTQF KECWVQO 0'Uqo g."uwej " cu''VGCO."r tqxkf g''r tkpvgf "f kevkqpctkgu''qh''r ctvkewrct "uwdlgev'ctgcu."cpf "kp"uqo g''ecugu''gxgp"uo cm'i muuctkgu''qh'' pgqmi kuo u="yi g''rcwgt"ctg"r tqxkf gf "d{"VGTO ECV."yi g''vgto "dcpm'qh''yi g''I gpgtcrkcv'f g'Ecvcrwp{c."cpf "DVS." yi g''vgto "dcpm'qh'yi g''Qhhkeg'f g''rc''rcpi wg''f w'S wgdge."co qpi "qyi gtu0

Kp"r ctcmgn'y ky "cp"kpetgcug"kp"y g"pwo dgt"qh'wugtu. "y gtg"ku'cevkxg"tgugctej "kpvq"y g"r tqxkukqp"qh'ctej kygewtgu" hqt"y g"tgeqtf kpi "cpf "gzr nqkcvkqp"qh'vgto kpqnqi kecn'kphqto cvkqp."\{r kecn{"qp"c"r gtuqpcn'eqo r wyt"r ncvhqto 0' Vj gug"vgto kpqnqi {"uwr qtv'vqqnu"o c{"dg"kp"y g"hqto "qh'uqhyy ctg"hqt"uvqtkpi "r gtuqpcn'eqngevkqpu"qh'ur gekcnk gf" xqecdwnctkgu. "qt"vtcpuncvqt"y qtmuvcvkqpu"kpeqtr qtcvkpi ."kp"c"ukpi ng"r cenci g. "hceknkkgu"hqt"vgzv'r tqeguukpi ."tgo qvg" ceeguu"vq"qvj gt"vgto "dcpmu."cpf "o cej kpg/cuukuvgf "gzvtcevkqp"cpf "o ckpvgpcpeg"qh'vj g"wugtøu"eqngevkqpu"qh" vgto kpqnqi {0

## Ej ct cevgt kweu'qh'vgt o 'dcpmı

Vj g'tgcuqpu'hqt'vj g'etgcvkqp''qh'kpf kxkf wcn'vgto ''dcpmu''ctg''cu''f kxgtug''cu'vj g'kpvgtnkpi wcn'cpf ''vgej pkecn' eqo o wpkecvkqp''tgs wktgo gpvu''qh''wugt''i tqwr u''cpf ''nkpi wkurke''eqo o wpkkkgu0'Vj gug''tgs wktgo gpvu''pcwtcm{ '' kphrwgpeg''vj g'f guki p''qh'kpf kxkf wcn'vgto ''dcpmu0J qy gxgt.''htqo ''vj g''r qkpv''qh''xkgy ''qh''vj g''tgr tgugpvcvkqp''qh'f cwc.'' y g''ecp''encuulh{ ''vgto ''dcpmu''wpf gt''vj g''hqmqy kpi ''dtqcf''czgu<

\*c+'repi wei g''qtkgpvevkqp<'o qpqnkpi wen='dknkpi wen='o wnknkpi wen

Kp"vgto u"qh"hwpevkqp. "y g"ecp"f kuvkpi wkuj "i gpgtcm( "dgwy ggp<

\*c+'vgto ''dcpmu''f guki pgf ''vq''ckf ''y g''vtcpurcvkqp''qh''uekgpvkhke''cpf ''vgej pkecn'f qewo gpvcvkqp.''hqt ''gzco r rg''
GWTQF KECWVQO ''cpf ''VGTO KWO =''yi gug''vgto ''dcpmu''ctg''cny c{u''o wnkrkpi wcn
\*d+'vgto ''dcpmu'f guki pgf ''hqt'f qewo gpvkpi ''kphqto cvkqp''qp''vgto u''cpf ''eqpegr vu.''hqt''gzco r rg''DVS ''cpf ''
PQTO CVGTO =''yi g''ncwgt''ku''yi g''vgto ''dcpm'qh''yi g''Htgpej ''kpurkwwkqp''hqt''uvcpf ctf kt cvkqp.''y j kej ''cnuq''
eqpvckpu''cm'KUQ''vgto kpqrqi { ''kp''Gpi rkuj ''cpf ''Htgpej 0'I kxgp''yi gkt''qtkgpvcvkqp''cpf ''o ckp''qdlgevkxg''qh'hkzkpi ''
eqpegr v'vgto ''tgrcvkqpuj kr u''d{ ''o gcpu''qh'f ghkpkkqpu.''yi gug''vgto ''dcpmu''ctg''rcti gn( ''o qpqrkpi wcn''yi qwi j ''yi g{ ''
o c{ ''qhhgt ''gs wkxcrgpvu''kp''qyi gt''rcpi wci gu0

### F cvc'ecvgi qt lgu'cpf 'r t qi t guu'lp'vgt o 'dcpmf guli p

Vj gtg'ku'pq'nko ki'vq'y g'kphqto cvkqp'y cv'ecp'dg'tgeqtf gf 'hqt'c'vgto kpqmi kecn'gpvt {0'Vj g'kphqto cvkqp'eqmgevgf "o c{'dg'cu'y kf g'cu'y cv'cuugo dngf 'hqt'f kevkqpctkgu'qh'y g'i gpgtcn'ncpi wci g.'dww.'hqt'r tcevkecn'tgcuqpu.'ku'wuwcm{"o qtg'nko kgf 0'Vgto 'dcpm'qr gtcvqtu'cpf 'kpvgtpcvkqpcn'uvcpf ctf kt cvkqp'qti cpkt cvkqpu'j cxg'kf gpvkhkgf 'egtvckp'f cw' gngo gpvu'cu'eqpuvkwvkpi 'y g'guugpvkcn'o kpko wo 'hqt'c'tgnkcdng'tgeqtf 0

 $Vj \; g''pqp/nkpi \; wkuke''f \; cw''gngo \; gpw''tgs \; wktgf \; 'hqt''o \; ckpvckpkpi \; ''y \; g''kpvgi \; tkx \{ \; ''qh''y \; g''f \; cwdcug''ctg < tgeqtf \; ''pwo \; dgt = ''r tgeqtf \; cw''gngo \; gpw''tgs \; wktgf \; ''hqt''o \; ckpvckpkpi \; ''y \; g''kpvgi \; tkx \{ \; ''qh''y \; g''f \; cwdcug''ctg < tgeqtf \; ''pwo \; dgt = ''r tgeqtf \; cw''gngo \; gpw''tgs \; wktgf \; ''hqt''o \; ckpvckpkpi \; ''y \; g''kpvgi \; tkx \{ \; ''qh''y \; g''f \; cwdcug''ctg < tgeqtf \; ''pwo \; dgt = ''r tgeqtf \; cw''gngo \; gpw''tgs \; wktgf \; ''hqt''o \; ckpvckpkpi \; ''y \; g''kpvgi \; tkx \; (''qh''y \; g''f \; cwdcug''ctg < tgeqtf \; ''pwo \; dgt = ''r tgeqtf \; cw''gngo \; gpw''tgs \; wktgf \; ''hqt''o \; ckpvckpkpi \; ''y \; g''kpvgi \; tkx \; (''qh''y \; g''f \; cwdcug''ctg < tgeqtf \; ''pwo \; dgt = ''r tgeqtf \; ''r tge$ cwj qt"qh'tgeqtf="fcvg"qh'rtgrctcvkqp"qh'kprw'cpf"uwdugswgpv'wrfcvkpi "qh'vjg'tgeqtf="dkdrkqitcrjke"uqwteg\*u+"qh" yj g'j gcf y qtf =''yj g'f ghkpkkqp''cpf ''yj g''gzco r ngu''qh''wuci g'\*kh''cp{+0'Vj g''guugpvkcn'hkpi wkuvke lvgto kpqmi kecn'f cvc''  $grgo\ gpw'ctg < \ rg''qh'wci\ gOCpf''hpcm (.'y' g''guugpwcn'') \\$ eqpegr wcn'f cvc''grgo gpwi'ctg<f ghkpkklqp="cwtkdwkqp"\q"c''uwdlgev'hkgrf "qt''ctgc"qh'wug="rkpmu"\q"qyj gt''eqpegr w0 Vgto "dcpmu"uvctvgf "qhh'cu"eqpxgpvkqpcn'f cvc"dcpmu. "kpeqtr qtcvkpi "rkvvg"qt"pq"vgto kpqmi kecn'yi gqt {="hqt" gzco r ng. 'vj gtg'y cu'pq'u{ uvgo cvke'eqpegr wcn'cpcn{ uku'qt'eqxgtci g'qh'cp{ 'i kxgp''ur gekcn'uwdlgev0'Vj gug''uq/ ecnngf "vgto/qtkgpvgf" fcvcdcugu"ctg"uvkm'vj g'r tgf qo kpcpv'v{r g"vqf c{."y gm/mpqy p"gzco r ngu"dgkpi " GWTQF KECWVQO . 'NGZ KU'cpf 'VGCO 0J qy gxgt. 'cf xcpegu'kp'eqo r wgt 'f cw'o cpci go gpv'j cxg'gpcdrgf " ko rtaxgo gpwikp''y g'eqo rngzkx{ "qh'kphqto cvkqp''y cv'ecp''dg''gpvgtgf 'hqt''cp{ 'ukpi ng'tgeqtf .'hqt''gzco rng''y g''  $j \; kgtctej \; kgu''kp''F \; CP \; VGTO \; '*J \; lqtvj \; '3; : 9+''cpf \; 'o \; wnkf \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G''*O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; ko \; gpukqpcn't gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; grade \; and \; grade \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G'''O \; g \{ \; gt \; 'gv'cnO3; \; ; \; 4+O'' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; and \; gncvkqpuj \; kr u''kp''E \; QF \; G''' \; and \; gncvkqpuj \; a$ Y kij ''y g'lipetgcug'lip''y g'ngxgn'iqh'ngzkdkik/{ ''cpf ''eqorngzk/{ ''qh'tgrtgugpvcvkqp''chhqtfgf''d{ ''oqfgtp''cfxcpegu'lip'' eqo r wygtl{ cvkqp. "vgto "dcpmu"pqy "kpeqtr qtcvg"uqo g"dcuke"vgto kpqmi kecn't grcvkqpuj kr u"co qpi "vj g"vgto u"kp"vj g" hkgrf. 'uwej "cu'dtqcf gt. 'pcttqy gt "cpf "tgrcvgf "vgto u0Vj g"tgr tgugpvcvkqp"qh"eqo r rgz "tgrcvkqpuj kr u'\*uwej "cu'v{r kecn" wug. "r ct wi'cpf "ecwug+"cmqy u'eqo r rgz "s wgt kgu "\q "dg "hqto wrc vgf "kp" vj g "vgto "dcpm'gpxkt qpo gpv'cpf "gxcnwc vkxg" cpuy gtu'vq'dg'i gpgtcvgf 'htqo "gzkuvkpi 'kphqto cvkqp0'Vj ku'ku'r ctvkewrctn{ 'wughwikp'c''tcpurcvkqp"gpxktqpo gpv." y j gtg'wugtu'qhvgp'tgs wktg'kphqto cvkqp'qh'cp'kphgtgpvkcn'pcwxtg'/cu'qrrqugf'vq'hcewcn'kphqto cvkqpô uwej 'cu'yi g' pgctguv'hqtgki p/ncpi wci g''gs wkxcngpv'y j gtg''pq''gs wkxcngpv''gzkuvu'kp''y g''f cwcdcug0 Vj g"eqngevkqp."f guetkr vkqp"cpf "uvqtci g"qh"vgto u"ku"pqy "pq"nqpi gt"o gtgn("cp"kpuvcpeg"qh"uekgpvkhke"cpf "vgej pkecn" ngzkeqi tcr j { "dw/cp"kpvgi tcn/r ctv'qh/c"pgy "cevkxkv{ "mpqy p"cu"vgto kpqi tcr j { 0"Vj cv'ku. "kpuvgcf "qh/f qewo gpvkpi " r tqdrgo "'gto u'cpf "r j tcugu'kp"cp"cf "j qe"y c{"cu"yj g{"ctg"gpeqwpygtgf "kp"\gz v."yj g"\tgpf "pqy "ku"\qy ctf u"yj go c\ke"

c'eqmgevkqp'qh'cwqo cvgf 'ur gekcrkugf 'xqecdwrctkgu.'kpenwf kpi 'pqo gpencwtgu.'uvcpf ctf kugf 'vgto u' cpf 'r j tcugu.'vqi gvj gt'y kvj 'kphqto cvkqp'tgs wktgf 'hqt''y gkt'kf gpvkhkecvkqp.'y j kej 'ecp''dg''wugf 'cu'c'' o qpq/''qt''o wnkhkpi wcn'f kevkqpct{'hqt''

cpcn(uku'qh'c'eqj gukxg'eqtr wu'qh'f qewo gpw'y kj "c'xkgy "\q'qwwkpkpi "c'eqj gtgpv'u(uvgo "qh'vgto u'cpf 'eqpegr w0

Vj g'f ghkpkkqp"qh'y j cv'eqpurkwygu'cp'kf gcn'ygto "dcpm'hqto wrcygf 'd{ "Uci gt"cpf 'O eP cwi j v'\*3; : 3d<'3+."

gpecr uwrcygu'yi g'r qygpykcn'qh'yi ku'tguqwteg0C''ygto 'dcpm'yi g{ ''uwi i guv.''ku

f ktgev'eqpuwncvkqp. "cu"c "dcuku"hqt "f kevkqpct { "r tqf wevkqp."cu"c "eqpvtqn'kpuvt wo gpv'hqt "eqpukuvgpe { "qh" wuci g"cpf "vgto "etgcvkqp"cpf "cu"cp"cpekret { "vqqn'kp"kphqto cvkqp"cpf "f qewo gpvcvkqp0

Vj g'hwpevkqpu"qh'vgto "dcpmu"ecp"vj gtghqtg"dg"o wej "y kf gt"vj cp"vj qug"qh"cp{"qh"vj gkt"ewttgpv"ko r rgo gpvcvkqpu0 Ugg"cnuq<

OCEJ KPG/CKFGF "VTCPUNCVKQP ="VGTO KPQNQI [."CRRNKECVKQPU="VGTO KPQNQI [."UVCPFCTFK, CVKQP="VGTO KPQNQI [."VJGQT[0]

### Hwt yj gt 't gcf kpi

 $Ecdt^2 "3; ; 5 = Uci gt "3; ; 2 = Uci gt "Cpf "OeP cwi j v"3; : 3c. "3; : 3d = Upgm"3; : 5 = Lqwtpcnx "Vgt o kpqnqi {."} r wdnkuj gf "d{ 'Lqj p'Dgplco kpu"0}$ 

DNCKUG'P MY GP VKC\ GJ

# Vgto kpqrqi {

## crrlecvlqpu

Htqo ''y g'r qkpv'qh'xkgy ''qh''tcpurcvkqp.''y g''o quv

relevant applications of terminology are:

"vjg"tgrtgugpvcvkqp"qh"vgtokpqmi{"kp"cwqocvgf"u{uvgou

''y g'untwewtkpi ''qhi'\gto u'kp''ur gekcn'uwdlgev'hkgrf u

'vgto 'etgcwqp

"vgto "uvcpf ctf k cvkqp0

 $\label{thm:condition} Vj g''hktuv''vj tgg''crrnkecvkqpu''ctg''f kuewuugf''kp''vj ku''gpvt \{0'Hqt''cp''qxgtxkgy ''qh''vgto ''uvcpf ctf kl cvkqp.''ugg'' \\ \underline{VGTO \ kP \ QNQI \ [ .''UVCP F \ CTF \ K \ CVKQP \ 0 \\ \end{array}$ 

#### Vtcpurcylqp'xu0crrdgf'ygto kpqmi {

Vtcpurcvqtu'cpf 'vgto kpqrqi kuvu'y qtm'kp''s wkxg''f kthgtgpv'o qf gu. 'vj g'hktuv'f gcrkpi 'vy kxj 'ncpi wci g'kp'wug'cpf 'vj g'' ugeqpf 'vy kxj 'ncpi wci g'cu'c'eqpegr wcn'u{ uvgo 0'O qtg''ur gekhkecm{ .''kx'ku'ko r qtvcpv''vq''pqvg''vj g'hqmqy kpi <

\*c+"Vgto kpqmi {"eqo r krcklqp"ku'c"uckle"r tqeguu'y j kej "eqpukuw'qh'kf gpvkh{kpi ."kuqrckpi "cpf "f guetkdkpi "

yto kpqmi kecn'wpku0"Vtcpurckqp. "qp"yi g"qyi gt"j cpf ."ku'c"f { pco ke"r tqeguu'y j kej "kpxqrxgu"yi g"o cpkr wrckqp"

qh'vgz wcn'uwduvcpeg"kp"qpg"repi wci g"vq"etgcvg"vgz wcn'uwduvcpeg"kp"cpqyi gt "repi wci g0

\*d+"Rctv'qh'yi g"r tqf werkqp"r tqeguu'kp"vtcpurckqp"eqpukuw'qh'o cvej kpi "wpkw"qh'o gcpkpi "y j kej "ctkug"kp"qpg"

ewnwtg"y kyi "yi qug"qh'cpqyi gt"ewnwtg"dghqtg"hhpf kpi "yi gkt"vgz wcm("cpf "ukwckqpcm("crr tqr tkcvg"hpi wkrke"

gzr tguukqp0"Vtcpurcvqtu'i gpgtcm("cwgo r v'vq"o cvej "yi g"reti guv'r quukdrg"wpku"qh'o gcpkpi "cu"yi g{"ctkug"kp"c"

ur gekhe "vgz v="vgto kpqmi knwi"j cxg"pq"kpvgtguv'kp"vgo r qtct { "cpf "ecuwcn'eqmqecvkqpu"qh'eqpegr wu"cu'yi g{ "ctg"

dtqwi j v'kpvq"c"r ctvkewret "tgrcvkqpui kr "d{"c"y tkxgt0"Vtcpurcvqtu"y qtm'y kyi "eqpegr wu"cpf "vgto u"kp"eqpvgz v="

yto kpqmi knwi knqrcvg"vgto u"htqo "eqpvgz v'cpf "hkv"yi go "kpvq"cp"cduvtcev'u{uvgo "qh'eqpegr w0"Y j cvgxgt"

o cvej kpi "vcngu"r rceg"kp"vgto kpqmi { "ku'dgwy ggp"vgto "cpf "eqpegr v'cpf "pqv'dgwy ggp"vgz wcn'wpkv'cpf "vgz wcn'

wpk0

\*e+'Kp''y gkt''ecr ceks{ "cu'tgcf gtu'cpf "y tkgtu. "vtcpurcvqtu''r gthqto "y g'r tqeguu'qh'o cvej kpi "vgzwcn'wpku'y kj "c" j ki j "f gi tgg''qh'kpwkkkqp0'Vj g{ "qpn{ "tguqtv'vq''y g''vgej pks wgu''qh'vgto kpqmi kuvu'y j gp''y g{ "pggf "vq'tgugctej " o gcpkpi "cpf lqt'hqto "eqpuekqwun{ 0'Vgto kpqmi kuvu."d{ "eqpvtcuv."cny c{u'y qtm'cpcn{ vkecm{ "cpf "f guetkdg''y g" tguwnu''qh''y gkt "cpcn{ uku'kp''y g''r gewrkct''vgzv'hqto "qh'i mquctkgu''qt"f kevkqpct{ "gpvtkgu0'Vj g''qpn{ "kpuvcpeg'kp" y j kej "vgto kpqmi kuvu''go r m{ "vj g''r tkpekr ng''qh'u{ pvj guku'tcvj gt''y cp''cpcn{ uku''ku'y j gp''y g{ "ctg''gpi ci gf "kp''y g'' etgcvkqp''qh''pgy "vgto u='cpf "gxgp''kp''y ku''o qf g''y g'u{ pvj guku'ku''nko kgf "vq''y g''uo cmgt''wpku''qh''y qtf "cpf" rj tcug''cpf "f qgu''pqv''gzvgpf "vq''rcti gt''yzwcn'wpku0

Vj g'tqrgu'qh'\gto kpqrqi kuv'cpf '\tcpurcvqt'ctg'\j gtghqtg's wkxg'f khhgtgpv='qpn( 'dk/ 'qt'o wnkrkpi wcn'\gto kpqrqi kuvu'

dgecwug"tcpurcvqtu"j cxg"vq"y qtm"cu"vgto kpqmi kuvu"y j gp"vj g{"ctg"hcegf"y kj "f gekukqpu"eqpegtpkpi "vj g"tki j v" ej qkeg"co qpi "cnigtpcvkxg"gzrtguukqp"hqto u"qt"vj g"etgcvkqp"qh"c"pgqmi kuo "qt"c"rctcrj tcug0 Kp"c"O CEJ KPG"VTCP UNCVKQP "u{uvgo."qpg"qh"vj.g"vcumu"qh"cp"cpcn(uku'o qf wng"ku"vq"kf gpvkh{"c"vgto "cpf" tgrcvg'kv'vq''y g'tki j v'eqpegr v0'Vj ku'ku'c'r tqdrgo "qh'tgeqi pk kpi "eqpvgzwcn'xctkcpvu'y j kej "ctg''gky gt''pqv'tgeqtf gf " kp"yj g"o cej kpg"f kevkqpct{"qt"y j kej "ctg"j qo qp{o qwu'y kyj "qyj gt."wuwcm{"i gpgtke."\gto u0"Vj g"\tcpurcvqt"cu" vgto kpqnqi kuv'o wuv'yi gtghqtg"dg"cy ctg"qh"yi g"r j gpqo gpqp"qh"xctkcpvu"cpf "ku"gzr gevgf "vq"cuukuv"kp"yi g"tguqnwkqp" qh'cuuqekcvgf 'r tqdrgo u0 Kp''c 'vt cpulgt 'b qf wrg. 'c 'eqo o qp 'eqpegr wcn'u (uvgo 'dgw ggp' vj g' w q 'ewnwtgu' kpxqnxgf 'xktwcm( ''cngu''y g'tqng''qh'c''r gthgev'kpvgtnkpi wc.''y cv'ku''cp''ctvkhkekcn'hcpi wci g''wugf ''vq''tgr tgugpv''y g''o gcplpi u'qh'pcwtcnhcpi wci g0'Y j gtg. 'y kj lp''y g'uco g'qxgtcmlutwewtg. 'y g'eqpegr wcnlu{ uvgo 'qh'qpg'ewnwtg' ku'o qtg'f gxgmqr gf ''y cp''y cv'qh'cpqy gt. ''tcpuhgt ''xkc''eqpegr wcn'uxt wewtgu'pgcvn{ ''kf gpvkhkgu'f khhgt gpegu'cpf '' rtqxlfgu''y g'dcuku'hqt''uqnwlqpu0'kp''y g'**i gpgtcvlqp'o qfwrg.**''y g'rcwgtp''qh'xctlcpw'kp''y g'uqwteg''vgzv'ecp'dg'' tgeqpuvkwvgf "kp" yj g" vcti gv" vgzv. 'r tqxkf gf "yj g" wuci g"eqpf kkqpu" qh" yj g" uqwteg" xct kcpvu "eqwrf "dg" tgrkcdn ("encuukhkgf" cpf "y g"uco g"tcpi g"qh"wuci g"xctkcvkqp"gzkuwi kp"y g"vcti gv"ncpi wci g0"V j ku hwnleqkpekf gpeg"o c{ "gzkuv'co qpi " ncpi wci gu'y kj "uekgpwkhecm ("cpf" 'vgej pqmi kecm ("eqo r ctcdrg" ewnwt gu 0 kp" qvj gt" ecugu. "vtcpurc vqtu" qt" vgto kpqmi kuvu'j cxg'\q'hkpf'r tcevkecn'uqnwkqpu. 'gkvj gt'd{ "eqkpkpi "gs wkxcngpv'vgto u'y j kej "ctg'xctkcvkqpcm(" wpo ctngf "qt"d{ "etgcvkpi "r tgf kevcdng"xctkcpuu"qp"vj g"dcuku"qh"xctkcvkqp"r cwgtpu"y j kej "ctg"r tgxcngpv"kp"vj g"vcti gv" ncpi wci g0

## Vj g'int wewt kpi 'qh'igt o u'kp'in gekchindl gev'hlgrf u<il (uvgo u'qh'pqo gpencwt g

Vj g''cząpąo ke''uekgpegu'j cxg''gxqrxgf ''ct khlekcri'rcpi wci gu'y j kej ''gzr rqk''y g''u{ uvgo cvke'hgcwtgu''qh''pcwtcri' rcpi wci g''cpf ''ku''r qvgpvkcri'hqt''wug''cu''c''ercuukhlecvqt { ''u{ uvgo 0'Vj gug''ct vkhlekcri'rcpi wci gu''qh''pqo gpercwtg''ctg'' wuwcm{ ''tgrcvgf ''vq''qpg''qt''ugxgtcri'pcwtcri'rcpi wci gu0'Gpi rkuj ''o gf kecri'vgto kpqrqi { .''hqt''gzco r rg. ''ku''dcugf ''qp'' Ncvkp''dw''ku''j gcxkn{ ''Cpi rlek gf 0

Ceeqtf kpi "\q" y g"pcwtg"qh'\y g"qdlgewi"\y g\"qdugtxg"cpf "\y g"r wtr qug"\tat "y j kej "mpqy mgf i g"cdqw'\y gug"\qdlgewi" ku'uqwi j v "f kh\tetapy\'uekgpegui'j cxg"gxqnxgf "f kh\tetapy\'etkgtkc'hqt'ercuuk\{kpi "\y j kej "hrmly ky i kp"\y gkt" f qo ckp0\Kp"cpcvqo \{."ercuuk\kecvkqp"ku'r tko ctkn\{"o cf g"qp"\y g"dcuku'qh'r ctv\y j qng"tgrcvkqpuj kr u0\Kp"r cy qnqi \{"cpf" r j \{ukqmi \{."r tqeguugu''cpf "ecwugu''qp"\y g"qpg"\y cpf "cpf "r tqegf wtgu''cpf "ghlgevu''qp"\y g"qy gt"\y cxg"\y q"dg"kuqrcvgf " cpf "tgrcvgf "\y "g'cej "qy gt0\V j g"ercuuk\kecvqt\{"r tkpekr ng"ku'\y j g"ej kgh'o qvkxcvkqp"\tetap "f guki pcvkpi "vgto u'\y "eqpegr vu=" kv'\tetapf co gpvcm\{"f kuvkpi wkuj gu'\y g"r tqeguu''qh'ur gekcn'f guki pcvkqp"\tetapo "\y g"ctdkxtct\tetapguu''qh'i gpgtcn'ircpi wci g0 Vgto kpqnqi kecn'u\{ uvgo u''ctg"eqpuvtwevgf "qp"\y g"dcuku'qh'pcttqy kpi "\y g"hwpevkqpu''qh'pcwtcn'ircpi wci g."cpf" rcpi wci g"wugtu''ctg"r tqxkf gf "y ky "twgu''nqt"\y g"eqttgev'\to r ngo gpvcvkqp"qh'uwej "u\{uvgo u0\V\y g"twng"u\{uvgo u''qh'' pqo gpencwtg"qxgteqo g"\y g"wpr tgf kevclkn\{"qh'\y qtf/\hqto cvkqp"cpf "\y g"co dki wk\\"\kpj gtgpv'\kp"r qr wrct"pco gu'' cpf "i gpgtcn'ircpi wci g"pco kpi "r tqeguugu\0\V\y g"pco gu''qt''yto u'y j kej "tguwn'htqo "\y g"cr r necvkqp"qh'\y gug'twngu'' eqpunkwwg"cp"\kpvgtpcvkqpcn'kpuntwo gpv'qh'y tkwgp"eqo o wpkecvkqp\0\V\y g"r tqf wevkxk\\"qh'\y g"twngu''qh'pqo gpencwtg" tguk' gu'\y j g"tgi wrctk\\"qh'\y g"r tqeguugu'y j kej "i qxgtp"\y g"eqo dkpcvkqp"qh'igngo gpvu'y ky "gcej "qy gt"cpf "y ky " chhkzgt "o gcpkpi u'ecp"dg"cwcej gf "\q"chhkzgu''cpf "\q"r cwgtpu'\qh'eqo dkpcvkqp\0

#### Vgto 'etgcwlqp

Rtko ct { "vgto "hqto cvkqp"qeewtu"y j gp"c"pgy n{ "etgcvgf" eqpegr v"j cu"vq"dg"pco gf 0"Vtcpurcvqtu"cpf "vgto kpqnqi kuvu" f kuvkpi wkuj "dgwy ggp"\*c+"r tqxkukqpcm( "pco gf "vgto u."wuwcm( "cuuqekcvgf" y kij "uvkr wucvkxg"f ghkpkkqpu."cu"vj g{ "qeewt"kp"uekgpvkhke"r qukvkqp"r cr gtu"qt"vj gugu."cpf "\*d+"vj g"f ghkpkkxg"guvcdrkuj o gpv"qh"c"pgy "vgto /eqpegr v"r ckt0' Vj g"mvygt"j cu"vq"dg"ceeqo r cpkgf "d{ "c"hwnif ghkpkkqp"y j kej "nkpmu"vj g"pgy "vgto "vq"gzkuvkpi "qpgu"kp"c"i kxgp" mpqy ngf i g"uvtwewtg0"kv"ku"wpr tqdngo cvke "dgecwug"kv"r tgegf gu"vtcpurcvkqp0

Rtko ct { "'yto "hqto cvkqp." y j kej "tguwnu"htqo "'y g"cr r gctcpeg"qh"pgy "eqpegr wu"kp"xctkqwu"uekgpvkhke"f kuekr nkpgu. "ku" gzvgtpcm( "wpeqpvtqmgf "cpf "wpeqpvtqmcdng0Dw"kv"ku. "qh"eqwtug. "kphnwgpegf "d { "gzkuvkpi "r cwgtpu"qh"vgto "hqto cvkqp"kp"y g"tgngxcpv"f kuekr nkpg0P gy "uekgpvkhke"

vgto u'ur tgcf '\q'\j g'\pvgtpc\kqpcn'ue\gpvkh\e''eqo o wpk\{''j tqwi j ''c'uo cm'pwo dgt''qh'xgj kewrt'hcpi wci gu.'hqt'' gzco r ng'\Gpi nkuj .''Htgpej ''cpf ''Icr cpgug\Kp''\gej pqmi { .''cpf 'kp'\kpf wuxkcn'cr r nkec\kqpu'\y j qug'\xqecdwrct { ''ku'' tgrc\kxgn\ ''eqpxtqmgf ''cpf ''eqpxtqmcdng.''c'o wej ''ncti gt''cpf ''o qtg''j gygtqi gpgqwu'r qr wrc\kqp'\ku'\kpxqnxgf ''cpf ''\y g'' ygto kpqmi { ''wugf ''cnuq''qeewtu'\kp''i gpgtcn'ur ggej ''ukwc\kqpu\Ugeqpf ct { ''\yto ''hqto c\kqp''qeewtu'\cu''c''tguwn\''qh'\\*c+'' yi g''o qpqr\kpi wcn'tgxku\kqp''qh''c'i kxgp'\yto kpqmi { .''hqt''gzco r ng'\hqt''\yj g''r wtr qug''qh'r tqf we\kpi ''c''uvcpf ctf u'' f qewo gpv.''qt'\\*d+''c''\tcpu\hgt''npqy ngf i g'\q''cpq\yj gt''n\kpi w\ku\ke''eqo o wp\k\{ .''c''r tqeguu''y j kej ''tgs w\ktgu'\yj g'' etgc\kqp''qh''pgy ''ygto u'\kp''y g'\cti gv'\tcpi wci g\)

Kp"ygej pqqqi {."dqyj "r tko ct {"cpf "ugeqpf ct {"ygto "hqto cvkqp"uvkhgt "htqo "c"j gcx {"r tqrkhgtcvkqp"qh'xctkcpw"cpf" u{pqp{o u0Vj gug"cr r gct "gkj gt "ceekf gpvcm{."dgecwug"qh'r ctcmgn'kpf wuxtkcn'f gxgmqr o gpvu."qt "f grkdgtcvgn{."kp" tgur qpug"vq"yj g"pggf "hqt"r qr wrct "xgtukqpu"qh'uekgpvkhle"ygto u"cpf "r tqf wev'f khhgtgpvkcvkqp0Wprkmg"yj g"tgrcvkxgn{" uvcdng"ygto kpqmi {"qh'uekgpeg."ygej pqmi kecn'ygto kpqmi {"ku"xqrcvkrg0Vj ku"xqrcvkrkv{"ku"ecwugf "d{"ej cpi gu"kp" o cvgtkcnu."o gyj qf u"qh'r tqf wevkqp."f guki p."cpf "uq"qp0Ki'ku"hwt yj gt"ceegpwcvgf "kp"ugeqpf ct {"ygto "hqto cvkqp" yj gtg"mpqy ngf i g"ku"xtcpuhgttgf "htqo "qpg"hkpi wkuvke"eqo o wpkx{"vq"cpqyj gt"cpf "pgy "ygto u"ctg"yj gtghqtg"etgcvgf "kp"yj g"vcti gv'rcpi wci g0Ugxgtcn'o gyj qf u"qh'ugeqpf ct {"kpvgtrkpi wcn'ygto "hqto cvkqp"eq/gzkuv="yj g{"kpenxf g" dqttqy kpi ."mqcp"ytcpurcvkqp."r ctcr j tcug."r ctcmgn'ytcpurcvkqp."cf cr vcvkqp"cpf "eqo r ngvg"pgy "etgcvkqp0Vj gug" o gyj qf u"o c{"dg"wugf "uko wncpgqwun{"qt"ugs wgpvkcm{"cpf "qhvgp"i kxg"tkug"vq"ugxgtcn'cnygtpcvkxg"qt"eqo r gykpi "pgy "ygto u0Kiecp"yj gtghqtg"vcng"vko g"dghqtg"c"ygto kpqmi {"uvcdkrkj gu"kp"yj ku"hkgnf 0

#### Cwkwf gu'iq'ligeqpf ct{'igto 'hqto cwkqp

Kô'r tkpekr ng. "y g''r tcevkecni'r tqdngo u'qh'ugeqpf ct { "ygto "hqto cvkqp"ctg"y g'uco g'cmi'qxgt"y g'y qtnf = kp''r tcevkeg." f khgtgpegu'gzknv'dgwy ggp"kpf wuxtkcm{ "j ki j n{ "f gxgnqr gf "cpf "nguu"f gxgnqr gf "hpi wknke"eqo o wpkkgu0Hqt" gzco r ng. "hpi wknke"eqo o wpkkgu1kp"Gwtqr g"d{ "cpf "ncti g"eqpuknv'qh"o clqtkx{ "ncpi wci g"i tqwr u. "gcej "j cxkpi " f gxgnqr gf "c'urcpf ctf "ncpi wci g'y j kej "ku'y kf gn{ "tgur gevgf "cpf "wugf "d{ "iy g'hqto cm{ "gf wecvgf "encungu0Vj g" ncpi wci g'kn'hwn{ "f gxgnqr gf "kp"cmi'o qf gu"cpf "hqt "cmi'ygej pks wgu"qh"gzr tgunkqp"cpf "ku'y gtghqtg"ecr cdng"qh" j quwkpi "pgy "eqpegr w''vcpuhgttgf "htqo "qyi gt "hpi wknke"eqo o wpkkgu0Vj g"cwkwf g"q"ugeqpf ct { "ygto "hqto cvkqp" kp"y gug"eqwpvtkgu"ku"eqpugs wgpvn{ "qpg"qh'o qpkqtgf "nckung| /hcktg."y kyj "qeecukqpcn'kpygtxgpvkqp."kp"y g" npqy ngf i g"y cv'y g"vcf kkqp"qh'r tko ct{ "ygto "hqto cvkqp"kp"y g"pcvkqpcn'ncpi wci g"ku"ecr cdng"qh'hhpf kpi "ku"qy p" o kzwtg"qh'ceegr wcdng"dqttqy kpi ."cf cr wvkqp."gve0Eqwpvtkgu'y kyj qwv'uwej "c"vtcf kkqp"eqpukf gt "ncpi wci g" f gxgnqr o gpv'cu"gkyj gt"c"r tgeqpf kkqp"hqt. "qt"cp"kpgxkxcdng"ceeqo r cpko gpv'vq. "uqekcn'y grhctg"cpf "geqpqo ke" i tqy y 0Vj g{ "hpm'vgej pqnqi kecn'cf xcpego gpv'hkto n{ "q"ncpi wci g"f gxgnqr o gpv."y j kej "ku"uggp"cu"yj g"hktuv'r j cug" qh'vgej pqnqi { "vcpuhgt"cpf "kpf wuxtkcn'r tqi tgun0Vj wu'vgto "hqto cvkqp"dgeqo gu"c"o cwgt "qh'i gpgtcn'gf wecvkqp"cpf "gxgp"qh'hkgtce{ "eco r cki pu. "cu'xctkqwu'WP" r tqi tco o gu"ygunkh{0}

Vj tqwi j "dqttqy kpi ."hqcp"tcpurckqp."r ctcr j tcug"cpf "uq"qp." y g"hcpi wci gu"qh"f gxgnqr kpi "eqwpvtkgu"ctg" kphrwgpegf "d{"qyi gt"hcpi wci gu"cpf "o c{."cu"c"eqpugs wgpeg." y kf gp" y gkt"o gcpu"qh"gzr tguukqp0" y g{ "hkpf "y ku" kphrwgpeg"o qtg"qt"hguu"ceegr vcdng"ceeqtf kpi "vq"eqo o qp"gngo gpwu"dgwy ggp" y g"gzr qt kpi "cpf "ko r qt kpi " ncpi wci gu0"Ewttgpv"cwkwf gu"vq"ugeqpf ct{"vgto "hqto cvkqp"ecp"dg"dtqcf n{"f kxkf gf "kpvq"r wtkuv"cpf "r gto kuukxg" cpf ."qp" y g"y j qng." o kttqt"gzkuvkpi "cwkwf gu"vq"cp{"nkpf "qh"hqtgki p"ncpi wci g"kphrwgpeg0"Vj gtg"ctg." y qy gxgt." y q" gzegr vkqpu"y j gtg"gxgp"c"uvtkevn{"r wtkuv"crrtqcej "o c{"dg"tgnczgf 0Qpg"ku" y g"cwkwf g"

#### Vgej plechlwrrqtvhqt'\gto'\etgc\kqp

Vj g'r tqeguu'qh'etgcvkpi 'vgto kpqmi { 'ku'cuukuvgf 'd{ 'c'xctkgv{ 'qh'vqqnv0'Hqt'gzco r ng. 'vj gtg'ku'c'i tqy kpi 'pwo dgt'' qh'VGTO 'DCP MU'y j kej 'r tqxkf g'nknkpi u'qh'vgto u0'Uwej 'nknkpi u'uwr r qtv'vj g'vj gqtgvkecn'mpqy ngf i g'cpf 'vj g' r tcevkecn'mpqy /j qy 'hqt'c'u{ uvgo cvke'uwtxg{ "qh'gzkuvkpi 'hqpi wkuvke'hqto u'y j kej 'ecp''y gp''i wkf g''y g'ej qkegu'vq''dg'' o cf g'kp''etgckpi ''pgy ''vgto u0'Kpf wuxtkcnk gf ''eqwpxtkgu''j cxg''ncti g''co qwpwu''qh''f cwc''kp''o cej kpg/tgcf cdng''hqto ''  $y\ j\ kej\ ''ecp''dg''r\ tqeguugf\ ''uq''cu''vq''uwr\ r\ n(\ ''cr\ r\ tqr\ tkcvg''kphqto\ cvkqp''cdqw''vj\ g''vgto\ /etgcvkqp''r\ cwgtpu''qh''cp\{\ ''qpg''\ legto\ legto$ f kuckr nkpg="f gxgmr kpi "eqwpvtkgu"kpetgcukpi n{ "j cxg" \tckpgf "\yto kpqmi kuvu"y kij "cp" \wpf gtuvcpf kpi "qh" eqo r wcwlqpcnl\gej pls wgulhqt"liphqto cwlqp"i cyj gtlipi "cpf"r tqeguulipi 0Qyj gt"wughwnl\qqnu'lipenwf g"htgs wgpe{" f kevkapctkgu. "tgxgtug"f kevkapctkgu. "cpf" r gto wgf "kpf gzgu" y j kej "dtkpi "vqi gyj gt" cm" y gty qtf "hqto u"qh" eqo r ngz" eqo r qwpf u0°Vj gtg"ctg"cnuq"qvj gt"hkukpi u"y j kej "i tqwr"y qtf u"d{"uqo g"v{r g"qh"ugo cpvke"tgncvkqpuj kr."hqt" kpuvcpeg''y gucwtk'cpf 'u{pqp{o 'f kevkqpctkgu0'Vj gug'ecp'pqy 'dg'r tqf wegf 'cwxqo cvkecm{ 'htqo 'gzkuvkpi 'f cvcdcugu0 Vgej plecn'cuukucpeg'ku'cxckrcdrg'\q'eqmgev'gzkukpi 'cpf 'f kuugo kpcvg'pgy 'uekgp\khe'\gto kpqrqi { 'cu'kv'gxqrxgu.'' yj wu''cxqkf kpi ''f wr nkecvkqp. ''f kuvqt vkqp''cpf ''o kuwpf gtuvcpf kpi 0'kP HQVGTO. ''yj g''Kpvgtpcvkqpcn''Kphqto cvkqp''Egpvtg'' ht "Vgto kpqmi { "ugv'wr "d{ "Wpgueq kp'3; 93. "cew cu'c engctkpi / j qwug cpf tghgttch'ci gpe{ hqt y qtm'qp" vgto kpqnqi {"y qtnf y kf g0"Uo cm"f kevkqpctkgu"ecp"pqy "dg"r tqxkf gf "hqt"vgzv"gf kkkpi "r cenci gu. "wugf "hqt"y tkkkpi " eqpukuygpe { "ecp"dg"o ckpvckpgf "kp"dqyj "qtki kpcn"f qewo gpvu"cpf "yj gkt" 'tcpurcvkqpu0 kp"cf f kvkqp. "rcpi wci g"r rcppgtu" cpf "vgto kpqmi kuvu."gxgp"kpf kxkf wcn'vtcpurcvqtu"y j q"j cxg"vq"etgcvg"vgto u."ecp"pqy "dwkrf "wr "vj gkt"qy p" eqmge klapu'qh'vgto u'qp'uo cm'eqo r wgtu'cpf 'uq'eqpvtqn'vj g'y qtm'vj g{ 'vj go ugnxgu'ctg'gpi ci gf 'kp0 Vj g'Kpvgtpcvkqpcn'Qti cpk cvkqp'hqt''Uvcpf ctf k cvkqp'\*KUQ+'j cu'hqt'o cp{ "{gctu'dggp'eqpegtpgf 'y kj 'r tqxkf kpi " i who cpeg"qp" vj g"etgcwlqp"qh" vgto u'\*ugg" KUQ"3; :: +0"Vj g"cfxkeg"qhhgtgf" d{"KUQ"ecp"dg" uwo o ctkt gf" cu'hqmqy u<

y g'uco g'uko g." y g{ "uj qwrf "dg"cu"geqpqo kecn"cu"r quukdrg"y ky qw'i kxkpi "tkug" uq qp{o {

"vgto u'uj qwrf "dg'ngzkecm{ 'u{ uvgo cvke "cpf "uj qwrf "eqphqto "vq'vj g'r j qpqmi kecn'cpf "o qtr j qmi kecn'twrgu'qh" vj g'ncpi wci g

"'vgto u''o wuv'eqphqto "'vq"'y g''i gpgtcn't wrgu"qh'y qtf/hqto cvkqp"qh''y g''ncpi wci g."'y cv'ku''y g{ "uj qwrf "cmqy "eqo r qukkkqp"cpf "f gtkxcvkqp"y j gtg"crrtqrtkcvg

"vj g"o gcpkpi "qh"c"vgto "uj qwrf "dg"tgeqi pkt cdrg"kpf gr gpf gpvn{ "qh"cp{ "ur gekhke "eqpvgz v0

Kp"cffkkqp"vq"vjg"v(rg"qh"cfxkeg"uwo o ctk| gf"cdqxg."ghqtvu"ctg"cnuq"dgkpi "o cfg"pqy "vq"rtqxkfg"i wkfgrkpgu"hqt" vjg"j kijn("urgekcnk| gf"cpf"tgrcvkxgn("tctg"qeewttgpeg"qh"pco kpi "kpvgtpcvkqpcm("citggf"eqpegrvu0

\*\*Ugg"cnuq<\*\*

VGTO 'DCP MU L'VGTO KP QNQI [. "UVCPFCTFK, CVKQP L'VGTO KP QNQI [. "VJ GQT[ 0

## Hwt yj gt 't gcf kpi

Ctp\| "cpf "Rkej v'3; : ; ="Ecdt2"3; ; 5="KUQ"3; : : ="Tqpf gcw'3; : 3="Uci gt"3; ; 2="Uqppgxgrf "cpf "Nqgpkpi "3; ; 50

LWCP "EUCI GT

# Vgto kpqnqi {

### uvcpf ctf k cvkqp

Cm'rcpi wci gu'ctg'uwdlgevgf 'vq'r tqeguugu'qh'tguvtkevkqp'cv'cm'rgxgnu'qh'ctvkewrcvkqp0'Vj gug'ecp'vcmg'xctkqwu' hqto u.'kpenwf kpi 'tgi wrctk| cvkqp.'vwpkhecvkqp'cpf 'uvcpf ctf k| cvkqp0

Vj g'uvcpf ctf k cvkqp'qh'vgto kpqmi { 'ku'c''y q/uvgr 'r tqeguu'y j kej 'eqpukuvu'qh's'c+'wpkh{ kpi 'cpf 'hkzkpi 'gcej ''
tghgtgpv.''cpf 's'd+'wpkh{ kpi 'cpf 'uvcpf ctf k kpi 'kwi'f guki pcvkqp0'Vj ku'r tqeguu'ku'cpcmi qwu'vq'cpf 'o qvkxcvgf ''d { 'vj g''
kpf wwtkcn'uvcpf ctf k cvkqp'qh'o cpwhcewtgf 'i qqf u'cpf 'r tqeguugu0'Hqt'geqpqo ke'tgcuqpu. 'uqekgv{ ''gpf gcxqwtu'vq''
cej kgxg'kf gpvkv{ ''qt''eqo r cvkdktkv{ ''kp'kpf wwtkcn'r tqf wevkqp''cpf ''qvj gt 'ur j gtgu''qh'cevkxkv{ ''kp''vgto u'qh''
o gcuwtgo gpvu. ''s wcnkv{ .''v{ r gu''qh'r gthqto cpeg. 'uchgv{ .''gve0'Kp''qtf gt ''vq''eqo o wpkecvg''y g''tguwnu''qh''y uvcpf ctf k kpi ''qdlgevu. 'kv'ku''guugpvkcn'vq'f guki pcvg''y g''pgy n{ 'uvcpf ctf k gf ''r tqf wev'd { ''cp''gs wcm{ 'uvcpf ctf k gf ''
pco g.''y j kej ''ku''y gp''htto n{ ''cuuqekcvgf 'y kyj ''y g'o gcuwtcdng''qt''qvj gty kug''engctn{ ''f ghkpgf 'r tqr gtvkgu''qh''y g''
qdlgev0'Vj g''pco g''qh'c'uvcpf ctf k gf ''qdlgev'ku''y gtghqtg''gpvktgn{ ''hkzf 'kp''kuu'tghgtgpeg''cpf ''ecp''qpn{ ''dg''wugf ''
eqttgevn{ ''hqt 'qvj gt ''qdlgevu.''qeewr { ''c''ur gekcn'r nceg''dgwy ggp''kpf kxkf wcnk kpi ''r tqr gt''pco gu''cpf ''o wmkhwpevkqpcn''
i gpytcn'y qtf u0

Vj g''cum'qh'urcpf ctf k kpi ''yto u'ku'wurcm{ "ecttkgf "qw'd{ 'kpf wurt {/uwr r qtvgf 'urcpf ctf k cvkqp "eqo o kwggu'y j kej " ctg''qti cpk gf 'kpvq''pcvkqpcn'urcpf ctf u'kpurkwwgu. "qhvgp'y kyj ''pcvkqpcn'i qxgtpo gpv'cuukurcpeg0'Vj g''xcnwg'qh''yj ku'' y qtm'ecp''dg''o gcuwtgf ''d{ ''yj g'f gi tgg''qh''cf j gtgpeg''vq''yj g''twrgu''yj cv''ctg''gurcdrkuj gf 'hqt''yj ku''cevkxkv{0'Kp'' urcpf ctf k cvkqp''eqo o kwggu. 'kv'ku''pqto cn'hqt''r qy gthwn'i tqwr u'qh''rcpi wci g''wugtu''vq''ko r qug''yj gkt''ygto kpqmi { ''qp'' uo cmgt'i tqwr u0'Ka 'hqt''gzco r ng. ''c''ureeguuhwn'o cpwhcewtgt''j cu''ugv'c''xkt wcn'urcpf ctf 'hqt''urej ''r tqf wewu''cu'' vgrgxkukqp''tgegkxgtu. ''xkf gq''tgeqtf gtu''qt''r gtuqpcn'eqo r wrgtu. 'kv'ku''j ki j n{ ''r tqdcdng''yj cv''yj ku''o cpwhcewtgt''y kmi' cnuq''r tqxkf g''yj g''o qf gnu'hqt''yj g''urcpf ctf k gf ''ygto kpqmi { ''cuuqekcvgf ''y kyj ''yj gug''r tqf wevu. ''yj gkt''eqo r qpgpvu''cpf ''yj g''y c{ ''yj g{ ''qr gtcvg0}

Kp'tgegpv'{ gctu. "vj g''r tqeguu''qh'uvcpf ctf kt cvkqp"j cu''dggp"cr r nkgf "vq"vj g''rcpi wci g''wugf "kp'f cvcdcugu. "vq''wpkh{ 'kwu'' vgto kpqnqi { "cpf "vj gtgd{ 'kpetgcug''y g''ghhgevkxgpguu''qh''tgvtkgxcn') Vj ku''y qtm'j cu''c'o qpqnkpi wcn'cpf "c" o wnknkpi wcn'f ko gpukqp"cpf "o c{ ''wug''y gucwtwu/nkng'f gxkegu''vq''etgcvg''dtkf i gu''dgwy ggp''y g''pcwtcn'hcpi wci g''qh'' y g''ugctej gt''cpf "vj g''ctvkhkekcn'hcpi wci g''qh''y g''s wgt { "u{ uvgo 0'T gi wrct "wugtu''qh'uwej "u{ uvgo u''tgcf kn{ "cf qr v'' uvcpf ctf kt gf "gzr tguukqpu'y j kej "gpuwtg''uweeguu''kp''eqpuwnkpi "vj g''f cvcdcug0

#### O qvkxcvkqp

 $\label{thm:continuous} Vj g''lo o gf kcvg''o qvkxcvkqp''hqt''uvcpf ctf k| cvkqp''o c{ ''eqo g''htqo ''cm'o cppgt''qh''eqo o gtekcn't gcuqpu''qt''dg''y g'' tguwnv''qh''ugewtkv{ ''cpf ''uchgv{ ''eqpukf gtcvkqpu0'K''ku''i gpgtcm{ ''kpvtqf wegf ''y j gp''yj gtg''ku''c''pggf ''hqt''kv.''hqt''gzco r ng'' }$ 

"geqpqo { <"qpg"qh"yj g"eqo r gwlpi "vgto u"o c { "dg"pqwlegcdn( "uj qtvgt"cpf "gcullgt"vq"y tlwg"cpf "tgo go dgt" eqttgevn(

"rtgekukqp<'qpg''vgto "oc{"dg"oqtg''vtcpurctgpv'cpf' 'nguu'codki wqwu'kp'kwu'tghgtgpeg''yicp''cpqyigt
"crrtqrtkcvgpguu<'hqt"gzcorng."qpg''vgto"oc{"dg"oqtg"ykfgn{"wugf"yicp."cpf"yigtghqtg''igpgtcm{"rtghgttgf"
vq."cpqyigt''vgto0

#### Ogyj qf u'qh'lwcpf ctf k kpi 'tgto kpqmi {

Ucpf ctf k cvkqp'y qtmu'r tqur gevkxgn( 'cpf 'tgvtqur gevkxgn( 0

Rtqur gevkxgn(."uvcpf ctf k cvkqp"ecp"cpvkekr cvg"yi g"pggf "hqt"pco kpi "pgy "eqpegr w"cpf "guvcdrkuj "twrgu"hqt"cttkxkpi " cv"yi gug"pco gu0Hqt"yi g"vczqpqo ke"uekgpegu."pqo gpercwtg"eqo o kuukqpu"kp"uwej "ctgcu"cu"dqvcp{."| qqmi {." xktqmi {"cpf "i gqmi {"j cxg"kuwgf "f gvckrgf "f guetkr vkqpu"qh"yi g"r tqegf wtgu"vq"dg"cf qr vgf "kp"pco kpi "c"pgy "gpvk{" cpf "o cmkpi "yi ku"pco g"mpqy p0Vj g"Kpvgtpcvkqpcn"Wpkqp"hqt"Cmkgf "Ej go kuvt{"cpf "Rj {ukeu"cmq"r tqxkf gu"twrgu" hqt"eqkpkpi "vgto u"y kyi kp"kwu"r wtxkgy 0Vj ku"y qtmlku"mqpi /guvcdrkuj gf "cpf"j cu"r tqxgf "gzvtgo gn("xcmvcdrg"kp"yi g" ctgcu"y j gtg"kv"ecp"dg"cr r nkgf ."uwej "cu"yi g"ercuukhlecvkqp"qh"f kugcugu. "xktwugu."o kpgtcmu."ej go kecnleqo r qwpf u." r mpvu"cpf "cpko cm0Dgecwug"qh"yi g"wug"qh"I tggm"cpf "Ncvkp"y qtf "grgo gpvu."uwej "pco gu"ecp"dg"eqpukf gtgf" kpvgtpcvkqpcnfcpf "ctg."kp"o quv"ecugu. "kpvgtpcvkqpcmf "ceegr vgf."kttgur gevkxg"qh"yi g"eqgzkurgpeg"qh"cp{"r qr wrct" cmgtpcvkxg"pco gu0Dw"yi g"ueqr g"hqt"uwej "wpkhkgf "pco kpi "cpf "f ghkpkkqp"y kyi "tghgtgpeg"vq"engctn("tgeqi pk cdrg" qdlgewu"qt"r j gpqo gpc"ku"xktwcmf "gzj cwwgf."cpf "cpf "cwgo r w"cv"pcvkqpcn"cpf "kpvgtpcvkqpcn"j cto qpk cvkqp"qh" f guki pcvkqpu"kp"qyi gt "ur j gtgu"j cu"r tqxgf "o wej "o qtg"eqo r mgz0

 $Tgvtqurgevkxgn(."uvcpfctfk|cvkqp"jcu"vq"tgurqpf"vq"ukwcvkqpu"yjgtg"fkhhewnkgu"kp"eqoowpkecvkqp"jcxg"cntgcf{"ctkugp0"Vjgug"fkhhewnkgu"ecp"dg"ecwugf"d{"ugxgtcnhcevqtu."hqt"gzcorg<$ 

"Vj g'f gxgmr o gpv'qh'pgy 'kf gcu'qt 'qdlgevu. 'gur gekcm( 'kp'cp'kpf wwtkcn'gpxktqpo gpv. 'wuwcm( 'qeewtu'kp'o qtg'' yj cp'qpg'r reeg'cpf 'o c{.''yj gtghqtg. 'hgcf 'vq'r ctcngn'f guki pcvkqpu'hqt'yj cv'hcvgt 'wtpu'qw'vq'dg'yj g'uco g'' eqpegr v'qt'qdlgev0

"Vj g'f gxgnqr o gpv'qh'pgy ''qdlgewi'ku'cp''qpi qkpi ''r tqeguu0'Vj ku''o cngu'kv'f khhewn''vq'f ghkpg''yi gkt" ej ctcevgtkuvkeu'kp''qtf gt ''vq'hkz''c''uwkxcdng''pco g''wpvkn'yi g{ ''j cxg''dggp''hwn{ "gxqnxgf .''y j kej ''kp''r tcevkeg''o gcpu'' yi cv''yi g{ ''ctg''eqo o gtekcm{ ''f guki pgf .''vtkgf .''vguvgf ''cpf ''uqo gvko gu''gxgp''o ctngvgf 0'D{ ''yi cv''vko g.''r tqxkukqpcn'' pco gu''j cxg''wuxcm{ ''dgeqo g''guvcdrkuj gf .''cpf ''qpn{ ''yi g''kpvgtxgpvkqp''qh''qwukf g''dqf kgu''ecp''ghhgev'c''ej cpi g''qh'' pco g0

 $\label{thm:continuous} \begin{tikzpicture}[t]{0.95\textwidth}{0.95\textw$ 

O quv'kpf wuxtkcn'uvcpf ctf k cvkqp'ku'y gtghqtg'c'tgytqur gevkxg'cevkxkv{ "y j kej "hqmqy u'pco kpi "chygt"cp" kpf gygto kpcyg'ngpi y "qh'vko g0'kp"o cp{ "ecugu."cnygtpcvkxg"pco gu'eqpvkpwg"vq"gzkuv'kpf ghkpkygn{ ."cpf "kv'ku'qpn{ "uwej "gz vtcpgqwu'kphnwgpegu'cu'y g'o ctngv'f qo kpcpeg'qh'c'r tqf wev'qt'y g'f kucr r gctcpeg'qh'qnf gt'ygej pqmi kgu" y j kej "gxgpwcm{ "f gygto kpg'y g'uwtxkxcn'qt"qy gty kug'qh'uwej "ygto u0P cykqpcn'uvcpf ctf u'qti cpk cykqpu'kuuwg" i vkf grkpgu'hqt'y g'ugrgevkqp. "f ghkpkkqp"cpf "pco kpi "qh'ygto u'\*ugg'hqt"gzco r rg'DU588; ."3; 85+0'Vj g'Kpvgtpcvkqpcn' Qti cpk cykqp'hqt"Uvcpf ctf k cykqp'\*KUQ+'j cu'cnuq'kuuwgf "c'pwo dgt"qh'dcuke'tgeqo o gpf cykqpu'hqt"eqkpkpi "ygto u'y ky kp'y g'kpvgtpcvkqpcn'

eqo o wpkx{ "cpf 'tgi wrctn{ 'wrfcvgu'vj go 'kp"qtfgt'vq'nggr 'vj go 'kp"nkpg'y kvj 'o qfgtp'cwvqo cvgf 'o gvj qfu0kp'' cffkxkqp."pcvkqpcn'uvcpfctfk;cvkqp"dqfkgu'tgi wrctn{ 'kuuwg'i nquuctkgu'qh'vgto u0J qy gxgt."vj gtg'ku'uvkm' eqpukfgtcdrg'fkxgtukx{ 'kp"vj g"xkukdrg"gpf 'r tqfwev'qh'vj ku'rcdqwt."y j kej 'f go qpuvtcvgu'vj g"fkhkewn{ "qh'wpkh{ kpi "y g"o gvj qfu'qh'eqo r krcvkqp."pqv'vq'o gpvkqp"eqkpkpi "vgto kpqmi {0

## I muuctkgu

Rgqr ng"y j q"y cpv"vq"cf j gtg"vq"qdlgev"uvcpf ctf u."vq"eqpvtqn"eqo r ncpeg"y kij "uvcpf ctf u."qt"uko r n{"vq"mpqy "qh" y gkt "gzkuvgpeg"o wuv"i q"xkc"yi g"o gf kwo "qh"hcpi wci g0"Vj g{"yi gtghqtg"gzr gev"yi g"hcpi wci g"qh"uvcpf ctf u"vq"dg" engct."r tgekug"cpf "wpco dki wqwu0"Eqpugs wgpvn{."yi g"uvcpf ctf u"yi go ugnxgu"eqpvckp"r tqxkukqp"hqt"uvcpf ctf k kpi "f guki pcvkqpu"d{"o gcpu"qh"f ghkpkkqpu0"Ci tggo gpv"qp"yi g"vgto u"wugf "ku"qpg"qh"yi g"hktuv"uvgr u"kp"yi g"hqpi "r tqeguu" qh"f tchkpi "c"uvcpf ctf u"f qewo gpv0"Wpkhecvkqp."tcyi gt"yi cp"hwnluvcpf ctf k cvkqp"qh"vgto kpqmi {."ku"yi gtghqtg"c"d{/r tqf wev"qh"yi g"y qtm"ecttkgf "qw"d{"yi g"xctkqwu"dqf kgu"eqpegtpgf "y kij "uvcpf ctf k kpi "qdlgewu."r tqeguugu"cpf "o gcuwtgo gpvu0

Eqpuwnkpi "uvcpf ctf u'cpf 'i muuctkgu'qh'uvcpf ctf u'f qgu'pqv."j qy gxgt."pgeguuctkn{ 'i kxg"c'eqo r tgj gpukxg'r kewtg" qh'y g'eqpegr wcn'cpf 'vgto kpqmi kecn'uvtwewtgu'qh'c'r ctvkewct'vqr ke0'Vj g'tgcuqp'hqt'y ku'nko kxcvkqp'nkgu'kp'y g'' hcev'y cv'i muuctkgu'knuwgf 'd{ 'uvcpf ctf u'qti cpk cvkqpu'eqpvckp<

"vgto u'f ghkpgf 'kf gpvkecm{ 'kp'c'i kxgp'uvcpf ctf 'cpf 'kxu'cuuqekcvgf 'i nquuct {
"vgto u'f ghkpgf 'kp'vj g'i nquuct { "qh'c'uvcpf ctf 'dw'pqv'kp'vj g'uvcpf ctf 'kxugrh
"vgto u'y j kej 'ctg'f ghkpgf 'o qtg'pcttqy n{ 'kp'c'uvcpf ctf 'vj cp'kp'kxu'cuuqekcvgf 'i nquuct {
"vpf ghkpgf 'vgto u'vuugf 'kp'uvcpf ctf u'dw'gzenxf gf 'htqo 'vj g'i nquuct { 0

Vj ku'f kuetgr cpe{ "ctkugu'hqt"vy q'tgcuqpu0"Vj g'hktuv'ku'vj cv'i muuctkgu'ecp"dg'y tkwgp"dghqtg'vj g'r tqeguu'qh" uvcpf ctf kt cvkqp"dgi kpu0Hqt"gzco r ng. "c"o clqt"uvcpf ctf "o c{ "dg"r tgegf gf "d{ "c"i nquuct { "qh"vj g"o ckp"vgto u"qh"vj g" tgrgxcpv'uwdlgev'ctgc0'Vj g'ugeqpf 'tgcuqp''ku'vj cv'i muuctkgu'ecp''dg''eqo r krgf ''uwdugs wgpvn{ ''kp''qtf gt''vq''eqrrgev'vj g'' vgto kpqmi { "qh'c 'hkgrf 'vj cv'j cu'dggp'eqxgtgf 'd{ "c'pwo dgt 'qh'uvcpf ctf u0Dqvj 'crrtqcej gu'ctg'f kuvkpev'cpf " tgs wktg'f khhgtgpv'o gyi qf u''qh'f qewo gpvkpi 'uvcpf ctf kt gf ''vgto kpqmi {0'Kp''yi g'hktuv'kpuvcpeg. 'eqo r knkpi ''c''i muuct {'' ku'r tgr ctcvqt { "vq"uvcpf ctf k cvkqp"cpf "vj gtghqtg"kpxqnxgu"guvcdrkuj kpi "vj g"i tqwr u"qh"eqpegr wu'y j kej "ctg"tgrgxcpv" vq''y g'uvcpf ctf ''qt''uvcpf ctf u'lkp''s wguvkqp''dghqtg'hkpf kpi .''ugngevkpi ''cpf ''hkzkpi ''y gkt''f guki pcvkqp0'Vj ku''v{r g''qh'' y qtmlku'pgeguuctkn{ 'r tqxkukqpcn 'ukpeg''y g'r tqeguu'qh'uvcpf ctf kt cvkqp''y j kej 'hqmqy u'o c{ "{ gv'f gxgmr 'pgy " eqpegr vu''qt "o qf kh{ "gz kurkpi "qpgu."y j kej "vj gp"j cxg"\q"dg"pco gf "cpf "hkwgf "kpvq"vj g"\gto kpqmi kecn'u{ uvgo 0'Kp" yj g'ugeqpf 'kpuvcpeg.''yj g'tgs wktgo gpv'ku'vq''eqmgev.''qtf gt''cpf 'j cto qpk g''gzkuvkpi 'vgto u''yj cv''qeewt''kp''uvcpf ctf u'' cpf "y kj "y j kej "ur gelihke"f ghkpkklapu"ctg"cntgcf { "cuuqekcvgf 0"Vj g"gpf "r tqf wev"ku"c"f ghkpkkxg"nkuv."kp"encuukhlgf "cpf " crr j cdgwlecn'ugs wgpeg. "qh'r tghgttgf "cpf "f ghlpgf "qt"pqp/r tghgttgf "cpf "f gr tgecvgf "vgto u0 Y j krg'KVQ''cwgo r w''vq''eqqtf kpcvg''kpvgtpcvkqpcn'wcpf ctf u 'vj g'KVQ''f qewo gpw'y j kej 'tgeqtf 'wej 'ci tggo gpw." yj qwi j 'y tkwgp'kp''y g''y tgg''qhhkekcn'KUQ''ncpi wci gu'\*Gpi nkuj .''Htgpej ''cpf 'T wuukcp+:''ecppqv''dg''tgnkgf ''qp''d{'' vtcpurcvqtu.'hqt'vy q'tgcuqpu0Hktuv.'cp{'KVQ'uvcpfctf'ku'xcnkf'hqt'c'rctvkevnct'eqwpvt{'qpn{'chvgt'kv'jcu'dggp'' gpf qtugf "d{"'y cv'eqwpvt {øu'uvcpf ctf u'qti cpk cvkqp." y j kej "o c{"kpvtqf weg"o kpqt"ej cpi gu0'Ugeqpf." y g" vgto kpqnqi {"qh'uwej "uvcpf ctf u'ku'qpn("KUQ"Gpi nkuj ."Htgpej "qt"T wuukcp"cpf "j cu'vq"dg"cf qr vgf "d{"gcej "eqwpvt{" wukpi ''yi ku'ncpi wci g'dghqtg'kv'ecp'dg'eqpukf gtgf ''cwwj gpvke0'Vj gtg'o c{ ''yi wu'dg'f khhgtgpv'KVQ''crrtqxgf ''uvcpf ctf '' vgto u'kp'Dtkkuj 'Gpi nkuj .'Cwurtcnkcp'Gpi nkuj 'cpf 'Co gtkecp'Gpi nkuj .'gve0

## Vj g'dgpghwi'qh'incpf ctf k cwqp

Ucpf ctf k gf "vgto kpqmi { "cuukuwi kp" vj g" cej kgxgo gpv'qh" ghhgevkxg" kpvgtcevkqp" co qpi "ur gekchkwu" d{ "ur ggf kpi "wr " vj g"r tqeguu" qh" eqo o wpkecvkqp0" vj g" eqpuekqwu "wug" qh" uvcpf ctf k gf "vgto kpqmi { "cuuwo gu" vj cv" ctvkekr cpvu" j cxg" ci tggf "vq" hqtgi q"kpf kxkf wcn" kpvgtr tgvcvkqpu" qh" vgto u" cpf "eqpegr w0" kv" ku" geqpqo kecn" dgecwug "kv" cuuwo gu" r tkqt" ci tggo gpv" qp" tghgtgpeg" co qpi "ur gekchkuv wugtu0" D{ "guvcdrkuj kpi "c" engct" qpg/vq/qpg" gs wkxcngpeg" dgwy ggp" vgto u" cpf" eqpegr wu "c" j ki j gt" ngxgn" qh" r tgekukqp" ku" cej kgxgf" cpf" kpuvcpegu" qh" o kuwpf gtuvcpf kpi "ctg" cxqkf gf 0' Ucpf ctf k gf" vgto kpqmi { "ku" j ki j n{ "ghhekgpv" kp"

egt vckp''v{r gu''qh''eqo o wpkecvkxg''cevkxkv{ ''dgecwug''kv'r gto ku''y g''qtki kpcvqt''qh''c''o guuci g''vq''guvcdrkuj ''c''ergct''dcuku'' qh''cuuwo gf ''mpqy ngf i g0T gekr kgpvu''qh'y g''o guuci g''ecp''tgeqi pk g''y g''mpqy ngf i g''cuuwo gf ''d{ ''y g''wug''qh'' uvcpf ctf k gf ''vgto u''cpf ''cf lwuv'y gkt''tgcf kpi ''ceeqtf kpi n{0'Wugtu'y go ugnxgu''cuukuv'kp''y g''r tqeguu''d{ ''ci tggkpi ''vq'' tgrcz''y g''cguvj gvke. ''go qvkxg''cpf ''qy gt''pqp/kphqto cvkxg''tgs wktgo gpwu''qh''rcpi wci g''kp''qtf gt''vq''gplq{ ''y g''i tgcvgt'' ghhelspe{ ''etgcvgf ''d{ ''uvcpf ctf k gf ''tghgtgpeg0}

Ucpf ctf k ckqp'ku'pqv.'j qy gxgt."cp''cko 'kp''kugnh'dw'o gtgn( 'c'f gxkeg''wugf ''q''qr vko k g''y g'eqo o wpkeckqp''qh'' kphqto cvkqp0'K''ku'r ctv'qh''c'r tqeguu''qh'r reppgf 'hepi wei g'f gxgmr o gpv='kv''ctvkhkekem( 'gzci i gtcvgu''egtvckp''qh''y g'' pewtcn''ypf gpekgu''qh'nepi wei g''dw''pqpg''y g''nguu''tgur gewi'y g''nko kcvkqpu''qh'nepi wei g''kp''tgr tgugpvkpi ''cpf'' eqo o wpkecvkpi ''npqy ngf i g0'Vj g''r j gpqo gpqp''qh''uvcpf ctf k cvkqp''ecp''qpn( ''dg''r tqr gtn( ''wpf gtuvqqf ''cpf'' gzr mkgf ''y ky kp''y ku''hwpevkqpcn'htco gy qtn0

#### No kevkqpu

I gpgtcnircpi wci g'ku'ugo cpwecm('tgi wctk| gf 'kp''c'r tqeguu'y j kej 'ku'f qewo gpygf 'kp''f keykqpctkgu0Dw'yi g'u{uvgo "cy c{u'r gto ku'xctkcykqp."cu'ecp'dg'uggp'kp'yi g'f gi tgg'qhl'f kxgti gpeg'co qpi 'f keykqpctkgu0Kl'ku'qpn('kp'yi g'' ur gekcn'tghgtgpeg'qhl'tgurtkeygf 'uwdlgev'rcpi wci g''yi cv'wpkhlecykqp'hpf u'ueqr g."ulpeg'yi ku'ku'yi g''ctgc'kp'y j kej 'kv' dgeqo gu'ko r gtcykxg''yq'hlz''f guki pcykqp0Vj g'ngxgnlqh'ci tggo gpytgs wktgf 'd{ "uvcpf ctf k| cykqp''cdqw'c'i kxgp'' npqy rgf i g''utwewtg''cpf 'ku'wpgs wkxqecn'hpi wkryle'tgr tgugpycykqp''ecp''qpn('dg''cunwo gf 'kp''ur gekcnkry' eqo o wpkecykqp0Vj g''xki qwt''qh'uvcpf ctf k| cykqp''y j kej 'hkzgu''yi g''tghgtgpeg''qh'c'ygto 'ku'pqy'eqo r cykdrg'y kyi ''yi g'' etgcykxky{ "qh'i gpgtcn'hcpi wci g''cpf 'ku''yi gtghqtg''qpn(''cr r nkgf 'd{ 'uo cm'i tqwr u'qh'hcpi wci g''wugtu."o ckpn(''kp''yi g'' tgurtkeygf ''o qtr j qmi { "qh'pqo gpercwtg'qt''yi g''ur gekcn'u{ pvcz''qh'r cygpwu''cpf ''qyi gt''ngi cn'f qewo gpw0'' Uvcpf ctf k| gf ''yto u''ctg'y kf gn(''wugf ''kp''ecugu'y j gtg''yi g''f khtgtgpegu''co qpi ''ur gekcnkw0'Vj g''i tgcygt''yi g'' tkhtgtgpegu''dgwy ggp''ur gengtu''yi g'' tgcygt''yi g''pggf ''q'wug''c'j ki j gt''r tqr qtykqp''qh'f ghlpkkqpu."r ctcr j tcugu''cpf '' ektewo mgewkqpu''tcyi gt''yi g'' tgto u'

Uvcpf ctf k¦ cvkqp"ecp"qpn{ "dg"cr r nkgf "vq"eqf khkgf "mpqy ngf i g0"kp"ctgcu"y j gtg"mpqy ngf i g"ku"wpf gti qkpi "ej cpi g." o gcpkpi "ecp"dg"vgo r qtctkn{ "hkzgf "d{ "o gcpu"qh"uvkr wrcvkxg"f ghkpkkqpu"y j kej "vgpvcvkxgn{ "cuuqekcvg"c"vgto "vq"c" eqpegr v'vj cv"ku"uvkrn"uvwegr vkdng"vq"o qf khkecvkqp0

Kp"uwo ."vj g"uvcpf ctf k cvkqp"qh"vgto u"qeewtu"chvgt"vj g"uvcpf ctf k cvkqp"qh"qdlgew0"Ki"tgs wktgu"\*c+"vj g"ej qkeg"qh"c" uvkxcdrg"vgto ."cpf "%d+"hkzkpi "vj ku"vgto "cpf "ku"f ghkykkqp0"Uvcpf ctf k cvkqp"ku"guugpvkcm( "c"f grkdgtcvg"cwgo r v"qp" vj g"r ctv"qh"uqekgv( "vq"uko r rkh{ "gzr tguukqp"hqto u0"Ki"tgs wktgu"c"tgf wevkqp"kp"vj g"eqo r rgzkv{ "cpf "xctkgv{ "qh" f guki pcvkqpu"cpf "j gpeg"qh"vj gkt "qxgtcm"pwo dgt0"Ki"ku"c"uqekcn"cpf "geqpqo ke"cevkxkv{ "y j kej "tgrkgu"qp"eqpugpuwu0" Vj ku"eqpugpuwu"ecp"dg"dtqngp"cv"cp{ "vko g"cpf "vj gtghqtg"pggf u"tgi wrct"eqphkto cvkqp0"Vj g"ko r rgo gpvcvkqp"cpf "xgtkhkecvkqp"qh"vgto kpqnqi kecn"uvcpf ctf u"ecp"dg"ecttkgf "qw"d{ "vj g"wugtu"vj go ugrxgu0

Kpvtqf wekpi 'uvcpf ctf k gf 'vgto kpqmi { 'kp''cp{ ''ctgc''qh''mpqy ngf i g''qdrki gu'uqo g'r ctvkgu''vq''o cmg''ej cpi gu''kp''y gkt'' nkpi wkuvke''r tcevkegu''kp''y g''kpvgtguv''qh''y g''eqo o qp''i qqf 0

Ugg"cnuq<

VGTO 'DCP MULL'VGTO KP QNQI [ . 'CRRNKECVKQP ULL'VGTO KP QNQI [ . 'VJ GQT[ 0

#### Hwt yj gt 't gcf kpi

 $DU'588; "3; 85 = Ecdt^2"3; ; 5 = V_0 y + C y - C y$ 

LWCP 'E'UCI GT

# Vgto kpqnqi {

#### yj gqt {

Vj g'ko r qtvcpeg'hqt''tcpurcvqtu'qh'wpf gtuvcpf kpi ''y g'dcuke''r tkpekr ngu'qh'c''y gqt { ''qh'vgto kpqmi { ''ku''y qhqnf 0' Hktuv.''c''y gqt { ''qh'vgto kpqmi { ''cwgo r vu''vq''gzr nckp''y g''dgj cxkqwt''qh'vgto u.''kp''uq'hct''cu'kv'f khhgtu'htqo ''y g'' dgj cxkqwt''qh'y qtf u'cpf ''r tqr gt''pco gu.''y ky ''tgur gev'dqyi ''vq''npqy ngf i g''cpf ''wpf gtuvcpf kpi ''cpf ''vq''y g''wug''qh'' uwej ''vgto u'kp''ur gekcn'qt''

THEORY: KNOWLEDGE FIELD ---> CONCEPT ---> TERM ---> USAGE

APPLICATIONS: TEXT CORPUS -> TERM -> CONCEPT

KNOWLEDGE FIELD

Hki wtg": <"Vgto kpqrqi {

uwd/mpi wci gu0Ugeqpf.'k/cwgo r wi'q"gzr mkp"j g"f khtgtgpeg"dgw ggp"y qtf "cpf "\gto "hqto cwlqp"cpf.'kp" r ctvkewrt."\q"f ghkpg"\j g"ueqr g"qhi'pgqqi {."\j cv'ku'\j g"r tcevkeg"qhi'eqkpkpi "pgy "y qtf u0Vj ku'gpvt {"r tgugpvu'\j g" y gqtgvkecnihqwpf cwlqp"cpf "dcuke"r tgo kugu"qhi'vgto kpqqii {."y j kej "r tqxkf g"c"o gyj qf qqqi {"hqt"\j g"r tcevkecniy qtmi' qhi'eqo r khpi "\geg pkecnii quuctkgu''cpf 'hhpf kpi "\tcpurcvkqp"gs wkxcngpvu0C"\j gqtgvkecnihqwpf cwlqp"cnuq"eqpvtkdwgu" vq"qwt "wpf gtuvcpf kpi "qhi'vgto "hqto cwlqp"r tqeguugu''cpf "\j g"o qvkxcvkqp"qhi'pgqqii kuo u0

Lwuv'cu''ngzkeqqii {"ku'\j g"uwxf {"qhi'c"\{r g"qhi'ngzkecnikgo "i gpgtcm("tghgttgf "\q"cu'\y qtf u"uq'\gto kpqqii {"ku'\j g" uwxf {"qhi'wgto u0Vgto u."\qi gyj gt'y kyj "y qtf u"cpf "r tqr gt"pco gu."eqpuvkwwg"\j g"i gpgtcniencuu"qhi'ngzkecnikgo u0'

Dw\y j gtgcu'pco gu'tghgt 'kpf kxkf wcm( "\q"qdlgevu''cpf "r gqr ng."cpf "y qtf u'tghgt "ctdkxtctkn( "\q"i gpgtcnieqpegr vuô dq\y "kpukf g"\j g"hpi wkuxke"u{uvgo "cpf "hp"\j g"tgcniy qtf" "\Cwuuxwg"3; 38+"\gto u'tghgt "gnddgcvgn("\q"ur gekhle" eqpegr vu'y kyj kp"r ctvkewrt 'uwdlgev'hlgrf u'cpf "\j gtghqtg"eqpuvkwwg"c'uwd/u{uvgo "qh'mpqy ngf i g0Ngzkecnikgo u'ecp" dg"uwf kgf "gkyj gt"cu'r wtgn("hip wkuxke"gpvkklgu."hqt"gzco r ng"hp"\gto u"qh'o qtr j qqqi {"cpf "ugpug"tgncvkqpu."qt"cu" tghgtgpvkcnigpvkklgu0Vgto u."d{"eqpvtcuv."ctg"cny c{u"uwf kgf "kp"tgncvkqp"\q"\j g"eqpegr wcn'u{uvgo "\q"y j kej "\j g{" dgnpi "cpf "kp"\j j ej "\j g{"hwpevkqp"cu'f gr qukqtkgu'qh'mpqy ngf i g0

## Vtcpurcydp'cpf 'tgto kpqmi {

Vtcpurckqp"cpf "vgto kpqmi { "hwperkqp"qp" w q"f khhgtgpv'hkpi wkurke"cpf "eqi pkkxg"r rcpgu"cpf ."cu"f kuekr rkpgu."hqewu" qp"f khhgtgpv'ctgcu"qh'hcpi wci g"uwf { 0'Vtcpurckpi "ku"cti wcdn{ "c"hwpf co gpvcm{ "crrrkgf" 'hkpi wkurke" cevkxkv{ ." eqpegtpgf "y kij "yi g"o cpkr wrcvkqp"qh" vgz w0'Vgto kpqmi { ."qp" yi g"qyi gt" j cpf ."ku"c"f kuekr rkpg" y j kej "uvtcf f rgu"dqyi " yi gqt grkecn"cpf "crrrkgf" 'hkpi wkurkeu"cpf "wugu" vgz wu"qpn{ "cu"qpg"qh" c"tcpi g"qh"uqwteg"o cvgtkcnu"kp"qpg"qh"ku"o cp{ "crrrkecvkqpu0"Vgto kpqmi kecn" yi gqt { "rtqeggf u"htqo "cdurtcev"eqi pkkxg" wpku"ecngf "eqpegr wu"vq" yi g" kf gpvkhkecvkqp"qh"crrtqrtkcvg" rkpi wkurke" gzrtguukqpu"qt" vgto u0"V yi g"f wcn"crrtqcej "qh" wgto kpqmi { "ku"kmwurcvgf" kp" Hki wtg": 0

Kp'ku'uko r nguv'hqto ."vj g'hqewu'kp''vcpurcvkqp'ecp''dg''uckf "vq''dg''qp''vj g'htpi wkuvke''tgr tgugpvcvkqp''qh''c''eqi pkxkg'' wpkx="vj g''vcpurcvqt''o qxgu'htqo "vj g'htpi wkuvke''kxgo "vq''yj g''eqpegr v'kp''qtf gt''vq''htpf "c''eqttgur qpf kpi 'htpi wkuvke'' tgcnk cvkqp''kp''cpqvj gt''ncpi wci g0'Kv'eqwrf "vj gtghqtg''dg''eqpenwf gf "vj cv''vcpurcvqtu''qpn('pggf 'c''o kpko cn'vj gqt { "qh'' yto kpqmi { "kp''qtf gt''vq''htpf "vgto u''y j kej "eqttgur qpf "vq''y g''uco g''eqpegr v'kp''y q''ncpi wci gu0'Vj g''tgcnkv{ ." j qy gxgt. "ku''o qtg''eqo r ngz<'vcpurcvqtu''qhvgp''htpf "vj cv'vj g{ "pggf "vq''guvcdnkuj "kf gpvkv{ "co qpi "eqpegr vu."vq''f gcn' y kyj "kpuvcpegu'y j gtg''eqpegr vu''ctg''uko krct "tcvj gt''y cp''kf gpvkecn "cpf "vq''etgcvg''vcti gv''ncpi wci g''vgto u''hqt''pgy " eqpegr vu0

Vj g'f khogtgpeg'dgwy ggp''tcpurckqp''cpf ''vgto kpqnqi { 'ecp''dg''uwo o ctkt gf ''d { ''uc { kpi ''vj cv''tcpurcvqtu''f gcn'y kj '' kpurcpegu''qh''r ct qng''\*kQ0'ncpi wci g''kp''wug+.''y j gtgcu''vgto kpqnqi kuxu''o c { ''wug''kpurcpegu''qh''r ctqng''dw''ctg'' guugpvkcm{ 'eqpegtpgf ''y kj ''tgeqtf kpi ''ncew''qh'ncpi wg''\*kQ0'ncpi wci g''cu''cp''cduvtcev'u{ uvgo +0

### Eqpegr vu'f ghlpkhqpu'cpf 'vgt o u

Vj g"vj gqt { "qh'\gto kpqmi { "ku'eqpegtpgf "y kj 'eqpegr vu."vj gkt "f ghkpkkqpu'cpf "vj gkt 'rkpi wkuvke 'tgcrkt cvkqp''cu'\gto u0

#### Eqp egr vu

y g'uwttqwpf kpi 'y qtnf 0J gpeg."eqpegr wi'ctg''y g''gzr qpgpwi'qh'uwtwewtgf 'mpqy ngf i g'ur cegu0'Vj g{ "cr r gct "kp''y g'' hqto "qh'r tko kkxgu0'Cngtpcvkxgn{.''y g{ "ecp"cr r gct "cu"eqo r ngz "eqpegr w. "kp''y j kej "ecug''y g{ "ctg'hqto gf "d{ "nkpnkpi "r tko kkxgu'kpvq''pgy "eqo dkpcvkqpu0'Vj gtg'ku'ueqr g'hqt"cp'kphkpkg''pwo dgt "qh''eqpegr w0J qy gxgt. 'xgt{ "hgy "qh''y gug''r qvgpvkcn'eqpegr w''ctg'tgcnk gf 'kp'ncpi wci g''dgecwug. "cu''c'f kuetgvg''o gf kwo .''ncpi wci g'ku'tguvtkevgf "kp''y g''tcpi g''qh''gzr tguukqp'hqto u''cxckrcdng''vq''kx0

Gcej 'kpf kxkf wcn'ces wktgu' yi tqwi j 'j ku'qt' j gt 'gf weckqp'dqyj ''yi g'i gpgtcn'u twewtg'qh' yi g'mpqy ngf i g'ur ceg'qh' yj gkt 'uqekgv{ "cpf "vj g"hkpi wkurke "gzrtguukqp"hqto u"hqt "ceeguukpi "vj ku"mpqy ngfi g0"Y g"wpf gtuvcpf "rcuukxgn{ "y j gp" y g'j cxg'qpn( "c'xci wg'lxf gc'qh'y g'r rceg'qh'c'eqpegr v'lxp'y g'mpqy ngf i g'ur ceg0'Y g'wpf gtuxcpf 'hwm( 'y j gp'y g' mpqy "vj g'r tgekug"r meg"qh'c "eqpegr v'kp"tgm klqp"vq"qvj gt "eqpegr vu0'K/ku" wprkmgn{. "cu'hct "cu'i gpgtcn'mpi wci g'ku" eqpegtpgf. "vj cv" vy q"kpf kxkf wcnı 'y km'cuuki p"r tgekugn( "vj g"uco g"tgi kqp"qh'mpqy ngf i g"ur ceg" vq" vj g"uco g"eqpegr v." dw'c'egtvckp'eqpugpuwu'ku'r tqxkf gf "d{"yj g'uqekcn'pqto "y j kej "ugvu'yj g'eqphkpgu'qh'c"vtcfkkqpcn'mpqy ngf i g" uvt wewst g. "vj g"dqwpf u"qh"f kuckr rlpct { "uwdur cegu"cpf "vj g"eqphki wtc vlqp"qh"eqpegr wi"lp"cp { "qpg"f kuckr rlpg0"kV"ku" eqpugpuwu'y j kej "f gekf gu. 'hqt "gzco r ng. 'y j gp"c 'hqtm/rkng 'qdlgev'ecp 'pq'nqpi gt 'dg 'ecnngf 'c 'hqtm'y j gyj gt 'y g" y qtf "unt guni"ku 'ceegr vcdrg'kp"r j qpgo keu. "cpf "y j gyj gt"f korgevqrqi { "ku 'qt "ku 'pqv'r ct v'qh' uqekqrkpi vkuvkeu0'V j g" i tgcvgt 'vj g'pwo dgt "qh"eqpegr vu 'vq"dg"ceeqo o qf cvgf "kp"c"f kuekr nkpg"qt 'uwdlgev hkgnf 'vj g'i tgcvgt 'vj g'pggf 'kqt"  $f \ \textit{kh} \textit{pt} \textit{gp-kc-kpi} \ '\textit{ij} \ \textit{g'eqpegr-ku'kp''s wgu-kqp0C''v'j} \ \textit{g'uco} \ \textit{g'kvo} \ \textit{g.''j} \ \textit{g'pggf''vq''cxqkf''qxgtrcr-u''dgw} \ \textit{ggp''eqpegr-ku''y km''}$ tgs wktg'i tgcvgt'r tgekukqp'kp''y g'f grlo kvcvkqp''qh'eqpegr vu'ci ckpuv'gcej ''qvj gt0'Vj ku'i tgcvgt'r tgekukqp''ku'y j cv'y g'' wpf gtuvcpf "d{ "ur gelen't ghgt gpeg." y j kej "f kurkpi wkuj gu'\gto u'qh'ur gelen'uwdl gev'ncpi wei gu'ht qo "y qtf u'qh'y g" i gpgtcn'hcpi wci g0'Hqt"gzco r ng. 'kp"i gpgtcn'tghgtgpeg. "ecv'ecp"dg"s wcnkhlgf "cu'hlgteg. "ci i tguulxg. "f gxkqwu." grgi cpv."gve0"kp"ur gekcn"t ghgt gpeg."qp"yj g"qyj gt"j cpf."c"ecv"ku"c"ur gekgu"qh"yj g"i gpwu"/lgrku0Qpn("s wcnkhlgtu"qh" pewten'hgewtgu'eep'dg'err nkgf 'kp''y g'eeug'qh''y g'newgt. "epf 'eqppqvevkqpu'epf 'tepuhgttgf 'o gepkpi u'etg' kttgrgxcpv0'Vj gtg'ku'vj wu'c'fkhgtgpeg'kp'f gi tgg'dgwy ggp'vj g'uvtwewtg'qh'eqpegr wi'kp''yj g'uwdur ceg'qh'c'fkuekr nkpg'' cpf "vj g"rguu"y gm/f ghlpgf. "rguu"f kuekr rlpgf "uvt wewt g"qh"i gpgt cn'mpqy rgf i g0

#### Fglkpkkqpu

Y g"gzr gev"vq"hkpf "f ghkpkkqpu"qh"y qtf u"kp"f kevkqpctkgu"dgecwug"c"f kevkqpct { "r tqeggf u"ugo cukqrqi kecm{ 'htqo "yi g" y qtf "vq"ku"o gcpkpi 0"Vgto kpqmi {."d{ "eqpvtcuv."r tqeggf u"qpqo cukqmi kecm{<"j gtg"y g"kf gpvkh{ "c"eqpegr v"cpf " yj gp'i q''qp''vq'f ghkpg''kv'dghqtg''y g'f gekf g''vq''pco g''kv0'Kp''yj g''r tkpvgf 'f ghkpkkqp''y g'hkpf 'kp''vgto kpqrqi kecn' i muuctkgu'yi gtg'ku. 'yi gtghqtg. 'c'eqkpekf gpeg'qh'pco g'cpf 'eqpegr v'kp'yi g'f ghlplgpf wo 'qt'kxgo 'dgkpi 'f ghlpgf 0' Wprkng''y g'f kevkqpct { 'f ghkpkkqp'y j kej 'gzr nckpu'y qtf u'd { 'o gcpu'qh'qy gt'y qtf u.''y g'\gto kpqmi kecn'f ghkpkkqp'' ugtxgu''y g'hwpevkqp''qh''guvcdrkuj kpi "c''ergct''rkpm'dgw ggp''y g''rkpi wkuvke''u{ uvgo "cpf ''y g''eqpegr wcn'uvtwewtg''qh'' mpqy ngf i g0 kp" vgto kpqnqi {."f ghkpkkqpu"ctg"d{"r tghgtgpeg"qh"cp"cpcn{ vke"cpf "u{pyi gvke"pcwtg0 Hktuv."yi g{" cwgo r v'vq'hpm'y g'eqpegr v'vq'dg'f ghhpgf '\*y g'f ghhplgpf wo +'vq'kw'o quv'enqugn( 'tgrcvgf 'dtqcf gt'eqpegr v'\*y g'' **f ghtplgpu**+.''vj wu'hkzkpi 'kwu'r rceg'kp''vj g'uvt wewstg''qh'hpqy ngfi g0Cpf 'ugeqpf.''vj g{ 'cwgo r v'vq''f guetkdg'kp''y j kej '' y c{ "y ku'eqpegr v'f khhgtu'htqo "qy gt'eqpegr w'kp" y g'uco g'ctgc 'qh'mpqy ngf i g0'Eqpegr w'ecp 'dg'f ghkpgf "o qtg" yj cp"qpeg"kp"qtf gt"\q"cpej qt"\yj go "kp"\yj g"mpqy ngf i g"unt wewnt g"qh"c"r ct wewnct "uwdl gev'hkgnf 0 Vj g"vgto kpqnqi kecn'f ghkpkkqp"j cu'vq"dg"cu'f gvckrgf "cu'pgeguuct { "vq"f khrgtgpvkcvg"c"eqpegr v'cpf 'kvu'pco g"htqo " qy gt "eqpegr wi'cpf "pco gu'cpf "uq"cxqlf "y g"mlpf "qh'hw | { "tghgtgpeg"y j kej . "kp"ngzkeqi tcr j { . "cmqy u"f ghkpklqp" d{"o gcpu"qh"u{pqp{o u0Vgto u"uj qwrf "dg"f ghlpgf "lp"uwej "c"y c{"cu"vq"cxqlf "qxgtrcr u"qh"o gcplpi ."uwej "qxgtrcr u" dgkpi "c"eqo o qp"\gej pks wg"hqt"f ghkpkpi "y qtf u"kp"f ke-kqpctkgu0Vj g"hqmqy kpi "gzco r ng"qh"c"\gto kpqmi kecn" f ghlpkkqp'eqo gu'ltqo 'KVQ'8378'\*3;:9+<

f kt gevat { < "Kp" f cvc" r tageguukpi ."cp" kpf gz" 'va" 'yi g" mecvkap" ah" f cvc" hkgrf u" y kyi kp" c" tgeatf ."eapvckap i "yi g" vci ."ngpi yi ."mecvkap" cpf "ur gekhkgt "ah" gcej "f cvc" hkgrf "y kyi kp" yi g" tgeatf 0

Qpg'eqpugs wgpeg'qh'vj g'f ghkpkpi 'r tqeguu.'y j kej 'vj gqtgvkecm( 'r tgegf gu'vj g'pco kpi 'r tqeguu.'ku'vj cv'vj g'hcwgt'ku'' cnuq'uggp''cu'c'eqpuekqwu.'f grkdgtcvg''cevkxkv{ 'y j kej 'tgur qpf u''

vq"qwt"pggf "vq"encuukh{ "cpf "qtf gt" y g"eqpegr wu"qh" y ku"y qtnf "cpf "vq"tghrgev" y ku"encuukhecvkqp. "cu"hct "cu" y g"eqpuvtckpwu"qh" y g"hpi wkurke "u{ uvgo "r gto kv."kp" y g"pco g"uvej "eqpegr w0

#### Vgto u

Vgto u'f khgt 'htqo 'y qtf u'kp''y cv''y g{ "ctg"gpf qy gf 'y ky "c'ur gekcn'hqto "qh'tghgtgpeg."pco gn{ "yi cv''y g{ "tghgt "vq" f kuetgvg"eqpegr wcn'gpvkxkgu. "r tqr gt vkgu. "cevkxkxkgu"qt "tgncvkqpu'y j kej "eqpuvkwwg"y g"mpqy ngf i g'ur ceg"qh'c" r ct vkewct "uwdlgev'hkgnf 0'Kp"qtf gt "vq"f khhgtgpvkcvg"dgwy ggp" i gpgtcn'cpf "ur gekcn'tghgtgpeg"kp hkpi wkurke "r ctncpeg."c" f kurkpevkqp "ku"guvcdnkuj gf "dgwy ggp" vgt o u'y j kej "j cxg"ur gekcn'tghgtgpeg'y kyj kp"c"r ct vkewct "f kuekr nkpg."cpf 'y qt f u' y j kej "hwpevkqp"kp"i gpgtcn'tghgtgpeg"qxgt "c"xctkgv{ "qh"uwdlgev'hkgnf u0'Cpf ."vq"kpetgcug"y g"ur gekthekx{ "qh" tghgtgpeg."ci tggo gpvu"ctg"eqpenwf gf "qp"y g"r tgekug"o gcpkpi "cpf "gzr tguukqp"hqto u"qh"ngzkecn'kxgo u"d{ "o gcpu"qh" r tqeguugu"qh'tgi wctk cvkqp."j cto qpk cvkqp"cpf "uvcpf ctf k cvkqp"\*ugg" VGTO KP QNQI [."

UVCPFCTFK, CVKQP+0'Y g''y wu''j cxg''eqpuekqwu''r tqeguugu''qh''vgto ''ugrgevkqp''cpf ''etgcvkqp''kp''y g''ugpug''qh'' cfqrvkpi ''ej ctcevgtkuvkeu''qh''ctvkhkekcn'hcpi wci gu0

Ur geken'uwdlgevu'etg''y gtghqtg'f khhgtgpvkevgf 'htqo 'i gpgten'mpqy ngf i g'r tko etkn{ 'd{ 'y g'pewtg'qh'tghgtgpeg. 'epf '' cniq'd{''y g'hcev'y cv'y g{'eqpvckp''cf f kakqpcn'eqpegr vu0'Vj ku'f khhgtgpeg'ku'qpg''qh'f gi tgg.''cpf 'kv'ku''y gtghqtg''o qtg'' crrtqrtkcvg"\q"urgcm'qh'i gpgtcn'tghgtgpeg"cpf "urgekcn'tghgtgpeg"cu'wq"gzvtgo gu'y kyj kp'y j kej "ncpi wci g'ecp"cpf"  $f \ qgu'xct \{0Cu'y \ g''ecp''cewcm \{''ugg''kp''uekgpwlhke''r \ cr \ gtu. \ 'wpkxgtukw \{''ygzwlqqmu''cpf''r \ qr \ wrct''uekgpeg''cpf''pgy \ ur \ cr \ gt'' \ wrct'''uekgpeg''cpf''pgy \ ur \ cr \ gt'' \ wrct''uekgpeg''cpf''pgy \ ur \ cr \ gt'' \ wrct''pg'' \ wrct'$ ct wengu. "y g'f kuwpewlqp"dgwy ggp"i gpgtcn'cpf "ur gelcn'npqy ngf i g"vcngu'y g'uj cr g"qh'c "enlpg"llp"r tcewleg0 Cu'hct 'cu' 'y to u'ctg' eqpegtpgf. 'y g'ecp' 'uc { ''y cv'dgj kpf 'gcej '\y to ''y gtg' uj qwrf 'kf gcm { ''dg'c' ergctn { ''f ghkpgf'' eqpegr v'y j kej 'ku'u{ uvgo cvkecm{ 'tgrcvgf 'vq'vj g'qvj gt 'eqpegr vu'vj cv'o cmg'vr 'vj g'mpqy ngf i g'uvt wewtg'qh'vj g'vgzv' qt"f kueqwtug"kp"s wgunkqp0"Vj g"ej qkeg"qh"yj g"vgto "uj qwrf "tghrgev"yj ku"eqpegr v"ghhgevkxgn("cpf "wpco dki wqwun(."cpf" yj g'qwy ctf 'hqto ''yj g''ygto ''cmgu''uj qwrf ''dg''i gpgtcm{ 'ceegr vcdng0Cpqyj gt'korqtvcpv'f khhgtgpeg''dgwy ggp''vgto u'' cpf "y qtf u'ku" y cv'c" vgto "mggr u'ku" nkhg" cpf "ku" o gcpkpi "qpn ("hqt" cu" nqpi "cu" kv" ugtxgu" y g"u { uvgo "qh" mpqy ngf i g" yj cv'i cxg'tkug'\q'kx0'Kp'cewcn'wuci g.'\gto u'ctg'kphnvgpegf "d{"yj g'uco g'hcevqtu'cu'y qtf u0'Kh'yj g{"ctg" qpi .''yj g{"ctg" www.cm ("uj qtvgpgf "kp"f kueqvtug"co qpi "ur gekerkuvu." y ky "f khhgtgpv"xctkepvu"go gti kpi "ceeqtf kpi "vq" y g"uqeken" hqto cn'qt "gxgp"i gqi tcr j kecn'uvtcvkhkecvkqp"qh'qeewttgpegu"qh'vgzvu0kp"r tcevkeg. "vj gtghqtg." y g"gpeqwpvgt "xctkcpvu" qh'c'vgto 'y kj qw'cny c{u'mpqy kpi 'r tgekugn('y j kej 'qh'vj gug'hqto u'ku'o qtg'y kf gn('ceegr vgf 'vj cp'qvj gtu.'qt'' y j kej "eqwrf "dg"eqpukf gtgf "vj g"wpo ctngf."pgwtcnlhqto "vq"dg"wugf "cu"c"uchg"qr vkqp0"Vj gtg"ctg"cnuq"ecugu"y j gtg" c'\gto 'j cu'pq'r ctcmgn'xctkcpv'kp'c'\cti gv'ncpi wci g'qh'\tcpurc\kqp0'Vtcpurc\qtu'ctg'\yi gtghqtg'dcukecm{ 'cny c{u'' f gcrkpi 'y kj 'xctkcpvı.'gzegr v'y j gtg'c'eqpegr v'j cu'qpn('qpg'f guki pcvkqp0'Vj g{ 'pggf 'vq'wpf gtvcng'vj gkt'qy p'' tgugctej "vq"guvcdrkuj "kp"y j kej "ugvkpi "c"xctkcpv"ku"qt"ku"pqv"ceegr vcdrg0'Dgukf gu"dgkpi "cdrg"vq"ugr ctcvg"vgto u" htqo 'y qtf u.'lf gpvkh{ 'eqo r qwpf u'qt 'qyi gt' lwz vcr qukkqpu'cu'ukpi ng'wpku'qt 'ecuwcn'eqnqecvkqpu.'vtcpuncvqtu'o wuv' cniq'mpqy "j qy "\q'tgeqi plt g'xctlcpw'cpf 'uj qwf "j cxg'etlxgtlc'hqt'hlpf lpi 'vj g'ucpf ctf 'hqto .''gve0Qpn('lh' f ghkpkkkqpu"ecp"dg"uckf "vq"dg"f guetkdkpi "vj g"uco g"qdlgev"ku"kv"r quukdrg"vq"ur gcm"qh"vj g"uco g"eqpegr v0 Vj ku'dtqcf "qxgtxkgy "j cu'kpvtqf wegf "vj g'ko rqtvcpv'eqpegr v'qh'uwdrcpi wci gu. "vj g'o quv'r tqo kpgpv'rgzkecn" o cpkhguvcvkqp"qh'y j kej 'ku'vgto kpqmi {0'Uwdrcpi wci gu'ctg'kpf ggf 'vj g'dtkf i g'dgwy ggp'c'vj gqt { "qh'vtcpurcvkqp"cpf " c"vj gqt { "qh'\gto kpqmi {0'Vj tqwi j "vj g"uwwf { "qh'\gto kpqmi { ."\tcpurcvqtu"ecp"ugg"o qtg"ergctn( "vj g"eqppgevkqp" dgwy ggp"yj g"eqpuekqwu'wug"qh'hcpi wci g"cpf "qwt"cdkrkx{ "\q"uj cr g"yj g"\qqnu"y g"wug"hqt "eqo o wpkecxkqp0 Vj g'knuwgu'y j kej "ctg"qh'egpvtcn'eqpegtp'kp"c'vj gqt{"qh'vgto kpqmi {"cpf 'y j kej "ctg'r ctvkewrctn( 'tgrgxcpv'htqo "c" vtcpurcvqtøu'r qkpv'qh'xkgy 'ctg<

''y g'f kurkperkqp''dgw ggp''vgto kpqnqi kecn'nkpi wkurke''untwewstg''cpf''eqpegr wcn'untwewstg

"'y g"eq/gzkuvgpeg"qh'r ctcmgn'eqpegr wcn'uvtwewtgu''y j kej "ctg"uqo gvko gu'ewnwtg/"cpf "ncpi wci g/eqpf kwqpgf" cpf "uqo gvko gu'qeewt''y ky ky 'y g'uco g'ncpi wci g'i tqwr

''y g'eqo r ngvg'f gr gpf gpeg'qp'f ghkpkkqpu'cu''y g''qpn( ''ceeguu'r qkpv'cpf ''dtkf i g''dgwy ggp''eqpegr v'cpf ''vgto 0

Qyj gt "cur gewi'qh' \gto kpqmi { "y qtm'y j kej "ctg"qh'r ct \kewrct "kp\gtguv'\q"\tcpurc\qtu' \kpen\f g"cr r n\ec\kqpu'qh" \gto kpqmi { "kp" \j g"hqto "qh'u\vej "\qqnu"cu'f ke\kqpctkgu." i muuctkgu'cpf "VGTO "DCP MU="o g\j qf u'qh" f qewo gp\c\kqp="o g\j qf qmi kecn'kuu\vgu'kp"\gto kpqmi kecn'r tqdngo /uqnxkpi ="cpf "h\pcm\{ "\j g"s \wgu\kqp"qh'qdlgev" cpf "ncpi \wci g"u\cpf ctf \k c\kqp0

Ugg"cnuq<

<u>VGTO 'DCP MU</u>''<u>VGTO KP QNQI [</u>.'CRRNKECVKQP U''<u>VGTO KP QNQI [</u>.''UVCP F CTF K, CVKQP 0

## Hwt yj gt 't gcf kpi

LWCP 'EUCI GT

# Vgzv'flpi wkwleu'cpf 'tt cpurcwlqp

Cnj qwi j "kpxctkcdn( "nwo r gf "vqi gyj gt "wpf gt "yj g"j gcf kpi ":f kueqwtug"cpcn( ukuø "c"eqpukf gtcdng"pwo dgt "qh" crrtqcej gu"vq"yj g"cpcn( uku"qh"ncpi wci g"dg{ qpf "yj g"ugpvgpeg"y qwrf "dg"o qtg"crrtqrtkcvgn( "xkgy gf "cu"; vgzv" cpcn( ukuø0"kp"vgto u"qh"yj g"f kurkpevkqp"dgwy ggp"vgzv"cpf "f kueqwtug"cf qrvgf "j gtg."vgzv"cpcn( uku"ku"guugpvkcm( "eqpegtpgf "y kyj "yj g"qti cpk cvkqp"cpf "o crrkpi "qh"vgzvu"tcvj gt"yj cp"y kyj "uqekcn"tgncvkqpuj kru"cpf "kpvgtcevkqp" yj tqwi j "vgzvu."yj g"ncwgt"dgkpi."uvtkevn( "ur gcmkpi."c"f kueqwtug"cpcn( vke"cko 0°C "f khngtgpv"f kurkpevkqp"ku"uqo gvko gu" o cf g"dgwy ggp"f kueqwtug"cpcn( uku"cu"yj g"uwxf { "qh"ur qngp"kpvgtcevkqp"cpf "vgzv"nkpi wkurkeu"cu"yj g"uwxf { "qh"y tkwgp" kpvgtcevkqp."dw"yj ku"f kurkpevkqp"ku"pqv"cf qrvgf "j gtg0

## Tgi kngt 'cpcn( uku'kp'tt cpurc vkqp'tuwf kgu

Vgzv'cpcn{uku"j cu'ircti gn{"dggp"o qtg"eqpegtpgf"y ky "ej ctcevgtk kpi "y cp"y ky "gzr nckpkpi "o gcpkpi 0"Vj ku'ku'engct" kp"cp"kphrwgpvkcn'vtgpf "kp"cr r nkgf "vgzv'nkpi wkuvkeu"y j kej "j cu'hqwpf "kw"y c{ "kpvq"y g'nkvgtcwvtg"qp"vtcpuncvkqp0"Vj g" uwwf { "qh'ircpi wci g'xctkcvkqp."qt"y j cv'j cu'eqo g"vq"dg"mpqy p"cu"**t gi kwgt 'cpcn{ uku** "o c{ "dg"vtcegf "dcem'vq" J cmlf c{.'O eKpvquj "cpf "Uvtgxgpuø'f ghkpkkqp"qh'**t gi kwgt** "\*3; 86< 9+<"+Ncpi wci g'xctkgu"cu'ku'hwpevkqp"xctkgu="kv" f khlgtu'kp"f khlgtgpv'ukwcvkqpu0"Vj g"pco g"i kxgp"vq"c"xctkgv{ "qh'c"ncpi wci g"f kuvkpi vkuj gf "ceeqtf kpi "vq"vug"ku" õtgi kuvgtöø0C"{ gct "ncvgt."Ecvlqtf" \*3; 87<5: +"ugv'y g"vqpg"hqt"y g"xctkcvkqp"f gdcvg"kp"vtcpuncvkqp"uwwf kgu<

Vj g"eqpegr v'qh'c":-y j qrg'rcpi wci gø'ku'uq'xcuv'cpf 'j gvgtqi gpgqwu'vj cv'kv'ku'pqv'qr gtcvkqpcm{ 'wughwrl' hqt"o cp{ 'rkpi wkuvke'r wtr qugu. 'f guetkr vkxg. 'eqo r ctcvkxg. 'cpf 'r gf ci qi kecn0'KV'ku'vj gtghqtg'f guktcdrg'vq" j cxg"c'htco gy qtm'qh'ecvgi qtkgu'hqt'vj g"ercuukhkecvkqp"qh'-tuwd/rcpi wci guø'qt'xctkgvkgu'y kyj kp''c''vqvcn' rcpi wci g0

vcpurckqp"\j gqtknvi"\qmy gf "uwk0\K\pf ggf ."f ghlplpi "\j g"tgi knyt"o go dgtuj kr "qh"\j g"\gzv"eco g"\q"dg"eqpulf gtgf" c"r tgtgs wkukg"\q"uweeguulwrl\tcpurckqp0\Hqt"gzco r ng. "cp"cr r tgekckqp"qh"tgi knyt "ku"ko r qt vcpv'\p"\tcpurckpi "cpf 1 qt"\pygtr tgv\pi "cp"wygtcpeg"uwej "cu":Uj g"ku'ugekqpgf "]\p"c"j qur kvcn\_'hqt"4: "f c {u'cpf "dgeco g"qpg"qh'\j qug"ecngf" ur gekcngf ."y j kej "o gcpu"\{qw'\j cxg"c"pwtug"\qmy \pi "\{qw'\gxgt\{y j gtg"\{qw'\j q\b'\f\p'\j g'\kpkkcn\urc uci gu'\qh'\j gr\pygtr tgv\pytr tgv\py

Vj ku''cr r tqcej "'q' '\gz v''cpcn{ uku''j cu''pqv''i qpg''wpej cmgpi gf ."j qy gxgt0'Kl'j cu''dggp''r qkp\gf "qw\''y cv''cp{ yi kpi " dg{ qpf "c'uwr gthkeken'\wpf gtu\cpf kpi "qh'y j cv'tgi ku\gt/o go dgtuj kr 'kp\xqn\xgu''y qwf ''tgxgen'y cv'o gtg" ej ctce\gtk c\dqp\"\dg0'tgi ku\gt''ur gekhec\dqp+"qh'o gcpkpi "ku'hct''htqo "cf gs wc\g''\g' c\do "cpf "O cuqp''3; ; 2."3; ; 9+0' Vq''f q''l\wv\eg''\q''kp\gpf gf "o gcpkpi ."k\'j cu''dggp''uwi i gu\gf ."\tcpurc\qtu''y qwf "j cxg'\q''eqpu\wr\'c'f kh\gtgp\''nkpf "qh'' f\e\dqq\gt\q''\gt\gg''y j kej "rku\u''r tci o c\de''o gcpkpi u''cpf "eqxgtu''uqekq/\gt\gt\gt\wc''r tce\degu''u\wej "cu''ktqp{ .'tgugp\o gp\'' cpf "uq''qp'\dgg''hqt''gz\o r rg''P g\dgt\y'3; : 7."Dcngt''3; ; 4+0

## Vgzv't{ r qmi lgu

 $\label{thm:prop} Vtcpurcvlqp"ij gqtkuvu"j cxg"eqpvkpwgf "vq"cuuwo g"ij cv'vgzwcn'cpf "f kueqwtucn'o gcpkpi u"ctg"equugn( "dqwpf "wr ."cpf " y cv'cp{ "ugr ctcvkqp"qh"ij g"w q"eqwrf "qpn( "dg"ceegr vgf "cu"c"eqpxgpkgpeg0%p"qvj gt "y qtf u. "vgzv'cpcn( uku"j cu"dggp" uggp"cu"cp"kpkkcn'gzgtekug"y j kej "j cu"vq"dg"uwr r ngo gpvgf "d{ "vj g"kf gpvkhkecvkqp"qh"qvj gt "ko r qtvcpv'ngxgnu"qh" o gcpkpi "vj cv'ctg"r tko ctkn( "f kueqwtucn'kp"qtki kp0Tgeqi pk kpi "vj ku"pggf ."vtcpurcvkqp"uwrf kgu"j cu"pqv'uvci pcvgf "cv" y g"ngxgn'qh"tgi kuvgt "twf ko gpvctkgu."cpf "pqvkqpu"uwej "cu"vgzv v{ r qmi kgu. "y j kej "guugpvkcm( "gzvgpf "vj g"tgi kuvgt/ cpcn( vke 'htco gy qtm'vj wu"dgeco g"hcuj kqpcdrg0$ 

Y kj "j g"i qcn'qh'ukkpi "j g"xctkqwu'kpvgtcevkxg"cevu'y kj kp'uqo g"ncti gt'kpvgtcevkqpcn'htco g."o cp{"cwgo r wu'j cxg" dggp"o cf g"vq"ugv'wr "c"v{r qmi {"qh'vgz vu0°C"pwo dgt"qh'vtgpf u'o c{"dg"kf gpvkhkgf 0°Hktuv."vgz vu'j cxg"dggp"encuukhkgf "ceeqtf kpi "vq"etksgtkc"uwej "cu"hkgnf "qh'f kueqwtug."cpf "uvcvgo gpvu"y gtg"o cf g"cdqww'uwdlgev'o cwgt "cu"y g"dcuku'hqt" nwo r kpi "vgz vu'vqi gvj gt."i kxkpi "tkug"vq"v{r gu'uwej "cu"lqwtpcnkukle"vgz vu."tgnki kqwu'vgz vu."uekgpvkhke"vgz vu"cpf "uq"qp" \*Et{uvcn'cpf "F cx{"3; 8; +0°F gur kyg"vj g'kpj gtgpv'ncen'qh'cf gs wcvg"r tgf kevkxg"r qy gt."uwej "v{r qmi kgu"j cxg"kpf ggf "dggp"kphrwgpvkcn "kphqto kpi "vtcpurcvqtuø"f gekukqpu"cpf "hqto kpi "vj g"vj gqtgvkecn'dceni tqwpf "qh"o cp{"c" r tqi tco o g"kp"vtcpurcvqt"vtckpkpi ."vq"pco g"dww'qpg"ctgc"qh'cr r nkgf "vtcpurcvkqp"uwf kgu0

Cpqy gt "tgpf" "kp" kgz v v{ r g"tgugctej "j cu" kcmgp" f qo ckp" cu" y g"dcuku" hqt "f gxgmr kpi "c" f khlgtgpv'encuukheckqp" qh" vgz vu" kpvq" v{ r gu" uwej "cu" hkgtct { ."r qgvke" cpf "f kf cevke" Dgcwi tcpf g"cpf "F tguungt" 3; : 3+0 Vgz v'v{ r gu" kf gpvkhlgf "kp" y ku" cr r tqcej ."j qy gxgt ."j cxg" gz j kdkgf "cp" qf f "o kz wtg" qh" ecvgi qt kgu" hnwewcvkpi "dgw ggp" Hkgrf ø" kp" y g" ugpug" qh" uwdlgev'o cwgt "cpf" Hkueqwtugø kp" y g" kpurkwwkqpcn' ugpug0 F kf cevke kuo ."hqt" gzco r ng. "ku" c"f qo ckp" qh" vgz wcn" cevkx k{ "cu" y gm" cu" c" ugv qh" cwkwf kpcn' o gcpkpi u ."cp" kpvgtmqenkpi "qh" eqpvgz wcn' r ncpgu" y cv'ku" qq" eqo r ngz "cpf" vqq" qxgt" i gpgtcn' vq" { kgrf "cp{ "o gcpkpi hwriecvgi qt kgu" y ky "y j kej "vtcpuncvqtu" ecp" y qtn0 Dw. "hwpevkqpcn' etksgt kc" uwej "cu" y gug" j cxg. "qpeg" ci ckp. "hqto gf" y g" dcuku" qh" c'pwo dgt" qh" y gqt kgu" qh' vtcpuncvkqp" cpf" r tcevkecn'i wkf gu" vq" y g" vtcpuncvqt" "vgg" hqt" gzco r ng" Rkengp" 3; : 8. "Cpf gto cp" cpf" Tqi gtu" 3; : +0

Kp''cf f kklqp''\q''y gug''y q''dcuke''eqpegr \lqpu''qh''\gz v'\{r gu.''c'pwo dgt''qh'hwpe\lqpcn'\\{r qmi kgu''j cxg''dggp'' uwi i guvgf 0'C''hgy ''ctg''dcugf ''qp''y g''pq\lqp''qh''+f gi tgg''qh'\tcpurcvcdkr\\{ $\phi$ ''\forall wrkej ''cpf ''Tckdrg''3; 97+.''dw''y g'' o clqtk\\{''cf qr v''c''y tgg/y c\{''f kurkpe\lqp''dgy ggp''gzr tguukxg.''kphqto c\lxg''cpf ''xqec\lxg''\vgz w'\\*g0 0'P gy o ctm'' 3; : 3.''Tqdgtw''3; : 7+0'Vj gug''r qkpw''qh''qtkgpvc\lqp''rkpm'wr ''y kyj ''Dwj rgt\øu''qti cpqp''y gqt\{''kp''y j kej ''rcpi wci g''ku'' vcngp''\q''dg''c''\qqn''

hqt"f gcrkpi "y kj "go qvkxg"o gcpkpi u'\*y j gtg" j g'r tqf wegt "ku'wpf gt 'hqewu+. 'tghgtgpvkcn'o gcpkpi "\*y j gtg" j g'uwdlgev" o cwgt 'ku'wpf gt 'hqewu+"cpf "eqppqwwxg"o gcpkpi u'\*y j gtg''y g'tgegkxgt 'ku'wpf gt 'hqewu+0'Vj g'r tqdrgo "qh'qxgtrcr" uvkm'tgo ckpu'vptguqnxgf."cpf 'uwej 'v{rqmi kgu'eqwrf 'pqv'vj gtghqtg'dg'uckf 'vq'j cxg'o kpko kt gf 'tgrkcpeg'qp'' kpwkkqp0J qy gxgt. "c"tgeqi pkkqp"qh"hwpekqpcn"etkgtkc"j cu'uj gf "uqo g"wughwn"hki j v"qp" y g"\tcpurcvkqp"r tqeguu="kv" j cu'o cfg'r quukdng''cp''crrtgekcvkqp''qh''vjg'hcev''vjcv''vgzvu''ctg''guugpvkcm{'j{dtkf''cpf''vjcv.''wnxkocvgn{.''vgzv'  $v \{r \ q mi \ kgu''ecp''qpn (\ ''ceeqwpv'hqt''r \ tgf \ qo \ kpcpv''vgpf \ gpekgu0'Vq''dg''gzcev.''kv'y \ cu''r \ tgf \ qo \ kpcpv''eqpvgzwcn'hqewu''$ y j kej "eco g"\q"hqto "vj g"dcuku"qh"c"\gzv"v{rqmi { "vj cv"j cu"o cf g"kxu"o ctm"pqv"qpn( "qp"\tcpurcvkqp" vj gqt { "dww"cnuq" qp"yj g"r tcevkeg"qh"vtcpurcvkpi "cpf"yj g"vtckpkpi "qh"vtcpurcvqtu"\*Y gtrkej "3; 98+0"Vj tgg"o clqt"eqpvgzwcn"hqek" uwduwo kpi "c"pwo dgt "qh"qyj gt "uwdukf kct { "qpgu."ctg"f kurkpi wkuj gf <c"hqewu"qp"uvcvgu. "gxgpvu. "gpvkkgu"cpf "tgrcvkqpu" \*dcuke''vq''vjg''vgz√v{rg''eqpegrwcn''fguetkrvkxg''cpf''pcttcvkxg''**gzrqukvkqp+**''c'hqewu''qp''vjg''gxcnvcvkqp''qh''eqpegrw'' \*dcuke''vq''yi g''vgzv'v{r g''cti wo gpvcvkqp+"cpf 'c'hqewu''qp''yi g'hqto cvkqp''qh'hwwtg''dgj cxkqvt''\*dcuke''vq''yi g''vgzv'v{r g'' kpunt wevlqp+0Xctkqwu'\gzv'hqto u'ctg'f kuvkpi wkuj gf 'y kyj kp''gcej "qh'\yj gug'\{r gu. 'ceeqwpvkpi 'hqt'\yj g'kphnwgpeg'qh' xctkcdrgu'uwej "cu'hkgrf." o qf g'cpf "vgpqt'kp" o guuci g'eqpurt we vkqp0 Vj ku'\gz√kp/eqp\gzv'\{rqmi { "gzj kdku'\y q"dcuke"u\tcpf u."qpn{ "\j g'hktuv'qh'\y j kej "o c { "dg"crrtqrtkc\ygn{ " eqpulf gtgf "j gtg"wpf gt"\gzv'cpcn{ uku. "yj g"qyj gt"dgkpi "o qtg"qh"c"f kueqwtucn'o cwgt "\*ugg" FKEQWTUG" CPCN UKU'CPF "VTCPUNCVKQP +0"Vj g"\gzv"cpcn{ vke "cpi rg"t grcvgu"\q"\gzvu"cu"rkpi vkuvke "vpkvu. "f kur rc { kpi " ur gelthle "unt wewitg" hato cvu "cpf" r cwgtpu "qh" eqj gulqp0" Vj g"f kueqwtug" cpcn { vke "cko." qp" vj g" qvj gt" j cpf." y qwrf" kpygttgncyg'\gzv'i tco o ct''cpf'r tci o cvkeu''\*\{fcvkuu''3; : 5+''cpf'fgcn'y kyj'kuuwgu'uwej ''cu''yjg''nkpfu''qh'\gzv''  $cxckrcdrg''q'r\ ctvkewrct''i\ tqwr\ u''qh''wugtu''cpf\ ''pqv''q''qy'\ gtu.''vj\ g''kf\ gqrqi\ kecn'ko\ r\ rkecvkqpu''qh''uwej\ ''f\ kuvtkdwkqp''cpf\ ''$ yj g'uqekq/ewnwtcn'ko r nkecvkqpu'qh'vgzvv{r g'f ghkekv'dqvj 'y knj kp''cpf 'cetquu'ugo kqvke''dqwpf ctkgu'\*O ctvkp''3; : 7+0

#### J lgt ct ej lechligz v'int wevnt g

Kl'j cu'dggp'cti wgf ''y cv'cp'ko r qtvcpv'r ctv'qh'cpcn(uku. ''gur gekcm('hqt''y g''r wtr qug''qh''vtcpurc''vkqp. 'kpxqnxgu''y g'' f guetkr vkqp"qh"yi g"uwr tcugpvgpvkcn"uvt wewt g"qh"yi g"vgzv"qt"uqekcn"vtcpucevkqp" {f cvkuu"3; : 5."Vktmmqppgp/Eqpf kv" 3; : 8. "Ucøcf gf f kp"3; : ; +0"Dcukecm(."\gzv'uxt wewst g"cpcn( uku'kpxqnxgu'lxf gpvkh( kpi 'lkpvgt cevkxg"cevu'cpf 'ukxkpi ''vj go ''  $y \; kj \; lp'luqo \; g''ncti \; gt''lpvgtcevlqpcn'htco \; g0'Vj \; g''eqo \; r \; qukvlqpcn'h \; ncp''wpf \; gtn(lpi \; 'Vj \; ku''nlwpf \; 'qh''vgz v'hqto \; cwllpi \; ''y \; lu''nlwpf \; gtn(lpi \; 'Vj \; ku''nlwpf \; gtn(lpi \; 'Vj \; ku''nlwpf \; gtn(lpi \; Vj \; ku''nlwpf \; gtn(lp$ kpenwf gu'c'ugv'qh'qti cpkt kpi 'r tkpekr ngu'y j kej 'f gwgto kpg'j qy 'y tkwgp''qt'ur qmgp'o guuci gu'ctg'o qwrf gf 'vq'hkv' r ct wheward "unt we wat gu O'N kpgct "r tqi tguukqp" htqo "y qtf u "vq" r j tcugu "cpf" encwugu. "kv" j cu "dggp" uwi i guvgf. "f qgu "pqv" ceeqwpvlhqt"yi g"y c{"y g"r tqeguu'\gzv\\*f g"Dgcwi tcpf g"3; 9: +0Kp"r tcevkeg."y g"ctg"eqpuekqwu'yi cv'gcej "grgo gpv'qh" unt wewntg." y j cvgxgt "vj g"cpcn ( vke "o qf gn'qpg" j crrgpu "vq" dg" y qtmkpi "y kyj . "ku "wnko cvgn ( "ce vkxg" kp "hwrhkmkpi "c"  $r\,ct\,\text{$^{\prime\prime}$ hype-$lqp'$ first "gzco}\,r\,\text{$g$."cp''gxgpv'$ lp''c''pcttc\,\text{$^{\prime\prime}$ gr''c''uvgr''$ lp''cp''cti}\,\,wo\,\,gpv+0.$ Y kij kp"ij ku'hwpevkqpcn'urcpv'qp"\gzv'cpcn(uku."o qfgnu"qh'\gzv'uvtwewxtg'hqwpf"\q"dg"rctvkewnctn("jgnrhwn'\q"vjg" vtcpurcvqt"j cxg"dggp"vj qug"y j kej "ecp"eqo dkpg"dqvj "o crrkpi "cpf"pgi qvkcvkqp. "ej ctcevgtkt cvkqp"cpf" kpygtrtgycykąp"qh"o gcpkpi. "kp"f gcnkpi "y kj "y g"y c{ "ygzwi"ctg"r wy'yqi gyi gt0J gtg."y g"dcuke"cuuwo r ykqp"ku y cy'kp" yj g'y c{ ''vgzwi'ctg'hqto cwgf.'kf gqmi kecn'o gcpkpi u'ctg'tgcf ''qhh'cpf 'kk'ku''yj g'kpvgtcevkqp''dgwy ggp''yj ku'r tqf wev'cpf '' rtqeguu'qh'\gzwcnkv{'yjkej'ujqwnf'hqto'yjg'hqewu'qh'\jg'\tcpuncvqt'cv'yqtml\*Dgml3;::+0'Hqt"gzcorng."\gzv' unt wewnt g'j cu'dggp'o quv'wughwn ('uwwf kgf 'htqo 'vj g'uvcpf r qkpv'qh'etquu/ewnwtcn'f khhgtgpegu'kp'vj g'wknkt cwkqp'qh' r gtuwcukxg"untcvgi {""J cvko "3;; 3+." y ky "tghgtgpeg" vq"f gi tgg"qh"qtce{"cpf" hkgtce{""Ucøcf gf f kp"3;:; +"cpf "kp" vgto u'qh'o cetq/kmqewkqpct{'hqteg'\*Vktmmqpgp/Eqpf kv'3; : 8+0

#### Vgzwt g

Cpqvj gt"f qo ckp"qh"vgzv"nkpi wkurkeu"y j kej "j cu"cwtcevgf "o wej "cwgpvkqp"ku"vgzwtg."qt"urtwewtg/kp/f gvckr0"Y qtm" qp"vgzwtg"j cu"qeewr kgf "c"r tqo kpgpv"r reeg"kp"vgzv"nkpi wkurke"tgugctej "cpf "j cu"vj wu."cndgkv"i tcf wcm{ ."hqwpf "kw" y c{"kpvq"tcpurcvkqp"uwxf kgu."hqewukpi "kp"r ctvkewrct"qp"vy q"ctgcu<"eqj gukqp"cpf "vj go g/tj go g"cpcn{ uku0

## Eqj gulqp

Htqo "y g"r gtur gevkxg"qh"vgzv"cpcn(uku. "y qtm"qp"eqj gukqp"j cu"dggp"y g"ukpi ng"o quv"ko r qtvcpv"

ctgc"\q"cwtcev'\j g"cwgp\lqp"pqv'qpn\{ "qh'nlpi wkwu'htqo "c"xctlgv\{ "qh'r gtuwculqpu"dw/cnnq"qh'\j gqtkwu'cpf " rtcevkskqpgtu'kp''y g'hkgnf 'qh'\tcpuncvkqp''\*ugg.'hqt''gzcorng.'Dnwo/Mwmc'3;:8.'Pgy/octm'3;::.'Dcngt'3;;4+0' Vj g"r tkpekr ng"qp"y j kej "eqj gukqp"uwf kgu"ctg"hqwpf gf "ku"c"uko r ng"qpg<"gcej "ugpvgpeg"chwgt" yj g"hktuv"ku"hkpngf "vq" yj g"eqpvgpv"cpf lqt 'hqto "qh"qpg"qt"o qtg"r tgegf kpi "ugpvgpegu"d { "cv"rgcuv"qpg"-xkgø0"Vj gug" \kgu"hcm"kpvq"hkxg"dcuke" ecvgi qtkgu"qh"eqj gukxg"tgncvkqpuj kr u<tghgtgpeg. "uwduvkwvkqp. "gnkr uku. "ngzkecn"eqj gukqp. "cpf "eqplwpevkqp0 Cnj qwi j ''y g'o clqtkv{ ''qh'eqj gukqp''uwf kgu'j cxg''dggp''ej ctcevgtkt gf ''d{ ''c''uwthceg''dkcu. ''kv'ku''dgeqo kpi ''  $kpet gcukpi \ n ("o \ qtg"eqo \ o \ qp"kp" tcpurc \ kqp" uwf \ kgu' \ q"cuuwo \ g' \ j' \ cv'eq j \ gukqp' j' \ cu' \ q' \ dg" gz \ co \ kpgf \ "kp" \ yto \ u' \ qh"$  $wpf gtn \{ kpi \ 'eqj \ gtgpeg''kh''kv''ku''q'' \{ kgrf \ 'cp \{ \ 'wughwrlkpuki \ j \ w0 Hqt \ 'gzco \ r \ ng. ''vj \ g''cpcn \{ uku''qh''grrkr uku''uko \ r \ n \{ \ ''cu'' \ property \ q''' \} \} \} = 0$ f grgvkqp"ecp"dg"j grr hwrl'qpn("y j gp"uwr r rgo gpvgf "d{"vj g"xctkqwu"cf f gf "o gcpkpi u"vj cv'vj g"wug"qh'uwej "c"eqj gukxg" f gxkeg'\cngu'qp'kp'eqpvgzv'o gcpkpi u'uwej "cu'kpvko ce{ "qt'kpvgpukv{ "\Hqy rgt"3; : 8+0'Kv'ku'vj ku'ugctej 'hqt" wpf gtn(kpi 'eqj gtgpeg. 'qxgt'cpf 'cdqxg'uwthceg'o cpkhguvckqpu'qh'vj ku'qt'vj cv'eqj gukxg'vkg. 'vj cv'j cu'r tqxgp'vq'dg'' o quv't grgxcpv'vq''y g''y qtm'qh''y g''vtcpurcvqt0P wo gtqwu'repi wei gu'f kucmqy "qt''ev'rgeuv'f kur tghgt "grrkr uku''eu''kv'ku"  $mpqy \; p. \; "hqt" gzco \; r \; ng. \; "kp" Gpi \; rkuj \; . \; "dw'' y \; g''s \; wguvkqp" ku''y \; j \; gyj \; gt "yj \; g \{ \; "cnuq" f \; kucmqy \; "qt" f \; kur \; t \; ghgt "yj \; g" gzr \; t \; guukqp" qh" | gyj \; gt" y \; g \{ \; "cnuq" f \; kucmqy \; "qt" f \; kur \; t \; ghgt "yj \; g" gzr \; t \; guukqp" qh" | gyj \; gt" y \; g \{ \; "cnuq" f \; kucmqy \; "qt" f \; kur \; t \; ghgt "yj \; g" gzr \; t \; guukqp" qh" | gyj \; gt" y \; g \{ \; "cnuq" f \; kucmqy \; "qt" f \; kur \; t \; ghgt "yj \; g" gzr \; t \; guukqp" qh" | gyj \; gt" y \; g \; gt" y \; gt" y \; g \; gt" y \; gt" y \; gt" y$ kpvgpukv{ "qt"kpvko ce{0'Eqj gukqp"ko r nkgu"eqj gtgpeg. "cpf "kv"ku"vj g"o qvkxcvkqpu"dgj kpf "vj g"vug"qh"c"r ctvkevrct" eqj gulxg"f gxleg. 'tcvj gt"vj cp"vj g"f gxleg"kugrh "vj cv'qwi j v'vq"dg"vcngp"kpvq"eqpulf gtcvkqp"kp"vj g"cev'qh'tgy qtmkpi "c" vgzv'\*ugg'hqt'gzcorg'Dnwo/Mwmc'3;:8+0

#### Vj go g'cpf 'tj go g'cpcn ulu

Vj go g'cpf 'tj go g'cpcn(uku'ku'cpqvj gt 'ctgc''vj cv'j cu'cwtcevgf 'vj g'cwgpvkqp''qh'uqo g'\tcpurcvkqp''uej qrctu0'Vj g'' dcuke'r tgo kug''j gtg'ku''vj cv'ugpvgpegu'eqpukuv'qh'vj go gu.''y j kej 'r tgugpv'mpqy p.''eqpvgz√f gr gpf gpv'kphqto cvkqp.'' cpf 'tj go gu.''y j kej 'r tgugpv'pgy .''eqpvgz√kpf gr gpf gpv'kphqto cvkqp0'Dgecwug''vj g{ 'tgr tgugpv'pgy 'kphqto cvkqp.''kv'' ku'tj go gu'tcvj gt''vj cp''vj go gu'y j kej 'r wuj 'vgzv'f gxgrqr o gpv'hqty ctf 0

Lww'cu'eqj gtgpeg'j cu'dggp'kpxqmgf ''q'r w'uqwidcem'kpvq''y g'uwwf {"qh'eqj gulqp."yj g'pqvlqp'qh''yj go cvle'ltj go cvle'' rtqi tguulqp'j cu'r tqxgf 'j gm hwdkp'tkf f kpi ''dcuke''yj go g/tj go g'cpcn{uku'qh'kwu'kpj gtgpv'ugpvgpeg/qtkgpvgf pguu0' Vj go cvle'rt qi tguulqp''g cu'r tqxgf 'j gm hwdkp'tkf f kpi ''dcuke''yj go g'tpg go gu'qh'yj gtgpv'ugpvgpeg/qtkgpvgf pguu0' Vj go cvle'rt qi tguulqp''g cp''dg''f ghkpgf ''cu''-yj g''ej qleg''cpf ''qtf gtkpi ''qh'wygtcpeg''yj go gu."yj gkt''o wwcn'' eqpecvgpcvlqp''cpf 'j kgtctej {.''cu'y gm'cu'yj gkt'tgmcvlqpuj kr ''q'j {r gtyj go gu'qh'yj g'uwr gtkqt 'vgzv'wpkui'\*uwej ''cu'yj g'' r ctci tcrj .''ej cr vgt.í .''vq''yj g'y j qrg''vgzv.''cpf ''vq''yj g'ukwcvlqpø'\*F cpg-'3; 96-335-0'Vgzwi'j cxg''dggp'hqwpf ''vq'' gzj kdkv'lpvgtguvkpi ''r cwgtpu'uwej ''cu'c'uko r rg'hlpgct'r tqi tguulqp."yj gtg'Vj go g''k'tgf gr rq{u'Tj go g''3.''qt''c'' r tqi tguulqp''yj gtg''c'eqpvkpwqwu'yj go g''ku'f gr rq{gf .''klg0y j gtg''yj g''uco g''yj go g''ku'r kengf ''wr ''ci ckp''cpf ''ci ckp0 C''vgpf ''qh'yj go g'ttj go g''cpcn{uku'kpkcvgf ''d{ ''tgugctej gtu'hkng'F g{gu'\*3; 9: +'j cu'uweeguulman{''r qkpvgf '' vcpurcvlqp''yj gqtkmu'kp''yj g'f ktgevlqp''qh'c'o wej ''o qtg'htwkhwrihkpg'qh'gps wkt {0'Vj ku'kpxqmxgu'i tchklpi ''yzv' v{r qmi kecn'eqpulkf gtcvlqpu'qpvq'r cwgtpu'qh'yj go cyke'r tqi tguulqp'cu'yj gug'wphqnf 0'Vj wu.'ky'j cu'dggp''cti wgf ''yj cv' c'uq/ecmgf ''-uko r ng''Vkø'\*yj gtg'tj go g''dgeqo gu'yj go g''kp''uwdugs wgpv'f kueqwtug+'ku'kp''hcev'c'j ki j n{ ''wtdwgpv'' untwewtg''ej ctcevgtknke''qh''cti wo gpvckxg''ygzvu0'Eqpvkpwqwu'yj go gu."qp''yj g''qyj gt''j cpf .''ctg'v{r kecn'qh'' untcki j vhqty ctf''gzr qukklqp.''cu''kp'y g''ecug'qh'pgy u''tgr qtvkpi '\*'J cvko ''cpf''O cuqp''3; ; 2.''J cvko ''3; ; 3+0

FKLEQWTUG'CPCN UKU'CPF'VTCPUNCVKQP="NKPI WKUVKE'CRRTQCEJ GU="RTCI O CVKEU'CPF" VTCPUNCVKQP0

## Hwt yj gt 't gcf kpi

DCUKN'J CVKO

# Vj kpm/cmwf 'r t qwqeqnu

Kpvgtguv'kp''y g'∹dncem'dqzø'qh'\tcpuncvkqp.''k0g0'y g''y qwi j v'r tqeguugu''y j kej "vcng'r nceg''y j gp''uqo gqpg''ku''
tcpuncvkpi ''c''vgzv.''ku'r tqdcdn{ ''cu''qrf ''cu''\tcpuncvkpi ''kugnh0'Vtcpuncvqtu''j cxg''cnuq''

Cv'y g'o quv'i gpgtcn'igxgn'y g'r wtr qug''qh''VCR''uwf kgu'ku'\q'i ckp'c''dgwgt''wpf gtuvcpf kpi ''qh'y g'r u{ej qmi kecn' cpf ''nkpi wkuke''o gej cpkuo u'kpxqnxgf 'kp''y g''cevkxkv{ ''qh''vtcpurcvkpi 0O qtg''ur gekhke''ctgcu''qh''tgugctej ''j cxg'' kpenwf gf .''hqt''gzco r ng.''r tqdrgo /uqnxkpi ''uvtcwi kgu'\*\*Mtkpi u'3; : 8='N¾tuej gt''3; ; 3+.''etkxgtkc''hqt''f gekukqp''o cnhpi '' \*Vktnmqpgp/Eqpf kv'3; ; 2+.''cpf ''etgcvkxkv{ ''kp''vtcpurcvkqp''\*Mwuuo cwn'3; ; 3+0°Cv'y g''gctn{ ''uvci gu''qh''r tqeguu/ qtkgpvgf ''go r ktkecn'tgugctej .''y g''go r j cuku''vgpf gf ''q''dg''qp''hqto wrcvkpi .''vguvkpi .''cpf ''tghkpkpi ''j {r qy gugu''cdqw'' y j cv'i qgu''qp''kp''y g''÷drcen'dqzø0

## Vj lpnlpi 'cnwf 'cu'c'o gvj qf 'qhlf cw 'eqngevlqp

Vj g'r tqdrgo 'y kj 'kpxguki ckpi 'y g'r tqeguugu'qh'y g'j wo cp'o kpf 'ku'y cv'y g{ 'ctg'pqv'cxckrcdrg'hqt'f ktgev' qdugtxcvkqp0kp"r u{ej qrqi kecn'tgugctej ."xctkqwu'o gyj qf u'j cxg"dggp"f gxgrqr gf "vq'i ckp"ceeguu."cmlgkv'kpf ktgevn{ ." vq"o gpvcn'r tqeguugu0'Vj kpnkpi "cmvf 'ku'qpg'qh'c'ncti g'uvkxg'qh'f cvc'eqmgevkqp"o gyj qf u'mpqy p'cu'x gt dcntt gr qt v' rt qegf wt gu'qt 'lpvt qur gevlxg'o gyj qf u0'Vj gug'lpenxfg. 'hqt 'gzcor g.'\*\*tcf kkqpcn+'lpvt qur gevlqp. 'y j gtg'y g' uwdlgev'qh'y g'gzr gtko gpv'ecttkgu'qw'c'ugnh/cpcn{uku'qh'j ku'qt'j gt'qy p'y qwi j v'r tqeguugu.'cpf '**t gvt qur gevkxg''** xgt dcnt gr qt vlpi. 'y j kej "cmgu'r nceg"chygt 'tcyj gt "y cp"f wtkpi "y g"r gthqto cpeg"qh"c"i kxgp "cum'hqt "y g" gzr gtko gpv0kp"eqpvtcuv." y kpnkpi "cmwf" ku"eqpewttgpv" w mgu"r nceg" uko w ncpgqwun ("y kj" y g" w uni'r gthqto cpeg+" cpf "wpfktgevgf" "twwdlgevu" ctg" pqv" cungf "vq" xgtdcrktg" ur gekhke "kphqtocvkqp+0 Cu"c" tguwnx. "VCR" fcvc "ku" eqpukfgtgf" o qtg"eqo r ngvg"cpf "o qtg"tgrkcdng"vj cp"kpvtqur gevkxg"qt"tgvtqur gevkxg"tgrqtvu<o qtg"eqo r ngvg"dgecwug"vj gtg"ku" rguu'rkngrkj qqf "qh"hqti gwkpi "qt"qo kwkpi "kphqto cwkqp. "cpf "o qtg"tgrkcdrg"dgecwug"vj gtg"ku 'rguu'rkngrkj qqf "qh" f kunqt vkqp'\*Gt keuuqp''cpf ''Uko qp''3; : 6+0'Kp''qyi gt''y qtf u.''yi g''o gyi qf ''qh''yi kpmkpi ''cnqwf ''kp''f cwc''eqmgevkqp'' cwgo rwu. "cu'hct "cu'r quukdng. "vq "gnkek/wpgfkgf" fcvc="kv'ku" vjgp" vjg "vcum'qh' vjg "gzrgtkogpvgt" vq "kpxguvkicvg" vjgvjgt ô cpf "kh'uq'y j kejô tgi wrctk-kgu'crrgct"kp''y g'fcvc0"Vq"hcek-kxcvg''xgtdcnk| kpi "cpf''vq''rtgxgpv'uwdlgevu'htqo" cpcn{ukpi "yi gkt"qy p"yi qwi j vu"\*k0g0kpvtqur gevkpi +:"uqo g"tgugctej gtu"j cxg"tgeqo o gpf gf "yi cv'uwdlgevu'uj qwrf" tgegkxg'ur gekcn'\tckpkpi "cpf "dg'i kxgp'y cto/wr "\cumu'dghqtg'\j g"gzr gtko gpv'r tqr gt'\Gtkeuuqp"cpf "Uko qp'3; : 6." 3;:9+0

 $\label{eq:localization} Xgtdcn'tgr\ qtw''j\ cxg''j\ cf''c''j\ ki\ j\ n("eqpvtqxgtukcn'j\ knqt{"kp'ru{ej\ qmi}}\ {.'tcpi\ kpi ''ttqo ''wpeqpf\ kkqpcn'ceegr\ wpeg''}\ d{''untwewtcnknu''q''vqvn'tglgevkqp''d{''dgj\ cxkqwtknu0Eqpvgo\ r\ qtct{''cuuguno\ gpwi'vgpf''vq''dg''rguu''gzvtgo\ g.''cpf''}\ o\ quv''uej\ qrctu''pqy ''o\ ckpvkp''yj\ cv''y\ j\ gp''grkekgf''y\ kyj ''ectg''cpf''cpcn(ugf''y)\ kyj ''unwhhkekgpv''cy\ ctgpguu''qh''yj\ gkt'' no kcvkqpu. ''xgtdcn'tgr\ qtw''ecp''r\ tqxkf'g'tkej ''cpf''wughwif'\ cvc''qp''j\ wo\ cp''yj\ qwi\ j\ v'r\ tqeguugu'''Gtkeuuqp''cpf''Ulo\ qp''\ 3;:\ 6+0Qpg''ko\ r\ qtwpv''cpf''eqpvtqxgtukcn's\ wguvkqp''unkn'tgo\ ckpu''yj\ qwi\ j\ ''cu''vq''y\ j\ gy\ gt''xgtdcn'tgr\ qtv'f\ cw''r\ tqxkf\ gu''\ eeguugu'''q''o\ gpvcn'r\ tqeguugu''qt''vq''yj\ g'''kpvgto\ gf\ kvg+''r\ tqf\ wwu''qh''yj\ gug''r\ tqeguugu''''uqo\ gyko\ gu''ecmpf''\ eqpvqpv='P\ kudgw''cpf''Y\ knupp''3;\ 99+0Vj\ g''cpuy\ gt''f\ gr\ gpf\ u''ntti\ gn''\ gg''qdxkqwm(''j\ cxg''vq''dg''eqpvkf\ gtgf''kpceeguukdrg''d{''o\ gcpu''qh''cp{'''}}\ o\ gy\ qf''qh''xgtdcn'tgr\ qtvkpi\ 0'Dw''Ctkeuuqp''cpf''Ulo\ qp''*3;:\ 6+:'hqt''gzco\ r\ ng.''xkgy\ ''j\ wo\ cp''y\ qwi\ j\ v'r\ tqeguugu''cu''\ kphqto\ cvkqp''r\ tqeguukpi\ 0'Ceeqtf\ kpi\ ''y\ gkt''y\ gtqt{''qh''xgtdcn't}\ cvkqp.''y\ cv''r\ ctv'qh'kphqto\ cvkqp''r\ tqeguukpi\ ''y\ j\ kej\ ''y\ gth{''y\ gth$ 

r ncpu'\*P kudgw'cpf "Y knuqp'3; 99+ô o c{ "dg'nguu'tgngxcpv'vq" tcpuncvkqp"tgugctej 0"Xgtdcnk cvkqpu'r tqf wegf "kp" y g" eqwtug"qh'r gthqto kpi "c'vtcpuncvkqp" cum'r tqxkf g"cf f kxkqpcn'kphqto cvkqp"cdqw'y g"qy gty kug" y kt f gp"uvci g" dgw ggp"wpf gt/uvcpf kpi "y g'uqwteg" yzv'cpf "r tqf wekpi "y g"vcti gv'vgzv0"Y j gy gt "y ku'f cvc'tghrgew" o gpvcn' r tqeguugu"qt" o gpvcn'eqpvgpv'ku. "kp"uqo g"ecugu"cv'ngcuv. "qh'nguugt "ko r qtvcpeg0"

Vj gtg'ctg. 'pgxgtyj grguu. 'ugxgtg'rko kscykqpu'qp''yj g'wughwrpguu'qh''VCRu0'Vj gug'kpenwfg''yj g'kpgxkscdrg'' kpeqo r ngvgpguu'qh'vj g'f cvc0'Dgecwug''qpn( 'vj cv'y j kej 'ku'eqpuekqwu'ecp''dg''xgtdcnk gf .''VCRu'ecp''r tqxkf g''pq'' o qtg"yj cp"cp"kpeqo r ngvg"ceeqwpv'qh'yj g"r tqeguukpi "kpxqnxgf"kp"cp{"eqi pkxkxg"\cun0"Vj ku'twngu'qwv."hqt"gzco r ng." r tqeguugu'y j kej 'j cxg'dgeqo g'cwqo cvk gf 'f wg'vq'gzvgpukxg''gzr gtkgpeg'kp'r gthqto kpi 'c'r ctvkewrct''cun0Qp''y g'' qyi gt"j cpf. "cnyi qwi j "yi g"o clqtkx{ "qh"o gpvcn"r tqeguugu 'vcng"r rceg"cv"yi g"wpeqpuekqwu 'ngxgn "o cp{ "qh"yi go "\*hqt" gzco r ng'dcuke'r gtegr wcn'r tqeguugu+'o c{ 'pqv'dg'qh'f ktgev'kpvgtguv'vq'vtcpuncvkqp'uvwf kgu'f gur kxg'dgkpi 'egpvtcn'vq' j wo cp'dgj cxkqwt'kp'i gpgtcn0'Vj gtg'ku'cnıq''y g'hcev'y cv'y g'cevkxkv{ "qh'\tcpurcvkpi "\ypf u'\q'o cng''y qug'kpxqnxgf " kp"k/"|NgO'tcpurcvqtu+"o qtg"eqpuekqwu"qh"egtvckp"rjgpqogpc."uwej"cu"pwcpegu"qh"ogcpkpi."yjkej"kp"gxgt{fc{" ncpi wci g'wug'tgs wktg'nkwrg'qt'pq'eqpuekqwu'cwgpvkqp='y ku'uwi i guwu'y cv'vtcpurcvkqp'o c{ 'dg'o qtg'co gpcdrg'vq' xgtdcnk cvkqp" y cp"qy gt hqto u'qh'ncpi wci g'wug0Kp" cf f kkqp. "vcr g/tgeqtf kpi "qt" xkf gqvcr kpi "cp"gzr gtko gpv" gpcdrgu''y g'tgugctej gt''vq''uwr r rgo gpv'xgtdcn'tgr qtv'f cw''y kj "qdugtxcwqpcn'f cwc'hqt"gzco r rg'kpvqpcwqp"  $r\ cwgtpu. "r\ cwugu"cpf\ ."lp" 'y \ g"ecug"qh"xkf\ gqvcr\ lpi\ ."g\{\ g/o\ qxgo\ gpvu."i\ guwtgu"cpf\ "lcelcn"gzr\ tguulqpu0"Vj\ g"ecug"qh"xkf\ gqvcr\ lpi\ ."g\{\ g/o\ qxgo\ gpvu."i\ guwtgu"cpf\ "lcelcn"gzr\ tguulqpu0"Vj\ g"ecug"qh"xkf\ gqvcr\ lpi\ ."g\{\ g/o\ qxgo\ gpvu."i\ guwtgu"cpf\ "lcelcn"gzr\ tguulqpu0"Vj\ g"ecug"qh"xkf\ gqvcr\ lpi\ ."g"ecug"qh"xkf\ lpi\ ."g"ecug"qh"xkf$ eqo dkpckqp"qh"xgtdcrk gf "cpf "qdugtxckqpcrlf cvc"ecp"r tqxkf g"enwgu"cdqww'y j cv'o ki j v'dg"i qkpi "qp"cv'yi g" wpeqpuekqwu'ngxgn0kp''y g''ecug''qh''tcpurckqp.''y g'y tkwgp''gpf/r tqf wev'ecp''cnuq''qhhgt''cff kkqpcnlkphqto cvkqp0 C'ugeqpf 'r tqdrgo 'y kj ''j g'wug'qh'VCRu'eqpegtpu''j g'r qvgpvkcri'ghhgev'qh'xgtdcrk cvkqp''qp''y g'r tqeguu'wpf gt'' kpxgurki crkqp0Gtkeuuqp"cpf "Uko qp"cti wg."qp"yi g"dcuku"qh"cp"gzvgpukxg"uwtxg{ "qh"tgugctej "gxkf gpeg."yi cv'xgtdcn' tgrqt√kpi 'fqgu'pqv'ejcpi g'yi g'eqwtug'qt''yi g'uvtwewtg''qh''yi qwi j v'rtqeguugu'\*3;:6<9:6329+0√J qy/gxgt.''kp''yi g'' cdugpeg"qh"cp{"o gyi qf qmi kecn'uwtxg{u"qh"yi g"ghhgew"qh"xgtdcnt cvlqp"qp"\tcpurcvlqp"r tqeguugu"lp"r ctvlewrct" \*tcyj gt"yj cp"yj qwi j v"r tqeguugu"kp"i gpgtcm: "kv"ku"f khhkewnv"vq"f gvgto kpg"y j gvj gt"c"uko knct"f gi tgg"qh"qr vko kuo "ecp" dg'lwuwlingf 'y kij kp'tcpurcvkqp'uwwf kgu0Wpvkn'o qtg'tgugctej 'qp'o gyj qf qmi kecn'kuuwgu'ku'ecttkgf 'qww.'y g'j cxg'vq'' tgn(ô ecwkqwun("/qp"yj g"gxkf gpeg'htqo "emqugn("tgncvgf"ctgcu."uwej "cu"tgugctej "qp"y tkkpi "r tqeguugu."y j gtg" yj kpmkpi "cmwf 'ku'tgi ctf gf "cu'c 'wughwn'\qqn'\\*ugg'hqt "gzco r ng'J c{gu'cpf 'Hnqy gt'3; : 2='Dgtgkgt'cpf 'Uectf co cnkc" 3;:9+0

Kp'uwo ."cnj qwi j "'y kpm/cnqwf "r tqvqeqnu"ecppqv"j grr "wu"wptcxgrl"cm'y g"o {uvgtkgu"qh'vtcpurcvkqp. "y g{ "f q"r tqxkf g" ceeguu"vq"xcnwcdrg"kphqto cvkqp"cdqww"y g"pcwtg"qh'vtcpurcvkpi 0'Qy gt"o gy qf u"qh"ces wkt kpi "uwej "kphqto cvkqp" kpenwf g"kpvgtxkgy u."s wguvkqppcktgu"cpf "vgco "vtcpurcvkqp"\*vtcpurcvqtu"y qtmkpi "kp"r cktu"qt "kp"uo cm'i tqwr u≓J qwug" 3; : : ."O cvtcv'3; ; 7+0'Eqo r rgo gpvct { "gxkf gpeg"eqnrgevgf "htqo "f khhgtgpv'uqwtegu"ku "hkmgn{ "vq"r tqxkf g"y g"o quv" eqo r rgvg"cpf "tgrkcdrg"r kewtg"qh"y g"eqpvgpvu"qh"y g"∺drcenddqzø0

### Qxgt xlgy 'qh'VCR'twwf lgu

VCR'uwf kgu'qh'tcpurckqp'qhhgt'cp'gzegngpv'gzco r ng'qh'y g'kpygtf kuekr nkpct { 'pcwtg'qh'tcpurckqp'tgugctej 0' F cw'eqngevkqp'o gyj qf u'y gtg'dqttqy gf 'htqo 'r u{ej qnqi { .'cpf 'vj g'o gyj qf u'wugf 'vq'f guetkdg'cpf 'cpcn( ug''VCR'' f cw'eco g'htqo 'c'xctkgv{ 'qh'f kuekr nkpgu'uwej 'cu'r u{ej qnqi { .'cpf 'vj g'o gyj qf u'wuf kgu'cpf 'eqi pkkxg'cpf 'uqekcn' r u{ej qnqi { 0'Kp'hcev.'dgecwug'o gyj qf u'qh'cpcn( uku'wuwcm( 'j cxg''vq''dg''o qf khlqf ô gxgp''vq''yj g''gzvgpv'qh''dgkpi '' wknqt/o cf gô vq'f guetkdg''c'r ctvkewrct''dqf { 'qh'f cwc.''VCR''uwwf kgu''j cxg''eqo g''vq''tgr tgugpv'uwej ''c'y kf g''ur gevtwo '' qh''tgugctej ''ttcf kkqpu''yj cv''kpuvgcf 'qh'hqto kpi ''c''engctn( 'wpkhqto ''crr tqcej 'y kyj kp''tcpurcvkqp''uwwf kgu.''o cp{ 'qh'' yj go ''ugo ''vq''uj ctg''pq''o qtg''yj cp''yj g''dcuke''o gyj qf qnqi { 'qh''gnkekkpi ''f cwc0 Vj wu.''hqt''kpuvcpeg.''yj g''uqwteg''cpf ''cti gv''rcpi wci gu''j cxg''xctkgf .''cu''j cu''yj g''f ktgevkqp''qh''tcpurcvkqp''\*kpvq''qt''qw''

Vj wu. 'hqt 'kpucpeg. 'vj g'uqwteg'cpf 'vcti gv'rcpi wci gu'j cxg'xctkgf. 'cu'j cu'vj g'f ktgevkqp'qh'vtcpurcvkqp''kpvq'qt''qw'' qh'vj g'o qvj gt 'vqpi wg+0'Wuwcm( 'uwdlgewi'j cxg'r tqf wegf 'c'y tkwgp''vtcpurcvkqp''qh'c'y tkwgp''vgzv''gzegr v'kp'' N¾tuej gtøu'uwwf { '\*3; ; 3c+. 'kp'y j kej 'hqtgki p/rcpi wci g'uwwf gpwi'r tqf wegf 'cp''qtcn'vtcpurcvkqp''qh'c'y tkwgp''vgzv0' Vj g'uqwteg''vgzwi'j cxg''tgr tgugpvgf 'f khlytgpv'i gptgu. 'tcpi kpi 'htqo ''vtcxgn'

dtqej wtgu'\q'r qrkkecn'uc\ktg''cpf 'htqo 'r qr wrctk gf 'uekgpeg'\q'i qxgtpo gpv'f qewo gpvu0Ceeguu'\q'tghgtgpeg'' o cvętkon'j cu'uqo gwło gu'dggp''cmqy gf "cpf "uqo gwło gu'f gpkgf. "kp" yj g'howet "ecug'kp" qtf gt "vq" grkek/tkej gt" kphgtgpekpi "uxtcvgi kgu'\*cu. 'hqt'kpuvcpeg. 'kp'I gtmlhl'3; : 8+0'Uvdlgevu. 'kp' wtp. 'j cxg'tgrtgugpvgf' xctkqwu'hgxgnu'qh' nkpi wkuwle "cpf "tcpurcykqpcn"eqo r gvgpeg "cpf" j cxg "kpenwf gf. "hqt "gzco r ng. "hqtgki p "ncpi wci g "ngctpgtu." tcpurcykqp" uwwf gpvu. "eqo r gvgpv'dkrkpi wcnu. "cu"y gm"cu"r tqhguukqpcn"vtcpurcvqtu0"Vj g"vtcpurcvkqp"r tqeguugu"qh"hcpi wci g" ngctpgtu"ecp"qh"eqwtug"dg"f kuo kuugf "cu"pqv"dgkpi "tgrtgugpvcvkxg"qh"rtqhguukqpcn"vtcpuncvkqp="qp"vjg"qyjgt"jcpf."kv" ku'wughwi'vq'j cxg'eqpvtqnii tqwr u'hqt'eqo r ctkuqp. 'qvj gty kug'kv'y qwrf 'dg'ko r quukdng'vq'f gvgto kpg'y j cv' eqpurkwwgu'r tqhguukqpcn'dgi cxkqwt'kp''tcpurcvkqp0O qtg'ko rqtvcpvn{."VCR'tgugctej gtu'uggo 'vq'f ghkpg''y g'xgt{" pqvkqp"qh":-xtcpurcvkqpø'kp"fkhhgtgpv'y c{u0'Hqt"uqo g.":-yj g"vcum'qh''xtcpurcvkpi ."d{"fghkpkkkqp."fgo cpfu"c'xgtukqp"cu" enqug'\q''y g''qtki kpcn'cu'r quukdrgø'\*J ¾nuej gt''cpf 'O ¾ rg''3; : 9<336±"y j gtgcu''qy gtu''j cxg''cf qr vgf ''c''dtqcf gt'' hwpevkqpcn'f ghkpkkqp'y j kej "cmqy u'f gxkcvkpi 'htqo 'vj g'qtki kpcn'kh'pgeguuct { "\*ugg. 'hqt "gzco r ng. "L®nngn®kpgp" 3; ; 2="Vktmqpgp/Eqpf kv'3; ; 2="Mwuuo cwn'3; ; 3+0"Vj g"f ghkpkkqp"qh":xtcpurcvkqpø'f gr gpf u'rcti gn{ "qp" y g"r wtr qug" qh'tgugctej. 'Kg0y j gyj gt''tcpurckqp'ku'wugf 'cu'c'o gcpu'qh'grkekkpi 'f cw'qp'rcpi wci g'r tqeguukpi 'qt'y j gyj gt'' vtcpurcvkqp'kvugrh 'cu'cp'cevkxkv{ .'ku'vj g'hqevu'qh'kpxguvki cvkqp0'Vj g'vvpf gtn(kpi 'f ghkpkkqp'qh'vtcpurcvkqp'cnuq''  $uggo\ u'vq'f\ gvgto\ kpg'y\ j\ gvj\ gt''qt''pqv'uwdlgevu''ctg''i\ kxgp''c''vtcpurcvkqp''dtkgh''^f\ guetkr\ vkqp''qh''y\ g''r\ wtr\ qug''qh''$ vtcpurcvkqp+'cv'y g'uvctv'qh'y g'gzr gtko gpv0

P qv'uwtr tkukpi n(. "uwej "c"o wnkr nlekk{ "qh'cr r tqcej gu'\gpf u'\q"etgcvg"egtvckp"tgugctej "r tqdngo u0Hqt"kpurcpeg." eqo r ctkpi "yj g"tguwwu"cpf "wukpi "yj g"eqo r ctkuqpu"cu"c"dcuku"hqt"i gpgtcnk cwqpu"dgeqo gu"j ki j n( "eqo r nlecvgf 0' O qtgqxgt."kv'ku"gzvtgo gn( "ko r qtvcpv'vq"dg"cdng"vq"eqo dkpg"gxkf gpeg"htqo "ugxgtcn'uwf kgu."dgecwug"uwdlgev' r qr wrcwlqpu"j cxg"kp"i gpgtcn'dggp"tcvj gt "uo cmi\*tcpi kpi "htqo "qpg"vq"y gnxg"kp"o quv'ecugu+0Qp"vj g"qvj gt "j cpf ." vj g"j ki j "rgxgn'qh'xctkcwlqp"y kyj kp"VCR'uwf kgu"j cu"j cf "ku"cf xcpvci gu"vqq=f khlgtgpv'v( r gu"qh'uwf { "j cxg"uj gf " nki j v'qp"f khlgtgpv'cur gevu"qh'vj g"xtcpurcwlqp"r tqeguu"cpf "qp"f khlgtgpv'mkpf u"qh'vtcpurcwlqp"r tqeguugu."vj wu" kmwntcwlpi "yj g"eqo r ngzkx{ "qh'vtcpurcwlqpcn'r j gpqo gpc0Kp"hcev."vj g"hkpf kpi u"qh"vCR'uwf kgu"j cxg"uq"hct"qhhgtgf " kpf kur wcdng"gxkf gpeg"vq"uwr r qtv'vj g"xkgy "vj cv'vj gtg"ku"pq"ukpi ng"o qpqnkyj ke"vtcpurcwlqp"r tqeguu0Vvj g"pcwtg"qh" vj g"r tqeguu"xctkgu"eqpukf gtcdn( "f gr gpf kpi "qp"ugxgtcn'hcevqtu."kpenwf kpi "v( r g"qh'vgzv."v( r g"qh'vcum'cpf "v( r g"

Vj g''gxkf gpeg''y j kej 'j cu'i tcf wcm{ 'dgeqo g''cxckrcdrg'htqo ''VCR''uwxf kgu''j cu'i kxgp''tkug''vq''uqo g''kpvtki wkpi " j {r qyj gugu'y j kej 'o gtk/hwtyj gt'cwgpvkqp0kp'cf f kwkqp'vq'uqo g'r tgf kevcdrg'tguwmu.'hqt'kpuvcpeg'yj cv'rcpi wci g'' ngctpgtu'hqewu'qp''yi g'r tqeguu'qh'ngzkecn'\tcpuhgt'\\*Mtkpi u'3; : 8=\N3/4uej gt'3; ; 5+\'y j gtgcu'r tqhguukqpcn\\tcpunc\qtu'' hqewu'qp''uv{ rg''cpf ''y g''pggf u'qh'y g''cti gv''cwf lgpeg'\*\*I@@ungn@pgp'3; ; 2."Vktmmqpgp/Eqpf kv'3; ; 2+:"VCR''uwf lgu" j cxg"cnuq"qhhgtgf "c"hgy "uwtrtkugu0"Hqt"gzcorng."qpg"eqooqp"cuuworkqp"j cu"dggp"yj cv'hqt"rtqhguukqpcn" vtcpurcvqtu'vj g''vtcpurcvkqp'r tqeguu'ku'j ki j n{ 'cwqo cvk gf .'y kij 'hgy 'r tqdrgo u'cpf 'rkvrg'eqpuekqwu'f gekukqp/ o cmkpi "\*D3/tuej "3; : 8="Mtkpi u'3; : 8+0"U' i wkpqvøu"ecug'uwwf { "\*3; : ; +"qh"c Ecpcf kcp"i qxgtpo gpv"vtcpurcvqt" uwr r qt vgf 'vj ku'j {r q yj guku0J qy gxgt. 'hwt yj gt 't gugctej 'j cu'uj qy p'vj cv'r t qhguukqpcn'vt cpurcvqt u'qhvgp 'kf gpvkh{" o qtg'r tqdrgo u'cpf 'ur gpf 'o qtg' 'lao g'cpf 'gpgti { ''qp''uqnxkpi ''y go ''y cp''rcpi wci g'rgctpgtu' \*Mtkpi u'3; : : =" L®ngn®npgp"3;; 2+0"Qp"vj g"dcuku"qh"vj gug"hkpf kpi u."vj g"cwqo cvkekv{ "j {rqvj guku"j cu"dggp"tghkpgf "cu"hqmqy u≺" repi wei g'hgetpgtu'etg'wpey etg'qh'r qvgpvlen'r tqdrgo u'llp'vtepurevlqp. "epf "e'j ki j gt'hgxgn'qh'eqo r gvgpeg'hgef u'vq" j gki j vgpgf "cy ctgpguu"qh"r tqdrgo u"co qpi "r tqhguukqpcn" tcpurcvqtu" Loongroupgp" cpf "Vktmrqpgp/Eqpfk/3;; 3+0" Hwtyi gto qtg. 'r tqhguukqpcn'\tcpurcvqtu'ecp'\uj khv'dgwy ggp''cwqo cvk gf 'r tqeguukpi 'kp'tqwkpg'\cumu'\cu'kp''U' i wkpqv' 3; :; +"cpf "eqpuekqwu'r tqeguukpi "kp"pqxgn"ukwcvkqpu" "Mtkpi u"3; :: <"L@ungn@kpgp"3; ; 2="Ncwmcpgp"3; ; 5+0 Hkpcm(."ur geken'ewgpvkqp"ku kpetgeukpi n("dgkpi"r ckf"vq"vj g"tqng"qh'ehhgevkxg"heevqtu uwej "eu ewkwf g"epf" o qvkxcvkqp"\*Mvuuo cwn'3;; 3="Htcugt"3;; 5+0Rtgnko kpct{"tguwnu"uggo "vq"ko rn{"vj cv'c"rqukvkxg"cwkwxfg"cpf"c"j ki j " ngxgn'qh'o qvkxcvkqp'hqto "r ctv'qh'r tqhguukqpcn'eqo r gvgpeg'cpf "o c{ "gxgp"eqpvtkdwg"vq"gpj cpekpi "vj g"s wcnkv{ "qh" vtcpurcvkqp0'Vj gug'hkpf kpi u'ctg'uwr r qtvgf 'd{ 'r u{ej qrqi kecn'tgugctej 'qp'gzr gt/

ww."y j gtg"ki'ku"j {r qi guk gf "i cv'i g"f gekukxg"hcevqt"kp"i g"f gxgmqr o gpv'qh"gzr gtwug"o c{"pqv'dg"i khwgf pguu" \*pcwtg+"qt"gzvgpukxg"r tcevkeg"\*pwtwtg+"cmpg<"kp"qtf gt "vq"uwwckp"i g"nqpi "r gtkqf "qh"tckpkpi "tgs wktgf "vq"i ckp"i g" tgngxcpv'gzr gtwug."c"j ki j "ngxgn'qh'o qwxcwlqp"j cu"vq"dg"etgcvgf "cpf "o ckpvckpgf "\*Rqupgt"3; : : +0

VCR"tgugctej "engctn("uwkn'j cu"c"nqpi "y c{"vq"i q"vq"guvcdnkij "kuugn'iy kij kp"tcpuncwlqp"uwwf kgu0O qtg"tgugctej "ku" tgs wktgf "vq"guv'ij g"tguwwu"cpf "tghkpg"ij g"j {r qi gugu"f gxgmqr gf "uq"hct0"Vj g"o quv'ko r qtvcpv'ctgcu"cy ckwpi "hwt j gt"tgugctej "kpenwf g"tghkpkpi "i g"o gi qf qmi {."tgr necvkpi "gctnkgt"uwwf kgu."cpf "kpkwcwpi "nqpi kwwf kpcn'uwwf kgu" vq"o cr "ij g"f gxgmqr o gpv'qh'itcpuncwlqp"eqo r gvgpeg"kp"ij g"uco g"kpf kxkf wcn\\*qt"i tqwr "qh'kpf kxkf wcn+"qxgt"c"nqpi "r gtkqf "qh'two g0

*Ugg'cnuq*<

FGEKUKOP 'O CMKP I 'KP 'VTCP UNCVKOP = CO G'VJ GQT | 'CPF 'VTCP UNCVKQP = RU EJ QNKP I WKUVKE I'EQI P KVKXG'CRRTQCEJ GUO

# Hwt vj gt 't gcf kpi

Gtkeuuqp"cpf "Uko qp"3; : 6="Hcgtej "cpf "Mcur gt"3; : 9="Htcugt"3; ; 8="J wdgt"cpf "O cpf n'3; : 4="Mtkpi u'3; : 8="N¾tuej gt"3; ; 30 TKVVC"I£ £ UMGN£ KP GP

# Vqtcj 'ttcpucvkqp

Vj gtg'ku'c'nqpi 'Igy kuj ''tcf kkqp''y cv'Vqtcj. ''cmgp''j gtg''cu'i gpgtcm( ''gs wkxcngpv'vq'y j cv'Ej tkukcpu''ecm'Qrf'' Vguvco~gpv''y cu''y tkvgp'hqt''j wo cpu''vq''wpf gtuvcpf ''y qwi j ''kv''eqpvckpu''f kxkpg''twj u0K''o wuv''y gtghqtg''dg'' vtcpurcvgf ''cpf ''kpvgtr tgvgf 'hqt''y qug''y j q'f q'pqv''wpf gtuvcpf ''J gdtgy 0

Vj g'hktuv'j kuvqtkecn'tgr qtv'qh'vtcpurcvkqp''eqo gu'kp''y g'Dkdrg''kuvgrh0'Y j gp''y g'Igy kuj "gzkrgu." o cp{"qh''y j qo "pq" mpi gt''wpf gtuvqqf "J gdtgy ."tgwtpgf 'htqo 'Dcd{mp'kp''y g''ukz y 'egpwt{"DE."÷y g{"tgcf 'htqo ''y g''dqqm'qh''y g" my 'qh'I qf 'ergctn{."o cf g'kuv'ugpug'r mkp''cpf 'i cxg'kpuvtwevkqp'kp''y j cv'y cu'tgcf ø'\*P gj go kcj ": < <'P gy 'Gpi rkuj "Dkdrg''3; 92+0'Vj cv'ku''q''uc{."y g{"tgcf "y g''Vqtcj "y ky ''vtcpurcvkqp''cpf "eqo o gpvct{0'Vj g''gctrkguv'y tkvxpp" vtcpurcvkqp."j qy gxgt."ku''y g''Ugr wci kpv."r tgr ctgf "kp''y ktf/egpwt{"DE''Gi {r v'r tqdcdn{ 'hqt'I tggm/ur gcnkpi "Igy u" y j q''pq''nqpi gt''npgy 'I gdtgy 0'Vj g''vtcpurcvkqp''y cu''pgxgt''eqpukf gtgf ''ucvkulrcevqt{ 'kp''y g''Igy kuj ''xkgy ."r ctvn{ "dgecwug''y g''tcpurcvqtu''j cf 'pqv'y qtngf 'htqo ''c'uvcpf ctf ''qtki kpcn'o cpwuetkr v'cpf ''gxgp'htggn{ 'r ctcr j tcugf 'uqo g'' dqqmu."dw'o ckpn{ 'dgecwug''kv'y cu''wugf ''d{ ''o quv'Igy u''kp''y g''I tggm'cpf 'Tqo cp''f kcur qtc''kpuvgcf ''qh''y g''qtki kpcn' J gdtgy 'tcyj gt''y cp''cu''cp''cf lwpev'\q''kv0

Kp" i g"ugeqpf "egpwt { "CF. 'Cs wkm'r tqf wegf "c" 'tcpumckqp" y j kej "y cu" j ki j n{ 'tcvgf "d { 'Lgy u. 'y j kmg" V j gqf qvkqp" cpf "U { o o cej wu" tgxkugf "i j g"Ugr wci kpv0 V j gug" vgz vu" uwtxkxg" kp" Qtki gpøu" J gzcrnc. "eqo r mygf "kp" CF "467. "y kij " r ctcmgn'eqnwo pu" qh" vgz v" cpf "vtcpumckqpu0

Vj g'Ctco cke"tcpurckqpu"npqy p"cu"Vcti wo "\*r nxtcn\"Vcti wo ko ."o gcpkpi "\text: tcpurckqp\si\qt" \text: pvgtrt gcvkqp\si\qt" \text. gtg\text. gtg\text.

 $\begin{tabular}{l} IGTQO Gou'hqwty'/egpwwt {"Ncvkp" 'tcpurcvkqp" inpqy p"cu'yi g"Xwri cvg" `ugg" NCVKP "VTCF KWQP + 'ugtxgf "cu'c" uqwteg" \ugayzv'hqt"Y guvgtp" Ej tkurkcp 'vtcpurcvkqpu'hqt" ugxgtcn'egpwwtkgu0 Cnji qwi j "j g"uwrf kgf "wpf gt" Lgy kuj "o cuvgtu" qh'J gdtgy "cpf "Dkdng" gzgi guku. "Igtqo g"urkm' vtcpurcvgf "cno cj" 'kp" Kuckcj '9 36 + "cu" xhti kp" 'tcvj gt" y cp" {qwpi " y qo cp0 Uko krctn{." kp" Gzqf wu'56 < ." j g" vtcpurcvgf "y g"J gdtgy "o gvcr j qt" s ctcp" - qt" 'n kvgtcm{ <"-ugpv'hqtyj "j qtpu'qh" rki j w+" cu'kh'O qugu'j cf "tgwtpgf 'htqo 'O qwpv' Ukpck'y kyj "j qtpu'qp" j ku'j gcf 0 Vj ku'o kuvtcpurcvkqp" gzr rckpu" O kej grcpi gnqou'uvcwg" qh'O qugu'cpf "o c{" }$ 

ceeqwpv'hqt"yj g"eqo o qp"uwr gturkklqp"yj cv'Lgy u'j cf 'j qtpu'i tqy kpi "qwv'qh'yj gkt"j gcf u0

DKDNG"VTCP UNCVKQP 'ku'f khhkewn' '\q'ugr ctcvg'htqo "gzgi guku0Lwuv'cu' 'y g"Vcti wo 'kpenwf gu'gzgi gwecn'cpf" r ctcr j tcuvke"o cvgtkcn 'uq'f qgu' y g"gctnkguv'Lgy kuj "vtcpuncwkqp 'kpvq'Ctcdke"d { "Uccf kc"\*: : 46; 64+0Uccf kc."c"o cuvgt" qh'I gdtgy "i tco o ct"cpf 'hgzku. "grko kpcvgf 'cpvj tqr qo qtr j kuo u'cpf "enctkhkgf 'f qwdw'qp" y g"dcuku'qh'eqi pcvg" Ctcdke" y qtf u0I g'uvtqxg' '\q'r tqf weg'cp" gngi cpv'cpf 'tgcf cdng' 'xgtukqp" qh'y g"Vqtcj 0I ku'vtcpuncwkqp 'ku'uvkm' wugf " d { "[ go gpkg' Lgy u0]

I gpgtcm{ "ur genkpi ."tcpurckqpu"qh"yi g"Vqtcj "j cxg"tcf kkqpcm{ "dggp"tgcf "pqv"cu"\gzvu"kp"yi gkt"qy p"tki j v"dw" tcyi gt "cu"ckf u"vq"eqo r tgj gpukqp0"kp"yi g"Igy kuj "tcf kkqp."yi g"J gdtgy "\gzv"o wuv"pqv"dg"go gpf gf "cpf "ku" r tgugtxgf "d{ "o cp{ "twrgu"qh"eqr {kpi "cpf "ej genkpi "cu"y gm"cu"d{ "yi g"tcf kkqp"qh"tgcf kpi "yi g"Rgpvcvgwej "r wdrken{ "kp"J gdtgy "htqo "c"j cpf y tkwgp"uetqm0"Igy kuj "tcpurcvkqp"cuuwo gu"yi g"cwj qtkv{ "qh"yi ku"vgzv."ecmgf "o cuqt gvke" \*htqo "o cuqt cj ."o gcpkpi "-tcf kkqpø+0"Vj g"o cuqtgvke"vgzv"y cu"guvcdrkuj gf "f wtkpi "yi g"ukzyi "cpf "ugxgpyi "egpwtkgu" cpf "r tqxkf gf "y kyi "xqy gnu."r wpewcvkqp"cpf "o wukecn"pqvgu"vq"enctkh{ "r wdrke"tgekcvkqp."vqi gyi gt"y kyi "c"xcuv" uej qrctn{ "cr r ctcwu"vq"hkz"yi g"tgcf kpi u0

Igy kıj "uetkr wtcn'uwf { ."vj gp. "ku'kphqto gf "rguu'd { "vtcpurckqp" y cp"d { "vj g'twppkpi "eqo o gpvctkgu'qh'y g" o gf kcgxcn'uej qrctu<br/>
Tcuj k "Klp"G| tc. "Tcuj dco . "P cej o cpkf gu'cpf "Mo ej k0Vj gug"eqo o gpvctkgu'ctg"r tkpvgf "kp" uej qrctn( "gf kklqpu'qh'y g"J gdtgy "Dklng"cpf "kpenwf gf "cu"gzegtr w"kp" y g"eqo o gpvctkgu'vq" y g"o qtg"r qr wrct" gf kklqpu'qh'y g"Dklng. "y j kej "ctg"pqy "ceeqo r cpkgf "d { "xgtpcewrct" tcpurckqpu0Vj g"eqo o gpvctkgu'o c { " eqpegpvtcvg"qp" y g"r rckp" o gcpkpi "qh'y g"ygzv'\* y g"r guj c v+"qt" rgcp" y q ctf u"j qo krgke "kpvgtr tgvckqpu" y j kej "kpvgt/ cev'y kyj "vtcf kklqpcn'tcddkpke"gpi ci go gpv'y kyj "y g"ygzv'\* f at cuj +0"Vj ku" o kf t cuj ke" cr r tqcej "ecp" uwi i guv'y c { u"qh" wpf gtuvcpf kpi "y g"Vqtcj "d { "gpeqwtci kpi "y g"uwf gpvu" vVqtcj "ku" rgctpvo" kp" y g"Igy kuj "vtcf kklqp+"y "gzvgpf" y g" tcpi g"qh" y gkt "wpf gtuvcpf kpi ."wukpi "y g"uetkr wtcn'vgzv'cu" c"uvctvkpi "r qkpv0Vj wu."kh"dqyj "Cdtcj co "cpf "Dcrcco" ctg" uckf "y" j cxg"tkugp" gctn("cpf "ucf f rgf "y gkt" qpng { u'\* q pgyuku"54-5"cpf "P wo dgtu"44-43+" y g"O kf tcuj "wugu" y g" f khtgtgpv'y qtf u'wugf "hqt" y g"f qpng { "kp" J gdtgy "y q"eqpuvtwev'cp" kpvgtr tgvcvkqp" htqo "y j kej "ku"f tcy p"c" j qo kn { "cdqw'y g"eqpvtcuv'dgwy ggp" y g"y q"o gp0

### Nevgt 'Lgy kuj 'tt epurevkqpu

Vj g'tgpckucpeg'qh'J gdtgy 'uwf kgu'co qpi 'Ej tknkcpu.''qi gyj gt'y kyj ''yj g'r wdnkecvkqp''qh'r tkpvgf 'xgtukqpu''qh'yj g'' o cuqtgvke''vgzv'qh'yj g'J gdtgy ''Uetkr wtgu.'hcekrkcvgf ''cf xcpegu'kp''yj g'Ej tknkcp''vtcpurcvkqpu''qh''NWVJ GT''\*ugg'' I GTOCP ''VTCF KVQP +.'\ y kpi rk''V[ PFCNG.'Eqxgtf crg''cpf ''yj g'hco qwu'Cwj qtk gf ''Xgtukqp''qh'3833'\*ugg'' DTK/KU ''VTCF KVQP +0'Vj g'hwn'cr r ctcwu''qh''Lgy kuj ''eqo o gpvct { ''dgeco g''cxckrcdrg''y kyj ''yj g''Xgpkeg'' Tcddkpkecn'Dkdrg'\*373963: +''cpf ''yj g''Rqn(i nqv'Eqo r nwgpuku''htqo ''Crecn'' 'f g'J gpctgu''qh''Ur ckp'\*3739+0'Vj g''rcwgt'' eqnrcvgf ''yj g''J gdtgy .''yj g''Ugr wci kpv.''yj g''Xwri cvg''cpf ''yj g''Vcti wo 0 Vj g''tcpurcvqtu''qh'yj g'Cwj qtk gf ''Xgtukqp''y gtg''eqo r gvgpv'J gdtcknvu''y j q''o cf g''wug''qh'yj g''Lgy kuj ''

Vj g''tcpurcytu'qh''y g'Cwj qtk gf "Xgtukqp"y gtg"eqo r gvgpv'J gdtckmu'y j q'o cf g'wug'qh''y g'Igy kuj "
eqo o gpvctkgu'kp'r tqf wekpi ''y gkt "tcpurcykqpu0J qy gxgt.''y gtg'y gtg''pq'Igy u''q'dg''eqpuwngf 'kp''Gpi rcpf ''cv''y g''
wo gô cv''gcuv''pqv'qhhkekcm{0Kp'Ur ckp."d{"eqpvcuv."'y g'Igy u''qeewr kgf ''cp'ko r qtvcpv'r qukkqp''kp''uqekgv{"cpf"
o cp{"Ur cpkuj "tcpurcykqpu'y gtg''r tqf wegf ''d{"Igy u0Vj g''o quv'ko r qtvcpv'qh''y gug''y cu''d{"Tcddk'O qugu''Cttci gn''
kp''36440Chvgt''y g''gzr wukqp''qh'y g'Ur cpkuj "Igy u'kp''36; 4. ''tcpurcykqpu'y gtg''r tqf wegf ''d{"Igy kuj ''vej qrctu'hqt''
y g''dgpghkv'qh'Igy u''y j q."j cxkpi ''dggp''dcr vk gf ''kp''Ur ckp. ''nghv'cpf ''lqkpgf 'Igy kuj ''eqo o wpkkgu''kp''Kcn{ ''qt''y g''
P gyj gtrcpf u0Vj g''o quv'hco qwu'y cu''Cdtcj co ''Wus wgou''Hgttctc''Dkdng''qh''3775.''y kyj ''ugr ctcvg''gf kkqpu''hqt''Igy u''
cpf ''Ej tknkcpu0Ncvgt''xgtukqpu'y gtg''r wdrkuj gf ''kp''Lxf cgq/Ur cpkuj 0Vtcpurcykqpu''kpvq''[ kf kuj .''y g''qyj gt''o clqt''
Igy kuj ''xgtpcewrct.''dgi cp''q''cr r gct''kp''y g''hqwt vggpy ''egpwt{0Vj gug'y gtg''o ckpn{ ''kpvgpf gf ''hqt''y qo gp''y j q''f kf ''
pqv'mpqy "J gdtgy 0'Vj g'\ go''gpcj ''wô Tgogpcj '\*+ q''qw''cpf ''uggot'Uqpi ''qh'Uqpi u''5<4+''cr r gctgf ''kp''386; ''cpf ''y cu''
y g''o quv'r qr wrct''[ kf f kuj ''r ctcr j tcug''qh'y g''J gdtgy ''ygzv'cv'y g''yko g0

Y ký "ý g'Gprki j vgpo gpv'cpf "ý g"dgi kppkpi u"qh'Igy kuj "go cpekr cvkqp." tcpurcvkqp"ces wktgf "ý g"hwpevkqp"qh" j grr kpi "Igy u"go gti g"htqo "ý g"i j gwq0Kp"39: 265. "O qugu'O gpf gnuqj p"r wdrkuj gf "j ku"Dkøwt "\*o gcpkpi " ÷erctkhecvkqpø="ý ku"y cu"c" tcpurcvkqp"kpvq"J ki j "I gto cp"dw'y tkwgp"kp"J gdtgy "tcpurkvgtcvkqp0Lgy kuj " gprki j vgpgf "

### Lgy kıj 'cpf 'Ej tkıkcp'kpvgtrtgvcvkqpu'qh'vj g'J gdtgy 'Dklıg

Vj g'i tqy kpi 'uk g'cpf 'ko r qtvcpeg'qh'vj g'Co gtkecp'Igy kuj 'eqo o wpkv{ 'kp'vj g'vy gpvkgvj 'egpwt{ 'o gcpv'vj cv'c'' vtcpurcvkqp''uwej ''cu''*LRUC*''\*3; 39+'eqwrf ''dg'kphrwgpvkcn'gpqwi j ''vq''dtkpi ''uqo g'eqpvtqxgtukcn'Ej tkuvkcp''vtcpurcvkqpu'' kpvq''s wguvkqp0'Y qtf u'cpf ''r j tcugu'y j kej ''eco g'wpf gt'r ctvkewrct''uetwwkp{ 'y gtg'qpgu'y j kej ''y gtg'kpvgtr tgvgf 'kp'' uwej ''c'y c{ ''cu''vq''uwi i guv'vj cv'vj g'Qrf ''Vguvco gpv'r tguci gf ''vj g'P gy ''Vguvco gpv0

### Vj g'kpvgtrtgwvkqp'qh'y qtfu

Vj g'lpvgtr tgvcvkqp''qh'' $\pm i$  wpvkri'Uj krqj ''eqo gø'\*kp'I gpguku'6; < 2+'j kpi gu'qp''y j gvj gt''y g''y qtf ''ku'tgcf ''cu''y g''r rceg''  $U_j krqj$  ''qt''y g''J gdtgy ''y qtf ''uj grq''o gcpkpi '' $\pm i$  ku0Vj g''rcvgt 'ku''y g'Igy kuj ''kpvgtr tgvcvkqp''cpf ''gzr rckpu''y g''xgtug'' cu''o gcpkpi '' $\pm V$ j g''uegr vtg''uj crn'pqv'f gr ctv'htqo ''Lwf cj ''wpvkri'y cv'y j kej ''y cu'tgugtxgf 'hqt''j ko ''j cu''dggp''hwrhkrngf 00' Vj g''Xwri cvg. ''qp''y g''qy gt''j cpf .''cuuwo gu''y cv'' $U_j krqj$  ''ku''c''u{pqp{o 'hqt''Lgunu0'Vj g'P gy ''Gpi rkuj ''Dkdrg''ceegr wu'' y g''Igy kuj ''kpvgtr tgvcvkqp0

Vj g'o kustepureskqp"qh"cno cj "\*kp"Kickej '9<6+"cu"xht i kp"j cu"entgef { "dggp"o gpskqpgf 0Ej tkuskep"stepureskqpu"sqf c { "tgeqi pk g"y cv"y g"y qtf "o gepu"e"{qwpi "y qo ep"qh"ep"ci g"sq"dg"e"o qy gt."y j gy gt"o ettkgf "qt"pqv."epf "y ev"j ef "xht i kp"dggp"kpvgpf gf "epqy gt"J gdtgy "y qtf "y qwf "j exg"dggp"wugf 0Kp"y g"uco g"dqqm"Kickej "\*Ej er vgt"75+."y g" hlpf "epqy gt"y gm/mpqy p"gzeo r ng"qh"y g"eqphrkev"dgw ggp"Igy kuj "epf "Ej tkuskep"kpvgtr tgveskqpu0Vj g"xgtugu" f guetkdkpi "y g"Uwhlgtkpi "Ugtxepv"qh"y g"Nqtf "etg"vengp"d { "Ej tkuskep"tgef gtu"vq"tghgt"vq"Iguwu"epf "d { "Igy kuj "tgef gtu"vq"tghgt"vq"y g"Igy kuj "r gqr ng0

#### Vj g'ttcpurcvkqp'qh'pco gu

P co gu'qhxpp'j cxg'o gcpkpi 'kp''y g''Vqtcj 0'Vj wu'y j gp''y kpu'y gtg''dqtp''vq'Tgdgeec'\*I gpguku''4748+:''y g''{qwpi gt'' y cu''j qrf kpi ''y g''grf gt''d{ ''y g''j ggrl'cpf ''y cu''y gtghqtg'pco gf ''[ c¢'cs qx''\*Lceqd.''htqo ''Cs gd''o gcpkpi ''-j ggrø+0' O qf gtp''\tcpurc\kqpu''cwgo r v'\vq''gzr rckp''y ku''cur gev'qh'o gcpkpi .'hqt''gzco r rg''y g'P gy ''Gpi rkuj ''Dkdrg''cf f u''y g'' gzr rcpc\kqp''-J g''ecwi j v''d{ ''y g''j ggrø''cpf ''LRUC''\s3; : 7+'kpenxf gu''y g''eqo o gpvct{ ''-r rc{ ''qp''J gd0''Cs gd''ŏj ggrøö'0' Vj g{ ''ecppqv''j qy gxgt.''eqr g''y kyj ''y g''cf f kkqpcn'o gcpkpi ''qh''y g''xgtd''Cs gd.''pco gn{ ''-xq''qxgteqo g'kpukf kqwun{ ø0' O qtgqxgt.''kp''y g''hxwxtg''vgpug.''y g''J gdtgy ''xgtd''uwi i guvu''xgt{ ''ergctn{ ''y cv' | c¢cnqx''y kn''uwr r rcpv'Gucw'kp''j ku'' hcy gtøu'chhge\kqp0

Kp"yj g"Dkdrg."yj g"Igy kuj "Rgqr rg"ctg"tghgttgf "vq"cu"Dqpgk"[ kut c grl\*\*:Ej krf tgp"qh"Kutcgnø+0"Vj g"I gdtgy "tgcf gt" wpf gtuvcpf u"yj ku"cv"qpeg"cu"o gcpkpi "yj cv"yj g{ "y gtg"yj g"f guegpf cpvu"qh"

Iceqd. "y j q"y cu'tgpco gf "*Kut c gr0Ej krf t gp.* "r ctvkewrctn( "kp"Gpi rkuj. "j cu'yj g"o gcpkpi "qh"÷o kpqtuø "kp"cf f kklqp"\q" 
-qhhur tkpi ø0"Vq"cxqkf "yj ku. "*P GD*"cpf "*LR UC*" \*3; : 7+"\tcpurc vg"\yj g"r j tcug"cu" *Kut c grkvgu*0

### Vj g'pco g'qhI qf

Rgtj cr u'y g'o quv'eqpvtqxgtukcn'kuuwg'kp'Dkdrg''vtcpurcvkqp''ku'y g'tgpf gtkpi ''qh'y g'J gdtgy ''pco g''qh'y g'F gkx{<'y g'' Vgvtci tco o cvqp"qt"hqwt"ngwgtu $\langle [qf.]Tgj.]Xcx.$ "Tgj."Vj g"y qtf"ku"pgxgt"r tqpqwpegf "cu"y tkwgp"dw"cu"Cf.qpck" o gcpkpi "÷O { "Nqtf ØOKp" vj g"Ugr wci kpv." vj ku'ku' vtcpurc vgf "cu" M{t kqu'cpf "vj wu'kv'y gpv'kp vq" Nc vkp" cu" F qo kp wu'cpf" Gpi rkuj "cu" Nqtf O'Kp" vj g'xqecrk gf "J gdtgy "vgzvu." pqv'cxckrcdrg' vpvkrlo cp { "egpwtkgu" chvgt" vj g'vtwg" r tqpwpekcvkqp" qh'y g''Vgytci tco o cyqp'j cf ''dggp'hqti qwgp.''y g''xqy gnu''qh''Cf qpck'y gtg'r reegf ''wpf gt''y g''rgwgtu''[ qf.''J gj.''Xcx.'' J gj. "cpf "vj ku"y cu"tgcf "gttqpgqwun("d{ "Ej tkuvkcpu"cu"kh"kv"y gtg"vj g"P co g"qh"I qf <*"[ gj qxcj*. "wuwcm("ur gnv" Lgj qxcj O'Uqo g''tcpurcvkqpu. ''y qwi j ''pqv'I gy kuj ''qpgu. 'j cxg''ercko gf ''y cv''y g''gxkf gpeg'r qkpw''\q''y g'' r tqpwpekcvkqp"qh"yj g"P co g"cu" [cj xgj."dw"yj gtg"ku"pq"egtvckpv("kp"yj g"o cwgt0 Vjg"o gcpkpi "qh'vjg"Vgvtcitco o cvqp"crrgctu"vq"dg"eqppgevgf"ykyj"vjg"rcuucig"kp"Gzqfwu"5⊲5."36"cpf"37." yj g'ngwgtu"qh"yj g"Vgytci tco o cyqp0Eqpugs wgpyn{."O gpf gnuuqj pøu"ytcpurcykqp"tgpf gtgf "yj g"Vgytci tco o cyqp"cu" Fgt'Gy ki g. "y j kej 'hkygtcm( "o gcpu"-ij g'Gygtpcnø 'klg0'-ij g'Gxgt/Rtgugpvø0'Vqfc{. 'hkwti kecn'yzvu'y j kej "ctg"  $eqpegtpgf "cdqw'ugzkuv'ncpi wci g"o c { "wug' iy ku'r j tcug' kpuvgcf "qh' iy g'o cuewrkpg'' Nqtf O I gy kuj "tcpurc kqpu' y j kej " | lej wy lej w$ vcng"c"r ctvlewrctn( "hcuvlf lqwu"crrtqcej "vq" vj g"kuuwg"tghwug" vq" vtcpurcvg" vj g"Vgvtci tco o cvqp"cv"cm="kpuvgcf." vj g{" rtkpv'y g'y qtf "J cuj go "\*o gcpkpi "÷Vj g"P co go'kp"J gdtgy +: "c"eqo o qp" vgto "qh'tghgtgpeg' vq' y g'F gkx{ "wugf" qwulf g'r tc { gt "qt "r wdrke" uetkr wtch'tgcf kpi 0 Qyj gtu "rgcxg" yj g'hqwt "J gdtgy "rgwgtu "qt "tgpf gt" yj go "cu" [ J XJ 0

#### Qyj gt 'tt cpurc vkqp 'r t qdrgo u

Uqo gwło gu'c'y gm/mpqy p'\tcpurcvkqp''crrgctu'\q'j cxg''pq'Iwwkhlecvkqp0'Uwej 'ku'\j g'ecug''y kyj 'Rucm '59<57.''y j gtg'' yj g"y kengf "o cp"ku"eqo r ctgf "kp"yj g"J gdtgy "vgzv."cv"ngcuv"cu"hct "dcent'cu"yj g"vko g"qh'yj g"Vcti wo ."vq"c"ngch{ "vtgg" tqqvgf "kp"ku"qy p"i tqwpf 0"Vj g"Ecyj qrke" vtcf kkqp. "dcugf "qp" vj g"Xwri cvg" cpf "wrxko cvgn{"qp" vj g"Ugr wci kpv" vj j kej " y cu'r tqdcdn( 'dcugf 'qp'c'f khhgtgpv'o cpwuetkr v+. 'tgpf gtu'vj g'r j tcug'cu'Egf ct 'qhlNgdcpqp0'Vj g'r gtukuvgpeg'qh'vj g'' newgt 'tepuredap''uj qy u''y ev'tepuredau'f kf 'pqv'eny e{u'i q'deem'\q'y g'J gdtgy '\gzv.''eu''y g{ "qhvgp'encko gf .''dw' eqr lgf "gzkınlıpi "tcpurcılqpu0Co qpi "tj g"tcpurcılqpu"y j lej "tgr gcv"Egf ct "qlt"Ngdcpqp"qt"cp"gs wlxcrgpv"qh"lk" y gtg'\ y kpi nk'kp''y g''ukz vggpyj ''egpwt{.''y g''pkpgvggpyj /egpwt{'Tgxkugf''Uvcpfctf''cpf''y g'Oqhhcw''vtcpuncvkqpu0' O qf gtp'xgtukqpu."dqyi 'Ej tkukcp'cpf 'Igy kuj ."qhvgp'f q'i q'dcem'\q'\yi g'J gdtgy '\yzv0'Vj g'\y gp\kgyi /egpwt { 'P gy " Gpi rkuj ''Dkdrg''j cu''t cpm'cu''c ''urt gcf kpi ''st gg. ''vj qwi j 'kv'ki pqt gu''y g'J gdt gy ''ezrah ''\*:tqqvgf ''kp''kvu''pcvkxg''i tqwpf ø+0'  $\label{eq:continuous} Vj g'Cwj qtk gf 'Xgtukqp.''j qy gxgt.''eqo r ctgu''y g''y kengf ''vq''y g''i t ggp''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggp''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''t gg0''Vj ku''ku''vcngp''f ktgevn{ ''htqo ''} t ggn''dc { ''htgevn{ ''htqo ''} t ggn''dc { ''htgevn{ ''htqo ''htqo ''htqo ''htqo ''htgevn'' t ggn''dc { ''htgevn''} t ggn''dc { ''h$ Eqxgtf crgou'ukz vggpvj 'egpwt { ''tcpurc vkqp''qh''vj g''*Ruc ro u0*'Eqxgtf crg. 'kp''wtp.'r tqdcdn( ''vqqm'kv'htqo ''Nwj gt.''y j q'' vtcpurcvgu'y kg"gkp"Nqt dggt dc wo "\*:rkng"c"ncwtgn'vtggø+. 'vj qwi j "qp"y j cv'l wuvkhkecvkqp"tgo ckpu'qduewtg0 Vj gtg"ctg"qvj gt"kpvgtguvkpi "r tqdrgo u"kp"vtcpurcvkpi "vj g"Vqtcj 0Hqt"gzco r rg. "y j gp"Gucw"cpf "Lceqd"o ggv"ci ckp" chygt "cp" kpygtxcn"qh"o cp{"{gctu"\*1 gpguku"55-6+. "Gucw"nkuugu" Leeqd0"Vjg" Jgdtgy "yqtf" hqt" ÷cpf" jg"nkuugf ø'ku" y tkwgp'kp" y g"o cuqtgwle' \tcfkwlqp'y kyj "c"ugtkgu" qh" f qwi "cdqxg" kx≓'yj g"uwi i guwlqp'ku' yj cv' Gucwou" chhgewlqp'y cu" hcnug0Tgcfgtu'y j q'fq'pqv'wug'c'Igy kuj 'eqo o gpvct{'y km'pqv'tgcnk| g'vj cv'Gucw.''crrctgpvn('Iceqdøu'xkevko.''ku' r gtegkxgf 'kp''y g''Igy kuj ''tcf kkqp''cu''y g'r ctcf ki o ''qh''etwgnx{ ''cpf ''nkmkpi .''y cv'j ku'tgf pguu'cv'dktyj ''nkpmu''j ko ''y kyj ''  $y = \text{Kitcgrkgup'ctej/gpgo } \\ \text{'Gf qo ''htqo ''J gdtgy ''} \\ \text{cf qo .''o gcpkpi ''+tgf $\emptyset$+.''cpf ''y cv''Gf qo ''y cu''ncvgt''kf gpvkhkgf ''y ky '' } \\ \text{for a power of the power o$ Tqo g0

Kp" y g"Cwj qtk gf "Xgtukqp" y gpguku'67-5+" y g"s wgurkqp" y qgu'o { 'hcyj gt" { gv'rkxgAø'ku'c 'rksgtcri'tcpurcvkqp' htqo " y g"J gdtgy 0'V j g'eqpvgzv'ko r rkgu' y cv' y g's wgurkqp 'ku' t j gvqtkecn 'ukpeg' I qugr j ." y j q"cumu' y g's wgurkqp." j cu'l wuv' dggp 'vqrf "cv'rgpi y "cdqw' j ku' hcyj gtøu' tgegpv' cevkxkkgu0'V j g'I gy kuj "eqo o gpvcvqtu "gzr rckp" y cv' I qugr j "o gcpu' vq" gzr tguu' j ku' y qpf gt 'y cv' j ku' ci gf 'hcyj gt 'eqwrf 'uvkm' dg' crkxg0'E kr tkcpq' f g'Xcrgtcøu'Rtqvguvcpv' vtcpurcvkqp' kpvq" Ur cpkuj "Co uvgtf co "3824+" j cu' :Xkxg" cwp" o k'r cf tgAø' \*:Ku' o { 'hcyj gt 'uvkm' crkxgAø+" dw' Cdtcj co "Wus wgøu" Hgttctc"

vtcpurcvkqp'hqt"gzkrgf "Urcpkuj "Igy u'tgcfu"::Uk'cwp''xkxg''o k'rcftgAø'\*:Dw'ku''o { 'hcvj gt''ukm'cnkxgAø+0'Vj g'hcwgt" uweeguuhwm( "gzrtguugu'cuvqpkuj o gpv'tcvj gt''y cp''c''o gtg''s wguvkqp0

DKONG"VTCPUNCVKQP="J GDTGY "VTCFKVKQP="S WTØ P "\*MQTCP+"VTCPUNCVKQP0

### Hwt yj gt 't gcf lpi

Cndtgmuqp''3; 9: ="J co o qpf '3; : 9="O cti qrku'3; 39="Qtrkpum('3; 74."3; 8; ="Uco gn('3; ; 6="Uej y ct| '3; 770

O KEJ CGN'CNRGTV

# Vtcpucwdkk/{

 $\label{the victorian collists} V tcpurc vclkik{ ."ki'cp''qr gtcvkxg''eqpegr v'kp''y g''ugpug''y cv'kv''cevkxgn{" j grr u''uvt wewt g''cp''gpvktg''hkgrf "qh''f gekukqpu''cpf''r tkpekr rgu0'K''ecp''qr gp''wr ''y c{u''qh''uqrxkpi ''r tcevkecn''r tqdrgo u''*cu'' kp''Y knu''3; 99''qt''Mqmgt''3; 9; +''cpf ''ecp''qhfgt''pgy ''cr r tqcej gu''hqt''y g''f knewukqp''qh''o qtg''y gqtgykecn''cpf'' hwpf co gpvcn'kunwgu''*cu''kp''F cxkf uqp''3; 9613; : 6+0'Vj g''s wguvkqp''qh''tcpurc vclkik{ ''ku''cnuq''uqo gvko gu''wugf''vq'' knwutcvg''i gpgtcn''o gy qf qmi kecn'qt''r j knquqr j kecn'eqpegr w''*cu''kp''I cf co gt ''3; 82''qt''S wkpg''3; 82+0'Cp{" ci tggo gpv'qxgt''y j cv'ku''qt''ku''pqv'\tcpurc vclng. "cpf ''gzcevn{"y j cv'etkgtkc''eqpuvkwwg''\tcpurc vclkik{ ."y kn'\y wu'' etwekcm{"f gr gpf ''qp''y g''f khtgtgpv'ugevqtu''qh''r tcevkeg''cpf ''tgugctej ''kpxqnxgf <''y g''s wguvkqp''qh''tcpurc vclkik{ ''o c{" hqewu''qp''y g''uqwteg''qt''y g''cti gv'qh''tcpurc vkqp="kv'o c{ ''tghgt''q''y g''tcpurc vkqp''qh''xgtct{ .''ewnwtcn''tghgtgpvkcn'qt'' rtci o cvke''yzxu. "qt''vq''y g''tcpurc vkqp''qh''gpvktg''nktg''y qtrf u''cpf ''ewnwtgu''\sigg''Cqnk'3; ; 4+0 Vj g''hqmyy kpi ''uwtxg{ ''qh''y ku''eqo r rgz''hkgrf ''y kn''uy kej ''dgwy ggp''cpcn{ vkcn''cpf ''j gto gpgwke''cr r tqcej gu0'K'y kn'' hktuv'hqewu''qp''t gcu''cdqw'y j cv''ecp''dg''eqpuk' gtgf ''vcpurc vcdrg'''q''y g''y g'' g''y g''y g''y g'''y g''y g'''y g'''y$ 

# Y j cvku'tt cpurcvcdrgA

Vtcpurcvdkrk{ "ku"o quvn{ "wpf gtuvqqf "cu"yi g"ecr cekv{ "hqt"uqo g"nkpf "qh"o gcpkpi "vq"dg"\tcpuhgttgf "htqo "qpg" rcpi wci g"vq"cpqyi gt"y kyi qww"wpf gti qkpi "tcf kecn'ej cpi g0F gdcvgu"gpuwg"y j gp"qpg"\tkgu"\q"ur gekh{ "y j cv"nkpf "qh" +o gcpkpi ø"ku"kpxqnxgf 0Hgy "yi gqtkgu"encko "yi cv"cm'o gcpkpi u"ctg"cny c{u"\tcpurcvcdrg0}

Vj g"dcuke"r tqdrgo "kp"o quv"yi gqtkgu"gkyi gt "hqt"qt"ci ckpuv"\tcpurcvcdkrkv{ "ku"yi g"tgrcvkqp"dgw ggp"uqwteg/vgzv" +gzr tguukqpuø"kp"yi g"dtqcf "ugpug"qh"ctvkewrcvgf "nqewkqpct{"cevu+"cpf" +o gcpkpi uø"qt"+ugpuguø'yi cv"ctg"uqo gj qy "j grf "kp"yi g"uqwteg"rcpi wci g"cpf "ctg"r qvgpvkcm{"uwdlgev"vq"o gf kcvkqp"y kyi "yi g"j grr "qh"tgcuqpkpi "qt" wpf gtuvcpf kpi 0Uggp"kp"yi gug"vgto u."yi g"eqpegr v'qh"\tcpurcvcdkrkv{"o c{"qr gtcvg"kp"cv"rgcuv"yi tgg"y c{u<

\*c+"Hqt" yi g"tc-kqpcrkuv." o gcpkpi u"\*-kf gcuø'qt" uqo gvko gu"-intwewtguø+"ctg" wpkxgtucn'cpf "ctg" yi wu"i gpgtcm{"

vtcpurcvcdrg" kpvq" yi gkt "xctkqwu'i rcpi wci g/ur gekhke "tgr tgugpvcvkqpu0" yi g"tgrcvkqp" dgwy ggp" yi kpmkpi "\*o gcpkpi u"

cu" kf gcu+" cpf "ur gcmkpi "\*vj g"tgr tgugpvcvkqp" qh" o gcpkpi u+" ku" yi wu"j grf "vq" dg" nqug0

\*d+" Hqt" yi g"tgrcvkxkuv." yi kpmkpi "cpf" ur gcmkpi "ctg" o qtg" vki j vn{"dqwpf" vqi gyj gt0" y knj gro "xqp" J wo dqnf v." hqt"

gzco r ng." ucy "gcej "ncpi wci g"cu" go dqf {kpi "c" y c{"qh" yi kpmkpi ="

cm'tcpurctopi ''y wu'uggo gf ''q'dg''÷cp''cwgo r v'cv'uqnxlopi ''cp''lo r quuldng''cuny=''tcpurcvqtu''y qwrf ''cny c{u'j cxg'' vq''÷twp''ci tqwpf ''qp''qpg''qh''y q''tqemu. ''gkyj gt''enlopi kpi ''vqq''enqugn{ ''vq''y g''qtki kpcn'cv''y g''gzr gpug''qh''y g''cuvg'' cpf ''ncpi wci g''qh''y gkt''pcvkqp. ''qt''enlopi kpi ''vqq''enqugn{ ''vq''y g''ur gekhlekv{ ''qh''y gkt''pcvkqp''cv''y g''gzr gpug''qh''y g'' qtki kpcny'\*J wo dqrf v'39; 813: 8: <''xk='eh0'3: 3813; 85< 2hh0+0

\*e+'C''y ktf ''crrtqcej ''ku'\q''cempqy ngf i g''y cv'cny qwi j ''cm'ncpi wci gu''j cxg''c''encko ''\q''lqpf kxkf wcnkx{ .''vgz wu'' uj qwrf ''uvkm'dg''\tcpuncvcdng''qw''qh''y go OUEJ NGKGTO CEJ GT''\tcpf ''y g'I gto cp'Tqo cpvkeu''lqp''i gpgtcm+'' r qukxgf ''c''o gf kcvkqp''dgwy ggp''y lqpnkpi ''cpf ''ur gcmkpi .''o gcpkpi ''cpf ''gzrtguukqp''\tugg''<u>I GTO CP''</u>

VTCF KVQP +0O gcpkpi 'ku'pgksj gt'kpf khlgtgpv'\q'gzr tguukqp''pqt'kpuwto qwpvcdn( ''kgf ''\q'k\='o gcpkpi 'ku'' ceeguukdng''y ksj ''y g''j gm ''qh'o qf gu'qh'wpf gtuvcpf kpi ''y cv'y g''o ki j v'ecm'\tegpugo0'Kp''cmqy kpi ''y g''ugpug'\q'' chlgev'\tegi g''u (urgo ''qh'eqpegr wi'cpf ''y gkt''uki pu'kp''y g''ncpi wci go \tegi Uej ngkgto cej gt ''3: 35 13; 85 \textsq 5+. ''y g'' vtcpuncvqt ''i kxgu'wu'c'i nko r ug''qh''y g''tepqo o gpuwtcdknk o'qh'hrepi wci gu. 'y j kej 'ku'cv'qpeg''eqphkto gf ''cpf '' uqnxgf ''kp''y g''cev'qh''vtcpuncvkqp0'Hqt''Uej ngkgto cej gt. ''vtcpuncvqtu''cpf ''kpvgtr tgwgtu''gzr tgwu''pqv'qpn( ''y g''ugpug'' dw''cnuq''y gkt''\textsq fgtuvcpf kpi o'qh'kv.''y j kej ''o gcpu''y cv'y g{ ''vcng''wr ''c'\textsq grevkqpuj kr ''vq''ncpi wci g'y j kej ''ku''pqv'' qpn( ''pqv'eqo o qp/r nceg''dw'y j kej ''cmqy u''qpg''q''gzr gtkgpeg''y cv'kv'ku''pqv'gpvktgn( ''ttggn( ''i tqy p. ''dw'tcyi gt'' j cu''dggp''dgpv''cetquu''vqy ctf u''cp''wphco knct''uko knctk o'\textsq o'\textsq kdkf 0'\textsq 77+0'Vj g''vtcpuncvqt''y wu''kpf kecvgu''y cv'yi g'' uwdo kwgf ''yzv'ku''c''vtcpuncvkqp0'Vj ku''cr r tqcej ''ku''engctn( ''r gtvkpgpv''hqt''y g''vtcpuncvdknk (''qh''tgnk kqwu.'' r j knquqr j kecn''cpf ''kkgtct (''yzvu0

Cu'o wej "cu''y ku'ncuv'eqo r cwldkrkuv'j gto gpgwke"o ki j v'uggo "vq'chhkto "vtcpurcvcdkrkv{ .'kv'hcknu'vq'cfftguu'ecugu''qh'' ugrh/tghgtgpwcrkv{ "y j gtg"y g'eqpvgpv'ku'ncpi wci g'kwgrh'cv'y g'ngxgri'qh''uvtwewtg"cpf "gzrtguukqp0Qpg"o ki j v.'hqt" gzco r ng. "o ggv'cp"cr r ctgpv'ecug''qh''wpvtcpurcvcdkrkv{ "y j gp"cwgo r wpi "c''Htgpej "xgtukqp"qh''y g''wwgtcpeg"÷Vj g" hktuv'y qtf "qh''y ku'xgt { "ugpvgpeg"j cu''y tgg"ngwgtuø "ukpeg''y g''hktuv'y qtf "y km'j cxg"qpn{ "w q''ngwgtu'kp"vtcpurcvkqp" \*:ng''r tgo kgt "o qvi ø+0F gcrkpi "cpcn{ wecm{ "y ky "gzco r ngu'qh''y ku''mpf. 'Dwti g''ercko u''y cv':ntcpurcvkqp" tgugtxgu" ugrh/tghgtgpeg'kh''cpf "qpn{ "kh'kv'f qgu''pqv'r tgugtxg''tghgtgpegø'\*3; 9: 359+0Vtcpurcvkqp"y qwrf "y wu''j cxg''vq''cf qr v'' y g''r tkpekr ng''qh''pgeguuct { "ucetkhleg="pqv''gxgt { y kpi 'ku''tcpurcvcdng0

Cu''y ku'gzco r ng''uj qy u.''y g'kuuwg''qh''tcpuncwdkrk\{ ''pggf 'dg''dcugf ''pgkvj gt 'wr qp''uwr r qugf ''wpkxgtucnu''pqt 'wr qp'' cp{"tghgtgpeg"qt"o gcpkpi "eqpukf gtgf"kpf gr gpf gpv'qh'hcpi wci g0'kp"j gto gpgwke"\gto u. "kv'ecp"gs wcm{ 'tguv'wr qp" yj g'i tco o cykecn'untwewstg'cpf ''yj g'kpxgpyqt { ''qh''gzrtguukqpu''yj cy'eqpuykwyg'yj cy'Y cnygt''Dgplco kp'\*3; 45+" vgto gf "vj g"÷o qf g"qh'kpvgpvkqpø"\*\*Ct v'f gu'O gkpgpu+"cu"qr r qugf "vq"÷y j cv'ku kpvgpf gf ø"\*f cu'I go gkpvgu+"cpf "vq" y g" cev'qh'kpvgpvkqp"\*Ogkpgp+"\*ugg'<u>RWTG'NCPI WCIG</u>+O'Qdxkqwun(."\tcpurcvkqp'y km'hqewu'uvtqpi n('qp'yi g'' u{o dqrk kpi .''dgecwug''y j cv'ugrh/tghgtgpvkcn'\gzvu'fq'ku'\q'wtp''y g'u{o dqrk kpi 'kpvq''y g'u{o dqrk gf0 Kp"c"uko krctn{ "eqo r cvkdkrkuv"cr r tqcej ."vj g"r tkpekr ng"qh"vtcpurcvcdkrkv{ "o c{ "dg"cf xqecvgf "d{ "o cmkpi "qwt "uvct vkpi " r qkpv'yi g''cpcn(uku''qh''vgz vu''qt ''ur ggej "\*rctqng+'tcyj gt''yi cp''ncpi wci g''u{uvgo u''\*ncpi wgu+'\*ugg''Mqngt''3; 9; 3:566+0' Vtcpurcvkqp"f gr gpf u"vq"c"egtvckp"f gi tgg"qp"vj g"kpeqo o gpuwtcdkrkv{ "dgw ggp"wy q"rcpi wci gu"cu"kxu"eqpf kukqp."pqv" qpn{"cu'kwu'r tqdrgo 0'Equgtkw'tgeqi pk| gu'yj ku<"kpuvgcf "qh"f kuewuukpi "tcpurcvcdkrkv{"o gtgn{"qp"yj g"rgxgn'qh'yj g" uki pkhkecvkqpu"\*Dgf gwwpi gp+'hqwpf 'kp''qpg'hcpi wci g''cpf ''pqv'kp''yi g''qyi gt.''cu'ku''qhxgp''f qpg.''j g''nqqmu''cv'yi g'' tghgtgpegu"\*Dg/gkej pwpi gp+"cpf "ugpug"\*Upp+"f gvgto kpgf "d{"r ctvkewrct"\gzvu0Kp"c"\gzv'qp"uy ko o kpi ."hqt" gzco r ng. "y g'Gpi nkuj 'r j tcug"-Køo "qwdh'o { 'f gr y ø'ecp'j cxg'y g'uco g'tghgtgpeg'cu'y g'Htgpej "-Løck'r gtf w' rkgfø'\*:Koxg'nquv'o {'hqqvkpiø+:'fgurkg''yjg'xgt{'fkthgtgpv'ncpiwcig/urgekhle'ukipkhlecvkqpu0'Hwtyjgt.'kp'c'vgzv'qp'' wpf gtuvcpf "c"y kpi ø"y j kej "eqwrf "dg"tgpf gtgf "kpvq"Htgpej "cu": Eøguv"cwf guuwu"f g"o gu"hqteguø" \*\* Køu"dg{qpf " o gø+"qt"gxgp":Lg"pci gø"\*:Køo "uy ko o kpi ="kvøu"\qq"dki "hqt"o gø+0"Hqt"Equgtkw."\yi g"\cum'qh"c"\tcpurc\kqp"ku":\vq" tgr tqf weg" y g"uco g"t ghgt gpeg" cpf "y g"uco g"uspug" y kj "y g"o gcpu" tqr gtn( "ur gcmkpi ." y kj "y g"uki phthec hqpu+" qh'cpqyi gt 'ncpi wci go'\*3; 9: 43. "tcpurcygf +0"Vj ku'o ki j v'ghhgevkxgn( 'uqnxg'yi g'r tqdngo 'qh'ncpi wci g/ur gekhke" eqpvgpv<"yj g"

qdlgevu'qh'\tcpurcvlqp''ctg''pqv'rcpi wci g/ur gekhle''dwv'\gzwcn'\\*\ldkf 0\central 42+0'Y j cv'tgo ckpu'f kur wcdrg.''yj qwi j .''ku'' y j gyj gt '\gz wcn'eqpvgpv'kp''cm'ecugu''j cu'\q''dg''qh''c''v{rg''yj cv''ogtgn{ "wugu'uki pkhkecvkqpu'\q''eqoowpkecvg" tghgtgpeg"cpf "ugpug0Tgnki kqwu."o gvcrj {ukecn'cpf 'r qgvke"\gz vu'uggo "\q"\cm'cdqw'uki pkhkecvkqpu'd{ "o gcpu'qh" tghgtgpegu'qt"cdqw'ugpug'd{ "o gcpu'qh'uki pkhecvkqpu."r gtj cr u'pqv'f kuo kuukpi "cu'i tcwkxqwu'vj g'kf gc'vj cv'qpg'ecp" uqo gj qy "r quuguu"c"f gr yj "kp"Gpi nkuj "qt" yj cv'uy ko o kpi "ecp" ko r n{ "c"ncem"qh"eqp xtqn" kp"Htgpej 0 Wpf gt"uwej " ektewo uvcpegu'y g'r tqdrgo 'qh'rcpi wci g/ur gekhle 'eqpygpy'f qgu'kpf ggf 'eqo g'yq'y g'hqtg0 Vjg"kuuwgu"qh"tghgtgpeg"cpf"ugpug"oc{"vjwu"dg"wugf"vq"tckug"qdlgevkqpu"vq"vjg"pqvkqp"qh"vtcpurcvcdkrkv{0"Kb"qpg" hqmqy u'S wkpg'\*3; 82+"kp"ej qqukpi "c"dgj cxkqwtkuv'htco gy qtm'kp"yj g"go r ktkekuv'ttcf kkqp."yj g"kf gc"yj cv't ghgt gpeg" cpf "ugpug" lp" pcwtcn'hcpi wci gu"ctg" uwhhlelgpvn ("y gm/f ghlpgf" d {"vj g"o gcplpi" "j gtg" wpf gtuvqqf" cu' uwho wmw/ o gcpłpi = ugg 'CPCN VIECN'RJ INQUQRJ [ 'CPF 'VTCPUNCVIQP + f qgu 'pqv'i wctcpvgg 'lpxctlcpeg 'qh' y g" eqpvgpv'kp'vtcpurcvkqp0Ceeqtf kpi 'vq'S wkpg.'vj g'o quv'y g'ecp'ercko 'ku'vj cv'qeecukqp'tugpvgpeguô ugpvgpegu' rtqf wegf "wpf gt" 'y g" uco g" ukwc vkqpcn'eqpf kxkqpu "cpf" ektewo uvcpegu 'y ky qw' ∹eqmcvgtcn'kphqto cvkqpøô ecp" dg" vtcpurcvgf 'y ky 'tgrcvkxg'tgrkcdkrkv{ ='uvcpf kpi 'tugpvgpegu'\*ugpvgpegu'go dgf f gf 'kp'cpf 'f gr gpf kpi 'qp'c'ur gekhle' ukwcvkqp+."qp"yj g"qyj gt"j cpf."qpn("uggo "vtcpurcvcdrg"f wg"vq"eqpvkpi gpv"j kuvqtkecn'ektewo uvcpegu"qh'hkrkcvkqp"cpf"  $eqpvcev'dgw\ ggp'hcpi\ wci\ gu=''qdugt\ xc\ uqp'\ lgp\ vgpegu'\ hg''\ dgw\ ggp''\ j\ gug''\ y\ q''gz\ ut\ go\ gu=''y\ j\ kng''\ qpn\ (''nqi\ lecn''\ lgug''\ gug''\ y\ q''gz\ ut\ go\ gu=''y\ j\ kng''\ qpn\ (''nqi\ lecn''\ lgug''\ gug''\ y\ q''gz\ ut\ go\ gu=''y\ j\ kng''\ qpn\ (''nqi\ lecn''\ lgug''\ gug''\ gug''\ y\ q''gz\ ut\ go\ gu=''y\ j\ kng''\ qpn\ (''nqi\ lecn''\ lgug''\ gug''\ gug''$ eqppgevlxgu'ctg'y kyj qwv'cp{'f qwdv'\tcpurcvcdrg'\\*kdkf0\cdot62679+0'Kn'y g'hqmqy 'S wkpg'kp'kpvgtrtgvkpi " -lipf gvgto lipce { ø'cu'wpf gt/f gvgto lipcvliqp'\*lidlif 0294ht0+." y g'y qwrf "j cxg'vq''s wguvliqp'y g'pqvliqp'qh'vtcpurcvcdkrkv{" tcf kecm(0J qy gxgt."qpg"o ki j v'cnuq"cum'kh'ncpi wci g'uwhhgtu'pqv'htqo "wpf gtf gygto kpcykqp"dwy'htqo " qxgtf gvgt o kpc vkqp. "r ct vkewrctn{ 'kp" vj g"Htgwf kcp" ugpug" qh" eqpf gpuc vkqp" qt "co dki vkt cvkqp0" Vj g" rcvgt "r gtur ge vkxg" qr gpu'wr 'r tqdrgo u'y cv'cpcn( wecn'cr r tqcej gu'j cxg''{ gv'vq'tgrcvg''vq''tcpurcvcdkrkv{ 'kp''cp{ 'engct''y c{0}

### Vtcpurcvcdkts/{ 'cu'c'f { pco le'ecvgi qt {

Kouve f "qh" cunkpi "y j cv"ku 't courc vedre. "qpe" o ki j v'enuq "cum'y j cv" mkpf "qh" t courc vkqp "uc vkuhkgu "et kvet ke "qh" vtcpurcvcdkrkv{0Tqo cp"Lcmqduqp"\*3; 7; +"ku"rcti gn("kp"hcxqvt"qh"vtcpurcvcdkrkv{"dgecvug"j g"uggu"vtcpurcvkqp"cu" qr gtcvkpi "y ky kp"ncpi wci gu"cu"y gm"cu"dgwy ggp" y go "\*cpf "dgwy ggp"f khhgtgpv"ugo kqvke"u{uvgo u+<"÷gs wkxcngpeg"kp" fkhogtgpegøku'vj wu'f guetkolgf 'cu'vj g'ocuke'r todogo ":qh'gxgt/"ncpi wci gø'klokf 0.484+0'Vq'cf cr v'vj g'uko r nguv'oh" Icmqduqpøu'gzco r ngu. 'yj g'vgto "ej ggug'y qwrf "uggo "vq"dg'wpvtcpuncvcdng'kpvq"c'ewnwtg'yj cv'j cu'j cf 'pq" gzr gtkgpeg 'qh'ej ggug="{ gv. 'cu'Icmqduqp 'r qkpvu'qwv. 'vj g'\gto 'ecp'dg'tgpf gtgf 'cu':eqci wrcvgf 'o km'ewtf uø 'vj wu' gzr nckpkpi "vj g"o gcpkpi "cpf "r gtj cr u"cmqy kpi "ej ggug"vq"dg"r tqf wegf 0"Vtcpuncvkqp"dgwy ggp"ncpi wci gu"f tcy u"qp" yj g'uco g'r tqegf wtgu''yj cv'ctg''wugf 'llpvtcrlipi wcm( "cpf 'llpvgtugo lqvlecm( .'hqt"gzco r rg''vq'r tqeggf 'lhtqo ''rguu''vq'' o qtg"f gxgrqr gf "gzrtguukqpu." \q'hkmli cru'kp" \j g'hgzkecn'kpxgp \qt { "qt" kp" \j g'i tco o c\kecn'u\t wewtg." \qt" \q"f grkxgt" kphqto cvkqp" yi cv"ku"o cf g"qdrki cvqt { "d { "yi g"i tco o ct"qh"c"r ctvkewrct "rcpi wci g" "ugg" UGO KQVKE "CRRT QCEJ GU+0 Ukpeg'kv'ergetn('cfo kw'r eter j teug'eu'e'ngi kwo evg'r tqegf wtg. 'Lenqduqpøu'f {peo ke'vtepurevedkrkv{'tgs wktgu'e' mqug'tcyj gt'yj cp'uxtlev'pqvlqp"qh":xtcpurcvlqpø'\*y j gtgcu'uxcvle'\tcpurcvcdkrkv{ 'wxtpu'qp'nqug'cpf 'uxtlev'tgrcvlqpu'' dgwy ggp"o gcpkpi "cpf "gzr tguukqp+0Ki'cnuq"j kpi gu"qp"c"f {pcoke"xkgy "qh"pcwtcn"hcpi wci gu"cu"gxqnxkpi "gpvkkgu≺" hqt "Icmqduqp." = repi wei gu'f khhgt "guugpvkem( "kp"y j ev"y g{ "o ww"eqpxg{ "cpf 'pqv"kp"y j ev"y g{ "ecp"eqpxg{ ø"kdkf 0." 486+0Qyj gtu"j cxg"cti wgf "cmpi "yj g'uco g'nkpgu<"J lgno ungx"r tqr qugu"yj cv"÷c"ncpi wci g"ku"c"ugo kq√ke"kp√q"y j kej " cm'qyi gt 'ugo kqvkeu'o c{ 'dg'vtcpurcvgf ø'ukpeg':kp'c'rcpi wci g. "cpf 'qpn('kp'c'rcpi wci g. "ecp'y g'oy qtm'qxgt'yi g' lpgzrtguuldng'\wp\kn'lkv'ku'gzrtguugf øö'\\*3; 6513; 85<32; +0'Vjg'lkfgc'oc{"cnuq'dg'crrnkgf'\q'egt\ckp'hgxgnu'qh' ncpi wci g<"Vctunk'uvcvgu'vj cv"-c'ej ctcevgtkuvke 'hgcwtg'qh'eqnqs wkcn'ncpi wci g'\*kp'eqpvtcuv'vq'xctkqwu'uekgpvkhke" rcpi wci gu+'ku'kwu'wpkxgtucrkx{="kx'y qwrf "pqv'dg"kp"j cto qp{ 'y kyj ''y g'ur ktkx'qh''y ku'rcpi wci g'kh'kp''uqo g'qyj gt" ncpi wci g'c'y qtf ''qeewttgf 'y j kej ''eqwrf ''pqv'dg'\tcpurcvgf ''kpvq''kø'\\*3; 78\386\0'Rgtj cr u''y g''uko r nguv'gzr tguukqp''qh'' yj ku''yj qwi j v'ku''Mcv| øu''-ir tkpekr ng''qh''ghhcdkrkv{ø''y j kej ''uvcvgu''yj cv''-:gcej ''r tqr qukvkqp''ecp''dg''gzr tguugf ''d{ ''uqo g''  $ugpvgpeg''kp''cp{ ''pcwtcn'icpi wci g \emptyset'*3; 9: 42; +0P qv'uwtr tkukpi n{ .''Mcv| ''f guetkdgu''vtcpurcvkqp''kp''vgto u''qh''+r ctvkcn'' } \\$  $u\{pqp\{o \{ \emptyset' y j kej "kpenwf gu'r ctcr j tcug"cpf "f qgu" \}$ 

pqv'tgeqi pk g"cp{"tguvtkevkqp"qp"\cti gv\vzv'tgpi vj "\*kdkf 0\cdot'427\\dot{6}+0

Cm'y gug'hqto wrcvkqpu'wug''y g'o qf cn'ecp="y g{ "ugg"\tcpurcvkqp"kp"\gto u'qh'y j cv'ku'cduqnwgn( 'r quukdng''qt" ko r quukdng0'Htqo "yi ku'r gtur gevlxg. 'kh'uqo gyi kpi "ku'pqv'\tcpurcvcdng'j gtg"cpf "pqy. 'kp"yi g'r ctvkevnct "\tcpurcvkqp" ukwcwlqp"y g"ctg"nqmlpi "cv."kv"o c{"pgxgtyj grguu"dg"s wlxg"\tcpurcvcdrg"lp"cpqyj gt"\land g"cpf"r rceg."lp"c"r cuv'qt" hwwtg"uwy"qh'y g'\cti gv'rcpi wci g"cpf "ewnwtg0"Vj g'\gto "ej ggug"y km'dg"gp\ktgn( "\tcpurc\cdrg"y j gp'\y g'\cti gv" ewnwtg'j cu'r ctcr j tcugf 'y g'ygz u'cpf 'rgctpgf 'y g'ygej pqmi { 'hqt'o cmkpi 'ej ggug='y g'wwgtcpeg''÷Vj g'hktuv'y qtf '' qh'y ku'xgt { 'ugpvgpeg'j cu'y tgg'ngwgtuø'o c { 'dg'vtcpuncvgf 'cu': Ng'r tgo kgt 'o qv'f g'egwg'r j tcug'c'f gwz'' ngwtguø'i -j cu'w q'ngwgtuø+'kp''qpg'ukwcwkqp''cpf 'cu'':Ng'r tgo kgt''o qv'f g'nc'r j tcug''gp''cpi ncku'c'\tqku'' rgwtguø'\*ĭ ∹qh'y g'ugpygpeg'kp'Gpi nkuj 'j cu'y tgg'ngwgtuø+'kp'cpqy gt0'Ukpeg'y q'xgtukqpu'ctg'r quukdrg'' \*\*Ipuvtwo gpvcn'qt"fqewo gpvcn+: "vjg"rqvgpvlcn'vtcpurcvcdkrkv{"qh'vjg"uqwteg"ku'cm'vjg'i tgcvgt0 Vtcpurcvcdkrkv{ 'y qwrf ''y wu'f gr gpf ''qp''y g''vcti gv'rcpi wci g. ''cpf ''gur gelcm{ ''qp''y g''tcpurcvkqp''ewnwtg''gzkuvkpi '' y ky kp'kz="kv'y qwrf "ngcp"qp"r tgxkqwu"vtcpurcvkqpu"qh'vj g"uco g"vgzv'qt"qh'qyj gt"vgzvu"vtcpurcvgf "htqo "vj g"uco g" ncpi wci g. "rksgtcwtg"qt"i gptg0'K/ecp"cnuq"dg"kphrwgpegf "d{"'y g"cwgpvkqp"qh'etkkeu. 'y g'kpvgtguv'cpf "r tgxkqwu" mpqy ngf i g'qh'y g'tgegkxgt. "y g'uxtcvgi kgu'qh'r wdrkuj kpi 'j qwugu'cpf 'y g'j kuxqtkecn'eqpvgzv0'Xctkqwu'v{r gu'qh' tgrcvkqpuj kr 'r rc{ "c"uki pkhecpv'tqrg"j gtg<'y qtrf "rcpi wci gu."pcvkqpcrl"rcpi wci gu. "tgi kqpcrl"rcpi wci gu. "cu"y gm"cu" wpgs wcn'xctkgvkgu'qh'hcpi wci g'uwej ''cu'eqnqs wkcn'hcpi wci g. ''gf wecvgf ''f kevkqp. ''vgej pkecn'hcpi wci g. ''r tqhguukqpcn' ncpi wci g. "cpf "uq"qp0F {pco ke 'tcpurcvcdkrkv{ "o c{ "dg"crrtqcej gf "kp" vgto u"qh"cp{ "qh"vj g"dtcpej gu"qh"f guetkr vkxg" vtcpurcvkqp''uwf kgu0

Vj g'dgrkgh'kp''tcpurcvcdkrkv{ ''cu''cp''cduqnwg''r quukdkrkv{ 'kpgxkxcdn{ 'twpu''wr ''ci ckpuv'tgrcvkxg''j kurqtkecn'' wpvtcpurcvcdkrkv{ .''dcukecm{ 'ugwu'qh'r tci o cvke 'eqpuvtckpwu'qp''j qy ''o wej 'nkpi wkurke 'y qtm'ku'pgeguuct { ''vq''-y qtm'' qxgt''y g'kpgzr tguukdrg''wpvkrlkv'ku''gzr tguugf ØOCu'Mggpcp''r qkpwu''qwv'kp''j ku''etkks wg''qh'Mcv| øu''r tkpekr rg''qh'' ghrcdkrkv{ .''c''vcti gv'rcpi wci g'kp''y j kej ''gxgt { ''ugpvgpeg''y gtg''c''vtknrkqp''y qtf u''eqwrf ''ucvkuh{ ''y g''r tkpekr rg''dww'y qwrf '' pqv'ucvkuh{ ''ghrkekgpv'j wo cp''dgj cxkqwt'\*3; 9: 382+0'Mggpcp''cti wgu''y cv'pcwtcn'rcpi wci gu''ctg''ghrkekgpv'lp''y cv'' y g{ ''ctg''ko r tgekug.''cpf ''y cv''cp{ ''tcpurcvkqp''j qr kpi ''vq''dg''ghrkekgpv'lp''r tci o cvke ''ygto u''o wuv''dg''ceeqtf kpi n{ '' ko r tgekug0'Qpeg''ci ckp.''y g''r gdcvg''ku''y g''tgrcvkxg''rqqugpguu''y kyj 'y j kej ''y g''eqpegr v''qh''vtcpurcvkqp''ku'' wurf 0

Kp"o qtg"eqo r rgz "vgzw." 'y g"pqvkqp"qh"vtcpurcvckkk{ "ecppqv'dg"ugr ctcvgf "kpvq"pgcv'uvcvgi kgu"uwej "cu" -f qewo gpvcm/qt "-kpuntwo gpvcm/" -f tgekukqpø'qt "-ghhekgpe{ø0[ gv'hqt "y gqtkuw"hkng"Y cngt "Dgplco kp"\3; 45+." y qtmkpi "kp"y g" gto gpgwke"vtcf kkqp. "c"hwpf co gpvcm{ "f {pco ke"vtcpurcvckkk{ "pgxgty grguu"cmqy u"y g" vtcpurcvqt"vq"gxqng"-y g"gej q"qh"y g"qtki kpcm/"kp"y g"vcti gv'ncpi wci g0'Qh"eqwtug. "y gtg"ku"cp"kf gqmi kecni wctcpvgg" dgj kpf "uwej "eqphkf gpeg. "ukpeg"Dgplco kp"cpf "qy gtu"cwcej "vtcpurcvkqp"vq"y g"kf gc"qh"c"RWTG"NCP I WCI G." rtguwr r qukpi "c"hpi wc"hpkxgtucrhi"cu"c"eqpf kkqp"hqt"y g"r quukdktk{ "qh"vtcpurcvkqp0'Kp"c"ugpug. "y ku"kpxgtu"y g" gpvktg"r tqdrgo "qh"vtcpurcvkqpv"kpf kxkf wcnircpi wci gu"kp"i gpgtcnictg"tckugf "vq"y g"uvcwu"qh"vtcpurcvkqpu."cu" vtcpurcvkqpu"qh"qtki kpcniur ggej 0'Vj ku"ku"f qpg"pqv'y ky "tghgtgpeg"vq"cp{"cduqnwg"pqvkqp"qh"wpkxgtucrk{ "dw"qp"y g" dcuku"qh"c"ukpi rg thqto gf "vtcpurcvkqp0'Y j cv'tgo ckpu"wpf gvgto kpgf. "qh"eqwtugô cpf "y ku"j qnf u"hqt"Dgplco kp" cu"y gm"cu"hqt"Lees wgu"F gttkf c"\3; : 213; : 7d+ô ku"y j kej "qh"y g"f gcf "qt"hkkpi "rcpi wci gu."qt"y j kej "qh"y g" vtcpurcvgf "vgzw."o c{"dg"tckugf"vq"y g"tcpmiqh"wpkxgtucn'vtcpurcvdktk{0}

 $\label{twelch} \begin{tabular}{ll} We in the power of the construction of the constr$ 

Ugg"cnuq<

CPCN| VKECN'RJ KNQUQRJ | 'CPF''VTCPUNCVKQP="UGO KQVKE'CRRTQCEJ GUO

### Hwt yj gt 't gcf kpi

# Vt cpurc vkqp'ivwf kgu

Vj g'cecf go ke'f kuekr nkpg'y j kej 'eqpegtpu'kugn'y kij 'yj g'uwxf { 'qh'\tcpurc\kqp'j cu'dggp'npqy p'd { 'f khqtgpv'pco gu' cv'f kthgtgpv'vko gu0'Uqo g'uej qrctu'j cxg'r tqr qugf 'vq'tghgt'vq'kk'cu'y g''+uekgpeg'qh'vtcpurcvkqpø'\*Pkfc'3; 8; .''Y knuu'' 3; 9913; : 4+. "qyj gtu"cu"-xtcpurcyqmi {øô qt"-xtcf weyqmi kgø"kp"Htgpej "\*I qhhkp"3; 93+. "dwy y g"o quv'y kf gn{ "wugf" f guki pcvkqp"vqfc{"ku":-xtcpurcvkqp"uvwf kguø0"kp"j ku'ugo kpcn'ctvkerg":-Vj g"P co g"cpf 'P cwxtg"qh"Vtcpurcvkqp"Uvwf kguø" Ico gu'J qno gu'cti wgf 'hqt''y g'cf qr wlqp''qh''-xtcpuncwlqp''uwwf kguø''-cu''y g''uvcpf ctf ''vgto 'hqt''y g'f kuekr nkpg''cu''c'' y j qrgø'\*3; 9413; :: <92+"cpf "qvj gt "uej qrctu"j cxg "ukpeg" hqrqy gf "uwks0°C v'qpg "kvo g." vj g" vgto "÷vtcpurc vkqp" uwvf kguø" kornkgf "o qtg"gorj cuku"qp"nkvgtct { "\tcpurcvkqp"cpf 'nguu"qp"qvj gt"hqtou"qh"\tcpurcvkqp. 'kpenwf kpi 'kpvgtrtgvkpi. "cu" y gm'cu'c'ncem'qh'kpvgtguv'kp'r tcevkecn'kuuwgu'uwej 'cu'r gf ci qi {.''dww'yi ku'ku'pq'nqpi gt'yi g'ecug0'÷Vtcpuncvkqp'' uwwf kguø'ku'pqy "wpf gtuvqqf "\q"tghgt "\q"tj g"cecf go ke"f kuekr nkpg"eqpegtpgf "y kij "yj g'uwwf { "qh'\tcpurc\kqp"cv'ncti g." kpenwfkpi "nkvgtct{"cpf"pqp/nkvgtct{"ktcpuncvkqp."xctkqwu'hqto u'qh'qtcn'kpvgtrtgvkpi."cu'y gml'cu'F WDDKP I "cpf" UWDVK/NKP I O'Vj g''vgto u'':xtcpurcvkqpø'cpf '':xtcpurcvqtuø'ctg''vugf 'kp''vj ku''i gpgtke''ugpug''vj tqwi j qwv''vj ku''gpvt{O' ÷Vtcpurcvkqp"uwfkguøku"cnuq"wpfgtuvqqf"vq"eqxgt"vjg"yjqrg"urgevtwo "qh"tgugctej"cpf"rgfciqikecn'cevkxkkgu." htqo "f gxgnqr kpi "vj gqtgvkecn'htco gy qtmu"vq"eqpf wevkpi "kpf kxkf wcn'ecug"uwvf kgu"vq"gpi ci kpi "kp"r tcevkecn'o cwgtu" uwej "cu'tckpkpi "tcpurcyqtu"cpf "f gxgrqr kpi "etksgtkc"hqt "tcpurcykqp"cuuguuo gpv0 Kpvgtguv'kp'\tcpurcvkqp'ku'r tcevkecm{ "cu'qnf "cu'j wo cp'ekxknk cvkqp."cpf 'vj gtg'ku'c'xcuv'dqf { "qh'nkvgtcwxtg'qp"vj g" uwdlgev'y j kej 'f cvgu'dcem'cv'ngcuv'vq'EKEGTQ'kp''yj g'hktuv'egpwt{'DE'\*ugg'\NCVKP'VTCFKVKQP}+0J qy gxgt."cu" cp"cecf go ke"f kuekr nkpg. "tcpurcvkqp"uwf kgu"ku"tgrcvkxgn("{qwpi."pq"o qtg"vj cp"c"hgy "f gecf gu"qrf 0Cn j qwi j " rksgtcwtg"qt"eqpvtcuvkxg"rkpi wkuvkeu. "kv"y cu"pqv"wpvkn"yi g"ugeqpf"j crh"qh"yi g"vy gpvkgyi "egpwt{"yi cv'uej qrctu"dgi cp" vq"f kuewuu'yi g"pggf "vq"eqpf wev'u{uvgo cvke"tgugctej "qp"vtcpurcvkqp"cpf "vq"f gxgmr "eqj gtgpv'yi gqtkgu"qh" vtcpurcvkqp0

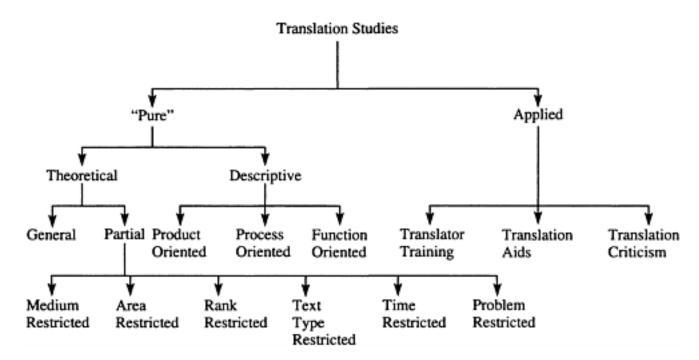
### Vt cpurc vlqp'twwf lgu≺c'o cr'qh'vj g'vgt t kvqt {

Vj g'o cr r kpi ''qh''y g'hkgrf ''qh''y cpurcykqp''uwf kgu'ku''cp''qpi qkpi ''ceykxkv{0Ico gu'I qro gu'ku''etgf kgf ''y kyj ''y g'hktuv'' cwgo r v'vq''ej ctv'y g''ygttkvqt { ''qh''y cpurcykqp''uwf kgu''cu''cp''cecf go ke''r wtuwkv0I ku''o cr ''qh''y g'f kuekr rkpg'\*'ugg'' Lki wtg''; +'ku''pqy ''y kf gn{ ''ceegr vgf ''cu''c''uqrkf ''htco gy qtmlhqt''qti cpk kpi ''cecf go ke''ceykxkvkgu''y kyj kp''y ku''f qo ckp'' \*'ugg''I qro gu''3; 94c+0

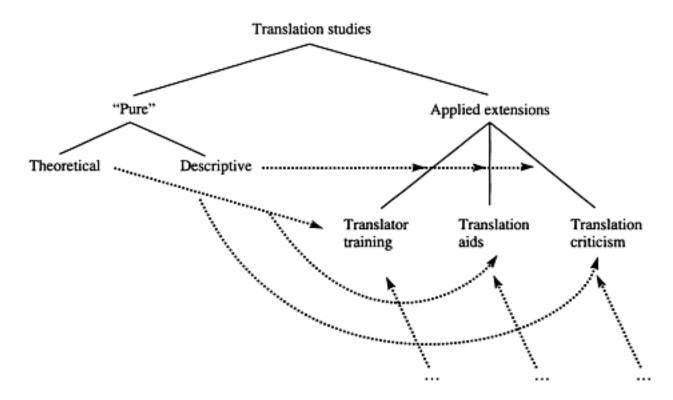
J qm gu'f kxkf gu'ý g'f kækr rkpg'kpvq''y q''o clqt "ctgcu<"rwt g'tt cpurc vkqp'trwf kgu'cpf "crrrkgf 'tt cpurc vkqp'trwf kgu' g''t cpurc vkqp''uwf kgu'j cu'ý g'f wcri'qdlgevkxg''qh'f guetkdkpi "tcpurc vkqp''r j gpqo gpc''cu'ý g{ "qeewt "cpf " f gxgrqr kpi "r tkpekr rgu'hqt''f guetkdkpi "cpf "gzr rckpkpi "uwej "r j gpqo gpc''o'y g'hktuv'qdlgevkxg'hcmu'y kyj kp''ý g''tgo kv'' qh''f guet krvkxg''tt cpurc vkqp''trwf kgu''cpf "ý g''ugeqpf "y kyj kp''ý g''tgo kv''qh''tt cpurc vkqp''ty gqt { ."dqyj "dgkpi " uwdf kxkukqpu''qh''r wtg''tcpurc vkqp''uwrf kgu'O

vgzwi'htqo "cp"qrf gt"r gtkqf "cu"qr r qugf "vq"eqpvgo r qtct { '\vgzw+."qt"**r t qdrgo /t guwt kevgf '\***hqt"gzco r rg"\vj gqtkgu" f gcrkpi "y kyj "\vj g"\vtcpurc\vqp"qh"o gvcr j qt"\vt kkqo u+θ

Crrllgf 'tt cpurc vlap'twwf lgu.' ij g'ugeapf 'o clat'f kxkulap"r tar qugf 'd { "J am gu. "eaxgtu"ce vkxkulap" y j kej "cfftguu" ur geldle 'r toe vlech'crr dec vlapu. "o quv'pavcan ('ttopurc vqt' ttokpkpi. "ttopurc vlap" clafu'uwej "cu'f ke vlapot kgu"cpf "vgto" dopmu. "ttopurc vlap"r anke { '\*y j kej "kpxanxgu"



Hki wtg''; <J qno guø'o cr "qh'\tcpurc\kqp"uwf kgu



 $H\!hi\ wtg'\!32 < Vqwt\{\phi u'o\ cr\ ''qh'Vj\ g''tgrevkqp''dgwy\ ggp''vtcpurevkqp''uwwfkgu''cpf''kwu''cr\ r\ rkgf''$ gzvgpukqpu

i kxkpi "cfxkeg"\q"\j g"eqo o wpkx{ "qp"uwej "kuuwgu"cu"\j g"tqrg"qh"\tcpurc\qtu"cpf "\tcpurc\qqpu+."cpf "\tcpurc\qqp" etkkekuo 0

### Vt cpurc vkqp'inwf kgu'cpf 'qvj gt 'f kuekr rkpgu

Ko"y g"eqwtug"qhicwgo r vhpi "vq"hhpf "kuu"r meg"co qpi "qvj gt"cecf go ke"f kuekr nhpgu"cpf "vq"u{pvj gulk g"vj g"kpulk j w"kv" j cu"i clopgf "htqo "qvj gt"hlgrf u"qhimpqy ngf i g. "tcpuncvkqp"uwf kgu"j cu"qeecukqpcm{"gzr gtkgpegf "r gtkqf u"qh" htci o gpvcvkqp<"qh"crrtqcej gu."uej qqnu."o gvj qf qnqi kgu."cpf "gxgp"uwd/hkgrf u"y kvj kp"vj g"f kuekr nhpg0Cv"c" eqphgtgpeg"j grf "kp"F wdrhp"kp"O c{"3;;7"hqt"kpuvcpeg."uqo g"f gngi cvgu"ecngf "hqt"guvcdrkuj kpi "cp"kpf gr gpf gpv" f kuekr nhpg"qh"kpvgtr tgvkpi "uwf kgu."dgecwug"vj gqtgvkecn'o qf gnu"kp"tcpuncvkqp"uwf kgu"d{"cpf "ncti g"ki pqtg" kpvgtr tgvkpi "cpf"ctg"vj gtghqtg"kttgngxcpv"q"vj qug"kpvgtgungf "kp"vj ku"hkgrf 0Vj ku"ku"tvwg"vq"c"ncti g"gzvgpv."lvuv"cu"kv" ku"tvwg"vj cv'y kvj kp"kpvgtr tgvkpi "uwf kgu"kugrhinct"o qtg"cvvgpvkqp"j cu"tcf kklqpcm{"dggp"r ckf"vq"uko vnvcpgqvu" EQP HGTGP EG"kP VGTRTGVkP I "vj cp"vq"qvj gt"ctgcu"uwej "cu"EQO O WP KV[ "kP VGTRTGVkP I "cpf"hcklqp" kpvgtr tgvkpi 0J qy gxgt."vj g"cpuy gt"kp"dqvj "ecugu"ecppqv'hg"kp"ur nkvkpi "vj g"f kuekr nhpg"kpvq"uo cngt "hcevkqpu."ukpeg" htci o gpvcvkqp"ecp"qpn("y gcngp"vj g"r qukkqp"qh"dqvj "tcpuncvkqp"cpf"kpvgtr tgvkpi "kp"vj g"cecf go {0'Vj g"cpuy gt" o wuv'uwtgn("hg"kp"y qtmkpi "vqy ctf u"i tgcvgt"vpkx{"cpf"c"o qtg"dcmpegf"tgr tgugpvcvkqp"qh"cm"ctgcu"qh"vj g" f kuekr nhpg"kp"tgugctej "cevkxkkgu"cpf" "kp"vj gqtgykecnif kuewuukqpu0

Uko kretn{ .''vj g''vj tgev''qh'htei o gpvevkqp''uqo gvko gu''nqqo u''j ki j ''kp''vj g''nkpf ''qh''nkvgtewtg''y j kej ''f grkdgtevgn{ ''ugvu'' f khhgtgpv''vj gqtgvkeen'er r tqeej gu''qt''tgugetej ''r tqi teo o gu''kp''qr r quk/

\langle depolvj ku'ku'r ct vlewretn( "gxkf gpv'kp"vj g"ecug"qh'cr r tqcej gu'kphqto gf "d{" ewnwtcn'uwf kgu'cpf "vj qug'kphqto gf "d{" vj g"y gm' guvcdrkuj gf "dw'd{"pq"o gcpu'hrcy rguu"o qf gnu'f gtkxgf "htqo "rkpi wkuvleu'\*ugg"Dcngt"3; ; 8+0'kp'tgegpv' {gctu. "c"pwo dgt "qh'uej qnctu'dgi cp"vq"vcm'cdqw''=vj g"ewnwtcn'uwtp"kp"vtcpuncvkqp"uwf kguø'\*Dcuupgw'cpf "Nghgxgtg" 3; ; 2+"cpf "vq"cti wg"vj cv'cp"cr r tqcej "f gtkxgf "htqo "ewnwtcn'uwf kgu"cpf "uvtguukpi "vj g"tqng"qh'kf gqmi {"o wuv" tgrnceg"vj g"vtcf kkqpcn'nkpi wkuvlecm( "f gtkxgf "o qf gnu0'Uwej "f kuewnukqpu"qhvgp"o kutgr tgugpv'cpf "ectkecwtg"vj g" r ctcf ki o u'vj g{"cwcem'kp"c'y c{"vj cv'ku'pqv'pgeguuctkn( "kp"vj g"kpvgtguv'qh'vj g"f kuekr nkpg"cu'c'y j qng<

nkpi wkuwi'j cxg"o qxgf 'htqo 'y qtf 'vq'vgzv'cu'c'wpkx.''dww'pqv'dg{qpf i 0'Vj g'qxgt/cm'r qukxkqp''qh'vj g'' nkpi wkuv'kp''tcpurcvkqp''uwf kgu'y qwrf 'dg'tcyj gt''cpcmqi qwu''vq''y cv'qh''cp'kpvtgr kf ''gzr nqtgt''y j q''tghwugu'' vq''vcng''cp{ ''pqvkeg''qh'vj g''tggu''kp''y g''pgy ''tgi kqp''j g'j cu''f kueqxgtgf ''wpvkn'j g'j cu''o cf g''uwtg''j g''j cu'' r ckpuvcnkpi n{ ''cttkxgf ''cv'c''f guetkr vkqp''qh''cm''y g''r ncpvu''y cv'i tqy ''y gtg0

\*Dcuupgw'cpf 'Nghgxgtg'3;;2-6+

Vtcpurckqp"bej qrctu"o wwitgeqi pk g"y cv"pq"crrtqcej ."j qy gxgt"bqrj kwkecvgf ."ecp"rtqxkf g"y g"cpuy gt"vq"cm"y g" s wgwkqpu"tckugf "kp"y g"f kuekrrkpg"pqt"y g"vqqnu"cpf "o gy qf qrqi { "tgs wktgf "hqt"eqpf wevkpi "tgugctej "kp"cm"ctgcu" qh"vtcpurckqp"bwf kgu0Vj gtg"ecp"dg"pq"dgpghk/kp"bgwkpi "xctkqwu"crrtqcej gu"kp"qrrqukkqp"vq"gcej "qy gt"pqt"kp" tgukwkpi "y g"kpvgi tcvkqp"qh"kpuki j w"cej kgxgf "y tqwi j "y g"crrrkecvkqp"qh"xctkqwu"vqnu"qh"tgugctej ."y j cvgxgt" yi gkt"qtki kp0Hqtwpcvgn{."o qtg"cpf "o qtg"bej qrctu"ctg"dgi kppkpi "vq"egrgdtcvg"tcyj gt"y cp"tgukw'y g"rnwtcrkx{"qh" r gtur gevkxgu"y cv"ej ctcevgtk gu"y g"f kuekrrkpg0"Y j krg"etkkecn"qh"egtvckp"cur gevu"qh"bur gekhke"crrtqcej gu."bwej "uej qrctu"ctg"brkm"cdrg"vq"ugg"y g"xctkqwu"htco gy qtmu"cxckrcdrg"cu"guugpvkcm{"eqo r rgo gpvct{"tcyj gt"y cp" o wwcm{"gzenwukxg"\*Dcrngt"3;; 8c="Xgpwk"3;; 8+0

Vtcpurcvkqp"uwf kgu"ecp"cpf "y kmij qr ghwm{ "eqpvkpwg"vq"f tcy "qp"c"xctkgv{ "qh"f kueqwtugu"cpf "f kuekr nkpgu"cpf "vq" gpeqwtci g"r nwtcrkuo "cpf "j gvgtqi gpgkv{ 0'Htci o gpvcvkqp"cpf "vj g"eqo r ctvo gpvcvkqp"qh"cr r tqcej gu"ecp"qpn{ "y gcngp"vj g"r qukxkqp"qh"vj g"f kuekr nkpg"kp"vj g"cecf go { "cpf "qduewtg"qr r qtwpkxkgu"hqt "hwtvj gt"r tqi tguu"kp"vj g"hkgnf 0

### Hwt vj gt 't gcf lpi

Dcngt'3;; 8=J qm gu'3; 9413; :: = Vqwt{'3;; 7=Xgpwk'3;; 80

O QP C'DCMGT

# Vtcpurcvqt/vtclplpi 'lpudswdqpu

Vtcpurcytu'cpf 'kpygtr tgygtu'j cxg'hqpi 'dggp'\tckpgf 'kphqto cm{ ."dcukecm{ "ij tqwi j "\tkch'cpf "gttqt."\wputwewtgf " crrtgp\keguj kr "cttcpi go gpw."qt"cp{ "qh'ij g'xctkqwu'\tcpurc\kpi "ce\kxk\kgu"ij cv'ceeqo r cp{ "ij g'uwf { "qh'ic 'hqtgki p" repi wci g'cpf "ewnwtg'y ky kp'ij g'Nkdgtch'Ctwi'\tcf kkqp0'Vtcpurc\qt/\tckpkpi "kpukwwkqpu."j qy gxgt."ecp'dg" wpf gtuqqf "cu'qti cpk| cvkqpch'utwewtgu'f guki pgf 'ur gekhecm{ 'hqt'ij ku'\cum'y ky "c'egt\ckp'r gto cpgpeg'cpf " kp\gtpch'r qy gt'tgrc\kqpuj kr u0O quv'uwej "kpukwwkqpu'ctg'pqy "wpkxgtuk\{ "f gr ctvo gpw."rcewnkgu'qt'tgrc\kxgn{ " kpf gr gpf gpv'\wpkxgtuk\{ "kpukwwgu."cnj qwi j "qij gtu'ctg'twp'd{ "i qxgtpo gpv'dqf kgu."kp\gtpc\kqpcn'qti cpk| c\kqpu." rtqhguukqpcn'cuuqekc\kqpu."rcti g'go r m{ gtu'qt'r tkxc\g'uej qqnu0O quv'qh'ij gug'kpukwwkqpu'f gr gpf "qp'y kf gt" untwewtgu'y ky kp'iy g'qpg'uqekgv{ "\uvcyg'qt'r tkxc\g'uej wec\kqp"u{ uvgo +"cpf "ij wu'xct{ "kp'ceeqtf cpeg'y ky 'mecn' eqp\gz\u0OUqo g'untwewtgu."j qy gxgt."etquu'ugxgtcn'uqekg\kgu'cpf "ij wu'cmqy "c'egt\ckp'\{ r qmi { "q'dg'dcugf "qp" xctkqwu'\u00eq gpgtc\kqpu\g'qh'kpukwwkqpu0

Vj g'hqmqy kpi 'uwtxg{ ''cf qr wi'cp'kpvgtpcvkqpcn'r gtur gevkxg. 'hqewukpi ''qp''yj g'i gpgtcvkqpu''qh''vtcpurcvqt/vtckpkpi ''kpuvkwwkqpu''cpf ''cpcn(ukpi ''yj g'f tco cvke''tkug'kp''yj gkt ''pwo dgt''ukpeg''yj g'o kf/wy gpvkgyj ''egpwxt{0'Dtkgh'' eqpukf gtcvkqp'y km'cnq''dg''i kxgp''vq''yj g'kpuvkwwkqpcn'mqecvkqp''qh'egtvckp''r gf ci qi kecn'vtcpurcvkqp''yj gqtkgu0

### J kwqt kechdceni t qwpf

 $\label{thm:continuity:continuit$ 

j cu'nkwg'\q'f q'y ky 'r gqr ng'cewcm( 'ngctpkpi ''c'r tqhguukqp0C'egtvckp'f gi tgg''qh'kpurkwwkqpcnk cvkqp'egtvckpn( "gpuwgf 'y j gp'\tcpurcvqtu'y gtg'cunqekcvgf 'y ky ''Knro ke'eqnrgi gu'qh'y g'ercunkecn'r gtkqf .'y ky 'ecvj gf tcn'ej cr vgtu'' cu'kp''y grhy /egpwt { "Vqngf q. 'qt''y ky 'eqwtv'uej qnctuj kr 'htqo 'y g''y ktvggpy 'egpwt { 0'Dw'uwej 'kpurkwwkqpu'' o ckpn( 'hwpevkqpgf 'cu'nqek'hqt'i tqwr u'qh'vtcpurcvqtu'y qtmkpi 'qp'uko krct'\gz w0'Ki'y gtg'y cu'cp { 'ur gekhle'vtckpkpi .'' kv'uggo u'o qtg''nkngn( 'vq''j cxg''dggp''y tqwi j 'kphqto cn'o ggvkpi u'qt''cr r tgpvkeguj kr u.'y ky ''{ qwpi gt''tcpurcvqtu'' y qtmkpi 'wpf gt''y g'i wkf cpeg''qh'o cuvgtu0'Gxgp''y gp.''y g'tgrcvkxg''cdugpeg''qh'hwm'vko g'r tqhguukqpcn'vtcpurcvqtu'' o gcpu''y cv''tckpkpi 'y cu''nkngn( 'vq''j cxg''dggp''kp''r ctvkewrct''uwdlgev'o cwgtu.''y ky ''tcpurcvkqp''wugf 'cu''c'o qf g''qh'' uwwf { "qt''cu''cp''qeecukqpcn'o gcpu''qh''hkpcpekcn'uwtxkxcn0

C''egt vclp''r qrkkecrillpvgt guv'lp''y ku'hlgrf 'pgeguuct kn( 'gxqrx gf 'y ky ''y g'i t gcv'Gwtqr gcp''eqrqpk cvkqpu0' Twf ko gpvct { "vtcpurcvqt/vtckpkpi "r tqi tco o gu"o ki j v"dg"uggp"kp" y g"r tcevkeg"qh"vcmkpi "pcvkxgu"dcem"vq" y g" o gytqrqrku'\q"wytp"yj go "kpyq"dkrkpi wcn'kpygto gf kctkgu0[ gy'yj g"eqrqpkcn'go rj cuku'y cu'o qtg"qp"tgi wrcykpi "c" uwur gev'r tqhguukqp'yi cp''cewcm{ 'r tqf wekpi 'r tqhguukqpcnu0'Uki pkhkecpvn{ .''yi g'pwo gtqwu''Ur cpkuj 'hcy u''yi cv'' uskr wrcvef 'vj g'tki j w'cpf 'f wskgu'qh'skpvetr tgvetu'skp'vj g'Co gtkecp'eqmpkgu'uckf 'pqvj kpi 'cdqw'j qy 'cp{qpg'' cewcm ("dgeco g"cp"kpvgtrtgvgt0Vjg"uvcvg"kpuvkvvvkqpcn tcvkqp"qh"vtcpurcvqt"vtckpkpi "o kij v'dg"fcvgf"htqo "388;." y j gp''y g'Eqndgtv'f getgg'kp''Htcpeg''cttcpi gf 'hqt''y g''\tckpkpi ''qh''Htgpej /dqtp''uwf gpvu''cu'kpvgtrtgvgtu'hqt''Vwtnkuj." Ctcdke "cpf" Rgtukep. "rgcf kpi "vq" vj g"hqwpf kpi "qh" vj g"Eqpuvcp kpqr rg" uej qqr0 Kp" 3976 "Gortguu "Octke" Vj gtgue" hqwpf gf 'vj g'Qtkgpvcn'Cecf go {.'y j kej 'r tqxkf gf 'c'pwo dgt 'qh'qtkgpvcnkuvu'cpf 'kpvgtr tgvgtu'vq'vj g'J cr udwti 'eqwtv' qxgt''y g''{ gctu'\*F grkurg''cpf ''Y qqf uy qtyj '3; ; 749263+0Dg{qpf 'Gwtqr g.''uqo g''qh''y g''kpkkcn'o qxgu''eqwrf ''dg'' uggp"cu'c'tgcevkqp"\q'eqmpkcn'gzrcpukqp."cv'qpeg"chhkto kpi "qrrqukxkqpcn'kfgpvkx{"cpf"hcekrkxcvkpi "yig'\tcpuhgt"qh" mpqy ngf i g0Vj g'hcti g'Gi {r vkcp'\tcpurc\kqp'\uej qqn'pqy 'mpqy p''cu''cn/Cnwp''y cu''guvcdrkuj gf 'kp''3: 570Kp'Ej kpc''cv'' yj g'dgi kppkpi "qh'yj g''pkpgvggpyj "egpwt{"c'i tqwr 'mpqy p''cu'' | cpi y w "eqo r tkukpi "j ki j 'i qxgtpo gpv''qhhkekcnu" f gcrkpi "y kij "Hqtgki p"Chlektu. "etgevgf "kpuvkwwkqpu"hqt" y g"vtekpkpi "qh"vtepurevqtu "kp"etgeu "rkmg" y kr dwkrf kpi "epf" y gcr qpu'o cpwhcewtg0kp'3: 84"Vqpi y gp'I wcp'\*kpvgtr tgvgtuø'Eqmgi g+'y cu'ugv'wr 'kp'Dgklkpi 'vq'vtckp'vtcpuncvqtu'  $cpf'' kpvgtrtgvgtu'' kp'' Gwtqrgcp'' ncpi wci gu0'' Htqo''3:; 8'' [CP'' HW'' ugg'' \underline{EJ \ RP \ GUG'' VTCF \ KWQP} + ''cv'' yi cv'' klog'' \\$ r tkpekr cn'qh'y g'P qty gtp'Ej kpgug'P cxcn'Cecf go {.'uwr gtxkugf 'ugxgtcn'\tcpurc\kqp'\uej qqnu'qr gtc\kpi '\wpf gt''  $egpvtcn'cpf ''nqecn'i \ qxgtpo \ gpv'cwj \ qtkv {0'Hwtyj \ gt'kphqto \ cvkqp''qp''yj \ gug''cpf ''uko \ krct''kpuvkwvkqpu''o \ c {''dg'i \ ckpgf''} \ del{eq:chcpf}$ htqo ''y g''j kuvqtkecn'ugevkqp''qh''y ku''gpe{emr gf kc0

#### Tkug'kp'tj g'b kf/wy gpvkgvj 'egpvvt{

C"o qtg"i gpgtcrkuv'crrtqcej 'y qwf ''crrgct'\q'fcvg'htqo ''ugxgtcri'Y guvgtp/Gwtqrgcp'kpuvkwvkqpu'\j cv'y gtg"o ckpn{" hqewugf ''qp'kpvgtrtgvgt''\tckpkpi ''cpf ''gplq{gf ''c'rcti g'fgi tgg''qh'kpf grgpf gpeg'y kj ''tgurgev'\q'pqp/xqecvkqpcri' wpkxgtukv{''untwewtgu0'Uwej ''kpuvkwwgu'y gtg''

guvcdrkuj gf "kp"J gkf grdgti "\*3; 52+"I gpgxc"\*3; 63+"cpf "Xkgppc"\*3; 65+0Gnugy j gtg."cu"cv"y j cv"ku"pqy "ecrngf "y g" O queqy "Nkpi wkurke" Wpkxgtukx{ "\*3; 52+" 'tcpurcvqt "tckpkpi "y cu"o qtg"gzr rlekxn{ "kpvgi tcvgf "kpvq"kpf gr gpf gpv" hqtgki p/rcpi wci g"kpurkwwgu."c"o qf grdy cv"urkrri'r gtvckpu"kp"T wuukc. "Ej kpc"cpf "uqo g"Gcuvgtp/Gwtqr gcp"eqwpvtkgu0 Kpurkwwkqpcrk| cvkqp" 'qqrd'c"pgy "wtp"kp"y g"{ gctu"ko o gf kcvgn{ "hqrmy kpi "Y qtrf" Y ct"Vy q."y j gp"y g"xkevqtkqwu" r qy gtu"ugv"cdqw"guvcdrkuj kpi "y gkt "kpvgtpcvkqpcri'tgi ko g"y tqwi j "y g"o ketqr j qpgu"cpf "j gcf ugwu"qh"uko wncpgqwu" kpvgtr tgvgtu0Kpf gr gpf gpv"wpkxgtukx{/rgxgrlkpurkwwkqpu."qpeg"ci ckp"y ky "c"urtqpi "go r j cuku"qp"kpvgtr tgvkpi ."y gtg" s wkemn{ "guvcdrkuj gf "kp"y g"dqtf gt"tgi kqpu"qh"y g"Vj ktf "T gkej 
"3; 69+"cpf "UcctdtÃengp"\*3; 6: +0"Vj gug"kpurkwwkqpu"y gtg"cuuqekcvgf "y ky "y g"ecwug"qh"dwkrf kpi "r gceg"kp"y j cv" y cu"y gp"y g"o quv"r tqdrgo cvke"r ctv"qh"y g"y qtrf 0

C'hwtyi gt'i gpgtcvkqp''cr r gctgf 'kp''yi g''3; 72u.''y j gp''Htgpej 'kpkkcvkxgu'nckf ''yi g'hqwpf cvkqp''qh''Gwtqr gcp''wpkx{ "cpf" Htgpej 'f kr mo ce{ "uqwi j v'ko r qt vcpeg''qp''yi g''y qtrf 'uvci g0'Hqmqy kpi ''yi g'hqwpf kpi ''qh''yi g''H F¦ TCVKQP'' KP VGTP CVKQP CNG'F GU''VTCF WE VGWTU'\*\*HKV+'kp''Rctku''kp''3; 75.''yi g'' eqng''Uwr²tkgwtg''f øKpvgtr t³ wgu''gv'f g'' Vtcf wevkqp''\*KUKV+'y gtg''dqyi ''ugv'wr ''kp''Rctku'' kp''3; 790'Vj gug''kpurkwwgu''r tkxkrgi gf ''kpvgtr tgvkpi .''r ctvkewrctn{ "eqphgtgpeg''kpvgtr tgvkpi .''y j kej ''y cu''yi g''j ki j / r tqhkrg''hceg''qh'yi g''r tqhguukqp0

Pqv'y j qm("d{"ej cpeg."vj g"Higpej "ncpi wci g"vj gp"f qo kpcvgf "vj g"htuv'kpvgtpcvkqpcn'pgvy qtm'qh'kpukwwkqpu."vj g" Eqph'f tgpeg"Kpvgtpcvkqpcng"f gu"Kpukwwu"Wpkxgtukcktgu"f g"Vtcf weywtu"gv'Kpvgtr t³ vgu"\*EKWVK-"y j kej "o gv" kphqto cm("htqo "3; 82"cpf "y cu"gucdrkuj gf "qhhkckm("kp"3; 86"cv'vj g"kpkkcvkxg"qh'vj g"kpukwwkqpu"kp"I gpgxc."

J gkf gmlgti ."I gto gtuj gko ."Rctku"\*GUKV+."Ucctdt Ãemgp."Vtkguvg"cpf "Xkgppc0Vj g"quvgpukdng"cko "qh'vj g"EKWVK y cu"vq"gpuwtg"vj g"s wchk("qh'i tcf wcygu'htqo "ku"o go dgt "kpukwwkqpu0[ gv'ku"ko r ntekv'hwpevkqp."vq"c"egtvckp"gzvgpv" fgf wekdng"htqo "vj g"pcwtg"qh'vj g"o go dgt "kpukwwkqpu."y cu"cpf "tgo ckpu"vq"gzvqn'c"Y guvgtp/Gwtqr gcp"o qf gn'qh" vcpurcvtq"vtckpkpi "dcugf "qp"tgncvkxgn("kpf gr gpf gpv'kpukwwgu"yi cv'ctg"gzenwkxgn("eqpegtpgf"y kej "tcpurcvkqp"\*cu" qr r qugf "vq"ncpi wci g"vgcej kpi +"cpf "go r j cuk| g"vj g"vtckpkpi "qh'eqphgtgpeg"kpvgtr tgvgtu0'Vj g"Gcuvgtp/Gwtqr gcp" kpvgi tcvkqp"qh'vtcpurcvkqp"cpf "ncpi wci g"ngctpkpi "y cu"s wkgvn("f gxcnwgf ."cu"y gtg"yj g"r tqhguukqpcn'uvcpf ctf u"qh" wpkxgtukx("f gr ctvo gpvu"qh'o qf gtp"ncpi wci gu"cpf "hkgtcwtgu0'Uki pkhlecpvn(", "y g"EKWVKkpukwwkqpu"f khtgtgf "htqo" pkpgvggpyj /egpwt {"o qf gm'lp"y cv'yj g{"y gtg"pqv'f ktgevn("f gr gpf gpv'qp"i qxgtpo gpv'kpkkcvkxgu0'Vj g"r gqr ng" ycej kpi "kp"yj go "y gtg"qhyp"r tqhguukqpcn'kpvgtr tgvgtu"cpf "tcpurcvqtu="yj g"r tqhguukqp"kwgth'j cf "vcngp"vq"ugwkpi "ku"qy p"ucpf ctf u"cpf "f ghlpkpi "kvu"qy p"qdlgevkxgu0

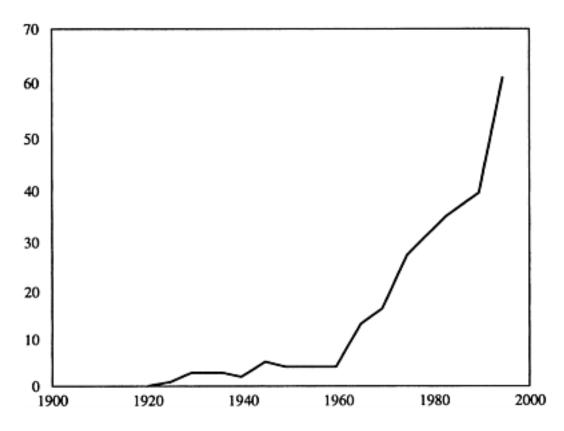
Vj gug'f gxgrqr o gpwi'kpgxkcdn{ 'rgf 'vq'o kpqt 'eqphrkev'y kyj 'vj g''guvcdrkuj gf 'pqp/xqecvkqpcn'cecf go kt cvkqp''qh'' vtcpurcvkqp0'Qpg''qh''y g'tguwnwu'y cu'c''egtvckp''dgmki gtgpeg''kp''y g'r gf ci qi kecn'cr r tqcej gu'hqto wrcvgf 'kp''y g''gctn(" EKWVK tcf kkqp0F cpkec 'Ugrgunqxkej øu' 'y j qt kg'f w'ugpu.' 'y j kej 'cuuwo gf 'f qevtkpcn'r tqr qt kqpu'cv' y g'Rctku' GUKV. "j gtqkecm("ej co r kqpgf" r tqhguukqpcn'kpvgtr tgvkpi "cu'vj g'uvctvkpi "r qkpv'hqt"cm'vtcpurcvkqp" vj gqt { "\*ugg" <u>R VGTRTGVKXG"CRRTQCEJ</u> +0"Uwej "c"vj gqt { "ghhgevkxgn{ "uvcvgf" 'vj g"ecug" hqt "cp" kpf gr gpf gpv'vtcpurcvqt/ vtclplpi 'lpurkwrkqp'hqewugf 'qp'lprgtrtgrkpi 'cpf' twp'd{'yi g'rtqhguukqp'kugrh0'C'fkhhgtgpv'urtcrgi {'y cu'cfqrvgf'lp' Ucctdt Aengp. "y j gtg" y g'h kpi wku ke "o qf gnu "qh" Y qn tco "Y knuu "go r j cult gf "vgej plecn "gzr gt vkug "cu "y g "xqec vkqpcn" ukf g"qh"crrnkgf "hkpi wkukeu0"Vj g"hwpevkqpcnkuv" y gqt {"rtqpqwpegf"d {"I cpu"Xgto ggt"cv" J gkf gndgti "kp" y g"3; : 2u" \*ugg'<u>FKFCEVKEU'QH'VTCPUNCVKQP</u>="<u>UMQRQU'VJGQT[</u>+'icxg'itgcvgt'rtkqtkx{''vq'vjg'rtqhguukqpcn' vtcpurcvqtøu'ukwcvkqp."{gv'kv'cnıq'hqwi j v'vj g'ecwug'qh'vj g'kpf gr gpf gpv'vtcpurcvkqp'kpuvkwwg'cu'qr r qugf 'vq' pcttqy n{ 'r j krqrqi kecn'qt 'rkvgtct { 'r tqi tco o gu0Cm'yj gug'yj gqtkgu'qhhgtgf 'uqnwkqpu'vq'cp'kpuvkwwkqpcn'eqphrkev0 Ki'y qwrf ''dg''y tqpi .''j qy gxgt.''\q''uwr r qug''y cv'y g'EKWVKkpuvkwwkqpu''ctg''cm'qh''y g''uco g''o qwrf 0'Vj g''Htgpej " o go dgtu'dcukecm{ "qhhgt" y q/{gct" ur gekcht gf "ugeqpf/e{eng" o cuvgtøu+"r tqi tco o gu." y kyj "uwf gpvu" i ckpkpi "vj gkt" ncpi wci g'eqo r gvgpeg''y tqwi j "c'hktuv'f gi tgg'eqo r ngvgf "gnugy j gtg0'Vj g'I gto cp'kpuvkvwkqpu."qp''y g''qy gt''j cpf." ctg"dcugf "qp"c"hqwt/{gct"uxtwewxtg"y j gtg"rcpi wci g"rgctpkpi "ku"kpgxkcdn("o kzgf"y kj "ur gekcnk gf "eqwtugu"kp" vtcpurcvkqp"cpf "kpvgtrtgvkpi 0Pqv'uvtrtkukpi n{."vjg"hqwt/{gct"uvtwewtg"jcu'rtqxgf"jctfgt"vq"lwuvkh{"kp"vgtou"qh" kpurkwkqpcnkpf gr gpf gpeg'htqo ''qyj gt''wpkxgtukv{ "

f gr ct vo gpw0'Vj g't guwn'j cu''dggp''eqpulf gtcdrg''y gqtgwecn'f gdcvg''cpf ''qeeculqpcn'dcrcpelpi ''cevu''dgwy ggp''y g'' vgej plecn'nkpi wkurke ''vtcf kklqp''cpf ''c''r wtr qug/qtkgpvgf ''r tci o cvkuo 0Qpg''qweqo g'y qwrf ''cr r gct ''vq''dg''y g'T gto cp'' y gqtkgu''y cv''pqy ''gpxkuci g''cp''gzvgpulqp''qh''y g''vtcpurcvqtøu''tqrg''kpvq''i gpgtcn'lkpvgtewnwtcn'gzr gtvkug''qt'' eqpuwnkpi ''hwpevkqpu''\*ugg''CEVKQP''\*VJ GQT[ ''QH''÷VTCPUNCVQTKCN''CEVKQPø++.''ukpeg''y ku''ku''cp''ghlgevkxg'' y c{''qh''lwurkh{kpi ''c''hqwt/{gct''uvtwewtg''y cv''quvgpulkdn{''gzenwf gu''ncpi wci g''ngctpkpi 0'Vj g''r tgurki kqwu''Htgpej ''kpurkwwkqpu.''y j kej ''uvkm'j cxg''ugeqpf/e{erg''r tqi tco o gu.''eqpvkpwg''vq''r tqo qvg''c''o qtg''tgurtkevkxg''xkukqp''qh''y g''kpvgtr tgvgt l''vtcpurcvqtøu''ur gelcrkuv'tqrg0

F gur kg''y gug'kpvgtpcn'f khlgtgpegu. 'Y g'EKWVK' cu'r tqxgf 'tgrcvkxgn( 'tweeguuhwr)'V j g''qti cpk cvkqp''j cu'tuqo g''43" o go dgt 'kpurkwwkqpu''\*kp''3; ; 8+"cm'qh''y go 'kp''Y guvgtp''Gwtqr g''cpf 'P qty 'Co gtkec. 'cpf 'o go dgtu'qti cpk g'' uwf gpv'gzej cpi g''r tqi tco o gu''co qpi 'Y go ugrxgu0'Uqo g''qh''y g''qrf gt''kpurkwwgu''ctg''pqy ''xgt { 'hcti g. 'Y ky ''qxgt'' 3222''uwf gpvu0'V j g''ko r rhek/EKWVK'r tkpekr rgu''ctg''cruq' y kf gn( 'tgur gevgf ''co qpi ''pgy n( ''etgcvgf ''kpurkwwkqpu. ''q'' y g''gzvgpv'y cv'uqo g''qh''y g''qtki kpcn'o go dgtu''j cxg''f ktgevn( ''qt''kpf ktgevn( ''r tqf wegf ''r ctvkcn'erqpgu0'V j g'' r tgurki kqwu''Qwcy c''uej qqn 'hqwpf gf 'kp''3; 92. ''nqnrgf ''qy ctf u''Rctku. ''cpf ''y g''GUKV''j cu''untqpi ''kgu'y ky '' kpurkwwkqpu''kp''r rcegu''rhrg''Dwgc''cpf ''Vcpi kgtu. ''dqy ''hqwpf gf ''kp''3; : 80'Y j gtgcu''y g{ ''j cf ''qpeg''ugtxgf ''eqrqpkcn'' kpurkwwkqpu. ''tcpurcvqtu''cpf ''kpvgtr tgvgtu''etgcvgf ''y gkt''qy p''kpurkwwkqpu'y ky ''y gkt''qy p''tgrcvkxgn( ''kpf gr gpf gpv'' r quveqnqpkcn'tgrcvkqpuj kr u0

### Eqpxgti gpeg'qh'xqecvlqpcn'cpf 'cecf go le'et løgt lc

Cu'o wej "cu'y g''Y guvgtp/Gwtqr gcp"cpf 'Co gtlecp"lpurkwkqpu"guvcdrkuj gf "dghqtg"yj g''3; : 2u'o c{ 'urkm'dg" ngi koko ki gf "qp" yi g"ngxgn" qh" yi gqt { . "yi gkt "dcuke" r tgegr v"qh" xqecokqpcm ("dcugf "kpf gr gpf gpeg" j cu" dggp "tcf kecm (" ej cngpi gf "d{" 'y g"ej cpi kpi "pcwtg" qh' 'ygt klct { "gf wec klqp0 kp" pwo gt qwu'e qwp vt kgu. "c" 'ugt kgu 'qh' t ghqto u'kp" y g" 3; : 2u'cpf 'gctn('3; ; 2u'tgo qxgf 'o cp{ 'dcttkgtu'dgw ggp'xqecvkqpcn'cpf 'cecf go ke'gf wecvkqp'kp'xktwcm('cm' hlgnfu0Cu''yi g'xctlqwu''yej plecn'qt''r tqhguulqpcn' vtclplpi "lpuvlxwwlqpu'y gtg'lpvgi tcvgf "lpvq''pcvlqpcn'wplxgtulw{" u{uvgo u."vtcpurcvqt/vtckpkpi "rtqi tco o gu"eqwrf "pq"nqp"i gt"rc{"encko "vq"xqecvkqpcm{"dcugf "kpf gr gpf gpeg0'Uqo g" qh''y g'EKWVKkpurkwwkqpu''y gtg'kpvgi tcvgf 'kpvq''wpkxgtukx{ ''uvtwewtgu<'y g'GUKV.'hqt''gzco r ng.'y cu'cuuqekcvgf ''y ky '' y g'Uqtdqppg''y tqwi j 'c'ncy 'qh'3;: 6='o cp{ 'qh'y g'I gto cp'kpukwkqpu'hqwpf 'y gkt'cecf go ke'nqeckqp'kp'crrnkgf'' nkpi wkukeu0Kp"Ur ckp. "tcpurcyqt"tckpkpi "y cu"ecttkgf "qwikp" y tgg/{gct "xqecykqpcn/ tckpkpi "r tqi tco o gu'tki j v" yj tqwi j "vq"3; ; 4. "y j gp"c"pcvkqpcn"rcy "cmqy gf" vj g"etgcvkqp" qh" hqwt/{ gct "wpkxgtukv{ "hcewnkgu" qh" vtcpurcvkqp" cpf" kpygtr tgykpi 0'Vj ku'i gpgtcn'kpygi tcykqp'j cu'j cf 'pwo gtqwu'hct/tgcej kpi 'eqpugs wgpegu0 Hktuv."cpf "o quv'qdxkqwun(."vj gtg"j cu"dggp"c"f tco cvke"tkug"kp"vj g"pwo dgt"qh"wpkxgtukv{/rgxgn"kpuvkvwkqpu"qhhgtkpi "  $f \ gi \ tggu''qt''f \ kr \ mo \ cu'ur \ gekhlecm ("kp''tcpurc'kpi "qt''kpvgtr \ tgvkpi "*ugg''<u>Hki \ wtg''33</u>+0'Htqo '6; 'kp''3; 82''y \ gp''32: 'kp'' \ gp''32: 'kp'' \ gp''33+0'Htqo '6; 'kp''3; 82''y \ gp''33+0'Htqo '6; 'kp''3+0'Htqo '6$ 3; : 2. "yj g"i mdcn'pwo dgt "j cf "tkugp" 'vq" cv'ngcuv' 472 "kp" 3; ; 6" \*Eco kpcf g" cpf "R{o . '3; ; 7+0 Vj g" tgcuqpu' hqt 'vj ku" ter lf "gzr epulqp"hlg"o quv'qdxlqwun( "lp" y g"o etngv"f go epf "lqt" \tepure \quad ten j "y g"y qtrf y lf g" tqy y "lp" {qwj 'wpgo r m{o gpv'j cu'cnnq'etgcvgf 'c'f go cpf 'qp'vj g'r ctv'qh'uwf gpw'kp'ugctej 'qh'lqdu0 Ukpeg''y g'o clqt''ej cpi g'eco g'htqo 'i gpgtcn'wpkxgtukx{ 'u{uvgo u'tcyi gt''y cp'htqo 'y kyi kp''vtcpurcvqt/vtckpkpi " kpurkwrkqpu. 'y g'xcuv'o clqtkv{ "qh'y g'r tqi tco o gu'etgcvgf "kp"y g"gctn{ '3; ; 2u'y gtg"cewcm{ 'y ky kp"guvcdrkuj gf " wpkxgtukx{ 'f gr ctvo gpvu'qh'rcpi wci g'cpf 'rkxgtcwxtg''qt''y gtg''qti cpk gf ''qp''cp''kpvgtf gr ctvo gpvcn'dcuku0'Kp''vgto u''qh'' pwo dgtu'qh'kpukwwkqpu.''y ku'f gxgnqr o gpv'j cu'ghhgevkxgn{'uwr gtugf gf ''y g'o kf/egpwt{''go rj cuku'qp'r tqhguukqp/ dcugf 'kpf gr gpf gpv'uvtwewtg0O quv'qh'vj g'o qtg'tgegpv'r tqi tco o gu'pqy 'kpxqrxg'uj qtvgt.'ugeqpf/e{erg'' \*o cuvgtøu+"uvwf kgu"f guki pgf "vq"cff" ur gekhke "eqo r gvgpegu"vq"i gpgtcn"umkmu"vj cv"uvwf gpvu"j cxg"qdvckpgf "gnugy j gtg0 J cxkpi "vj wu'gpvgtgf "vj g'cecf go ke''ur j gtg. "vtcpurcvqt "vtckpkpi "j cu'dgeqo g'hqqugn( "cwcej gf "vq'cp'cecf go ke" f kuekr nkpg."VTCP UNC VKQP "UVWF KGU." y j kej "kp" uqo g"ektewo uvcpegu" i kxgu" y g"r gf ci qi kecn'r tqi tco o gu" i tgcvgt 'ngi kuko ce{ "y kıj kp" 'y g" wpkxgtukv{ "gpxktqpo gpv0" Vj ku'tgegpv'cecf go kt cvkqp" j cu'kpxqnxgf "y g'f gxgnqr o gpv" qh''y ktf/e{erg'\*f qevqtcn+'r tqi tco o gu'ngcf kpi "qp'htqo "uvtkevn( "xqecvkqpcn'uvvf kgu. 'uqo gvko gu'y kyj "c'hqevu'qp" eqpvtcuvkxg'go r kt kecn't gugctej 0'Kt'j cu'cniq'kpgxkcdn( ''rgf ''vq'i t gcvgt 'eqpvcev'y kij ''vj g'pqp/xqecvkqpcn'



 $Hki \ wtg'33 < Vtcpurcvqt/vtckpkpi 'kpurkwwkqpu<'htgs wgpe{ ''qh'etgcvkqp''qxgt''hkxg/{gct''} r gtkqf u''*uco r rg''qh'466''kpurkwwkqpu'htqo ''cm'eqwpvtkgu+$ 

vtcpurcvkqp"uwf kgu"qeecukqpcm{"cuuqekcvgf"y ky "wpkxgtukv{"f grctvo gpvu"qh"rkpi wkuvkeu"qt"eqo rctcvkxg"rkvgtcwtg0" Vj g"xgt{"f kuekr rkpgu"yj cv"j cf "dggp"f kuvcpegf "kp"yj g"j gtqke"f c{u"qh"vtcpurcvqt"vtckpkpi "pqy "vgpf"vq"dg"kpvgi tcvgf" kpvq"cm/go dtcekpi "yj gqtkgu"cpf"r gf ci qi kecn'crrtqcej gu="yj gqtkuvu"yj wu'uvtguu"yj g"xctkgv{"qh"rgtur gevkxgu"yj cv" ecp"dg"dtqwi j v'vq"dgct"qp"vtcpurcvqt"vtckpkpi 0

Vj g'tcr kf 'kpukwkqpcn'gzr cpukqp'kp''tcpurcyt''tckpkpi 'j cu'r tqxkf gf 'c'f go cpf 'hqt'r wdrkeckqpu'cpf 'cecf go ke' lqdu'cv'c''ko g''qh'tgrckxg''uci pckqp'y ky kp''qy gt 'wpkxgtukx{ 'f gr ctvo gpvu."gur gekcm{ 'vj qug''qh'eqo r ctc\kxg'' rkgtcwtg0'Xctkqwu''rkgtct{ 'vj gqtkuw'j cxg''eqpugs wgpvn{ 'vcngp''c''ewnwtcn'wtp''vqy ctf u'\tcpurc\kqp."uqo g\ko gu'' y ky 'vj g''r tg\gpeg''qh'rkdgtc\kpi '\tcpurc\qtu''htqo ''gzr mkkxg''kf gqmi kgu."o qtg''qh\gp''ercko kpi 'vj cv'\tcpurc\kqp'' uwf kgu''uj qwrf ''j cxg''tqqo 'hqt''yj go '\qq0'\kp''kpukwwkqpcn'\gto u.''yj g''r tko ct{ 'ej cpi g''j cu'pgxgtyj grguu'dggp''yj g'' o cuukxg'i tqy yj 'kp'\tcpurc\qt''\tckpkpi ''tcyj gt''yj cp''kp''\tcpurc\qty gqt{0

Vj g'ncti g'guvcdrkuj gf "tcpurcvqt/vtckpkpi "kpuvkwwkqpu"j cxg"qeecukqpcm{ "cf cr vgf "vq" y gug"ej cpi gu0Kp"uggnkpi "c" i tgcvgt" f gi tgg"qh" o qf wrctk cvkqp" dcukecm{ "d{ "dtgcmkpi "nqpi "f gi tgg"r tqi tco o gu"kpvq"uj qtvgt"f kr nqo c" r tqi tco o gu+"uqo g"j cxg"eqwpvgtgf "y g"tki kf kv{ "cpf "j ki j "cwtkkqp"tcvgu"y cv"gpuwg"htqo "j cxkpi "xcuv"pwo dgtu"qh" uwwf gpvu"wpf gtvcng"hqwt/{gct"dnqemu0Kp"ghhgev."uwej "o qf wrctk cvkqp"o c{ "j cxg"j grr gf "y g"rcti g"kpuvkwwkqpu" hwpevkqp"hkng"y g"uo cngt"cpf "uj qtvgt"r tqi tco o gu"v{r kecn'qh'y g"gctn{ "3; ; 2u0

Vj gtg"tgo ckpu."j qy gxgt."c"ugtkqwu"eqpegtp"y ky "r tqhguukqpcn'uvcpf ctf u0Kp"qtf gt "vq"r tqvgev'vj g"s wcnkv{ "qh"vj gkt" i tcf wcvgu. "guvcdrkuj gf "kpuvkwvkqpu"vgpf "vq"cuuqekcvg"vj g"pgy gt "r tqi tco o gu"y ky "c"egtvckp "ncem'qh"eqo r gvgpeg." qeecukqpcm{ "ceewukpi "vj go "qh"vgcej kpi "ncpi wci gu"kpuvgcf "qh"vtcpuncvkqp."qh"gpi ci kpi "kp"kf ng"vj gqt { ."qt"qh" uko r n{ "hqmqy kpi "hcuj kqp0Cnj qwi j "uqo g"qh"vj gug"ceewucvkqpu"ctg"vpf qwdvgf n{ "vt wg."vj g"s wguvkqp"qh"uvcpf ctf u" ku"d{ "pq"o gcpu"engct"ew0Htqo "3; 86"vj g"Eqphgtgpeg"Kpvgtr tgvkpi "Ugtxkeg"qh"vj g"Gwtqr gcp"Eqo o kuukqp"j cu" dggp"vtckpkpi "kwu"qy p"kpvgtr tgvgtu."cpf "r tqhguukqpcn'vtcpuncvqtu"cpf "kpvgtr tgvgtu"ecp"uvkm'gcukn{ "i gv"d{ "y ky qw" cp{ "f gi tgg"kp"vtcpuncvkqp0Hvtvj gt."s wcnkv{/eqpvtqn'lkpuvkwvkqpu"j cxg"o qtg"tgegpvn{ "dggp"etgcvgf "qp"

y g"pcvkqpcn"rgxgn"r ctvkewctn( "kp"eqwpvtkgu"y cv"j cxg"pq"EKWVKo go dgtu0Kp"Uy gf gp."y g"Kpurkwwg"hqt" Kpvgtr tgvcvkqp"cpf "Vtcpurcvkqp"Uwf kgu"y cu"hqwpf gf "kp"3; : 8"y ky "c"i qxgtpo gpv'o cpf cvg"ceeqtf kpi "kv" tgur qpukdktk/{ "hqt"cmltgi wrct"tcpurcvqt"vtckpkpi "kp"y g"eqwpvt {0Vy g'Cwuvtcnkcp"P cvkqpcn"Ceetgf kxcvkqp"Cwy qtk/{ "hqt"Vtcpurcvqtu"cpf "Kpvgtr tgvgtu"tgi wrctn( "gxcnvcvgu"dqy "vtcpurcvqt/vtckpkpi "r tqi tco o gu"kp"Cwuvtcnkc"cpf "y g" qxgtugcu"s wcrkhecvkqpu"qh"vtcpurcvqtu"y qtmkpi "kp"y g"eqwpvt {0Kp"Dtkxckp"y g"Kpurkwwg"qh"Nkpi wkruu"j cu"dggp" qti cpk kpi "r wdnke"gzco kpcvkqpu"kp"y g"hkgrf "qh"vtcpurcvkqp"cpf "r wdnke/ugtxkeg"kpvgtr tgvkpi "ukpeg"3; : ; 0Vj g" Ur cpk y "Cuuqekcvkqp"\*Eqplgt gpek +"qh"Wpkxgtuk/{ "Egpvtgu"cpf "F gr ctvo gpvu"qh"Vtcpurcvkqp"cpf "Kpvgtr tgvkpi "y cu" etgcvgf "kp"3; ; 70Ugxgtcn"pcvkqpcn"vtcpurcvqtuv/cuuqekcvkqpu"cnq"vcng"c"f ktgev'kpvgtguv'kp"vtcpurcvqt"vtckpkpi ."cu"ku" y g"ecug"kp"I gto cp{."Dtkxckp"cpf "y g"Wpkxgf "Uvcvgu."y j gtg"y g'Co gtkecp"Vtcpurcvqtu'Cuuqekcvkqp" cu"dggp" ectt {kpi "qwv'ceetgf kxcvkqp"vgurkpi "ukpeg"3; 950

Vq'uwo o ctl\ g."\j g'\tgpf "ulpeg'\j g'\rcvg'3; : 2u'\j cu'dggp'\qy ctf u'u\j qtvgt."o qtg'\tci o gpvgf 'r tqi tco o gu'\j cv'ctg" lpetgculpi n\ "lpvgi tcvgf "lpvq"\y lf gt'\wplkxgtulk\ "urtwewtgu'cpf "o c\ "eqphqto "\q'pc\lqpcn\tcy gt"\y cp'\lpvgtpc\lqpcn' etkgtlc0\to gtg'gxgp'uggo u'\q'dg'\rguu'\lpukuvgpeg'qp'c'\urtwevt\rguv'\rquad ewu'qp'\utcpurc\lqp'\vj g'\pgy gt'\lpukwwlqpu'qh\upp' gzej cpi g'\uwf gpwu'y kj "wplxgtulk\gu'\y cv'j cxg'\pq'r ct\lewct'\ur gelcn\upp\cdot c\lqp'\lp'\y ku'\hgrf +0'\tj g'\upp g'\upp\cdot vo'\tau\upp\cdot v'\tau\upp\cdot v'\upp\cdot v'\u

Vj g'lo o gf kcy'hwwtg'qh'\tcpure\tclpkpi 'y kni'pq'f qwdv'dg''o ctngf 'd{'hwty gt''i tqy y 'hp''i gqi tcr j kecn'ctgcu'' y cv'ewttgpvn{'j cxg'hgy 'hqto cn'r tqi tco o gu0'Kpf kc. 'Uqwj /Gcuv'Cukc''cpf 'Ej kpc'j cxg'\tcf g'\uc\kur\kur\keu'\y cv'y qwrf '' uggo '\q'y cttcpv'i tgc\ustur gekhe''eqo r g\uspeg'kp''y ku'h\uspra 0'Lcr cp'ku'c'ecug'y j gtg'hwwtg''gzr cpukqp''o ki j v'dg'' gzr ge\uspra ge\uspra g''\uppra q'\under\kur\y g'' g''guc\under\kuj gf 'hqewu'qp''uj qt\uppra yto 'kp\uspra tg\uppra i'r tqi tco o gu0'Vj gtg'ku'pgxgt\y grguu'ecwug'' hqt''ecwkqp''qp''y g''i nqdcn'ngxgn'0'T gegpv'{ gctu''j cxg''uggp''y g'\uppra o r qtct { 'uwur gpukqp''qh'\uppra tcpure\uppra y '\uppra tcpure\uppra y '\uppra tcpure\uppra y g''\uppra y g''\uppra tqu''\uppra tcpure\uppra y g''\uppra tqp''\uppra tcpure\uppra y g''\uppra tcpure\uppra y g''\uppra tcpure\uppra y g''\uppra tcpure\uppra tqp''\uppra tcpure\uppra tqp''\uppra tcpure\uppra tqp''\uppra tcpure\uppra tcpure\up

F KF CEVKEU'QH'VTCP UNCVKQP 0

#### Hwt yj gt 't gcf kpi

 $Ctlqpc/Vugpi "3;; 3 = Eco kpcf g"cpf "R{o "3;; 7 = F grkurg"cpf "Y qqf y qtyj "3;; 7c."3;; 7d = I krg"3;; 7d = I qrf "3; 97 = J cttku" hqtyj eqo kpi = Rctm"3;; 5 = UKW"3;; 50 Uktxg{u"qh"kpf kxkf wcn"r tqi tco o gu"cr r gct "tgi wrctn{"kp"y g"lqwtpcnu"Ncpi wci g" kpvgtpcvkqpcr"cpf "Vj g"Vtcpurcvqt0$ 

O QP KS WG'ECO KP CF G'CP F 'CP VJ QP [ 'R[ O

# W

# Wpk/qh/tt cpurc vkqp

Eqpulf gtgf 'htqo 'c'r tqeguu/qtlgpvgf 'r qlpv'qh'xlgy .''y g'wplx'qh'\tcpurcvlqp'lku'y g'uvtgvej ''qh'uqwteg'\gzv'qp'y j lej " yj g'\tcpurcvqt'hqewugu'cwgpvkqp'kp"qtf gt'\q'tgr tgugpv'kv'cu'c'y j qrg'kp'\yj g'\cti gv'rcpi wci g'\\%\tuej gt'3;; 5≪12; +0'K' ku'r quukdrg''vq''kuqrcvg''uwej ''wpku''wukpi ''ugrh/tgrqtvu''d{ ''vtcpurcvkpi ''uwdlgevu.''uq/ecnrgf''VJKPM/CNQWF''  $RTQVQEQNU'''Gt keuuqp''cpf''Uko~qp''3; : 6+0'Wukpi~''yi~ku''o~gyi~qf~.''N}'''4uej~gt''''3; ; 3.''3; ; 5+'uj~qy~u''yi~cv''yi~g''wpk''qh'''$ vtcpurcvkqp"wugf "d{"rcpi wci g"rgctpgtu"vgpf u"vq"dg"vj g"ukpi rg"y qtf."y j krg"gzr gtkgpegf "vtcpurcvqtu"vgpf "vq"kuqrcvg"  $\verb|cpf|' tcpurc vg'' wpku'' qh'' o gcpkpi.''pqto cm{|'tgcrk| gf'' kp''r j tcugu.''ercwugu'' qt'' ugpvgpegu 0}|$ Eqpulf gtgf 'htqo 'c'r tqf we√qtlgpygf 'r qlpv'qh'xlgy .''vj g'wplx'qh'\tcpurcvlqp'lku'vj g'\cti g√ygzv'wplx'vj cv'ecp'dg'' o crrgf "qpvq"c"uqwteg/vgzv"wpkv0"Vqwt{"\*3;:8+"tgrqtvu"yig"hkpfkpiu"qh"cp"kpxguvkicvkqp"kp"yjkej"49"vtcpurcvkqpu" htqo "Gpi nkuj "kpvq" Jgdtgy. "rtqf wegf "d{" Jgdtgy/urgcmkpi "wpkxgtukv{"uwwfgpvu"qh" Gpi nkuj. "ygtg" ocrrgf" qpvq" c" uqwteg'\gzv0Vj g"gzr gtko gpv\tgxgcrgf '\j cv\cti gv\gzvu'r tqf wegf 'd{ '\uwf gpvu'y kij 'pq"gzr gtkgpeg"qh'uqekcm{ " hwperkqpcn'tcpurckqp"eqpvckpgf 'hcti g'pwo dgtu'qh'uo cm'wpku'cv'y qtf ''qt "gxgp"o qtr j go g'hgxgn''y j krg''c''vcti gv' vgzv'r tqf wegf 'd{ 'qpg'uwvf gpv'y j q'j cf '\tcpurcvkqpcn'gzr gtkgpeg'eqpvckpgf 'crrtqzko cvgn( 'j cnh'vj g'pwo dgt'qh' wpku. 'y j kej 'y gtg'qdxkqwun{ 'hcti gt. "cpf 'o quvn{ 'cv'r j tcug'qt "encwug'ngxgn0 Kp"tcpurcvkqp"etkskekuo ."vj g"cxgtci g"ukt g"cpf "i gpgtcn"v{r gu"qh"wpks"guvcdnkuj gf "dgwy ggp"VV/UV"r cktu"ecp"dg" eqorctgf."gurgekcm("yjgtg"\jg"xctkqwu'\ctigv\vgzvu'\xct{"kp"rgtegkxgf"ogtkx="yjg"tguwnu"qh'uwej"fguetkrvkxg" uwwf kgu. "cpf "qh'kpvtqur gevkxg"uwwf kgu. "o c{ "dg"f tcy p"qp"kp"\tcpurcvkqp"\gcej kpi 0"Vj g"v{r kecn'hkpf kpi 'ku''yj cv'\cti gv' vgzwikp'y j kej 'vj g'wpkwictg'hcti gt'crrgct'o qtg'ceegrvcdng'vj cp'vj qug'kp'y j kej 'vj g'wpkwictg'ho cnngt0kp'i gpgtcn'' yj g'encwug'uggo u'c'ugpukdng'uxtwewtg'\q'cko 'hqt'cu'\tcpunc\kqp'\wpkx."dgecwug'kk'\gpf u'\q'dg'cv'encwug'ngxgn'yj cv' rcpi wci g'tgr tgugpwı'gxgpwı."cpf "dgecwug'yj g'f khhgtgpegu'dgwy ggp'hcpi wci gu'ctg'o qtg'o ctmgf "cv'yj g'hqy gt" ngxgnu'\*Ecvhqtf'3; 87."Vqwt{'3; :8+0'kp'cffkkqp.'vjg'encwug'ku'c'ocpcigcdrg'wpkv'qh'cwgpvkqpcn'hqewu.'cpf'kv'ku' yj g'uo cnguv'nkpi wkuke''untwewtg''tgcnk kpi 'r tqr qukkqpu'\*Kuj co 'cpf 'Ncpg'3; ; 5+0'Ki'ku''yj gtghqtg'cv'encwug'ngxgn' yj cv'tcpurcvkqp":-ugpug'hqt"ugpugø'ku"o quv'rkngn("vq"tgrcvg"vq"tcpurcvkqp":-intwewtg'd{"uvtwewtgø0 Vj g's wgurkqp''qh'y j gyj gt''yj g''wpkr'qh''tcpurcrkqp''uj qwrf''dg''f ghkpgf''urt wewtcm(''qt''ugo cprkecm(''j cu't gegkx gf''c'' i tgcv'f gcn'qh'cwgpvkqp'kp''\tcpurcvkqp''\j gqt{''y tqwi j ''y g''ci gu0'Qxgtxkgy u''qh''\j g'f gdcvg''cpf 'tghgtgpegu''\q'' rtkoct{"uqwtegu"ecp"dg"hqwpf"kp"Upgm/Jqtpd{"\*3;::+"cpf"Dcuupgw/OeIwktg"\*3;:213;;3+0"Vjg"fgdcvg"ku"qhvgp" eqpf wevgf "kp" vgto u"qh"c"uvtkev"qrrqukskqp"dgwy ggp" vtcpurc vkpi "y qtf/hqt/y qtf"cpf "vtcpurc vkpi "ugpug/hqt/ugpug0" J qy gxgt. "d{"y qtf/hqt/y qtf "ku"pqv"o gcpv"vj cv"qpg"uqwteg"ncpi wci g"y qtf"uj qwf "pgeguuctkn("dg"tgpf gtgf"d{"qpg" y qtf "kp" y g" cti gv'rcpi wci g. "c" uxtcvgi { "y j kej "y qwrf "kp" y g"ecug" qh" o quv'rcpi wci gu. "r ctvkewrctn { "y qug" y cv'ctg" wptgrcvgf. 'tgpf gt''tcpurcvkqpu'xgt { 'j ctf 'vq'tgcf 0'Eqpukf gt''y g'hqmqy kpi 'gzco r rg. 'htqo 'Vcktc'3; ; 80 Vj g'Icr cpgug'uqwteg'\gz v'ku'htqo 'P cvuwo g'\*3; 74+00 eEngmcpøu'Gpi nkuj '\tcpurcvkqp'\*3; 79+'i kxgu'':Ky qwrf '' tcyj gt "dg" 't wn( "km' yj cp" 'uwhhgt "htqo "c" 't khrkpi "eqrf "rkmg" yj ku l "Gxgp" 'yj g" o quv'r gtukuvgpv'rksgtcrkuv'y qwrf "dg" wprkmgn( " vq"cf xqecvg"yj g"r tqf wevlqp"qh"vgzvu"y j kej "y qwrf "r tgugpv"tgcf gtu"y kyj "uwej "ugxgtg"f khhkewnkgu"cu"yj qug" kmwwtcvgf "d{ "Vcktcøu'y qtf/hqt/y qtf "tgpf gtkpi "dgnqy 0'Vj g'f gdcvg'ku."tcvj gt."dgwy ggp"\tcpurcvkqp"y j kej "

tgr tqf wegu'cu

| Icr cpgug''UV<   | Vckd{qq        | y c                          | kk      | i c            | ej qwquj kxc |
|------------------|----------------|------------------------------|---------|----------------|--------------|
| Y qtf/hqt/y qtf< | ugtkqwu'kmpguu | VJ GO G                      | hkpg    | dw             | vt khrkpi    |
| Lcr cpgug'UV<    | mc   g'pcfq    | y c                          | mcgwg   | k{cpc          | o qpq        |
| Y qtf/hqt/y qtf< | eqrf "gve0     | VJ GO G                      | kpuvgcf | f kuci tggcdrg | yj kpi       |
| Lcr cpgug''UV<   | f guw          | "                            | pg      | "              | "            |
| Y qtf/hqt/y qtf< | CWZKNICT[      | UGP VGP EG"HIPP CN"RCT VIENG |         |                |              |

emugn{"cu'r quuldng''y g''nksgton''uwthoeg''o goploi "qh''y g''qtki kpon''opf ''topurcvkqp''y j kej ''ku''htggt''kp''y g''ugpug''y ov''
y g''topurcvqt''kpvgtrtgvu''y g''uqwteg''vgzv''cpf ''tgpfgtu''egtvckp''curgevu''qh'j ku''qt'j gt''kpvgtrtgvcvkqp''kp''y g''vctigv'vgzv''
kp''cffkkkqp''vq.''qt''kpuvgcf''qh''y g''nksgton''uwthoeg''o goploi '\*'ugg''HTGG''VTCPUNCVKQP="NKVGTCN"'
VTCPUNCVKQP+0

J qy gxgt. "qpgøu"uvcpeg"qp" vj g"rkvgtcnlhtgg" vtcpurcvkqp" f gdcvg" y km"pqv" o cvgt kcm ("chhgev" vj g"vvpk 'qh" vtcpurcvkqp" cu" f ghkpgf "cdqxg."dgecwug" y g"pggf "vq"ugrgev'c" tgcuqpcdn( "ukt gf" r qt vkqp"qh" y g"vgzv'hqt "cwgpvkqpcn'hqewu" cv'cp { "qpg" who g'ku'y g'uco g'y j gy gt''qpg''eqpulf gtu''y ku'r qtwlqp''c''uvtwewtg''cpf ''ecmu''kv.''hqt''lpuvcpeg.''c''ercwug.''qt''y j gy gt'' qpg'eqpukf gtu'kv'c'ugpug'wpkv'cpf 'ecmu'kv.'hqt'kpuvcpeg.'c'r tqr qukkqp.'cp'kf gc/wpkv.'qt'c'ugpug/wpkv0'Vj g'r qkpv'ku' yj cv'÷o gcpkpi ø'ku'tgcnkt gf 'kp''yj g'hcpi wci g''qh''yj g''uqwteg''\gzv''cpf ''o wuv'dg''tgcnkt gf ''uwdugs wgpvn( 'kp''yj g'hcpi wci g'' qh'y g'\cti gv\gzv."cpf 'kv'o cngu"pq"o qtg"ugpug'\q'uwi i guv'y cv'\tcpurcvqtu"ecp'ki pqtg"hpi wku\e"wpku'y cp'kv' y qwrf '\q'uwi i guv'\j cv'ect'f tkxgtu'ecp'ki pqtg'\j g'uvggtkpi 'o gej cpkuo 'y j gp'\wtpkpi 'eqtpgtu0 Ki'ku'cnıq'ko rqtvcpv'vq'f kuvkpi vkuj 'vj g'vpkv'qh'vtcpurcvkqp."cu'f ghkpgf 'cdqxg.'htqo 'vj g'pqvkqp'qh'vj g'vtcpurcvkqp'' gs wkxcrgp v0'K/ku'ergctn( 'r quukdrg'\q'guvcdrkuj 'GS WKXCNGP EG'dgwy ggp'\wpkxu'\uo crrgt'\yi cp'\yi g''ercwug''gxgp'' y j gp'k/ku'engct''y cv'y g'encwug'ku'y g'wpk/qh'\tcpunc\kqp0'Kp'hcev.'y ky ''y g'gzegr \kqp''qh'egt\ckp'\{r gu''qh'hzgf'' r j tcug'uwej "cu'j qy "f q"{qwf q"cpf "{qwt u'ulpegt gn{. 'y j lej "qhygp"j cxg"cu'gs wkxcngpwu'lp"qyj gt 'hcpi wci gu" uko krctn( "hkzgf "gzrtguukqpu"qh"s wkxg"f khhgtgpv"o qtrj qnqi kecn"qt "ngzkecn"eqo rqukkqp"\*Fcpkuj "i qf"fci <"i qqf" f c{\phi="xgprki 'j krugp<":htkgpf n{ 'i tggvkpi \phi+"kv"ku"cm quv"cny c{u"vj g"ecug"vj cv"uqo g"qh"vj g"o qtr j go gu"qt"y qtf u"kp" uqwteg/vgzv'encwugu'cpf 'vj gkt'vcti gv/vgzv'tgrtgugpvcvkqpu'y km'eqttgurqpf. "gxgp"y j gp"vj g'uvtwewtg"cpf "uqo g'qh" yj g'hgzku'qh''yj g''VV''encwug''ctg'f khhgtgpv'htqo ''yj qug''qh''yj g''UV''encwug0'Hwtyj gto qtg.''kv'ku'r gthgevn(''r quukdng''vq'' uvtkxg"\q"r tqxkf g"qt"guvcdrkuj "gs wkxcrgpeg"dgwy ggp"uqwteg"cpf "\cti gv\\gz w"cv'qpg"qt"o qtg"qh"cp{ "pwo dgt"qh" ngxgnu'\*qh'uqwpf.'uxtwewtg."o gcpkpi.'i gptg."f kueqwtug.'ygzv.'hwpevkqp+"cpf "qh'qpg"qt"o qtg"f khhgtgpv'v{rgu" \*f {pco ke. "f gpqvcvkqpcn"eqppqvcvkqpcn"hwpevkqpcn+0"Dwv"kv"ku "pqv'r quukdrg. "kp"vj g"r tqeguu "qh"etgcvkpi "c"vcti gv" vgzv.'\q"eqpukf gt"cp"gpvktg"uqwteg"\gzv'cv'qpeg"cpf "\q"tgpf gt"kv'cu"c"\cti gv'\gzv'kp"qpg'hgm'uy qqr 0P qt 'ku'kv' r quukdrg'\q"eqo r ctg"uqwteg"cpf "\cti gv'\gz vu"cu'y j qrgu'kp"qpg'hgm'uy qqr 0 Kp'i gpgtcn''y gp.''y g'ercwug''ypf u''vq''dg''ugrgevgf ''cu''y g''wpkv'qh''vtcpurcvkqp''vq''cko 'hqt0'Vj ku'f qgu''pqv'o gcp''y cv'pq'' qyi gt "wpkv"ecp"dg"go r m{gf = "kpf ggf." o quv"eqo r ctcvkxg"cpf "kpvtqur gevkxg"uwf kgu"tgxgcn'yi cv"wpkxu"ecp"htqo "vko g" vq"vko g"dg"kuqncvgf "cv"gxgt { "hpi wkuvke"ngxgn0Ki"ku"cnuq"vj g"ecug"vj cv"hqt"ur gekhke"r wtr qugu. "qvj gt"wpkxu"ctg"o qtg" uwkscdrg0kp" y g"gzco r rg"cdqxg. "Vcktc" wugu" y qtf u"cpf "o qtr j go gu"cu" tcpurc klqp" wpku hqt "knwuvtc klxg" r wtr qugu0'  $\textbf{\textit{Kp''yi}} \ g''r \ t gr \ ctc \ \textit{\textit{kqp''qh''dk'kpi}} \ wcn''f \ \textit{\textit{ke'kqpctkgu.''yi}} \ g''ncti \ guv''wpk''go \ r \ m\{gf''\ \textit{\textit{kgpf u''vq''dg''yi}} \ g''r \ j \ tcug''cpf''yi \ g''o \ quv'' \ log \ log$ 

eqo o qp'wpk/ku'vj g'y qtf0

UJ KHVU'QH'VTCPUNCVKQP0

### Hwt vj gt 't gcf lpi

MKTUVGP 'O CNO MLÒ T

# Wpksgt ucni'qh'tt cpurc vkqp

Wpkxgtucnu'qh'\tcpurc\dp''ctg''n\pi wkude'hgcwtgu'y j kej '\{r kecm{ ''qeewt'kp'\tcpurc\g' tcyj gt'\yi cp''qtki kpcn'\gzvu'' cpf ''ctg'\yi qwi j v'\q''dg''kpf gr gpf gpv'qh'\yi g''kphrwgpeg''qh'\yi g''ur gekhke''rcpi wci g''r cktu'kpxqrxgf 'kp''yi g''r tqeguu''qh'' \tcpurc\dp''\Dcngt''3;; 5\465\0

C''pwo dgt''qh'hgcwtgu''eqpukf gtgf 'eqo o qp''vq''cm'v{r gu''qh''vtcpurcvgf 'vgzvu''j cxg''dggp'kf gpvkhkgf.''o ckpn{ ''qp''vj g'' dcuku''qh'eqpvtcuvkxg''cpcn{ ugu''qh''vtcpurcvkqpu''cpf ''vj gkt''uqwteg''vgzvu''OVj gug'hgcwtgu''eqpegtp''uko r nkhecvkqp.'' cxqkf cpeg''qh''tgr gvkkkqpu''r tgugpv'kp''vj g''uqwteg''vgzv.''GZRNKEKVCVKQP.''pqto cnkj cvkqp.''f kueqwtug''vtcpuhgt.''cpf '' f kuvkpevkxg''f kuvtkdwkqp''qh''hgzkecn'kvgo uO

### Uto rıkklecvkqp'cpf 'cxqkf cpeg'qh't grgvkkqpu'r t gugpv'kp'vj g'uqwt eg'vgzv

Vj tgg"v{rgu"qh'uko rnkhecvkqp"j cxg"dggp"kfgpvkhkgf "kp"vtcpurcvgf "vgzv<"rgzkecn"u{pvcevke"cpf "uv{nkuvke0 Dnwo/Mwmc"cpf "Ngxgpuvqp"f ghlpg"ngzlecn'uko r nkhlecvkqp"cu"÷j g"r tqeguu"cpf lqt"tguwn/qh"o cmkpi "f q"y kyj "nguu" y qtf uø'\*3; :5-33; +0Ftcy kpi ''qp''gxkf gpeg'htqo ''uwxf kgu''qh'\tcpurcvkqpu'htqo ''Jgdtgy ''kpvq''Gpi rkuj ''cpf'' kpxguvki cvkqpu'qh'qvj gt''v{r gu'qh'hcpi wci g'o gf kcvkqp'kpxqnxkpi ''vj gug'hcpi wci gu'\*F ci w'3; 93="Tcdkp'3; 7: =" Y qpf gtn("3; 8: +:"yj g{"uwi i guv"yj cv"ngzkecn"uko r nkhkecvkqp"qr gtcvgu"ceeqtf kpi "vq"ukz"r tkpekr ngu"qt"uvtcvgi kgu" y j kej "f gtkxg"htqo "vj g"kpf kxkf wcnøu"ugo cpvke "eqo r gvgpeg"kp"j kulj gt "o qvj gt "vqpi wg0"Vj gug"r tkpekr ngu "ctg<"wug"qh" uwr gtqtf kpcvg'\gto u'y j gp'\j gtg'ctg'pq'gs wkxcrgpv'j {rqp{o u'kp'\j g'\cti gv'rcpi wci g.''crrtqzko cvkqp'qh'\j g'' eqpegr vu'gzr tguugf 'kp''yi g''uqwteg'hcpi wci g''vgz v.''wug''qh''÷eqo o qp/ngxgnø''qt''÷hco knkctø'u{pqp{o u.''vtcpuhgt''qh''cm'' yj g'hwpevkqpu'qh'c'uqwteg/ncpi wci g'y qtf 'vq'kxu'vcti g√ncpi wci g''gs wkxcngpv.'wug'qh'ektewo nqewkqpu'kpuvgcf ''qh'' eqpegr wcm{ "o cvej kpi "j ki j /ngxgn'y qtf u"qt"gzr tguukqpu"\*gur gekcm{ "y kij "y gqnqi kecn"ewnwtg/ur gekhke"qt" wgej plech'vgto u+. "cpf 'wug'qh'r ctcr j tcug'y j gtg'ewnwtch'i cr u'gzkuv'dgw ggp'y g'uqwteg"cpf 'y g'vcti gv'ncpi wci gu0 Qyj gt 'uej qnctu.''qq.''j cxg''qdugtxgf 'uwej 'uxtcvgi kgu'kp''qr gtcvkqp0'Dcngt'\*3;; 4+.'kp'f kuewuukpi 'yj g'f khhgtgpv' ust cyci kgu'wugf "d{ "r tqhguukqpcn'\tcpurc\qtu'hqt'f gcnkpi "y kyj "pqp/gs wkxcngpeg"cv'y qtf "hgxgn"pqygu'\yj g'\wug''qh" uwr gtqtf kpcvgu'y j gp''y gtg''ctg''pq''eqttgur qpf kpi 'j {rqp{o u'kp'y g'vcti gv'rcpi wci g0'Kp''j gt''uwtxg{"qh'72'Gpi rkuj " vtcpurcvkqpu'qh'F wej 'pqxgnı.''Xcpf gtcwy gtc'\*3; : 7<2465+'uko krctn( 'o gpvkqpu'y g'wug'qh'o qf gtp.'eqnqs wkcn'' uko r ng''cpf 'eqphkf gpvkcn'u{ pqp{o u''xku/«/xku''qrf.'hqto cn''chhgevgf ''cpf ''j ki j/ngxgn'y qtf u'kp''yj g''uqwteg''vgzvu0' Vqwt{"rtqxkfgu"cp"gzcorng"qh'yjg"v{rg"qh'\tcpuhgt"pqvgf"d{"Dnwo/Mwmc"cpf"Ngxgpuvqp"yjgp"jg"fkuewuugu'yjg" ecug'qh'y g'y qtf ''pcø'ctc''y j kej 'kp'J gdtgy 'tghgtu'o ckpn( ''vq'c''vggpci gt.''dw'y j kej .''kp'J gdtgy ''tcpurcvkqpu'htqo '' Gpi rkuj ."<br/>j cu'ces wkt gf 'uqo g''qh''yj g''hwpevkqpu''qh''yj g''y qtf ''<br/>i $kt\,rl^{**}$ Vqwt { ''3; ; 7-42; 632+0 Y kj 'tgi ctf '\q'u{pvce\le'uko rnkhlec\lqp.''Xcpf gtcwy gtc'\square: 7+'hkpf u'ugxgtcn'kpuvcpegu'y j gtg'eqo rngz'u{pvcz'ku''

Y ky "tgi ctf "vq"u{pvcevke"uko r nkhkecvkqp. "Xcpf gtcwy gtc"\*3; : 7+"hkpf u'ugxgtcn'kpuvcpegu'y j gtg"eqo r ngz "u{pvcz "ku' uko r nkhkgf "d{"tgr ncekpi "pqp/hkpkg"encwugu'y ky "hkpkg"qpgu"cpf "d{"uwr r tguukpi "uwur gpf gf "r gtkqf u0'Uj g"cnuq" r tqxkf gu"uwduvcpvkcn'gxkf gpeg'hqt "xctkqwu"hqto u'qh'uv{nkuvke "uko r nkhkecvkqp." yi g"o quv'eqo o qp"

dgkpi "vj g"vgpf gpe { "vq"dtgcm'wr "mpi "ugs wgpegu"cpf "ugpvgpegu."tgr ncekpi "gncdqtcvg"r j tcugqnqi { "y ky "uj qtvgt" eqnqecvkqpu."tgf wekpi "qt"qo kwkpi "tgr gvkkqpu"cpf "tgf wpf cpv"kphqto cvkqp."uj qtvgpkpi "qxgtnqpi "ektewo nqewkqpu" cpf "ngcxkpi "qwbo qf kh{ kpi "r j tcugu"cpf "y qtf u0

Vj g'\tcpurc\kqpcn'r tqegf \text{wgu'\qh'\tgf \text{welpi ''cpf ''qo \kvkpi ''j g'\tgr g\kkqpu'\y j \kej ''qee\text'\kp'\j g'\uq\teg'\\gz\v'j \cxg'\dggp'' tgeqtf gf ''d { ''xctkqwu'\uej qrctu'\gamma 0 \Dn\w / M\wnc'\cpf ''Ngxgpu\qp''3; : 8+"cpf ''ecp''dg'\tgi \ctf gf ''cu'\cp''\cur gev'\qh'' u\\ n\text{ku\ke}'\uko r n\text{heckqp0'Uj rgul\pi gt'\gamma3; ; 3+."\kp'\j g''eqp\gz\v'\qh''eq\tx\tqqo '\kp\gtr tg\kpi ."cpf ''\q\wt\{ '\gamma3; ; 3c+.'\kp'\j g'' \ctg'' \text{g'' y g''tgr g\kkqpu''r tg\ug\py'\kp'\j g'\uq\teg''\yz\v'\ctg'' qo \k\wf '\kp'\j g'\uq\teg'\yz\v'\ctg'' \text{g'' y g'\tgr g\kkqpu''r tg\ug\py'\tgr g\kkqpu''y j kej ''qee\wt'\kp'\j g'' \uq\teg'\yz\v'\ctg'' \text{g'' y g'\tgr g\kkqpu''y j kej ''qee\wt'\kp'\j g'' \uq\teg''\yz\v'\t\up\teg''\yz\v'\text{kp''\y g'' \uq\teg''\text{kp''\y g'' uq\teg''\py'\text{g'' y g'\text{kp''\y g'' uq\teg''\py'\text{kp''\y g'' uq\teg''\py'\text{kp''\y g'' uq\teg''\py'\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\text{kp''\y g'' uq\teg''\text{kp''\y g'' uq\text{kp''\y a'' uq\

### Gzrdekcykpp

Ko"j gt"uwf {"qhir tqhguukqpcni'cpf "pqp/r tqhguukqpcni'tcpurcvkqpu'htqo "Gpi nkuj "kpvq"Htgpej "cpf "xkeg"xgtuc."Dnwo / Mwmc"\*3; : 8+"pqvgu'vj cv'uj khuu'qeewt "kp"vj g"v(r gu'qhi'eqj gukqp"o ctngtu'wugf "kp"vj g"vcti gv'vgz wi'cpf "tgeqtf u" kpuvcpegu'vj j gtg"vj g"ttcpurcvqt"gzr cpf u'vj g"vcti gv'vgz v/d {"kpugtvkpi "cf f kkqpcni'v qtf u0'Uj g"pqvgu'vj cv'dqy " r j gpqo gpc"j cxg"vj g"ghtgev'qh'tckukpi "vj g"vcti gv'vgz v/u'ngxgni'qh'gzr nkekpguu'eqo r ctgf "vq'vj g"eqttgur qpf kpi " uqwteg"vgz v0'Dnwo / Mwmc"uwi i guvu'vj cv'vj gug"vtcpurcvkqpcnihgcwtgu'o c {"pqv'dg"rcpi wci g/r ckt"ur gektke"dw'o c {" tcvj gt"tguwnv'htqo "vj g"r tqeguu'qh'kpvgtr tgvcvkqp"qh'vj g"uqwteg"vgz v0'Qp"vj g"dcuku'qh'j gt"qy p"uwf {"cpf "tgugctej " kpvq"vj g"kpvgtrcpi wci g"qh'ngctpgtu'qh'Gpi nkuj "\*Dgto cp"3; 9: ="Uvgo o gt"3; 3+"Dnwo / Mwmc"\*3; : 8-3; ==43+"r wu" hqty ctf "-vj g"gzr nkekcvkqp"j {r qvj gukvø"vj j kej "r qukvu'vj cv'vj g"tkug"kp"vj g"ngxgn'qh'gzr nkekpguu'qdugtxgf "kp" vtcpurcvgf "vgz wu'cpf "kp"vj g"y tkwgp"y qtm'qh'ugeqpf "rcpi wci g"ngctpgtu"o c {"dg"c"wpkxgtucn'uvtcvgi {"kpj gtgpv'kp"cp{" r tqeguu'qh'hcpi wci g"o gf kcvkqp0}

Vqwt {"encko u'vj cv'vj gtg"ku'cp"qdxkqwu'eqttgncvkqp"dgwy ggp"gzr nlekxpguu'cpf "tgcf cdkrkx{"\*3;; 7≪449+"cpf "r tqr qugu" vq"gzr nqkv'vj ku'tgncvkqpuj kr "kp"gzr gtko gpvcn'uwf kgu'y kyj "c'xkgy "vq"cuuguukpi "vj g'xct {kpi "gzvgpv'vq"y j kej "vj g" uvtcvgi {"qh"gzr nlekkcvkqp"o c{"dg"cr r nkgf "gkvj gt "kp"f khhgtgpv'r tqeguugu'qh'ncpi wci g"o gf kcvkqp"qt "kp"y g'uco g'v{r g" qh'o gf kcvgf "rkpi wkuvke"dgj cxkqvt"r gthqto gf "wpf gt "f khhgtgpv'eqpf kkqpu0

Eqpukuygyvn "y kij "Drwo /Mwmcøu"qdugtxcvkqpu. "Xcpf gtcwy gtc"\*3; : 7+"r qkpwi 'vq"pwo gtqwu 'kpuvcpegu'y j gtg" y "tcpurcvqt" cr r nkgu"gzr nkekcvkqp" 'vgej pks wgu0'Vj g"o ckp"r tqegf wtgu" ij g"tgeqtf u"ctg" y g"wug"qh"kpygtlgevkqpu 'vq" gzr tguu" o qtg"engctn ("y g"r tqi tguukqp"qh"y g"ej ctcevgtuø'y qwi j wu"qt" vq"ceegpwcvg"c" i kxgp"kpygtr tgvcvkqp." gzr cpukqp"qh"eqpf gpugf "r cuuci gu. "cf f kkqp"qh"o qf khkgtu. "s wcnkhkgtu"cpf "eqplwpevkqpu" vq"cej kgxg" i tgcvgt" vtcpur ctgpe { ."cf f kkqp"qh"gz vtc"kphqto cvkqp. "kpugt vkqp"qh"gzr ncpcvkqpu. "tgr gvkvkqp"qh"r tgxkqwun ("o gpvkqpgf" f gvcknu"hqt"y g"r wtr qug"qh"enctkv (."r tgekug"tgpf gtkpi u"qh"ko r nkekv"qt "xci wg"f cvc. "y g"r tqxkukqp"qh"o qtg"ceewtcvg" f guetkr vkqpu. "y g"gzr nkekv"pco kpi "qh"i gqi tcr j kecn'nqecvkqpu"cpf "y g"f kuco dki wcvkqp"qh"r tqpqwpu"y ky "r tgekug" hqto u"qh"kf gpvkhkecvkqp0Dcngt"\*3; ; 4+"cnuq"tgr qt vu"ugxgtcn'gzco r ngu"y j gtg"y g"vtcpurcvqt "kpugtvu"cf f kkqpcn" dcemi tqwpf "kphqto cvkqp"kp"y g"vcti gv"vgzv"kp"qtf gt "vq"hkmikp"c"ewnwtcn'i cr 0

## Pqto crk cvkqp

Kp"j gt"eqtr wu"qh"pqxgnu"\tcpurcvgf "kpvq"Gpi nkuj "htqo "F wej ."Xcpf gtcwy gtc"\\$3; : 7+"hkpf u"gzvgpukxg"gxkf gpeg"qh" uj khvu"kp"r wpewcvkqp. "rgzkecn'ej qkeg. "uv{ rg. "ugpvgpeg"uvtwewtg"cpf "vgzwcn'qti cpkt cvkqp. "cm'qh'y j kej "uj g" eqpukf gtu"cu"o cpkhguvcvkqpu"qh"c"i gpgtcn'-\gpf gpe{"vqy ctf u"vgzwcn'eqpxgpvkqpcnkv{  $\emptyset$  "cr r ctgpvn{"cr r tqxgf "qh"d{" yj g"vcti gv"cwf kgpeg"\\$3; : 7 < 5+0

Ugo g'qh'y g'cf lwwo gpwi'hqwpf "cv'y qtf "igxgrilpenwf g'cf cr vckqpu'qhl'F wej "pco gu'cpf "ewnwtg/ur gelkhe" tghgtgpegu. "cpf "y g'o kpko k| cvkqp"qh'y g'tcpuhgt "qh'hqtgki p'ircpi wci g''gzr tguulqpu'hqwpf "kp''y g''uqwteg''yzv'o' Wpwwcni'r wpewcvkqp"ku'uvcpf ctf k| gf "d{ "tguvqtkpi "o kuulpi "s wqvckqp"o ctmu'qt"d{ "tgr rcelpi "eqo o cu'y kj "ugo k' eqmpu'cpf "hwm'uvqr u''vq''ugr ctcvg''kpf gr gpf gpv'ercwugu\O'Ugpvgpegu'ighv'wphkpkij gf "kp''y g''uqwteg''yzv'ctg'' eqo r rgvgf. "cpf "enwo u{ "qt "kf kqu{ petcvke"ugpvgpeg"untwewtgu'ctg''tgr rcegf "d{ "uko r rgt"u{ pvcz\O'V} g''r tgugpv'\vgpug" cpf "y g'' kuvqtke"r tgugpv'ctg''uwduvkwyf "y kj "y g'r cuv'\vgpug."y j kej "ku'o qtg''htgs wgpvv\{ "wugf "kp''y tkwgp''Gpi rkuj " pcttcvkxg\O'Ugpvgpegu."r ctci tcr j u."pcttcvkxg''ugs wgpegu''cpf "ej cr vgtu''ctg''qtf gtgf "o qtg''mi kecm{\O'V} g'' tgr tgugpvcvkqp"qh'ur qngp''rcpi wci g''hp''y g''uqwteg''yzv'ku''cf lwnyf "\qy ctf u'y g''pqto u'qh'y tkwgp''r tqug="qp''y g'' qy gt''j cpf. "hqto crif kcmi wgu''ctg''tgpf gtgf "cu''kpvko cvg''cpf "eqmps wkcn'eqpxgtucvkqpu\O'Qrif /hcuj kqpgf "gzr tguulqpu" ctg''tgr rcegf "d{ "o qf gtp''qpgu''cpf "gzr gtko gpvcn'pcttcvkxg''ku''tgy tkwgp''kp''c'o qtg'hco krkct'o qf gO'Hlpcm{." wpv{ r kecn'cpf "chhgevgf "ko ci gt{."y j kej "ku'tgcrik gf "d{"etgcvkxg''eqmqecvkqpu."ku''tcpurcvgf "y kyj "o qtg''pqto cn'' gzr tguulqpu\O'

Ceeqtf kpi "\q"Xcpf gtcwy gtc."cm'\j gug'o cpkr wrc\qpu'\j cxg'\j g'ghhge\qh'etgc\kpi "c'\gzv\y j kej "ku'o qtg'tgcf cdrg." o qtg'lk kqo c\ke."o qtg'lbco khct"cpf "o qtg'eqj gtgpv\("qti cpk\text{gf "\j cp"\j g'qtki kpcn\Uj g'qdugtxgu"\j cv\j gug" cf lwno gpvu"qeewt "pqv'qpn\("\p'\j qug'\tcpurc\kqpu\y j kej "ctg"gzr n\ekn\("\cti g\qtk\gpv\gf."dw\cnq"\kp\y j qug"\y j qug" f geretgf "cko "ku'\q"o cmg'F wej "hkgtcwtg"npqy p'\q'hqtgki p'ewnwtgu"cpf "y j kej "o ki j v'\j gtghqtg"dg"gzr gevgf "\q" cf j gtg"o qtg"enqugn\("\q"\j g'\uqwteg'\yz\v\)Xcpf gtcwy gtc"gzr nckpu"\yz\wcn'eqpxgp\kqpcn\k\("\p'\y\go u\"\hj\g"\) ytgi u'\qh'\y g" vtcpurc\quad qw'\j g'\uqwteg'\yz\v\)Xcpf gtcwy gtc"gzr nckpu"\yz\wcn'eqpxgp\kqpcn\k\("\p'\y\go u\"\hj\j g"\) vtcpurc\quad qw'\j g'\uqwteg'\yz\v\) z'\qr gtc\yg'\yg'\yg'\yg'\yg'\yg'\kgtc\text{gf to y'ikgtct}\{"\uqwteg'\yz\v\gan y kij "tgi ctf "\q" vtcpurc\quad qw'\j g'\uqwteg'\pq\text\quad qt\quad y p''\kgtcwtgu'\hp\q\"\py p''\kgtcwtgu'\hp\q"\py p''\kgtcwtgu'\hp\q"\py p''\kgtcwtgu'\hp\q"\py p''\kgtcwtgu'\hp\q"\py p''\kgtcwtgu'\hp\q"\py p''\kgtcwtq\quad y p''\kgtc\quad y p''\kgtcwtq\quad y p''\kgtcwtq\quad y p''\kgtcwtq\quad y ky\quad y p''\kgtcwtq\quad y p

Hkpcm{ ."qp"yi g"dcuku"qh"j ku"gzygpukxg"uwfkgu"qh"rkxgtct{ "ttcpurcykqpu"rtqfwegf"kp"fkhhgtgpv"ewnwtgu."Vqwt{"rqukxu" y j cv'j g'ecmu'c'**ncy 'qh'i tqy lpi 'twcpf ctf lk cvlqp.**'y j kej 'j g'dgnkgxgu'i qxgtpu'\tcpurcvkqpcn'dgj cxkqwt0'Vj g'o quv' i gpgtcn'hqto wncwlqp"qh'vj g'ncy 'ku'vj cv'∺kp"\tcpuncwlqp."uqwteg/vgzv'vgzvgo gu'vgpf 'vq"dg'eqpxgtvgf 'kpvq'\cti g√ ncpi wci g'\*qt''vcti gv'ewnwtg+'tgr gtvqtgo guø'\*Vqwt{'3;; 74896: +0°C'**t gr gt vqt go g'k**u'c''uki p'y j kej ''dgmqpi u''vq''cp'' kpurkwakapcık gf "tgr gtvaktg." vj cv'ku. "c"i tawr "ah'lkgo u'y j kej "ctg"eaf khleckapu "ah'r j gpao gpc" vj cv'j cxg" ugo kayke" xcnwg'hqt"c"i kxgp"eqo o wpkx{0C"tgrgtvqtgog"dgeqogu"c"wgzwgog"yjgp."cu"c"tguwnv'qh'dgkpi"wugf"kp"c"rctvkewnct" vgz v. 'kv'cuuwo gu'ur gelihe 'hwpevlqpu'y j kej 'f gtkxg'htqo 'y g'ur gelich't grcvlqpuj kr u'kv'ces wktgu'y kij kp'y cv'vgz v0 Ceeqtf kpi "vq" y g'ncy "qh'i tqy kpi "uvcpf ctf kt cvkqp." y g'ur gekcn' yz wcn't grcvkqpu' et gcygf "kp" y g'uqwteg" yz v'ctg" qhvgp"tgr ncegf "d{"eqpxgpvkqpcn"tgncvkqpu"kp"vjg"vctigv"vgzv."cpf"uqogvkogu"vjg{"ctg"kipqtgf"cnvqigvjgt0"kp"vjg" r tqeguu'qh'\tcpurc\kqp."Vqwt { "cti wgu."vj g"f kuuqnwkqp"qh'vj g"qtki kpcn'ugv'qh'\gz wcn't grc\kqpu'ku'kpgxkcdrg'cpf "ecp" pgxgt "dg"hwm{ "tgetgcvgf 0'O qtgqxgt."Vqwt { "uwi i guvu" yi cv" hcevqtu" uwej "cu"ci g. "gzvgpv" qh" dkrkpi wcrkuo. "yi g" mpqy ngf i g"cpf "gzr gtkgpeg"qh"yi g"\tcpuncvqt."cu"y gm"cu"yi g"\tcpuncvkqp"y kyi kp"yi g"\tcti gv"ewnwtg"o c{" kphrwgpeg" y g"qr gtcvkqp" qh" y g"rcy 0J g"rtqr qugu" y "kpeqtr qtcvg" y gug" grgo gpvu" cu" eqpf kxkqpu" kp"c" o qtg" grcdqtcvg" hqto wncollap "qh" yi g"uco g"ncy ="hqt" gzco r ng. "yi g"eqpf kollap "tgi ctf kpi "yi g"r qukokqp "qh" vtcpuncollap "kp" yi g"vcti gv" u{uvgo "oc{"dg"gzrtguugf"cu"hqmqy u<"÷yi g"oqtg"rgtkrjgtcn"]yi g"uvcwu"qh"yi g"\tcpurcvkqp"kp"c"rctvkewrct"ewnwtg\_." yj g"o qtg"\tcpurc\kqp"y km'ceeqo o qf cvg"kwym'\q"gwcdnkuj gf "o qf gnu'cpf "tgr gtvqktguø"\Vqwt{"3;; 7∢493+0'Vj g" pwo gtqwu'kpuvcpegu'qh'pqto cnk cwqp'hqwpf 'd{ "Xcpf gtcwy gtc"\*3; : 7+'kp''yi g''Gpi nkuj "tcpurcwqpu''qh''F wej " nksgtct { "y qtmu"gzgo r nkh{ "cpf "uwduvcpvkcvg" y g"qr gtcvkqp"qh" y ku"twrg0

### F kneqwt ug'tt cpulgt 'cpf 'tj g'icy 'qhlkpvgt lgt gpeg

Vqwt{'\\*3; : 8c=3; ; 7+'lsf gpvlstlegu'c'hwt yi gt'\wpkxgtucn'qh'\stcpurcvlqp<'\stcpurcvqtu.'j g'\uwi i guvu.'\gpf '\q'r tqf weg'c'' \tcpurcvgf '\wwgtcpeg''pqv'd{ '\tgvtlegxlepi '\yi g'\cti gv'\cpi wci g'xkc'\yi gkt''qy p''

### Fkmpedxg'f km kdwdqp'qh'cti gv/ncpi wci g'ksgo u

Uj co c¢c'\*3; 9: <38: 693+'hqwpf ''y cv'kp''Gpi rkuj ''vtcpurcvkqpu'htqo ''Ctcdke.''y g'htgs wgpe{ ''qh''y g'y qtf u'uc{''cpf '' fc{''ecp''dg''o qtg''y cp''y keg''cu'j ki j ''cu''y gkt''htgs wgpe{ 'kp''qtki kpcrl'Gpi rkuj ''vgzvu''cpf ''eqpukf gtcdn{ ''nqy gt''y cp''y g'' qeewttgpeg''qh''y gkt''gs wkxcrgpvu'kp''y g''Ctcdke''uqwteg''vgzvu'0

Dengt'\*3; ; 5 467+'uwi i guwu'y cv'y g'wpwuwen'f kunkdwkqp'r cwgtpu'qh'egt wkp''ngzkeen'kgo u'kp''ntepurcyf ''vgzwu'' eqo r ctgf ''vq''dqyj ''y gkt''uqwteg''vgzwu''cpf ''qtki kpen'vgzwu'kp''y g''veti gv'nepi wei g."o c{ "dg''y g''tguwnv'qh''y g''r tqeguu''qh'' nepi wei g''o gf kevkqp''r gt ''ug=''uwej ''wpwuwen'f kunkdwkqp''kpf keevgu''y cv''ntepurcykqp''tgr tgugpwu''c''ur gekhke''xctkgv{ "qh'' nkpi wkunke''dgj cxkqwt''y j kej ''o gtkuu''ewgpvkqp''kp''kwu''qy p''tki j v0

Ugg'cnq<

EQTRQTC"IP "VTCP UNCVIQP "UVWF IGU=GZ RNIE IVCVIQP =P QTO U0

#### Hwt yj gt 't gcf kpi

UCTC'NCXKQUC/DTCKVJ Y CKVG

V@ Ajæ\*^Ajæ\*^Ajæ\*) @ Aj\æj\È

# RCTV'K&'J KVVQT[ 'CPF'VTCF KVKQPU

V@ Ajæ\*^Ajæ\*^Ajæ\*) aj} Aj\~Aj\~Aj\æ}\È

C

# Clt lecp'tt cf kkqp

Vj g''r tcevkeg''qh''vtcpurcvkqp''kp''Uwd/Ucj ctcp''Chtkec''ku''xkt wcm{ "cu''qrf "cu''eqo o wpkecvkqp''yi tqwi j "yi g''ur qmgp" y qtf 0P wo gtqwu''uwf kgu''j cxg''uj qy p''yi cv'O WNVKNkP I WCNKUO 'ku''r ctv'cpf ''r ctegri'qh''yi g''xgt{ "o cmg/wr "qh" Uwd/Ucj ctcp''Chtkec''\*I tggpdgti ''3; 77+0I kxgp''yi g''o wnkr rkekv{ "qh''gyi pke''eqo o wpkkgu''kp''yi ku''tgi kqp''\*yi gtg''ctg'' qxgt''322''kp''Eco gtqqp''cmpg+: ''vtcpurcvkqp''cny c{u''j cu''dggp.''cpf ''uvkrn'ku.''yi g''qtf gt''qh''yi g''f c{0'Vj g''j knvqt{ "qh'' vtcpurcvkqp''kp''Uwd/Ucj ctcp''Chtkec''ecp''dg''uwdf kxkf gf ''kpvq''yi tgg''o clqt''gtcu<''r tg/eqmpkcn''eqmpkcn''cpf ''r quv' eqmpkcn0'kp''cm'yi tgg''gtcu.''vtcpurcvkqp''r rc{gf ''c''etwekcn''tqrg''kp''yi g''r qrkkecn''geqpqo ke''cpf ''ewnwtcn'uwtxkxcn'qh''yi g'' Chtkecp''r gqr rg0

### Vj g'rtg/eqmpk:ngtc

Tgugctej 'kp''qtcn'j kuvqt{.'r ctvkewrctn{''y g'y qtmu''qh''qtcn'vtcf kuvqp'j kuvqtkcpu''uwej ''cu''Xcpukpc.'Dcueqo .'Hkppgi cp'' cpf ''Qnr gy j q.'j cu''dggp''kpuvtwo gpvcn'kp''wpeqxgtkpi 'kphqto cvkqp''eqpegtpkpi ''y g'j kuvqt{''qh''vtcpurcvkqp''kp'' r tgeqmpkcn'Chtkec0'Cnuq''qh'i tgcv'j grr 'j cu''dggp''y g'y qtm'qh'uqo g'Gwtqr gcp''o kuukqpctkgu''cpf ''gzr mtgtu''y j q'' o cpci gf ''vq''tgeqtf ''cur gewu''qh''Chtkecp''qtcn'vtcf kuvqp''kp''y tkuvpi ''f wtkpi ''y g'r gtkqf ''hqmqy kpi ''y g''kpkuvn'eqpvcewu'' dgwy ggp''Gwtqr g''cpf ''Chtkec0

Vj g'cpekgpv'j kuvqt { ''qh'Chtkec''y cu'o ckpn( 'tgeqtf gf 'kp''qtcn'hkgtcwtg''cpf 'j cpf gf 'f qy p'd { ''y qtf ''qh'o qwj . 'htqo '' i gpgtcvkqp"vq"i gpgtcvkqp0"kp"vj ku"qtcn"vtcfkvkqp."vj g"enquguv"vj kpi "vq"vqfc{øu"vtcpuncvqt1kpvgtrtgvgt"ku"yjcv"uqog" uej qrctu'j cxg'tghgttgf ''vq''cu''y g''-ir tqhguukqpcn'nkpi wkuvø<'uqo gyj kpi 'nkng''cp''qhhkekcn'ur qngu/r gtuqp''hqt''c''xknrci g''qt'' ewnwtg"qh"j ku'r gqr ng0"kp"o quv'Chtkecp"uqekgvkgu. 'vj g"÷r tqhguukqpcn'nkpi vkuvø'dgnqpi gf "vq"c"nqpi 'nkpg"qh'uwej " ikhwaf "nkpi wkuwu"qh" vjg" uco g"hookn {00 cp{"yqtmaf" kp" vjg" eqwtwu"qh" itgcv" mkpiu"qh" cpekapv" Chtkecp" mkpifqou." uwej "cu''y g'O crk''\ ko dcdy gcp''cpf 'I j cpckcp''nkpi f qo u0'Vj gug''nkpi wkuxu''y gtg''qhvgp''i tgcv''qtcvqtu''cpf " ur qnguo gp"hqt"nkpi u"cpf "ej kghu. "cpf "eqpugs wgpvn("j cf "c"r tkxkrgi gf "r qukkkqp"kp"uqekgv("cpf "y kgnf gf " eqpulf gtcdrg'r qrklecri'r qy gt0Tghgttlpi "\q"\j g"Cuj cp\k":rlpi wkuwa"F cps wcj "\3; 4: 64+"r qlpw'qw'\j cv":pqv'qpn(" y gtg"y g{ "ej cti gf "y kj "tgr gcvkpi "y g"y qtf u"qh"y gkt"r cvtqp"chygt"j ko ."cevkpi "cu"j gtcrf "vq"o cng"ky"engct "vq"cm"j ku" cwf kgpeg"cpf "\q"cff "\q"j ku'wwgtcpegu"yj g"gzvtc"cwj qtkv{ "qh'tgo qvgpguu. "dw'yj g{ "y gtg"cnuq"gzr gevgf "\q"±r gthgevø" yj g'ur ggej "qh'c'ej kgh'y j q'y cu'pqv'uwhhkekgpvn("gmqs wgpv."cpf "vq"gncdqtcvg"j ku'vj go g'hqt'j ko ø0J qy gxgt."vj g" ikpi wkuw'y cu'pqv'gzrgevgf 'vq''icff 'cp{'pgy 'uwdlgev'o cwgt.''dwi jg'o c{''gzvgpf''yjg'rjtcugu'cpf'tgeqpuvtwev' yj g'ugpvgpegu'cpf 'kpvgtur gtug'vj g'ur ggej 'y kij 'uqo g''qh'vj g'egngdtcvgf 'y kw{ 'cpf 'r j knquqr j kecn't ghrgevkqpu'hqt'' y j kej ''y g{ ''ctg'Iwuvn{ ''egngdtcvgf ''vq''y g''etgf kv'qh''dqyj ''j ko ugnh'cpf ''j ku''ej kghø'\*kdkf 0+0'Kp''Hugpej /ur gcmkpi ''Chtkec.'' nkpi wkuwi'y gtg'mpqy p''cu'I TKQVu0'Vj g'i tkqvu'y gtg'mpqy p'hqt''y gkt'r tqhkekgpe{'kp'ugxgtcn'hcpi wci gu''cpf.'' yj cpmu'\q'\yj gkt'tqrg''cu''-kpvgtr tgvgtuø '\yj g'r qgvt { ''qh''c ''egtvckp''ewnwtg''eqwrf ''dgeqo g''f khhwugf ''qxgt''c ''y kf g''ctgc.'' tgcej kpi 'f khhgtgpv'uwd/ewnwtgu'cpf 'hcpi wci gu0'O wej ''qh''vj g''Chtkecp''gr ke''vtcf kukqp''y cu''ngr v'cnkxg''d{ ''vj g''i tkqw0 Vj g'j ki j n{ "guqvgtke"ncpi wci g"wugf "d{ "twrgtu"cpf "gnf gtu"kp" \tcf kkqpcn Chtkec"qhvgp"tgs wktgf "vj g"o gf kcvkqp"qh"cp" -kpvgtrtgvgtø'\q'hcekrkcvg'eqo o wpkecvkqp'y kij "vjg'eqo o qp'rgqrg0'Uqo gvko gu. 'kpvgtrtgvgtu'y qwrf 'dg'pggfgf'\q" uko r nkh{ "vj g"ncpi wci g"wugf "d{ "o go dgtu"qh"c"ugetgv"uqekgv{ ."qt"vq"i nquu"ur ggej gu"o cf g"f wtkpi "r wdnke"qeecukqpu" uwej "cu"tgrki kqwu"

kplwpevkqpu. 'ugto qpu'qt'uqngo p''o cttkci g''tcpucevkqpu0Vj g'hcpi wci g'wugf ''qp'uwej ''qeecukqpu''qhvgp'hqnqy gf '' uvtkev'eqpxgpvkqpu''qh'uv{ ng''cpf ''ugv'r j tcugqnqi { .''cpf ''y cu'htgs wgpvn{ ''tgr ngvg''y kj ''r tqxgtdu''cpf ''y kug''uc{ kpi u''pqv'' mpqy p''vq''y g''pqp/kpkkcvg0

Vj g'tqng''qh''tcf kkqpcn'kpvgtr tgvgtu''cu''o gf kcvqtu''dgwy ggp''y g'twrkpi "encungu''cpf "y g'eqo o qp''r gqr ng. 'kp''y j cv' y gtg''qhvgp''j ki j n{ "qti cpk gf "pcvkqpu''o ctngf ''d{ "cp"gzvtgo g'f gi tgg''qh''j kgtctej {."gctpgf ''y go ''c'i tgcv'f gcn'qh'' tgur gev0J qy gxgt. ''ukpeg''y g{ ''y gtg''c'encun''ugv''cr ctv'htqo ''y qug''y j q''pggf gf ''y gkt''ugtxkegu. ''y g{ ''y gtg''cnq'' hgctgf.''o knrtwngf ''cpf ''f knrkngf ''d{ ''qvj gt''o go dgtu''qh''uqekgv{0

Cpqyi gt 'hqto "qh":-xtcpurcvkqpø'r tgxcrgpv'kp"o cp{"r tg/eqqqpkcn'Chtkecp"uqekgvkgu'ku"yi cv'cuuqekcvgf "y kyi ":f two " repi wci gø0Chtkecp"f two "rkvgtcwtg"ku"c'hqto "qh'eqo o wpkecvkqp"y j kej "kpxqrxgu"wukpi "kpurtwo gpvu"vq" eqo o wpkecvg"yi tqwi j "f ktgev'tgr tgugpvcvkqpu"qh'yi g'ur qngp"y qtf 0'Vj g'kpurtwo gpvu"uko wrcvg'yi g'vqpg"cpf "tj { yi o " qh'cewcn'ur ggej 0'Vj ku"v{r g"qh'eqo o wpkecvkqp"ku"rkpi wkurke"ukpeg"yi g"o guuci g"ecp"dg":-xtcpurcvgf ø'kpvq"y qtf u." cpf "kv'ku"qpn{"yi gp"kp"hcev'yi cv'kv'ecp"dg"hwm{"crrtgekcvgf 0'Chtkecp"f two "repi wci g"ecp"gzrtguu"y qtf u"yi tqwi j " kpurtwo gpvu"dgecwug"yi g"Chtkecp"repi wci gu"kpxqrxgf "ctg"j ki j n{"vqpcn0"Vj g"f two "repi wci g"ku"dwkrv"qp"yi g"vqpcn" r cwgtpu"qh'yi g"y qtf u"y j kej "ctg"dgkpi "f ktgevn{"vtcpuo kwgf 0

Rtg/eqmpkcn/Chtkec'ku'cnnq'vj qwi j v'vq'j cxg'j cf 'c'hnqwtkuj kpi 'y tkkpi 'vtcf kkqp0'Uej qnctu'qh'Chtkecp'j kuvqt{ 'ctg' s wksg'f kxkf gf "qp''yi ku''kuuwg."hqt"o cp{"dgnkgxg''yi cv'y tkxkpi ."qt''yi g'tgeqtf kpi "qh'Chtkecp"qtcn'pcttcvkxg''kp''y tkxkpi ." qpn('dgi cp'y kj ''j g'cttkxcn'qh'Ctcdu'ctqwpf 'CF': 22'cpf 'Gwtqr gcpu'kp''y g'hkhyggpy 'egpwt (0Qr r qpgpw'qh''y ku'' yj gqt { "r qkpv"vq"c"r ngyj qtc"qh"y tkkpi "eqpxgpvkqpu"go r m{gf "d{ "Chtkecpu"dghqtg"cp{ "uki pkhkecpv"hqtgki p" kpewtukqpu0Vjg{"rqkpv'vq"yjg"cfxcpegf"rksgtcvg"ewnwtgu"yjcv'yjtkxgf"kp"yjg"Pkrg"Xcrrg{"guvcdrkujgf"d{"yjg" P wdkcp. 'Rj ctcqpke' Gi {r vkcp. 'O gtqg. 'Gyj kqr kcp' cpf 'Mwij 'ekxkrkt cvkqpu0'Vj ku'f kvewuvkqp' ku'ko r qt vcpv' dgecwug' kv'  $j~cu''dggp''uwi~i~guvgf~''yj~cv''tcpurcvgf~''nkvgtct\{''cpf~'uekgpvkhle'f~qewo~gpwi'j~cf~''dggp''cxckrcdrg''kp'Chtkec''hqt''egpwtkgu''$ dghqtg''y g''cttkxcn'qh'hqtgki pgtu0C''u{uvgo ''qh'y tkkpi ''dcugf ''qp''r kewtg''uki pu'y cu'y kf gn{ ''wugf ''kp''r tgeqmpkcn' Cht kec. "cpf "uej qrctu"qh"cpekgpv"Cht kecp"j kurqt { "j cxg"qhrgp"t grkgf "qp" y g"gzr gt "vkug"qh"ur gekcrkuru" y j q"ecp" f gekr j gt "y g"o gcpkpi "qh"y ku'r kevqtkcn'y tkkpi 00 wej "qh"cpekgpv'Chtkecp"j knvqt { "j cu"dggp"eqpuvtwevgf "y tqwi j "c" u{uvgo cvke "tcpurcvkqp"qh"uvej "r kevqi tco u"kpvq"o qf gtp"Ctcdke "qt"Tqo cp"uetkr v0"Vj ku "mkpf "qh" tcpurcvkqp"ku" jkijn{"uejqnctn{"cpf"ku'uvkn'rtcevkugf"kp"egtvckp"rctvu"qh"Chtkec."yjgtg"rkevqtkcn'ncpiwcigu"ctg"uvknn'wugf"kp"urksg" qh'y g'r tgugpeg''qh'Ctcdke''cpf 'Tqo cp''uetkr w00 xgpi "\*3; : 2< 2+'tghgtu''vq''vtcegu''qh'r kevqtkcn'y tkkpi 'kp'I j cpc'' co qpi "yj g'Cmcp. "Cuj cpvk "Cf kpmtc"cpf "Dcqwr?. "kp" Eco gtqqp"co qpi "yj g"Dco krgmg"cpf "yj g"Dco qwp. "cpf "kp" \cktg"coqpi "yig"Dcnxdc"cpf "yig"Dcmxdc0"Vjg"Cojctke"hcpi wcigu"kp"Gyikqrkc"cpf "yig"jkgtqin(rjkeu"kp"Gi{rv"  $\verb|ctg''| dgnkgxgf'' q''j cxg''gzkuvgf'' kp''y tkwgp'' hqto'' qpi'' dghqtg'' y g''cttkxcn'qh'' hqtgki pgtu 0$ 

### Vj g'eqmplenigt c'\*liknggpvj 'egpwt { 'vq'b lf /vy gpvlgvj 'egpwt lgu+

Vj g'eqnqpkcn'gtc''dgi kpu'y ky ''y g'hktuv'gpeqwpvgt''dgwy ggp''Chtkecpu''cpf 'Gwtqr gcpu''kp''y g'hkhvggpy ''egpwt{''cpf'' gpf u'y ky ''y g'r gtkqf ''ko o gf kcvgn(''r tgegf kpi ''y g'kpf gr gpf gpeg''qh''Chtkecp''pcvkqpu''ctqwpf ''y g''3; 72u0'Vj g'' j kuvqtkecn'hcev'qh''vtcpurcvkqp''qh'y ku''gtc''ecp''dg''f kxkf gf ''kpvq''w q''o ckp''r gtkqf u<'\*c+'y g''gctn(''cttkxcn'qh''Gwtqr gcpu'' kp''Chtkec''kp''y g''hkhvggpy ''egpwt{.''c'r gtkqf ''o ctngf''d{''y g''hqwtkuj kpi ''qh''y g''urcxg''vtcf g.''cpf''\*d+''y g''r gtkqf''htqo'' y g''pkpgvggpy ''egpwt{''qpy ctf u.''tghgttgf''vq''cu''y g''r tgkpf gr gpf gpeg''gtc.''o ctngf''d{''y g''r ctvkkqpkpi ''qh''Chtkec'

#### Vj g'cttkxcdqh'Gwtqrgcpu

Vj g'Rqtwi wgug''ctg'i gpgtcm( ''etgf kgf ''y kj ''guvcdrkıj kpi ''y g''gctrkguv'eqpvcewi'dgwy ggp''Gwtqr g''cpf ''Drcem'Chtkec0' Rqtwi wgug''uckrqtu'tgcej gf ''y g''Ugpgi cn'Tkxgt''kp''3667''kp''y gkt''ugctej 'hqt''c''ugc'tqwg''vq''Kpf kc0'Vj g''Ctcdu''j cf '' crtgcf { ''dggp''qp''y g''eqpvkpgpv'hqt''uqo g''ko g.''cpf ''y g''cttkxcn'qh'y g''Gwtqr gcpu''pqy 'i cxg''cp''ko r gwu''vq''y g'' vcf kpi ''cevkxkkgu''y cv'crtgcf { ''gzkurgf ''co qpi ''Chtkecpu''cpf ''dgwy ggp''Chtkecpu''cpf ''Ctcdu0'Vj g''pggf ''hqt'' eqo o wpkecvkqp''co qpi ''y g''Chtkecpu.''Ctcdu''cpf ''Gwtqr gcpu''ngf ''vq''cp''wpr tgegf gpvgf ''pggf ''hqt''tcpurcvkqp1'' kpvgtr tgvkpi ''\*Chtkecp''kpvq''Ctcdke=''Chtkecp''kpvq''Gwtqr gcp+0 Qpeg''y g''Rqtwi wgug''guvcdrkıj gf ''y go ugrxgu''ugewtgn( ''qp''y g''eqpvkpgpv.''y g{ ''r tqeggf gf ''vq''

vgcej 'uqo g'Chtkecpu'j qy 'vq'y tkxg'\*kp'Tqo cp'uetkr v+0'Uqo g'qh'vj g'gctrkguv'vtcpurcvkqpu'qh'Chtkecp'rkxgtcwtg'kpvq'' Gwtqr gcp'hcpi wci gu'ctg'kp'Rqtwi wgug. 'cpf 'vj gtg'ku'j kuvqtkecn'gxkf gpeg'vj cv'Chtkecp'hkgtcwtg'kp'Rqtwi wgug' vtcpuncvkqp'hnqwtkuj gf 'kp''y g'pkpgvggpyj 'egpwxt{0'Gctn{'Rqtwi wgug'o kuukqpctkgu'y gtg'f gvgto kpgf '\q'r tqxkf g'' Chtlecpu'y ky 'uqo g'grgo gpvct { "gf wecvkqp0"Uqo g'uej qqru'y gtg"guvcdrkuj gf "d { 'I guvkxu. 'y j q'vcwi j v'Rqtwi wgug'' cu'y gm'cu'Ncvkp'cpf 'uj qy gf 'uqo g'kpvgtguv'kp'uvwf { kpi 'inqecn'Chtkecp'ncpi wci gu0'Vj g'o kuukqpctkgu'uqqp'tgcnkt gf " y cv'y g{"eqwrf" 'ur tgcf" 'y g'I qur gn'co qpi 'Chtkecpu'o qtg"ghhgevkxgn{ 'kp" y g'hqecn'hcpi wci gu'cpf "y wu'r tqeggf gf" vq"f gxgrqr "y tkwgp"hqto u"qh"vj gug"o ckpn( "qtcn"hcpi wci gu."y j kej "o cf g"kv"r quukdrg"vq"r tqf weg"ecvgej kuo u." i too o ctu'cpf "f kevkqpctkgu'kp" y q. "vj tgg" cpf "gxgp" hqwt hcpi wci gu0 KV y cu'vj gug "gctn( "ghhqtw'd { "vj g "Rqtwi wgug." cpf "y g"gf weckqpcn'kpurkwwkqpu'y g{ "ugv'wr."y j kej "ncvgt kpur ktgf" y g"rkvgtct { "o qxgo gpv'npqy p"cu'y g"3: : 2" I tqwr "Y co knapp"3; 97+0"Vj g"3:: 2"o qxgo gpv"rcwpej gf "c"dkrkpi wcn"Rqtwi wgug 1Mko dwpf w"lqwtpcn" Q"Gej q"f g" Cpi qrc "\*Vj g'Gej q'qh'Cpi qrc+."y j kej "r wdrkuj gf 'uqo g'qh''y g'gctrkguv''tcpurcvkqp''y qtmu'htqo 'Gwtqr gcp''kpvq'' Chtkecp'hcpi wci gu0Vj g'3:: 2"I tqwr 'r tqf wegf 'qpg'qh'Chtkecøu'hktuv'\tcpurcvqt/vgto kpqmi kuvu. 'Lqcs wkp'F kcu' EQTF GKT Q'F C'O CVVC.'y j q'y tqvg''*Rj krquqr j kc'r qr wrc t "go 'r t qxgt dkqu''c pi qrc pqu*'\*\*Rqr wrc t''Rj krquqr j { ''kp'' Cpi qrcp'Rtqxgtdu+.'c'eqrrgevkqp'qh'Mko dwpf w'r tqxgtdu'cpf 'tkf f rgu'kp'Rqtwi wgug0F c'O cwc'cnuq'r wdrkuj gf 'c' Mko dwpf wô Rqtwi wgug'f kevkqpct { 'y j kej 'ku'eqpukf gtgf 'c' ∺o qpwo gpv'qh'uej qnctuj krø'\*J co knxqp'3; 97⊲7+0' Vj gug"hlpi wkuvke "gpf gcxqwtu"qh"vj g"gctn( "Ecvj qrke"o kuukqpctkgu. "y j kej "eqwrf "j cxg"hckf "vj g"i tqwpf y qtm"hqt" y tkakpi "Chtkecp"nkıgtcwtgu. "y gtg" y ct vgf "d{" vj g"Rqt wi wgug" cwj qtkakguø'g y pqegp vtke "s wguv' vq" cuuko knc vg" y g" pcvkxgu0

C'hgy 'Chtkecpu'y j q'y gtg'gpurcxgf 'cpf 'vj gp'gf wecvgf 'r tqf wegf 'y qtmu'kp'Ncvkp'vj cv'y gtg'i gpgtcm{ 'vj qwi j v'vq'' dg''tcpurcvkqpu'htqo 'vj gkt 'tgur gevkxg''qtcn'vtcf kkqpu0Qpg''uwej 'ecug'y cu'vj cv'qh'Lwcp''NCVkP Q.'c'P gi tq''urcxg'' y j q''gpvgtgf 'vj g''ugtxkeg''qh''c''Ur cpkuj 'i gpgtcn'kp''3752''cpf 'y gpv'qp''vq''dgeqo g''c''r tqhguuqt''qh''Ncvkp''cv'vj g'' Wpkxgtukv{ "qh'I tcpcf c0'Vj g''r cpgi {tke''r qgvt { 'vj cv'Ncvkpq''r tqf wegf 'ku''y qwi j v'vq''j cxg''dggp''dcugf 'qp''o gtgn{ '' ÷vtcpur qukpi ø'vj g''o qf gn'qh'vj g''Chtkecp''r tckug''r qgo ''cpf ''cf cr vkpi ''kv'vq''c 'Gwtqr gcp''ugvkpi 0'J g'y tqvg''o ckpn{ ''kp'' Ncvkp''cu''y cu''tgs wktgf ''d{ ''vj g''uej qrctn{ ''ewuvqo u''qh'vj g''ko g0'Cnj qwi j ''c'urcxg.''Lwcp''Ncvkpq.''nkng''c'hgy ''qvj gt'' Ncvkpkuvu.''eqpvtkdwgf ''c'i tgcv'f gcn'vq''yj g''nksgtcwtg''cpf ''vj qwi j v'qh'vj g''ercuuke''vtcf kkqp="vj ku''j kuvqtkecn'hcev'y cu'' qpn{ ''f qewo gpvgf 'kp''yj g''o kf f rg''qh'vj g''y gpvkgyj ''egpwt{ ''d{ ''vj g''Chtkecp''uej qrct''cpf ''j kuvqtkcp''Ej gknj ''Cpvc'' F kQR''\*ugg''F kqr ''3; 96+0

 $\label{thm:problem} Vj g''tcf kkqp''qh'Chtkecp''y tkkpi ''lp''Ncvkp''dgi cp''q'f kg''qw''qy ctf u''y g''gpf ''qh''y g''ukz yggpy ''egpwt { ."cu'urcxgt { " j cf ''dgeqo g''gxgp''o qtg''twj rguu''cpf ''P gi tqgu'y gtg''kpetgcukpi n{ ''dgkpi ''f gr tkxgf ''qh''gf weckqp0Uqo g''qh''y g'' P qtf ke''pcvkqpu'j cf ''pqy ''gpygtgf ''y g''urcxg''tcf g.''y j kej ''j cf ''dgeqo g''ko o gpugn{ ''r tqhkcdrg0F wej ''o gtej cpvu'' y gtg''r ctvkewrctn{ ''cevkxg'f wtkpi ''y ku''r gtkqf ."cpf ''y g''hgy ''uej qrctu''qh''Chtkecp''f guegpv'y j qug''y qtmu''ecp''y tqy ''uqo g''hi j v'qp''y g''j knvqt { ''qh''tcpurcvkqp''cv'y ku''vo g'y gtg''gf wecvgf ''o ckpn{ ''kp'F wej ''cpf ''I gto cp0Qpg''uwej ''uej qrct''ku''c'I j cpckcp''d{ ''y g''pco g''qh''Co q='j g'y cu''dqtp''ctqwpf ''3925''cpf ''ugpv''q''J qrcpf ''d{ ''c''nqecn'o kpkrygt'' qh''y g''F wej ''Tghqto gf ''Ej wtej 0Co q''dgeco g''y g''rtqv^2i^2''qh''c'I gto cp''pqdrgo cp''cpf ''y cu''ugpv''q''wpkxgtukx{ ''vq'' uwf { ''wpf gt''Ej tkrkcp''Y qrhh''c'y gm/mpqy p''f kuekr rg''qh'Ngkdpk{ 0Vj ku''Chtkecp''urcxg''y wu''dgeco g''c'j ki j n{ ''gtwf kg''uej qrct''cpf ''r j kquqr j gt''cpf ''ku'uckf ''q''j cxg''dggp''hco krkct''y kyj ''F wej .'I gto cp.''Htgpej .''Ncvkp.'I tggm'' cpf ''J gdtgy 0Chxgt''yccej kpi ''cv'y g''wpkxgtukxgu''qh''Y kxypdgti ''cpf ''Igpc.''cpf ''ugtxkpi ''cu''c''eqwtv''eqwpekrnpt''nqt'' Htgf gtke''Kqh''Rtwukc.''j g''tgwtpgf ''q''j ku''pcvkxg''Chtkec0$ 

Cr ctv'htqo "y qtmu'r tqf wegf "d{ "Chtkecpu'kp"pqp/Chtkecp "repi wei gu." I ² tetf "\*3; : 8+"enuq"o gpvkqpu'cp "Chtkecp" em j edgv'cpf "c"ugetgv'repi wei g"kpxgpvgf "d{ "Uwncp "P lq{c"\*3: 8763; 55+"qh'vj g"Dco wp"r gqr rg"qh'Eco gtqqp0"Vj g" uwncp"j ef "hqwpf "qwi'cdqwi'Ctedke "uetkr v'vj tqwi j "J ewuc"vtef gtu"cpf "Hwrepk'go ktevgu"qh'e"pgki j dqwtkpi " vgttkqt{0"Y j gp"vj g"I gto epu"ettkxgf "kp"3: ; ; ."P lq{c"pqvkegf "vj ev'vj g"Gwtqr gepu"wugf "e"f khhgtgpv'nkpf "qh" y tkkpi 0"Hwrn'qh'ef o ktevkqp"hqt"vj ku"o qf g"qh'eqo o wpkeevkqp." j g"kpuvtwevgf "uqo g"qh'j ku"eqwpekrqtu"vq"etgevg"ep" keqpqi ter j ke"uetkr v0"D{ "3; 3: ."j wpf tgf u"qh'qtki kpen'uki pu"j ef "dggp"uweeguuhwrn{ "vtko o gf "epf "i kxgp"r j qpgvke" uki pkhkeepeg0\Wpf gt"P lq{ eøu"uwr gtxkukqp."e"

76: /r ci g'o cpwietkr v'qp''y g''j kivqt { "cpf "ewivqo u'qh''y g''Dco wp''y cu'y tkwgp''wikpi "y ku'u { uvgo 0J qy gxgt."Uwncp" P lq { c. "rkng''o quv'twgtu'kp'' tcf kkqpcn'Chtkec."etcxgf "hqt "c'ugetgv'rcpi wci g''y cv'y qwrf "dg''eqo r ngvgn { "guqvgtke''vq" y g''r gqr ng0J cxkpi "ngctpv'c''hgy "I gto cp. 'Htgpej "cpf 'Gpi nkij "y qtf u''htqo "I gto cp'o kuukqpctkgu''qh''y g''Dcugn'' o kuukqp."j g''etgcvgf "c''pgy 'hcpi wci g''d { "cuetkdkpi "gpvktgn { "ctdktct { "o gcpkpi u''vq''y g''y qtf u."o kzkpi "y go "y ky " mecn'Dco wp''y qtf u'y j qug''o gcpkpi u''j cf "cnuq''dggp''f kivqtvgf 0'Vj g''o cpwietkr v'qp''y g''j kivqt { "cpf "ewivqo u''qh''y g'' Dco wp''y cu''y gp''tcpurcvgf "kpvq''y ku''=r tkxcvgø'rcpi wci g0

Vtcpurckqp"qh"yi g"DkDNG'kpvq"Chtkecp"rcpi wci gu"dgi cp"ctqwpf "yi g"ugxgpvggpyi "egpwt {0P co c"\*3; ; 5-642+" o gpvkqpu"yi cv"d {"387: ."I g."cp"Chtkecp"rcpi wci g"ur qngp"d {"yi g"Gy gu"\*T gr wdrke"qh"Dgpkp+."y cu"kpenvf gf "kp"c" o clqt "f qewo gpv." Fqevt kcpc "Ej tkukcpc." c"j cpf dqqnilqt"o kuukqpct {"r wtr qugu0J qy gxgt." k"y'y cu"pqv"wpvkri'yi g" pkpgvggpyi "egpwt {"yi cv"rcti g/uecng" tcpurcvkqp"qh"yi g"Dkdrg"kpvq"Chtkecp"rcpi wci gu"dgi cp"kp"gctpguv0 k"y'y cu"kp"yi g"ctgc"qh"tgrki kqwu"vtcpurcvkqp"yi cv"Ej tkuvkcp. "Kurco ke"cpf" vtcf kkqpcn"Chtkecp"y qtmu"xkgf "hqt" rtgf qo kpcpeg0Cnyi qwi j "Kurco "j cf"gzkuvgf" kp"Uwd/Ucj ctcp"Chtkec"ukpeg"ctqwpf "CF": 22. "kv"j cf"dggp"ur tgcf" gzenwkxgn( "kp"Ctcdke0Kp"qtf gt"vq"y kp"yi g"j gctvu"cpf "o kpf u"qh"nqecn"Chtkecp"r qr wcvkqpu. "kv"dgeco g"pgeguuct {." o wej "rcvgt"qp." 'q" 'tcpurcvg"Kurco ke'y qtmu. "r ctvkewrctn(" 'yi g"S WTø P." kpvq"uqo g"Chtkecp"rcpi wci gu0Hqt" kpucpeg. "yi g"S wtø p"cpf"qyi gt"tgrki kqwu"vgzwi"j cxg"dggp"vtcpurcvgf "kpvq" cwc"cpf"[ qtwdc0KVku"cnnq"yi qwi j v" yi cv'uqo g"Kurco ke"vgzwi'y gtg"vtcpurcvgf "kpvq"Clcpk\*{ qtwdc"y tkwgp"kp"Ctcdke"uetkr v+"d {"[ qtwdc" -o croo wø\*vgcej gtulngctpgf"o gp+"cpf"yi cv'uqo g"qh"yi g"vtcpurcvkqpu"y gtg"f qpg"nqpi "dghqtg"yi g"cf qr vkqp"qh"yi g" Tqo cp"uetkr v0C"ercuu"qh"Chtkecpu"nwgpv'kp"Ctcdke"cpf "qpg"qt"ugxgtcn"Chtkecp"rcpi wci gu"j cf "pqy "go gti gf." cpf"yi gtg"y cu"c"i tgcv'f gen'qh'vtcpurcvkqp"cevkxk{ "kp"yi ku"ctgc0

#### Vj g'r ct vkskqpkpi 'qh'Cht kec

Vj g'Dgtnkp'Eqphgtgpeg''qp'Chtkec'\*3:: 667+''vtki i gtgf''yj g'hwm/uecng''eqmpk| cvkqp''qh''yj g'eqpvkpgpv0'kp''yj g'3:; 2u." Chtkec''y cu''ectxgf''wr 'kpvq'Gwtqr gcp''ur j gtgu''qh'kphnwgpeg.''y kyj qw''cp{'tgi ctf''hqt''pcwtcn''qt''gyj pke''dqwpf ctkgu0' Vj g'f gxgmr o gpv''qh'Chtkecp''rkygtcwtgu''kp''Rqtwi wgug.''Gpi nkuj ''cpf''Htgpej ''ku''c''d{/r tqf wev'qh''eqmpkcn'' f qo kpcvkqp''d{''Gwtqr gcp''pcvkqpu''y j kej ''gpuwgf''chygt''yj ku''+uetco drg''hqt''Chtkecø0

Vj g'j kunqt { "qh'\tcpurc\kqp"kp'Chtkec'f wtkpi '\j ku'r gtkqf 'ku'enqugn\ 'rkpngf '\q'\j g'r qnkekgu'cf qr \gf '\d\ '\j g'Gwtqr gcp'' eqnqpkcn'cf o kpkutc\kqpu0'Y j krg'\j g'Htgpej ''cpf ''\j g'Rqt wi wgug'r wtuwgf ''cp''ci i tguukxg'r qnke\ "qh''cuuko krc\kqp"qh'' yj g''pc\kxgu. '\j g''Dtkkuj 'ko r ngo gp\gf ''c'r qnke\ "qh''kpf ktge\'t\wg0'Vj gug'r qnkekgu'f g\gto kpgf '\j g''gpuwkpi ''nkpi wku\ke'' o cng/wr ''qh'\j g''eqnqpkgu0'Kp'\j g''Htgpej ''cpf ''Rqt wi wgug''eqnqpkgu. ''xgtpcewrct''gf \wc\kqp''y cu''xkt\wcm\ ''pqp/gzku\gp\\"'g''Gpi nkuj ''eqnqpkgu''k\'y cu''i tgc\n\ "gpeq\wtci gf ."cndgk\'nqt''tgc\uppu''qh''gzr gf kgpeg0

Xgtpcewrct 'rksgtcwtg'y cu'o ckpn{ "gpeqwtci gf "d{ "Rtqvguvcpv'o kuukqpctkgu'y j qug'o ckp''cko "y cu'vq''eqpxgtv''
Chtkecpu'vq'Ej tkuvkcpkv{ 0Cp''ko r tguukxg''xqnwo g''qh'y tkkpi "y cu'r tqf wegf "kp''Chtkecp''rcpi wci gu'y kij "vj g''uqng''
cko "qh'ur tgcf kpi "vj g'I qur gn0P qpg'vj g''nguu."ctgcu'vj cv'y gtg''wpf gt "Dtkkuj "twng'f gxgnqr gf "c''dkrkpi wcn'rksgtct { "
vtcf kkqp"cv'cp"gctn{ 'uvci g. "etgcvkpi 'rksgtcwtg'kp'vj g''xgtpcewrct''ncpi wci gu''cpf "vj gp''r tqf wekpi 'y qtmu'kp'Gpi rkuj "
cv'c''ncvgt''uvci g0

Vj g'Htgpej ''y gtg''o ckpn{ "eqpegtpgf ''y kij "etgcvkpi "c'uqtv'qh":Htcpeg''qwtg/o gtø''y j kej ''o gcpv''y cv''y g''eqmqpkcn'' uwdlgeuu'j cf ''vq''dg''eqpxgtvgf ''kpvq'':r tqr gtø''Htgpej "ekkl gpu''d{ "o cuvgtkpi "'y g''Htgpej ''rcpi wci g''cpf ''ewnwtg0'' Cwgo r vu''o cf g''d{ "uqo g'Chtlecpu''vq''r tqf weg''etgcvkxg''y qtmu''kp''Htgpej ''y gtg''wpuweeguuhwn:''y gug''y qtmu''y gtg'' pqv''cmgp''ugtkqwun{ "dgecwug''y g{ "y gtg''y tkwgp''kp''ko r gthgev''Htgpej 0'Vj ku''cwkwf g. "ecpqpk gf ''d{ "'y g'Cecf²o kg'' Htcp±ckug."o cf g''o cwgtu''y qtug''hqt''r gqr ng''kp''Htgpej ''Chtlec''y j q''eqwrf ''pqv'':xtcpurcvgø''y gkt''qtcn'pcttcvkxgu''kpvq'' Htgpej ''y kij ''y g'uco g''hrgzkdkrkv{ "cpf ''kpi gpwkv{ "gplq{ gf ''d{ "'y gkt'Cpi rqr j qpg''eqwpvgt''r ctvu0'Cu''c'tguwnx''y gtg'' y gtg''o cp{ "o qtg''etgcvkxg''y qtmu''kp''Gpi rkuj ''y cp''kp''Htgpej ''f wtkpi ''y ku''r gtkqf 0

Vj g''eqmpkcn'gtc''cnıq''ucy ''c''o ctngf 'f genkpg'kp''y g'ko r qtvcpeg''qh''y g''r tqhguukqpcn'':rkpi wkuw''sqt''i tkqv+0Qpeg'' tgxgtgf ''cpf 'hgctgf 'hqt''j ku'r qrkkecn'emw'kp''y g''tq{cn'eqwtwu.''y g''r kqpggt''qh'Chtkecp''tcpurcvqtu''cpf 'kpvgtrtgvgtu'' y cu''tgf wegf ''vq''c''o gtg''i wkf g''vq''j ku'eqmpkcn'o cuvgtu0J g'y cu''qeecukqpcm{ 'ecngf ''wrqp''vq''lqkp''c''

eqmplcn'gzr gf kkqp'\q''=\tcpurc\go''o gf lc\g''cpf "cf xkug'\j g''eqmplcnku\u0\J g''y cu''gzr ge\gf "\q''j cxg''c'\j qtq\wi j " mpqy ngf i g''qh'\j g'\gttkqt { "cpf "\q''j cxg'\j g''r j {ulecn'gpf wtcpeg'\q''uwwclp''npi ."\gf lqwu''cpf "qh\gp"f cpi gtq\wi' lqwtpg {u0\Vj qwi j "j g''u\km'gplq {gf "uqo g''tgur gev''dgec\wg''qh''j ku''cuuqelc\kqp"y kj "\j g''G\tq gcp"'eqmplcnku\u''cpf " j ku'\km' ko gp\ct { +'mpqy ngf i g''qh''c''G\tq gcp''ncpi wci g."\j g''r tqhguulqpcn''hpi \wku\v'y cu''qh\gp"f gur kugf "d{ "\j g''nqecn' r qr wcwlqp"cpf "eqpulf gtgf "c''=\tckqt\phi'hqt"\uj qy lpi "eqmplcnku\u''ctq\ppf "cpf "j grr lpi "\j go "i clp"ceeguu'\q'\j g'\tldcn' nqtg''cpf "ugetg\u''qh'\j g''r gqr ng0\text{kpf ggf .'\j g''r tqhguulqpcn'hpi \wku\v'j cf "dgeqo g''pq\j kpi "o qtg'\j cp'\j g''ugtxcp\v'qh'' \uj g''G\tq gcp''eqmplcnku\u''cpf "j g'y cu''i gpgtcm\{ "f kur qugf "qh''cu''uqqp''cu''j ku'\cun'y cu''eqo r ng\text{yf c''q''dg''ecmgf " dcem''qpn\{ "kh''cpf "y j gp"j g'y cu''pggf gf 0

F wtkpi "ij g"ncy"pkpgvggpyj "cpf "gctn( "vy gpvkgi) "egpwtkgu."c"y cxg"qh"-inkdgtcn'Tqo cpvkekuo ø'cpf "c"hcuekpcvkqp" y kij "cm'hqto u"qh'u{o dqrkuo "vy gr v'cetquu'Gwtqr g. "tguwnkpi "kp"kpetgcugf "kpvgtguv'kp" y g"qtcn'vtcf kklqpu'qh'pqp/Y guvgtp"ewnwtgu" y qtqp"3; 95+0Chtkec. "rkng"o quv'r tgkpf wuvtkcnk gf "uqekgvkgu."tgegkxgf "y cxg"chvgt "y cxg"qh" Y guvgtp"uej qrctu"kpvgtguvgf "kp"uwf {kpi "kuu'nqmmqtg0J qy gxgt."iy gug"uej qrctu"qhvgp"tgrkgf "qp"kpcf gs wcvg"ugeqpf/j cpf "uqwtegu"cu" y g{ "eqmgevgf "r kgegu"qh'Chtkecp"qtcn'vtcf kklqp0'Y kij "pq"ceeguu"vq"vqf c{øu"tgeqtf kpi " yej pqmi {."yi g{ "j cf "vq"tgn( "qp"y tkvvgp"tgeqtf u"qh'yi g"qtcn'rkvgtcwtg" y g{ "pggf gf "vq"eqmgev0"Vj gug"tgeqtf u"y gtg" rguu"yi cp"cf gs wcvg"cu" y gtg"wptgrkcdrg"vtcpurcvkqpu"ecttkgf "qw"d{ "uej qqn'ej krf tgp"cpf "qyi gt"Chtkecpu" y qtmkpi "hqt"Gwtqr gcpu."y kij "j ctf n( "cp{ "unknikp"yi g"ctvknt {"qh'yi g"qtcn'pcttcvkxg0S wkg"qhygp."yi g"vtcpurcvkqpu" cpf "vtcpuetkr vkqpu'y gtg"uwdlgevgf "vq"c"i tgcv'f gcn'qh'cf cr vcvkqp"vq"uwkr'yi g"gzqvke"vcuvgu"qh"Y guvgtp"cwf kgpegu0'K/y cu"pqv'wpvkr'yi g"twyt" {gctu"qh'yi g"eqmpkcn'gtc"yi cv'Chtkecp"qtcn'pcttcvkxg"y cu"o cf g"cxckrcdrg"vq"yi g"r wdrke"d{" c"i tqwr "qh'Chtkecp"y tkxgtu"y j q"j cf "yi g"cf xcpvci g"qh'dgkpi "dkrkpi wcn'cpf" dkewnwtcn0

### Vj g'r quv/eqmpk:ngt c

Vj g'r gtkqf 'lww'dghqtg'cpf 'chwgt'kpf gr gpf gpeg'\*vj g'3; 72u'cpf '3; 82u+'y kpguugf 'vj g'go gti gpeg'qh'c'pgy 'uwci g' kp'vj g'j kuvqt { "qh'\tcpurc\kqp'kp'Chtkec0'Vtcpurc\kqp'ce\kxk\{ "f wtkpi "vj ku'r gtkqf "ecp'dg'uwdf kxkf gf 'kpvq'vj tgg'o ckp'' ecvgi qtkgu<'tgrki kqwu'\tcpurc\kqp.'rkgtct { "\tcpurc\kqp"cpf "r wdrke 'ugtxkeg' \tcpurc\kqp0

Tgrki kqwu'\tcpurc\kqp."y j kej "dgi cp'\kp'\j g''eqrqp\kcn'gtc."eqp\kp\wgf "y gm'\kp\q'\j g''r qu\eqrqp\kcn'r gt\qf 0\Gwtqr gcp" o kuu\qpct\kgu''eqp\\pwgf "\q''rgctp''nqecn'rcpi wei gu'\qt''r wtr qugu'\qh''gxcpi grk\ c\kqp."cpf "gur ge\kcm\ 'hqt''\j g'' \tcpurc\kqp"\qh''j g''Dkdrg''cpf "q\j gt 'tgrki kqwu'\wz\w0'Uqo g''qh'\j g''r kqpggtu'\qh''DkDNG''VTCP UNCVKQP "\p'Cht\kc" \kpen\kf g''\j g''P ki gt\kcp"Dkij qr "Uco wgrlClcplk'Etqy \(\dot\) gt\\ y j q'\ku''j ki j n\ 'tgr wgf '\qt''\tcpurc\kpi "j g''Dkdrg'\kp\q" \kdq''cpf "[ qt\wdc''/U0Y 0Mqgcrg''cpf "I\ht\Uej qp0'V\qf c\{.'\j g''Dkdrg'\j cu''dggp'\tcpurc\kqp''r tqlgewi'\kp'Cht\kcc."y qtm\pi 'y kj " \represent wei gu0'Gwi gpg''P kf c''j cu'r gtuqpcm\{ "dggp'\kp\qr\xgf 'y kj ''Dkdrg'\tcpurc\kqp''r tqlgewi'\kp'Cht\kcc."y qtm\pi 'y kj " \y g''Co gt\kcp"Dkdrg''Uqe\kg\{.'\o qtg'\tgegp\n\{ "\p'Gf gc. 'Eco gt\qqp'\\*P co c''3; ; 5-642+0Cn\j qwi j "\y g''o clqt\k\{ "qh'' Dkdrg'\tcpurc\kqpu''r tqf wegf "\p'Cht\kcc''ctg'\kp\q''xgtpce\wct''rcpi wei gu.'\k'\ku''cn\q'y qt\j "pq\kpi "\y cv'\p''o cp\{ "r ctw'' qh''Y gu\'Cht\kcc''\y g''I qur gn'\j cu''dggp'\tcpurc\yf' kf i \kp\'Gpi r\kij ."c''j \{dt\kf ''\kpi wc'\htcpec''tgu\wn\kpi ''\htqo " eqp\xev'\dgy ggp''Cht\kecp''rcpi wei gu''cpf ''Gpi r\kij 0

Nkgtct { "tcpurckqp"ku"pqv"c"nwetckxg"dwukpguu"kp"Chtkec0'Qeecukqpcm(."uqo g"r wdrkuj kpi "j qwugu"y j kej " ur gekcnk g"kp"Chtkecp"hkgtcwtg"y tkwgp"kp"Gwtqr gcp"rcpi wci gu"o c { "pggf" 'y g"ugtxkegu"qh"c"tcpurcvqt."dw"y ku" j cr r gpu"tcyj gt"kphtgs wgpvn("cpf."y j gp"kv"f qgu."y g"lqdu"qhvgp" i q"vq"Gwtqr gcp"tcyj gt"y cp"Chtkecp"tcpurcvqtu0' J qy gxgt."y gtg"ku"cpqy gt"v(r g"qh"nkgtct { "tcpurcvkqp"dgw ggp"Chtkecp"cpf "Gwtqr gcp"rcpi wci gu"y j kej "j cu" hrqwtkuj gf "kp"Chtkec0

Vj g''rcyg''3; 72u''cpf ''gctn{''3; 82u''ucy ''y g''go gti gpeg''qh''c''pgy ''ercuu''qh''Chtkecp''y tkxgtu''y ky ''c''i qqf ''eqo o cpf ''qh'' dqy ''y g'Gwtqr gcp''rcpi wci g''qh'y tkkpi ''cpf ''y g''rcpi wci g''qh''Chtkecp''qtcn''pcttcvkxg0Chtkecp''qtcn''vgz w''eqmgevgf ''f wtkpi ''y g''eqmpkcn''gtc''qhxgp''r qugf ''c''o clqt''r ctcf qz''hqt''tcpurcvkqp.''cu''y g{ ''y gtg''r tqf wegf ''xkc''y g''o gf kcvkqp''qh'' eqmpkcn''uetkdgu''kp''y g''rcpi wci g''qh''Gwtqr gcp''f qo kpcvkqp0'Vj g''ghlqtw''qh''y g''eqmpkcnkwu''vq''tcpuetkdg''cpf ''wtcpurcvg''Chtkecp''qtcn''rkygtcwtg''cv''dguv''r tqf wegf ''-eqmpk gf ø'xgtukqpu''qh''y cv'rkygtcwtg0'Cpzkqwu''vq''tki j v'y g'' y tqpi u''qh''y g''r cuv''cpf ''ugv'y g''tgeqtf u'untcki j v''c''pgy ''i gpgtcvkqp''qh'Chtkecp''y tkxgtu''ugv'qw''vq''--xtcpurcvgø'r kgegu'' qh'Chtkecp''qtcn''rkxgtcwtg''Lpvq''Gwtqr gcp''rcpi wci gu0'Uwej ''y tkxgtu''htqo ''Htcpeqr j qpg''Chtkec''kpenxf g''

Dktci q'F kqr.''y g'Ugpgi crgug'r qgv'hco qwu'hqt''j ku'eqmge kqp''qh'uj qtv'uvqtkgu''gpvkargf "\$Pqwxgcwz''Eqpvgu'' f &Co cf qw'Mqwo dc "\*Vj g'P gy "Vergu'qh'Co ef qw'Mqwo dc."3; 83+"cpf 'Dgtpctf 'F cf k'.''y g'Kxqktkcp''npqy p'hqt" j ku''N i gpf gu'Cht kec kpgu'\*Cht kecp'Ngi gpf u."3; 95+0C'uko krct'r j gpqo gpqp'\qqm'r rceg'kp'Cpi m/r j qpg'Cht kec0'Kp" Y guv'Cht kec. "Co qu'Vwwqrc&u''Vj g'Rcro /Y kpg'F t kpnct f'cpf 'j ku'F gcf 'Rcro /Y kpg'Vcruyt'kp''y g'F gcf &u'Vqy p" \*3; 74+"y cu'co qpi ''y g'htuv'qh'uwej ''Cht kecp''y qtmu'qh'hte kqp'\q'cr r gct = f t kpnct f' ku'c'o qf khtgf 'hqto ''qh'' f twpnct f.''o gcpv'\q'o ko ke''y g''rpi wci g'qh'c'ugo k'nkgtcvg''f twpnct f O'Cm'y gug'y qtmu'd { ''Htcpeqr j qpg''cpf'' Cpi mr j qpg''y tkgtu'ctg''guugpvkcm ("hdgtcn'vtcpurc kqpu'qh'Cht kecp''qtcn'\gz w0Vwwqrc.''hqt''gzco r ng. ''hkgtcm' (" vtcpurc yf ''uqo g'' qtwdc''o { y qmi { ''kpvq''Gpi nkij 0'Kp''cp''cwgo r v'\q''ecr wtg'' [ qtwdc''u { pvcz ''kp''Gpi nkij ''\*cpf''i kxgp'' y cv'j g'y cu'c''r wdrke''ugtxkeg''ergtm'y ky ''lwuv'cp''gngo gpvct { 'uej qqn''gf wcc\kqp+"j g''r tqf wegf ''ewtkqwu'u { pvce ke'' r cwgtpu'y cv'gpf gctgf ''j ko ''q''Gwtqr gcp''tgcf gtu0'Cr ctv'htqo ''uwej ''-xtcpurc kqpuø'qh'Cht kecp''qtcn'hkgtcwtg.''y g'' y qtmu''qh'y gm/npqy p'Cht kecp''y tkgtu'uwej ''cu''Cej gdg. "Uq { kpnc. ''Qnctc''cpf ''Ugpi j qt''j cxg''cnq''dggp''vtcpurc yf '' kpq''ugxgtcn'Gwtqr gcp''rcpi wci gu0'

Vj g"ukwckqp"kp"Gcuv"Chtkec"ku"j ki j n( "kphrwgpegf" d{ "y j cv"j cu"dggp" guetkdgf "cu"Gcuv"Chtkecau" vtkr ng"j gtkci gô Chtkecp. "Kurco ke. "Gwtqr gcp0"Y j krg" y gtg" j cxg"dggp" o cp{"\tcpurckqpu" htqo "\y g"gyj pq/Chtkecp" gtkci g"kpvq" Gwtqr gcp" ncpi wci gu. "\y gtg" j cu"dggp" tgrckxgn( "nguu" Gwtqr gcp/ncpi wci g"nkytcwtg" \tcpurcyf" \tcpurcyf" \tcpurcyf" y gtg" j cu"dggp" tgrckxgn( "nguu" Gwtqr gcp/ncpi wci gu0" o pq/Chtkecp" kpvq" Chtkecp" ncpi wci gu. "cpf" j ctf n( "cp{"\tcpurcytqp" dgwy ggp" Chtkecp" ncpi wci gu0" o pq/Chtkecp" kytcwtg" \tgrcyf geyi pke" fkxkulqpu" kp" Gcuv" Chtkec. "y j gtg" y g"hkytcwtgu" qh" gy pke" i tqwr u"uwej "cu" y g"Mkmv( w"Dci cpf c. "Ej ci i c. "Cej qrk" cpf" Nwq" cxg" tgo ckpgf "ugr ctcvg0" y g"Wi cpf cp" Qmqv" ndokgmlku" y gm/mpqy p" hqt" j ku"\tcpurcytqp" qh" y g"r qgo " \dagger " dpi "qh" Ncy kpqø' kpvq" Gpi nkuj ."y j kej "j g" j cf "qtki kpcm( "y tkwgp" kp" j ku" pcvkxg" Cej qnt0" y g"r qgo "y cu" uwdugs wgpvn( "\tcpurcytq "kpvq" Htgpej ."Ur cpkuj "cpf "Rqtwi wgug="r ndokgmntu" y qtm" j cf" o wej "o qtg" ko r cev' y tqwi j " y g"\tcpurcytqp" y cp" y tqwi j "y g"qtki kpcn'x gtukqp" kp" Cej qnt0" Rndokgmlku" cnnq" c"xgt {"mpqy ngf i gcdng" hkpi wkuv yto kpqni ku0" g"o cngu" j ku"\tcpurcykqpu" ceeguukdng" q"pqp/Cej qnt'tgcf gtu" d{"kpenwf kpi "cp" cpcn( vkecn'i muuct {" qh" Cej qnt'y qtf u" cpf" gzr tguukqpu" y cv'f q" pqv' j cxg" Gpi nkuj "gs wkxcngpvu0

Vj g'hoo qwu'Mgp{cp"cwj qt'P i wi k'Y c"Vj kqpi øq."y j q'y tqvg'kp'Gpi nkuj 'hqt"ugxgtcn'{gctu."dgeco g'htwuxtcvgf" y kyj "vj g'kpcdkrkv{"qh'vj g'Gpi nkuj "hcpi wci g'vq"gzr tguu'vj g"guugpeg"qh'j ku'pcvkxg"ewnwtg"cpf "uy kej gf "vq"y tkskpi "kp"j ku'pcvkxg"Mkmv{w'cpf "vj gp"vtcpurcvkpi "uqo g"qh'j ku'y qtmu."uwej "cu'j ku'ncuv'pqxgn"F gxkrl'qp"y g'Et quu."kpvq" Gpi nkuj 0

Vj gtg"j cu"cnıq"dggp"uqo g"tcpurcvlqp"cevkxk{ "qp"y g"Chtq/Kırco ke"htqpv0Uy cj krk"ku"guugpvlcm{ "y g"r tqf wev'qh" eqpvcev'dgw ggp"Kırco "cpf "y g"Dcpw'ekxkrk cvlqp0C"rcti g"xqnwo g"qh"gyi pq/Chtlecp"rksgtcwstg"j cu"dggp" vtcpurcvgf "kpvq"Uy cj krk0Vj g"Chtq/Kırco ke"j gtksci g"kp"Uy cj krk"j cu"dggp"o cf g"cxckrcdrg"kp"Gpi rkuj "d{ "uej qrctu" uwej "cu"N{pf qp"J cttkgu. "Lco gu"f g"Xgtg"Cngp. "Kitcj ko "Uj ctkhh "Lcp"Mpcr r gtv'cpf "qvj gtu" st 2 tctf "3; : 8<326; +0' Vj gtg"j cxg"cnq"dggp"vtcpurcvkqpu"htqo "Gpi rkuj "kpvq"Uy cj krk0Hco qwu"co qpi "vj gug"ctg"vj g"vtcpurcvkqpu"d{ "Lvxkwu"P {gtgtg" y g"hqwpf gt/r tgukf gpv'qh"Vcp| cpkc+"qh"Uj cngur gctgøu"Lvxkwu"E c guct "cpf" "Vj g"O gtej cpv'qh" Xgpkeg0"Vj gug"vtcpurcvkqpu"y qp"etkskecn'ceercko "ukpeg"Uy cj krk"j cu"dgeqo g"c"j qo g/dtgf "rkpi wc"htcpec"qh"Gcuv Chtlec."ur qngp"d{ "qxgt"322"o knkqp"r gqr rg0

Vj g'uki pkhecpeg''qh''Uy cj krk'cu''c''rkpi wc'htcpec''qh''uwej ''c''xcuv'tgi kqp''qh''Chtkec''j cu''ngf ''O j kpc'\*3; 92+''vq''cti wg''kp'' hcxqwt''qh'r tqf wekpi ''y qtmu''kp''Uy cj krk''cpf ''vtcpurcvkpi ''kpvgtpcvkqpcm( ''tgeqi pk gf ''y qtmu''kpvq''Uy cj krk')Wprkng''y g'' tguv''qh''Chtkec''uqwj ''qh''y g''Ucj ctc.''y j gtg''kı'pq''y kf gn( ''wugf ''j qo g/i tqy p''kpvgtpcvkqpcn''rcpi wci g.''Gcuv'' Chtkec''j cu''y g''wpks wg''cf xcpvci g''qh''j cxkpi ''Uy cj krk''cu''c''xkcdrg''kpvgtpcvkqpcn''rcpi wci g''qwercuukpi ''o cp{ ''hqtgki p'' rcpi wci gu0

Ukpeg'kpf gr gpf gpeg."r wdrke''ugtxkeg''tcpurcvkqp''j cu''eqpvkpwgf ''vq'hrqwtkuj ''cu''y g''i qxgtpo gpwu''qh''xctkqwu''Chtkecp'' uvcvgu''cwgo r v''vq''eqr g''y kyj ''Y guvgtp/uv{ rg''dwtgcwetcekgu''nghv''dgj kpf ''cu''c''eqmpkcn'ngi ce{0'Y j gp''o quv''Chtkecp'' eqwpvtkgu''dgeco g''kpf gr gpf gpv''kp''y g''3; 82u.''y g{ ''y gtg''nghv''y kyj ''c''hpi wkuvke''ukwcvkqp''y cv'y cu''dqwpf ''vq'' gpj cpeg''y g''tqng''qh''vtcpurcvqtu''cpf ''kpvgtr tgvgtu0'Ugxgtcn'qh''y gug''pgy n{ ''kpf gr gpf gpv''Chtkecp''eqwpvtkgu''cntgcf { '' j cf ''o cp{ ''kpf ki gpqwu''Chtkecp''rcpi wci gu''ur qngp''y kyj kp''y gkt''dqtf gtu.''vq'y j kej ''y cu''cf f gf ''y g''eqmpkcn'rcpi wci g\*u+''y j kej .''y qwi j ''hqtgki p.''j cf ''dgeqo g''y g''qhhkekcn'rcpi wci g\*u+''qh''y gug''

eqwpvtkgu0'Kqpkecm(."kpuvgcf "qh'c'hrqwtkuj kpi "vtcpurcvkqp"cevkxkv{ "dgwy ggp'Chtkecp"rcpi wci gu."cu"qpg"o ki j v'j cxg" gzr gevgf "kp"c"r quveqrqpkcn'ukwcvkqp."vtcpurcvkqp"gxqrxgf "o ckpn{ "kp"wy q"f ktgevkqpu<"Chtkecp"kpvq"Gwtqr gcp" rcpi wci gu"cpf "xkeg"xgtuc."cpf "Gwtqr gcp"vq"Gwtqr gcp"rcpi wci gu0'Hcegf "y kij "y g'pggf "vq"eqr g'y kij "y qtnf "chtcktu" cpf "y g"kpvgtpcvkqpcn'geqpqo ke"o ctngv."kv'dgeco g"kpetgcukpi n{ "pgeguuct { "hqt"Chtkecp"eqwpvtkgu"vq"eqo o wpkecvg" pqv'qpn{ "y kij "qvj gt "Chtkecp"pcvkqpu."dwv'cnuq"y kij "qvj gt"eqwpvtkgu"qh'vj g"y qtnf."r ctvkewrctn{ "vj gkt"hqto gt" eqmpkcn'o cuvgtu0'Kp"vj ku"eqpvgzv."Gwtqr gcp/vq/Gwtqr gcp'rcpi wci g"vtcpurcvkqp"vj tkxgf "kp"Chtkec"kp"vj g"hkgnf "qh" hqtgki p"chtcktu."cu"y gm'cu"kp"cf o kpkntcvkxg."geqpqo ke"cpf "ewnwtcn'ctgcu0

## Vj g'r t gugpv'f c{

Ukpeg'kpf gr gpf gpeg."o cp{ "geqpqo ke"cpf 'kpvgtpcvkqpcn'qti cpk| cvkqpu"j cxg"dggp'hqto gf 'vq"gpj cpeg"eqqr gtcvkqp" co qpi 'Chtkecp'uvcyu. 'vj wu'uxtgpi vj gpkpi 'vj g'pggf 'hqt'Gwtqr gcp'hcpi wci g'vtcpurcvqtu0'Y j gp'vj g'Qti cpk| cvkqp" qh'Chtkecp'Wpkx| "\*QCW+'y cu'hqwpf gf 'kp"3; 84. 'Gpi rkuj ."Htgpej ."Rqtwi wgug."Ur cpkuj "cpf ô qp"c'uo cmgt'uccngô Ctcdke'y gtg'f genetgf 'vj g'qhhkelcn'y qtnkpi "rcpi wci gu0'Vj g'f gekukqp'vq'wug'Gwtqr gcp'tcvj gt'vj cp'Chtkecp" rcpi wci gu'cu'c'o gf kwo "qh'eqo o wpkecvkqp"co qpi 'o go dgt'uvcvgu'j cu'dggp'uvtqpi n{ 'etkkek gf 'd{ 'o cp{ 'ucj qrctu' cpf 'ku'uckf 'vq"j cxg"dggp'kpf kecvkxg"qh'vj g'hcvg'vj cv'cy ckxgf 'Chtkec0
Vj g'Geqpqo ke'Qti cpk| cvkqp'qh'Y guv'Chtkecp'Uvcvgu'sGEQY CU+'dtkpi u'vqi gvj gt'38'eqwpvtkgu'cpf 'vj g'y qtnkpi "rcpi wci gu'ctg'Gpi rkuj 'cpf 'Htgpej 0'Vj g'uco g'ku'vtwg'hqt'qti cpk| cvkqpu'uwej 'cu'vj g'Y guv'Chtkecp'Tkeg"
F gxgqr o gpv'Cwj qtkx| "\*Y CTKF C+'cpf 'vj g'Kpvgtpcvkqpcn'Uqekcn'Ugewtkx| 'Cuuqekcvkqp'\*KUUC+'vq'pco g'qpn{ "

w q0Vj gug"qti cpk cvkqpu. "cno quv'y kj qwy'gzegr vkqp. "pggf" o quvn( "Gwtqr gcp/vq/Gwtqr gcp'hcpi wci g"vtcpurcvqtu0

### Vt cpurc vqt 'tt ckpkpi

F wklpi "y g"gctn("{gctu'qh'kpf gr gpf gpeg. "y g"Y gungtp/un{ng'i qxgtpo gpwl'kp'xctkqwu'Chtkecp'eqwpvtkgu'y gtg'nghn' y ky "y g'ngi ce { "qh'eqnqpkcn'ncpi wci gu'dw'y ky qw'cp{ "r gtuqppgn'qt "kphtcutwewtg"q'ectt { "qw'y g'ho o gpug" tcpurcvkqp"y qtm'y cv'y g'pgy "hpi wkurke 'ukwcvkqp"gpvckrgf ()'Kp''o cp{ "kpurcpegu."i qxgtpo gpv'ekxkn'ugtxcpwi'y ky " dctgn("cp"gngo gpvct { "gf wecvkqp"cpf" c'uo cwgtkpi "qh'npqy ngf i g'kp" y q'Gwtqr gcp"ncpi wci gu'y gtg"ecnngf "wr qp"vq" r tqxkf g"tcpurcvkqpu0Dw'cu'vko g'y gpv'd { . 'kv'dgeco g'kpetgcukpi n{ "qdxkqwu'y cv."i kxgp"y g'co qwpv'qh'y qtm'vq"dg" fqpg"cpf "y g'pggf" hqt "s wcnkv{ "vtcpurcvkqpu."i qxgtpo gpwu"j cf "vq"cnng"cp"kpvgtguv'kp"y g"tckpkpi "qh'r tqbguukqpcn" vtcpurcvqtu0Hqt "cm quv'y q'f gecf gu'chngt "kpf gr gpf gpeg"o cp{ 'Chtlecp'i qxgtpo gpwu'ur qpuqtgf 'uqo g'qh'y gkt" dtki j vguv'i tcf wcvgu'vq"uwxf { "kp"vtcpurcvkqp"uej qqnu"kp"Gwtqr g'cpf "P qty 'Co gtlec0

Eco gtqqp"r tqxkf gu'c'i qqf "gzco r ng"qh'j qy "vtcpurcvqt "vtckpkpi "j cu"gxqnxgf "ukpeg'kpf gr gpf gpeg0J cxkpi " cf qr vgf "Gpi nkuj "cpf "Htgpej "cu"qhhlekcn'hcpi wci gu."Eco gtqqp"ku'y g'egpvtg'hqt "Gwtqr gcp/vq/Gwtqr gcp'ncpi wci g" vtcpurcvkqp"kp'Chtlecc="kv'ku'cnug'qhngp'eqo r ctgf "vq"Ecpcf c."y j gtg'Gpi nkuj "cpf "Htgpej "ctg'uko krctn("qhhlekcn'

dkhpi werkuo "hp"Gwtqr gcp"repi wei gu0J gpeg. "k/ku"qhxgp"ekgf "cu"yi g"egpvtg"hqt"Gwtqr gcp/vq/Gwtqr gcp"repi wei g" tcpurcvkqp"hp"Chtkec="k/ku"cnuq"qhxgp"eqo r ctgf "vq"Ecpcf c."y j gtg"Gpi rkuj "cpf "Htgpej "ctg"uko kretn( "qhhkeken" repi wei gu0[ gv."hqt"c"xgt { "rqpi "vko g."Eco gtqqpøu"vtcpurcvqtu"y gtg"vtckpgf "kp"Gwtqr g"qt"P qtyj "Co gtkec0Ki"y cu" pqv"wpvkrit gegpvv(."kp"i g"3; : 2u."yi cv'yi g"Cf xcpegf "Uej qqriqht"vtcpurcvqtu"cpf "Kpvgtr tgygtu"y cu"guvcdrkuj gf "kp" Dwgc."Eco gtqqpo"vj gr"i qxgtpo gpv'j cu"ukpeg"uvqr r gf "vtckpkpi "ku"vtcpurcvqtu"cdtqcf "cpf "j cu"tgrkgf "qp"yi g"Dwgc" uej qqrilqt "qecm( "vtckpgf "vtcpurcvqtu"y j q"ctg"cy ctg"qh"yi g"pggf u"cpf "yi g"y qtrkpi u"qh"ucvg"vtcpurcvkqp"ugtxkegu0 Kp"P ki gtkc."y j gtg"vtcpurcvkqp"ku"wpf gtvcngp"o ckpn( "dgwy ggp"Gpi rkuj "cpf "rqecn'xgtpcewret "repi wei gu."uqo g" wpkxgtukkgu"pqy "kpermf g"vtcpurcvkqp"uwf kgu"kp"yi gkt"r tqi tco o gu0Vj g"Wpkxgtukx{ "qhi"Nci qu"cnq"j cu"c"r quv' i tcf wcvg"vtcpurcvkqp"t tqi tco o g"kp"y j kej "uwf gpw"ecp"ej qqug"dgwy ggp"hkytct { "cpf "vgej pkecn'vtcpurcvkqp."cpf" qi gt"P ki gtkcp"wpkxgtukxkgu"j cxg"eqpvkpwgf "vq"qhhgt"f kr rqo c"eqwtugu"kp"vtcpurcvkqp."o ckpn( "dgwy ggp"P ki gtkcp" repi wci gu"cpf "Gpi rkuj 0

WP EVCF ":qp" y g"pggf "hqt" c"uwd/tgi kqpcn' vtcpurc vkqp. "kpvgtr tgvc vkqp" cpf "uvchh'ncpi wci g/vtckpkpi "uwr r qt v'ugt x keg" cpf "\q"cuuguu"\j g"hgcukdkrk\{"qh'ugwkpi "wr 'uwej "c"ugtxkeg"kh'kv'wxtpgf "qwv'\q"dg"pggf gf ø0Co qpi "\j g" tgeqo o gpf cvkqpu'o cf g'ku'y g'etgcvkqp'qh'c'uwdtgi kqpcn'Vtcpurcvkqp''cpf 'Kpvgtr tgvcvkqp''Uej qqr0 Tgegpv'r qrkkecrlej cpi gu'kp''Uqwj 'Chtkec'j cxg'dtqwi j v'cdqw'vj g'pggf 'hqt'c'o cuukxg'qxgtj cwrlqh'vtcpurcvkqp/ vtclplpi 'r tqi tco o gu0'Vj g'CP Eøu'Eqpuvkwwlqp'hqt'c'r quv'cr ctvj glaf 'Uqwj 'Chtlec'tgeqi plaf gu'33'qhhlellon' ncpi wci gu. "o quv'qh'y j kej "ctg'Chtkecp'ncpi wci guO'Wprkmg"r cuv'vtcpuncvkqp"r tqi tco o gu'y j kej "f gcnv'o ckpn{ 'kp" Gpi rkuj "cpf 'Chtknccpu." ewttgpv'tcpurcvkqp"rtqi tco o gu"o wuv'kpenwf g"Chtkecp" rcpi wci gu0Kij cu"dggp" tgeqo o gpf gf "vj cv"tcpurcvkqp/vtckpkpi "r tqi tco o gu"vj qwrf "cko "cv"r tqo qvkpi "o wrwkrkpi wcrkuo "cpf "grko kpcvkpi " yj g'mkpf ''qh'nkpi wkuvke''r tglwf kegu''cpf ''uqekcn'lkp/gs wcnkv{ ''vj cv'j cxg''gzkuvgf ''kp''Uqwj ''Chtkec'hqt''uq''nqpi 0'Kp''qtf gt''vq'' cej kgxg" y ku. "tcpurcvqtu" uj qwrf "dg" tckpgf "pqv'qpn("cv' y g"r quvi tcf wcvg" rgxgn "dwv'cnuq" cv' y g" wpf gti tcf wcvg" cpf " rtgvgtvkct { 'hgxgnu0Cffkpi 'c'etkkecn'hcpi wci g'cy ctgpguu'eqo rqpgpv'vq'vj g'vtckpkpi 'rtqi tco o g.'kv'ku'vj qwi j v.'' o ki j v'j grr 'hki j v'rkpi wkurke''r tglwf keg''cpf 'kpurkrl'tgur gev'hqt ''y g'rcpi wci g'tki j wi'qh''cm'ekkt gpu'kp''c''r quwcr ctyj gkf " f go qetcvke "uqekgv{ 0'Ki'ku 'cnuq 'dgrkgxgf ''yj cv'yj g''gpuj tkpkpi ''qh'hcpi wci g'tki j wi'kp''yj g''pgy 'Eqpuvkwwkqp''y km'hgcf '' vq"c"o clqt"gzrcpukqp"cpf"rtqhguukqpcnktcvkqp"qh"ncpi wci g"ugtxkegu0EQOOWPKV["KPVGTRTGVKPI"ku"cnuq" dgkpi "cevkxgn("uwr r qtvgf."gur gekcm("cv'vj g'ngxgn'qh'j gcnvj/ectg'cpf"uqekcn'ugtxkegu'r tqxkukqp."uq"cu'vq"cxqkf" cnkgpcvkpi 'pqp/Gpi nkuj 'cpf 'pqp/Chtknccpu'ur gcngtu0'Vgto kpqmi { 'tgugctej 'y km'r nc { 'cp'ko r qtvcpv'tqng." rct/kewrctn('kp'rtqi tco o gu'f guki pgf '\q'o ggv'yj g'pggf u'qh'Cht/kecp'hcpi wci g'\tcpurcvqtu'\Mtwi gt'3;;6+0

#### Vj g'loc wu'qh'it c p urc vqt u

Vj g'ucwu'qh'vj g'\tcpurcvqt lkpvgtr tgvgt'j cu'wpf gti qpg'c'eqpukf gtcdrg'\tcpuhqto cvkqp'ukpeg'vj g'\ko g''qh'vj g''
I TKQV0\Wprkng'vj g'\i tkqv'y j q'y cu'\tgxgtgf "cpf "gxgp'hgctgf "kp'r tg/eqnqpkcn'Chtkec."\qf c{\phiu'\tcpurcvqt'\ku'\qh\pp" r gtegkxgf "cu'c'f kugpej cpvgf "ekxkn'ugtxcpv'y j q''\qknu'cy c{ 'y kij qw\tgegkxkpi "cp{ 'tgeqi pkkqp'\kp'j ku'eqwpvt{\phiu' r wdrke''\ugtxkeg0'Vj g''qpn( "rcpi wci g''\ur gekcrkuru'y j q''\uggo "uc\kuh\pf "y kij "vj gkt''nq\cutegeqphgtgpeg'\pvgtr tgvgtu."y j q'' gplq{ "vj g'i rco qwt''qh'etkun/etquukpi "vj g''eqpv\pgpv'\q''cvwgpf "\pvgtrpc\qqpqfeqphgtgpegu0'Vtcpurcvqtu.'\kttgur ge\xxg'' qh'eqwpvt{."eqo r rckp''cdqw'\vj g''ny "ucwwu''cwtkdwgf "\q''\vj gkt''r tqhguukqp0'K gpcej q'\x3; : 7+''eksgu'\vj g''ecug'\pp" Pki gtkc.'\vj j gtg'\vj g''r quvu'\qh'\tcpurcvqtu'\cpf "\pvgtr tgvgtu''cv'\vj g''O \pk\nt { "qh'\Gzvgtpcn'Chtcktu'' cxg''dggp''cdqrknj gf <'' uwej "r tce\kkqpgtu'\uggo "\q''r tg\nt tg\gttgf "\q''cu''Hqtgki p'Chtcktu'\Qhh\egtu'\dgecwug'\qhh\egtu''cv'\yj g''O \pk\nt { "y j q''ctg'\-\circ gtgg'\tcpurcvqtu'\qt'\q''dg'\tg\ntgttgf "\q''cu''Hqtgki p'Chtcktu'\Qhh\egtu'\dgecwug'\qhh\egtu''cv'\yj g''O \pk\nt { "y j q''ctg'\-\circ gtgg'\tcpurcvqtu'\qt'\qt'\qtg\ttg\ntgtrgf "\q''cu''Hqtgki p'Chtcktu'\Qhh\egtu'\dgecwug'\qhh\egtu'\cv'\yj g''O \pk\nt { "y j q''ctg'\-\circ gtgg'\tcpurcvqtu'\qt'\qt'\qtygtr tgvgtu''ctg''\qqngf "f qy p'\wr qp0

Kp"Uqwj "Chtkec."r tqhguukqpcn'tcpurcytu."qhygp"tghgttgf "\q"cu"\(\frac{\text{ap}}{\text{up}}\) wilg ("\text{vq}''\text{cpurcytu}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}''\text{vg}''\text{up}'\text{up}'

Vj gtg'ku'c'egtvckp''co qwpv'qh'htggrcpeg''tcpurcvkqp''wpf gtvcngp'kp''uqo g'Chtkecp''eqwpvtkgu0'Htggrcpeg''tcpurcvqtu'' qhvgp''ugtxg''j g'pggf u'qh''j g'Chtkecp''dtcpej gu''qh'o wnkpcvkqpcn'eqo r cpkgu''cpf ''y g'pggf u''qh''nqecn'dwukpguugu''kp'' y g'r tkxcvg''ugevqt0'Vj g''i qxgtpo gpwi'j ctf n(''wug''

htggrcpeg"ci gpekgu"cu"yi g{ "tgn{ "j gcxkn{ "qp"ekxkn'ugtxcpv"vtcpurcvqtu0Htggrcpeg"vtcpurcvkqp"ecp"dg"s wkxg"nwetcvkxg" dw/k/ku'uvkm'ncti gn{ "wptgi wrcvgf ."cpf "k/vgpf u"vq"dg"c"htgg/hqt/cmiv{ r g"qh'xgpwvtg"y j kej "cwtcevu"c"i tgcv'pwo dgt" qh'wpgo r mq { gf "wpkxgtukx{ "i tcf wcvgu"htqo "hkgnf u"eqo r ngvgn{ "wptgrcvgf "vq"vtcpurcvkqp0 Kp"Uwd/Ucj ctcp"Chtkec."y g"ctg"yi wu'hcegf "y kyi "c"ukwcvkqp"y j gtg"yi gtg"ku"c"tgrcvkxgn{ "j ki j "ecnkdtg"qh'vtcpurcvkqp" r tcevkeg."y j gtg"uqo g"eqwpvtkgu"j cxg"o qtg"vtcpurcvqtu"yi cp"yi g{ "pggf ."cpf"y j gtg."y kyi "c"hgy "gzegr vkqpu."o quv" eqwpvtkgu"uvkm'vtckp"yi gkt"vtcpurcvqtu"cdtqcf 0

#### Rt qhguukqp c n'è uuqeke vkqp u

Vj g''nguu''yi cp''cf gs wcvg''ngxgri'qh'tgeqi pkkqp"gplq{gf "d{"\tcpurc\kqp"cu'c''r tqhguukqp"kp''Chtkec'ku''r ctvn{"f wg'\q''yi g'' i gpgtcri'rcem'qh'ir tqhguukqpcri'cuuqekc\kqpu0\kp''Eco gtqqp."y j gtg''yi g'\tcpurc\kqp"r tqhguukqp''ku''yi g''o quv'f gxgmr gf " dgecwug''qh''ku''Gwtqr gcp''rcpii wci g''\gpi nkuj IHtgpej +''qhhkekcn'dkhpi wcnkuo .''yi gtg''ku''unkm'pq''r tqhguukqpcn'' cuuqekc\kqp''cko gf "cv'dtkpi kpi "\tcpurc\qtu''qi gyi gt0'Ghqtwu''o cf g''kp''yi g''r cuv'\q''hqto "uwej "cp''cuuqekc\kqp''j cxg'' o gv'y kyi "\cek''f kucr r tqxcn''d{ ''yi g''i qxgtpo gpv."y j kej "j cr r gpu''\q''dg''yi g''o ckp''go r mq{gt ''qh''\tcpurc\qtu0O quv'' Chtkecp''i qxgtpo gpwu'\gpf "\q''dg''uwur kekqwu''qh'kpf gr gpf gpv'i tqwr u''yi cv'dtkpi "kpvgmgewcnu'\qi gyi gt="cpf ''kp''yi ku'' tgi ctf "\tcpurc\qtu'' gxg''pqv'dggp''ur ctgf 0'Kpf ggf .''yi gtg''ctg'tgrc\kxgn{ ''hgy "r tqhguukqpcn''cuuqekc\kqpu''qh''\tcpurc\qtu'' kp''Chtkec''cu''c'y j qrg. ''cnyi qwi j ''yi g''hgy ''yi cv'gzkuv'j cxg''o cpci gf ''q''o ckpvckp''c''emqug'tgrc\kqpuj kr ''y kyi "kpygtpc\kqpcn''dqf kgu''uwej ''cu''HKV''cpf ''CKEO

Kp''Qevqdgt''3;: 4. "HKV. 'kp''eqmcdqtcvkqp''y kyj 'WP GUEQ. ''qti cpk gf ''c''eqpuwncvkxg''o ggvkpi ''qh''Chtkecp''ur gelcrkuvu'' kp'Nqo²."Vqi q."y kj "'y g''cko "qh''gzr mtkpi 'r tqhguukqpcn'r tqdrgo u'kp''Chtkec0'Vj ku''o ggvkpi 'vqqm'r rceg''ukz''{ gctu'' chygt 'y cy'qh'y g'Chtlecp'O kpknygtu'qh'Gf wecykqp'j grf 'kp'P cktqdk'kp'3; 98. 'y j gtg'uqo g'tgeqo o gpf cykqpu'y gtg' o cf g'tgi ctf kpi ''y g''qti cpk cvkqp''qh''y g''tcpurcvkqp''r tqhguukqp. ''tcpurcvqt''tckpkpi ''cpf ''s wguvkqpu''qh''ygto kpqmi { '' kp''Chtkec'\*c'hwm'hkuv'qh'yi g'tgeqo o gpfcvkqpu'ecp''dg'hqwpf''kp''Ukoruqp''3;:7≪32;632+0'Vjgug''o ggvkpiu'jcf''yig'' r qukskxg"ghhgev"qh"ecvcr wnskpi "vj g"\tcpurcvkqp"r tqhguukqp"\q"c"j ki j gt"ur j gtg"d{ 'i gwkpi "xctkqwu"Chtkecp" i qxgtpo gpwl'cpf "rtqhguukqpcn'\tcpurcvqtu'kpxqnxgf "kp"guvcdnkuj kpi "c"i gpwkpg"rtqhguukqpcn'uvcwwu'hqt"\tcpurcvkqp0' Kły cu't geqo o gpf gf. "co qpi "qyi gt "yi kpi u." ÷yi cv'gpeqwtci go gpv'uj qwf "dg"i kxgp"\q"yi g"et gcvkqp"qh'cuuqekcvkqpu" qh'tcpurcvqtu'y j kej ''uj qwrf ''eqo dkpg''\q'hqto ''tgi kqpcn'uvtwewtgu''uq''cu''\q'kpvgpukh{ ''yj gkt''cevkqpø'cpf ''yj cv'' i qxgtpo gpw'i tcpv'tcpurcytu'y g'hgi ch'uvcww'cpf 'r tqygeykqp'r tqxkf gf 'hqt'kp'y gí 'P cktqdk'tgeqo o gpf cykqpø0 Gxgt 'ukpeg''y g''3; : 4"o ggwlpi . ''tcpurcwlqp''j cu'uggp''kwu'mqv'ko rtqxg''uki pkhlecpvn( 'kp'Chtkec. ''gxgp''y qwi j ''y g'' pwo dgt "qh'xkcdrg"r tqhguukqpcn'dqf kgu'ku'uvkm'+hct'htqo "dgkpi "c'\twg'tghrgevkqp"qh'\j g"+uvcvg"qh'\j g"ctw'cpf "\j g" xqnwo g'qh'y qtmlecttlgf ''qwv'llp'Chtlecø'\*Ulo ruqp'3; : 7-328+0'KJ gpcej q'\*3; : 9-72+'r qlpvu'\q'\j g''lpcdlrlx{ ('qh'\j g'' gzkukpi "pckqpcn'tcpurcvqtu'cuuqekckqpu'kp''Uvd/Ucj ctcp''Chtkec'\q'hwm( "o qdknk g''r gqr ng''cpf 'kpurkwwkqpu'' kpygtguvgf "kp"rtqo qvkpi "vjg"rtqhguukqp0Jg"cnuq"ncogpvu"vjg"crrctgpv'ncem'qh'kpygtguv'qp"vjg"rctv'qh'i qxgtpogpv" kpurkwrkqpu. 'kpenref kpi 'GEQY CU'\*vj g'Geqpqo ke'Qti cpkt cvkqp''qh''Y guvgtp'Chtkecp''Uvcvgu+.''y j kej 'ku'vj g'i tgcvguv' eqpuwo gt'qh'tcpurckqp'rtqf wew'kp'Chtkec0

Vj g'P ki gtkcp'Cuuqekckqp"qh"Vtcpurcvqtu"cpf "kygtr tgygtu" P C V ki-j cu'dggp"r ctkewrctn "cevkxg"pckqpcm "cpf" kpygtpckqpcm "cpf" j cu'gpeqwtci gf "nqecn'vtckpkpi "kpkkckxgu."uqwi j v'rgi cn'r tqygekqp"cpf "tgeqi pkkqp"nqt"ku" o go dgtu"cpf "qti cpk gf "cppwcn'eqphgtgpegu"vq"r tqo qyg"vtcpurcvkqp"uwf kgu"cpf "tgugctej "qp"vj g"eqpvkpgpv0Vj g" Vcp| cpkc"Vti cpk cvkqp"qh"Vtcpurcvqtu" Ej co c"Ej c"Y cvchktk"Vcp| cpkc"/EJ CY CVC+'y cu'nqto gf "kp"3; : 4"cpf" ku'c"o go dgt"qh"HkV0Vj ku'i tqwr "j cu'dgeqo g"vj g"r qy gt/j qwug"hqt"vtcpurcvkqpu"kp"Uy cj krk"cetquu"vj g"eqpvkpgpv" cpf "eqpvkdwgu"uki pkhecpvn "vq"qpg"qh"Chtkecøu"o quv'co dkkqwu"vgto kpqmi {"r tqlgevu0Vj g"r tqlgev'ku"c"lqkpv" xgpwtg"dgw ggp"vj g"Uy cj krk"T gugctej "Egpvtg"cv'vj g"Wpkxgtukv "qhF ct"gu"Ucrcco "cpf"vj g"P cvkqpcn"Uy cj krk" Eqwpekn"Dctc| c"nc"Mkuy cj krk"c"Vckrc+"kp"Vcp| cpkc0Cnj qwi j "vj g"r tqlgev'cnq"f gcnu'y ky "o cwgtu"qh'i tco o ct." ku'o ckp"i qcn'ku'vq"f gxgmqr "Uy cj krk"cu'c"ncpi wci g"qh'kpf wxt {"cpf" yej pqmi {0C"Eqo o kwgg"qh'vj g"P cvkqpcn' Uy cj krk"cu'c"ncpi wci g"qh'kpf wxt {"cpf" yej pqmi {0C"Eqo o kwgg"qh'vj g"P cvkqpcn' Uy cj krk"Eqwpekriku'tgur qpukdng"hqt"vj g"wpkhecvkqp"cpf" "uvcpf ctf k cvkqp"qh'vgto kpqmi kgu"cpf "i tco o ct."cpf"vj gkt" tgeqo o gpf cvkqpu'ctg"r wdrkuj gf "kp"Vchktk'Ucpkhw."vj g"Eqwpekro"o ckp"r wdrkecvkqp"\*Di q{c"3; : 9<446653+0

#### Hwt yj gt 't gcf kpi

Di q{c'3; : 9="F kqr '3; 96="Hkppgi cp'3; 92="I  $^2$ tctf '3; : 8="J co knqp'3; 97="K gpcej q'3; : 7."3; : : ="O j kpc'3; 92="O xgpi " 3; : 2="P co c'3; ; 5="Qmr gy j q'3; ; 4="Uko r uqp'3; : 70

RCWN'DCPFIC

## Dkqi tcrj kgu

EQTFGKTQ'FC'O CVVC.'Lqcs whp'F kcu'\*3: 796; 6+0Cp"qwuvcpf kpi "Cht kecp"kpvgmgewcn'cpf "c"o go dgt "qh" vj g"3:: 2"i tqwr."c"hkgtct{"o qxgo gpv'cko gf "cv'r tqo qvkpi "hkgtct{"cevkxk/"co qpi "vj g"pcvkxg"uqpu"\*\*\*/laj qu'f c" vgttc+"qh'Cpi qrc0C"ugrh/wwi j v'uej qrct."Eqtf gktq"f c'O cwc"y cu'pqv'qpn("c"vgcej gt."dwv'cnuq"c"lqwtpcrkuv." j kuvqtkcp."r j krqmi kuv."hqmmqtkuv."r qgv'cpf "pqxgrkuv0J ku'eqpvtkdwkqpu'vq"\*\*Gej q'f g'Cpi qrc"y gtg"j ki j n(" kphrwgpvkcn="vj ku'y cu'c"dkrkpi wcn'Rqtwi wguglMo dwpf w'lqwtpcn'rcwpej gf "d{"vj g"3:: 2"i tqwr."kp"y j kej "uqo g"qh" vj g"gctrkguv'vtcpurcvkqpu'htqo "Gwtqr gcp"kpvq"Cht kecp"rcpi wci gu'y gtg"r wdrkuj gf 0C"f kuvkpi wkuj gf "vtcpurcvqt 1 vgto kpqrqi kuv."Eqtf gktq"f c"O cwc"r wdrkuj gf "Rj krquqrj kc"rqrwct"go "rtqxgtdkqu"cpi qrcpqu"\*\*Rqr wct" Rj krquqrj {"kp"Cpi qrcp"Rtqxgtdu+."c"eqmgevkqp"qh"Mo dwpf w'rtqxgtdu"cpf "tkf f rgu"kp"Rqt wi wgug0'Y kij "vj g" cuukuvcpeg"qh"j ku'o gpvqt."vj g"Uy kuu"gvj pqrqi kuv'J 2nk'Ej ¬vgrckp."Eqtf gktq"f c"O cwc"cnuq"r wdrkuj gf "c"Mo dwpf w'r tco o ct"cpf "c"Mo dwpf w'Rqtwi wgug"f kevkqpct{"kp"3:; 4"cpf "3:; 5"tgur gevkxgn(0

FIQR. 'Ej glanj 'Cpwe" '3; 456: 8+0 Cht lecou'o quv't gpqy pgf "uej qnct "qh''y g"y gpvleyj "egpwt {0Dqtp" kp" Ugpgi cn" j g" tgegkx gf "j ku"f qevqtcvg'htqo "vj g"Wpkx gtukv{ "qh'Rct ku"cpf ."d{"3; 83."y cu"qp" vj g"uvchh'qh'K+CP "\*Kpurkww" Hqpf co gpvcn'f g"no Cht ks wg"P qkt g="Hwpf co gpvcn'f kpurkwwg"qh'Dnceni'Cht lecc +"kp"F cnct."y j gt g" j g"f kt gevgf "vj g" tcf kqectdqp"ncdqtcvqt {"y j kej "j g"hqwf gf 0E j gknj "Cpvc"F kqr "y cu"c" j kwqt kcp."r j {ukeknv'cpf "r j knquqr j gt." j qy gxgt."j g"y cu'dguv'mpqy p"cu'Cht lecou'hqtgo quv'Gi {r vqni knv0 J ku"eqpvt kdwkqp" vq"t cpurc vkqp"uwf kgu" kp" Cht lec "eqpulkvu"qh" j ku"o cuygt {"qh" j kgtqi n{r j keu"cpf "j ku"f gekr j gt kpi "cpf "vt cpurc vkqp"qh'vj ku"cpekgpv'uet kr v'kpvq" o qf go "Cht leccp"cpf "Gwt qr gcp"ncpi wci gu0 Dcugf "qp" j ku"uwf {"qh" j kgtqi n{r j keu." j g"eqpenvf gf "vj cv'vj g"cpekgpv' Rj ctcqpke"ekx knt cvkqp"qh"Gi {r v'y cu"kp"hcev'c"P gi tq"ekx knt cvkqp0 Kp"3; 88."cv'vj g"Hktuv'Y qtnf "Hgurkxcn'qh"P gi tq" Ctvu." j g"uj ctgf "c"ur gekcn'cy ctf "y kyj "vj g"ncy"Y 0 GDOF wdqku"cu'vj g"uej qnct"vj j q"j cf "vj g"i tgcvguv'kphnwgpeg"qp" P gi tq"vj qwi j v'kp" j g"w gpvkgvj "egpwxt {00 qtg"t gegpwn{."qp"34"Icpwct {"3; : 7."c"o go qtkcn'y cu"gtgevgf "kp" j ku" j qpqwt" 'kp"Nqpf qp."vq"egngdtcvg"j ku"cej kgxgo gpwu"cu"c" i tgcv'uej qnct"qh"Cht kecp"j knqt {0

I TKQ V01 tkqw"ctg"i gpgtcm( "dgrkgxgf "\q"dg"\y g"hqtgtwppgtu"qh"\y g"ctv'qh"qtcn"\tcpurc\kqp"qt"\pygtr tg\kpi "\p" Chtkec0Vj g{ "dwkn'\y gkt"tgr wc\kqp"cu"c"\u gekcn'i tqwr "qh"\u tqhgunkqpcn'h\pi wknuø'o cp{ "egpwtkgu"ci q0' Wphqtwpcvgn(."j ctf n( "cp{ "i tkqv'y cu"kf gpvkh\gf" "d{ "pco g"d{ "y qug"y j q"dgpgh\kgf" "htqo "y gkt "npqy ngf i g0'Vj g" i tkqw"ctg"i gpgtcm( "npqy p"cu"\u tef kkqpcn'dctf u"y ky "c"i tgcv'\u tgpv'hqt "uqtkpi "cpf "tgeqwpvkpi "\y g"qtcn'\u tef kkqp" qh'\y gkt"r gqr ng"cpf "qhxpp"dgnqpi gf "\q"c"nqpi "h\pg"qh'i khxgf "dctf u"y j q"j cpf gf "f qy p"\y gkt"npqy ngf i g"cpf " gzr gtv\u g"htqo "i gpgtcvkqp"\q"i gpgtcvkqp0'O cp{ "y qtnngf "\p"\y j g"eqwt w"qh"Chtkecp"n\pi u. "y kpgunkpi "\y g"gxgpwu" y cv'o ctnngf "\y g"tkug"cpf "hcm'qh'\y gkt"twngtu0'Vj g"i tkqw"y gtg"i khxgf "h\pi wknvu"y j q"qhxgp"\u tcpurcvgf "\y g"nkpi øu" guqvgtke"ncpi wci g"hqt"\y g'eqpuwo r vkqp"qh'\y g'i gpgtcn'r wdn\u e."go dgnkuj kpi "cpf "r gthgev\pi "\y g"nkpi øu'ur ggej "\p" y g"r tqegun0'Vj g{ "y gtg"tgur gevgf "dgecwug"qh'\y gkt"r tqhkekgpe{"kp"ugxgtcn'ncpi wci gu"cpf "qhxgp"cevgf "cu" kpygtr tgygtu"f wt\pi "gpeqwpvgtu"dgwy ggp"\y g"nkpi f qo "cpf "hqtgki p"pcvkqpu0'Y kgrf kpi "c"i tgcv'f gcn'qh'r qnkkecn' r qy gt"dgecwug"qh'\y gkt"tqngur gtuqpu'hqt"\y g"nkpi ."\y g{ "y gtg"cv'qpeg'hgctgf ."tgur gevgf "cpf "f kurkngf "d{ "qy gt"o go dgtu"qh'uqekgv{0

NCVRQ.'Lwcp'\*37386; 6+0'Lwcp''Ncvkpq''y cu''vcngp''cu''c''P gi tq''urcxg''vq''Dcgpc.''j crhy c{''dgwy ggp''Eqtf qdc''cpf'' I tcpcf c.''ctqwpf ''3752.''y j gp''j g'y cu''cdqww''34''{ gctu''qrf 0J g'y qtngf 'hqt''qpg''qh''Ur ckpøu''dguv''npqy p''i gpgtcnu.'' I qp| cm|''Hgtpcpf g| '\*\*:griI tcp''Ecr kxcpø+0'Cuuki pgf ''vq''ugtxg''cu''c''r rc{o cvg''cpf ''c''eqo r cpkqp''vq''y g''I tcp'' Ecr kxcpøu''i tcpf uqp.''y g''y ktf ''f wng''qh''Uguc.''Lwcp''Ncvkpq''ceeqo r cpkgf ''j ku''{ qwpi "

o cuvgt "vq"uej qqrl'cpf "hkpcm{ "vq"yi g"Wpkxgtukv{ "qh"I tcpcf c."y j gtg"j g"y cu"gxgpwcm{ "cr r qkpvgf "r tqhguuqt0C v" wpkxgtukv{ ."j g"r tqxgf "dtki j vgt"cpf "o qtg"o qvkxcvgf "yi cp"yi g"yi ktf "f wng. "cej kgxkpi "uwej "c"j ki j "ngxgrl'qh" r tqhkekgpe{ "kp"Ncvkp"cpf "I tggnl'yi cv'j g"y cu"htggf "cpf "gpeqwtci gf "vq"r wtuwg"j ku"uwwf kgu0J g"tgegkxgf "j ku" dcej grqtøu"f gi tgg"kp"3768. "yi g"vkxrg"qh"*Nevgpukcf q*"kp"377; ."cpf "y cu"cr r qkpvgf "vq"yi g"ej ckt"qh"Ncvkp"I tco o ct"kp" 37870

Lwcp''Ncvkpq''y tqvg''o ckpn{ "r cpgi {tke''r qgvt {.'hqt''gzco r ng''Grtki tco o cwo 'Nkdgt'\*3795+.'cp''qf g''vq''egngdtcvg''y g'' dktyj "qh''Rj krk ''Kk'qh'Ur ckpøu''uqp0J ku''r gpej cpv'hqt''r cpgi {tke''r qgvt { 'ku''dgrkgxgf ''vq''j cxg''dggp''kpur ktgf ''d{ ''j ku'' Chtlecp''qtki kp''cpf ''j g''ku''y qwi j v'vq''j cxg''o gtgn{ "÷tcpurcvgf ø'qt''÷tcpuhgttgf ø'y g''o qf gri'qh''Chtlecp''r tckug''r qgo u'' vq''c''Gwtqr gcp''ugwkpi 0'Vj g''f gcvj ''qh''Ncvkpq''kp''37; 6''o ctngf ''y g''gpf ''qh''c''tcf kkqp''qh''Chtlecp''y tkkpi ''kp''Ncvkp0' D{ ''y g''gpf ''qh''y g''ukzvggpvj ''egpwt{ .''y g''u{uvgo ''qh''urcxgt{ ''j cf ''dgeqo g''gxgp''o qtg''twj nguu''cpf ''j cf ''eqo r ngvgn{ ''twgf ''qw''cp{ ''qr r qtwpkkgu''qh''c''Ncvkp''gf wecvkqp''hqt''P gi tq''urcxgu0

PLQ[ C.'Uwncp'\*3: 8763; 55+0Uwncp'Plq{c'qh'y g'Dco wp'qh'Eco gtqqp'ku'uch' ''q'j cxg'etgcygf ''cp'Chtkecp'' cm j cdgv'cpf 'c'ugetgv'ncpi wci g0Ftkxgp'd{ ''y g'f guktg''q'gpuwtg''ugetge{ ''kp'j ku''eqttgur qpf gpeg'y ky j'j ku'f gngi cvgu'' vq''y g'T gto cp''eqnqpkcn'cwj qtkkgu."Plq{c''qtf gtgf ''uqo g''qh'j ku''eqwpekmqtu''vq''etgcyg'c'ugetgv'ncpi wci g''dcugf ''qp'' cp''kf gqi tcr j ke''uetkr v0D{ ''3; 3: .''y g''ncpi wci g''j cf ''wpf gti qpg''ugxgtcn'tcpuhqto cvkqpu''cpf ''y g''j wpf tgf u'qh'' qtki kpcn'uki pu''kv'uvctygf ''qw'y ky j'' j cf ''dggp''i tgcvn{ ''uko r nkhkgf ''cpf ''tgf wegf ''kp''pwo dgt ''vq''i kxg''y go ''r j qpgvke'' uki pkhkecpeg0Vj ku''ncpi wci g'y cu''wugf ''o ckpn{ ''hqt''eqpxg{ kpi ''o guuci gu''cpf ''hqt''y g''tgeqtf kpi ''qh''ceeqwpwu''cpf '' ctej kxgu0'kVy cu''cnuq''wugf ''q'y tkxg''c'76: /r ci g''o cpwwetkr v'qp''y g''j knqt{ ''cpf ''ewnqo u''qh''y g''Dco wp0'Vj ku''o clqt'' j knqtkecn'f qewo gpv'y cu''ncyt''tcpuncyf ''kpvq''cp''gxgp''o qtg''ugetgv'ncpi wci g''etgcyf ''d{ ''y g''uwncp''j ko ugnt0' J cxkpi ''ces wktgf ''c''hgy ''T gto cp. ''Htgpej ''cpf ''Gpi nkuj ''y qtf u''htqo ''o go dgtu''qh''y g''Dcugn'o kunkqp.''j g''etgcyf ''j ku'' r gtuqpcn'xqecdwrct { ''d{ ''cuetkdkpi ''gpvktgn{ ''ctdktct{ ''o gcpkpi u''q'y g'y qtf u''cpf ''o kzkpi ''y go ''y ky ''Dco wp''y qtf u'' y j qug''o gcpkpi u''j g''cnnq''f knqtygf 0'Vj g''Dco wp''y tkkpi u''qh''Uwncp''P lq{c'f gxgqrr gf ''y tqwi j ''c'r wtgn{ ''cwnqej y qpqwu''kpkkckxg''cpf ''tki i gtgf ''c'i tgcv'f gcn'qh''tcpuncykqp''cevkxkv{ 0

RCWN'DCPF KC

# Co gt kecp'tt cf kkqp

Vtcpurcvkqp"r rc{gf"cp"guugpvkcn"tqrg"kp"vjg"qtkikpu"cpf"fgxgrqrogpv"qh"vjg"Wpkxgf"Uvcvgu."cpf"kv"eqpvkpvvgu"vq"fq" uq. "i kxgp" yi g"rkpi wkurke "cpf" ewnwtcn'f kxgtukx{"qh'yi g"eqwpvt{øu"o qtg"yi cp"477"o kmkqp"kpj cdkxcpvu0Gpi rkuj "ku'yi g" f qo kpcpv'hcpi wci g. "dww'kv'ku'qpn( "qpg"qh'vj g"o cp{ "hcpi wci gu'vj cv'j cxg"dggp"ur qngp"kp"Pqt vj "Co gtkec0'Vj g" ur ggej "qh"yi g"pcvkxg"Kpf kcp"vtkdgu"y cu"hktuv"gpeqwpvgtgf "f wtkpi "yi g"ukzvggpyi "egpwxt { "d { "Ur cpkuj "cpf "Htgpej " gzr mtgtu'kp''r tgugpvfc{"Hmqtkfc''cpf' Nqwkukcpc0Gpi rkuj ''gzr gfkkqpu''vq''Xkti kpkc''cpf' 'O cuucej wugwu'dgi cp''kp'' gctpguv'f wtkpi ''y g''gctn( ''ugxgpvggpvj ''egpwt { .''tgs wktkpi ''c'hoo krkctkv( ''y ksj ''Kpf kcp'hopi wci gu''vj cv'j grr gf ''vq'' kpet gcug''y g''eqripkuwø'ewnwtcri'cpf "geqpqo ke''cwqpqo { ''htqo ''Gpi ncpf 0'Vj g''pcvkqpcrkuv'hgtxqwt''t grgcugf ''d{ ''y g'' Tgxqnwkqp"dtqwij v'c"pgy "ugrh/cy ctgpguu"yj cv'hquvgtgf "yj g"vtcpurcvkqp"qh'hqtgki p/ncpi wci g"nkygtcwtgu"vq" f gxgmr 'Co gtkecp'ewnwtg0C'f kn/kpevn('Co gtkecp'xgtukqp'qh'Gpi rkuj 'y cu'tgeqi pkt cdrg'd{''y g'3: 72u.''cnyj qwi j " ej ctcevgtk gf "d{"xctkqwu"tgi kqpcn"o qf wrcvkqpu"cu"vj g"eqwpvt{"gzrcpf gf "kwu"uqwvj gtp"cpf "y guvgtp"dqtf gtu"  $\begin{tabular}{l} $$^*U o ruqp'3; : 5<5+0$$V j g'i tgcv'y cxgu'qh'Gwtqrgcp'ko o ki tcvkqp''y cv'uvctvgf''kp''y g''o kf/pkpgvggpvj''egpwt{"} \end{tabular}$ etgcvgf "cp"wti gpv"pggf "hqt"Gpi nkuj/ncpi wci g"tcpuncvkpi "cpf"kpvgtr tgvkpi "y j kej "j cu"tgo ckpgf "eqpuvcpv"gxgt" ukpeg. "y kij "vj g'ko o ki tcpv'r qqrl'y kf gpkpi "vq'kpenwf g'pwo gtqwu'gvj pke 'i tqwr u'cpf "pcvkqpcrkxkgu'htqo "Ncvkp" Co gtkec. 'Cukc. 'y g'O kf f ng 'Gcuv. 'cpf 'y g'Ectkddgcp0'Vqf c { . "o qtg 'y cp '53 "o knkqp 'kpj cdkxcpvu'ur gcm'c 'ncpi wci g" qyi gt 'yi cp 'Gpi nkuj 'cv'j qo g. 'gpuwtkpi 'yi cv'\tcpuncvkqp 'ku'c 'hcev'qh'f ckn{ 'nkhg'hqt 'o cp { 'Co gtkecpu0 Vj tqwi j qw/Co gtkecp'j kuqt { "tcpurcvkqp"j cu'dggp'f qwdrg/gf i gf 'kp'kvu'uqekcn'hwpevkqpu'cpf 'ghhgevu. 'ugtxkpi " Gpi nkuj /ncpi wci g'kpvgtguvu'cpf "ci gpf cu''y tqwi j "gzr nqkvcvkxg"gpeqwpvgtu"

y ký "hqtgki p"hcpi wci gu"cpf "ewnwtgu0Qp"ý g"qpg"j cpf ."vtcpurcvkqp"gpcdngf "ý g"Wpksgf "Uvcvgu"vq"i tqy "kp"ukt g"cpf" r qy gt<kó cf g"r quukdng"ý g"eqnqpkt cvkqp."f kur quuguukqp."cpf "cuuko krcvkqp"qh"r gqr ngu"y j qug"pcvkxg"hcpi wci g" y cu"pqv'Gpi nkuj ."cpf "kv'eqpvkpwgu"vq"uwr r qtv'ý g"r qrkskecn'cpf "geqpqo ke"j gi go qp{"y cv'ý g"eqwpvt{"j cu"gplq{gf" ukpeg"Y qtnf "Y ct"Vy q0Qp"ý g"qý gt"j cpf ."vtcpurcvkqp"eqpvtkdwgf "vq"ý g"hqto cvkqp"qh"c"f ghkpcdn{"Co gtkecp" kf gpvkx{<kv'y cu"kputwo gpvcn'kp"eqputvevkpi "c"pcvkqpcn'iksgtct{"cpf" r qrkskecn'vtcf kskqp."y j krg"uko wncpgqwun{" y qtnkpi "vq"f ksgtukh{"Co gtkecp"ewnwtg"cpf "vq"r tgekr kscvg"ewnwtcn'lppqxcvkqp"cpf "uqekcn'ej cpi g0

## Eqmpk cvkqp.'gzrcpukqp.'ko o ki tcvkqp'\*382963; 42+

Co qpi "\j g'\tuv\Co gt\tecp'\tcpure\qtu'\y gtg'\pc\ksg'\pf\tepu\y j q''ce\tegf'\cu'\p\tegt\utu\tegt\utu\cu'\q'\j\g''\

Gpi nkuj 'eqnqpk\utu\tu\wi i rhpi '\q''g\utu\cu'\teqt\utu\cu'\teq\utu\

yj cv'÷yj g'r tkpekr cm'gpf g'qh'yj ku'r rcpvcvkqp']y cu\_'vq'y {pp'cpf 'kpekg'yj g'pcvkxgu'qh']yj g\_'eqwpvt { 'vq'yj g'' mpqy ngf i "cpf "qdgf kgpeg"qh'yj g"qpnkg"\twg"I qf "cpf "Ucxqkt"qh'o cpnkpf g. "cpf "\y g"Ej tkukcp"hc{ y ø'\*O qt i cp" 3; 86-542-10 Cu'c't guwn.' 'y g'hktuv' Co gtkecp''t cpurc vqtu'k penwf gf 'Rwt kcp''o kpkurgtu'y j q'hgctpgf 'Kpf kcp''rcpi wci gu'' vq"eqpxgtv"yj g"pcvkxgu0"Y kyj "yj g"j grr "qh"cp"Kpf kcp"kphqto cpv."÷c"r tgi pcpv"y kwgf "{ qwpi "o cp."y j q"j cf "dggp"c" Ugtxcpv'lp'cp'Gpi rkuj 'j qwugø'vj g'o kpkrvgt'Iqj p'GNKQV'\*38266; 2+'y tqvg''C'Ecvgej kuo 'lp'vj g'Kof kcp'Ncpi wci g'' \*3875+"cpf 'vj gp'\tcpurcvgf 'vj g''Dkdrg'cpf 'ugxgtcn'j qo krgvke''\tcevu'kpvq'Cni qps wkcp'\Grkqv'3888&8+0 Eqpxgtukqp'y gpv'j cpf 'kp'j cpf 'y kj 'eqps wguv.'uq'y cv'vtcpurcvkqp'cnuq'hcekrkxcvgf 'y g'gzr tqr tkcvkqp'qh'Kpf kcp'' ncpf uOJ gtg"tcpuncvqtu"cpf "kpvgtr tgvgtu"o gf kcvgf "dgw ggp"uki pkhecpv"ewnwtcn"f khhgtgpegu vj cv y gtg"kpuetkdgf "kp" yj g"tcpurckpi "rcpi wci gu0O quv'qh"yj g"Cni qps wkcp"r rceg"pco gu. "hqt "kpuvcpeg." #grcvgf "pqv'\q"r quuguukqp"dwv'\q" wugø "y j krg" y g'Gpi rkuj "eqrqpkuru" o quv'htgs wgpvn{ "etgevgf "ctdktct { "r rceg" pco gu'y j kej "gknj gt" tgecrngf "rqecrkukgu" kp"yj gkt"j qo grcpf "qt"i cxg"c"r rceg"yj g"pco g"qh"kw"qy pgtø" Etqpqp"3; : 5≪7. '88+0 Kp"yj g"\tcpurc\kpi "yj cv"gpcdrgf" yj g'eqnqpkıvu'\q'r wtej cug'ncpf 'htqo '\yj g'Kpf kcpu.'\yj g'Gpi rkıj 'eqpegr v'qh'r tkxcvg'r tqr gtv{ 'f kır ncegf '\yj g'Kpf kcp'' wpf gtuvcpf kpi "qh'eqo o wpcn'qy pgtuj kr "\*Ej g{hk\ "3; ; 3+0Vj g'eqnqpkuvu'tgeqi pk gf "uwej "f khhgtgpegu'htqo "vj g" uvctv0[gv'ftkxgp"d{"cp"korgtkcnkuv'korwnug."vjg{"tgpfgtgf"Kpfkcp"ncpiwcig"cpf"ewnwtg"kpvq"ejctcevgtkuvkecm{" Gpi rkuj "vgto u"/rgi cn"eqo o gteken"r qrkkecn0"Vj ku"ku"gxgp"cr r ctgpv"kp"C"Mg{ "vq"vj g"Ncpi wci g"qhlCo gtkec" \\$3865+:" c'f kevkapet { 'kp'y g'P ettei epugw'hepi wei g'y tkwgp'd { 'vj g'f kuukf gpv'Rwtkep'Tqi gt'Y kmko u'\*38256: 5+0'Y kmko u' s wgurkqpgf "vj g'r tqr gtv{ "tki j wi'i tcpvgf "d{ "vj g"tq{cn'ej ctvgt "qh'vj g"O cuucej wugwu'Dc{ "Eqnqp{ "cpf "etkkek gf "vj g" -ukphwm'qr kpkqp'co qpi uv'o cp{''y cv'Ej tkmkcpu'j cxg'tki j v'vq"*J gc yi gpu'* Ncpf uø'\*Y kmkco u'3; 95⊲89+0P qpg'yi g" nguu. 'j ku'dqqm'cko gf 'vq'vtcpurcvg'P cttci cpugw'y qtf u'cpf 'r j tcugu'kpvq'Gpi nkuj 'gs wkxcrgpvu'uq'cu'vq''cuukuv'yj g'' eqmpkuv'÷y j cvgxgt'']vj g\_''qeecukqp''dgg''gkvj gt''qh''Vtcxgm'F kueqwtug.''Vtcf kpi ''(e0/b''kdkf 0''; 2+0 F wtkpi ''y g''gki j vggpyj ''egpwt{.''\tcpurc\kqp''eqp\kp\wgf ''\q''dg''c''etwekcn'ewnwtcn'r tce\keg''kp''

uwdo kwlpi "'y g"Kpf kcpu''q''y g'eqmpkuwø'kpygtguw0Eqptcf "Y gkugt" $^{18}38$ ; 863982+"c'T gto cp'ko o ki tcpyøu'uqp"y j q" rkxgf 'y kij "y g'O qj cy mu'hqt" $^{13}7$ "{ gctu. 'ugtxgf "cu''y g'qhhkekrilipygtr tgygt "qh'Rgppu{ rxcpkc. "cttcpi kpi "eqphgtgpegu" kp"y j kej "Kpf kcp"rcpf u'y gtg"f ggf gf "vq"y g'r tqxkpekcrili qxgtpo gpv'cpf "Kpf kcp"\tcf g"y cu"gz ygpf gf "vq"y g" O kunkunkr r k'Tkxgt0Uko qp"I ktv(  $^{18}396363: 3: +$ "cp"Kknj "ko o ki tcpyøu'uqp"y j q"y cu'hnkf per r gf "cu'c"dq { "cpf " cf qr ygf "d{ "'y g"Ugpgecu. 'rgctpgf "c'xctkgv{ "qh'Kpf kcp"rcpi wci gu'y j kej "j g'wugf "kp"y g'ugtxkeg"qh'y g"Dtkknj " f wtkpi "'y g"Tgxqnwkqpct { "Y ct"r gtkqf 0Hqt"qxgt"62"{ gctu. "I ktv{ 'kpygtr tgygf 'hqt 'Dtkknj "o krkct { "eqo o cpf gtu"cpf" gprkuygf "Kpf kcp" 'ktklgu'kp'tckf u'qp"ugwrgo gpvu'kp'Rgppu{ rxcpkc. "Qj kq. "Mgpwem{ ."cpf "F gytqkx"i ckpkpi "c" tgr wcvkqp"cu"c"+gpgi cf gø'cpf "c"+y j kg"ucxci gø'\*Vj tcr r "3; : : ."KK78263+0I ktv{ "y cu"r ckf "j cpf uqo gn{ 'hqt"j ku" kpygtr tgykpi "ugtxkegu."wpf qwdygf n{ "dgecwug'y g{ "r gthqto gf "c"o krkct { "hwpevkqp<kp"399: "j g"y cu"j ktgf "cv'&4"\*38" uj knkpi u+"r gt "f c{0}

D{"y g"dgi lophpi "qh"y g"plogyggpy "egpwt {."o cp{"Kof kcpu"qp"y g"gcuygtp"eqcuv"qh"P qty "Co gtlec" cf "dggp" wwi j v"Gpi rkuj "cpf "eqpxgtyff "q"Ej tknkcpk/(0Vj g"pgy n( "kpukwyf" "Co gtlecp"tgr wdre.."j qy gxgt.."y cu'r wtuwkpi " c"r qrke{ "qh"gzr cpukqp0Vj g"hetgcukpi "r tqhkcdkrk/ "qh"y g"Kof kcp"tcf g."eqo dkpgf "y ky "y g"r qrkkecnii qcri'qh" r tgxgpvkpi "hwty gt "Higpej "cpf "Ur cpkuj "eqrapkcrkuo "qp"y g"eqpvkpgpv."o qvkxcyf "c"tgf tcy kpi "qh"y g"y gurgtp" htqpvkgt."cpf "y ku"etgcyf "c"f go cpf "htt"kpytr tgygtu"vq"f gcri'y ky "wphco krket "Kof kcp"rcpi wci gu0Kp"3: 25."Vj qo cu" Ightgtuqp. "ugeqpf "r tgukf gpv'qh"y g"Wpkgf "Uvcygu "eqo o knukqpgf "O gtky gy gt"Ngy ku"cpf "Y knkco "Eretmivq" gzr mtg"y g"O knuqwtk"Tkxgt "cu"hct"cu"y g"Rcekhle"Qegcp"kp"cp"ghhqtv"vq"nqecvg"-y g"o quv"f ktgev"cpf "r tcevkecdrg" y cygt"eqo o wpkecvkqpí hqt"y g"r wtr qugu"qh"eqo o gtegof\*Dgti qp"3; :; <zzkx+0Ngy ku"cpf "Eretmitgrkgf" gcxkn{"qp" kpytr tgygtu"dqy "vq"pcxki cvg"y g"y krf gtpguu"cpf "vq"f grkxgt"ur ggej gu"y cv'untguugf "Co gtlecp"uqxgtgki pv{." kpygtvtklcri'r gceg."cpf "vcf g"\*Tqpf c"3; : 6< 5+0Vj gug"kpytr tgygtu"kpenwf gf "hqtgki p"vtcf gtu"cpf "Kof kcpu"y j q"hxgf" kp"y g"y gurgtp"Vqvknuckpv"Ej ctdqppgcw"\*e0897; ó e0: 65+"c"Ecpcf kcp"go r m{ gf "d{"y g"Pqty "Y guv"Eqo r cp{."cpf "j ku"y khg"Uceclcy gc"\*e089: 21"3: 346: 6+"c" ecr wtgf "Uj quqpg"i knty j q o" "j g" cf "y qp"i co drkpi 0Ej ctdqppgcw"reyt"dgeco g"cp"kpytr tgygt "hqt"y g"Vo gtkecp" Dwtgcw"qh"Kof kcp"bp"y g"Wir gt'O knuqwtk"ctgc0

Vj ku'i qxgtpo gpv'ci gpe{"ecttkgf"qwi'Co gtkecp"Kpf kcp"r qrke{."y j kej "cuukuvgf "ugwrgtu"cpf "ur gewrcvqtu"uggrkpi "Kpf kcp"rcpf u"d{"tgrqecvkpi "gcuvgtp"vtkdgu"qp"tgugtxcvkqpu'y guv'qh"yi g"O kuukuukr r k0Ci gpvu'y gtg"cnuq "kpvgtr tgvgtu" y j q"r gtuvcf gf "Kpf kcpu."uqo gvko gu"d{"htcwf "qt"eqgtekqp."vq"gpvgt"kpvq"vtgcvkgu'yi cv'egf gf "rcpf "vq"yi g"Wpkxgf" Uvcvgu' $^{*}$ Ucv $^{*}$ 

Vj g'f kır rægo gpv'cpf 'f kır quuguukqp'qh'vj g'Kpf kcpu'kpgxkcdn( 'ecwugf 'eqphrkevu.'dqvj 'co qpi 'vj g'f khhgtgpv'vtkdgu' cpf 'y kıj 'vj g'Wpksgf 'Ucvgu0[ gv'vj g'ci gpvuø'kpvgtr tgvkpi 'unkmu'gpcdrgf 'vj go 'vq'cev'cu'o gf kcvqtu'cpf " qeecukqpcm( 'cu'cf xqecvgu'qh'vj g'Kpf kcpu0Vcrkchgttq'y cu'ecmgf 'vq'kpvgtxgpg'kp'c'mqpi /uvcpf kpi 'hgwf 'dgwy ggp'' yj g'Ukqwz'cpf 'vj g'Ej kr r gy c. 'cpf 'j ku'uwr r qtv'qh'vj g'Kpf kcpu'kpewttgf 'vj g'qr r qukkqp'qh'vtcf gtu.'r ctvkewrctn( " yj qug'cuuqekcvgf 'y kıj 'vj g'Co gtlecp'Hwt'Eqo r cp{.'y j q'vtkgf 'vq'i gv'j ko 'f kuo kuugf 'htqo 'vj g'ci gpe{0'Uctcj " Y kP P GO WEEC'\*3: 666; 3+"c'Rckwg'y j q'ngctpgf 'Gpi rkuj 'y j krg'rkxkpi 'y kıj 'cp'Co gtlecp'o krkct{ "qhhlegtøu" hco kn(.'ckf gf 'kp'pgi qvkcvkqpu'dgwy ggp'j quvkrg'vtkdgu'cpf 'revgt'dgeco g'cp'kpvgtr tgvgt'cv'yj g'O cri gwt'tgugtxcvkqp'' kp'Qtgi qp. 'gctpkpi '862'r gt'o qpvj 'r rwu'mqf i kpi '\*Ecphkgrf '3; : 6< 8+0J gt'o quv'uki pkhlecpv'kpvgtr tgvkpi ." j qy gxgt. 'o c{ 'j cxg'qeewttgf 'kp'vj g'ngewtgu'uj g'f grkxgtgf 'f wtkpi 'vj g'3: : 2u'kp'gcuvgtp'ekkkgu.'y j gtg'uj g'' tgrqtvgf 'vj g'kplwurkegu'vj cv'yj g'i qxgtpo gpv'y cu'kphrkevkpi 'qp'j gt'r gqr rg'cpf 'tckugf 'hwpf u'vq'uvctv'cp'Kpf kcp'' uej qqn'kp'P gxcf c0

Y j krg'Kpf kcp''vkdgu'y gtg'i tcf wcm{ "dgkpi "ceewnwtcvgf "cpf "ugs wguvgtgf "qp'tgugtxcvkqpu. "kpetgcukpi n{ "rcti g" pwo dgtu"qh'Gwtqr gcpu'y gtg"gpvgtkpi "y g"Wpkgf "Uvcvgu."o cmkpi "Gpi nkuj /ncpi wci g'vtcpuncvkpi "cpf "kpvgtr tgvkpi " pgeguuct { "hqt"y gkt "cuuko krcvkqp"kpvq"Co gtkecp"uqekgv{ 0'Dgwy ggp"3: 73"cpf "3; 42."y g"r gcmir gtkqf "qh" ko o ki tcvkqp."y g"vqvcn'y cu'y gmi'qxgt "53"o kmkqp"hqtgki p"pcvkqpcnu."o quvn{ "htqo "I gto cp{."Kgncpf."Kcn{." Rqncpf."Twuukc."y g"

Uecpf cpcxkcp"eqwpvtkgu."cpf "Dtkckp0Crrtqzko cvgn{"7.222"ko o ki tcpvu"r gt"f c{"r cuugf "vj tqwi j "Gnku"Kurcpf "kp" P gy "[ qtm"j ctdqwt."y j gtg"pqvkegu"y gtg"r tkpvgf "kp"pkpg"f khhgtgpv"rcpi wci gu0Vq"r tqeguu"y j g"o cuugu"qh"r gqr ng." vj g'Co gtkecp"i qxgtpo gpv"go r nq{gf "c"uvchh"qh"kpvgtr tgvgtu"y j q"y gtg"egtvkhkgf "d{"ekxkn"ugtxkeg"gzco kpcvkqpu" cpf "eqo o cpf gf "cp"cxgtci g"qh"ukz "hcpi wci gu"\*J gcr u"3; 89<8: +0Kp"3; 29."y j gp"qxgt"33.222"r gqr ng"y gtg" r tqeguugf "kp"qpg"f c{."vj g"kpvgtr tgvgtu"kpenwf gf "Hkqtgmq"Nc"I wctf kc"\*3: : 463; 69+"cp"Kcnkcp"ko o ki tcpvgu"uqp" y j q"j cf "y qtnngf "kp"vj g"eqpuwrct"ugtxkeg"kp"Gwtqr g"cpf "y cu"uwdugs wgpvn{"gngevgf "o c{qt"qh"P gy "[ qtn0Hqt" kpvgtr tgvkpi "qp"Gnku"Kurcpf ."Nc"I wctf kc"y cu"r ckf "&3.422"r gt"{ gct0Kp"uq"hct"cu"vj g"ko o ki tcpvu"y gtg"o ckpn{" ci tkewnwtcn"cpf "kpf wuxtkcn"y qtngtu."yj g"f kxgtug"nkpf u"qh"vtcpurcvkqp"vj g{"tgs wktgf "cpf "r gthqto gf "eqpvtkdwgf"vq" vj g"gpqto qwu"geqpqo ke"i tqy vj "vj cv"yj g"Wpkkgf "Uvcvgu"j cu'y kpguugf "f wtkpi "vj g"vy gpvkgvj "egpwt{0}

## Dwlf lpi 'c'pc dqpc newwt g'\*386263; 76+

Vtcpurcvkqp'j cu'dggp'kpf kur gpucdrg'vq'vj g'f gxgrqr o gpv'qh'c'wpks wgn{ 'Co gt kecp'ewnwt g. 'gxgp'kh'vj g'rkpi wkurke' cpf 'gvj pke'f kxgtukv{ 'qh'vj g'eqwpvt { 'i wctcpvggf 'vj cv'kv'y qwrf 'eqpukuv'qh'xctkqwu'ewnwtcn'eqpurkwygpekgu. 'gcej '' y ky ''y gkt'qy p'f kcrgevu'cpf 'f kueqwtugu. 'xcnwgu'cpf 'dgrkghu0

Vj g'hktuv'Gpi nkuj/mpi wci g'dqqm'y tkwgp''cpf 'r tkpvgf 'kp'Pqtyj 'Co gtkec''y cu'kp'hcev'c''tcpumvkqp."Vj g'Y j qng'' Dqqng"qhRucno gu"Hckij hwn("Vt cpurc vgf "kpvq"Gpi nkuj "O gvt g"\*3862+."eqo o qpn("mpqy p"cu"Vj g"Dc{"Rucno "Dqqn0" C'eqmcdqtcvkxg'y qtmlr tqf wegf 'd{ 'c'i tqwr 'qhl'Rwtkcp'o kpkrvgtu.''y ku'j {o pcn'qhhgtgf 'c'xgt{ 'rkvgtcn'tgpf gtkpi 'qh'  $\label{eq:control_policy} \emph{y} \emph{ g'} \emph{J} \emph{ gdtgy '} \emph{vgz} \emph{v.'} \emph{cpf '} \emph{ukpeg'} \emph{kv'y} \emph{ cu''kpvgpf gf ''hqt''ukpi kpi .'' \emph{y} g'' \emph{tcpurcvkqp''y} \emph{ cu''ecuv''kp''dcmcf'' o gvgt} \emph{0'Kp''c''r tghceg.''} \\$ vtcpurcvqt "Iqj p'Eqvqp"\*37: 663874+"gzr rckpgf "vj cv'vj g"rkvgtcn'uvtcvgi { "eqphqto gf "vq"c "Rvvtkcp"cguvj gvke<":K6" yj gtghqtg''yj g''xgtugu''ctg''pqv''cny c{u''uq''uo qqyj g''cpf ''gngi cpv''cu''uqo g''o c{ ''f gulktg''qt''gzr gev.''ngv''yj go ''eqpulkf gt'' yj cvI qf øu'Cnct'pggf u'pqv'qwt'r qrkuj kpi uø'\*J ctcu| cvk'3; 78<'C6x+0'Vj g'tgrki kqwu'xcnwgu'qh'yj g''tcpurcvkqp'' ecttlegf "r qrksleen'lko r rleevleqpu0'Vj g'Dc{'Rucro 'Dqqriigzr tguugf 'vj g'Rwtkcpuø'f kuugpv'htqo 'vj g'rkwti { ''qh'vj g'' Cpi nkecp'Ej wtej "cpf "vj g'hkgtcwtg"qh'vj g'tq{cn'eqwtv0'Vj g"cxqy gf n{":r nckpø'ncpi wci g'tglgevgf "vj g":r qgvkecn" rkegpugø'yj cv'ej ctcevgtk gf "Vj qo cu''Uvgtpj qrf "cpf "Iqj p"J qr mkpuøu'xgtug'\tcpurcvkqp.'y j kej "j cf "dggp"dqwpf" y ký "ý g"Dqqm'qh"Eqo o qp"Rtc{gt"ukpeg'3784" kdkf 000Cpf "ý g"dcmcf "o gvgt "nkpmgf "ý g"pgy "xgtukqpu" vq 'ý g" r qr wrct "uqpi "tcf kıkqp"kp"qr r qukıkqp"vq"yj g"o gvt kecn't ghkpgo gp vu "qh'ct kuvqet cvke "r qgvt { . "kpenwf kpi "yj g" vtcpurcvkqpu'qh'vj g'Rucro u'o cf g'd { 'uwej 'eqwtvkgtu'cu'Ukt'Rj krkr 'Ukf pg { 'cpf 'Vj qo cu'Ectgy 0 Cu'tcpurckqp'kpetgcugf 'vj g'ewnwtcn'cwqpqo { "qh'vj g'Co gtkecp"eqmpkgu'htqo 'Gpi rcpf . 'kv'cnuq"eqpvtkdwgf 'vq" yj g'f gekukxg'r qrkkecn'dtgcm'd{ 'korqtykpi 'tgxqnwkqpct{'r qrkkecn'kf gcu'htqo'cdtqcf 0'Kp''yj ku'ecug.''yj g''ytcpurcykpi " vqqmif kxgtug'hqto u0Vj g'y qtmu'qhi'Htgpej 'Gprki j vgpo gpv'vj kpmgtu'rkmg'Xqnxcktg'cpf 'Tqwuugcw'y gtg'cxckrcdrg'kp'' gki j vggpyj /egpwt { 'Co gtkec.'cnyj qwi j 'kp'Htgpej 'gf kkqpu'cpf 'kp'Gpi rkuj /rcpi wci g'xgtukqpu'hktuv'r wdrkuj gf 'kp' Nqpf qp"cpf 'Gf kpdwti j '\*O c { '3; 98-63+0'Ngctpgf 'r qrkklekcpu'rkmg'Dgplco kp'Htcpmkp"cpf 'Vj qo cu'Lghhgtuqp" y gtg'cdrg'\q'tgcf'\j gug'y qtmu'\kp'Htgpej.'\kpeqtrqtc\kpi'\j g'\kfgcu'\j g{ 'hqwpf'\j gtg'\kp'fqewo gpwi'rkng'\j g' F genctcvkqp"qh"kpf gr gpf gpeg"\*399768+0°Cpf "f wtkpi "vj g'r qrkskecn'etkuku"vj cv'r tgekr kscvgf "vj g'Tgxqnwkqpct{"Y ct." r corjngvggtu'wugf ''vjgkt''qyp''cpf''qvjgtuø'\tcpurcvkqpu'\vq''fkuugokpcvg'Gpnkijvgpogpv'\vjkpnkpi''cpf''vq''uyc{'' r wdrle 'ugpvko gpv'ci ckpuv'Gpi rcpf 0Kp"Vj g'Tki j w'qhlvj g'Dt kvkuj 'Eqrapkgu'Cuugt vgf 'cpf 'Rt qxgf '\*3986+."Ico gu" Qvku'qhhgtgf "c'f go qetcvke"etksks wg'qh'vj g'Dtkskuj "o qpctej { "vj cv's wqvgf "j ku'qy p'tgpf gtkpi u'htqo 'Tqwuugcwøu" *Uqekcn'Eqpvt cev*<sup>18</sup>Dckn{p'3; 87. 'KK658+0

Y j krg''y g'Wpksgf ''Ucvgu'y cu''go gti kpi ''cu''cp''kpvgtpcvkqpcn'r qrkkecn'r qy gt.''vtcpurcvkqp'y cu''gprkuvgf 'kp'' pcvkqpcrkuv'r tqlgevu''vq''f gxgmr ''cp''Co gtkecp''ewnwtg''y cv''eqwrf ''xkg''y ky ''Gwtqr g0'Rgtj cr u''y g''o quv''co dkxkqwu''qh'' y gug''r tqlgevu''y cu''*Ur geko gpu''qh'Hqt gki p''Ucpf ctf ''Nkvgt cwt g*. "c''36/xqnwo g''cpyj qmi { ''qh''vtcpurcvkqpu''gf kxgf ''d{ "I gqti g'TkRNG[ '\*3: 246: 2+0'Vj g''hktuv''y q''xqnwo gu''eqpukuvgf ''qh'Tkr rg{øu''qy p''vtcpurcvkqpu''qh''ugxgtcn'Htgpej '' r j kmquqr j gtu. ''Dgplco kp''Eqpuvcpv.''Vj gqf qtg''Lqwhtq{.''cpf ''Xkevqt''Eqwukp0'Kp''uwdugs wgpv'xqnwo gu.''j g''tgrkgf ''qp'' y g''vtcpurcvkpi ''unkmu''qh''y g''P gy ''Gpi rcpf ''Vtcpuegpf gpvcrkuw.''kpvgrrgewcnu'rkng'O cti ctgv''Hwrgt '\*3: 32672+''cpf '' Lqj p''Uwrkxcp''

Fy ki j v\*3: 356; 5+"y j q"j cf "dggp"kpur ktgf "d{"Htgpej "cpf" I gto cp"rksgtewtg"cpf "y j qug"tcpurckqpu"kp"wtp" kpur ktgf "qvj gtu."pqvcdn("vj g"s wkpvguugpvkcnCo gtlecp"r j knqur j gt"Tcnr j "Y cnf q'Go gtuqp0

Tkr ng{ "hgn/"y cv'tcpurckqp"eqwrf "eqpvtkdwg"vq"y g"etgcvkqp"qh"c"pcvkqpcn"ewnwtg"y cv'tgur gevgf "f go qetcvke" rtkpekr ngu0":-Vj g"dguv"r tqf wevkqpu"qhi'nqtgki p"i gpkwu"cpf "uwwf {ø"j g"cti wgf ."-aij qwrf "pqv'dg"eqphkpgf "vq"y g"hgy "y j q"j cxg"ceeguu"vq"y g"qtki kpcn"rcpi wci gu. "dw'uj qwrf "dg"f khrwugf "co qpi "gprki j vgpgf "tgcf gtu"qh"gxgt {"ercuu" cpf "eqpf kklqpø"\*Tkr ng{ "3: 5: </r/>
z kk0[ gv'y g"+xvcpf ctf ø'y cv'i wkf gf "j ku"ugrgevkqp"qh"hqtgki p"vgz w"eqphqto gf "vq"y g" ewnwtcn'xcnwgu"qh''y g"² rksg"kpvgngewcn'o kpqtkx{ "y j q"eqo r qugf "j ku"r tko ct {"tgcf gtuj kr "cu"y gm'cu"j ku"uxcdng"qh" vtcpurcvqtu0"Vj gtg"y cu"kpf ggf "c"o cuu"cwf kgpeg"hqt"vtcpurcvkqpu"f wtkpi "y g"pkpgvggpyi "egpwt {."dwm'ku"vcurgu" hcxqwtgf "o gnqf tco c"cpf "tqo cpeg."pqv'r qgxt {"cpf "r j knqur j {0"Y knkco "F wprcr "\*398863: 5; +"c"P gy "[ qtm' rm {y tki j v'cpf "y gctg"o cpci gt"y j qug"qy p"y qtmi"kngf "vq"f tcy "cv'y g"dqz"qhtheg."uweeguuhwnf "uxci gf" pwo gtqwu"vtcpurcvkqpu"htqo "y g"ugpvko gpvcnff tco c"qh'y g"I gto cp"Cwi wuv'xqp"Mqvl gdwg0J gpt {"Y knkco "J gtdgtv"3: 2967: +"cp"Gpi nkuj "ko o ki tcpv'y j q"r wdrkuj gf" hkevkqp."j knyt {."cpf "ur qtw'y tkkpi ."tgcej gf "o cp{" o qtg"tgcf gtu"d {"tcpurcvkpi "ugpucvkqpcrkuvke"Htgpej "pqxgnu"kpenwf kpi "ukz"qh"Gwi 3 pg"Uwgxu0F wtkpi "y g"3: 62u." J gtdgtv'y cu"gctpkpi "85.222"r gt"{gct0}

Dc{ctf "Vc{mt"3: 4769: +"c"Iqwtpcrkuv'cpf "tcxgrl'y tkgt"y j qug"r qgxt{"gctpgf "j ku'eqpvgo r qtctkguø'r tckug"dw'' rcvgt "hgmlkpvq"pgi rgev."r tqf wegf "c"xgtukqp"qh'I qgyj gøu"*Hcww*/\*3: 93+"kphnwgpegf "d{" 'y g"I gto cp"tcpurcvkqp" vtcf kkqp0'Hqmyy kpi "I qgyj gøu"xkgy "'y cv'kp" 'y g"-j ki j guø'tcpurcvkpi "-xj g"tcpurcvqtí cwcej gu"j ko ugrh'emugn("vq" j ku'qtki kpcnø'\*Nghgxgtg'3; ; 4d<'98+"Vc{mt"y tqvg"-xc"pgctn("rkvgtcn'xgtukqp"kp"yj g"qtki kpcn'o gvtguø'\*Vc{mt"3: 93<'' zk+0'Cpf "Iwuv'cu'I qgyj g"hgn/'yj cv'-xj g"vcuvg"qh'yj g"o wnkwf g"o wn/hktuv'dg"uj cr gf "vq"ceegr w/rkvgtcn'vtcpurcvkqpu." Vc{mt"ucy "j ko ugrh'kuwkpi "c"ej cmgpi g"vq"Co gtkecp"tgcf gtu."y j qug"-xpvgmgewcn'vgpf gpekguø"j g"cti wgf."-j cxg" cny c{u'dggp"uqo gy j cv'eqpugtxcvkxgø"o cmkpi "y go "-xwur kekqwu"qh'pgy "o gvtgu"cpf "wpceewuqo gf "hqto u"qh" gzr tguukqpø\*Nghgxgtg"3; ; 4d<'99-2"Vc{mt"3: 93<'z-+0'Vc{mtwu"I gto cp/kpur ktgf "vtcpurcvkqp"uvtcvgi {"wpf qwdvgf n{" y qtngf "vq"dtkpi "cdqwv"c"rcuvkpi "ej cpi g"kp"Co gtkecp"rkvgtct{"vcuvg."cv'ngcuv"cu'hct"cu'vtcpurcvkqpu"qh'I qgyj g"y gtg" eqpegtpgf <'j ku'xgtukqp"eqpvkpwgf "vq"dg"tgr tkpvgf "cu'ncvg"cu'3; 72."y j gp"yj g"eqo o gtekcn'r tguu'Tcpf qo "J qwug" r wdrkuj gf "kv'kp"yj g"pqvgf "ugtkgu'qh'ercuuke"y qtmu"ecngf "-vyj g'O qf gtp"Nkdtct{ø0

Y kỷ "ý g"cf xgpv'qh'ý g"o qf gtpkuv'o qxgo gpv."ý g"Co gtkecp"tcpurcvkqp"tcf kkqp"gpvgtgf "c"r gtkqf "qh'uvtknkpi "kppqxcvkqp"ý cv'egpvtgf "qp"ý g"tcpurcvkqp"qh'r qgvt {0"Vj g"o quv'ko r qtvcpv'hki wtg'kp'ý ku'f gxgmr o gpv'y cu'G|tc" RQWP F "\*3: : 763; 94+0'Rqwpf "ucy "tcpurcvkqp"cu'c"o gcpu"qh'ewnkxcvkpi "o qf gtpkuv'r qgvke"xcnvgu."r tqxkf gf "ý cv' y g'vtcpurcvqt"ej qug"egtvckp"hqtgki p"r qgvtkgu"ecr cdrg"qh'uwr r qtvkpi "ý qug"xcnvgu="j ku'i tgcvguv'uweeguugu"qeewttgf "y kj "ý g"Cpi mq/Uczqp"rco gpv'Vj g"Ugclct gt"\*3; 34+"ý g"ý ktvggpý /egpwt{"Kcrkcp"r qgv'I wkf q'Ecxcrecpvk'\*3; 34." 3; 54+"ý g"Ej kpgug"r qgv'Nk'Rq"\*3; 37+"cpf "ý g"Rtqxgp±cn'vtqwdcf qwt "Ctpcw'F cpkgri\*3; 42+0'Rqwpf" gzr gtko gpvgf "y ký "c"

tcpi g'qh'f kengevu'cpf "f kueqwtugu. "cuuko krevkpi "yi g'hqtgki p'\gz vu'\q'r tg/gz kuvkpi 'ewnwtcn'hqto u<'Cpi mq/Uczqp'' r cwgtpu'qh'ceegpv'cpf "cmkgtcvkqp. 'r tg/Gnk cdgyi cp''Gpi nkuj . "Rtg/Tcr j cgrkvg''o gf kgxcnkuo ."o qf gtpkuv'r tgekukqp." Co gt kecp "eqnrqs wkcnkuo 0'Vj ku'uvtcvgi { "engctn( "kpxqnxgf "c"r tqeguu'qh'f qo guvkecvkqp. "dw'wnko cvgn( "yi g''ghhgev'' y cu'hqtgki pk kpi <'yi g''tguwnkpi ''vtcpurcvkqp''uki pkhkgf ''yi g''ewnwtcn'cpf 'ji kuvqt kecn'f khngtgpeg''qh''yi g'hqtgki p''vgzv'' dgecwug''yi g''Gpi nkuj /ncpi wci g'hqto u''Rqwpf ''wugf 'y gtg''uq''j gvgtqi gpgqwu. "ewngf 'htqo 'f khngtgpv'o qo gpwu'kp'' Dtkkuj "cpf ''Co gt kecp''ewnwtg''\*ugg''<u>UVTCVGI KGU'QH'VTCP UNCVKQP</u>-0

Chygt "Rqwpf." Co gtkecp "tcpurcytu" dgi cp "\q" tgi ctf "\y gkt "tcpurcykqpu" cu "cwqpqo qwu "kygtct { "y qtmu." cmj qwi j " hgy "y gtg" y kmlpi "\q" \cmg" wr "j ku" o quv" tctpi "gzr gtko gpwu" y kj "tcpurcykqp" untcygi kgu0" D{ "\y g" o kf f rg" qh" \y g" w gpvkgyj "egpwt { ."Co gtkecp "tcpurcykqp" qh" dqyj "r qgvt { "cpf "r tqug" y cu" hqt" y g" o quv"r ctv" o qf gtp. "pqv" o qf gtpkn0" KV "guej gy gf "Rqwpf øu" gzr gtko gpvcrkuo "hqt" c" hpi wkurke" j qo qi gpgkv { "\y cv"r tqf wegf "cp" kmwuqt { "ghhgev" qh" vcpurcytqp" uggo u"\q" dg" pqv" c" \tcpurcytqp." dwv" y g" hqtgki p" qtki kpcn" Xgpwk'3;; 7+0" Vj g" vcpurcytqp." i qy gxgt. "cewcm ("eqpegcnu" c"\y qtqwi j i qkpi "f qo gurkecytqp." kp" y j kej "\y g'hqtgki p" \y zv'ku" kpuetkdgf" y ky "ewnwtch'xcnwgu' y cv'r tgxckn' kp" eqpygo r qtct { "Co gtkec0" Vj wu" F wf rg { "HKVVU" \*3; 2568: +" y j q" gurcdrkuj gf" c" tgr wcytqp" cu" c" rgcf kpi "\tcpurcyt" qh" cpekgpv' I tggmir qgvt { "cpf "f tco c." cf o kwgf "\y cv'j ku" o qf gtp" xgtukqpu" qh" I tggmir qgo u" + kkmgf" c" ur wtkqwu" cvo qur j gtg" qh" o qpqy gkno "d { "y tkkpi "\overline{"} qf o "hqt" + gww\overline{"} gww\overline{"} qsvx kk#0

## Co gt lecp'i mdcnj gi go qp{ 'tilpeg'Y qt nf 'Y ct 'Vy q

Vtcpurcvkpi "cpf "kpvgtr tgvkpi "j cxg"ugtxgf "Co gtkecp"r qrkskecn'cpf "geqpqo ke "kpvgtguvu"qxgt" y g"r cuv'ugxgtcn' f gecf gu. "gpcdrkpi "vj g"Wpkgf "Uvcvgu"vq"cej kgxg"cpf "o ckpvckp"kuu"r tg/go kpgpeg "kp" y qtrf "chrcktu0"Vj g"Hqtgki p" Ugtxkeg"kp" y g"Uvcvg"F gr ctvo gpv"j cu"rqpi "eqpvckpgf "c"rcpi wci g"ugevkqp"vq"tgxkgy "vtcpurcvkqpu"qh"f kr mo cvke" f qewo gpvu"cpf "vq"r tqxkf g"hqt"kpvgtr tgvkpi "cv"kpvgtpcvkqpcn"eqphgtgpegu0D{"y j g"o kf/3; : 2u. "y ku"Ncpi wci g" Ugtxkegu"F kxkukqp"y cu"r tqxkf kpi "cp"cppvcn"vqvn"qh"& "o knkqp"kp"vtcpurcvkpi "cpf "kpvgtr tgvkpi "hqt"xctkqwu" i qxgtpo gpv"ci gpekgu"\*Qduv'cpf "Enkpg"3; ; 2-34+0"kp"y g"Uvcvg"F gr ctvo gpv. "vtcpurcvkqp" j cu"cnuq"r gthqto gf " gzr rkekn( "kf gqrqi kecn'hwpevkqpu0"Vj tqwi j qwv'y g"Eqrf "Y ct."y g"Wpkygf "Uvcvgu"Kphqto cvkqp"Ci gpe{"qr gtcvgf "y g" Xqkeg"qh"Co gtkec"tcf kq"dtqcf ecuvu"kp"57"rcpi wci gu"y j krg"kuuvkpi "r tqr ci cpf kuvke"o cvgtkcnu"kp"r tkpv"cpf " grgevtqpke"o gf kc"\*Tqrcpf "3; : 4-352+0

Vj g'Co gtkecp''r wdrkuj kpi 'kpf wurt { 'j cu''dggp'tgrcvkxgn{ 'iguu'kpvgtguvgf 'kp'kpxguvkpi 'kp''tcpurcvkqp0'Cmj qwi j ''dqqm' rtqf wevkqp''j cu''kpetgcugf 'hqwthqrf 'ukpeg''y g'3; 62u. 'y g''pwo dgt''qh''tcpurcvkqpu''j cu''i gpgtcm{ 'tgo ckpgf ''dgw ggp'' 4''cpf ''6''r gt''egpv'qh''y g''cppwcn'vqvcn'vp''uki plkhecpvn{ 'j ki j gt''r gtegpwci gu''kp''qyi gt''eqwpvtkgu'''sugg'' Xgpwvk'3; ; 7-34635+0/Co gtkecp''r wdrkuj gtu''ugm'vtcpurcvkqp''tki j wi'hqt''o qtg''cpf ''o qtg''Gpi rkuj /rcpi wci g''dqqmu." kpenwf kpi ''y g''i rqdcn'dguvugmgtu. ''dw''ur gpf ''f kur tqr qtvkqpcvgn{ ''nguu''qp''y g''tki j wi'vq''r wdrkuj ''Gpi rkuj /rcpi wci g'' vtcpurcvkqpu''qh''hqtgki p''dqqmu0/Cu''c''tguwrw.''y g''Wpkxgf ''Ucvgu''j cu''gzgtekugf ''c''j gi go qp{ ''qxgt''hqtgki p''eqwpvtkgu'' y cv'ku''pqv'uko r n{ ''r qrkxkecn'cpf ''geqpqo ke. ''cu''y g''r ctvkewrct''ecug''o c{ ''dg. ''dw''ewrwrtcn''cu''y gm0/Rwdrkuj gtu''j cxg'' rtqhkxgf ''htqo ''uweeguuhwm{ ''ko r qukpi ''Co gtkecp''ewrwrtcn''xcnwgu''qp''c''xcuv'hqtgki p''tgcf gtuj kr. 'y j krg''etgcvkpi ''c'' f qo guvke''ewrwrtg''y cv'ku''ci i tguukxgn{ ''o qpqrkpi wcn''cpf ''tgegr vkxg''vq''y g''hqtgki p''qpn{ ''y j gp''kv'o ggw''Co gtkecp'' gzr gevcvkqpu0

Vj gug''gzr gevcvkqpu''j cxg''f gekukxgn( 'kphrwgpegf ''vj g''ej qkeg''qh'hqtgki p''vgzvu'hqt''vtcpurcvkqp0'Co gtkecp''r wdrkuj gtu'' ecr kcrk gf ''qp''tgcf gt''ewtkqukx( ''cdqww'hqtgki p''pcvkqpu''vj cv''y gtg''

cnkgu'qt "cpvci qpkuvu."cu'y gni'cu't gcf gt "qr vko kuo "vj cv'ewnwtcn'gzej cpi g'y qwf 'hcekrkocy'dgwgt "kpvgtpcvkqpcn' wpf gtuvcpf kpi "cpf "o qtg'r gceghwi'r qrkskecn't gncvkqpu0'Ukpeg''Y qtnf "Y ct "Vy q. "vj g'ncpi wci gu'o quv'ht gs wgpvn{" vtcpurcvgf "kpvq'Gpi rkuj "j cxg''dggp''Htgpej ."I gto cp. "Twuukcp. "Kcnlcp."cpf "Ur cpkuj 0'Y kyj "Twuukcp''rksgtcwstg." r wdrkuj gtu''cr r gcngf "vq'Co gtkecp''cpvk/Eqo o wpkuv'ugpvko gpv'd{ "hqevukpi "qp'y qtmu''y cv'etkskek gf "O ctzkuo "qt" vj g''Uqxkgv'i qxgtpo gpv."pqxgnu''rkng''Dqtku'Rcuvgtpcmøu''F qevqt "\ j kxci q'\*3; 7: +'cpf 'Cnzcpf gt 'Uqn' j gpku{pøu" Qpg'Fc{ 'lp''yj g'Nklg'qh'lkxcp'Fgpkuqxkej "\*3; 84+."dqvj "qh'y j kej "dgeco g''dguvvugngtu''kp''vtcpurcvkqp0'kp''eqpvtcuv." -\*tcpurcvkqpu''qh'Uqxkgv'\*vj cv'ku."pqpf kuukf gpv+'r tqug''qh''y g''3; 72uó3; 92u''ctg''tgncvkxgn{ 'hgy "cpf 'hct'' dgw ggpø\*\*O c{ ''3; ; 6<69+0

Uko kret 'r cwgtpu'qh'cf o kuukqp''cpf 'gzenwkqp''j cxg''qeewttgf 'y kij ''rguu'htgs wgpvn( ''tcpurcvgf ''rksgtcwtgu0'kp''y g'' f gecf gu''chygt''Y qtrf ''Y ct''Vy q.'Co gtkecp''r wdrkuj gtu''go r j culk gf ''c'hgy ''o qf gtp''Lcr cpgug''pqxgrluvu.''o ckpn( '' Lwpkej ktq''Vcpk cmk''[ cuwpctk'Mey cdevc.''cpf '[ wnkq'O kuj ko c0Eqpugs wgpvn( .''y g{ ''etgevgf ''c'y gm'f ghkpgf '' uvgtgqv( r g''qh''Lcr cpgug''ewnwtg''\*gnwukxg.''kpeqpenwukxg.''o grepej qrke+'y j kej ''gzr tguugf ''c''pquvcni kc''nqt''c''rguu'' dgnki gtgpv'cpf ''o qtg''tcf kkqpcn'Lcr cp0'Vj g''pqxgnu'ugrgevgf ''nqt''tcpurcvkqp''±r tqxkf gf ''gzcevn( ''y g''tki j v'ko ci g''qh'' Lcr cp''cv'c''ko g''y j gp''y cv''eqwpvt{ ''y cu''dgkpi ''tcpulqto gf .''cm quv'qxgtpki j v'kp''j kurqtkecn''yto u.''htqo ''c''o qtvcn'' gpgo { ''f wtkpi ''y g''Rcekhle''Y ct''q'cp''kpf kur gpucdrg''cm( ''f wtkpi ''y g''Eqrf ''Y ct''gtcø'\*Hqy rgt''3; ; 4-8+0C''ecpqp''qh'' Lcr cpgug''hevkqp''y cu''guvcdrkuj gf ''kp''Gpi rkuj .''qpg''y cu''pqv'uko r n( ''wptgr tgugpvcvkxg.''gzenwf kpi ''eqo ke''cpf'' r tqrgvctkcp''pqxgnu''co qpi ''qvj gt''nkpf u''qh'y tkkpi .''dw''cnnq''gpqto qwun( ''kphnwgpvkcn''f gvgto kpkpi ''tgcf gtuø''cuvgu'' hqt''tqwi j n( ''62''{ gctu0}

Cretvhtqo "uwej "r qrkkecn'o qukxculqpu."Co gtkecp"r wdrkij gtu"j cxg"i gpgtcm( "kuwgf "tcpurculqpu"hqt"dqy "rkgtct {" cpf "eqo o gtekch'tgcuqpu0O quv'qh'vj gug'dqqmu"j cxg"j cf "rkwrg"qt "pq"lo r cev'qp"Co gtkecp"ewnwtg. "cmj qwi j "lp" qpg"lpuvcpeg"vj g"rkgtct { "tgr gtewnulqpu"y gtg"uki pkhlecpv0F wtkpi "vj g"3; 82u"cpf "3; 92u."vj g"uq/ecmgf "dqqo "lp" Ncwp"Co gtkecp"rkgtcwtg"y cu"hquvgtgf "d{ "pqxgrknru"cpf "etkkeu"y j q"xcnwgf "ku"gzr gtko gpvcrkuo "qxgt"yj g" tgcrkurke"pcttcvkxgu"vj cv"j cxg"cny c{u"f qo kpcvgf "Co gtkecp"hlevkqp"\*Rc{pg"3; ; 5+0Rwdrkuj gtu"dtqwi j v'qw'o cp{" vcpurcvlqpu"htqo "vj g"y qtmiqhh'uwej "cwvj qtu"cu"vj g"Cti gpvkpg"Lwrkq"Eqtv" | ct "cpf "vj g"Eqnwo dkcp"I cdtkgriI cte\p" Oats wg| ."hqto kpi "c"pgy "ecpqp"qh'hqtgki p"rksgtcwtg"kp"Gpi rkuj "cu"y gmicu"c"o qtg"uqr j kurkecvgf "Co gtkecp" tgcf gtuj kr 0Vj ku"vtgpf "eqpvkpwgf" r ctwl "dgecwug"vj g"tcpurcvlqpu"y gtg"r tqhkxcdrg0I cte\p"Oats wg| \@u"pqxgri\Qpg" \I wpf tgf" [gctu"qhtUqrkwf g"y cu"c"pqvcdrg"uweeguu"kp"I tgi qt { "Tcdcuuc\pta"go kpgpvn( "tgcf cdrg"xgtukqp<"y j gp"vj g" hktuv'r cr gtdcemi'gf kkqp"cr r gctgf "kp"3; 92."kv"uc{gf "qp"Vj g"P gy "[qtm'Vlo gu"Dguvugmgt"Nkuv'hqt"ugxgtcn'y ggmu" "Ecuvtq/Mrct2 p"cpf "Eco r qu"3; : 5<4869+0Cv'vj g"uco g"ko g."vj g"kphwz"qh"Ncvlp"Co gtkecp"y tkkpi "y cu"cngtkpi " vj g"ecpqp"qh'eqpvgo r qtct { "Co gtkecp"rksgtcwtg."gpeqwtci kpi "y tksgtu"rkng"Lqj p"Dctvj "vq"f gxgmr "xctkqwu" pcttcvkxg"gzr gtko gpvu0

Co gtkecp'r wdrkuj gtu'j cxg'\gpf gf '\q'xkgy '\tcpurc\dpu'cu'tkum\ 'xgpwtgu. 'rkngn\ '\q'\uwuckp''c''nquu0'Vj ku'\ukwc\dp'' j cu''dggp''o quv'\wphcxqwtcdrg'\q'htggrcpeg'\tcpurc\dpu'cu'tkum\ 'zgpwtgu. 'rkngn\ 'tgegkxgf 'y qtm/hqt/j ktg''eqpvtcewi'y cv'' tgs wktg''y go '\q'\uwttgpf gt''cp\ ''tki j v'lp''y g'\tcpurc\dqp''hqt''c'hrcv'hgg''y ky ''pq''tq\cm\ ''qt''uj ctg''qh''y g''kpeqo g'htqo "uwdukf kct\ ''tki j vu'\ucrgu'\%Mggrg\ '3; ; 2+0'\p''3; 87'c'\tcpurc\qt''y ky ''c''y qtm/hqt/j ktg''cttcpi go gpv'\\r kecm\ ''tgegkxgf '' &37''r gt''3.222''Gpi rkuj ''y qtf u'qt''tqwi j n\ ''83.422''hqt''c''522/r ci g''dqqm\dp''3; ; 2.'\y g''tcvg''xctkgf ''dgwy ggp''&62''cpf'' & 2''qt''dgwy ggp''&5.222''cpf ''&8.222''hqt''c''dqqm/ngpi y ''r tqlgev'\Xgpwk''3; ; 7d<'\32633+0'I kxgp''y g''nyy ''xqnwo g''qh'' vtcpurc\dqpu''r wdrkuj gf ''kp''y g''Wpkgf ''Uccyu. 'htggrcpeg''tcpurc\qtu''j cxg''dggp''hqtegf ''q''wpf gtvcng''ugxgtcn'r tqlgewi' c''\{gct''kp''qtf gt''q''gctp''y gkt''hxgrkj qqf 0'O quv'uwr r ngo gpv'y gkt''tcpurc\dpi ''y ky ''uwej ''qy gt''y qtm'cu''gf kkpi .'' y tkkpi .''cpf '\ycej kpi 0

Co qpi "y g"o quv'pqvcdrg"\tcpurcvqtu"qh'\y ku'r gt\qf "ctg"Tcrr j "O cpj gko "\3; 296; 4+."y j qug"\tcpurcv\qpu"\tqo "
I gto cp"cpf "Htgpej "\penwf gf "\y g"\y tk\pi "qh"Htgwf."Dtgej v."J kwgt. "E²n\pg."I tcuu."cpf "J cpf mg="J grgp"T(Ncpg" \\$3; 44/+."y j qug"\tcpurcv\qpu"\tqo "Htgpej."Ur cp\kij."cpf "Rqt\wi \wgug"\p\tqf \wegf "Co gt\kecp"\tgcf gtu'\q"c"\y \kf g" tcpi g"\qh"\G\wq ctf "\\$3; 4; /+."y j q"j cu'\tcpurc\gf" o cp{" ko r qt\cpv\"Htgpej "r qg\u."pq\xgr\kwu."r j \knuqr j gt\u."cpf "h\xgtct{"et\k\ke\u."\pen\wf \kp\" Dc\wf gr\kg."Rtq\u\u\u\"Dc\y g\u."cpf "

Tqddg/I tkmgv0'Vj gug'\tcpurcvqtu'j cxg"pqv'qpn\ "dggp"r tqnkhke."dwv'ceeqo r nkuj gf "cpf "cy ctf/y kppkpi ."uq'\yi cv' yi gkt 'f kuvkpi wkuj gf 'tgr wcvkqpu'j cxg"ecmgf 'cwgpvkqp"\q'\tcpurcvkqp"cpf 'j cxg"j gm gf 'vq'ko r tqxg'\yi g'eqpf kkqpu' wpf gt 'y j kej '\tcpurcvqtu'i gpgtcm\ 'y qtm0

P qpg''y g''nguu.''y gug''eqpf kkqpu''eqpkpwg''vq''dg''uj cr gf 'o quv'hqteghwn{ 'd{ "geqpqo ke'f gxgmqr o gpw0'Ukpeg''y g'' 3; : 2u. "yj g"Co gtkecp"r wdrkuj kpi "kpf wuxt { "j cu"dggp" \tcpuhqto gf "d { "yj g"go gti gpeg" qh"o wnkpc kqpcn" eqpi qo gtcvgu'vj cv'r wtuwg'ncti gt'tgwtpu'qp'kpxguvo gpvu.''y kyj ''vj g'tguwnv'vj cv'r qvgpvkcn'dguv/ugmgtu'j cxg''dggp'' hcxqwtgf "qxgt"f khhkewn/vq/o ctmgv'dqqmu'rkng"vtcpurcvkqpu'\*Y j ksgulf g'3; : 3="Hgrf o cp"3; : 8=0"Rwdrkuj gtu"ctg"o quv" cwtcevgf "vq"hqtgki p"vgzw"yi cv"j cxg"dggp"dmemdwwytu"cdtqcf."j qr kpi "vq"tgr gcv"yi g"wco g"r gthqto cpeg"y kyi " Cogtkecp'tgcfgtu="qt"gnug''yig{"ejqqug''\q'kpxguv'kp''\tcpurc\kqpu''yicv'ctg'kpxqnxgf'kp''-\kg/kpuø'hkro''qt''yigc\tg'' cf cr vcvkqpu''y cv'gpuwtg'y kf gt'tgcf gt'tgeqi pkxkqp''cpf ''i tgcvgt''ucrgu0'Vj ku'r wdrkuj kpi ''uvtcvgi { ''j cu''y qtrngf ''s wkxg'' y gm'y kij "encuule" hqtgki p"pqxgnu" wtpgf "kpvq" Dtqcfyc{"o wukecnu0Chvgt" Dtkkuj "eqorqugt" Cpftgy" Nrq{f" Y gddgt "uweeguuhwm ("cf cr vgf "Vj g'Rj cpvqo "qh'vj g'Qrgtc" vq'vj g'o wukecn'vj gcvtg. "Co gtkecp'r wdrkuj gtu" uetco drgf "\q"dtkpi "qw\"\tcpurc\kqpu"qh\"\j g"qtki kpcn\"3; 32+\"I cuvqp"\Ngtqwz\"pqxgr0\Y j gp\"\j g\"\j gy\"\j gygf \"kp\"P gy\" [qtmlfwtkpi ''y g'3;:: 'ugcuqp.'cu'o cp{'cu'hqwt'Gpi rkuj 'xgtukqpu'y gtg'cxckrcdrg'kp'ej gcr 'r cr gtdcem'gfkkqpu0 Geqpqo ke "eqpulf gtc.kqpu"kpgxkcdn ("chhgev'tcpurc.kqp"uvtc.vgi kgu. "y j kej "j cxg"dggp"f qo kpc.vgf "d ('hnvgpv' f qo guvlecvkqp"ukpeg" y g'3; 62u0" V j g'f qo kpcpeg" qh'hnvgpv" uvtcvgi kgu" cpf "y j g' vtcpur ctgpe{ "y j g{ "o cng'r quukdrg" j cxg"wpf qwdvgf n( "nko kvgf" vj g't geqi pkwkqp"qh"vtcpuncvkqp"cu"c"uki pkhkecpv"ewnwtcn"r tcevkeg0"Vj g{ "j cxg"cnuq"ngf"vq" yj g'o cti kpcnk cvkqp'qh'gzr gtko gpvcn'vtcpurcvkqpu'vj cv'uggm'vq'dtqcf gp'vj g'vtcpurcvqtøu'f kuewtukxg'tgr gtvqktg'' dg{qpf "vj g"o quv'hoo knkct hqto u'qh'Gpi nkuj 0'Vj g"o qtg"tcf kecn'vj g"gzr gtko gpv. "vj g"i tgcvgt "vj g"eqpf go pcvkqp"cpf " pgi ngev'uwhogtgf "d{"yj g"\tcpurc\kqp"\Xgpwk'3;;7c+0

Vj g'3; ; 2u'dtqwi j v'uki pu''y cv'y g'f qo kpcpeg''qh'hnwgpe{ 'ku'y gcmgpkpi .''cv'hgcuv'kp''y g'ecug''qh'egtvckp'hcpi wci gu'' cpf 'rksgtcwtgu'y j qug'r gewrkctkkgu'tgukuv'ks0'Kp" y gkt 'kpxgpvkxg' \tcpurcvkqpu'qh'Fquvq{gxum(øu'pqxgnu.'Tkej ctf" Rgxgct"cpf "Nctkuuc"Xqnqnj qpum( 'j cxg"cngtgf "y g"i gpgtcn'tgcf gtøu"eqpegr vkqp"qh'y g'T wuukcp"vgz w'd { 'tghwukpi " vq"cuuko krevg"yi go "vq"yi g"uvcpf ctf "f kergev"qh"Gpi rkuj "qt"vq"Gpi rkuj /rcpi wci g"pcttcvkxg"uv{rgu0'Vj g"pgy " vtcpurcvkqpu'tguvqtg'Fquvq{gxum{øu':qffkkguø'cpf''yi gtgd{"gxqng''yi g'rqn{rjqp{"qh'xqkegu''yi cv'ej ctcevgtk|g''yi g'' Twukcp'\gzvu."cu'uej qrctu'j cxg'hqpi 'tgeqi pk gf '\Rgxgct''cpf 'Xqrqnj qpur('3; ; 2<'zx='O c{'3; ; 6₹466+0 Vjg's wgunkqpkpi "qh'hnwgpv'ntcpuncnkqp"oc{"ygm'dgvqngp"c"itgcvgt"tgurgev'hqt"ewnwtcn'fkhgtgpeg."c"pgy" Co gtkecp"qr gppguu'\qy ctf u'hqtgki p'hcpi wci gu'cpf 'hkgtcwtgu'\j cv\y km'i kxg'\tcpurc\kqp"o qtg"cwj qtk\{ "cpf" ko r tqxg''y g''uvcwu''qh''y g''tcpurcvqt0'Dwb'Co gtkecp''ewnwtg''eqpvkpwgu''vq''gzjkdkb'c''uvtqpi ''ewttgpv'qh'y j cv'ecp'' qpn("dg"ecngf"zgpqrj qdkc."c"hgct"yj cv'o wnkrkpi wcrkuo "cpf"yj g"tcpurckpi "yj cv'c"o wnkrkpi wcn'r qr wrcykqp"o wuv" f ckn("r gthqto "y km'wpf gto kpg"pcvkqpcn'wpkx(0"Vj g"3; : 2u'ucy "y g"tkug"qh'o qxgo gpwu'y cv'uqwi j v'vq'tgr tguu" vtcpurcvkqp"d{"uweeguuhwm("o cmkpi "Gpi nkuj "vj g"qhhkekcnlhcpi wci g"kp"uvcvgu"y kij "uwduvcpvkcnlh qr wncvkqpu"qhltgegpv" ko o ki tepvu<br/>Ctk qpc. 'Eenkhqtpkc.' Hnqtkf c'\*O wngt'3; ; 545769+0Cm'y g'uco g. ''tepurckqp'tgo ekpu'e'xken' rtgugpeg'kp'eqpvgorqtct{'Cogtkec.'gxgp'kh'kv'ku'vpfgtkpxguvgf.'okuvpfgtuvqqf.'cpf'uvurgevgf0Rgtjcru'vjg' o quv'xkukdrg'tgo kpf gt 'qh'kxu'ko r qt vcpeg'ku'vj g'cwqo cvgf 'vgngtu'cv'o clqt 'dcpmu'kp'gxgt { 'o gvtqr qrku0Cv' Ekkldcpmlkp"Pgy "[qtm"yjg"dcpmkpi "rtqitco o gu"tgpfgt"tcpucevkqpu"kp"hkxg"ncpi wci gu<"Urcpkuj."I tggm" Ej kpgug. 'Mqtgcp.'cpf 'Gpi rkuj 0

#### Qti cpk/cvkqp'qh'\(\forall g'rtqhguukqp\)

Kp"\gej plecn'hkgnf u"nkng"ncy ."f kr mo ce{."cpf "uekgp\khke"tgugctej ."Co gtkecp"\tcpurc\qtu"cpf "kp\gtr tg\gtu"ctg" i gpgtcm( "s\wchkgf" "d{"eqo r\g\kkxg"\gu\kpi 0\Vj\ g"\uc\wg"eq\wt\"u\u\g\uo "kp\"P\ gy\"[\qtn'Ek\{.\hqt"gzco r\ ng.\"y\ j\ kej\" go r\ nq{u\"tq\wi\ j\ n\{ "382"\Ur\ cp\kij\ "kp\gtr tg\gtu"\h\wn'\ko\ g"cpf\"j\ ktgu\"r\ gt\"f\ kgo\"kp\gtr tg\gtu\"kp\"34\"q\j\ gt\"ncpi\ wci\ gu.\" tgs\wktgu\"c'\'ti\ qtq\wu\"qtcn'gzco\ kpc\kqp0\"Vj\ g"\Vtcpurc\kqp\"F\ kx\ku\kqp"c\"\j\ g"\Wp\kgf\"P\ c\kqpu.\"y\ j\ kej\ "go\ r\ m\{u\"tq\wi\ j\ n\{\" 482\"\tcpurc\qtu\"kp\"\j\ g\"\uk\g\"p\"gt\"co\ kp\\g\"tg\g\"gt\"co\ kp\\g\"g\"\uk\g\"g\"gt\"gt\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"g\"\uk\g\"\u

cungf "vq"r gthqto "cp"qtcn'\tcpurc\\qp"\Ngeqo \wg"f \w'P q $\tilde{A}$ { "3; ; 3<36; +0

Dgecwug''qh''y g''ewnwtcn'o cti kpcnk{ "qh''tcpurcvkqp''kp''y g''Wpksgf "Uvcvgu. 'r tqhguukqpcn'qti cpk cvkqpu''j cxg''dggp" urqy "vq''go gti g0'P qpg''y g''hgy "y cv'f q''gzkuv'j cxg''j cf "c''uki pkhkecpv'kh'xct{kpi 'ko r cev'qp''y g''tcpurcvqtøu" uvcwu''cpf "y qtmkpi 'eqpf kkqpu0'Hqwpf gf 'kp''3; 7; .''y g'Co gtkecp''Vtcpurcvqtu''Cuuqekcvkqp''\*CVC+''ewttgpvn{ "j cu'' o qtg''y cp''7722''o go dgtu0'K''cf o kpkuvgtu''cp''ceetgf kxcvkqp''r tqi tco o g'kpxqnxkpi 'y tkvvgp''gzco kpcvkqpu''kp''36'' rcpi wci g''r cktu. "qhhgtu''cf xkeg''qp''hkpcpekcn'f gcnkpi u. "cpf "qti cpk gu''cp''cppwcn'eqphgtgpeg''\*P gy o cp''3; : 9+0'Vj g'' CVCøu''r wdn'ecvkqpu''kpenvf g''c''f ktgevqt { "qh''ceetgf kxgf ''o go dgtu.''y j kej ''nkuvu''y gkt 'ncpi wci gu''cpf ''ctgcu''qh'' ur gekcnk cvkqp. "cpf ''cp''cppwcn'eqphgtgpeg''r tqeggf kpi u0

Vj g"{gct"3; 7; "cnuq"ucy "y g"hqwpf kpi "qh"y g"Vtcpurckqp"Eqo o kwgg"qh"y g"RGP "Co gtkecp"Egpwgt"kp"P gy "[qtm" Ekx{0"Y ky "c"ewttgpv"o go dgtuj kr "qh"cdqwv"92."y g"Vtcpurckqp"Eqo o kwgg"kuuwgu"c"o qf gn"eqpvtcev"y cvtghrgewu" y g"ncvguv"eqr {tki j v"ncy ."eqpf wew"c"Vtcpurckqp"Y cvej ø'y cvtgr tqxgu"r wdrkuj gtu. "r gtkqf kecn"gf kqtu. "cpf "tgxkgy gtu"y j gp"vtcpurcvqtu"ctg"pqv"etgf kgf "kp"dqqmu"cpf "tgxkgy u. "cpf "qti cpk gu"tgcf kpi u"cpf "gxgpwu"vq"dtkpi "vtcpurcvkqp"cpf "hqtgki p"rksgtcwtgu"vq"r wdrke"cwgpvkqp0Co qpi "ku"o quv'ko r qtvcpv'r tqlgewu"ku"y g"cf o kpkuvtcvkqp" qh"cppwcn"cy ctf u"vq"vtcpurcvqtu0Kp"3;; 6. "hwtyi gto qtg."y g"eqo o kwgg"kpetgcugf "y g"xkukdkrkv{"qh"vtcpurcvqtu"cpf" gpj cpegf "y g"r tqur gewu"hqt "vtcpurcvkqp"uwwf kgu"d{"r gtuwcf kpi "y g"Nkdtct{"qh"Eqpi tguu"vq"ecvcmqi wg"rksgtct{"vtcpurcvkqpu"ypf gt"y g"pco gu"qh"y gkt "vtcpurcvqtu"cu"y gm"cu"y gkt"cwy qtu"\*Nguugt"3;; 6+0

Vj g'Co gtlecp''Nkgtct{"Vtcpurcvqtu'Cunqekcvkqp.'hqwpf gf "kp"3; 9:."j cu'crrtqzko cvgn{"3222"o go dgtu0'k'' qti cpk gu'cp''cppwcnieqphgtgpeg'cpf "cf o kpkngtu'vtcpurcvkqp"cy ctf u0'ki'cnuq'r wdrkuj gu'c''lqwtpcn"Vtcpurcvkqp" Tgxkgy."y j kej ."crctv'htqo "ctvkengu'qp''tcpurcvkqp"iy gqt{."hgcwtgu'kpygtxkgy u'y kj "vtcpurcvqtu."tgrqtw'qp" rwdrkuj gtug'vtcpurcvkqp'r qrkekgu."cpf "tgxkgy u'qh'vtcpurcvkqpu0'Cp"qpi qkpi "rtqlgev'ku'y g'f gxgrqr o gpv'qh'c'' fcvdcug'hqt''Gpi rkuj /rcpi wci g''tkygtct{"tcpurcvkqpu'r wdrkuj gf "kp"dqqmu."cpyj qrqi kgu."cpf "r gtkqf kecnu0 Vj g'o cti kpcrkv{"qh'vtcpurcvkqp" cu'o gcpv'y cv'hwpf kpi ."y j gyj gt "kp"y g'hqto "qh'vtcpurcvqtug'i tcpvu'qt' uwdukf kgu" hqt'r wdrkuj gtu."j cu'dggp'tgrcvkxgn{"rko kgf 0'Vj g'P cvkqpcrl'Vtcpurcvkqp'Egpvgt."hqwpf gf "kp"3; 87"y kj "c'hkxg/{gct" i tcpv'htqo "y g'Hqtf "Hqwpf cvkqp."eqpf wevgf "c'hgmqy uj kr "r tqi tco o g'hqt'vtcpurcvqtu."dwvkp"3; 93"y ku" qti cpk cvkqp'y cu'f knuqnxgf 0'Vj g"Vtcpurcvkqp'Egpvgt "cv'Eqnwo dkc'Wpkxgtukv{."hqwpf gf "kp"3; 95."j cu'hctgf "dgwgt<kieqpvkpwgu'vq'f knukdwg'cy ctf u'cpf "i tcpw'cu'y gm'cu'vq'r wdrkuj "Vtcpurcvkqp."c'lqwpcrliqh'vtcpurcvkqpu'htqo" y qtnf "rksgtcwtg."r cuv'cpf "r tgugpv0'kp"3; 87."y g'Hgf gtcni qxgtpo gpv'o cf g'cp'ko r qtvcpv'eqo o ko gpv'vq'hwpf kpi "vtcpurcvkqp"df "etgcvkpi "y g'P cvkqpcn'Gpf qy o gpv'hqt'y g''Ctvu'\*P GC+"cpf "y g'P cvkqpcn'Gpf qy o gpv'hqt'y g"
J wo cpkkgu'\*P GJ +0'Vj g'Nksgtcwtg'ugevkqp"qh'y gy P GC"cf o kpkngtu'cp"cppwcn'eqo r gxkkqp'hqt'vtcpurcvqtug' hgmqy uj kr u'vq'uwr qtv'y g''tcpurcvqp'hi' qgv{."hevqp."ftco c."cpf "hskgtct{"pqphevkqp0Vj g'F kxkukqp"qh'' Tgugctej "Rtqi tco u'qh'y g'P GJ "qhhgtu'tcpurcvqtug'i tcpwl'cpf "r wdrkuj kpi "uwdxgpvkqpu'hqt'c'y kf g'tcpi g'qh"

tcpurckqp"rtqlgew."uej qrctn("cu'y gri'cu'dgrgytknke0

Ewnwtcri'qti cpk ckqpu'uggo 'kpetgcukpi n("vq"dg"tgeqi pk kpi "tcpurckqp"d{"rtgugpkpi "cy ctf u'hqt"f knkpi wkuj gf" cej kgxgo gpw0'Vj g'Co gtkecp"Uecpf kpcxkcp"Hqwpf ckqp"cpf "y g'Htgpej "Co gtkecp"Hqwpf ckqp"dqy "eqpf wev" cppwcri'eqo r gkkqpu'hqt"tcpurckqp"cy ctf u0'Kp"3;; 6."y g'O qf gtp"Ncpi wci g'Cuuqekckqp"qh'Co gtkec"kpurkwwgf" y g'Crf q"cpf "Igcppg"Ueci rkqpg"Rtk g"hqt"Nksgtct{"Vtcpurckqp."y j kej "ku"i kxgp"vq"tcpurckqpu"pqv'qpn("qh" rkwgtcwtg."dw"cnuq"qh'r j knqni {."rksgtct{"j kuvqt{."etkkekuo ."cpf "y gqt{0'Cpf "y g'O ceCty wt"Hqwpf ckqp"o cf g"cv" rgcuv'qpg"qh'kxu"nxetcvkxg"cy ctf u'vq"c"vtcpurcvqt<kp"3;: 5."Tcrr j "O cpj gko "y cu"ej qugp"vq"tgegkxg"&82"222"r gt" {gct"hqt"rkhg0

#### Vtckpkpi

Hqt"o quv'Co gtkecp"tcpurcvqtu. 'hqtgki p/rcpi wci g"ces wkukkqp"qeewtu'kp'ugeqpf ct { "uej qqn'cpf "cv'wpkxgtukx{ "y ky " r gtkqf u'qh'tgukf gpeg'kp'hqtgki p'eqwpvtkgu0Cewcn'vtckpkpi "kp'vtcpurcvkqp"j cu'wuwcm{ "dggp"qp"vj g'lqd."y j gy gt" y g"vgzwu'vq'dg''vtcpurcvgf "ctg''vgej pkecn'qt''rkvgtct { 0'Vtcpurcvqtu''cpf "kpvgtr tgvgtu'kp''eqwtv'u{ uvgo u''cpf 'kp''uwej " qti cpk cvkqpu''cu''vj g"Uvcvg'F gr ctvo gpv''cpf 'vj g'Wpkxgf "P cvkqpu''r ctvkekr cvg'kp''ur gekcnk gf 'vtckpkpi 'r tqi tco o gu." cpf 'vj gkt'r gthqto cpeg'wpf gti qgu''r gtkqf ke''gxcnwcvkqp0

 $Hqtgki\ p/repi\ wei\ g'f\ gr\ ct\ we\ gpwu'kp''wpkxgtukkkgu''j\ cxg''nqpi\ ''qhhgtgf\ ''kpf\ kxkf\ wen'eqwtugu''kp''tcpurc'kpi\ ''cpf\ ''$ kpygtrtgykpi. "dww'ewttkewnc'yq''ytckp''ytcpuncyqtu'go gtigf'kp'yig'y cng''qh''Y qtnf''Y ct''Vy q0'Vjg'Fkxkukqp''qh'' Kpvgtrtgvcvkqp"cpf "Vtcpurcvkqp"cv'I gqti gvqy p"Wpkxgtukv("y cu"etgcvgf "kp"3; 6; ."chvgt"vj g"P wtgo dgti "Vtlcnu" f go qpuvtcvgf "vj g"vti gpv'pggf 'hqt'kpvgtrtgvgtu'kp'kpvgtpcvkqpcn'chhcktu0Kp"3; 8: . 'chvgt 'qhhgtkpi 'eqwtugu'kp'hqtgki p" rcpi wci gu'cpf 'ewnwtgu'hqt'o qtg''y cp''c'f gecf g.''y g'O qpvgtg{ 'Kpurkwwg''qh'Kpvgtpcvkqpcn'Uwf kgu'kpurkwwgf '' o cuvgtøu'r tqi tco o gu'vj cv'gpcdrgf 'uwf gpvu'vq'ur gekcnk g'kp'eqphgtgpeg'kpvgtr tgvkpi 'cpf 'vj g'vtcpurcvkqp'qh'pqp/ hlevkqp"\gzvu0"Vtckpkpi "kp"rkvgtct{"\tcpurcvkqp"j cu"\cmgp"\j g"hqto "qh"y qtmuj qr u"kp"r quvi tcf vcvg"etgcvkxg"y tkxkpi " rtqi tco o gu0kp'3; 86. 'yi g'Wpkxgtukx{ 'qh'kqy c'dgi cp'cmqy kpi 'etgcvkxg'y tkxkpi 'uvwf gpvu'vq'ej qqug'vtcpurcvkqp'cu'' cp"ctgc"qh'ur gelcrkv{."cpf "tcpurcvkqp"y qtmuj qr u'uqqp"cr r gctgf "kp"y tkxkpi "r tqi tco o gu"cv'uwej "qvj gt" wpkxgtukkgu"cu"Eqnwo dkc. "Rtkpegvqp." [cng"cpf "Ctmcpucu0"Vj g'r gf ci qi kecn'cr r tqcej "kp"vj g'y qtmuj qr "ku" hwpf cogpvcm{"rtcevkecn"hqewugf"qp"urgekhke"vtcpurcvkqp"rtqlgevu"cpf"igctgf"vq"tgxkukqp0Pqpg"vjg"hguu."vjg" rtcevkeg'ku'cnyc{u'tcvkqpcnktgf'd{'c'rctvkewnct'vjgqt{'qh'nkvgtcwtg'cpf'nkvgtct{'xcnvg."pq'ocvgt'jqy'kpwkxkxg." gxgp'lh'lk'kı'qpn(''y g'lpuxtwevqtøu'lo r nlek'cf j gtgpeg''vq''tgki plpi ''tgpf u'lp'r qgxt { .'hkevkqp.''cpf 'f tco c0 Gxgpwcm ("r quvi tcf wcvg"ewtthewrc"y gtg"uvctvgf "cv'qvj gt"hpurkwwkqpu. 'uqo g"qh'y j kej "cmqy gf "uwvf gpvu'vq"gctp" vtcpurcvkqp"egtvkhkecvgu"y j krg"eqo r ngvkpi "f gi tggu0"Ukpeg"3; 93."vj g"Vtcpurcvkqp"Tgugctej "cpf "Kouvtvevkqp" Rtqi tco "qh''yi g''Uvcvg''Wpkxgtukv{ "qh'P gy '[qtm'cv'Dkpi j co vqp''j cu'r tqxkf gf 'c'r quvi tcf wcvg'ewttkewnwo 'hqt" uwwf gpwu'r ncppkpi "vq"tcpuncvg"r tqhguukqpcm( "qt"y kuj kpi "vq"cf f "vtcpuncvkqp"cu"cp"cpekmct { "umkm'vq" ur gekenk evkapu'kp'eqo r etevkxg'hkvgtewtg. 'vj g'uqeken'uekgpegu. 'epf 'dwukpguu'o epci go gpv0'Uwej 'r tqi teo o gu'etg' v{r kecm{ 'kpvgtf kuekr rkpct{<'ij g{ 'eqo dkpg'eqwtugu'kp''\tcpurcvkqp''y gqt{ 'y kj '\tcpurcvkqp''y qtmuj qr u'cpf 'f tcy ''qp'' yj g'hcewnkgu'qh'f khhgtgpv'f grctvo gpvuOCv'Mgpv'Ucvg'Wpkxgtukv{. 'hqt'gzcorng.'yj g'F grctvo gpv'qh'O qf gtp'cpf'' Encualecn'Nopi wci gu'lqkpgf 'y ky 'y g'Kpurkwyg'qh'Crrnkgf 'Nkpi wkurkeu'rq'etgovg'c'rtopuncykqp'ewttkewnwo 'hqt'' uwwf gpwu'kp"Htgpej. "Ur cpkuj. "cpf 'I gto cp"y j q"r rcp"vq"\tcpurcvg"r tqhguukqpcm{ 'kp"uwej "ctgcu"cu"dwukpguu'cpf " i qxgtpo gpv0Vj g'CVCøu'hevguv'uwtxg{"qhi'vtcpunevqt"cpf "kpvgtrtgvgt"vtckpkpi "kp''yj g'Wpkvgf"Uvcvgu'hkuvu'39" kpurkwakqpu''y cv'qhhgt'r quvi tcf wcvg'r tqi tco o gu'ngcf kpi ''vq'egt vkhkecvgu''cpf 'f gi tggu' \*Rctm'3; ; 5+0

#### Tgugctej

Vj g'o cti kpcrkk{ "qh''tcpurcvkqp'kp'Co gtkecp'ewnwtg'ku''cnuq''gxkf gpv'kp''y g''tgrcvkxg''f gctyj "qh''tgugctej ."cv'ngcuv'' wpvkri'xgt{ "tgegpvn{0'Eqo o gpvct{ 'htqo "vj g''3; 72u''\q''y g''3; 92u''y cu''i gpgtcm{ "dgmgvtkuvke."r tqxqecvkxg''tghrgevkqpu'' r tqo r vgf "d{ "c''tcpurcvqtøu''y qtm'y ky "ur gekhke''hqtgki p''vgzvu''cpf 'hkgtcwtgu0'K'y cu''ecuwcn''qeecukqpcn''rhmgn{ "vq'' cr gct''kp''c''r tghceg''\q''c''rkgtct{ "vtcpurcvkqp."kp''cp''kpvgtxkgy ."qt''kp''cp''guuc{ 'hqt''c''r qgvt{ "o ci c| kpg0'F gur kg''y ku'' wpu{ uvgo cvke''r tgugpvcvkqp."yj g''y kpmkpi "cdqwv''tcpurcvkqp''y cu''qhvgp''kphqto gf "d{ "vj gqtgvkecn''cuuwo r vkqpu'' r tgxckrgf "eqpewttgpvn{ "kp''ccef go ke''rkgtct{ "uej qrctuj kr "cpf "kp''vtcpurcvkqp''y qtmuj qr u."r ctvkewrctn{ "cuuwo r vkqpu'' cdqwv''rkgtcwtg''y cv''cpko cvgf "y g''P gy "Etkkekoo "\*I gpv| rgt''3; ; 5+0'Vj gtg''y gtg''cnuq''go gti gpv'urtcpf u'qh''qy gt'' vtcpurcvkqp''y gqtkgu''dcugf "kp''urtvwewtcn'hpi wkuvkeu."ewnwtcn'cpyi tqr qmi { ."cpf "cpcn{ vke''r j kmqur j {0'Vy q'' r kqpggtkpi "cpyj qmi kgu''y cv'uwtxg{ "vj g'tcpi g''qh''vtcpurcvkqp''eqo o gpvct{ "f wtkpi "vj ku'r gtkqf "ctg''Dtqy gt "\*3; 7; +" cpf "Cttqy uo kyj "cpf "Uj cwwem'\*3; 83+0

O wej "qh"y ku"eqo o gpvct {"uj ctgf" y g"cunwo r vkqp"y cv"vtcpurcvkqp"kpxqnxgu"y g"eqo o wpkecvkqp"qh"c"hkzgf" o gcpkpi "nqecvgf "kp"y g"hqtgki p/rcpi wci g"vgzv0Cu"c"tguwn."pqvkqpu"qh"gs wkxcngpeg"i wkf gf "y g"tgugctej 0' Vj tqwi j qw"y g"3; : 2u. "y ku"xkgy "y cu"kpetgcukpi n( "tgxkugf "cu"Co gtkecp"vtcpurcvkqp"uwwf kgu"eqpvkpwgf "vq"f tcy " qp"eqpegr wcn"f gxgrqr o gpwu"kp"ugxgtcn"f kuekr nkpgu. "kpenwf kpi "c"xctkgv( "qh"ewnwtcn"cpf "r qrkkecn"f kueqwtugu"yj cv" ctg"o quw( "Gwtqr gcp"kp"qtki kp<"r u(ej qcpcn( uku."r j gpqo gpqrqi { ."Htcpnhwtv"Uej qqn"O ctzkuo ."Htgpej "hgo kpkuo ." r quvurt wewtcnkuo 0%p"y gug"pgy "nkpgu"qh"tgugctej ."vtcpurcvkqp"y cu"eqpukf gtgf "rguu"cu"eqo o wpkecvkqp"dgw ggp" rcpi wci gu"cpf "ewnwtgu"y cp"cu"kpvgtr tgvcvkqp"y cv"r tqxkukqpcm( "hkzgu"c"o gcpkpi "kp"y g"hqtgki p/rcpi wci g"vgzv"kp" ceeqtf cpeg"y ky "cp"kpvgtr tgvcvkqp"y cv"tqxkukqpcm( "hkzgu"c"o gcpkpi "kp"y g"f qo guvke"ukwcvkqp0Nguu" cwgpvkqp"y cu"i kxgp"vq"pqvkqpu"qh"gs wkxcrgpeg"y cp"vq"y g"kpgxkvcdrg"rkpi wkuvke"cpf "ewnwtcn"f khhgtgpegu" pgi qvkcvgf "d{"y g"tcpurcvqt0"

Vj g'ej cpi g'kp''y g'f ktgevkqp''qh'tgugctej 'ecp''dg'i nko r ugf 'kp''*Vt cpurc kqp'Rgt ur gevkxgu.* 'c''ugtkgu''qh'qeecukqpcn' r cr gtu'r wdrkuj gf 'ukpeg'3; : 4''d{ ''y g''Vtcpurc kqp'Tgugctej ''cpf ''Kpurt we kqp''Rtqi tco ''cv'UWP [ ''Dkpi j co vqp''cpf'' gf kgf ''d{ ''O ctkn(p'I cf f ku'Tqug0C''y cvgtuj gf ''xqnwo g.''y j kej ''cnq''qtki kpcvgf ''kp''c''eqphgtgpeg''cv'Dkpi j co vqp.''ku'' I tcj co '\*3; : 7+.''y j kej ''tgr tgugpvu'r quv'urt wewtcrkuv'uv{ rgu''qh''y kpnkpi 0

Kp"y g"3;; 2u."cu"\tcpurc\dp"dgi kpu"\q"go gti g"cu"c"uej qretn("f kuekr rkpg"kp"ku"qy p"tki j v."y q"tcyj gt"f khhgtgpv" r ctcf ki o u"crrgct"\q"dg"f tkxkpi "tgugctej 0Qp"\y g"qpg"j cpf "ku"cp"crrtqcej "\y cv'ecp"i gpgtcm("dg"ecmgf "\yzv" r kpi wkukeu."kp"y j kej "pq\dpu"qh"gs wkxcrgpeg"ctg"i tqwpf gf "qp"\y g"ercuukhec\dpp"qh"\yzv"\{r gu"cpf 'hwpe\dpu0Qp" y g"qy gt"j cpf 'ku"cp"crrtqcej "\y cv'ecp"i gpgtcm("dg"ecmgf "ewnwtcn'uwf kgu."y j kej "ku"eqpegtpgf "y ky "j qy " x cnwgu. "kf gqmi kgu."cpf "kpukwwkqpu"uj cr g"r tce\degu"f khhgtgpv(" "kp"f khhgtgpv'j kunqtkecn'r gtkqf u0"Vj gug'tgugctej " r ctcf ki o u"ctg"xkukdng"kp"\y g"htuv'y q"dqqmu"kp"Vt cpurc\dqp"Uwf kgu."c"ugtkgu"r wdrkuj gf "d{"Mgpv'Ucvg"Wpkxgtuk\{" Rtguu"cpf "gf kxgf"d{"Cmttgej v'P gwdgtv'cpf "I tgi qt{"Uj tgxg"\dqp gwdgtv'cpf "Uj tgxg"\dqq pwdf kyi "cpf "O cuuctf kgt/ Mgppg{"3;; 6+0"Qy i gt"tgegpv'r wdrkec\dppu"kpf kecvg"\y cv'ewnwtcn'uwf kgu"ku"hngn("\q"f qo kpcvg"\tcpurc\dpp"tgugctej " kp"\y g"Wpkxgf "Ucvyu0'Kr'ku"\y ku"crrtqcej "\y cv'uggo u"\q"dg"unko wrc\dpi "\y g"o quv'kpytguv."cwtce\dpi "uej qretu"htqo " f kuekr rkpgu"\y cv'j cxg"j ky gtvq"pgi rgevgf "\tcpurc\dqp\off gur kxg"ku"ko r qtvcpeg"\tcpurc\dpi"Co gtkecp"ewnwtcn'cpf "r qrk\decn' j kurt\{0}

### Hwt yj gt 't gcf kpi

NCY TGP EG'XGP WVK

#### Dkqi tcrj kgu

GNKQV.'Lqj p"\*38266; 2+0'Gpi rkuj "o kpkryt."cwj qt."cpf "kcpurcvqt0'Dqtp"kp"J gtvhqtf uj ktg. "Grkqv'uwf kgf "cv" Eco dtkf i g"Wpkxgtuk{"cpf "y cu"qtf ckpgf "kp"y g"Ej wtej "qh"Gpi rcpf 0'J ku"tgrki kqwu"xkgy u."j qy gxgt."y gtg"rguu" Cpi rkecp"y cp"Rwtkcp."cpf "kp"3853"j g"rghv'Gpi rcpf "hqt"y g"eqmp{"kp"O cuucej wugwu."y j gtg"j g"dgeco g"r cuvqt" qh"y g"htuv'ej wtej "cv'Eco dtkf i g0'J g"y cu"co qpi "y g"Rwtkcp"ergti {o gp"y j q"yguvkhgf "ci ckpuv'Cppg"J wej kpuqp" kp"3859."y j gp"j gt"wpqtyi qf qz"tgrki kqwu"ycej kpi u"r tqxqngf "j gt"vtkcn"cpf "dcpkrj o gpv0'Kp"3862"Grkqv" eqmedqtcvgf "qp"y g"kphrwgpvkcn'Gpi rkuj "vtcpurcvkqp"qh"y g"Rucmo u"npqy p"cu"Vj g"Dc{"Rucmo "Dqqn0'Kp"y g"3862u." y kj "y g"j gr "qh"c"pcvkxg"kphqto cpv."j g"uwf kgf "Kpf kcp"crpi wci gu"cpf "go dctngf "qp"c"hkby/rqpi "gxcpi grkecn" rtqlgev'y cv"gctpgf "j ko "y g"kwrg"qh"-Kpf kcp"Cr qurrgo0J g"guvcdrkrj gf "o cp{"ugwrgo gpw1'qh"Kpf kcpu'y j qo "j g"pqv" qpn{"eqpxgtvgf "vq"Ej tkrvkcpk{"dwl\*kpvtqf wegf "vq"Gpi rkrj "ewrwtcn"cpf "uqekcn"r tcevkegu0'Kp"3875"Grkqv'dgi cp"vq" y tkrg"kp"y g"Cni qps wkcp"rcpi wci g."rtqf wekpi "c"ecvgej kno "cpf "c"vtcpurcvkqp"qh"y g"Dklrg0'J g"cnq"r wdrknj gf "o cpwcnu"qh"Cni qps wkcp."uwej "cu"Vj g"Kpf kcp"t tco o ct"Dgi wp"\*3888+."y j kej "y gtg"f guki pgf "hqt"o knukqpctkgu"cu" y gm"cu"pcvkxg"eqpxgtw0

HKVU'F wf rg{"\*3; 2568: +0Co gtkecp"r qgv."etkke."cpf "tcpurcvqt0Dqtp"kp"Dquvqp"cpf "gf wecvgf "cv"J ctxctf" Wpkxgtuk/{."Hkwu''cwi j v'hqt"o cp{"{gctu''cv''r tkxcvg"uej qqnu'kp"P gy "Gpi rcpf ."hktuv'Ej qcvg"cpf "y gp"Rj krkr u" Cecf go {0Htqo "y g'rcvg"3; 52u"qpy ctf ."j g'i ckpgf "c'f krkpi wkuj gf "tgr wcvkqp"cu''c "tcpurcvqt "qh''ercutlecni' rksgtcwtg."o quvn{"f tco c'd{"Ctknvqr j cpgu"cpf "Uqr j qergu."dwv'cnvq"I tggm'cpf "Ncvkp"gr ki tco u0Kp"3; 64"Hkwu" gf kgf "cpf "eqpvtkdwgf "tcpurcvkqpu"vq"c"r kqpggtkpi "cpy qmi {"qh''eqpvgo r qtct {"Ncvkp"Co gtkecp"r qgvt{0Kp"3; 7: " j g'r wdrkuj gf "cp"guuc{"qp"\tcpurcvkqp"gpvkrgf "÷Vj g"Rqgvke"P wcpegø"kp"y j kej "j g"cti wgf "y cv'c"r qgvt{"tcpurcvkqp" uj qwf "dg"Iwf i gf "cu'cp"cwqpqo qwu'rkgtct{"yzv0Hkwuøu'\tcpurcvkqpu'y gtg'htgg."uqo gvko gu'xgti kpi "qp" r ctcr j tcug."cpf "wuwcm("ecuv'kp"y j g'uvcpf ctf "f kcrgev'qh'Co gtkecp"Gpi rkuj 0J g'y cu'cp"kphrwgpvkcn'etkke"qh'r qgvt{" cpf "tcpurcvkqpu"y j qug"tgxkgy u'cr r gctgf "kp"pwo gtqwu'r gtkqf kecnı."dqyj "o cuu'cpf "uo cm'ektewrcvkqp0 RQWPF.'G| tc"3: : 763; 94+0Co gtkecp"r qgv."etkke."cpf "tcpurcvqt0Dqtp"kp"Kcj q"cpf"

gf wecygf "cv'J co knap"Eqmgi g"cpf "y g"Wpkxgtuk\{"qh'Rgppu\{ nxcpkc. "Rqwpf "y cu'qpg"qh'y g"o quv'kphnwgp\kcn' hki wtgu'lp"y g"o qf gtpkn/hkgtct \{ "o qxgo gp\0 \kp"3; 2: ."clngt"r wtuwkpi "i tcf wcvg'uwf \{ "kp"Tqo cpeg"rcpi wci gu'cpf " nkgtcwtgu." j g"ighv'hqt "Gwtqr g. "hkzkpi "htuv'kp"Nqpf qp"\si3; 2: .63; +"cpf "y gp"\kp"Rctkn\si3; 3; 645+"dghqtg"ugwhpi "\kp" Kcn\{"cv'T cr cmq\0 \kpypf \and \underland \und

TIRNG[ .\*I gqti g\*\*3: 246: 2+0Co gtkecp"o kpknyt."Iqwtpcrkw."cpf "tcpurcvqt0Dqtp"cvI tggphkgrf."

O curcej wugwu."Tkr ng{"i tcf wcvgf 'htqo "J ctxctf 'F kxlpkv[ "Uej qqrl\p"3: 48"cpf "gpvgtgf "vj g"Wpkctkcp"o kpknvt{0J g" ugtxgf "cu"c"o kpknvt "\p"Dquvqp"y j krg"gf kkpi "cpf "y tkkpi "hqt"uvej "r gtkqf kecm"cu"Vj g"Ej t knkcp"Gzco kpgt "cpf "Vj g"F kcn0Tkr ng{ "dgrqpi gf "vq"vj g"Vtcpuegpf gpvcnlEnvd."c"i tqwr "qhlP gy "Gpi ncpf "kpvgngewcni"y j q"y gtg"npqy p" cu"vj g"Vtcpuegpf gpvcnlxnu"hqt"vj gkt "kpvgtguv"kp"Gwtqr gcp"r j krquqr j { "cpf "rksgtcwtg0Htqo "3: 63"vq"3: 69"j g"lqkpgf "qvj gt"Vtcpuegpf gpvcnlxnu"kp"hqwpf kpi "vj g"DtqqmiHcto "eqo o wpkv{."c"uqekcnknv"gzr gtko gpvvkphqto gf "d{"vj g"kf gcu" qh"vj g"Htgpej "wqr kcp"vj kpngt."Ej ctngu"Hqwtkgt0Tkr ng{"ncvgt"y qtngf "y kj "Vj g"Pgy "I qtniVtkdwpg."y j gtg"j g" y tqvg"kphnwgpvkcn'dqqmitgxkgy u"cpf "vtcpurcvgf "hqtgki p"pgy u"f kur cvej gu0J g"cnq"gf kxgf "vj g"38/xqnwo g"Pgy "Co gtkecp"E{enqr gf kc"\si3: 7: 685+0Cu"c"\tcpurcvqt"cpf "gf kxqt"qh'\tcpurcvkqpu."Tkr ng{øu"o quv'ko r qtvcpv" cej kgxgo gpv'kn"Ur geko gpu"qhHqt gki p"Ucpf ctf "Nagt cwt g"\si3: 5: 674+"c"o wnk/xqnwo g"cpvj qrqi { "qh'\tcpurcvkqpu" vj cv'cko gf "q"gptkej "Co gtkecp"ewnwtg"d{"o cmkpi "cxckrcdng"vj g"Htgpej "cpf "I gto cp"y tkkpi "vj cv'kpur ktgf "j ku" hgmy "kpvgngewcnu0

Y kPPGO WEEC.'Uctej "\3: 666; 3+0Co gtkecp'kpygtrtgygt.'ngewtgt.'rcpf'cwj qt0C'o go dgt'qh'y g'Rckwg'\tkdg."
Y kppgo weec'y cu'dqtp'kp'y guygtp'P gxcf c0Dgw ggp'3: 79'cpf "3: 82.'uj g'hxgf 'y ky 'y g'hco kn{ 'qh'cp'Co gtkecp'' o krkct{ "qhhlegt." y ky "y j qo 'uj g'dgeco g'r tqhkekgpv'kp'Gpi rkuj 0F wtkpi "y g'3: 82u.'uj g'r gthqto gf 'y ky "j gt 'hcy gt'' Ej kgh'Y kppgo weec'cpf "qy gt'Rckwyu'kp''cdngcwz''xkxcpw''y cv'tgrtgugpygf "kpf kcp'ewuvqo u0kp''y gug'' r gthqto cpegu'uci gf 'kp'Ecrkhqtpkc'cpf 'P gxcf c.'Y kppgo weec'kpygtrtgygf 'j gt'hcy gtøu'ur ggej gu0Htqo '3: 8: " wpvkn'3: : 2.'uj g'kpygtrtgygf 'hqt''ci gpwi'y ky "y g'hgf gtcn'Dwtgcw'qh'kpf kcp'Chhcktu." j grr kpi 'vq'pgi qvkcy'dgw ggp'' dgrki gtgpv'vtkdgu'cpf 'gxgpwcm{ 'dgeqo kpi 'cp'kpygtrtgygt'cv'y g'O cnj gwt'tgugtxcvkqp'kp'Qtgi qp'hqt'c'dtkgh'' r gtkqf 0kp'3: : 3"Y kppgo weec''hpwgtrtgygt 'cv'y g'O cnj gwt'tgugtxcvkqp'kp'Qtgi qp'hqt'c'dtkgh'' r gtkqf 0kp'3: : 5"uj g'r wdrkuj gf ''g'y g'kkkpi ''eqpf kkqpu'qp'tgugtxcvkqpu0Uj g'uvctvgf ''y q'uej qqnu'hqt'kpf kcp'' ej krftgp0Kp'3: : 5"uj g'r wdrkuj gf ''cp''cwqdkqi tcr j {."Nkg'Co qpi ''y g'Rckwyu<'Vj gkt'Y tqpi u'cpf 'Ercko u0 NCY TGP EG'XGP WVK

Ctcdle'ttcf kkqp

 $Ctcdke''ku''c''ugo~kke''ncpi~wci~g0'K''qtki~kpcvgf~'kp''y~g''Ctcdkcp''r~gpkpuwrc''dw''ur~tgcf~'hct''dg\{qpf~'yj~g''eqphkpgu''qh''kwu''~dktyi~r~nceg''y~kyi~'yj~g''tkug''qh''Kurco~'kp''yj~g''ugx~gpyj~'egpwt~\{0$ 

 $Rtkqt''vq''y g''tkug''qh''Kurco ''cpf''y g''eqpuqrkf cvkqp''qh''y g'':Ctcd''pcvkqpø''y g''xctkqwu''r gqr rgu'y j q''kpj cdkxgf'' fkhgtgpv''r ctwu''qh''y g''yttkxqt{''pqy ''mpqy p''cu''y g''Ctcd''Y qtrf''y gtg''kp''o cp{''ecugu''dkrkpi wcn''ur gcrkpi ''Ctcdke''kp'' gxgt{fc{''}}$ 

eqpvgz vu'cpf 'wukpi 'c'xctkgv{ 'qh'hcpi wci gu'uwej 'cu'U{ tkce'cpf 'Ctco cke'hqt'vtcf g'cpf 'hgctpkpi '\*J kwk'3; 59<92ht0+."
gur gekcm{ 'cu'Ctcdke'f kf 'pqv'f gxgmr 'c'y tkwpi 'u{ uvgo 'wpvkn'cmo quv'vj g'tkug'qh'Kurco 0'Vj g{ 'y gtg'qh'f kthgtgpv'
gvj pke'dcemi tqwpf u'cpf 'hqmqy gf 'xgt { 'lf kthgtgpv'y c{ u'qh'hkhg."xct { kpi 'dgwy ggp'c'pqo cf ke. 'vtkdcn'gzkuvgpeg'kp''
yj g'r gpkpuwrc'\*r tgugpv/f c{ ''Ucwf k'Ctcdkc."[ go gp'cpf 'Vj g'I wth'uvcvgu+'cpf 'c'ugf gpvct { ."ci tkewnwtcnlo gtej cpv'
ewnwtg'kp''yj g'Hgtvkrg'Etguegpv'\*U{ tkc."Ngdcpqp."Kcs 'cpf ''Rcnguvkpg+0'Vj g''tkdgu'kp''yj g'r gpkpuwrc''y gtg'pqv'twrgf ''
d{ ''qwukf g'r qy gtu.'y j gtgcu''yj g'kpj cdkcpvu''qh'qvj gt'r ctvu'hgm'wpf gt''yj g'twrg''qh'gkvj gt''yj g'D{ | cpvkpg''qt''
Ucuucpkcp'Go r ktg0

Vj g'dktyj ''qh'Kurco ''kp''y g''ugxgpyj ''egpwt{ ''ku''y g''o quv''ko rqtvcpv''gxgpv''kp''y g''j kuvqt{ ''qh''y g''Ctcd''r gqr ngu≺kv'' ej cpi gf ''y g''r qrkxkecn''ewnwtcn'cpf ''rkpi wkuvke''o cr ''qh''y g''ctgc''hqt''gxgt0Vj g''ur tgcf ''qh'Kurco ''dgi cp'f wtkpi ''y g'' Rtqrj gwu''nkhgvko g''cpf ''i cyj gtgf ''rj gpqo gpcn'ur ggf ''chwgt''j ku''f gcyj ''kp'8540'D{ ''8; : .''Ktcs.''Ktcp.''U{tkc.''Gi {rv'cpf '' Pqtyj ''Chtkec''j cf ''dgeqo g''r ctv'qh''y g''pgy ''r qrkxkecn'cpf ''tgrki kqwu''qtf gt0'Cv'yj g''j gki j v'qh''kxu''gzr cpukqp.''yj g'' Kurco ke''Go rktg''untgwej gf ''htqo ''r tgugp√f c{ ''Rcmkurcp''q''Ur ckp0

Vj g'r qrkkecri'j kuvqt { "qh'vj g'Kmco ke''Y qtrf 'ku'tcvj gt'eqo r ngz."y ky ''vj g''ugcv'qh'Go r ktg''o qxkpi 'htqo ''qpg''ecr kcri' vq''cpqvj gt ''cu'f khhgtgpv'f { pcuvkgu''tqug''vq''r qy gt. "cpf ''y ky ''ugxgtcri'ecrkr j cvgu''cv''ko gu''gzkuvkpi ''kp''xctkqwu''r ctwi'qh'' vj g''y qtrf 0'Vj g''o quv'ko r qtvcpv'r gtkqf u''cpf ''ecrkr j cvgu''ctg''cu''hqmqy u<

"Vj g"qt vj qf qz"r gt kqf "qh'vj g"gct n\"ecnkr j c vg. 'uvct vkpi ''y kyj ''vj g"f gc vj ''qh' Muhammad ''kp'854''cpf ''gpf kpi ''y kyj ''
vj g"f gc vj ''qh'\ecnkr 'j g'hqwt vj ''I wkf gf 'Ecnkr j .''kp'8830'Vj g''ugc v'qh''vj g''ecnkr j c vg''f wt kpi ''vj ku''r gt kqf ''o qx gf 'ht qo ''
O gf kpc. ''kp''r t gugpv\f c \{ ''Ucwf k'Ctcdkc. ''vq''cn\Mwhc''cpf ''cpf ''cn\Dcutc''kp''r t gugpv\f c \{ ''Kcs

"*Vj g'Wo c{{cf 'Ecnkrj cvg*'\*883ó972+."y kyj 'kxu'ugcv'kp'F co cuewu

" $Vj\ g'Cddc\ ukf\ 'E\ c\ nkr\ j\ c\ vg'$ "9726347: +: 'y kj 'kw'ecr kcn'kp'Dci j f cf

"Vj g'Hcvko lf 'Ecrkrj cvg'"; 2; 63393+."c"Uj køksg"qhhuj qqv'qh'vj g"o ckp"ecrkrj cvg."y kij "kxu"ecr kxcn'kp"Ecktq "Cp"qhuj qqv'qh'vj g'Wo c{{cf 'Ecrkrj cvg'y j kej 'y cu"guvcdrkuj gf 'kp"Eqtf qdc'"; 4; 63253+

"Vj g'Qvqo cp'Ecnkrj cvg'\*e0373963; 46+.'y kj 'kvu'ugcv'kp'Eqpuvcpvkpqr ng0'Vj ku'ncuv'i tgcv'ecnkrj cvg''qh'Knrco "y cu''Vvxtmkuj 0

Vj g'qhheg'qh'ecrkr j "\*kQ0'recf gt'qh'y g'O wurko "eqo o wpk{+'y cu'qhhekcm{"cdqrkij gf 'kp'3; 460}
Hiqo "y g'r qkpv'qh'xkgy "qh'y g'j kurqt { 'qh'ytcpurc-kqp'kpvq'Ctcdke."y g'qty qf qz 'r gtkqf."y g'Hcvko kf "Ecrkr j cwg'cpf"
y g'qhhij qqv'qh'y g'Wo c{{cf "Ecrkr j cwg'kp'Ur ckp'ctg'qh'tgre-kxgn{"kwwg'kpvgtgunOCnj qwi j ''y g'Ctcd'eqps wguv'qh'
Ur ckp'ku'cunqekcygf 'y kj "cp'ko r qtvcpv'r gtkqf 'qh'ytcpurc-kqp'ce-kxkv{."o wej "qh'y ku'ce-kxkv{ "kpxqnxgf "tcpurc-kqp"
qwv'qh'tcvj gt'y cp"kpvq'Ctcdke"\*ugg'URCP KU "VTCF KVKQP +0Vj g'o quv'ko r qtvcpv'r gtkqf u'kp'y g'j kurqt { "qh"
ytcpurc-kqp"kpvq'Ctcdke"ctg'y g'Wo c{{cf "cpf 'Cddculd' 'Ecrkr j cygu."y j kej "y gtg'hqmy gf "d{"c"npi "r gtkqf "qh"
kpvgngewcn'uvci pc-kqp'kp'y g'Kurco ke"Y qtrf 'htqo "y g'y grhy "vq'y g'gki j vggpy "egpwtkgu0
Vj g'y kf gn{ "egrgdtcvgf 'hnqwtkij kpi "qh'ytcpurc-kqp'kp'y g'Kurco ke"Go r ktg'ku"enqugn{ "cuuqekcvgf "y kj "cpf "f gr gpf gpv'
y g'i tqy y "qh'Ctcdke"cu"c'y tkwgp"hkgtct{ "rcpi wci g."y j kej "dgi cp"y kj "y g'pggf "vq'hkz'y g'hqto "qh'y g'S wtø p"
"ugg'S WTø P "VTCP UNC VKQP +0Vj g'uvcwu"qh'Ctcdke"cu"hpi wc'htcpec'y cu"guvcdrkuj gf "y j gp'y g'Wo c{{cf "
Ecrkr j "eCdf "cn'O crkmlkdp'O ctcy p"\*tgki pgf "8: 76927+'f geretgf "kv'y g'uqng'cf o kpkntc-kxg"rcpi wci g'qh'y g"
y g''y g''tctgc. "gpcdrkpi "y g''kctlgv{ "qh'tgrki kqwu"cpf "gyj pke"i tqwr u'y cv'o cng'wr "y g''r qr wrc-kqp"qh'y g''Ctcd"Y qtrf "
y g''y kpm'qh'y go ugrxgu"cu"c":-pc-kqpø0

### Vtcpurcvkqp'kp'tj g'Ctcd'Kurco ke'Go rktg'\*ugxgpvj 'tq'tj ktvggpvj 'egpvwtkgu+

Uqo g''tcpurc'kqp''cekxkk{ ''uggo u''vq''j cxg''vcmpp''r reeg''qp''c''uo cm'uecng''r tkqt''vq''yj g''tkug''qh''Knrco 0'C''o cpwuetkr v'' f c'kpi ''dcem'vq''CF ''735''cpf ''y tkwgp''kp''I tggm''U{ tkce''cpf ''Ctcdke'y cu''hqwpf ''pgct''Cngr r q0'Kk''nkuwu.''co qpi ''qvj gt'' yj kpi u.''yj g''pco gu''qh''o gp''kpxqnxgf ''kp''dwkrf kpi ''yj g''ej wtej ''yj gtg''yj g''o cpwuetkr v'y cu''hqwpf ''\*\Crk''3; : 8√3+0' Uqo g''tcpurc'kqp''cpf ''kpvgtr tgvkpi ''cevkxkkgu''o wuv'j cxg''cnuq''gzkuvgf ''kp''yj g''xgt{ ''gctn{ ''f c{u''qh''Knrco .''yj qwi j ''y g'' y g''xgt{ ''hgy ''

tgeqtf u'qh'uwej "cevkxkv $\{0$ Y g'f q'mpqy .'j qy gxgt.'vj cv'vj g'Rtqr j gv'ugpv'o guuci gu'vq'xctkqwu'r qrkxkecnltwrgtu.'uwej "cu'vj g'Xkegtq $\{$ "qh'Gi  $\{rv'$ wti kpi "vj go "vq'cf qr v'vj g'pgy "tgrki kqp'\*ugg' $SWT \emptyset P$  "VTCP UNC VKQP +0"Vj ku'v $\{rg'$ qh' gzej cpi g'dgwy ggp'vj g'Rtqr j gv'cpf 'pqp/Ctcd'twrgtu'eqwrf "pqv'j cxg'vcngp'r rceg'y kyj qw'uqo g'hqto "qh'rkpi wkurke" o gf kcvkqp0O qtgqxgt.'vj g'S wt $\emptyset$  p'kxugrh'kpenwf gu'o cp $\{$ 'y qtf u'dqttqy gf 'htqo 'I tggm'Rgtukcp.'U $\{$ tkce''cpf'' J gdtgy  $\{0\}$ 

Vj g"pgy "ewnwtcn'gpxktqpo gpv'y j kej "f gxgmr gf "hqmqy kpi "vj g"tkug"qh'Kurco "cpf "vj g"gzr cpukqp"qh'vj g"Kurco ke"
Go r ktg'y cu'kph'kpkyn{ 'tkej gt"cpf "o qtg"eqo r ngz"vj cp"cp{ vj kpi "r tgxkqwun{ "gzr gtkgpegf "d{ "vj g'kpj cdkcpwu"qh'vj g" Ctcdkcp"Rgpkpuwrc0'Vj g"pgy "go r ktg"rc{ "cv'vj g"kpytugevkqp"qh'Gcuvgtp"cpf "Y guvgtp"ekxkrk cvkqpu"cpf "dtqwi j v" vqi gvj gt "vj g"o quv'uqr j kurkecvgf "ewnwtcn'vtcf kkqpu"qh'vj g'r gtkqf <'I tggm"kpf kcp. "Rgtukcp"cpf "Gi {r vkcp0'Qpg"qh" vj g"o quv'ko r qtvcpv'eqpugs wgpegu"qh'vj ku'f gxgmr o gpv'y cu'vj g'uj khv'qh'Ctcdke"htqo "c"o ckpn{ "qtcn'icpi wci g." ur qngp"d{ "cp"gvj pkecm{ "j qo qi gpgqwu'eqo o wpkv{ "qh'pcvkxg"ur gcngtu."vq"c"y tkwgp"cpf "ur qngp"rkpi wc"htcpec"qh" c"xcuv'ekxkrk cvkqp"eqo r tkukpi "o cp{ "gvj pke"cpf "rkpi wkurke"i tqwr u0

Vj g'pqo cf ke'Ctcdu'y j q'eco g'qw'qh'y g'f gugtv'j cf 'c'i tgcv'f gcn'vq'rgctp'htqo ''y g'pcvkqpu''y g{ 'eqps wgtgf 'cpf '' tgrcvkxgn{ ''hkwg''vq'qhhgt''kp''tgwtp0Cpf ''y g{ ''y gtg''gci gt''ngctpgtu0Nfour ktgf ''d{ ''y g''tkej pguu''qh'y g''ekxknt cvkqpu'' y g{ ''y gtg''pqy ''gpeqwpvgtkpi ''hqt''y g''htuv''vko g.''cpf ''gzr nkekn( ''gpeqwtci gf ''d{ ''y g''S wtø p''vq''uggm'npqy ngf i g'' y j gtgxgt''kv''eqwrf ''dg''hqwpf .''y g{ ''dgi cp'c''j wi g''eco r cki p''vq''ces wktg''y g''ngctpkpi ''qh'y g''pcvkqpu''wpf gt''y gkt''twg'' cpf ''pcwtcm{ ''wtpgf ''vq''tcpurcvkqp''cu''y g''o gcpu''d{ ''y j kej ''y g''pgy ''uqwtegu''qh'npqy ngf i g''eqwrf ''dg''ceeguugf 0' Vj g''r gtkqf ''htqo ''y g''gtki j yj ''vq''y g''gngxgpyj ''egpwt{ ''kp''r ctvkewrct''y kpguugf ''cp''wpr tgegf gpvgf ''ngxgn'qh'' vtcpurcvkqp''cevkxkv{ .''ckf gf ''i tgcvn{ ''d{ ''y g''cxckrcdkrkv{ ''qh''r cr gt.''y j kej ''y cu''kpvtqf wegf ''kpvq''y g''O wurko ''Y qtnf '' uj qtvn{ ''chvgt''Uco ctncpf ''y cu''ecr wtgf ''kp''926'\*\*Uvqen'3; 9: ♂5+0'Y kj ''y g''kpvtqf wevkqp''qh''r cr gt.''y g''r tqeguu''qh'' vtcpuhqto kpi ''y g''qtcn'Ctcdke''ewnwtg''kpvq''c''nksgtcvg''qpg''eqwrf ''r tqeggf ''kp''gctpguv.''y kj ''tcpurcvkqp''r nc{kpi ''y g'' o ckp''tqng''kp''gcthguv'y kj ''tcpurcvkqp''r nc{kpi ''y g'' o ckp''tqng''kp''q'' ch''y g'''y g'

Vj g'Ctcdu'ctg''etgf kgf 'y kj 'kpkkcvkpi 'y g'hktuv'qti cpk gf .'ncti g/uecng''tcpuncvkqp''cevkxkv{ 'kp'j kuvqt {0'Vj ku'' cevkxkv{ 'uvctvgf 'f wtkpi 'y g'tgki p''qh'y g''Wo c{ {cf u'\*883ó972+"cpf 'tgcej gf 'kwu'| gpkj 'wpf gt'y g'Cddcukf u'\*972ó 347: +:"r ctvkewnctn{ 'f wtkpi 'y g'tgki p''qh'cn'O cøo p'\*: 35ó55+"npqy p''cu'y g''I qnf gp''Gtc''qh''tcpuncvkqp0'Vj g'' egpvtg''qh'y ku''cevkxkv{ 'y cu''Dci j f cf .'c'hcdwnqwu''ekv{ 'dwknv''d{ ''y g''Cddcukf ''ecnkr j ''cn'O cpu t''cpf ''y g''uegpg''qh'' o cp{ ''gr kuqf gu''kp''y g'hco qwu''*Vj qwucpf ''cpf ''Qpg'Pki j wo*0

 $\label{thm:control_problem} Vj ku'wpr tgegf gpvgf ''eqo o ko gpv''vq''vtcpurcvkqp''ecp''dg''f kuvkpi wkuj gf ''htqo ''cp{ ''vtcpurcvkqp''cevkxkv{ ''vj g''y qtrf ''j cf '' mpqy p''dghqtg''kp''vgto u''qh''vj tgg''hcevqtu''*cn/Mj t{ ''3; :: 46+<}$ 

\*c+'Topi g''qh''uqwteg''nopi woi gu<''y g''Ctodu''\topuncvgf ''xqtoekqwun( ''htqo ''Ucpuntkx.''Rgtukop.''U{ tkoe.''I tggm'' Ctoo cke''opf ''qvj gt''nopi woi guO

\*d+Tcpi g'qh'vqr keu'cpf 'uwdlgevu<cm'cur gewi'qh'mpqy ngf i g'kpvgtguvgf 'vj g'Ctcdu0'Vj g{ 'vtcpurcvgf '' o cpwuetkr vu'qp''o cvj go cvkeu. 'cuvtqpqo { .'r j kmquqr j { .'mqi ke.'o gf kekpg.''ej go kuxt { .'r qnkxkeu. 'gve0'Nksgtcwxtg'' y cu''qh'tgncvkxgn( ''nguu'kpvgtguv'f wtkpi ''vj ku'r gtkqf .'r ctvn( ''dgecwug'kv'qhxgp'kpenxf gf ''tgnki kqwu''o { vj u'y j kej '' eqphrkevgf ''y kyj ''Kurco ke''vgcej kpi u.''cpf ''r ctvn( ''dgecwug''vj g'Ctcdu''cntgcf { ''j cf ''c''uxtqpi ''nksgtct { ''vtcf kxkqp''qh'' y gkt''qy p0

\*e+'O quv'ko r qt vcpvn{ ."vj g''vtcpurc vkqp''o qxgo gpv'y j kej "gxqnxgf "wpf gt''Kurco ke''t wrg''y cu''qti cpk gf "cpf "kpurkwwkqpcnk gf 0'Vtcpurc vkqp''y cu''ur qpuqtgf "cpf "uwr r qt vgf "d{ "vj g'i qxgtpo gpv."cpf "ur gekhke "kpurkwwkqpu."qt" vtcpurc vkqp''ej co dgtu."y gtg''ugv'wr "vq'kpkke vg''cpf "tgi wrc vg''y g'hrqy "qh''vtcpurc vkqpu0'Vj g'hktuv''uwej "vtcpurc vkqp" ej co dgt "y cu''ugv'wr "d{ "cn'O cpu t."vj g''ugeqpf "Cddcukf "ecnkr j "\*9766997+"cpf "gzr cpf gf "eqpukf gtcdn{ "d{ "cn' Tcuj f "\*9: 86: 2; +"cpf "cn'O cøo p'\*: 35655+0

#### $Vj g'Wo c\{\{cf'Rgtkqf\}\}$

Vj g'hktuv'j crh'qh'vj g''gki j vj ''egpwt { ''y kxpguugf ''c''pwo dgt ''qh'f gxgrqr o gpwl'y j kej ''rckf ''vj g''rqpi vgto 'hqwpf cwlqpu'' qh'vj g''Go r ktg<'vj g''f gxgrqr o gpv''qh'c''r quvcrhugtxkeg. ''Ctcdke''eqkpci g''cpf .''o quv'ko r qtvcpvn{ .''vj g''guvcdrkuj o gpv''qh'' Ctcdke''cu''vj g''qhhkekch'rcpi wci g''qh'cf o kpkuvtcwlqp. ''tgr rcekpi ''I tggmlkp''F co cuewu. ''Rcj rcxk'kp''Ktcs ''cpf ''vj g'' Gcuvgtp''r tqxkpegu''cpf ''Eqr vke''kp''Gi { r v0

Vtcpure·kqp"ce-kxkk{"cnq"uvct.gf "kp"gctpguvlf wtkpi "vj kıl'r gtkqf 0Vj g"o quv'cwj qtkx-kxg"cpf "eqo r tgj gpukxg" uqweg"cdqww'\tcpure-kqp"cpf "y tkkpi "ce-kxkkgu'kp"vj g"Kirco ke "Go r ktg"kı"cnHlj tkw'\*rkv0'-Vj g"Kpf gzø+."eqo r ktgf" d{"cn'P cfo"kp"; :: 0'Cn'Hlj tkw'ercko u'vj cv'kv'y cu'Rtkpeg"Mj rkf. "hqp"qh'vj g"ugeqpf "Wo c{{cf "ecrkrj."yjq" eqo o kuukqpgf "vj g"htuv'\tcpure-kqpu'htqo "I tggmlcpf "Eqr ke "cn'P cfo."kp"cn'Mj t{"3; :: <33+."j cxkpi "wtpgf "vq" yjg"r wtuvkv'qh'npqy rgf i g'hqmy kpi "j ku'hcknvtg"vq"ces wtg"yjg'r qukxqp"qh'ecrkrj0'Cnj qwij"yjg''ucv'yjg'htuv' tce-kxkv{"vq"Mj rkf "ku'eqpvguvgf "kp"yjg''kstcwtg'\*J kxk'3; 59-477+."vjgtg'ku'i gpgtcri'ci tggo gpv'yjcv'yjg''htuv' tce-kxkv{"vq"Mj rkf "ku'eqpvguvgf "kp"yjg''ku'r gtkqf "cpf "ygtg'htqo" I tggmlcpf "Eqr <0'Cn'Hlj tkw'hwtyjgt''wvi i guvu" ycv'yjg''htuv'tgc-kugu''q''dg''stcpure-yf'yygtg''pcej go{"dgecwug"Mj rkf "dgrkxgf "kv'ycu'r quukdrg"'q''wtp" o kpgtcni'kpvq'i qrf 0'C v'cp{"tcvg."yg''fq''mpqy "ycv'stcpure-kqpu''ecttkgf "qw'f wtkpi "yjki'r gtkqf "kperwf gf "tgc-kugu" qp"o gf kekpg."custqmi{"cpf "crej go{0'Kp"cf fkkqp."ctcdkek kpi "yjg"cf o kpkntc-kqp"wpf gt "O ctcy p"pcwtcm(" kpxqrxgf "c"egt-ckp"coqwpv'qh'tcpure-kqp"qh'qh'qhhekcn'f qewo gpwi'kp"yjg''kyklcn'usci gu0 D{| cp-kpg"cpf "Rgtukcp"upi u'cnnq''htuv'dgi cp''q''cr r gct''kp''tcpure-kqp''f wtkpi "yjki'r gtkqf 0'Vjg''tcpure-kqpu''y gtg'' ecttkgf "qw'd{"Uce f "Klp'O kul j."yjg''htuv'O geecp''o wde-kcp''cpf "qpg''qh'yjg''dguv''mpqyp''f wtkpi "yjg''Woc{{cf "rgtkqf" "yjg''hkw'3;59-497+0}

C'i tgcv'f gcn'qh'I tggm'i pqo qmi kc''\*y kuf qo 'nkytcwtg+'y cu'vtcpurcvgf 'kpvq'Ctcdke'vqy ctf u'y g''gpf 'qh'y g'' Wo c{{cf 'r gtkqf .'kpenxf kpi 'xktwcm{ 'cm'i pqo qmi kc''eqppgevgf 'y ky 'Ctkuvqvg''cpf 'Crgzcpf gt''\*I cvcu'' 3; 97-666+0'Vj gug''vtcpurcvkqpu'y gtg''vq''j cxg''c''uvtqpi 'kphrwgpeg''qp''Ctcdke''r qgvt{'kp''y g''pkpyi ''cpf ''vgpyi '' egpwtkgu0'Vy q''qh''y g''o quv''egrgdtcvgf 'Ctcd''r qgvu''qh''y g''r gtkqf .''Cdw''cn'eCv j k{c''cpf cn'O wcpcddk''wugf '' i pqo ke''o cvgtkcn'kp''y gkt''r qgo u0

#### Vj g'Cddculf 'Rgt kqf

Y j gtgcu''y g''² nkg''qh''y g''Wo c{{cf 'Go r ktg'y cu''rcti gn{ 'Ctcd\sign} pkecm{ 'ur gcnkpi + 'y g'Cddcukf 'Go r ktg'y cu'' qxgtcm'o qtg'kpygtpcykqpcn'kp''eqo r qukxkqp''cpf 'ej ctceygt.'y ky 'gyj pke'Ctcdu'hqto kpi ''qpn{ ''qpg''r ctv'qh'y g'pcykqp'' cpf ''ku'² nkg0lkp''f wg''eqwtug.'y g'y qtf ''+Ctcdø'eco g''q'tghgt''vq''cp{ ''Ctcdke/ur gcnkpi ''O wurko .''kttgur gewkxg''qh'' tcekcn'dcem tqwpf ''qt ''chhkrkykqp0lvj wu'kv'o wuv'dg''dqtpg''kp''o kpf ''y cv'y g'o cp{ ''tghgtgpegu''vq''y g'ncti g''dqf { ''qh'' mpqy ngf i g''ceewo wrcyf ''f wtkpi ''y ku'r gtkqf ''cu'+Ctcdø'\*Ctcd''o gf kekpg.''Ctcd''r j knquqr j { ''cpf ''uq'qp+''qhwgp''cr r n{ ''vq'y qtm'y j kej ''ku'pqv'pgeguuctkn{ ''cwtkdwcdng''vq''gyj pke'Ctcdu'htqo ''y g''Rgpkpuwrc0Vj gtg'y gtg''egtvckp''ctgcu''kp'' y j kej ''y g''y j g''gyj pke'Ctcdu''gzegngf ''\*kp''r ctvkewrct''y gqnqi { .''lwtkur twf gpeg''cpf ''hpi wkuxkeu+''dwv''kp''cm quv'cm'qyj gt'' ctgcu''ky'y cu''y g''Rgtukcpu.''U{ tkcpu''cpf ''Lgy u'y j q''ngf ''y g''y c{ .''dqyj ''kp''ygto u''qh''vtcpurcykqp''cpf ''qh''qtki kpcn'' y tkkpi 0'Vj g''Rgtukcpu.''U{ tkcpu''cpf ''Lgy u'y j q''ngf ''y g''y c{ .''dqyj ''kp''ygto u''qh''vtcpurcykqp''cpf ''qh''qtki kpcn'' y tkkpi 0'Vj g''Rgtukcpu''kp''r ctvkewrct''y gtg''kpuxtwo gpvcn'kp''uj cr kpi ''y g''kpygngewcn'f gxgnqr o gpv'qh'O wurko '' uqekgy{0'D{ ''y g''y gy'y lgngxgpyj ''egpwt { .''gxgp''y g''Ctcdke''rcpi wci g''j cf ''dgeqo g''o qtg''qtpcvg''wpf gt''y g''kphrwgpeg'' qh''Rgtukcp0

I gpgtcm( "ur gcmkpi ."j qy gxgt ."kv'ku'qhxgp"xgt { "f kthkewn'\q"crrqt\dqp"etgf kv'hqt"\tcpurc\dqp"qt"qtki kpcn'y qtm'q" ur gektke "gy pke" i tqwru'y ky lp"y ku"o gmkpi "r qv'qh'cp"go r ktg0Vj g"gctnkguv'y qtm'qh'uekgpeg"\q"crrgct"kp"Ctcdke" \*\p'8: 5+\"hqt"gzco r ng. 'y cu'c"\tcpurc\dqp"d{ "c"Igy kij "r j { ulekcp"qh'Rgtukcp"qtki kp"\O cuctlcy c { j "qh'cn'Dcutc+"qh'c" U{ tkce "\tgc\kug"qp"o gf kekpg."qtki kpcm( "y tkwgp"kp"I tggm'd{ "Cj twp."c"Ej tkn\kcp"r tkguv'kp"Cngzcpf tkc\%j kw\k" 3; 59\d477+0\Uo knctn( ."\kv'ku'qhxgp"f kthkewn\'\q'ur gekh{"\j g"dqwpf ctkgu'dgwy ggp"qtki kpcn'cpf "\tcpurc\gf" y qtm"qt"\nqt" y cv'o cwgt. "\q"kf gp\kh\{"\j g"gzcev'uqwteg"qh'c"\tcpurc\qp0Vj g"Vj qwxcpf "cpf "Qpg"Pki j uu "\j g"dguv\mpqy p"y qtm" qh'Ctcdke"hxgtcwtg"\p'\j g"Y guv.'ku'kugnh'dcugf "qp"cp"qnf "Rgtukcp"y qtm"J c/ct "Chxcpk\%Vj qwxcpf "Vcngu="Uj gj tc/fô  $\gamma$  g"uvqt{\ygngtô ku'c"Rgtukcp"pco g\p="\yj ku'kp"\wtp"eqpvc\kpgf "\ugxgtcn'uqtkgu'qh'l\fo fkcp"qtki kp0Uqo g" qh'\yj g"uvqtkgu'y gtg"cnnq"cf f gf "o wej "rcyt"cpf "o c{"j cxg"dggp"\hpur ktgf "d{"\yj g"pgy "eqpvgzv'cpf "y tkwgp"\hp"Ctcdke0 Cngzcpf tkc"j cf "dggp"ecr wxtgf "\hp"864"cpf "\yj g"Ctcdu'j cf "dgi wp"\q"\co rng'\yj g"tkej gu'qh'kwi'i tgcv'\uej qnctn(" \tcf kkqp0V\yj g"hktuv'egp\xtgu'qh'gf wecxkqp"\ucttyf "\q"cr r gct "\hp"\yj g"gctn("gki j \yj "egpwxt "\hp"\Gi {r v'cpf "Kcs."cpf" gctn("Cddculf "ecnkr j u'uwdugs wgpvn("dgi cp"\q"\cmg"cp"ce\kxg"\hpygtguv'\hp"\tcpurc\kqp0V\yj g"ugeqpf "Cddculf"ecnkr j ." cn'O cpu t"\tgk pgf "976697+"eqo o kuukqpgf "c"pwo dgt "qh'\tcpurc\kqpu"cpf" "ugv'wr "c"\tcpurc\kqp"ej co dgt0Cn' Tcuj f "\tsgki pgf" "9: 86: 2; +"uko knctn("uwr rqt\ygf"\tcpurc\kqp"

cevkxkv{"cpf"gpncti gf"yi g"vtcpuncvkqp"ej co dgt"ugv"wr"d{"cn'Ocpu t0"Dwv"kv"y cu"cn'Ocøo p"y j q"hqwpf gf"kp": 52" yj g'o quv'ko r qtvcpv'kpuvkvwg''qh'j ki j gt''ngctpkpi 'kp''Kurco .'y j kej ''cnuq''dgeco g''yj g''o quv''egngdtcvgf ''egpvtg''qh'' nkdtet{"cpf"\tcpure\kqp"dwtgcw'cpf"j cf"c"r gtuqppgn'qh'87"\tcpure\qtu."y qtnkpi "htqo "I tggm"U{tkce."Rgtukcp." Ucpumtk/cpf 'Ctco cke0'Cn/Pcf o '\gmu'\wu'\kp''cn/Hkj tkw'\j cv'\kp''Dc{v'cn/J kno c'cmpg'69'\tcpurc\qtu'y qtngf 'htqo " I tggm/cpf "U{tkce."39'htqo "Rgtukcp." w q'htqo "Ucpuntk/cpf "qpg'htqo "Ctco cke" kp" Mc{c"3;; 45; 3+0 C''xcuv'tcpi g''qh''o cygtken'y cu''ytcpurcygf ''wpf gt''yj g'Cddcukf u0'Ryqrgo {øu''I gqi tcrj {''y cu''ytcpurcygf ''kpyq''Ctcdke'' ugxgtcn'\do gu."o quv'pqvcdn("d{"Vj dkv'Kdp'S wttcj."gkj gt"f ktgevn("qt"\j tqwi j "U{tkceOI gpgtcm("ur gcmkpi."I tggm" o cystken'entgef { "exchedng"kp"U{tkee"y cu"tcpurcysf"htqo "U{tkee."y j kej "uvkm'hwpevkqpgf"eu'vj g'nkwti keen"  $mpi \ wci \ g''qh''y \ g'P \ guvqt \ kcpu''y \ j \ q''j \ gcf \ gf \ ''y \ g''t \ cpurc \ kqp''ej \ co \ dgtu0I \ tggm'y \ qtmu''y \ j \ kej \ ''y \ gtg''pqv'cxckrcdrg''kp''$ U{tkce"y gtg"gkj gt"tgpf gtgf "f ktgevn( "kpvq"Ctcdke"qt"hktuv"kpvq"U{tkce"cpf "vj gp"kpvq"Ctcdke0I tggmly qtmu"qp" o qtcn'r j knquqr j { ."uvct kpi "y kj "Ctkuvqvrgøu" Gvj keu "y gtg" co qpi "vj g"hktuv" vq" dg" \tcpurcvgf "cpf "rckf" \vj g" hqwpf cwqp" hqt"yj g"kpf ki gpqwu'xgtukqp"qh"r j krquqr j { 'mpqy p"cu'ekro "cn'Cnj n s "\*rko":wekgpeg"qh"o cppgtuklgj cxkqwtø+0"Vj g"  $uekgpvkhle'uwf { "qh'cuvtqpqo { "y cu'kpur ktgf'd{ "vj g''tcpurcvkqp'*e@93+"qh'cp''Kpf kcp''ttgcvkug."} Upfj kpf."d{ "interpretable of the context of the$ Muhammad 'Kap'Kat j o 'cn/Hc| ctk'y j qug'\tcpurc\kqpu'qh'\j ku'cpf 'qyj gt'J kpf w'y qtmu'cnıq'kp\tqf wegf 'kp\q'\j g'' O wurko "Y qtrf."cpf 'hcvgt 'Gwtqr g."vj g'J kpf w'pwo gtcrl'u{ uvgo "cpf 'vj g" + gtqø0 vj g'Qrf "cpf 'P gy "Vguvco gpvu."qt" htci o gpw."qh"yi go ."y gtg"vtcpurcvgf "ugxgtcn"vko gu0"Vj g"o quv"ko rqtvcpv."hwm"vtcpurcvkqp"qh"yi g"Qnf"Vguvco gpv" y cu'f qpg'd{ " $Uc^e$  f "cn'Hc{ { o k'\*: : 46; 64+"kp'Gi { r v0

Qxgtcm" i g"Ctcdu'tcpurcyf" guugpvkcm ("uekgpvkhle"cpf" r j krquqr j kecn'o cygtkcn'htqo "I tggm'cpf" uj qy gf "hkwrg" qt" pq"kpygtguv'kp" I tggm'f tco c"cpf" r qgvt {0Cu'hct "cu'hkygtcwtg" y cu'eqpegtpgf ."Rgtukcpô tcy gt "y cp" I tggmô r tqxkf gf "o quv'qh' i g"uqwteg" yz vu'f wtkpi "y ku'r gtkqf 0Kpf kc." qp" i g"qy gt" j cpf ." y cu'i g"ej kgh'uqwteg" qh' y kuf qo "nkygtcwtg" cpf "o cy go cykeu. "y qwi j "ky'o wuv'dg" dqtpg" kp" o kpf "y cv'o wej "qh' Rgtukcp" hkygtcwtg" ecp" dg" tcegf "dcem' vq" Kpf kcp" uqwtegu OHqt" gz co r ng. "cu'kp" i g"ecug" qh' i g"V j qwucpf" cpf" Qpg" Pki j wu "Mcrkwi "y c"Fko pc" cpq i gt" ko r qtvcpv'y qtm'qh'nkygtcwtg" kp" Ctcdke+"ku'dcugf" qp" c"tcpurcykqp" htqo "Okff ng' Rgtukcp." y j kej "kp" wtp'ku'dcugf" qp" Ucpurtky'uqwtegu OUcpurtky'y cu'cnaq" ko r qtvcpv'cu'c "uqwteg" ncpi wci g"hqt" o gf kecn't gcykugu. "y qwi j" i g" vtcpurcykqpu'y gtg" qhygp" ecttkgf "qw'xkc' Rgtukcp." cu'kp' y g"ecug" qh' y g"i tgcv' Kpf kcp" o gf kecn't gcykug" Ej ctcnc/Uco j kw" O g{gtj qh'3; 5948+0

C''ncti g''pwo dgt''qh''y g''tcpurc qtu''ce kxg''f wtkpi ''y ku''r gtkqf ''y gtg''Ej tkukcp''\*Tqugpyj cn'3; 97 - 4 + cpf 'o cp{'y gtg'' uej qrctu'kp''y gkt''qy p''tki j vo'Vj g''o quv''pqvcdrg''y cu' Yuhanna ''Klp''O u y c{j ''\*9996: 79 + cy j q''j gcf gf 'Dc{v'' al-Ḥikma ''cpf ''y j q''y tqvg''Fcij cn'cn' Cp' kuqtf gtu''qh''y g''G{g+''y g''qrf guv'u{uvgo cvke''y qtm'qp''qr j y cro qrqi {'' kp''Ctcdke0}

Qpg"qh"yj g"o quv'qwuvcpf kpi "tcpurcvqtu"f wtkpi "yj ku"r gtkqf "ku"  $\frac{\text{Hunayn}}{\text{Hunayn}}$  "KDP ' $\frac{\text{Ishao}}{\text{Ishao}}$ ". "y j q"y cu"r ckf "d{"cn'O cøo p" kp"i qnf."o cvej kpi "yj gki j v'qh'yj g"dqqmu"j g"tcpurcvgf 0Dgkpi "uqo g/y j cv"i tggf {."j g"y tqvg"kp"rcti g"rgwgtu."qp" yj kem"j gcx{"r cr gt."y kyj "y kf g"ur cegu"dgwy ggp"rkpgu"\*cn/F kh e"3;: 61: 7<333="cn/Mj t{"3;:: <62+0J ku"i tggf "j cf" yj g"wpgzr gevgf "ukf g"dgpghkv'qh"gpuwtkpi "yj cv'yj g"o cpwuetkr wu"tgo ckpgf "kpwcev'cpf" tgcf cdng"hqt"ugxgtcn'egpwwtkgu0" Kdp'  $\frac{\text{Ishaoq}}{\text{Ishaoq}}$  "ku"etgf kxgf "y kyj "tcpurcvkpi "uqo g"322"o cpwuetkr wu"kpvq"U{tkce"cpf "5; "kpvq"Ctcdke."kpenwf kpi "yj g" y qtmu"qh"Ctkuvqvg."Rncvq"cpf "Rvqngo {0J g"y cu"ckf gf "kp"yj ku"co dkkqwu"gpvgtr tkug"d{"j ku"uqp'  $\frac{\text{Ishaoq}}{\text{Ishaoq}}}$ "cpf "j ku" pgr j gy  $\frac{\text{Hubaysho}}{\text{Iubaysho}}$ 0

Cpqyi gt 'r tqrkhe''tcpurcyqt 'qh'yi g'r gtkqf 'y cu'yi g''Ucdkcp''Vj dk/Klp'S wttcj '\*e@ 586; 23+='yi g''Ucdkcpu'y gtg'c'' eqo o wpkx{ "qh'uvct 'y qtuj kr r gtu'y j q'pcwtcm{ "j cf 'c'mpi uvcpf kpi 'kpygtguv'kp''cuvtqpqo {0Klp'S wttcj ''cpf 'j ku'' f kuekr rgu'y gtg''tgur qpukdrg'hqt''tcpurcykpi ''o quv'qh'yi g'I tggm'y qtmu'qp''cuvtqpqo { "cpf ''o cyj go cykeu.'kpenxf kpi '' yi g'y qtmu'qh'Ctej ko gf gu''cpf ''Cr qmqpkwu'qh'Rgti c'\*J kxk'3; 59<536+0Cu'kp''yi g''ecug''qh'Klp' \*\*Ishāq."qyi gt''o go dgtu'' qh'Klp'S wttcj øu'ko o gf kcyg'hco kn{ 'hqmqy gf 'kp'j ku'hqqwygr u''cpf 'f kuykpi wkuj gf ''yi go ugrxgu''cu''ytcpurcyqtu.'' kpenxf kpi ''j ku'uqp''Ukp p.''j ku'i tcpf uqpu''Vj dky'cpf ''Klt j o .''cpf ''j ku'i tgcy'i tcpf uqp''Cdw'cn' Hctcl'\*kdkf 0+0 Vy q''o gyi qf u''qh''ytcpurcykqp''uggo ''q''j cxg''dggp''cf qr ygf ''f wtkpi ''yi ku'r gtkqf '\*\*Tqugpyi cn'

3; 97-39-0Vj g'lktuv.'cuuqekcyf 'y kj 'Yuhanna 'Kip'cn'Dcvt s 'cpf 'Kip'P eko c'al-Ḥimsi .'y cu'j ki j n( 'rkytcn'cpf'' eqpukuyf ''qh'vtcpurcvkpi 'gcej 'I tggniy qtf 'y kj 'cp'gs wkxcrgpv'Ctcdke'y qtf 'cpf .'y j gtg'pqpg'gzkuyf .'dqttqy kpi " y g'I tggniy qtf 'kpq'Ctcdke0Vj ku'o gyi qf 'y cu'pqv'uweeguuhwi'qxgtcnicpf 'o cp{ 'qh'y g'vtcpurcvkqpu'ecttkyf 'qw'' d{ ''cn'Dcvt s 'y gtg'rcyt'tgxkuyf 'wpf gt'cn'O cøo p. 'o quv'pqvcdn( ''d{ 'Hunayn ''Kip' Ishāq OVj g'uyeqpf 'o gyi qf ." cuuqekcyf 'y kj ''Kip' Ishāq ''cpf ''cn'Lcy j ctk'eqpukuyf ''qh'vtcpurcvpi ''uypuy/hqt/uypuy.''etgcvpi 'hnwypv'cti gv'yzvu'' y j kej ''eqpxg{gf ''y g''o gcpkpi ''qh'yi g''qtki kpcn'y kj qww'f kuyqtvpi ''y g''cti gv'rcpi wci gOKip' Ishāq ''cpf 'j ku'hqmyy gtu'' y wu'i cxy'r tkqtkw{ ''q'yi g''tgs wktgo gpwu'qh'yi g''cti gv'rcpi wci g''cpf 'y g''cti gv'tgcf gt 'htqo ''y g''qwuyv'untguukpi '' tgcf cdktw{ ''cpf ''ceeguukdkrkw{ ''kp''c'y c{ ''y j kej ''uwi i guvu'yi cv'yi g''tcpurcvkqpu'y gtg''eqpegkxyf ''cu'j cxkpi ''c'f kf cevke'' hwpevkqp<'Kip' Ishāq .''hqt' kpuvcpeg.''gzr rlekn( ''r tckuyf ''j ku'qy p''tcpurcvkqpu'hqt''yi gkt '':r rgcucpv'cpf 'rko r kf 'uv{ rg'' y j kej ''ecp''dg''wpf gtuvqqf ''d{ ''y g''pqp/gzr gtv'kp''yi g''kyrf ''qh''o gf kecn'uekypeg''qt''d{ ''j ko ''y j q''f qgu''pqv'mpqy '' cp{ 'y keyf ''pl''y g''keyf ''hp''y g''keyf ''hp''Ucroo c/Ectt''3; ; 8+0

Vj ku'I qn' gp''Gtc''qh''tcpurc'kqp''wpf gt''gctn( 'Cddcukf 'twag'y cu'hqmqy gf 'd{ "c'tkej 'r gtkqf "qh''qtki kpcn'y tkkpi 'lp'' o cp{ 'lh\grf u. 'lpenwf kpi 'cuxtqpqo {."crej go {."i gqi tcrj {."h\pi wkn\keu."\j gqmi {"cpf 'r j kmqur j {0J gtg'ci ckp."\j g'' o quv'qwuxcpf kpi "eqpxtkdwkqpu'eco g''htqo ''Ctcdke/ur gcm\pi 'luwdlgevi'qh'\j g''Go r ktg''\kg0pqp/gyj pke''Ctcdu+." gur gekcm( ''Rgtukcpu''uwej "cu''Klp''U pc'\c'Cxkegppc+."cn' Vcdctk'cpf "cn' T | k\c'T j c| gu+0O wej "qh'\j ku'qtki kpcn'y tkk\pi " kpenwf gf "c''uwduxcpv\cn'co qwpv'qh'eqo o gpvct{"qp''I tggml'uqwtegu."uwej "cu''Ctkn\qvg."d{ 'y tkgtu'y j q''qh\gp'' j cf ''pq'' mpqy ngf i g''qh''I tggml'cpf "y j q''tgrkgf "qp"gxkn\pi ''Ctcdke''\tcpurc\kqpu'\p''f gxgmqr kpi ''\j gkt''qy p''r j kmqur j kecn'' rqukklqpu0V'j ku'ku'\twg. ''hqt''gzco r ng. 'qh'\j g'y qtmu''qh''Klp''Twuj f '\c'Cxgttqµu+''cpf ''\j g''Igy kuj 'r j kmqur j gt''\cu'y gm'' cu''cuntqpqo gt. '\j gqmi kcp''cpf 'r j {ukekcp+'O uc''Klp''Oc{o p'\c'Ocko qpkf gu+0Cpq\j gt''kpytgun\pi ''hgcwtg'qh'\j g'' -qtki kpcn'y tk\pi g'' j g''I qnf gp''Gtc''qh''\tcpurc\kqpu''ku'\j cv'\uqo g''qh''k\c'y qwi j ''y tkwgp''\p''Ctcdke." y cu''gk\j gt''nquv'cpf ''ncyt''nqpf ''qpn( ''\p''J gdtgy ''\tcpurc\kqpu''qt''Nc\kp''\tcpurc\kqpu''htqo ''\j g''J gdtgy '\c'cu''\p''\j g'' ecug''qh''\klp'' g'' ecug''qh''\klp'' Twuj f \sin''eqo o gpvctkgu+''qt''y cu''y tkwgp''\p''J gdtgy ''ej ctcevgtu''htqo ''\j g''qwugv'\cu''\p''\j g''ecug''qh''\klp'' Oc{o p\su''y qtmu=''J kw\k''3; 59\\callel{3}: 4h\to\tho\tau}

Vj g'hqy gtkpi 'qh'mpqy ngf i g'\j cv'\qqm'r nceg'\kp'\j g'\kmco \ke''Y qtnf 'f wtkpi '\j g'\gpyj ''cpf ''gngxgp\j ''egpwtkgu''cpf '' y cv'nc\gt''r tqxkf gf '\j g'\ko r gwu'\hqt''\j g'f gxgmr o gpv'\qh'cm'\dtcpej gu'\qh'mpqy ngf i g'\kp'\j g'Y guv.'\kpen\f \kpi '' pcwtcn'\uekgpeg''cpf ''r j \kmquqr j \{ .''eqwnf ''pqv'\j cxg''\cmgp''r nceg'\j cf '\kv'\pqv'\dggp'\hqt''\j g'\kp\gpug''r tqi tco o g'\qh'' \tcpunc\qp''ectt\kgf ''qw'\wpf gt'\j g'Cddcu\kf u\0'\0'\y wu'\tcpunc\qp''nc\{ ''cv'\j g''egp\tg'\qh'\y g'\o quv'\ko r qt\cpv'r gt\qf ''qh'' \kp\gmgewcn'ce\kx\k\\ '\\p'\j g'\j \km\qt\{ ''pqv'\qpn\{ ''qh\'\j g''\kmco \ke''Y qtnf ''dw'\qh'\j g'\y qtnf ''cv'\ncti g\0

## Vt cpurc wqp'wpf gt 'tj g'Qwqo cpu''

Uctvlpi 'y kj ''j g''rcvg''vgpyj lgctn( ''gngxgpyj ''egpwt { .''y g''Kurco ke''Gorktg''dgicp''vq''gzrgtkgpeg''c''nqpi ''r gtkqf ''qh'' i tcf wcn'f kukpvgi tcvkqp. ''tguwnkpi ''kp''y g''guvcdrkuj o gpv''qh''tkxcn'ecnkrj cvgu''kp''Gi { r v'cpf ''Urckp''cpf ''gpf nguu''r gw{ ''

f {pcukgu'kp''xctkqwu'r ctw'qh''y g''go r ktg0'C''ugtkgu'qh'qpurcwi j w'd{ "y g'O qpi qnu'gxgpwcm{ "ewro kpcvgf "kp''y g'' f gurt we kqp''qh''Dci j f cf "cpf "y g''urcwi j vgt "qh''y g''ecrkr j "cpf "j ku'qhhkekmı'd{ "J wrci w'kp''347: 0'Hqt''c''ko g."y g'' Kurco ke''Y qtrf "j cf "pq''ecrkr j "vq''twrg''k0'Vj g'O wurko "Qwqo cpu."c'pgy "r qy gt'y j kej "y cu''vq''gpf wtg'y gm'kpvq''y g'' wy gpvkgyj "egpwt { ."gxgpwcm{ "vqm'eqpvtqri'qh''y g''tgi kqp''cpf "ercko gf "y g''kwrg''qh''ecrkr j "hqt''y gkt''twrgtu'kp''37390 Wpf gt''y ku''pgy "r qrkkecri'qtf gt. "Ctcdke "eqpvkpwgf "vq''dg''y g''rcpi wci g''qh''rgctpkpi "cpf "rcy ."y g''rcwgt "dgecwug''y g'' Qwqo cpu."dgkpi 'O wurko ."j cf "vq''twrg''y g''go r ktg''ceeqtf kpi "vq''Kurco ke''lwtkuf kevkqp0'Kp''qvj gt "ctgcu. "Ctcdke''dgi cp'' vq''qug''i tqwpf "vq''Vwtrkuj "\*pqy "y g''rcpi wci g''qh''i qxgtpo gpv+"cpf "Rgtukcp''\*y j kej "dgeco g''y g''rcpi wci g''qh''r qrkxg'' rgwgtu+0'Cu''y g''rcpi wci g''qh''rgty kyj "Vwtrkuj 0

Vj g'Ctcd"Y qtrf 'y cu'rcti gn{ 'kuqrcvgf 'cpf 'f gr tkxgf 'qh'ewnwtcn'eqpvcev'f wtkpi 'vj g'hktuv'hgy 'egpwtkgu'qh'Qvqo cp" twg0'Vj g'hktuv'o clqt'eqpvcev'y ky 'Gwtqr g'eco g'y ky ''y g'Htgpej 'kpxcukqp'qh'Gi {r v'kp'39; : .''y j kej ''rcuvgf ''qpn{ " yj tgg"{ gctu'dw'j cf "c'eqpulf gtcdrg'llo r cev'qp" yj g'llpvgrrgewcrl'f gxgrqr o gpv'qh' yj g'ctgc0P cr qrgqp'j cf "dtqwi j v" y ký "j ko "c"-tvekgpvkhle"gzr gf kvkqpø'y j kej "kpenvf gf "c"pwo dgt"qh'qtkgpvcrkuvu'y j q''ugv''wr "vj g''hktuv'Ctcdke'r tguu''kp" yj g'tgi kqp0Kpkkcm{. "j g"dtqwi j v"j ku"qy p"vtcpurcvqtu"cpf "kpvgtrtgvgtu"y kyj "j ko . "kpenwfkpi "uqo g"O wurko "uckrqtu" y j qo "j g"j cf "ecr wtgf "kp"O cnxc"\*cn'Uj c{{ n'3; 72-58+0Vj gug"+hqtgki pø'\tcpurc\qtu'r tgr ctgf "\y g'Ctcdke"ektewrct" yj cv'P cr qrgqp'f kutkdwgf "qp'rcpf kpi 'kp'Crgzcpf tkc. "c'ektewrct 'f guki pgf 'vq't gcuuwtg''yj g'Gi {r vkcp'r qr wrceg'cpf " vy kpekg' vj go 'vy tgdgn'ci ckpuv' vj gkt twrgtu O'V j g'ektewrct. 'rkng' o wej ''qh' vj cv' vj gug'hqtgki p'' vtcpurc vqtu'r tqf wegf." y cu'i too o cylecm{ 'wpuqwpf "cpf 'uy{ nkuylecm{ 'r qqt "\cn/Lcdct yk "ekyf "kp"cn/Uj c{{ n'3; 72<58+0'Vj g"Htgpej "cnuq" tgrkgf "qp"hqtgki p"kpvgtr tgvgtu"hqt"tgcf kpi "qwv"yj gkt"f getggu. "cpf "gxgp"hqt"r cekh{ kpi "cpi t { "etqy f u0"kp"cf f kkqp." kpygtr tgygtu'y qtngf 'kp''y g'f y p.''y j gtg''y g{ 'kpygtr tgygf 'ncy uwku'cpf 'tgcf 'qwy'ngwgtu'cpf 'uvcygo gpw0'Cn' Icdct vk'vgmu'wu'vj cv'vj gug'hqtgki p'kpvgtr tgvgtu'qhvgp'wugf 'Htgpej 'y qtf u'y j krg'kpvgtr tgvkpi 'kpvq'Ctcdke0 Vtcpurcvqtu'cpf 'kpvgtrtgvgtu'f wtkpi ''vj ku'r gtkqf 'hgmlkpvq''vj tgg''o ckp''i tqwru<"c+'O qtqeecp.'Ctcd'cpf ''Vwtmkuj '' y j q'ceeqo r cpkgf "y g'uekgpukhke"gzr gf kukqp. 'y g'dguv'mpqy p'co qpi 'y go 'dgkpi 'Xgpwtg. 'I cwr gt'cpf 'møl qo cec=" \*e+"Ej tkukcp"U{tkcpu'y j q''j cf 'c''i qqf 'mpqy ngf i g''qh''dqyj 'Htgpej ''cpf 'Ctcdke.''kp''cf f kkqp''\q''uj ctkpi ''yj g'tgrki kqp'' qh'y g'kpxcf gtu0'Uqo g'722"qh'y gug'Ej tkukep''U{tkepu'nghv'y ky 'y g'Htgpej 'kp'3: 23"cpf 'ugwrgf 'kp'O ctugkrrgu'\*en/ Uj c{{ n'3; 72-67hh0+0'Xgt{'hgy 'Gi {r vkcpu'y gtg'kpxqnxgf 'kp''y g''vtcpurcvkqp''ghhqtv'f wtkpi 'vj ku'r gtkqf 0'Vj g''dguv'' N."c"Ej tkrkcp"r tkguv'qh"U{ tkcp"qtki kp"y j q"dgeco g"yj g"qpn{ 'Ctcd"o go dgt"qh" mpqy p'y cu'R³ tg'Cpv p'TCRJ P cr qrgqpøu'Gi {r vkcp'Cecf go { ''qh'Uekgpeg0

Vj g'i tgcvgt 'r ctv'qh'vtcpurcvkqp''cevkxkv{ 'wpf gt''y g'Htgpej 'hqewugf 'qp''qhhkekcn'f qewo gpwu''cpf 'rgi cn'f getggu0' J qy gxgt. ''c'hgy 'kpvgtguvkpi 'vgzvu'y gtg''cnuq''vtcpurcvgf 'f wtkpi ''y ku'r gtkqf. ''co qpi ''y go ''c'i tco o ct''qh''ur qmgp'' Ctcdke''r tkpvgf 'kp''c''dkrkpi wcn'gf kxkqp''kp''3: 23. ''cpf ''c''vtgcvkug''qp''uo cmr qz''vtcpurcvgf ''d{ ''R³ tg''Cpv p''Tcrj n'cpf'' r tkpvgf ''kp''Htgpej ''cpf ''Ctcdke''kp''3: 220

#### Vtcpurcvkqp'wpfgt'Owjcoocf'Crk

Kp"3: 27. "O wj co o cf "Crk"cp" Qwqo cp"uqrf kgt"y j q"y cu"qtki kpcm("ugpv"q"cmg"eqpvtqrlqh"Gi {r v'qp"dgj crh"qh"y g" ecrlr j ."o cpci gf "vq"guvcdrkuj "j ko ugrh"cu"y g"f g"h evq"i qxgtpqt"qh"Gi {r v'cpf "revgt"U{tkc"cpf"Uwf cp0O wj co o cf " Crk"j cf "o krkct {"co dkkqpu."y j kej "j g"r tqeggf gf "vq"uwr r qtv"d {"kpkkcvkpi "c"uwduvcpvkcrl"r tqi tco o g"qh"hqtgki p" gf wecvkqp"cpf "uwdugs wgpvn("qh"vtcpurcvkqp."o ckpn("qh"vgej pkecrly qtmuOJ g"ugv"wr "r tqhguukqpcrl"uej qqru." ur qpuqtgf "i tqwr u"qh"uwf gpvu"vq"uwf {"kp"Gwtqr g"cpf ."qp"vj gkt"tgwtp."kpurt wevgf "vj go "vq"tcpurcvg"vj g"vgzvu"j g" tgs wktgf "hqt"o qf gtpk kpi "j ku"cto {"cpf"cf o kpkurtcvkqp0Kpkkcm(."o quv"qh"vj g"uwf gpvu"ugpv"vq"Gwtqr g"v gtg" Vwtmu"qt"Ej tkurkcpu"htqo "vj g"Ngxcpv."dw"Gi {r vkcp"uwf gpvu"rcvgt"dgi cp"vq"lqkp"vj gug"rgctpkpi "o kuukqpu0 Co qpi "vj g"o quv"cevkxg"vtcpurcvqtu"f wtkpi "vj ku"r gtkqf "y gtg"vj g"O ctqpkxg"Ej tkurkcpu"qh"Ngdcpqp"cpf "U{tkc."y j q" vtcpurcvgf "qt"cf cr vgf "xctkqwu"y qtmu"qh"Ecvj qrke"vj gqrqi {"cpf" y j q"y gtg"wugf"d{"r qrkskecnl"gcf gtu"uwej "cu"Hcmj t"

cn/F p"cu'kpvgtrtgvgtu'kp"pgi qvkcvkqpu'y kij "vj g"eqwtvu'qh'Gwtqrg'\*J qwtcpk'3; 84-768+0'Wpfgt'O wj co o cf 'Cnk' cpf "j ku'uqpu."vj ku'i tqwr "gplq{gf "o qtg'htggf qo "cpf "y gtg'cdng"vq"guvcdnkuj "vj gkt "qy p"uej qqnu."y j gtg"vj g{ "cnq" vtcpuncvgf "vgzvdqqmu"cpf "rtkpvgf "vj go "kp"vj gkt"qy p"rtguugu0'Uwfgpw"qh'vj gug"o kuukqp"uej qqnu'y gtg'ncvgt "vq"cev" cu'kpvgtrtgvgtu'hqt'nqecn'i qxgtpo gpv'cpf 'hqtgki p"fkrmo cvu'kp"vj g"ctgc"cpf "vq'hqto "vj g'hktuv'i gpgtcvkqp"qh" lqwtpcnkuvu'kp"vj g'Ctcd"Y qtnf '\*kdkf 0.489+0

Uqo g"qh"y g"tcpurcwqpu"y j kej "cr r gctgf "f wtkpi "y ku"r gtkqf "y gtg"f qpg"d{ "Gwtqr gcpu."co qpi "y go "y g"Htgpej " eqpuwn"Dcuktk"Hcnj t "y j q"tcpurcwgf "ugxgtcn"Htgpej "dqqmu"qp"cuxtqpqo { "cpf "pcwtcn"uekgpeg"kpvq"Ctcdke0 Htgpej "y cu"y g"o ckp"uqwteg"rcpi wci g"f wtkpi "y g"gki j wggpy "cpf "gctn("pkpgwggpy "egpwt{."cpf "O wj co o cf " Cnku"ur qpuqtgf "uwf gpv'o kuukqpu"vq"Gwtqr g"j cf "Htcpeg"cu"y gkt"o ckp"f guwkpcwlqp0"kp"r ctwkewrt."o qf gtp"Ctcdke" ftco c"qy gu"ku"gzkuwgpeg"vq"y g"tcpurcwqp"ghhqtw"qh"Ngdcpgug"go ki tcpwi"kp"Gi {r v."y j q"tcpuhgttgf "c"i tgcv"f gcn" qh"Htgpej "f tco c"kpvq"Ctcdke"f wtkpi "y ku"r gtkqf "\*ugg"Ucf i tqxg"3; ; 8+0"Uctwpi "y ky "emug. "hkgtcn"tcpurcwqpu." y g{ "gxgpwcm("o qxgf "qp"vq"hcktn("gzwgpukxg"cf cr vcwqp"y j kej "kpxqnxgf "gxgp"ej cpi kpi "y g'ugwkpi "cpf "pco gu" qh"ej ctcevgtu"kp"O qnk tgau'r rc{u."co qpi "qy gtu0Dw"ks'y cu"pqv"qpn("Htgpej "f tco cwke"yz uu"y cv'y gtg"vtcpuhgttgf" kpvq"Ctcdke<"y g"y j qng"Htgpej "tcf kskqp"qh"f tco c"y cu"ko r qtvgf "y j qngucng0O cp{"qh"y g"ewttgpv"ygto u"wugf "kp" Ctcdke"y gcvtg"\*gur gekcm("lp"Gi {r v."U{tkc"cpf "Ngdcpqp+"tgxgcn"y gkt"Htgpej "qtki kpu="gzco r ngu"kpenwf g"f 2 eqt." xcwf gxkng"cpf "gzguuqkt g0

Kp'3: 48. "qpg'qh'O wj co o cf 'Crlou'uwvf gpv'o kuulqpu'\q'Htcpeg'y cu'ceeqo r cplof 'd{ 'c'tgrki lqwu'i wlf g. 'c' i tcf wcvg"qh"cn'C| j ct"y j q"y cu"vq"dgeqo g"qpg"qh"vj g"o quv"ko r qtvcpv"hki wtgu"kp"vtcpuncvkqp"f wtkpi "vj ku"r gtkqf" cpf "c'ngcf kpi "gf wecvqt"qh"j ku''ko g0Tkh ec''CN/VCJ V Y K\*3: 23695+"ur gpv'hkxg"{gctu'kp''Rctku."y j gtg"j g" ces wktgf "cp"gzegngpv'eqo o cpf "qh'Htgpej 0Qp"j ku'tgwtp."j g"y qtngf "cu'c" tcpurcvqt 'kp"qpg 'qh'O wj co o cf 'Crkøu" pgy ''ur gekerkuv'uej qqnı''epf 'hevgt''j gef gf ''en/Cnwp''\*rks0'÷ij g'\qpi wguø+."qtki kpcm( ''eengf ''o efteuev'en/vetleo e'' \*uej qqrl'qh'\tcpurc\kqp+."y j kej 'y cu'ugv'\wr 'd{ 'O wj co o cf 'Crk'kp'3: 57"qp"cn' Vcj v y køu't geqo o gpf c\kqp0'Cn' Cnuwp'uvctvgf "qww'y kij": 2"uwwf gpvu. "ej qugp"d { "cn' Vcj v y k'j ko ugnh'htqo "xctkqwu'tgi kqpu0'Y kij kp"c'hgy "{ gctu." yj ku'pwo dgt'i tgy "\q'uqo g'372'uwf gpw'y j q'uwf kgf 'Ctcdke. 'Htgpej "cpf "Vwtmkuj "\*cpf 'qeecukqpcm( 'Gpi nkuj +'kp'' cf f kkqp"\q"\gej pkecn'uwdlgevu'uwej "cu'i gqi tcr j { "cpf "o cyj go cykeu0\Cn\Vcj v y k'y qwnf "ej qqug"c"pwo dgt "qh" dqqmu'y j kej 'j g'y qwi j v'tgs wktgf '\tcpurcvkqp''cpf 'f kurtkdwg''y go 'co qpi 'y g'\tcpurcvkqp''uwf gpvu'kp''y g''uej qqr0' J g'y qwrf 'i wlf g'y go 'y tqwi j 'y g'tcpurc llqp'cpf 'y gp'tgxkug'gcej 'ygzy'j ko ugrh'dghqtg'eqo o kwlpi 'ky'\q'r tlpv0' Cn'Vcj v y k'cpf 'j ku'uwf gpv'tcpurcvqtu'y gtg'kpurtwo gpvcn'kp'o cnkpi 'c'xcuv'tcpi g'qh'Gwtqr gcp'uqwtegu'cxckrcdrg'' kp'Ctcdke. 'eqxgtkpi 'pwo gtqwu'ctgcu'qh'mpqy ngfi g0Co qpi 'vj gkt'o quv'ko rqtvcpv'tcpuncvkqpu'y gtg'xctkqwu' j kuvqtkgu"qh"yj g"cpekgpv"y qtrf "cpf" yj g"Okffrg" Ci gu. "j kuvqtkgu"qh"xctkqwu" mkpi u"cpf" go r gtqtu. "Oqpvgus wkgwøu" Eqpulf gt c vkqpu'luxt 'hgu'ec xugu'f g'nc'i t cpf gwt 'f gu'T qo c kpu'gv'f g'hgwt 'f gecf gpeg. "cu'y gm'cu'c 'mti g'dqf { "qh" vgz vu'qp"o gf kekpg. "i gqi tcr j {."o krksct { 'uekgpeg'cpf 'qvj gt 'vgej pkecn'uwdlgevu0

Vgcej kpi "kp" y g"xctkqwu'uej qqnu'ugv'wr "d{"O wj co o cf "Cnk'y cu'lpkkcm("eqpf wevgf "d{"hqtgki p"kput wevqtu'lp" Htgpej "qt"Kcrkcp0'Vj gug'lput wevqtu'tgrkgf "qp"kpvgtr tgvgtu'lp" yj g"ercuutqqo "vq"eqo o wpkecvg'y kyj "yj gkt'uwf gpw0' Vj wu'yj g'wug"qh'lpvgtr tgvgtu'lp" yj g"gf wecvkqpcrieqpvgzv'uggo u"vq"j cxg"dggp"hcktn("eqo o qp"r tcevkeg"cv'yj g"ko g0 Vj g'hktuv'eqo r rgvg"o qf gtp"tcpurcvkqp"qh'yj g"Dkdrg"kpvq"Ctcdke'y cu'r tqf wegf "kp"yj g"3: 72u'd{"o kuukqpctkgu"kp" Eco dtkf i g."Dtksckp0'Vj ku'y cu'uqqp"tgr reegf "d{"c"uwr gtkqt"xgtukqp"r tqf wegf "kp"3: 87"d{"Co gtkecp"o kuukqpctkgu"kp" Dgktw0'Vj g"3: 87"xgtukqp"y cu''yj g'hktuv'Ctcdke"tcpurcvkqp"vq"dg"dcugf "qp"yj g"qtki kpcnII tggm"J gdtgy "cpf" Ctco cke"\*Uqo gnj "3; ; 7+0'Kb'vqqm'39"{gctu"q"eqo r rgvg0'Vj g"o ckp"tcpurcvqtu."Grk'Uo kyj "cpf "Eqtpgrkwu'xcp" F {em"go r rq{gf "yj tggg"Ctcd"tcpurcvqtu'vq"j grr "yj go "y kyj "yj g'vcun0'Vj g'Iguwkv'Ctcdke"Dkdrg."r wdrkuj gf "kp'Dgktwv' dgw ggp"3: 98"cpf "3: : 2."ku'xgt {"erqugn{"o qf gmgf "qp"yj g"Uo kyj /xcp"F {em'xgtukqp0'Vj ku'vqq"y cu'wpf gtvcngp"d{"c"Y guvgtp"uej qrct."Cwi wuvkp"Tqf gv."y kyj "yj g"j grr "qh'cp"Ctcd"tcpurcvqt."pco gn{"Klt j o "cn/[ | klk0'Uqo g'qh'vj g" o quv'f kuvkpi wkuj gf "kcpurcvqtu'qh'yj g"r gtkqf."y j q"y gtg"ncyt"vq"hqto "yj g'kpvgngewcn'ngcf gtuj kr "qh'Gi {r v'cpf" U{tkc'kp"r ctvkewet."y gtg'kpxqrxgf "kp"rtqf wekpi "yj gug'pgy "xgtukqpu"

qh''y g''Dkdrg0'Vj g{"kpenxf gf "H tku''cn'Uj kf { s."Dwtwu''cn'Dwuv pk'cpf "P cu h'cn'[ | klk0 O wj co o cf 'Cnkzu''tcpurckqp''r tqi tco o g''ncuygf "cdqwv''42" { gctu0F wtkpi "'y ku''ko g''y g''ektewrckqp''qh''y g'' vtcpurcyf "dqqmu'y cu''tguxtkevgf "'vq''c'uo cmii tqwr "qh''cecf go keu "guugpvkcm("'y g''uwf gpwu''cpf "hqto gt''uwf gpwu''qh'' cm'Cnuwp."cpf "i qxgtpo gpv'qhhkekcmi'y j q''pggf gf "ceeguu''vq''ur gekhke "kphqto cvkqp0'J qy gxgt."'y g''ko r cev'qh''y g'' vtcpurcykqp''y qtmif qpg''f wtkpi "'y ku''uj qtv'r gtkqf "y cu''s wksg''eqpukf gtcdrg. "hqt''y g''pgy "kpvgmgewcn'ngcf gtuj kr "kp'' Gi {r v'\*y j kej "j cu''ukpeg''dggp''y g''o clqt''ewnwtcn'kphrwgpeg''kp''y g''Ctcd''Y qtrf +"eco g''htqo "'y g''tcpmu''qh''uwf gpwu'' y j q''j cf "ceeguu''q''tcpurcygf "dqqmu0'Vj cpmu''q''y gug''uwf gpvu. "Gi {r v''cpf 'y ky "kk'y g''tguv''qh'y g''Ctcd''Y qtrf ." uvctvgf "'y g''y gpvkgy "egpwt {"y ky "c'y gcny "qh''mpqy rgf i g''cpf "cp'kpvgmgewcn''ewtkqukx{"y cv'j cxg''cuuwtgf "kv'c" r rceg''kp''y g''o qf gtp'y qtrf 0

### Vj g'ty gpvlgvj 'egpvvt {

Htcpeg. 'Dtkckp'cpf 'Kcn('j cf'j cf'y gkt'f guki pu'qp'xctkqwu'r ctw'qh'y g'Ctcd''Y qtnf 'ukpeg'y g'gctn('pkpgvggpy '' egpwt { .''cpf ''y g'Qvqo cp'Go r ktg'y cu'i tqy kpi ''vqq'y gcm'vq'f ghgpf 'kwu'vgttkqtkgu0D{ ''y g'gctn('r ctv'qh'y g'

y gpkgy "egpwt {"o quv'qh'y g'Ctcd"Y qtrf "y cu'wpf gt'qeewr ckqp."y ky "y g'Dtkkuj "kp'Gi {r v."Rcrgukpg."Uwf cp" cpf "Kcs."y g"Htgpej "kp'P qty "Cltkec"cpf "U{tkc."cpf "y g"Kchcpu'kp"Nkd{c0Hqt"y g'hktuv'ko g'kp"o cp{"egpwtkgu." y g'Ctcd"Y qtrf "rcengf "c"eqo o qp'r qrkkecn'igcf gtuj kr 0Vj ku'cpf "y g'uwdugs wgpv'tkug'qh'kpf kxkf wri'pckqp'uvcyu" o gcpv'y cv'ewnwtcn'f gxgrqr o gpv'kp'y g'ctgc."cpf "y ky "kv'tcpurckqp'cekxkk{."dgi cp'\q"f kxgti g'eqpukf gtcdn{0Vj g" vgttkqt {"ku'uko r n{"vq'icti g'cpf "vq'f kxgtug"q'dg'eqxgtgf "kp'c'uj qtv'gzr qukkqp0

Kp'y kn'egpwt {"y gtg'j cxg'dggp"ghqtwl'\q"f gxgrqr "c"eqj gtgpv'r cp/Ctcd"r tqi tco o g'qh'vtcpurckqp0Qpg"uwej " cwgo r v'qqnir reeg'kp"Vwpku'kp"3; 9; ."wpf gt'y g'cgi ku'qh'y g'Ctcd"Qti cpk ckqp'hqt'Gf weckqp."Ewnwtg'cpf "
Uekgpeg"\*Hk'cn/Cf cd'y c/n'vcønh'y c/n'vctlco c"3; ; 5<393hOOVj g'tgeqo o gpf ckqpu'qh'y ku'eqo o kwgg'kpenwf gf " f gxgrqr kpi "eqo o qp"etkgtkc"hqt"ugrgevkpi "vgxwl'hqt"vtcpurckqp."tgcuuguukpi "y g'uvcwwl'qh'vtcpurcvqtu'kp'y g'Ctcd" Y qtrf ."guvcdrkuj kpi "c"eqj gtgpv'r qne{'hqt'cpircvqtu'kp'y g'gtgtylecn'tgugctej "kp"tcpurcvqtu'kp'y ku'co dkkqwu" rtqi tco o g"f qgu'pqv'uggo "\q"j cxg'dggp'hqmy gf "w "uq'hct0

Vtcpurcvkqp'vtckpkpi "r tqi tco o gu'gzkw'kp'xctkqwu'r ctw'qh'y g'Ctcd"Y qtrf ."gky gt'kp'y g'hqto "qh'kpf gr gpf gpv' kpukwwkqpu'\*cu'kp'y g'ecug'qh'y g'Mpi "Hcj f "Uej qqn'qh'Vtcpurcvkqp'kp'vcpi kgt+"qt "wpkxgtukv{"f gr ctvo gpwi"qt" egpvtgu'y ky kp "f gr ctvo gpwi"hqt" gzco r ng'kp'[ cto wn'Wpkxgtukv{."Iqtf cp."cpf "Crgzcpf tkc"Wpkxgtukv{+OKcs" j cf "c" egpvtgu'y ky kp "f gr ctvo gpwi"hqt" gzco r ng'kp'[ cto wn'Wpkxgtukv{."Iqtf cp."cpf "Crgzcpf tkc"Wpkxgtukv{+OKcs" j cf "c" egpvtgu'y ky kp "f gr ctvo gpwi"hqt" gzco r ng'kp'[ cto wn'Wpkxgtukv{."Iqtf cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Uff cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Gr co wn'Wpkxgtukv{."Iqtf cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Gr co wn'Wpkxgtukv{."Iqtf cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Crgp" chychy cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Crgp" chychychy cp."cpf "Crgzcpf tkc"Wpkxgtukv{."Crgp"

# Hwt vj gt 't gef kpi

yj tkxkpi "uej qqn'qh'\tcpurc\qp"\cn'O wuvcpuktk( {c+"cpf"c"r tqhguukqpcn'qti cpk| c\qqp'hqt"\tcpurc\qtu'r tkqt"\q"yj g"

Vjg"Mkpi"Hcjf"Uejqqn'qh"Vtcpurcvkqp"kp"Vcpikgt"rwdnkujgu'c"dk/cppwcn'uejqrctn("lqwtpcn'qh'vtcpurcvkqp'wpfgt"

I wrh''Y ct. "dww'wr/vq/fcvg'kphqtocvkqp"qp"vj gug'kpuvkwwkqpu'ku'ewttgpvn{ 'fkhhkewnv'vq"qdvckp0

yj g''kkurg''qh''*Vwt lwo p'*'\*Vtcpurcvqt +=''yj ku''eqpvckpu''ct vkergu''kp''Ctcdke.''Gpinkuj.''Hutgpej ''cpf''Urcpkuj 0

O QP C'DCMGT

#### Dkqi tcrj kgu

Kdp'IshāQ.'J WPC[P'\*: 2; 695="mpqy p"cu'IQCPPK/KWU'kp"yj g"Y guv0C"P guvqtkcp"Ej tkukcp'htqo 'al-Hira'\*kp" o qf gtp/f c{"Kcs+"pkenpco gf "yj g":Rtkpeg"qh'Vtcpurcvqtuø"Kdp' Ishāq "y cu'co qpi "yj g"o quv'i khvgf "cpf "r tqf wevkxg" vtcpurcvqtu"f wtkpi "yj g"Cddcukf "r gtkqf 0Dkdpi wcn'kp"Ctcdke"cpf "U{tkce."j g"uwvf kgf "o gf kekpg"wpf gt "yj g"tgpqy pgf "r j {ukekcp"cpf "vtcpurcvqt' Yuhanna 'kdp"O u y c{j."y gpv'qp"vq"gctp"I tggm'cpf "yj gp"dgi cp"j ku"ectggt"cu" r j {ukekcp"cpf "vtcpurcvqt'kp"Dci j f cf 0J g"j gcf gf "Dc{v'al-Hikma"."yj g"egrgdtcvgf "vtcpurcvkqp"ej co dgt"ugv'wr "d{" yj g"ecnkr j "cn'O cøo p."y j gtg"j g"vqqm'ej cti g"qh'cm'uekgpvkhke"vtcpurcvkqp"y qtm'cpf ."y kyj "j ku'uqp' Ishāq."j ku" pgr j gy "cpf "qvj gt"uwvf gpw"cpf "o go dgtu"qh'j ku'uej qqn "vtcpurcvgf "kpvq"U{tkce"cpf "Ctcdke"yj g"dwm'qh'I tggm' o gf kecn'o cvgtkcn'mpqy p"cv'yj g"ko g."o cp{"qh'Ctkuvqvrgøu'y qtm'spenvf kpi "Ecv/

TCRJ N.'R' TG'CPV P'\*d0397; +0Cp'Gi {r vkcp'Ecyj qrke'r tkguv'qh''U{tkcp'qtki kp'y j q'dgeco g'y g'qpn{" Ctcd'o go dgt'qh'cn'o clo ce''cn'ekro "cn'o cut .''y g'Gi {r vkcp'Cecf go {"qh'Uekgpeg'ugv'wr "d{"P cr qrgqp'kp"39; : 0' Gf wecvgf 'kp'Tqo g'dgw ggp''y g''ci gu'qh'37"cpf ''44.''j g''ur gpv'uqo g'hkxg''{gctu'kp''Ukf qp''tcpurcvkpi 'tgrki kqwu'vgzwu'' y gp''tgwtpgf "'q'Tqo g''qp''c''tgrki kqwu'o kuukqp.''y j gtg''j g''tcpurcvgf ''dgw ggp''Ctcdke''cpf ''Kcnkcp'hqt''c''ko g''dghqtg'' hkpcm( "tgwtpkpi "'q''j ku''dkty' r reeg. ''Gi {r v0'Vj g'P cr qrgqpke''f getgg'hqt''guvcdrkuj kpi "'y g'Gi {r vkcp'Cecf go { "qh'' Uekgpeg''j cf ''urkr wrcvgf ''y cv'yj gtg''uj qwrf ''dg''qpg''Ctcd''tcpurcvqt''cu''c''r gto cpgpv'o go dgt''qh''y g''Cecf go { .''cpf '' R³ tg'Tcr j ckrly cu''vq''qeewr { "'y ku''r qukkqp''qp''y g'Eqo o kvgg''qh'Nksgtcwtg''cpf ''Hkpg''Ctw0J g''tcpurcvgf ''cpf '' kpvgtr tgygf ''gz vgpukxgn( ''hqt''y g''Htgpej ''f wtkpi ''y gkt''qeewr cvkqp''qh''Gi {r v'cpf ''dgeco g'ko r qtvcpv'gpqwi j ''q''uki p'' j ku''pco g''cu''Ej kgh''Vtcpurcvqt''qp''rgi cn'f getggu''cpf ''uko krct''qhhkekcn'f qewo gpw0J g''urc{gf ''kp''Gi {r v'hqt''y q''{gctu'' chygt''y g''f gr ctwtg''qh''y g''Htgpej ''dw''y gp''ghhyhqt''Rctku''y j gtg''j g'y cu''tgy ctf gf ''hqt''j ku''urr qtv'qh''P cr qrgqp''kp'' 3: 25''y ky ''cp''cuukurcpv'r tqhguuqtuj kr ''cv'y g''Qtkgpvcn''Kpurkwwg''tp''Rctku''\*en'Uj c{{ n'3; 73+0}

VCJ V KUJ GKMJ "THH "C"T HK"\*3: 23695+0Gi {r vkcp"gf wecvqt."vtcpurevqt"cpf "hqwpf gt"qh"yi g"htuv" uej qqnlqh"vtcpurevkqp"kp"Gi {r v0Cn'Vcj v y k'ur gpv'hkxg"{gctu"kp"Rctku"y j gtg"j g"o cuvgtgf "yi g"Htgpej "repi wci g" cpf "f gxgqnr gf "c"r cuukqp"hqt"Htgpej "ewnwtg0Qp"j ku"tgwtp"vq"Gi {r v."j g"y qtngf "cu"c"vtcpurevqt"kp"qpg"qh" O wj co o cf "Cnkvt"pgy "ur gekchtv"uej qqnt0Kp"3: 57."j g"y cu"cr r qkpvgf "j gcf "qh"cn'Cnnvp."yj g"r tgwki kqwu"uej qqnt" qh"repi wci gu"ugv'wr "qp"j ku"tgeqo o gpf cvkqp"vq"tckp"c"pgy "i gpgtcvkqp"qh"qhtlekcni"cpf "vtcpurevqtu0Cn'Vcj v y k" i wkf gf "j ku"uwf gpwu'y j krg"yj g{ "vtcpurevgf "dqqmn"qh"j ku"ej qkeg."y j kej "j g"yj gp"tgxkugf "cpf "j cf"r tlpvgf 0Kp" cf f kkqp"vq"tgxkukpi "j ku"uwf gpwwg'y qtm"j g"cnvq"r tqf wegf "c"reti g"pwo dgt"qh"j ku"qy p"vtcpurevkqpu."o quvn("kp"yj g" ctgcu"qh"o gf kekpg."cf o kpkntcvkqp"cpf "yej pqmi {01 g"y cu"ugpv'vq"Mj ctvqwo "\*Uxf cp+"kp"3: 72"cu"c"uqtv'qh" r wpkuj o gpv'd{ "yj g"Mj gf kxg"Cddcu."y j q"f kf "pqv"cr r tgekcvg"j ku"kpvgnrgewcn"cpf "r qrkklecn"u{o r cyj kgu."gur gekcm{" j ku"r cuukqp "hqt"yj g"Htgpej "o qf gn"qh"f go qetce{0"Y j krg"kp"yj g"Uxf cp."cn"Vcj v y k"vtcpurevgf "H\* pgnqpxu"Ngu" cxgpwt guff g"V2 no cs wg. "yj g"htuv"Htgpej "pqxgn"q"dg"vtcpurevgf "kpvq"Ctcdke0Vj g"vtcpurevkqp"y cu"eqo r rgvgf "kp" 3: 73"cpf "r wdrkij gf "38"{ gctu"revgt "kp"Dgktw0Cn'Vcj v y k"y cu"revgt "cmyy gf "vq"tgwtp"vq"Gi {r v'y j gtg"j g"ci ckp" j gcf gf "c"uej qqn'y kj "c"vtcpurevkqp"ej co dgt"cwcej gf "vq"ko0Vj gtgchygt."j ku"r tkqtkx{"y cu"vq"vtcpurevg"yj g"Htgpej " rgi cn"eqf gu"kpvq"Ctcdke0

O QP C'DCMGT

## D

# Dtc | kdcp'ttcf kdqp

 $\label{thm:continuous} Vj\ g''36: "o\ kmkqp''kpj\ cdkcpul'qh'Dtc|\ kn''yj\ g''ncti\ guv'eqwpvt \{ ''kp''Ncvkp''Co\ gtkec."ctg''qh'o\ kzgf''f\ guegpv<'Dtc|\ kmkcp'' Kpf\ kcp. ''Chtkecp. ''Cukcp''cpf''Gwtqr\ gcp0Dw''yj\ g{ ''uj\ ctg''c'eqo\ o\ qp''ncpi\ wci\ g.''Rqtwi\ wgug.''yj\ kej''ku''yj\ g'qh'hekcn'' ncpi\ wci\ g''qh'Dtc|\ kn'Dtc|\ kn'ku''yj\ gtghqtg''r\ ctv'qh''yj\ g''Nwq/rj\ qpg. ''qt''Rqtwi\ wgug/ur\ gcmkpi ''eqo\ o\ wpkw{.''yj\ kej''}\ kpenwf\ gu''Rqtwi\ cn'cpf''ku''hqto\ gt''Chtkecp''eqnqpkgu<''Cpi\ qnc. ''O\ q|\ co\ dks\ wg. ''I\ wkpgc/Dkuucw.''cpf''yj\ g''kurcpf\ u''qh'' U'\ q''Vqo\ ^2. ''Ecr\ g''Xgtf\ g''cpf''Rt\Ppekr\ g0$ 

### Gct n('j knyt { <'ukz vggpvj 'vq'gki j vggpvj 'egpvwt lgu

Vj g"j knqt { "qh'Dtc| kn'ku'c"j knqt { "qh''tcpurc'kqpu'cpf "qh''nkpi wkn'ke"ej cpi g0'Ku'f qewo gpvc'kqp''uvct ui'y kj "'y g" repf kpi "qp''Dtc| kn'kp''uj qtgu'qh''y g"Rqtwi wgug''nggv'eqo o cpf gf "d{ "Cf o ktcn'Rgf tq"f rxctgu'Ecdtcn'\*36896 e03742+"qp"43"Cr tkn'3722." y g''hktuv''wpf kur wgf "xkuk''d{ "Gwtqr gcpu''vq"Dtc| kn0'J cxkpi "ereko gf "'y gug''y guvgtp" repf u'hqt "'y g''Rqtwi wgug''Etqy p. "Ecdtcn''y kpnlpi "'y cv'y g{ "y gtg"cp"kurepf ."kpkkcm{ "ecngf "'y go "Kij c'f g''Ucpvc'' Etw/." qt''y g"'-Kurepf "qh''y g''J qn{ "EtquuØ'Y ky kp"c'hgy "{ gctu." y g''repf "j cf "eqo g''vq''dg''npqy p"cu'Dtc| kn''dgecwug" qh''y g"rcw/dtculn" qt''-dtc| kn'y qqf ø''y cv'y cu'hqwpf "'y gtg''kp"cdwpf cpeg0'Ukpeg''y ku''y qqf "r tqf wegf "c'tgf "f { g" y cv'y cu'f khhewn''q"qdvckp"kp"Gwtqr g." y g''Rqt wi wgug''uqqp''uvctvgf "ugpf kpi "gzr gf kklqpu''qw''q''y g''pgy "eqpvlpgpv'' q''hlpf "y c{u'qh''gzr rqkklpi "k0'

Y j gp"y g"Rqtwi wgug"cttkxgf "kp"Dtc| kn"y g{ "hqwpf "c"r qr wrckqp."ceeqtf kpi "q"xctkqwu"j kuqtkcpu."qh"dgw ggp" qpg"cpf "hkxg"o knlqp"pcvkxgu."rgcf kpi "c"pgqrky ke."ugo k/pqo cf le"rkhg0lNkng"y g"tguv'qh"y g"kpf ki gpqwu"r qr wrcvkqp" qh"y g"P gy "Y qtrf."vy g"pcvkxgu"qh"Dtc| krly gtg"ecmgf "fpf kqu"d{ "Ej tkuqrj gt "Eqnwo dwu."y j q"crr nkgf "y ku" o kupqo gt "vq"y go "dgecwug"j g"-yi qwi j v"j g"j cf "uckrgf "uq"hct"y guv'yi cv"j g"j cf "tgcej gf "kpf kcø"\*Rctvkf i g" 3; 88-52: 6; +0"Vj g"Dtc| krlcp"Kpf kcpu"ur qng"yi qwucpf u"qh"f khrgtgpv"rcpi wci gu"cpf "f kcrgewu."y j kej "j cxg"pqy "dggp" ercuukhlef "d{ "rhpi wkuvu"cpf "cpyi tqr qnqi kuvu"kpvq"324"rcpi wci g"i tqwr u"cpf "yi tgg"rcti g"rhpi wkuvle"rco krlgu<"Vwr {." O cetq/I g"cpf "Ctcy cn0"Vj ku"rhpi wkuvle"xctkgv{."y j kej "y cu"ceeqo r cpkgf "d{ "gs wcm{ "xctkgf "ewnwtgu."tgrki kqpu." equo qi qpkgu"cpf "qtcn"vtcf kkqpu."rgf "vq"yi g"f gxgrqr o gpv'qh"cv"rgcuv"y q"rhpi wcg"htcpecg<"Cdcpj ggpi c. "ur qngp" qp"yi g"eqcuv."cpf "Mctlkk"ur qngp"kp"yi g"pqtyi gcuvgtp"j kpvgtrcpf 0I kxgp"yi cv'yi g"rcpi wci gu"kp"s wguvkqp"rcengf" y tkkpi "u{ uvgo u."cp{ "rhpi wkuvle"gzej cpi gu"y j kej "vqqn"r rceg"dgwy ggp"Kpf kcp"vtkdgu"ctg"rkngn{ "vq"j cxg"hpenwf gf "qtcn"vtcpurcvkqp0

#### Vj g'hkt uv'hp vgt r t gvgt u

Vj g'htuv'tgeqtf gf "f qewo gpv'cdqw'Dtc| kı'kı'c''gwgt''y tkwgp''d{"Rgtq'Xc| "f g'Eco kpj c.''y g''uetkdg''kp''Ecdtcnźu'' hrggv.''\q''y g''Rqtwi wgug''nkpi .'O cpwgn''K'\369763743+"qp''3'O c{"3722'\q''tgrcvg''y g''hkpf kpi "qh''pgy "rcpf u'' \"Eco kpj c''3; 88='Eqtvgu-q''3; 89+0'Vj g''uco g'f qewo gpv'cnq''tgeqtf u'c''tcpurckqp''cev-'k\'f guetkdgu''j qy ''y g'' Rqtwi wgug''cpf ''Kpf kcpu''cwgo r vgf ''\q'eqo o wplecvg''y ky "gcej "qvj gt''d{"o gcpu''qh'i guwtgu."cpf "j qy "c'f gr qtvgg." Chqpuq''Tkdgktq.''y cu''ngh\'qp''uj qtg''y ky ''y g''Kpf kcpu'\q''ngctp''y gkt''ncpi wci g0'K'cnuq''tgr qtw''y cv'cpqvj gt''f gr qtvgg'' cpf ''w q''uckrqtu''f gugtvgf ''y g''gzr gf kkqp''kp''qtf gt''\q''tgo ckp''y ky ''y g''Kpf kcpu0'Htqo ''y gp''qp.''gxgt{"gzr gf kkqp'' y cv'y gpv'\q''Dtc| kringhv'dgj kpf ''cf xgpwtgtu''cpf ''f gr qtvggu''y j q''ngctpgf ''y g''Kpf kcp''cpf wcu "qt''-xqpi wgu\x' cpf ''y gh'' cu''kpvgtr tgvgtu''dgw ggp''Kpf kcpu''cpf ''Gwtqr gcpu0'Vj gug''o gp''y gtg''ecnngf ''Mpi wcu "qt''-xqpi wgu\x' cpf ''y gkt'' pwo dgtu''eqp\xpwgf ''\q'' ttqy 'f wt\pi ''gctn{''eqnqpkcn'\x bo gu0

Hqtgo quv'co qpi uv'y gug''*Mpi wcu*'y gtg''Lq¯q'Tco cnj q'cpf 'F kqi q"f rxctgu0Tco cnj q'\*f 037: 2+'y cu'c''Rqtwi wgug'' rcy {gt'y j q'y cu'uj kr y tgengf 'qhh'y g'eqcuv'qh'Dtc| kt0J g'ikxgf 'cv'Rktcvkpkpi c.'kp'y g'j ki j rcpf u.'pgct'o qf gtpf c { "U q'Rcwq'Ek\{.'y j gtg'j g'hqto gf 'c'j cnh'Rqtwi wgug.'j cnh'Kpf kcp'xkmci g0J g'y gp'o gv'O ctvko 'Chqpuq'f g'Uqw| c''\*e03722686+''y j q'j cf 'dggp'ugpv'vq'guvcdrkuj ''y g'hktuv'Rqtwi wgug'ugwrgo gpv'kp''Dtc| kn''cpf ''y g''y q'o gp''lqkpgf '' hqtegu''kp''hqwpf kpi ''U q'Xkegpvg''kp''3754''qp''y g'eqcuv'qh''y g''U q'Rcwq''r tqxkpeg0F kqi q''f rxctgu'\*367263779+'' cpqy gt''uj kr y tgengf ''Rqtwi wgug.''y cu''pkenpco gf ''Ectco wt\hat{A}''qt''-\httgo cngt&''d{''y g''Kpf kcpu''chygt''j g''uwr r qugf n{ '' ucxgf ''j ku''qy p''hkg''d{''cp''ko r tguukxg''f kur rc{''qh'o wungvt{0J g''tgwtpgf ''vq''Rqtwi cn'dtkghn{''y ky j' j ku''Kpf kcp''y khg'' dw''gxgpwcm{''ugwrgf ''kp''Dtc| kn''y j gtg''j g'' grr gf ''Vj qo 2''f g''Uqw| c''\*e08737695+''guvcdrkuj ''y g''pgy ''ek\{''qh'Dcj kc'' kp''376; 0J ku''gzr rqku''ctg''eqo o go qtcvgf ''kp'' $Q''Ectco\ wt\ A$ ''cp''gr ke''r qgo ''y tkwgp''d{''y g''Dtc| krkcp''r qgv'Iqu² ''f g'' Ucpvc''Tkc'F wt $^-$ q'\*39436: 6+'kp''39: 30

#### Vj g'ht w'tt cpurc vqt u

C"pgy "hpi wknke"r j cug"dgi cp"kp"Dtc| kn'y ky "'y g"cttkxcn'qh'y g"Iguwky'hcy gtu'kp"376; 0'V j g"Iguwku'ugv'qww'q" eqpxgtv'y g"Kpf kcpu"q'E j tknkcpk{ "cpf "wtp"y go "kpvq"qdgf kgpv'uwdlgewi'qh'y g"Rqtwi wgug"Etqy p0'V j g"Kpf kcpu" y j q"kpj cdkxgf "'y g"Dtc| kncp"eqcuv'dgw ggp"y g"r tgugpvf c{"uvcyu'qh'Co c| qpcu'kp"y g"pqty "cpf "Ucpvc"Ecvctkpc" kp"y g"uqwj "ur qng"c"xctkgv{ "qh'ircpi wci gu'y j kej "dgnqpi gf "vq"y g"Vwr { "hco kn{ "cpf "wugf "c"htpi wc"htcpec."y j kej " y g{ "ecngf "Cdcpj ggpi c"qt"Cdcpj 2 go . "hqt"kpvgtvtkdcn'eqo o wpkecvkqp0'V j g"Iguwku"ucy "y g"cf xcpvci gu"vq"dg" i ckpgf "htqo "cf qr vkpi "y ku'hcpi wci g"kp"y gkt"o kunkqpct { "ghhqtvu"cpf "f kf "gxgt { y kpi "kp"y gkt "r qy gt "vq 'ngctp"kv=" y g{ "cnuq"y tqvg"i tco o ctu'hqt"kv. "dcugf "qp"y g"Ncvkp"o qf gn0'V j ku'uko r nkhkgf "hqto "qh'y g"hcpi wci g"y cu'pco gf " Pj ggpi cww."qt"-dgcwkhwn'hcpi wci g& "cpf "y cu'wugf "hqt"eqo o wpkecvkqp"dgw ggp"Kpf kcpu"cpf "Gwtqr gcpu."cpf ." gxgpwcm{ ."co qpi uv'Gwtqr gcpu"kp"Dtc| kn0

Vtcpurckqpu'qh'tgrki kqwu'vgzwu'uqqp''dgi cp''vq''cr r gct. 'y kj ''y g'Iguwku''y wu'dgeqo kpi ''Dtc| knøu'hktuv'vtcpurcvqtu0' Hcyi gt 'C| r kewgnc'P cxcttq''\*f 03779+'vtcpurcvgf ''y g''*Uwo o c'f c'f qwnt kpc ''et kw .* ''-:Uwo o ct { ''qh''Ej tkuvkcp'F qe'' vtkpgø''htqo ''Rqtwi wgug'kpvq''*Pj ggpi cw0*'Wr qp''P cxcttqøu'f gcyi .''Hcyi gt'Iqu²' f g'Cpej kgvc''\*e\B7556; 9+'vqqn'qxgt'' cu''y g''gzr gtv'kp''pcvkxg''vqpi wgu0J g'y tqvg''y g''*Ctvg'f c'i tco "vkec'pc''hfpi wc''o cku'wucf c'pc''equwc'f q'Dtcukr*'\*Ctv'' qh''y g''i tco o ct''qh''y g''o quv'wugf ''rcpi wci g''qp''y g''eqcuv'qh'Dtc| kn+.''kpkkcm{ ''tgr tqf wegf 'kp''o cpwuetkr v'hqto ''cpf'' rcyg' rtkpvgf ''kp''Eqko dtc.''Rqtwi cn''kp''37; 70'Kp''383: .''Hcyi gt''Cpv\/pkq''f g''CtcÀq''\*378863854+'vtcpurcvgf ''y g'' ecvgej kuo ''kpvq''*Pj ggpi cwv=*'kv'y cu''r wdrkuj gf ''kp''Nkudqp''cu''*Ecvgekuo q''pc''nfpi wc''dtcuffkec*. ''qt''-:Ecvgej kuo ''kp''y g'' Dtc| krkcp''rcpi wci gø0

#### Nkpi wcg'htcpecg

Kpf kcp'ncpi wci gu'y gtg'pqv'wugf 'hqt'tgrki kqwu'r wtr qugu'qpn{='yi g{ 'y gtg'wugf ''q'eqps wgt'cpf ''f qo kpcvg'yi g'' pcwkxgu'qh'Dtc| kr0'Uvctvkpi ''kp'3753.''y j gp''yi g'hktuv'hqtc{u'kpvq''yi g'kpvgtkqt'qh'y j cv'y cu''vq''dgeqo g''yi g''Dtc| krkcp'' wgttkqt{ ''vqnn'r nceg. ''kpvgtr tgvgtu''y j q''ur qng''Pj ggpi cwl'cpf ''qyi gt''Kpf kcp''ncpi wci gu'y gtg''ugpv'cmpi ''y kyi ''yi g'' gzr gf kkqpu''yi cv'ugv'qw''vq''ecr wtg''Kpf kcp''uncxgu''cpf ''hkpf ''r tgekqwu'uvqpgu00 2 o 'f g''U' '\*e03722694+.'I gpgtcn'' I qxgtpqt''qh'Dtc| kri'dgwy ggp''3779''cpf ''3794.''ugpv'yi g'Ecuvkrkcp''kpvgtr tgvgt''Htcpekveq''Dtw| q'f g''Gur k'' quq'y kyi '' qpg''uwej ''gzr gf kkqp''kp''37860F kqi q'f g''Ecuvtq''cevgf ''cu'kpvgtr tgvgt''hqt''cpqyi gt''uwej ''gzr gf kkqp''kp''379: 0 Gxgp''cu''yi g''Rqtwwi wgug''cpf ''Dtc| krkcp''gzr nqtgtu''vtkgf ''vq''eqps wgt''yi g''Dtc| krkcp''kpvgtkqt.''Dtc| kril'ncegf ''kpewtukqpu'' cpf ''kpxcukqpu''d{ ''Htcpeg.''yi g''P gyi gtncpf u''cpf ''Gpi ncpf ''htqo ''cu''gctn{ ''cu''3725''cpf ''wpvkri3:: 90Vyi gtghqtg''Htgpej .'' F wej .''Gpi rkuj ''cpf ''Ur cpkuj .''y j kej ''y cu''y kf gn{ ''wugf ''kp''Rqtwwi cn'd{ ''yi g''gf wecvgf ''encuugu''hqt''522''{ gctu'' '' qp±cnxgu''Tqf tki wgu''3;; 4<49+'cnxq''j grr gf ''xq''uxtgpi yi gp''c''tcf kkqp''qh'o wnkrkpi wcrkuo ''cpf ''tcpuncxkqp'' yi tqwi j qw''eqnpkcn''ko gu''\*y qwckuu''3;: 7<6+0

Gf weckqp"f wtkpi "'y cv'r gtkqf ."cpf "wpkrl397; ."y cu'dkrkpi wcr0℃v'y g'Iguwk/eqngi gu."ej krf tgp"y gtg"wwi j v"
Rqtwi wgug"cpf "Pj ggpi cww."dww'y g'ncpi wci g"qh'j gctyi "cpf "j qo g"y cu"Pj ggpi cww0Hrqtgpeg"\*3; 63≪96+"pqvgu"
y cv'÷kp"39: 2."yi g'ncf kgu'htqo "U q'Rcwrq'\cmgf "pcwtcm{ "kp"yi g'hkpi wc'htcpec"qh'Dtc| kn'y j kej "y cu'yi g'ncpi wci g"
qh'htkgpf uj kr "cpf "f qo guvke'hthgø'\*\tcpurcvgf +0'Uwej "y cu'yi g'y kf gur tgcf "wug"qh'Pj ggpi cww'yi cv'kpvgtr tgvgtu"
dgw ggp"kv'cpf "Rqtwi wgug"y gtg"pggf gf "kp"eqwtu"qh'ncy 0'

J qy gxgt. "Ugdcukī q" Iqu² "Ectxcri q"g" O grq "Rqo dcn" yi g" O cts wku" qh" Rqo dcn" \*39346: 4± "Rqt wi cn⁄u" Y ct" cpf" Hqtgki p" Chlcktu" O kpkuyt" f wtkpi "yi g" tgki p" qh" Iqu² "Kʻcpf" xkt wcnif kevcyt "qh" Rqt wi cnicpf "ku" eqrapkgu" htqo "3972" vq" 3999. "hgctgf" yi g" i tqy kpi "r qy gt" qh" yi g" Iguwku O'V j gkt" cwy qtkx "kp" yi g" P gy "Y qtrf." y j gtg" yi g" Iguwku "ypf gf" vq" tqygev' yi g" Kpf kcpu" ci ckpuv gpurcxgo gpv. "uggo gf" vq" dg" i tgcvgt" yi cv'qh" yi g" hkpi O'Rqo dcn' yi gtghqtg" gzr gngf" yi g" Iguwku "htqo "Rqt wi cn'cpf" Dtc kn'cpf" cv' yi g" uco g" vo g. "hqtdcf g" yi g" wug" qh" Pj ggpi cw/ kp" Dtc kn'cpf" yi w'f qy p" cm' yi g" Iguwkv'eqngi guO

D{"3: 22."pgctn{"w q"o knkqp"qh"y g"vqvcn"Dtc| knkcp"r qr wrcvkqp"qh"y tgg"cpf "c"s wctvgt"o knkqp"eqpukuvgf "qh" P gi tqgu"cpf "o wrcvqgu0O knkqpu"qh"Chtkecpu"j cf "dggp"dtqwi j v"vq"Dtc| kn"cu"urcxgu"ukpeg"3725="vj g{"ur qng" [ qtwdc."Mko dwpf w"cpf "qvj gt"rcpi wci gu"qh"y g"Dcpwv"i tqwr 0"Vj g{"cnq"f gxgmr gf "vj gkt"qy p"nkpi wcg"htcpecg<"c" hqto "qh"[ qtwdc"y j kej "r tgxckrgf "kp"vj g"pqtvj "cpf "pqtvj /gcuv"qh"Dtc| kn"cpf "Eqpi qgug"kp"vj g"uqwj 0

### Tgegpv'j knyt{<'gki j vggpvj 'egpvwt{ 'vq'vj g'r t gugpv

Vj g'Kof kcp''r qr wrckqp"qh'Dtc| kn'j cf "dggp"f geko cvgf "d{"vj cv'uvci g="vj g{"y gtg'mkmgf "d{"eqmpk gtu"y j q"y cpvgf" vj gkt "rcpf u."d{"vj g"j ctf uj kr u"qh''urcxg''rcdqwt."d{"Gwtqr gcp"f kugcugu"y j kej "tcpi gf "htqo "vj g"eqo o qp"eqnf "vq" xgpgtgcn'f kugcugu'ci ckpuv'y j kej "vj g{"j cf "pq"ko o wpkx{."qt"y gtg"grko kpcvgf "d{"o kuegi gpcvkqp0F gr tkxgf "qh" Lguwkx'r tqvgevkqp."vj g{ "pqy "uecwgtgf "hwt y gt"kprcpf "kpvq"vj g"o ctuj gu"cpf "lwpi rgu"qh'y guv'cpf "pqt y /y guv'Dtc| kn'y Kp"tgegpv"{ gctu."Y guvgtp/uv{ rg"r tqi tguu'j cu"eqpvkpwgf "vq"gzcegtdcvg"vj g"eqpf kkqpu"qh'vj gkt"f go kug."y kyj "vj g" tguwnv'vj cv'vj gkt"pwo dgt"j cu"pqy "dggp"tgf wegf "vq"c"o gtg"372"222."qh'y j qo "52"r gt"egpv'ewttgpvn{"ur gcm' Rqtwi wgug"cu"c "hktuv'rcpi wci g0

#### Rqt wi wgug'f gi go qp{

Vj gug'hcevqtu."eqo dkpgf 'y kj "'y g'cttkxcn'qh''y g''Rqtwi wgug'tq{cn'hco kn{ 'kp''Dtc| kn'kp''3: 2: "cu''y g{ 'hrgf 'htqo " P cr qrgqpøu''vtqqr u."ugtxgf "'q"eqpuqnkf cvg''y g''r qukkqp"qh''Rqtwi wgug''cu''y g''o clqt "rcpi wci g'kp''y g''eqwpvt{0Kp" 3: 37."yj g''r tkpeg''tgi gpv."F qo "Lq¯q''\*rcvgt''F qo "Lq¯q''XK=398963: 48+"grgxcvgf "Dtc| kn'vq''y g''ecvgi qt{ "qh'' Mkpi f qo ."qp''cp''gs wcn'hqqvkpi 'y ky ''Rqtwi cn0O qtg'ko r qtvcpvn{ ."j g''nkhvgf ''y g''dcp''qp''r tkpvkpi 'y j kej ''j cf ''dggp'' kp''hqteg''kp''y g''eqnqp{ "ukpeg''37220

Cnj qwi j "encpf guvkpg"r tguugu"qr gtcvgf "cv"f khhgtgpv"r qkpvu"cpf "cv"f khhgtgpv"r gtkqf u"qh"vko g"\*r tkpvkpi "ngchngvu"cpf " uwej 'hkng+."vj g'Kortguu-q'T²i kc."qt"÷Tq{cn'Rtkpvkpi "Uj qrø"guvcdnkuj gf "d{'Fqo "Iq-q'kp'Tkq'fg'Icpgktq'kp'3: 2: " y cu''y g'hktuv'ngi cn'guvcdrkuj o gpv'qh'kvu'mkpf ''vq''dg''ugv''wr 'kp''Dtc| kr0'Kortguu-q'T2 i kc''y cu'i kxgp''y g''o qpqrqn( ''qp'' rtkpvkpi "kp" y g"eqwpvt { ."c"ukwcvkqp" y cv'rtgxckrgf "wpvkrl" Dtc|krkcp" kpf grgpf gpeg" kp" 3: 440 J qy gxgt ." y g"uvtkpi gpv" egpuqtuj kr "gzgtekugf "kp"Rqtwi cn'y cu"cnuq"ko r qugf "kp"Dtc| kn"y kij "'y g"tguwn'y cv'y g"ko r qtvcvkqp"qh"dqqmu"kpvq" Dtc | kn'y cu'ugxgtgn ('tguvtkevgf 00 cp ('dqqmu'y gtg'pgxgty gnguu'uo wi i ngf 'kp. "cpf 'kv'ku'uckf 'y cv'xctkqwu'eqnqpkcn' qlhkelcnu'o cf g'hqtwpgu'qw'qh'dtldgu'tgegkxgf "\q'wtp"c"dnlpf "g{g'\q'\y ku'ce\kxk\{0'Rtkxcvg'hldtctkgu'cnq'\y tkxgf." rct wewrctn('f wt kpi ''vj g''ugeqpf''j crh''qh''vj g''gki j vggpvj ''egpwt {0'Vj g''hkdtct {''qh'Ecpqp''Nwku''Xkgktc''f c''Ukrxc.''qpg''qh'' yj g'eqpur ktcvqtu'kpxqnxgf 'kp'cp'gctn{ 'cwgo r v'vq'qdvckp'kpf gr gpf gpeg'hqt'Dtc| krlkp'39: ; . 'eqpvckpgf 'pgctn{ ': 22" xqnwo gu'\*392'\kurgu+.'tgr tgugp\kpi 'o quv'qh'Gwtqr gøu'ngcf kpi 'vj kpngtu.'gur gekcm{ 'vj g'Htgpej 0Cm'vj ku'r qkpvu'vq'' yj g'hcev'yj cv'gf wecvgf ''Dtc| krkcpu. ''rkng''yj gkt ''eqwpvgtr ctwi'kp''Rqtwi cn''f kf ''pqv'tgcm{ ''pggf ''rkxgtct { ''vtcpurcvkqpu." r ct whewardt no "Hitgpej O'D { "vj g"havg" pkpgvggpvj "egpwt { . "vj g"Rqt wwi wgug" i gpvt { "j af "vangp" vq" ur gankpi " Htgpej "co qpi uv"yj go ugnxgu. "wukpi "Rqtwi wgug"qpn( "vq"cfftguu'yj gkt"ugtxcpvu0Cv"cp{ "tcvg."dqyj "kp"Rqtwi cn'cpf"  $\verb|kp'Dtc| & \verb|kn'Rqtwi| wgug'y cu'y g'hcpi wci g'qh'cfo & \verb|kpkutckqp'cpf'y g'hcpi wci g'qh'r tkpv'kp'i gpgtcr0| \\$ J qy gxgt. "kv"y cu"pqv"wpvkn"Dtc| kn"dgeco g"kpf gr gpf gpv. "f wt kpi "vj g"eqpuvkwwkqpcn"cuugo dn( "qh"3: 45ô y j gp"kv" y cu'f gelf gf ''y cv'Rqtwi wgug'y qwrf 'eqpvlpwg''vq''dg''y g''qhhlelcn'hcpi wci g''qh''y g''pcvlqp. ''y cv''Dtc| krlcpu'htqo " xctkqwu'r ctwlqh'y g'eqwpvt { "dgi cp"vq"ur gcmlRqtwi wgug"vq"gcej "qyj gt0Cpf" { gv." Pj ggpi cw/cpf "yj g"qyj gt" nkpi wcg'htcpecg'j cxg'pqy 'dggp'ncti gn( 'hqti qwgp. 'cpf 'vj g'cxgtci g'Dtc| knlcp'wwcm( 'j cu'pq'kf gc'vj cv'vj g{ 'gxgt'' gzkuygf 0'O quv'Dtc| kykepu'ctg'pqv'cy ctg''y cv''y g{ "eqpykpyg''yq''wug''o cp{ ''y qtf u''qh'Kof kep''qtki kp''qp''c'f c{/vq/fc{" dcuku."c"hcev"y j kej "o cmgu"yj g"

Rqtwi wgug''ewttgpvn{"ur qngp''kp''Dtc| kn'xgt { "f khhgtgpv'htqo "vj g''Rqtwi wgug''ur qngp''kp''Gwtqr g0'Kpf kcp''cpf" Chtkecp'hcpi wci gu'j cxg'kphnwgpegf 'kv'pqv'qpn{"cv'vj g'hgzkecn''dwv'cnq''cv'vj g''u{ pvcevke''cpf "o qtr j qmi kecn'hgxgnu0 Uweeguulxg''y cxgu''qh''ko o ki tcpwi'\*I gto cp. 'Kcnkcp.''Icr cpgug. 'Ngdcpgug.''Rqrkuj. 'Rqtwi wgug.''T wuulcp.''Ur cpkuj.'' Uy kuu. 'U{ tkcp''cpf "qvj gtu+"y j q''cttkxgf "chygt'kpf gr gpf gpeg''j cxg'hnvty gt''eqpvtkdwgf "vq''f gxgmr kpi "c''xctkgv{ "qh'' Rqtwi wgug''kp''Dtc| kn'y j kej "j cu''dgeqo g''s wkxg''f knvkpev'htqo "Gwtqr gcp''Rqtwi wgug0'Hqt''qxgt''c''egpwt{.''Gwtqr gcp'' ko o ki tcpwi'vgpf gf 'vq''nkxg''kp''kuqrcvkqp.''ki pqtkpi "vj g''ewwqo u''cpf 'hcpi wci g''qh''y gkt''pgy ''eqwpvt{0'Kp''3; 5: .'' Rtgukf gpv'I gvÀrkq''Xcti cu'\*3: : 563; 76+"dcppgf "vj g''gzenwulxg''wug''qh''hqtgki p''ncpi wci gu''kp''kpuvtwevkqp''cpf "ko r qugf ''Rqtwi wgug''cu''y g''o gf kwo ''qh''gf wecvkqp''\*F wngu''3; 8; <63664+0

#### Vj g'j kwqt{'qh'y t kwgp'\t c p urc \kqp

K'kı'r quukdrg''q'guvcdrkıj .''j qy gxgt.''y cv'r tqhguukqpcn'\tcpure\qtu'y gtg''hktuv'tgeqi pk gf 'qhhkekcm( 'kp'3: 2: "cu'uvchh' o go dgtu'qh'Ko r tguur q'T² i kc0'Ugxgpv{/yi tgg''{ gctu're\gt.'hqt'\tgcuqpu''{ gv'\q'dg''f g\gto kpgf.''yi gkt'r qu\uv'y gtg'' grho kpc\gf "cpf "\yi gkt'y qtm'y cu'\cngp''qxgt''d{" o \text{whrkpi \text{wcfleq} } y \text{tkgtu0'Vj g''hktuv'\tcpure\qp''r tl\p\gf "d{" Ko r tguur q'T² i kc'y cu''Ngqpj ctf 'G\text{wgt\gamma} \footnoona \footno

Chạt "hợf gr gpf gpeg. "Ko r tgur q'T² i ke "nquv'ku" o qpqr qn ("qxgt") g'r tkp kpi "kpf wut (."cpf "ki'dgeco g'r quukdrg"\q" uxgr "\r" r wdrkuj kpi "ce-kxkkgu0O cp ("tcpurc-kqpu'dgi cp"\q" cr r gct. "\j gug"y gtg"ej kghn ("qh'Htgpej "cwj qtu."qt"qh" cwj qtu'\tcpurc-kqpu'r wdrkuj gf "kp ktgevn "xkc"Htgpej "cpf. "rgur "qhgp. "xkc"Ur cpkuj 0O quv'qh'\j gug." j qy gxgt. "y gtg"tgr tkpwi"qh" tcpurc-kqpu'r wdrkuj gf "kp ktgevn "xkc"Htgpej "cpf. "rgur "qhgp. "xkc"Ur cpkuj 0O quv'qh'\j gug." j qy gxgt. "y gtg"tgr tkpwi"qh" tcpurc-kqpu'r wdrkuj gf "kp ktgevn cn0J qy gxgt. "ugxgtcriheevqtu" kpf gtgf "\j g"r tqf wekqp"qh'dqnm"cv'c "nqy "equv'kp" Dtc| kricpf. "eqpugs wgpvn (."\j g"r wdrkec-kqp"qh'tcpurc-kqpu0Vj g'hktuv'ku'\j cv'cmi'cwgo r wi'cv'r tqf wekpi "r cr gt "kp "\j g" eqwvt {"r tqt"\q"3:::"rtqxgf "\q"dg"\qq"equvn (."\qy kpi "\q"c"\uj qtvci g"qh's wcrkhkgf "y qtmgtu'cpf "\j g"j ki j "equv'qh" ko rqt\usin "gs wkr o gpv'cpf "tcy "o cytkcm0Vq"ektewo xgpv'\y gug"rtqdrgo u. "dqqnm'y gtg"wwcm ("r tkp\usin "cv' pgy ur cr gt "rtguugu'wukpi "ko rqt\usin "r cr gt "cpf "kf rg"o cej kpgt {"\wo g0P gxgt\y grguu."y k\y "\y g'kvtqf wekqp"qh'tqvct {"rtguugu'lqt" pgy ur cr gtu'qpn ("\p"3: 69."\y ku'r tce-keg") cf "\q"dg"cdcpf qpgf 0Hqwt" {gctu'rc\usin "tyco uj kr "rhpgu'y gtg" qr gpgf "dgw ggp"Gwtqr g"cpf "Dtc| kn'o cmkpi "k'ej gcr gt "\q" ko rqtv'dqnm'\y cp"\q" tqf weg'\y go "rqccm(0F wt\pi) "xctkqwi'r gtkqf u'kp"\y g'pkpgyggp\y "cpf "y gpvkgy "egpwxkgu"\si: 37658=3: 66682=3; 426; =3; 7369+"\y g'\czgu" rgxkgf "qp" ko rqtvgf "rcr gt "cpf "egmwnqug"y gtg"82" rgt "egpvy" ki j gt "\y cp"\y qug"rgxkgf "qp" ko rqtvgf "dqnm0Wp\x hi" Yqtf "Y ct" Qpg." rwdrkuj gtu'\y gtgrtgtguxtke\usin "\y gth "cexkxkkgu"\q" rtkp\x kpi "\y gxdqnm"cpf "rcy "dqnm0Wp\x hi" Yqtf "Y ct"\y gyg." rudru'uwej "cu'Tqq" "f g'Crgpect"\si: 4: 699+"cpf "Lqcs wko "O ctkc"O cej cf q"f g'Cuuku'\si: 5: 63; 2: +"j cf "\y gkt "yqtm" wdrkuj gf "\p"Rctku'qt" Nqpf qp="

r wdrkij kpi 'kp''Rqtwi wgug'j cf 'dgeqo g''c'hrqwtkij kpi 'dwukpguu'kp''Gwtqr g.''y kij ''guvcdrkij o gpwi'uwej ''cu''y g''
Nkxtctkc'I ctpkgt'kp''Rctku''ur gekcrk kpi ''kp''k0J qy gxgt.''y g''uggf ''uqy p''kp''3: :: 'hkpcm{ ''dqtg'htwk0D{ ''3; 42.''y g'' kpekr kgpv'Dtc| krkcp''r cr gt''kpf wuxt { ''y cu''dqcuvkpi ''342''r cr gt''o kmu''cpf ''eqwrf ''uwr r n{ ''nqecn'f go cpf .''dw''k'' f gr gpf gf ''j gcxkn{ ''qp''ko r qtvgf ''egmwrqug0

Vj g"crrtqcej "qh"Y qtnf "Y ct"Vy q"dtqwi j v'wy q"o clqt"f gxgmqr o gpwu'vq"yj g"ctgc0Vj g'hktuv'y cu'vj cv'ko r qtvkpi " dqqmu'dgeco g'xgt { 'f khhewnx'cpf 'vj ku'hcxqwtgf 'vj g'i tqy vj 'qh'f qo guvke'r wdrkuj kpi 'dwukpguugu0'Vj g'ugeqpf 'y cu' yj g'tkug''qh''yj g''Wpksgf ''Ucvgu''cu''c''y qtrf ''r qy gt.''y ksj ''Dtc| krlhcmkpi ''kpetgcukpi n{ 'y ksj kp''ksu''ur j gtg''qh''kphrssgpeg.'' y j kej "o gcpv"yj cv"Gpi rkuj "uqqp"tgr rcegf "Htgpej "cu"yj g"o ckp"uqwteg"rcpi wci g"kp"tcpurcvkqp0"Vqf c{."tcpurcvkqp" htqo "rguugt/mpqy p"rcpi wci gu. 'uwej "cu'Icr cpgug"qt "E| gej . 'ku'cnq 'qhygp'f qpg'kpf ktgevn( 'xkc'Gpi rkuj 0 Ki'y cu'htqo "y g'3; 52u'qpy ctf u. 'y gp. 'y cv'y g'r wdrkuj kpi "dwukpguu'dgi cp''vq'hrqwtkuj 'kp''Dtc| krl'cpf. 'y ky 'kv." vtcpurcvkqp"cevkxkkgu0Vj ku'hrqwtkuj kpi "dwukpguu"y cu"ckf gf "d{ "cp"kpetgcug"kp" yj g"tgcf kpi "r wdrkeøu kpeqo g." rksgtce{"cpf"rgkuxtg"\ko g0\Vj g"i tqy kpi "i cr "dgw ggp'Gwtqr gcp"cpf "Dtc| krkcp'Rqtwi wgug"cnuq"gpeqwtci gf" r wdrkuj gtu'\q"eqo o kuukqp"pgy 'Dtc| krkcp"\tcpurc\kqpu. 'kpuvgcf "qh'tgrtkpvkpi 'Gwtqrgcp"qpgu. "cu'\j g'tgcfkpi " r wdrle 'kp'Dtc| kn'y cu'pq'nqpi gt'uq'y knkpi '\q'ceegr v'Gwtqr gcp'Rqt wi wgug'cu'cp'cnygtpc\kxg0 Vy q'Dtc| knlcp'y tkgtu'ctg'y qtyj 'o gpvkqpkpi 'j gtg'hqt'yj gkt'cevkxkkgu'cu'vtcpurcvqtu'f wtkpi 'yj ku'r gtkqf0Iqu²'' Dgpvq'O qpvgktq''Nqdcvq''\*3:: 463; 6: +:'j cxkpi 'j cf 'f kthkewn\{ 'r wdrkuj kpi 'j ku'eqmgevkqp''qh''uj qtv'uvqtkgu''Wtwr´u'' \*3; 3: + "guvcdrkuj gf "j ku"qy p"r wdrkuj kpi "j qwug"cpf "f gxqvgf "j ku" \do g"\q"\tcpurc\kpi "ugxgtcrlo clqt"cwj qtu." kpenwf kpi "Mkr nkpi ."Lcem'Nqpf qp. 'O gnxkng."Uckpv/Gzwr²t { ."I go kpi y c { ."Uj qngo 'Cuj ."cpf 'I (I OY gnn)OI g'cnuq" o qf gtpk gf "cpf "cf cr vgf "c"pwo dgt "qh"Gwtqr gcp"Rqtwi wgug" \tcpurc\kqpu" \q"Dtc krkcp"Rqtwi wgug0O qpvgktq" Nqdcvqøu'r wdrkuj kpi 'j qwug'y cu'rcvgt'dqwi j v'd { 'Gf kvqtc'P cekqpcn'cnuq'kp'U q'Rcwrq0'; tkeq'Xgt¶uuko q'\*3; 276 97+'y j q'uvctvgf '\tcpurcvkpi 'cu'c'o gcpu'qh'eqo r rgo gpvkpi 'j ku'kpeqo g'htqo 'lqwtpcrkuo .'uqqp'uweeggf gf 'kp'' r gtuwcf kpi 'Gf kate' I mdq. 'e'r wdrkuj kpi 'j awug'deugf 'kp'Ratva' Crgi tg'kp'uawj 'Dte kn'va'dtkpi 'aw'tepurevlapu'' qh'c'o qtg'rkxgtct{ "ej ctcevgt" yj cp" yj g'twp/qh/yj g/o km'f gvgevkxg" pqxgnu" kp" y j kej "yj g{ "ur gekcnkt gf 0J ku" ghqtvu" y gtg'htwkhwn''cpf 'j g'y cu'uwdugs wgpvn( 'o cf g'c'o go dgt''qh''y g''gf kqtkcn'dqctf ''qh''Gf kqtc'T nqdq.''y j gtg''j g'' eqqtf kpcvgf "vj g"P qdgn"Eqngevkqp."tgr wygf n{ "vj g"dguv"eqngevkqp"qh"hqtgki p"hkevkqp"gxgt "r wdrkuj gf "kp"Dtc| kr0" Gf kqtc'I rqdq''rcvgt''dtqwi j v'qwv'cpqyi gt''eqngevkqp''qh''vtcpurcvkqpu''qh'y qtrf ''ercuukeu''ecngf ''Dkdrkqvgec'f qu'' *Uewnqu*. ''qt''-inkdtct { ''cetquu''egpwtkguø0

F wtkpi 'vj g'3; 62u'cpf '3; 72u.'vj g'o ckp'r wdrkuj gt 'qh'vtcpurcvkqpu'y cu'Gf kqtc'Iqu² 'Qn(o r kq'qh'Tkq'f g'Icpgktq0' P qv'qpn( "f kf 'kv'r wdrkuj ''y g''o clqt ''Dtc| krkcp'y tkgtu'qh'y g''w g. ''dw'kv'cnuq''eqo o kuukqpgf ''y go ''vq''vtcpurcvg'' hqtgki p'y qtmu0Co qpi 'uwej 'tcpurcvqtu'y gtg<I cuv q'Etwn.'O cpwgn'Dcpf gktc.'Tcs wgn'f g'S wgkt»u.'Ectmqu'' Ftwo o qpf 'fg'Cpftcfg.'Lqu² 'Nkpu'fq'Tgiq.'Qv² xkq'fg'Hctkc.'NAekq'Ectfquq.'Twdgo 'Dtcic.'I gpqrkpq'Cocfq'' cpf "o cp{"qyi gtu0Qyi gt"r wdrkuj kpi "j qwugu"kp"Tkq"f g"Lcpgktq"cpf "U q"Rcwrq"j cxg"cnuq"r wdrkuj gf "\tcpurc\kqpu"qp" c'tgi wrct'dcuku0'Vjg{'kpenwfg'Gfkqtc'Ekxkrktc±q'Dtcukrgktc.'Rqpigwk'Octvkpu.'Fkhhgn'Gfkqtc'Pqxc'Htqpvgktc'' cpf "qyj gtu0Ci ckp." o clqt"y tkvgtu" j cxg"f qwdref "cu" vtcpurcvqtu < I qf qhtgf q"Tcpi gn "Ci tkr kpq" I tkgeq. "U ti kq" O knkgv. 'Lqti g'f g'Nko c. 'O ctequ' 'Ucpvcttkvc. 'Cpv/pkq'Ecmcf q. 'Uvgrc' Ngqpctf qu. 'cpf 'Rcwnq' Ngo kpunk'j cxg'' vtcpurcvgf "hkevkqp0Rqgvu"cpf 'y tkvgtu"uwej "cu"I vknj gto g"f g"Cro gkf c. "O cpwgn"Dcpf gkt c. "Egeknc"O gkt grgu. "Ectrqu" P glct. 'Ngf q'Kxq. 'cpf 'Kxcp'Lwps wgktc'j cxg'\tcpurcvgf 'r qgvt {0Tcko wpf q'O ci cnj -gu'Lwpkqt. 'I wknj gto g' Hki wgktgf q'cpf 'O kmqt'Hgtpcpf gu. 'co qpi 'qyj gtu. 'j cxg'gzegmgf 'kp''yj g''tcpurcvkqp''qh'f tco c0 Vqf c{."Dtc| kn'j cu'f gxgnqr gf 'kwu'qy p'egmwnqug'r tqf wevkqp'kpf wuxt { ''vq''yi g''gz vgpv''yi cv. ''ukpeg''3; 98. ''kv'j cu''dggp''cp'' gzrqtvgt 'tcyj gt 'yj cp 'cp 'ko rqtvgt 'qh'r crgt 'r wr = kw'r tkp vkpi 'kpf wuxt { 'j cu 'cf xcpegf 'uki pkhkecp vn{ .''yj wu'i kxkpi " vtcpurcvkqp"c"hwt yi gt "dqquv0"Vj g"pwo dgt "qh"r wdrkuj gf "vtcpurcvkqpu"kp"Dtc| krivqf c { "ku'uq 'rcti g'vj cv."cnyj qwi j "  $cm\ quv'622"pgy\ ''rkvgtct{\ ''y\ qtmi'y\ tkwgp"qtki\ kpcm{\ ''kp''Rqtwi\ wgug"ctg''r\ wdrkuj\ gf\ ''gxgt{\ ''{\ }'gct''{\ }'c''pwo\ dgt''y\ cv''}}$ r tcevkecm ("gs wcnı'y g'vqvcn'hqt"y g'tguv'qh'Ncvkp'Co gtkec ('Uqw c'3; ; 2+.": 2"r gt "egpv'qh'cm'o cygtkcn'r wdrkuj gf 'kp'' Dtc| krlku'\tcpurcvgf '\*Y { ngt '3; ; 5+. 'c' 'ukwcvkqp' 'y cv'cr r nkgu'\q'gxgt { 'i gptg0'kp' y g'ecug'qh'

ej knf tgpøu'dqqmu. 'hqt "gzco r ng. '85" r gt "egpv'qh' vj g'y qtmu'r wdrkuj gf "dgwy ggp" 3; 87" cpf "3; 96" y gtg' vtcpunc vkqpu" \*vj qwi j "vj ku' vqvcn'hgm' vq'6; (7" r gt "egpv'kp" 3; 9; +0

#### Vj g'qti cpk| cvkqp'qh'vj g'rt qhguukqp

Vj g'r tqhguulqp"qh'vtcpurcvqt"lp"i gpgtcn"eqo r tkulpi "hkgtct { ."vgej pkecn"f tco c. "elpgo c"cpf "vgrgxkulqp"vtcpurcvqtu." eqphgtgpeg. "eqpugewkxg"cpf "uko wacpgqwu'lpvgtr tgvgtu"cu'y gmlcu'vcr g"vtcpuetkdgtu."y cu'tgeqi pki gf "d{ "vj g" O lpkuvt { "qh'Ncdqwt"lp"3; : : 0Vj g"hktuv'cuuqekcvlqp"vq"dtlpi "vj gug"r tqhguulqpcm"vqi gvj gt "y cu'CDTCVGU."qt"vj g" P cvlqpcnlCuuqekcvlqp"qhlVtcpurcvqtu."hqwpf gf "d{ "Rcwq"T" P CKlp"3; 960%P qxgo dgt"3; : : ."vj g"o go dgtu"qh" CDTCVGU'xqvgf "vq"ej cpi g"vj gkt"cuuqekcvlqp"lpvq"c"wplqp."URV VTC"qt"vj g"P cvlqpcnlWplqp"qh"Vtcpurcvqtu0' URV VTC"vqqniqxgt"CDTCVGU's'cko u"cpf "i qcm"cpf "ku"chhkrlovgf "vq"HkV."vj g"H F | TCVlQP" RVGTP CVlQP CNG"F GU"VTCF WEVGWTUULPV VTC"j cu"f qpg"o wej "vq"rtqo qvg"vj g"rtqhguulqp."lpenvf kpi "f gxkulpi "c"uvcpf ctf "eqpvtcev'hqt"ku"o go dgtu."ugwkpi "o lpko wo "hggu."cpf "f tchvlpi "cp"gy lecnieqf g"hqt"yj g" rtqhguulqp0'kp"cf f kkqp."kv"j cu"r ctvlekr cvgf "lp"pgi qvlcvlqpu"qp"eqr {tki j v'y ky "vj g"egpvtcnii qxgtpo gpv"cpf "vj g" Dqqm"kpf wuxt {"P gi qvlcvlqp"Ej co dgt0'Ulpeg"3; ; 5"vj g"r tgulf gpv"cpf "xleg/r tgulf gpv"qh"URV VTC"j cxg"dggp" o go dgtu"qh"y g"lvt{"y j lej "cy ctf u"vj g"Lcdwk'vtcpurcvlqp"r tkj g"ur qpuqtgf "d{"vj g"Dtc| krlcp"Dqqm'Ej co dgt0 Eqphgtgpeg"lpvgtr tgvgtu"j cxg"vj gkt"qy p"cuuqekcvlqp"r tkj g"ur qpuqtgf "d{"vj g"Dtc| krlcp"Dqqm'Ej co dgt0 Eqphgtgpeg"lpvgtr tgvgtu"j cxg"vj g"cuuqekcvlqp"ku"tgeqi pkj gf "d{"CkkE."cmj qwi j "pqv'cu"c"o go dgt0'O cp{" qh'CRkEøu"o go dgtu"ctg"cmq"o go dgtu"qh"CkkE"lp"vj gkt"qy p"tki j v0

#### Vtckpkpi

Wpvkn'y g'ncvg'3; 82u."pq"ur gekhe"vtckpkpi 'hqt"vtcpurcvqtu'y cu'qhhgtgf 'kp'Dtc| kn'OCu'c'tguwn."y g'vtcpurcvqtu'qh'' Dtc| kn'y gtg'o ckpn( "kw'tgpqy pgf "y tkwgtu'cpf "y qug'y j q"j cf "ngctpgf 'hqtgki p'ncpi wci gu'cv'uej qqn'qt"cdtqcf."qt" yi qug'y j q"j cf "c'wpkxgtukv{"ncpi wci g"f gi tggOC'f getgg"r cuugf "d{ 'y g'O kpkuvt { "qh'Of wecvkqp"f wtkpi "y g'3; 82u" gpcdrgf 'hcewnkgu'qh'ctvu'vq"gzr cpf "y gkt"rcpi wci g"eqwtugu'uq"cu'vq"r tqxkf g'vtckpkpi 'hqt'vtcpurcvqtu'cv'wpkxgtukv{" rgxgrO'Vj g'hktuv'uwej "eqwtugu'y gtg'qhhgtgf "cv'vj g'Ecvj qnke"

Wpkxgtuk/ "cv'Tkq"f g'Lcpgktq"cpf "Rqtvq"Crgi tg."cpf "cv'y g'Hgf gtcriWpkxgtuk/ "qh'Tkq"I tcpf g"f q"Uwt/Dghqtg" rqpi ."44"eqwtugu"qp"vtcpurcvkqp"y gtg"dgkpi "twp"cv'ugxgtcri'nqecvkqpu"y tqwi j qw'Dtc| kr/0 Cecf go ke"kpvgtguv'kp"vtcpurcvkqp"uwf kgu"ecp"cruq"dg"uggp"cv'r quvi tcf wcvg"rgxgr/0\*Ugxgtcri'o cuvgtu'f kuugtvcvkqpu" cpf "f qevqtcri'y gugu"j cxg"dggp"ceegr vgf "d{ "Dtc| krkcp"wpkxgtukkgu"kp"tgegpv'{ gctu/0\*Kp"3; : ; ."c"vtcpurcvkqp"uwf {/ i tqwr "y cu'ugv'wr "wpf gt "y g"cwur kegu"qh'CP RQNN"\*P cvkqpcriCuuqekcvkqp"qh"Rquvi tcf wcvg"Tgugctej "kp"Ngwgtu" cpf "Nkpi wkuvkeu+0\*Cv'c"o ggvkpi "qh'y ku'uwf { "i tqwr "kp"3; ; 4."CDTCRV"\*Dtc| krkcp"Cuuqekcvkqp"qh"Vtcpurcvkqp" Tgugctej gtu+"y cu'hqwpf gf ."y ky "y g"cko "qh'dtkpi kpi "vqi gy gt 'tgugctej gtu'htqo "xctkqwu'r ctwu'qh'y g'eqwpvt { ." gpeqwtci kpi "eqpvcev'dgwy ggp"y go "cpf "y g"gf wecvkqpcri'cwy qtkkgu."cu'y gm'cu'ur qpuqtkpi "eqwtugu'cpf" eqphgtgpegu/0

Cv'r tgugpv."o cp{ "wpkxgtukkgu"ctg"qti cpk kpi "r quvi tcf wcvg"vgcej gt"vtckpkpi "hqt"ngewtgtu"kp"ncpi wci g" f gr ctvo gpwu"y j q"y kuj "vq"dgeqo g"kpxqnxgf "kp"vj g"vgcej kpi "qh"vtcpuncvkqp"qt"vq"wpf gtvcng"tgugctej "kp"vtcpuncvkqp" uwwf kgu0

#### Rwdrlecvkqpu

Kb'y cu'y g'r kqpggt'y qtm'qh'Rcwq'T~ PCK\*3; 296; 4+'y cv'j cf 'c'o clqt'ko r cev'qp'y g'uwf { 'qh'\tcpurc\kqp'kp'' Dtc| kn/l/Gueqnc 'f g'Vt cf wqt gu' \*Uej qqn'qh' Vtcpurc vqtu+'y cu'r wdrkuj gf 'kp'3; 74. 'hqnqy gf 'd{ "J qo gpu'eqpvt c" Dcdgnl\*O gp"ci ckpuv'Dcdgnl-kp"3; 86"cpf "C"\u00e4cf w\u00e4 q"\u00e4k\u00e4f c"\u00e\*Vtcpurc\u00e4qp"Gzr gt\u00e4gpegf +\u00e4kp"3; 980Cm\u00e4yi tgg\u00e4j cxg\u00e4 dggp"tgxkugf."gpreti gf "cpf "tgr tkpvgf" o cp{"ko gu="yj g{"j cxg"cnuq"dggp"\tcpurevgf "cdtqcf" kp"I gto cp{"cpf" Icr cp. 'hqt 'gzco r ng+0'C v'c '\ko g'y j gp'\tcpurc\kqp''uwf kgu'y cu''u\km'\t { kpi '\q'hkpf 'kxu'hggv.'T » pck'cf qr vgf 'c'' rtcevkecn'qwmqqm'fgtkxgf'htqo'jku'gzrgtkgpeg'cu'c'vtcpurcvqt.'dw/pgxgt'egcugf'eqpukfgtkpi'vtcpurcvkqp'cu'cp''ctv0 C'heti g'pwo dgt 'qh'y qtmu'qp''y g''y gqt {. 'r teekeg'epf 'vgeej kpi 'qh'vtepurevkqp'j exg'dggp'r wdrkuj gf 'ukpeg''y gp. 'eu' y gm'cu'r cr gtu. "guuc { u'cpf "lqwtpcnu0'P kpg "kuuwgu"qh" $Vtcfw\pm \bar{q}'$ ( " $Eqowpkec\pm q$ "\*Vtcpurcvkqp"cpf " Eqo o wpkeckqp+"c"lqwtpcn'qh'\tcpurc\qp"r wdrkuj gf "d $\{$  'Gf kqtc"f no q'kp"eqqr gtc\qp"y ky 'CDTCVGU'cpf "y g" Klgtq/Co gtkecp''Uej qqn'qh'U q''Rcwq. 'cr r gctgf ''dgwy ggp''3; : 3''cpf ''3; : 80'Kp''O c { ''3; ; 6. 'EKVTCV. 'vj g'' Kpvgtf gr ctvo gpvcn'Egpvtg'hqt''Vtcpurcvkqp''cpf ''Vgto kpqmi { ''qh''y g''Wpkxgtukv{ ''qh''U q''Rcwnq. ''dtqwi j v'qww'y g''hktuv'' Vj g''y gqtgvlecn'tghrgevlqpu'qh''y g''dtqyj gtu''Cwi wuxq'f g'Eco r qu''cpf ''J ctqrf q'f g'Eco r qu'\*3; 92.'3; 98c.''3; 98d.'' 3; 9; ."3; : 3."3; : 8+"qp"\'y gkt '\tcpurc\kqp"r tce\keg"\ctg"\'y g"enquguv'\'y kpi '\q"c"\'y gqt { "qh'\tcpurc\kqp"kp"Dtc| kn0'Dgkpi " Eqpetgvg'r qgvu. 'vj g'dtqvj gtu'j cxg'f gxqvgf 'vj go ugnxgu'vq'vj g'vtcpurcvkqp''qh'cwj qtu'y j q'vj g{ 'hggn'j cxg'tcf kecm( " vtcpuhqto gf 'r qgvke''uv{ ngu. 'uwej "cu'Rqwpf. "ewo o kpi u. "Iq{eg. "O cnrcto 2. "O c{cnqxum{. "Xcn²t{. 'Rqg. "Ngy ku" Ecttqm"cpf "Iqj p'Eci g."co qpi "qvj gtu0Vj gkt 'xkgy "qh'\tcpurc\kqp"r tkxkrgi gu'hqto "qxgt"eqpvgpv'cpf 'hcxqwtu'\j g" kpvtqf wevkqp"qh"pgy "hqto u"kpvq"vj g"vcti gv"ncpi wci g0"Hqt"vj gug"xkgy u."vj g{"ftcy "qp"Y cnvgt"Dgplco kp."Tqo cp" Lenqduqp"cpf 'G| tc"Rqwpf 0'Y j cv'j cu'ecr wtgf "Y guvgtp'ko ci kpcvkqp"ku'cp"gngo gpv'y j kej "vj g{ 'f tcy ''ur gekhkecm{ " htqo "Dtc| krkcp"ewnwtg0"Vj ku"ku"yj g"kf gc"qh":ecppkdcrkuo ø"f gtkxgf "htqo "yj g"O qf gtpkuv'o qxgo gpv'qh"3; 44"cpf" yj g'y tkkpi u'qh'Quy cnf 'f g'Cpf tcf g.'r ctkewrctn{ 'j ku'': Ecppkdcnkuv'O cpkhguvqø'\* Cpf tcf g'3; 92. 'Dct { '3; ; 3+0'Vj g'' ecppkdcrkuv'o gvcr j qt 'hqt 'vj g'cev'qh'vtcpurcvkqp'ku'qpg'qh'vj g'xgt { 'hgy 'Dtc| krkcp'eqpvtkdvvkqpu'vq'dg'' cempqy ngf i gf ''qwulf g''Dtc| kn'\*ugg''Dcuupgw'3;; 5-10'Kl'gzr tguugu''y g''gzr gtkgpeg''qh''c''eqnqpk gf ''r gqr ng''y j q'' f gxqwt "y j cv'ku "qhhgtgf "vq "y go "d { "vj gkt "eqmpk gtu "dww'f q "pqv'uy cmqy "kv'y j qng<'s wkxg "y g "qr r qukxg. "vj g { "ur kv" qw'y j cv'ku'pqzkqwu'\q'\j go ."dw'y j cv'\j g{ 'mggr '\j g{ 'o cmg'y j qm( '\j gktu'd{ 'cnxgtkpi 'cpf 'ej cpi kpi 'kv'\q'\uwkv' y gkt 'pwtkkqpcn'pggf u0

### Hwt yj gt 't gcf kpi

J GNQKUC'I QP\CNXGU'DCTDQUC'CPF'NKC'Y [ NGT

## Dkqi tcrj {

T~ PCK'Rcwq''3; 296; 4+0'Rcwq'T»pck'y cu'dqtp'kp'Dwf cr guv.'J wpi ct {.''qp'35'Cr tkd'3; 290'

Kp"3; 63."j g"go ki tcvgf "vq"Dtc| kt0J ku"j quv'eqwpvt {"cy ctf gf"j ko "ekkt gpuj kr "lp"tgeqi pkkqp"qh"j ku"eqpvtkdwkqp"vq" Dtc| ktlcp"tkgtcwtg0J g"y cu"J gcf "qh"Htgpej "Nkgtcwtg"cv"Rgf tq"KKWpkxgtukx{0"Vqi gyj gt"y kyj "Cwt² rkq"Dwcts wg" f g"J qmcpf c."j g"eqmgevgf "cpf "vtcpurcvgf "kpvq"Rqtwi wgug"c"32/xqnwo g"cpyj qmi {"qh"uj qtv'uvqtkgu"htqo "cm'qxgt" y g"y qtrf "wpf gt"yj g"vkxrg"Oct"f g"j kuw\*tkcu"\*:Ugc"qh"Uvqtkguø="j g"f gxqvgf "66"{gctu"qh"j ku"rkhg"vq"yj ku"vcun0J g"cmq" eqqtf kpcvgf "yj g"vtcpurcvkqp"qh"w q"o qtg"eqmgevkqpu<"Dcn ceøu"Eqo²f kg"j wo ckpg"cpf "yj g"P qdgn"Nkdtct {."yj g" rcvgt"c"eqmgevkqp"qh"o clqt "rkvgtct {"y qtmu0Cu"gf kqt."j g"dgeco g"c"uej qqn'qh"vtcpurcvkqp"kp"j ku"qy p"tki j v." vtckpkpi "pqxkeg"vtcpurcvqtu"cpf "hquvgtkpi ."yj tqwi j "j ku"f go cpf kpi "uvcpf ctf u."yj g"eqpegr v'yj cv'vtcpurcvkqp." y j gyj gt "rkvgtct {"qt"uekgpvkhke kgej pkecn"f gugtxgf "tgur gev'cpf "f gugtxgf "vq"dg"f kuewuugf "htqo "c"vj gqtgvkecn"r qkpv" qh"xkgy 0

T»pck'y tqvg'ugxgtcri'dqqmu'qp''tcpurcvkqp0'Gueqrc''f g''t cf wqt gu'\*Uej qqri'qh''Vtcpurcvqtu.''3; 74+'y cu'y g'hktuv'' dqqm'qp''tcpurcvkqp''q''dg''r wdrkuj gf 'lxp''Dtc| kr0'Kl'y cu'hqmqy gf ''d{"J qo gpu'eqpvt c'Dcdgri\*O gp''ci ckpuv'Dcdgn" 3; 86+."I wkc''r ta' vkeq'f c''t cf w±q'' tcpeguc'\*\*C''Rtcevkecn'I wkf g''q''Htgpej "Vtcpurcvkqp.''3; 89+."cpf "C''t cf w±q'' xkxlf c'\*\*Vtcpurcvkqp''Gzr gtkgpegf .''3; 98+."J g''cnuq''r wdrkuj gf ''pwo gtqwu''r cr gtu''cpf ''ngewtgf ''y kf gn( ''qp''y g''uwdlgev0 Qpg''qh'T»pckru''o ckp''eqpegtpu''y cu''y g''tgrevkxg''cdugpeg''qh'qti cpkl gf ''tgr tgugpvcvkqp''qh''tcpurcvqtu.''cu''y gm''cu'' y g''nqy ''r c{''y g{ ''tgegkxgf 0J g''uvctvgf ''eqttgur qpf kpi ''y kyj ''o go dgtu''qh'y g''pgy n{ ''guxcdrkuj gf ''HKV''kp''y g''3; 72u0' J cxkpi ''hkpcm( ''o gv''y g''Rtgulkf gpv'qh'HKV.''Rkgttg/Htcp±qku'Ecknrr.''kp''Rctku'kp''3; 95.'T»pck'hqwpf ''y g''pgeguuct {'' kpur ktcvkqp''q''guxcdrkuj ''CDTCVGU.''y g''Dtc| krkcp'Cuuqekcvkqp''qh''Vtcpurcvqtu.''kp''3; 960J g''cevgf ''cu''Rtgulkf gpv'qh'' CDTCVGU'wpvkrlj ku''tgvktgo gpv'kp''3; 9; 0

J GNQKUC'I QP\CNXGU'DCTDQUC'CPF'NKC'Y [ NGT

## Dt kkuj 'tt cf kkqp

Vj gtg"ctg."qh"eqwtug."ugxgtcn"Dtkkuj "\tcfkkqpu."\jqwij"\jku"gpvt{"eqxgtu"kp"fgvckn"qpn{"\jg"\tcfkkqp"dtqwijv" cdqw'd{ "y g"cttkxcn'f wtkpi "y g'hkhy "egpwt { "qh'kpxcf gtu'htqo "y j cv'ctg"pqy "y g'P gy gtrcpf u. "F gpo ctm'cpf " I gto cp{.'y j q'ugwrgf 'kp''y g'egpytcrir ctwi'qh''y g'kurcpf 'cpf 'f tqxg''y g'Egnke'kpj cdkcpwi'vq'kwi'y gwgtp''cpf " pqtyj gtp"htkpi gu"cpf. "rcvgt. "eqmpk gf"Kgrcpf"uko krctn(+0Kpxcukqp"cpf"eqmpk cvkqp"j cxg"ej ctcevgtk gf"y g" nkpi wkurke"cpf "ewnwtcn'ukwcvkqp"qh"vj gug"kurcpf u"cm quv"htqo "vj g"dgi kppkpi ."cpf "vtcpurcvkqp"j cu"r rc{gf "cp"cevkxg" tqrg''y tqwi j qw0'Ukpeg''y gkt''cttkxcn''y g'Gpi rkuj ô cu''y g{ "dgeco gô j cxg''dggp''o qtg''y cp''qpeg''wpf gt''y tgcv''qh'' kpxcukqp. "dw"y gkt "ewnwtcn"cpf "hkpi wkuke" j gi go qp{" j cu"dggp" ugtkqwun{" ej cngpi gf "qpn{" y keg<" f wtkpi " y g" r gtkqf "qh" y g"Xkmkpi "kpxcukqpu" gki j y "vq" ygpyj "egpwtkgu+." y j gtg" y q"ncpi wci gu" y gtg" ur qmgp" kp" y g"tgi kqp" qxgttwp'd{ "'y g''Xknkpi u."cpf "hqt"'y g'522"{ gctu"chygt"'y g'P qto cp'Eqps wguv."y j gtg'Cpi rq/P qto cp'y cu'kpkkcm{ " y g'hcpi wci g'qh'y g'eqps wgtqtu'cpf 'Gpi rkuj 'y g'hcpi wci g'qh'y g'eqps wgtgf OKp'dqy 'ecugu'y g'ctg'uxtwem'd { 'y g' r qy gt "qh' y g' pc kxg' tcf kkqpu' 'q' cduqtd' cpf 'hkpcm{ '\cng' qxgt' htqo ''y g' tcf kkqpu' qh' y g' kpxcf gtu0 Q y gt'' kpxcukqpu'y gtg'ceeqo r nkuj gf 'o qtg'r gceghwm(ô y kxpguu''y g'tgi wrct''ceeqo o qf cvkqpu''qh''y g''pcvkxg''vtcf kxkqpu''vq'' vtcf kkqpu'qh'emuukecn'ngctpkpi ô dw'y ky ''cp''gs wcm{ "gpgti gvke''cpf ''ko r qtvcpv'r ctv'r m{ gf ''d{ ''vtcpumvqtu''cpf '' yj gkt "tcpurcykqpu0kpf ggf." yj g"ewnwtcrlukwcykqp" qh" yj gug"kurcpf u" j cu"dggp" uwej "yj cv." yj qwi j "yj g"Egnyke" tcfkykqpu" uvkm'uwtxkxg'kp''y g'htkpi gu''q''y j kej ''y g'kpxcf gtu'eqpuki pgf ''y go .''y gkt''tgeguukxg''r qukxkqp'ku.''tgi tgwcdn(.''c'' tghrgz "qh" yj g"f qo kpcpeg "qh" Gpi nkuj <'y j kej "o c{"gzr nckp." yj qwi j "pqv" lwu kh{. 'yj gkt "pgi ngev" kp" yj ku "gp vt {0

### Kpvt qf wevkqp

Vj g'tcf kkqp"qh'tcpurctqp"kp'Dtkckp'ku'mpi "cpf 'xctkgf 0'Eqpugs wgpvn{.'kv'ku'f guktcdrg'tq'uwo o ctk g'c'pwo dgt" qh'ko r qtvcpv'hgcwtgu'dghqtg'r tqeggf kpi 'tq'f guetkdg'kpf kxkf wcn'r gtkqf u'kp'o qtg'f gvckf0
Kp''yi g'O kf f rg'Ci gu''yi g'Ecyj qrke"ej wtej "r rc{gf "c''egpvtcn'tqrg'kp''yi g''i gpgtctkqp"cpf "cwj qtkt ctkqp"qh'o gf kgxcn'' vtcpurctkqp."gur gekcm{ 'kpvq''cpf 'htqo 'Nctkp0'Dw'kxu''cvkwxf g''vq''tcpurctkqp'kpvq''yi g''xgtpcewrct''y cu''pqv''cu''r qukxkxg'' cu''yi cv'qh'yi g''Qtyi qf qz''ej wtej ="yi g''ergti { 'qhrgp''xkgy gf 'Nctkp''cu''yi g''pqto "cpf"

y g'xgtpcewet "cu"eqttwr v'cpf "dctdctke0Cf o kwgf n{.'xgtpcewet"cpf "Ncvkp"y gtg"o wwcm{"uwr qtvkxg"kp"y g"ctgcu" qh"uekgvkhke"cpf "o gf kecn'y tkkpi u"\*Xqki vu"3; : ; +0Nkngy kug. "tcpurcvkqp"kpvq"Ncvkp"y cu"c"pgeguuct { "eqpf kkqp"qh" c"y qtmxu"y kf gt"ektewecvkqp"cpf lqt"y g"tcpurcvqtxu"enclo "vq"o go dgtuj kr "qh"y g"ugrgev"envd"y j kej "Ncvkp"ewnwtg" tgr tgugpvgf 0'Dw'uwej "tcpurcvkqp"i gpgtcm{ 'tgr tgugpvgf "c"ej cmgpi g. "f ktgev"qt "kpf ktgev."vq"y g"ngctpkpi "htqo " y j kej "kv"qtki kpcvgf "\*Eqr grcpf "3; ; 3+0Kp"y g"O kf f rg"Ci gu."y g"Tgpcknucpeg."cpf "y g"pkpgvggpy "egpwt { ." tcpurcvkqp"kpvq"y g"xgtpcewret"j grr gf "vq"etgcvg"cpf "eqpuqnkf cvg"c"pcvkqpcnhksgtct { "eqpuekqwupguu="j gpeg"Dkuj qr " Dt {cp"Y cnqpxu"xkgy ."kp"387; ."y cv'y g"3833"Dkdrg"eqwrf "ucpf "eqo r ctkuqp"y ky "cp{ "qyj gt"Gwtqr gcp"xgtukqp" "P qtvqp"3; ; 5."K243; +0Kp"y g"Cwi wuvcp"r gtkqf ."tcpurcvkqp"j grr gf "wpf gty tksg"pcvkqpcnhksgtct { "ugrh/eqphkf gpeg<" hqt"kpuvcpeg. "kp"Crgzcpf gt "Rqr gxu"ko kcvkqpu"qh/J qtceg"\*395669+:"Ncvkp"qtki kpcn'cpf "Gpi rkuj "xgtukqp."qp"hcekpi " r ci gu."f tco cvkj g"y g"ncwgtxu"tcpuhqto cvkqpu"qh/y g"hqto gt0

Vtcpurcvkqp"htqo "xgtpcewrctu'kpvq"Gpi rkuj "pgxgt"gplq { gf "y g"uco g"cwj qtkx{ "cu'htqo "Ncvkp."dw'c"j kgtctej { "qh"

Vtcpurckqp'htqo 'xgtpcewrctu'kpvq'Gpi nkuj 'pgxgt'gplq{gf 'vj g'uco g'cwj qtkk|"cu'htqo 'Nckp.'dw'c'j kgtctej {'qh'' uqt u'qr gtcvgf 'kp'hcxqwt'qh'Htgpej 'kp'vj g'rcvgt'O kf f rg'Ci gu'cpf 'ci ckp'chygt'vj g'Tguvqtckqp0Eqpugs wgpvq{.'vj g'' Gpi nkuj 'uqo gwo gu'r tghgttgf 'vq'wug'Htgpej 'zj gpeg.'vj g''O²o qkt gui f w'Eqo vg'f g'T tco qpv'\*3935+'y gtg'y tkwgp'' kp'Htgpej 'd{ 'vj g''gzkrgf 'Cpvj qp{ 'I co knqp.'cpf 'vtcpurcvgf 'kpvq'Gpi nkuj '\*3936+'d{ 'vj g'Htgpej '2 o ki t2 'Cdgri' DQ[ GT0P gctgt'qwt'qy p'wo g.'Quect''Y kf g''\*\tcnvp'vp'' 'Lco wgriDgengw'eqwrf 'dg''ekgf 'uko krctn(0'Cv'qvj gt'' r gtkqf u'Htgpej 'f qo kpcpeg'y cu'ej cmgpi gf .'d{ 'Kcrkcp'kp'vj g''ukzvggpvj 'egpwt{.'cpf 'd{ 'I gto cp'kp'vj g'' pkpgvggpvj 0'Vtcpurcvkqpu'htqo 'vj g'xgtpcewrct'uqo gwo gu'cko gf 'vq'eqpvtkdwg'vq'dgwygt'tgrcvkqpu'dgwy ggp'vj g''vy q'' eqwpvtkgu'cpf kqt''cf xcpeg'vj g''ecwug'qh'tghqto 'cv'j qo g<'Htcpeku'P gy o cp'\*3: 65+'cpf ''Ukt 'Htgf gtkemiNcuegrngu'' Y tczcmi\*3: 84+'tcpurcvgf 'y tkkpi u'cdqw'Gpi rcpf 'd{ 'I wdgt'cpf 'vj g''gzkrgf 'Htgpej o cp'Gus wktqu'vq'ej cmgpi g'' Gpi rkuj 'kpuwrctk{ .''eqpvtcuxpji 'vj g''qdlgevkxk{ 'qh'vj g''htgki pgt'y kj 'vj g''r tglwf kegf 'ej ctcevgt'qh'eqo r ctcdrg'' y qtmid{ ''Gpi rkuj 'y tkgtu0D{ 'eqpvtcux'Ej ctrqwg'Dtqpyt'wugf 'Htgpej 'kp'Xkrgwg'\*3: 75+'vq'uj qy 'j gt''o qpqrkpi wcn' j gtqkpgzu'f khhewnkgu'cdtqcf 'co qpi 'r gthkf kqwu'Htgpej /ur gcmkpi 'Ecvj qrkeu0Gzkrg.'xqnwpvct{ "qt 'kpxqnwpvct{ .'' rrc{u'cp''qpi qkpi 'r ctv'kp''y ku'vtcf kkqp0}

Vtcpurcytu'qhygp''tcpurcygf 'd{ 'y c{ 'qh'cp'kpysto gf kcyg''xgtukqp'kp'cpqy gt'rcpi wci g.'qt'wugf 'y g'kpysto gf kcyg'' xgtukqp''cu''c'etkd. 'gur gekcm{ 'y j gp''o cygtkcn'y cu''cxckrcdng''qpn{ 'tgegpvn{ 'cpf kqt'kp''wphco krkct'rcpi wci gu0Vj g'' qtki kpcn'\gzv'ku''y gp''uggp''o qtg''cu''y g'htuv'uygr 'kp''c'r tqeguu'qh'\gzwcn'\tcpuo kuukqp''y cp''cu''cp''cduqnwg'r qkpv'qh'' tghgtgpeg<j gpeg'Iqj p''Uwctv'O kn'xkgy gf 'I qgyj g''cpf 'j ku''Gpi rkuj 'hqmqy gtul''tcpurcvqtu''Uco wgn'Vc{mqt'' EQNGTKFI G'cpf 'Vj qo cu'ECTN[ NG'cu''eqpuvkwkpi "\=c'ukpi ng''ewnwtcn'r j gpqo gpqpø\"Cuj vqp''3; : 247+0Cv'' yi g''uco g''ko g.''c'' o gf kgxcn'y tksgtøu''ercko ''q''dg''tcpurcvkpi 'htqo ''pqp/gzknygpv'\yzvu'\%I gqhttg{ 'qh'O qpo qwj 'kp'' j ku''J knqtkc=''ugg''cnuq''RUGWFQ/VTCPUNCVKQP+"qt''hqmqy kpi ''c''uqwteg''gxgp''cu''j g''f gr ctw'htqo ''k\"\Ukt'' Vj qo cu'O cmt{ ''kp''j ku''Oqtvg'FøCtvj wt+''kpf kecvgu''y g''r qy gthwihqteg''qh''y g''kf gc''qh''cp''cwj qtkscvkxg''qtki kpcn'' Vj gp. ''vqq.''y g''qtki kpcn'ygzv'o ki j v'tgcej ''y g''tcpurcvqt''go dgf f gf ''y kj ''y g''ceetgykqpu''qh''eqo o gpvcvqtu.''qt''kp'' eqo r cp{ ''y kj ''cpqyj gt''tcpurcykqp<''Y knkco ''ECZ VQP øu''tcpurcykqp''qh''y g''Ngi gpf c''cwt gc''qh''Lco gu''qh''

eqo r cp{"y kj "cpqyi gt"tcpurcvkqp<"Y knkco "ECZ VQP øu"tcpurcvkqp"qh"y g"Ngi gpf c"cwt gc"qh"Lco gu"qh" Xctci i kq"uwr r ngo gpvgf "y g"Ncvkp"y kj "Htgpej "cpf "Gpi nkuj "xgtukqpu="C0F 0Eqngtkf i gøu"3: 8: "xgtukqp"qh" I qgyj gøu"Gi o qpv"kpenwf gf "r kcpq"tcpuetkr vkqpu"qh"Dggyj qxgpøu "kpekf gpvcn'o wuke0 Wbuwtr tkukpi n{."y g"nkpg"dgw ggp"qtki kpcn'cpf "tcpurcvkqp"r tqxgu"f khhkewn'vq"f tcy 0 "Kp" y g'r wdnkuj gtøu"dnwtd

Vj g'gyj keu'qh'c'hwm{ 'eqo o gtekcn'r tqf wevkqp'hkpg''ctg''engctn( 'kp''gxkf gpeg''vqy ctf u''yj g''

gpf "qh"y g"pkpgvggpy "egpwt {."dw"ecp"dg"\tcegf "o wej "gctrkgt."kp"y g"eqo o kuukqpkpi "qh"y qtmu"d {."cpf "f gf kecvkqp"qh"y qtmu"\q."r cvtqpu0\kp"y g"hknggpy "egpwt {."pqdrg"j qwugj qrf u"r tqxkf gf "ko r qtvcpv"egpvtgu"qh" vtcpurcvkqp"cevkxkv{0"Ukt"Iqj p"J ctkpi vqp"r tqf wegf "j ku"\tcpurcvkqp"qh"\Qtrcpf q"Hwtkquq"\s37; 3+"cv"\y g"f ktgevkqp"qh" GNK, CDGVJ "k0Iqpcy cp"Dktej "f gf kecvgf "j ku"\y q/xqnxo g"Hcww\s3: 5; \ddot65+\"\q"\y g"Etqy p"\tkpeg"cpf "Mkpi "qh" \tcpurcvkqp"\y g"r cvtqp"eqwrf "cnuq"\wtp"\tcpurcv\cqu"\cqu"\tcpurcvkqpu" r tkpvgf "d {"ECZVQP="Grk cdgy "K"\tcpurcvkqpu"htqo "Ncvkp"cpf" I tggn0

Uqo gwo gu''y g''tcpurc vqt''y qtmgf "cmpg="o qtg"qhvgp."eqmcdqtcvkxgn{0'Vtcpurc vkqpu''qh'o clqt''vgz vu''rkmg''y g''Dkdrg'' qt''J qo gt'y gtg"qhvgp''uq''wpf gtvcmgp0'Vj gtg''ku''pq''htto "gxkf gpeg''qh''uej qqnu''qh''vtcpurc vkqp''rkmg''y qug''kp''ugeqpf/egpwt{"Cngzcpf tkc."'y g''Htgpej "eqwt v'qh''Ej ctrgu''X."'qt''y g''-hcevqt{"qh''vtcpurc vkqpu $\phi$ '\*I 0'Uvgkpgt''3; 97 < 468 + "cv' Tqo g''f wtkpi ''y g''r cr ce{"qh'P kej qrcu''X0'Vj g''kpurkwwkqpcnk| cvkqp''qh''vtcpurc vkqp''cu''c''r tqhguukqp''j cf "vq''y ckv'\km' y g''y gpvkgyj "egpwt{0}

Qeecukapom("dkhpi wcn'cwj qtu'tcpurvyf" j go ugnxgu."cu'kp'j g'ecug'qh'Ej ctrgu'F wng'qh'Qtri cpu'kp'j g'hkhygpyj" egpwt{0Qyj gty kug."c'hkxkpi "cwj qt'o ki j v'dg'eqpuwnyf "f wtkpi "yj g'eqwtug'qh'yj g'tcpurcvkqp."ht'y gzco r ng" I qgyj g'd{"ECTN[ NG'cpf "J wi q'd{"Y tczcm=DQ[ GT"uwr ngo gpvyf" j ku'tcpurcvkqp"qh'y g"Rj krqrqi kecn'Guuc{" \*3935+'y kj "pgy "o cvytkcn'r tqxkf gf "d{"yj g'cwj qt0'Uqo gvko gu."yj g'cwj qt"cr r tqxgf "yj g"tguwn'\*Xgpwk'3; ; 7c<" 476: +'yj qwi j "pqv'cny c{uz'J wdgt'etkkek} gf "dghqtg'ku'r wdnecvkqp"\*3: 65+'P gy o cpøu'xgtukqp"qh'j ku'Gpi rkuj " Wpkxgtukykgu."yj kej "P gy o cp"j cf "dcugf "qp"cp"wpr wdrkuj gf "tcpurcvkqp"d{"IfRcni tcxg"Uko r uqp0'Htqo "yj g" gki j vggpyj "egpwt{"qp."cwj qtk| cvkqp"y cu'hpetgcukpi n{"f gr gpf gpv'qp"eqr {tki j v'ncy "\*Xgpwk'3; ; 7d+0'Gctnkgt." cwj qtk| cvkqp"y cu'i gpgtcm("hpngf "vq"eqpukf gtcvkqpu"qh'eqo o kuulqp"cpf "r cvtqpci g<"j gpeg"yj g'f kthgtgpv'pco gu" wpf gt'y j kej "yj g'3833"Dkdng'y cu'npqy p."yj g"=Mpi "Lco gu'Dkdngo'qt"yj g"=Cwj qtk| gf ø'xgtukqp0 Vtcpurcvqtu'tgi wctn("cwj qtk| g'yj gkt'y qtm'd{"tghgttkpi "vq"r tgxkqwu'vtcpurcvkqpuô qh "hqt"gzco r ng."yj g'Dkdng."uq" wugf "kp"yj g'O kf ng'Ci gu'vq"cwj qtk| g'vtcpurcvkqpu'd{"Mpi "Cntrgf."Iqj p"qh'VTGXKUC"cpf "yj g"Y {enkhkg'Dkdng0' C'ugpug'qh'gxqnxkpi "vtcf kkqpu'qh'yj gqt {"cpf "r tcevkeg'ku'tgi wrctn("gxkf gpegf <Iqj p"Qnf j co øu'xgtukqp"qh" J qtcegøu'Ctu'Rqgkec'\*38: 3+'cempqy ngf i gu'xgtukqpu'd{"Dgp"Iqpuqp"cpf "yj g'Gctn'qh'TQUEQOOQP="G| tc" Rqynf øu'xgtukqp"qh'Ecxcrecpvk'cempqy ngf i gu'Fcpyg'T cdtkgn'TQUUGVVK0

Uko wncpgqwu''tcpurcvkqpu''qh''y g''uco g''vgzv''qeewt''s wkwg''eqo o qpn{0 kp''y g'O kf f rg'Ci gu'f khhkewnkgu''qh'' eqo o wpkecvkqp''o c{"ceeqwpv'hqt''y ku'r j gpqo gpqp'\*\*Rgctucm'3; :; & +0 Qy gt''gzr rcpcvkqpu''cnuq''qdvckp<''rksgtct{"tkxcrt{."qt''y g'f guktg''vq''ecuj 'kp''qp''c'y qtmøu''r qr wrctkx{0C''i qqf''kpuvcpeg''qh''y g'hqto gt'ku''Vj qo cu''Vkengmøu''r wdrkecvkqp''qh''y g''*Kdcf*''Dqqm''Kqp'': 'Lwpg''3937.''y q'fc{u''chrgt''Rqr gøu''qh''Dqqmu''KKX0

I gpgtcm(."ij g"ej qkeg"qh"o gf kwo "hqt"c"ttcpurc\*kqp"f gr gpf gf "tcyj gt"qp"ij g"r gtegkxgf "j kgtctej {"qt"wugu"qh" rkgtct{"o qf gnu"kp"ij g"rcti gv"rcpi wci g"ij cp"qp"cp{"tgs wktgo gpv"qh"hkf grkv{"vq"ij g"uqwteg"vgzv0Rtqug"y cu" rtqdcdn("hcxqwtgf "kp"ij g"rcy"O kf f rg"Ci gu."d{"eqpvtcuv'y kj "ij g"ukzvggpij "egpwt{"\*Pqtvqp"3;; 5."k%39: +"d{" cpcmi {"y kj "ij g"rgctpgf "Ncvkp"r tqug"qh"ij g"uej qqm gp="wugf "hqt"xgtug"qtki kpcni"kp"uqo g"w gpvkyij "egpwt{" Nqgd"vtcpurcvkqpu."kv"tgecmu"ij g"rkgtct{"hqto "o quv"hco krkct"q"o qf go "tgcf gtu."ij g"pqxgn0Kp"ij g"uco g"y c{." f gdcvg"qxgt"ij g"tgrcvkxg"o gtkui"qh"ij g"uqwteg"cpf "ij g"tgcf gtu"y cu"qhxgp"tguqnxgf "ij gqtgvkecm("kp"hcxqwt"qh"ij g" uqwteg."dw"r tcevkecm["kp"hcxqwt"qh"ij g"r tqlgevgf "qt"cewcntgcf gtu0HKv\ I GTCNF"y cu"qwur qnpp"cdqwv"j g" vtcpurcvqtvu"tki j v"vq"qo kx"cf f "qt"cngt<"j ku"Qgf kr wu"y cu"-pgkji gt"c"vtcpurcvkqp."pqt"c"r ctcr j tcugí dwv"õej kghn(" vcngpøö"htqo "Uqr j qengu."cwgpf kpi "o qtg"vq"-ij g"Gpi rkuj "tgcf gt"qh"vqf c{ø'yi cp"vq"-icp"Cyi gpkcp"yi gcvtgí 4222" {gctu"ci qø\*Hk|v| i gtcrf "3:: 2+="kv"cnuq"ecppkdcnk| gf "ij g"gctrhgt"r qr wrct"vtcpurcvkqp"\*39:: +"qh"vj g"Tgxf "Tqdgtv" Rqwgt0"Vgzvu"y j kej "ej cmgpi gf "qtvj qf qz"qr kpkqp"y gtg"gur gekcm("rkcdrg"vq"o qf khkecvkqp<"gctn("vtcpurcvkqpu"qh" I qgyi gøu"\*Hcwwv"o quvn("qo kwgf"j gygtqf qz"tgrki kqwu"o cygtkcn="o quv"vtcpurcvkqpu"qh"y g"F geco gtqp"dghqtg"3; 52" ew"qt"tgr rcegf "yj g"dcy f kgwt/vqt"{"\*sqxtvgf" "q"yj g"qtki kpcn"Kcrkcp"\*O eY knkco "3; 94-47665+0

## Vj g'O kf f rg'Ci gu

Kp"yj g"Qrf "Gpi rkuj "r gtkqf" \*e082263322+. "yj qwi j "tcpurckqp" qeewtu "dqyj "dghqtg" cpf "chygt"

j ku''ko g.''y g'y qtni'qhi'Mlpi ''Cnttgf' ku'qhi'y g'hktuv'ko r qtvcpeg0Kp'tgcevkqp''q'c''r gtegkxgf ''f genkpg''kp'kpvgngewcn' nklg'kp'Gpi mpf .''y j kej ''j cf ''nghv'hgy ''cdng''q'tgcf ''Gpi nkuj ''qt'\tcpurcvg'Ncvkp.''Cnttgf ''r tqf wegf ''cpf ''eqo o kuukqpgf '' c'pwo dgt ''qh'ktcpurcvgf ''y qtmoô kpenwf kpi ''y g''RcuvqtcntEctg''qh'Rqrg''I tgi qt{.''y g''Uqnknys wkgu'qh'Uv'Cwi wuxkpg'' cpf ''y g''Eqpuqrcvkqp''qh'Rj knquqrj / ''d{ ''Dqgy kwu.''r tkpekr cm( 'hqt''y g''+qwj ''qh'htgg''o gpí ]cdng\_''q''f gxqvg'' y go ugnxgu''q'kwo'\*Uy cpvqp''3; ; 5-84+0O ckprcpf ''Gwtqrg''r tqxkf gu'rcvgt 'kpuvcpegu'qh'o qpctej u'y j q'kpukwwgf'' eqo r ctcdng''tcpurcvkqp''r tqlgevu.''hqt''gzco r ng''CNHQP UQ''Z ''kp''Ur ckp''\*\wigg''URCP KU ''VTCF KVQP +'cpf'' Ej ctngu''X'kp''Htcpeg='Gpi mpf .''kh'y g''gzegr v'y g''eqo o kuukqpkpi ''qh'y g''3833'Dkdng''d{ ''Ico gu''K'j ctf n( ''cp{0' Cnttgf øu''tcpurcvkqp''r tqlgev'y cu'' gctgf ''vq''ngcf gtu'qh'ej wtej ''cpf ''ucvg.''cpf ''j crr { ''vq''wug''Gpi nkuj ''vq''gzr tguu'' eqo r ngz'kf gcu0Vj g''qy gt''o clqt''Qnf ''Gpi nkuj ''vtcpurcvkqp''r tqlgev'y cu''y cv'qh''O nt ke''\*eQ 726eB232+:'Cddqv'qh'' G{puj co .''y j q''r tqf wegf ''pwo gtqwu''cf cr vxlqpu''cpf ''tcpurcvkqpu''qh'y g''Qnf ''Vguxco gpv'Cpf ''qy gt''tghk kqwu'' y qtmu''cpf ''f guetkdgf ''j ku''r tqegf wtgu''qp''y ku''Vtcev'qp''y g''Qnf ''Cpf'''Pgy ''Vguxco gpv'Cpf ''qy gt''tghk kqwu'' y qtmu''cpf ''f khgtgpvn(.''vqy ctf u''y g''uko r ng'hcky hwn''htqo ''y j qo ''y g''tej gu''qhh'Ncvkp''ngctpkpi ''pggf gf ''q''dg'' uchgi wctf gf 0

Uqo gyi kpi "qh'yi ku'f kxkukqp."dgw ggp"\tcpurc\kqp"hqt"cp"² nkg"cpf "hqt"\yi g"o cuugu."cpf "dgw ggp"c"y tkgtøu" eqphkf gpeg"kp."cpf "f kn\twu\r'qh"\yi g"xgtpcewrct."tguwthcegu'tgi wrctn( "\yi tqwi j qw\'yi g'O kf f ng'Gpi nkuj "r gtkqf 0'Vj wu." ko o gf kcvgn( "chvgt"\yi g"P qto cp"Eqps wguv."\tcpurc\qtu'wug'Cpi m/P qto cp."d{ "eqp\tcuv'y kyi "Gpi nkuj ."eqphkf gpv'qh" dgmpi kpi "\q"c"uqekcn² nkwg"\Rgctucm'3; 99<, 263\HOCpi m/P qto cp"\tcpurc\qtu'wug'Uctg"cuuqekcvgf "y kyi "eqwt\cpf" o qpcu\ke"egp\tgu\tgu\U\gxgtcn'y gtg"r tqf wegf "d{ "y qo gp."kpen\text{kpi ."kp"\yi g"w gnhyi "egp\text{."pwpu'htqo "Dctn\text{kpi ." y j gtg"qpg"Engo gpeg"r tqf wegf "c"xgtug"\tcpurc\qtqp"qh"\yi g"\Rcuukq"qh"\U\d\m'Mc\yi gt\pg"qh'Cngzcpf t\c."cpf "cp" wppco gf "pwp"c"\N\lap"qh"\U\d\Gf y ctf "\yi g"Eqphguuqt"\Ngi i g'3; 85\HO

Hqt"o wej "qh'\j g"O kf f ng"Gpi rkij "r gtkqf "\&(B32263722+"\j gp."\y q"xgtpcewrtu"\y gtg"cxckrcdng."Cpi m/P qto cp" cpf "Gpi rkij ."cpf "\tcpurc\qpu"eqwrf "dg"\wpf gtvcngp"\kpq"gkij gt."qt"\tqo "qpg"\q"\j g"\qj gt0\Cpi m/P qto cp"\ \disp g"r tguki g"xgtpcewrt\psi" kt\pi "\j g"\j kt\ggp\j "egpwt {"\%Rgctucm'3; 99<9\disp Tqdgt\st TQUUGVGUVG."c"pc\kxg" Gpi rkij o cp. "rgi kurc\gf "hqt"\j g"rck\{\pi u'tgrki kqwu'kputve\kqp"\kp"Gpi rkij ."dw'o ckpn("\wgf "Htgpej 0'Y kf gn("\p"\wg" gctn("\p"\j g"\qt w\gp\j "egpwt {."Cpi m/P qto cp"\y cu'tvknidgkpi "\wgf "c\eqwt\kp"\j g"\th\rgp\j g'\j kt\rgp\j 0'\fo"\twej "c"\th\ru\p"\j g"\th\rgp\j g\to kf gn("\p"\wg" u\th\ru\p"\j g"\th\rgp\j g\to kf gn\f"\to p"\tu\p"\j g"\th\rgp\j g\to kf gn\f"\to p"\to p"\to p"\to cp"\y cu'tvknidgkpi "\wgf "c\eqwt\kp"\j g"\th\rgp\j g\to p\f"\to p"\to p

Vy q'y tksetu'ter teuepv'y e'pey 'r tqheuulqpcrkuo 'enectn{0'Vj g'hktuv'ku'I gqhhtg{"EJ CWEGT." y g'eqwtv'r qgv0' Ej cwegtøu'ko r qtvcpeg'y cu'cempqy ngf i gf "d{"eqpvgo r qtctkgu"cv'j qo g'cpf "cdtqcfô pqvcdn{."d{"Gwuvcej g" F guej co r u." y j q'ecnngf "j ko "c"-i tcpv'vtcpuncvgwtøô cpf "d{"hqmqy gtu"cv'j qo g'\*pqvcdng"co qpi "y g'ncwgt." Vj qo cu'J qeengxg"cpf "Iqj p'N{f i cvg+0'Vj g''s wcpvkv{"cpf 'tcpi g''qh'Ej cwegtøu'vtcpuncvgf 'y qtm'ctg''uvtknkpi 0' Gs wcm{ 'ko r qtvcpv'ku'j ku'f gekulqp'vq'r wdrkuj "qpn{ 'kp'Gpi nkuj ."y j kej "eqpvtkdwgf 'r qy gthwn{ 'vq''y g''guvcdrkuj o gpv'' qh'Gpi nkuj "y gtgchvgt"cu''y g''r tkpekr cn'hkvgtct{ 'ncpi wci g''qh'Gpi ncpf 0

qh'Gpi nkuj ''y gtgchygt 'cu''y g'r tkpekr cn'nkygtct { 'ncpi wci g'qh'Gpi ncpf 0

Vj g'r tkpekr cn'vtcpuncvkqp''qh''y g''ugeqpf ''÷y tkygtø'\*r tqdcdn{ ''ugxgtcn''cm''cpqp { o qwu+''y cu''gs wcm{ ''ko r qtvcpv<''y g''

Y {enkhky'Dkdryg0'Vj ku''y cu''c''eqmcdqtcvkxg''xgpwtg.''r ctv'qh''cp''qpi qkpi 'f gdcvy''cdqww'xgtpcewrct''vtcpuncvkqp''qh''y g''

Dkdryg0'P co gu''cuuqekcygf ''y kyj ''kwu''r tqf wevkqp''j cxg''kpenwf gf 'Lqj p''Y {enkh'Lqj p''Rwtxg{.''

P kej qrcu'J gtghqtf. "cpf "Iqj p"qh"VTGXKUC0"Vj g"y qtm"r quukdn( "dgi wp"kp" y g"3592u. "uwtxkxgu"kp"crrtqzko cvgn( "472"o cpwietkrvi0

Vj g"Y {enkhkg"Dkdrg"uwtxkxgu"kp"cv"rgcuv"y q"o clqt"xgtukqpu." yj g"gctrkgt"o qtg"rkxgtcri\*ugg"NKVGTCN"

VTCPUNCVKQP
+"yj cp"yj g"rcvgt<"r ctv"qh"c"eqmcdqtcvkxg"r tqlgev"qh"dqqm"r wdrkecvkqp. "f kuvtkdwkqp"cpf"
qy pgtuj kr." y gm"wpf gt"y c{"d{"35::0"Vj g"pcwxtg"qh"yj g"vtcpurcvkqp"ku"tgxgcrgf"d{"yj g"uq/ecrngf"I gpgtcri"
Rtqmi wg0Ej cr vgt"37"f guetkdgu"yj g"r tcevkegu"qh"yj g"vtcpurcvqt\*u+:"cti wgu"hqt"c"o gcpkpi "cv"rgcuv"÷cu"vtgy g"cpf"
qr kp"kp"Gpi rkuj "cuí kp"Ncv{pø"cr r gcru"vq"j kuvqtkecri'r tgegf gpv."cpf "f guetkdgu"yj g"ectghwrleqmcdqtcvkxg"gzgtekug"
yj cv"r tqf wegf "yj g"vtcpurcvkqp"\*J wf uqp"3; 9: &9694+0

Cu'lo r qt vcpv'cu''y g''t cpurc vqt uø'eqpegtp'hqt''y g''t wy ''cpf ''ceewtce { ''qh''y gkt ''yzv'ku''y gkt 'f gxgmr kpi '' wpf gtuvcpf kpi ''qh''y gkt 'tgcf gtuOJ gpeg''y g { ''tgr reegf ''y gkt ''kxgtcn'\tcpurc\kqp.''cu''pguu''\:\tqr gpø'\q'' wpf gtuvcpf kpi .''d { ''c''revgt.''urki j vn { ''htggt ''tcpurc\kqp0'Vj gtg''y gtg''hgy ''r tgegf gpwu''kp''Dkdrg''\tcpurc\kqp''kp''y g'' Okf f rg'Gpi rkuj ''r gtkqf ''vq''uwi i guv'y ku''cr r tqcej 0O quv'\tcpurc\kqpu''r ctcr j tcugf ''y g''yzv'cpf kqt''kpenwf gf '' ugeqpf ct { ''o cvgtkcn=''cnvgtpcvkxgn { ''cpf ''gzegr \kqpcm { .''y g''Tqmg''Rucn\gt.''y qwi j ''kpenwf kpi ''cp''gz\gpukxg'' eqo o gpvct { .''\tcpurc\gt g''y g''Dkdrg''xgtugu''xgt { ''rk\gtcm { 0'Eqo r ctkuqp''y ky ''y gug''qy gt''xgtukqpu''uj qy u''y g'' eqpukf gtcdrg''cej kgxgo gpv'qh'y g''Y { enkhkg'\tcpurc\gt qpu0

Geergukcukecn't gcevkqp''y cu''uy khv'cpf 'f gekukxg0D{ "362; ''y g'Ctej dkuj qr ''qh'Ecpvgtdwt { ''j cf ''hqtdkf f gp''y g'' o cmkpi ''cpf ''wug''qh''cm'wprkegpugf 'Dkdrg''tcpurcvkqpu='y gtgchvgt''y g''Y { enkhkgu''o quwl ''qr gtcvgf ''ercpf guvkpgn{0' Vj g''r tqj kdkkqp'ktqpkecm{ ''r tgegf gf ''c'eqpukf gtcdrg'kpetgcug'kp''y g''tcpi g''cpf ''xctkgv{ ''qh''qy gt''tcpurcvgf ''vgzwu'kp'' y g''hkhvggpyj ''egpwxt{.''kpetgcukpi n{ ''p''r tqug.''d{ ''pco gf ''tcpurcvqtu0'Vy q''pco gu''o ww'uwhhkeg''vq''wi i guv''y ku'' tcpi g0'Cdqwi'3662'Tqdgtv'Rctngt''r tqf wegf ''c''tcpurcvkqp''qh'Rcmcf kwu''y j kej ''j ku''r cvtqp.''J wo r j tg{ ''F wng''qh'' I nqweguvgt.''eqttgevgf 'kp''f tchv.''j cxkpi ''eqo o kuukqpgf 'kx.''y kyj ''qvj gtu.''cu''r ctv'qh''c''r tqlgev'vq'-'gptkej ''Gpi rkuj '' rgwgtuø'\*Rgctucm'3;  $99 462 = cdqw''3692'O cmt{ ''eqo r mgvgf ''j ku''O qtvg''F ØCtvj wt.''c''y qtm''r ctvn{ ''htqo ''Htgpej .'' rctvn{ ''htqo ''cp''gctrkgt''Gpi rkuj ''y qtm''cpf ''r ctvn{ ''qtki kpcn0'Vj g''O qtvg''y cu''r wdrkuj gf ''kp''36: 7''d{ ''ECZVQP .''y kyj ''y j qug''y qtm'y g''f tcy ''vqy ctf u''y g'Tgpckuucpeg0$ 

### Vjg'tıkz vggpvj'cpf'gctn('tugxgpvggpvj'egpvwt tugv'Tghqtocvtqp'cpf'Tgpckuucpeg

Kh'Eczypøu'r tguugu'j cf 'ko o gf kcyg'r tcevkecn'ghhgevu'qp'y g'\tcpuo kuukqp''qh'xgtpcewrct'\gz vu.''y g'\tcpurc\kqpu'qh'' yi g''Y {enkhyg'Dkdng''cpf 'Ej cwegt''r qkpv'\q''y g''y q''ctgcu''kp''y j kej ''\tcpurc\kqp''ce\kxk\{ ''tgcm\{ ''qqm'qhh'kp''y g'' ukzygpyj ''egpwt {ô kp''r ct\kewrct.''f wtkpi ''y g''hktuv'\ygp''\{ gctu''qh''GNK, CDGVJ ''Køu''tgki p'\\*377: ó8: +:'y j gp''hqwt'' vko gu''cu''o cp\{ ''\tcpurc\kqpu''y gtg''r tqf wegf ''cu''kp''y g''72''\{ gctu''r tgxkqwu'\\*Dctpu\qpg''3; ; 5\leq 25+\c''y g''ctgcu''qh''y g'' Dkdng''cpf ''encunkecn'nkytcwtg0'Vj cpmu''\q''y g''gttc\ke''dw''r qy gthwn'uwr r qtv''qh''y g''o qpctej \{ .'\tcpurc\kqp''j gnr gf'' hqti g''c'pc\kqpcn'kf gp\kv\\ ''dqy' ''Gpi nkuj ''cpf ''\tgrki kqwun\\ ''cpf ''kpygngewcm\\ +'tghqto gf 0'Kp''y ku''r tqlgev.''Dkdng'' vtcpurc\kqp.''o wej ''qh'kv'r wdnkuj gf''cdtqcf .''r nc\{ u''c''etwekcn'tqng0

### Dkdıg'tt cpurc vkqpu

Kp''y g'twp/wr ''vq''cpf ''chwgto cyj ''qh'J gpt{ ''XKKX::u''dtgcm'y kyj ''Tqo g.''y g''r tguuwtg'hqt''tgrki kqwu''tghqto .''qtki kpcvkpi '' qpeg''o qtg''kp''engtkecn'ektengu.''ngf ''vq''cp''gzr mukqp''qh'Dkdng''tcpuncvkqpu0'Vj g'hktuv.''cpf ''o quv'ko r qtvcpv.''y cu'' V[ PFCNGøU''tcpuncvkqp''qh''y g''P gy ''Vguvco gpv'\*3747+.''dcugf 'hqt''y g'hktuv''vko g''qp''y g''I tggm'gf kkqp''qh'' F gukf gtkwu''GTCUO WU'\*3738="ugg''FWVEJ ''VTCFKVKQP +0'Hcegf ''d{ ''y g''qpi qkpi ''dcp''qp''xgtpcewnct''Dkdng'' tcpuncvkqpu.''V{ pf cng''tcxgnngf ''vq''y g''Eqpvkpgpv'vq''r wdrkuj ''ko'Kp''3748''kv''gpvgtgf ''Gpi ncpf ''knngi cm{ ''\*F cpkgm'' 3; ; 6+0

Y kj kp"c"f gecf g"tgrckqpu"j cf "cngtgf "f too ckecm{ "dgw ggp"J gpt{"XKKcpf "vj g"r cr ce{."cpf "rcti g"pwo dgtu"qh" xgtpcewrct "Dkdrgu"y gtg"ektewrckpi "kp"Gpi rcpf ."kpenwf kpi "r ktcvgf "gf kkqpu"qh"V{pf crgøt"P gy "Vguvco gpv"cpf "j ku" 3756"tgxkukqp. "O krgu"Eqxgtf crgøt"eqo r rgvg"Dkdrg. "r wdrkuj gf "kp"\ wtkej "kp"3757"cpf "kp"Gpi rcpf "kp"3759."cpf "c" Dkdrg"kuuvgf "d{"Lqj p"Tqi gtu"wpf gt"vj g"r ugwf qp{o "qh"Lqj p"O cwj gy "\*Cpw gtr ."3759+"dcugf "qp"V{pf crg"cpf "Eqxgtf crg0"kp"375; "c"tgxkukqp"qh"vj g"Tqi gtuø'Dkdrg"cr r gctgf ."d{"Tkej ctf "Vcxgtpgt."kp"vj g"{gct"vj cv"Vj qo cu" Etqo y gm"J gpt{"XKK@u"Xkect/I gpgtcn"cr r qkpvgf "Eqxgtf crg"vq"qxgtugg"vj g"r tkpvkpi "qh"vj g"Dkdrg0"Vj g"kxrg/ r ci g"qh"Eqxgtf crgøt"pgy "gf kkqp."vj g"I tgcv\*375; +"uj qy gf "J gpt{"XKKG cpf kpi "Dkdrgu"vq"Etqo y gm"cpf" Ctej dkuj qr "Etcpo gt"vq"f kurkdwg"vq"c"i tcvghwrletqy f "\*Y knqp"3; 98-92="

Mlpi "3; : 4-3; 4+-<"c"ergct 'tgr tgugpvc\lqp"qh'\yi g'\lpxqnxgo gpv'qh'\yi g'\uvcvg'\lp"\yi g'r wdr\lecv\lqp"qh'D\ldrg"\tcpurc\lqpu0'
Htqo "\yi gp"\wp\ldr'y g''3833"\xgtul\qp."c"\y j qrg"\ugt\lgu"\qh'D\ldrg"\tcpurc\lqpu'\y cu'r tqf wegf ."\yi g'tguwnu'\qh'\yi g"\tcpurc\lqpu0'
cpf "eqwp\ugt\"y kuj gu\o"\Mkci cnk'3; : 3-67+"qh'J gpt {\underline{\under

Ncum (.'Mpi 'Ico gu'Keqpxgpgf 'c'eqphgtgpeg'cv'I co r vqp'Eqwtv'lp'3826.'cv'y j kej 'ci tggo gpv'y cu'i kxgp'vq'c'' rtqrqucnlhqt"yjg"etgcvkqp"qh"c"pgy "vtcpuncvkqp"yjkej"yqwrf"dg."kp"yjg"yqtfu"qh"yjg"rtqrqugt."Iqjp"Tg{pqnfu." -epuy gtcdrg'\q'\j g'\twj 'qh'\j g'Qtki kpcmø'™Mkci cnk'3; : 3-6: +0Cnj qwi j .'\wprkmg'\j g'I tgcv'cpf 'Dkuj qr uø'Dkdrgu.'' yj ku''Dkdrg''y cu''pgxgt''qhhkekcm{ "cwj qtk| gf "\*Y knuqp"3; 98-369+." yj g''Mkpi . 'y kyj "Dkuj qr ''Dcpetqhv." i cxg'c''ugv'qh'' twngu'hqt'ku'o enkpi '\q'ukz'\geo u'qh'\tepuncvqtu0'Kk'y eu'\q'dg'c'tgxkukqp.'tevj gt'\j ep'c'pgy '\tepuncvkqp="\tefkkqpen' tgcfkpi u'\*rtkpekrcm(."vj qug"qh'vj g"Dkuj qruø'Dkdrg+'uj qwrf "dg"rtgugtxgf"cu'hct"cu'rquukdrg='fqevtkpcn' vgpf gpvkqwupguu'y cu'vq'dg'ej gengf."cpf "ceewtce{ "cej kgxgf."vj tqwi j "c"o wnkr ng'ej genkpi "u{ uvgo "y kvj kp"cpf" dgwy ggp"eqo o kwggu0"Vj g"o qqf"y cu"qpg"qh"eqpekrkcwlqp"tcvj gt"vj cp. "cu"dghqtg. "qh"eqpvguvcwlqp. "cpf"vj g" vtcpuncvqtu'wugf 'vj g'o cp{ ''tcpuncvkqpu'htqo ''V{pf cng''qpy ctf u'vq''etgcvg.'kp'Tg{pqnf uø'y qtf u.''-qw''qh'o cp{ 'i qqf '' ]Dkdrgu\_i qpg'r tkpekr cmli qqf ''qpgø'\*Mkci cmk'3; : 3~85+<'y g''3833''Dkdrg0Qh''eqwtug. ''y g''j wi g''uweeguu''qh''y ku'' xgtukqp"qy gu"cu"o wej "vq"geqpqo ke"cpf"r qrkxkecrl'cu"vq"rkxgtct{"kpvgtguvu"\*Pqtvqp"3;;5."K2434h10+0 O gcpy j krg"gzkrgf "Ecyj qnkeu"j cf "cnuq"r tqf wegf "c"xgtpcewrct"Dkdrg. "mpqy p"cu"yj g"Tj gko u/F qwck'xgtukqp"\*37: 46 3832+0′Vjg'r tghceg''gzr nckpu''yjcv'yjku''÷Ecyjqnke '\tcpuncvkqpø'r tgekugn{ 'hqmqyu''yjg''÷qnf' 'xwnict''crr tqxgf'' Ncvkpø'\*Iqpgu'3; 88<333+0Tgxkugf 'kp''yi g''gki j vggpyj ''egpwt{ ''d{ ''Dkuj qr 'Ej cmqpgt.''cpf ''ci ckp''kp''yi g''pkpgvggpyj .''k'' tgo ckpgf "vj g"qhhkekcn" tcpurc kqp" hqt "Tqo cp" Ecyj qnkeu "wp kn" vj g" vy gp kgyj "egp wt {0 Vj tqwi j qw 'vj cv'r gt kqf "vj g" -qrf 'xwri ct'crrtqxgf 'Ncvlpø'y cu'cp'kpvgi tcn'rctv'qh'Tqocp'Ecyj qrle'ugrh/fghlpkkqp="kh'yg"gzegrv'vtcpurcvkqpu" htqo "yj g"I tggmlkp"3: 58"cpf 'htqo "I tggmlcpf "J gdtgy "kp"3; 5766; . "yj g"Xwri cvg"tgo ckpgf "yj g"dcug"hqt "Ecyj qrke" vtcpurcvkqpu'wpvkn'y g'crrgctcpeg'qh'y g'Igtwucngo 'Dkdng'kp'y g'3; 82uk'kuu'ncuv'i tgcv'o qpwo gpv'ku'y g'tcpuncvkqp'' \*3; 676; +'qh'kv'd{ 'Tqpcrf 'Mpqz'\*F c{tcu'3; ; 5<6667; +0

#### Encudeed chipf 'dy' gt 'ligewict 'Historia g

Cnj qwi j "j g"tcpurcvqtøu"f wkgu"y gtg"rguu"uvtkpi gpv"kp"tgrcvkqp"vq"ugewrct"j cp"vq"ucetgf "vgz vu. "j g"tcpurcvkqp"qh" ugewrct "o cvgtkcnlf wtkpi "j g"ukzvggpyj "cpf "gctnl "ugxgpvggpyj "egpwtkgu"twpu"dtqcf nl "r ctcmgn"vq"yj cv"qh"yj g"Dkdrg" f wtkpi "j ku"r gtkqf 0"Ncvkp"y cu"uvkm"yj g"o ckp"rcpi wci g"qh"uej qrctuj kr. "dw"qpg"o clqt"f kthgtgpeg"dgwy ggp"yj g" ukzvggpyj "egpwt { "cpf "gctnkgt"r gtkqf u"ku"yj g"f ktgev"kphrwgpeg"qh"I tggnihkgtcwtg0"Vtcpurcvkqpu"qh"F go quyj gpgu." J qo gt. "Kuqetcvgu"cpf "Rnwctej "qeewt"htgs wgpvnl ."qhvgp"d { "y c { "qh"cp"kpvgto gf kcvg"uqwteg<"yj wu"Ukt "Vj qo cu" P qtyj øu"vtcpurcvkqp"qh"Rnwctej øu"\Nkxgu"\*379; +"y cu"dcugf "qp"Lces wgu"CO [ QVøU"Htgpej "vtcpurcvkqp"\*ugg" HTGPEJ "VTCF KVKQP +0

Cu'y kj "y g'Dkdrg'\tcpurc\kqpu. "f khlgtgpv'\tcpurc\kqpu"qh'\j g'\uco g'\ugewrct '\gzv'y gtg'\htgs wgpvn\ "kp''eqo r g\k\kqp" y kj "gcej "q\j gt\cp"geqpqo ke'\tkxcnt\ "cuuqekc\ugf"y kj "\j g'\teptgcug'\tep"\j g'r wdrkuj kpi "\tcf g0\Vj wu'\Vj qo cu'\Rggpf" eqo r re\tepu. "\p"\j g'r tg\tcg'\uggr'q ku'' J gto crj tqf kwu''cpf "Ucro ceku'\u00e3786+. "htqo "\Qx\tept \u00fau'\O g\u00eco qtrj qugu."\cv\'Ct\yj wt" I qrf \tepi \u00fau'\j cx\tepi "\teptate cy\u00edr'j ku\u00esu'\u00edr'y g'\u00edr'y gyz\u00edr'y gyz\u00edr'y gugu."\cv\'Ct\yj wt" I qrf \u00edrig \u00edr'j cx\tepi "\teptate cy\u00edr'y gyz\u00edr'y gyz\u00edr'y gyz\u00edr'y gyz\u00edr'y gyz\u00edr'y gyz\u00edr'y gyz\u00edr'y g'\u00edr'y g'\u00edr'y

r qukskqp"qh'yi g'Gpi nkuj "pcvkqp0P kej qncu'I tko cnf."d{ "vtcpuncvkpi "Ekegtqøu"Vj t g'Dqngu"qh'F wvkgu'\*3778+."y cpvgf" vq"-fq"ikngy kug"hqt"o {"eqwpvtko gp<"cu"Kkcrkcpu."Ur cpkctf gu."F wej /o gp."cpf "qvj gt"hqtgkpu"j cxg"ikdgtcm{"fqpg" hqt"y g{tuø"|| Iqpgu"|| 3; 88-66+0|| Pqv"|| qpn( "I tggm"||cpf" || Tqo cp"||cwj qtu"||y gtg"||tcpurcvgf 0|| Pqty || "tcpurcvgf "y g"|| Hcdrgu"|| qh" Dlf rck\*\*e037:; +'htqo 'cp'lpvgto gf kcvg'Kicnkcp'xgtukqp'qh'vj g'Ctcdke0Qvj gt'\tcpurcvqtu'vwtpgf 'vq'Gwtqr gcp'' nepi wci gu<Crgzcpf gt'Dctenc $\{$ øu'Uj $\{$ r'qh'Hqn $\{$ u'\*372; +'y cu'\tcpurevgf.''d $\{$ ''y c $\{$ ''qh'Nqej gt $\emptyset$ u'NcVp'\xgtukqp.'htqo" Dtcpf vøu" Pcttgpuej kH="Vj qo cu" J qd {øu" Dqqni'qh'vj g" Eqwt vkgt" \*3783+"eco g" htqo "Ecurki nkqpgøu" Kcnkcp="c" Ur cpkuj " tqo cpeg."d{ "f g'Ecrej qttc."y cu'\tcpurcyf "cu"\Vj g'Okt t qwt "qhlMpki j vj qqf "\37: 2+"d{ 'Octi ctgv"\V{ rgt=" O qpvki pgøu'Htgpej ''Guuc { u'y gtg'\tcpurcygf 'd { 'Iqj p'Hrqtkq'\\*3825 \='Ej tkukpg'f g'Rkucpøu'\Dqqm'qh'yj g'Ek\{ ''qh'' Ncf kgu. 'kp'3743.'d { 'Dtkcp'Cpurc { '\*vj g'rcuv'Gpi rkuj ''tcpurcvkqp''qh''cp { ''qh''j gt''y qtmu' wpvkri'rcvg''vj ku''egpwxt { +0 Vj gtg"y gtg"qrrqukpi "xkgy u."j kpf gtkpi "ceeguu"vq"egtvckp"vgzvu0"Uqo g"encko gf "vj cv"vtcpuncvkpi "kpvq"vj g"xgtpcewnct" y qwrf 'j kpf gt''y g''uwrf { ''qh''Ncvkp''cpf 'I tggml\*Iqpgu''3; 883; +0'Uej qrctu'eqpvkpwgf ''vq''r tqf weg''Ncvkp''\gz vu. ''qhvgp'' revgt 'tcpurevgf 'kpvq'Gpi rkuj <'hqt'gzco r rg. 'Utt'Vj qo cu'O qtgøu'Wyrkc'\*3738+'cpf 'Y krdco 'Eco f gpøu'Dtkcppkc'' \*e037: 8+: '\tcpurcvgf 'd { 'Tcrr j 'Tqdkpuqp'kp'3773'cpf 'J qmcpf 'kp'3832'tgur gevkxgn { 01 qj p'Umgnxqp. 'y j q'r tqf wegf " c"tcpurckqp"qh"Fkqfqtwu"Ukewnwu'htqo "yjg"Nckp"xgtukqp"qh"Rqiikq."cnuq"ytqvg"ugxgtcn'yqtmu'kp"Nckp0Pqt"  $y \; gtg''cm' \lor gz \, uu' \lor j \; qwi \; j \; v'gs \; wcm (\; 'hkv'hqt' \lor tcpurc \lor kqp0 Ej \; tku \lor qr \; j \; gt \; 'O \; ctmqy \; gøu' \lor tcpurc \lor kqpu' qh' Qx kf \; . \; 'r \; wdrkuj \; gf \; ''$ ercpf guwlpgn(."y gtg"dcppgf "cpf "dwtpgf"cu"ugf kwlqwu"lp"37: 8"d{"qtf gt"qh"yi g"Ctej dkuj qr "qh"Ecpygtdwt{0"Wpwln" 3862"cpf 'Gf y ctf 'F cetgøu'\tcpurc\qp'qh'\kx."O cej \cxgrr\pu'\Vj g'\Rt\peg'\y cu'\cxc\qrcdrg'\qpn\{ 'd\{ 'y c\{ 'qh'c'j qu\qrg'' Htgpej "\gzv."\yi g"\Eqpvtc/Ocej \kcxgrl\\*3798+\d{"I gpvkrrgv."\ytcpurc\gf"\d{"Uko qp"\Rc\ytl\eng"\kp"38240\Gpi rkuj "\tgcf gtu" j cf "uko krctn(" 'vq"y ckv" vpvkn' 3842" hqt" c'eqo r rgvg" vgzv'qh' Dqeeceekqøu" F geco gt qp. "cpf" vpvkn' 38; 6" hqt" vj g"y j qrg" qh" Tcdgrckuø' I cti cpwc'cpf 'Rcpwci twgn'\*dgi wp'dghqtg'3875'd { "Ukt"Vj qo cu'Wts wj ctv=eqo r rgwgf 'd { 'Rgwgt" Oqwgwz+0

Vj qwi j "cdrg" 'vq"eqo o kuukqp"cpf "tgcf" 'tcpurc kqpu. "y qo gp" y gtg" i gpgtcm ("cdrg. "cu" kp" y g" o kf f rg" Ci gu. "vq" r ct vkekr cvg"qpn{"qp"\j g"r kqwu"htkpi gu"qh"\tcpurcvkqp"cevkxkv{0 kp"i gpgtcn"y qo gp"\tcpurcvqtu."\wuwcm{i gpvn{"dqtp." rkng'Octi ctgv'Oqtg'Tqrgt"cpf "vjg'Eqqng"ukuvgtu."rtqf wegf "NKVGTCN"tgrki kqwu"vtcpurcvkqpu"\*Ncod"3;: 7<346+." yj qwi j "ugewrct" 'tcpurcvkqpu'y gtg'r tqf wegf "d{"uwej "cu'GNK, CDGVJ "K'O cti ctgv"V{ rgt "cpf 'O ct{"UKF PG[0]" F gur kxg"y ku"o cti kpcrkx{. "y g":xqkeguø'qh'y qo gp"\tcpurc\qtu."y tqwi j "y gkt"r tghcegu. "eqpuvt\wev'qy gt"r gtur gevkxgu" qp''y g'r tcevkeg''qh''vtcpurcvkqp.''y j kej ''dtkghn(''f kutwr v''y g'f qo kpcpv'o crg''vtcf kxkqpu''\*Tqdkpuqp''3;; 7+0 Kp"yj ku'r gtkqf "tcpurcvkqp"cko gf. "i gpgtcm(."vq"cf xcpeg"gms wgpeg"cpf lqt"rgctpkpi 0'Qp"qeecukqp."vy q"cwf kgpegu"  $y \ gtg"cfftguugf"cv"qpeg<\ 'y \ g"hgctpgf"cpf"\ 'y \ g"hi \ pqtcpv."\ y \ g"eqwt \ vn\ ("cpf"\ 'y \ g"t \ wfg0\ Fgrgpfhpi"\ 'qp"\ y \ g"\ h'$ vtcpurcvkqp."yj g'egpvtgu'qh'vtcpurcvkxg'cevkxk/{ ''y gtg'hqecvgf 'pqy 'kp''yj g'wpkxgtukxkgu."pqy 'kp''yj g'eqwtv0\Qtki kpcn' y tkkpi "tghrgevu"yi g"ergct"kphrwgpeg"qhi'pgy n( "f kueqxgtgf "qt"pgy n( "xcnwgf "hqto u0"Vj wu''yi g"Kkcnkcp"uqppgv'ku'c" xkcn'gngo gpv'kp'y g'nkgtct { 'r tqlgevu'qh'y g'ukz vggpy 'egpwt { .''vtcpuncvgf 'cpf 'ko kcvgf 'd { "Vj qo cu'Y { cw'cpf 'y g' Gctn'qh'Uwttg{."cpf ":pcwtcnk gf ø'd{ "Uj cmgur gctg="vj g"r cuvqtcn "d{ "y c{ "qh'I tggm'\*Vj gqetkwu+."Ncvkp "\*O cpwcp" cpf "Xkti kn+"cpf "Kcncp"\*Vcuuq"cpf "I wctkpk+."\cngu"tqqv'y kj "Ukt"Rj knkr "Ukf pg{ "cpf 'Gf o wpf 'Ur gpugt="encuukecn" gr keu. "gur gekem( "'y qug''qh''Xkti kn'epf "J qo gt"/mpqy p''\q''y g'O kf f ng'Ci gu''dw''pqv'\tepurevgf 'kp''y gkt''qy p'tki j v'' wp\kn'y g'ukz\vggpy 'egpwt{\Xkti kn'd{'I cxkp'Fqwi ncu.'\y g'Gctn'qh'Uwttg{.'cpf 'Vj qo cu'Rj cgt=J qo gt.'d{" I gqti g'EJ CRO CPô i cxg'tkug'\q'\j g''gr keu''qh''Ur gpugt''cpf ''Iqj p''O knqp="\j g''gr { mkc''qh''Qxkf 'kphnvgpegf '' Octrqy g. "Ej crocp"cpf "Uj crigur gctg="tcpurcvkqpu"htqo" I tggm"cpf "Tqocp"ftcoc"eqpvtkdwgf "rqygthwm{ "vq" y g" Grk cdgy cp"cpf 'Iceqdgcp''y gctg0

## Vj g'lgxgpvggpvj 'cpf 'gli j vggpvj 'egpwt lgu

 $\label{thm:controller} Vj ku'r gtkqf ''qh''tcpurcvkqp''cevkxkv{ 'ku'f qo kpcvgf ''cv''y g''gpf ''qh''y g''ugxgpvggpyj ''egpwt{ ''d{ ''yy q''hki wtgu.'FT[ FGP'' cpf''Rqr g.''cpf .''kp''y g''rcvg''gki j vggpyj ''egpwt{ .''d{ ''y g''o qtg''eqo r rgz''hki wtg''qh''Crgzcpf gt''V[ VNGT0 Vj g''f kuvkpevkxg''go r j cugu''qh'Ft{ f gp''cpf ''Rqr g.''j qy gxgt.''ecp''dg''uggp''gctrkgt.''kp''go dt{ q.''}$ 

kp"y g"r tghcegu"\q"Ej cr o cpøu"Kakef."y j kej "j cf "kpetgcukpi n{"cwgo r vgf "\q"pgi qvkcvg"cpf "tgi wnctk g"c"\y gqtgvkecn' htco g"hqt"\y g"r tqeguu"qh"\tcpuncvkqp0C v"htuv."Ej cr o cp"xkgy gf "vtcpuncvkqp"cu"uvtcki j vhqty ctf "rkpi wkuvke"o ko guku" \*r tghceg"\q"\y g"Ugcxgp"Dqqngu"qh'y g"Kakef."37; : +0U g"\y gp"o qxgf "\q"o qtg"uqr j kuvkecvgf "f kuewuukqpu"qh"c"r qgvke" ctv'qh"\tcpuncvkqp"\y r tghceg"\q"\y g"eqo r ngvg"Kakef +0U g"y cu"pqv'cmpg"kp"uq"f qkpi 0Lqpuqpøu"y qqf gpn{"rksgtcn'3826" vtcpuncvkqp"qh"\y qtcegøu"Ctu"Rqgvkec"o ki j v"j cxg"gzgo r rkhkgf "\y g"htuv'cr r tqcej <"\y g"dtkrhcpv"\tcpuhqto cvkqpu"qh" Tqo cp"ucvktkuvu"kp"j ku"r nc {u."\y g"ugeqpf 0}

Ej cr o cpøu'wpf gtuvcpf kpi u'cpvkekr cvg'f gxgmr o gpwi'f wtkpi "vj g''pgzv'422"{ gctu0Kp''vj g''hktuv'r meg. "y g''pqvg''j qy ." f wtkpi "vj g''gzkrg''qh''vj g''eqwtv'vq''Htcpeg''chvgt''vj g''Ekxkrl'Y ct. "eqwtv'vtcpurcvqtu''qhvgp''r tcevkugf "c'htggt''vtcpurcvqp" o gvj qf 'hqt'r qgvt { ."qpg''gxkf gpegf 'kp''ctkuvqetcvke''ektergu''ukpeg''vj g''3842u'\*\*V0T0Uvgkpgt''3; 97-86="Nghgxgtg''3; ; 4c<'' 68+0P qvcdrg''gzkrgu''y gtg''Iqj p''F GP J CO ."Cdtcj co "Eqy rg{"cpf "Tkej ctf "Hcpuj cy g="dqvj "F gpj co "cpf " Eqy rg{"eqo o gpvgf "qp''vj gkt''o qtg''rkdgtcri'vtcpurcvkxg''uvtcvgi kgu. "F gpj co "kp''c''r qgo "qp''vj g''vtcpurcvkqp''d{" Hcpuj cy g."qh'vj g''Rcuvqt''Hkf q'\*3862+"cpf "kp''vj g''r tghceg''vq''j ku''qy p''vtcpurcvkqp''qh''Vj g''F guvt wevkqp''qh'Vtq{" \*3878+"Eqy rg{"kp''yj g''r tghceg''vq''j ku''Rpf ct ks wg''Qf gu'\*3878+0

VTCF KVRQP 0Wpuwtr tkukpi n(. "vj gtghtg." "vj qwi j "Ft {f gp"r tckugf "Eqy rg{"cpf "F gpj co. "kp"j ku"ko r qtvcpv"r tghceg" vq" \( Qx\) | \( du'\) | \( Gr\) | \( kurgu''\) | \( Ugxgt cr'\) | cpf u"\*38: 2+"-\( \frac{1}{2}\) | \( \frac{1}{2

Vtcpurckqpu''qh''J qo gt''y gtg.''y gp''cu''rcvgtô vq''r wi'ki'o krf n{ô c'ukg''qh''etkkecn'eqpvgpvkqp0Rqr gơu''tcpurckqp'' ukwcvgu'kugnh'cf x gtuctkcm{ 'kp''tgrcvkqp''vq''gctrkgt''Gpi rkuj ''xgtukqpu''d{ ''Ej cr o cp.''Vj qo cu''J QDDGU.''Iqj p'' QI KND[ ''cpf 'Ft{f gp.''cpf 'y cu'kugnh'etkkek gf ''d{ ''Vj qo cu''Dgpvrg{ 'kp''3957''qp''hqwt''eqwpvu<":hktuv']kv'ku\_''kp'' Gpi rkuj .''ugeqpf n{ 'kp''Tj {o g.''y ktf n{ ''pqv'htqo ''y g'Qtki kpcn'']Rqr g''j cf ''wugf ''Ncvkp.''Htgpej ''cpf ''Gpi rkuj ''uqwtegu\_.'' dw'hqwty n{ ''htqo ''c''Htgpej ''vtcpurcvkqp''cpf ''y cv'kp''Rtqug''d{ ''c''y qo cp''vqq'']kfg0O o g'FCEKGT='ugg''HTGPEJ '' \\ \forall \text{VTCFKVKQP\_o'\*Ngxkpg''3; ; 3<442+0'Y km'co ''EQY RGT''cnuq''etkkek gf 'kv'y j gp''r tqf wekpi ''j ku''qy p''Klkcf ''kp''39; 3.'' uq''vqq.''rcvgt.''f lf ''O cwj gy ''Ctpqrf 0

Vj g'r ctcf qzkecn'qdxgtug''qh''y ku'j qukrkv{ 'ku'y g'hcev'y cv'Rqr gøu'*Klkcf* 'y cu''q'c'f gi tgg."cpf 'j ku'*Qf {uug{ '\*394768+" uvkrn*'o qtg."c'eqmcdqtcvkxg'xgpwtg='kp''y g'hcwgt''j g'y cu'cuukuvgf 'd{ 'Grklcj 'Hgpvqp''cpf 'Y knkco 'Dtqo g."qpg'qh' y g'\tcpurcvqtu''qh'O o g'F CEKGTøu'J qo gt0Cpqy gt'kpuvcpeg''qh'eqmcdqtcvkqp''qeewttgf 'hcwgt''kp''y g'egpwxt{ '' y j gp''Vqdkcu'Uo qmgw'i cyj gtgf 'c'i tqwr ''qh'\tcpurcvqtu'\qi gyj gt''kp''j ku''±rkvgtct{ 'hcevqt{ø'\*Uco r uqp''3; 63-645+'kp'' Ej gnugc''cpf 'r wdrkuj gf ''c''pgy ''tcpurcvkqp''qh'*F qp''S wkz qvg*''\*3977+."cpf ''c''o clqt''tcpurcvkqp''qh'Xqnxcktgøu'y qtmu'' \*3983696+'kp''eqmcdqtcvkqp'y kj ''Vj qo cu''Htcpemkp0

Vj g''tcpurc\kqp''qh'O o g'F CEKGT ''qdlge\vgf ''\q''d\{ ''Dgp\vg\{ ''r qkp\vu'\q''cp''ko r qt\vcp\vf kthgtgpeg''dg\w ggp''y qo gp'' \tcpurc\vqt\u'\kp''y ku''cpf ''y g''r tgegf kpi ''r gtkqf uO'Vj qwi j ''pq''Gpi rkuj ''y qo cp''j cf ''\{ gv'\xgp\wtgf ''\q'\tcpurc\vg''J qo gt.'' y qo gp''y gtg''tcpurc\vpi ''c'i tgc\vgt''\xct\kg\\{ ''qh'\vgz\wt''y cp''r tgxkq\wm\{ 0'C\v'\y g''\wct\v'qh''\y g''r gtkqf ''Cr j tc''Dgj p'' r tqf \wegf ''c''\xgtukqp''qh'F g''Dtknj ce\varphi'r rc\{ ''Ci pgu'f g'Ecunt q'\signs38: +''eqp\vtkd\wgf ''\q'F t\{ f gp\varphi'\gut\Qxkf \varphi'\Gr kungu ''cpf '' kp''\y g''r tghceg'\vq''j gt'\vtcpurc\vqp''qh'Hqp\vcpgrng\varphi'F kueqxgt\{ ''qh'P gy 'Y qtrf u'\signs38: +''-\wq\wi j v'\vq'\uc\{ ''uqo gyi kpi ''qh'' \] \] y g\_\''\vtcpurc\vqp''qh''r tqug\varphi''r tqug\varphi''r tqug\varphi''r tgegk\xgf ''rk\xrg''eqo o gp\vi\sim\M\xci cmk'3; : 3 < + 0\Kp''\y g'' gki j \wgp\y ''egp\wt\{ ''

Gtk cdgy "ECT VGT" tcpurevgf "y g"eqo r ngw] y qtmu"qhl'Gr kevgwu"hqt "y g"htuv'vko g"\s396; \delta74+"cpf "Ej ctnqwg" Dtqqng"r wdrkuj gf "y g"htuv'cpyj qmi { "qhl'tcpurevkqpu"qh'I cgrke"r qgvt { "htqo "Kgrcpf "kp"39: ; 0 Vj g"tgxkxcn'kp"Egnke "hkgtcwtg. "qhl'y j kej "Dtqqngøu"y qtm'y cu'r ctv."j cf "rgf "f wtkpi "y g"egpwt { "vq"tcpurevkqpu" htqo "Y gnij "d { "Gxcp"Gxcpu"\s3986+"cpf."d { "y c { "qhl'kpvgto gf kcy"Ncvkp"xgtukqpu."d { "Uco wgrlIqj puqp"cpf " Vj qo cu'I tc { = kv'j cf "cnq"tguwngf "kp"y g"uq/ecngf "vtcpurevkqpu."htqo "y g"I cgrke"qh'Quukcp."qh'Ico gu" O cer j gtuqp"\s68982="ugg"RUGWF Q/VTCP UNC VKQP +0"Vj ku'tgxkxcn'ceeqo r cplgf "c"f gxgnqr kpi "kpvgtguv'kp"y g" vtcpurevkqp"qh'qtkgpvcn'cpf "Vgwqpke"repi wci gu0I gqti g"Ucng"vtcpurevgf "y g"S WTø P "kpvq"Gpi rkuj "kp"3956="I tc { "y tqvg"vgz wilp"ko kcvkqp"qhl'Qnf "P qtug"kp"3983="Y knkco "IQP GU."y g"hktuv'Gpi rkuj "uej qrct"vq"o cuvgt"Ucpuntkv." r tqf wegf "vtcpurevkqpu"htqo "Rgtukcp"cpf "qvj gt"Cukcke"vgz w0'Vj g"pkpgvggpvj "egpwxt { "kpvgtguv'kp"o gf kgxcnk kpi 1 qtkgpvcnk kpi "vtcpurevkqpu"htqo "Rgtukcp"cpf "qvj gt"Cukcke"vgz w0'Vj g"pkpgvggpvj "egpwxt { "kpvgtguv'kp"o gf kgxcnk kpi 1 qtkgpvcnk kpi "vtcpurevkqpu"hj qy p. "hqt"gzco r rg."d { "HKV\ /I GTCNF" "cpf" Y knkco "O qttku "ku"c"pcwtcn" f gxgnqr o gpv'qh'vj ku"r tqeguu0

#### Vj g'plpgvggpvj 'egpvvt {<Tqo cpvlekto 'cpf 'vj g'Xlevqt kcp'gt c

Tqo cpvkekuo 'f kuvkpi wkuj gf 'kvugnh'uj ctrn{ 'htqo 'vj g'rtgegf kpi 'ci g'kp''ugxgtcn'ko rqtvcpv'y c{u0} Htqo "y g'Tguvqtcvkqp."cpf "hqt"o wej "qh'y g'gki j vggpy "egpwt { ."Htgpej "j cf "dggp"y g'r tguvki g'xgtpcewrct0Ncvg"kp" yj g'egpwt { ''yj gtg'y cu'c'f gekukxg''uj khv'htqo ''Htgpej ''vqy ctf u'I gto cpô kp'r ctvkewrct.''yj g'y qtmu''qh'I qgvj g.'' Uej kngt "cpf "COY O'UEJ NGI GN" "ugg" GTO CP "VTCF KVKQP + "Dcuupgw'3; ; 3 < 667 + qhvgp. "kpkvkcm (. 'kp" ) kpvgto gfkcvg"Htgpej "xgtukqpu0Tqo cpvke"y tkvgtu"eww"vj gkt"vggvj "qp"vtcpurcvkqpu"htqo "vj g"I gto cp<"Ukt"Y cnvgt" Ueqw'qp'I qgyj gøu'*I qgyj 'xqp'Dgt rkej kpi gp*'\*39; ; +:"Uco wgrl'Vc{rqt'EQNGT KF I G'qp''Uej krrgtøu'*Y c mgpuvgkp*'' \*3: 22+."Uj gmg{"qp"r ctwi'qh'I qgyj gøu"Hcww0"Y kyj kp"yj tgg"{gctu"qh'I qgyj gøu"eqo r ngvgf "Hcww"s: 54+"yj gtg"y gtg" hkxg"eqo r ngvg"\tcpuncvkqpu0Qvj gt"I gto cp"y tkxgtu"y gtg"o cf g"uko knctn{ "ceeguukdng"\q"Xkevqtkcp"tgcf gtu"d{ " I gqti g'Grkqv." Uctcj 'Cwurkp. 'I (EO) ctg" cpf 'Dkuj qr "Vj ktny cm" cpf "Y krrkco "Y cmceg0" Vj g'llf gcu''qh''vj g''I gto cp'Tqo cpvleu'y gtg''etwelcn'llp''uj crllpi 'c'pgy 'ugnh'wpf gtuvcpflpi 'hqt''vj g'vtcpuncvqt'' \*I gqti g'Uvgkpgt''3; 97=Tqdkpuqp''3; ; 3+0Cu'r tgxkqwun( 'pqvgf. 'htqo 'vj g'Tgpckuucpeg'vq'vj g'gki j vggpvj 'egpwt{" vtcpurcvqtu'j cf'i gpgtcm(.'kh'kp'f khhgtgpv'y c{u.''f qo guvkecvgfø'vj gkt''y qtm0Pqy.'kp'Ectn(ngøu'y qtfu.''+vj g'f wv{ ''qh'' c'tcpurc vqt']y cu\_i vq'r tgugpv'yi g'y qtm'gzcevn('cui kp''yi g']qtki kpcn\_ø'\*Cuj vqp'3; : 2< 6+0'Rqr g'cpf 'Ft {fgp''dqyj " eco g'kp'hqt'etkkekuo 'qp''y ku'ueqtg0'Cfo kwgfn(.'tglgevkqp''qh''y g''gctnkgt''r tcevkegu'cpf lqt''y gqtkgu'y cu'pqv'vqvcnk' cwj qtkv{0

C v'y g'uco g''ko g. ''y g'Tqo cpvkeu'y gtg''cnıq'tgf kueqxgtkpi ''y g''rksgtcwtg''qh''y g''Kcrkcp'Tgpckuucpeg. ''gur gekcm{ "F cpvg. 'y j qug''F kx ky c y cu''cu''ko r qt y cpv'hqt''pkpgvggpy /egpwt { 'tgcf gtu''cu''Y cu''cu''ko r qt y cpy''qh''y g'' gy g'' gy ''g quv''uveeguuhwn''tcpurcy qu''qh''y g''egpwt { OP qt'' uj qwf 'y g''hqti gv'j qy ''ctvkuw''rkng'I wwcxg'Fqt² ''cpf ''Lqj p''Hrczo cp''o gf kcy g''y g''F cpy gu''qh'Ect { ''cpf ''Kej cdqf '' Y tki j y q'' Gpi rkuj 'tgcf gtu. ''qt''j qy ''Y krrkco ''Drcng''wugf ''Ect { ''cu''c''etkd''hqt''j ku''qy p''

-ttcpurckqp@"\jg"Knmutckqpu"\q"\jg"Fkxkpg"Eqogf{0

Vj g'ugeqpf 'j crh'qh'vj g'pkpgvggpvj 'egpwt { 'f gxgmr u'dtqcf n ('cmpi 'vj g'uco g'rkpgu.'vj qwi j .'cti wcdn (.'kwu'qy p'' -tcpurcvkqpø'qh'Tqo cpvke'vj gqt { 'cpf 'r tcevkeg'tgxgcnu'c'uvtqpi n (''-f qo guvkecvkpi ø'ci gpf c'kp'rkpg'y kj 'vj g'qxgtcm' ko r gtkcn'r tqlgevu'qh'vj g'ci g0

Y g'ecp'hqewu'yi gug'i gpgtcnk cvkqpu'd { 'uwxf {kpi 'c'hgy "{ gctu. "pqv'gpvktgn( "cv'tcpf qo 0'Vj wu. 'kp'3: 8364." vtcpurcvkqpu'er r getgf "qh'heti g'r etwi'qh'vj g"*Khef* "epf "vj g"*Qf {uug{* "d{ "Rj krkr "Y qturg{ ."Iqugr j "F etv. "Ico gu' Nepf qp" cpf 'F gcp'J gpt { 'Crhqtf = 'qh'F cpvg'cpf 'j ku'eqpvgo r qtctkgu'd { 'TQUUGVVK= 'qh'vj g'hktuv'vy q'r ctw'qh'vj g'  $Eqo\ o\ gf\ kc\ 'd\{\ 'O\ tu'EO\ OT\ co\ uc\{\ '*3:\ 84+="qh'Qrf\ 'P\ qtug'\ '*Dwtpv'Plcn+'d\{\ 'Uk'\ 'I\ gqti\ g'F\ cugpv="qh'kpf\ kxkf\ wcn'r\ qgo\ u''$ kpvq"cpf"qwv"qh"I tggm"cpf"Ncvkp."cpf"qwv"qh"Kxcnkcp"cpf"I gto cp."y kyj "hcekpi/r ci g"qtki kpcnu."d{"Nqtf"N{ wgn,qp" cpf "Y kmco 'I ref uvqpg'\*3: 83="cpf 'cp'cwj qtk gf 'tcpurcvkqp'qh'J wi qou'Ngu'O ku² t c drgu'd { "Y tczcm'y j qug" r wdrkuj gf "tcpurc kqpu"kp" yj ku" yy q/{gct"r gtkqf "kpenwf g" tcxgn/ewo/cf xgpwtg" uvqtkgu." yj g"cwqdkqi tcrj {"qh"c" Htgpej 'f gvgevkxg. "cpf 'vy q'y qtmu'd { 'Gus wktqu. 'y j q'j cf 'j grr gf 'y ksj 'vj g'J wi q0'Vj gug'r tqf wevkqpu'ctg." cf o kwgf n{ ."qh'xct { kpi 'uki pkhecpeg0'Vj g'N{ wgnqp/I ncf uvqpg''xgpwtgô cu'Htcpeku'P gy o cp''pqvgf ."co cvgwt" y qtm"eqpukuvkpi "qh'ug√r kgeg"\tcpuncvkqpuô y cu'xgt{"fkhhgtgpv'\q"Y tczcmøu'cf xgpwtg"{ctpu0Cnqpi ukfg" Tquugwkou'hkpgn{'pwcpegf'cy ctgpguu'yj cv''÷c'\tcpurcvkqpí tgo ckpu'r gtj cr u'yj g'o quv'f ktgev'hqto 'qh' eqo o gpvct{ø'\*Tquugvk'3; 33+."Y tczcm'y cu'ewwkpi "cp"qduegpg"gzrtguukqp"-y j kej "o c{"dg"j kuvqtkecn'dw'ku" f kui wurkpi ø'\*cpf. 'ukpeg''yi g'hqmqy kpi 'ej cr vgt'∺eqpukuv']gf\_'qh'c'i mqtkhkecvkqp''qh''yi ku'cdqo kpcdng''y qtfø''ewwkpi " Oqttkuøu''Cgpglf''\*3: 97="Hcwmpgt'3; 95438+"pqvgf''yi g'tgi wrctkv{ "qh''yi gkt'r wdrlecvkqp0 Kpgxkcdn(."vj g"hqtgi qkpi "ceeqwpv"qo kwi"ko rqtvcpv"pco gu"cpf "vgzwk"vj g"qtkgpvcnk(gtu"HKV\ I GTCNF."Tkej ctf" DWTVQP. 'Ico gu'Ngi i g'\*y j q''tcpurcygf 'htqo 'Ej kpgug+'cpf 'O cz'O Arngt'\*htqo ''Ucpuntkv='Ncf { 'Ej ctrqwg''

DWTVQP. 'Ico gu'Ngi i g'\*y j q'tcpurcyf 'htqo 'Ej kpgug+'cpf 'O cz'O Ângt'\*htqo 'Ucpuntky='Ncf { 'Ej ctnqwg'' I wguv''\*O cdkpqi k='tgxkukqpu'qh'y g'3833'cpf 'Tj gko u/F qwck'Dkdngu.'y g'o quv'ko r qtvcpv'qh'y g'hqto gt'\*3::36;7+'mpqy p'cu'y g'Tgxkugf 'Xgtukqp='Gngcpqt'O CTZ'CXGNKPI.'cpf 'y g'Klugp''tcpurcvqtu'Y knkco 'Ctej gt'cpf'' Gf o wpf 'I quug0

K'cnq'qo ku'Ctpqrf øu'Qp'Vtcpwcwlpi 'J qo gt'\*3: 82+'y j kej. 'rkmg''Rqr g'cpf 'Eqy r gt'dghqtg''j ko .'etkkek gf "
ugxgtcn'tcpurcwlqpu'qh'J qo gt. 'kpenwf kpi ''y qug'qh''Y tki j v\\*3: 7; 687+'cpf 'P gy o cp'\*3: 78+''y g'hcwgt''cntgcf { "
wpf gt''cwceml'hqt''c''tcpurcwlqp''qh'J qtceg'\*\*Xgpwk'3; ; 7c<'34669+0'Dqvj 'tgr nkgf ''kp''nkpf ='Ctpqrf 'tgr nkgf ''vq''y g''
rcwgt''kp''Ncw/Y qtf u'\*3: 84+0'Hqt''cm'y gkt''f khigtgpegu'\*kdkf 0c'33: 668+'Ctpqrf ''cpf 'P gy o cp''y gtg''dqy ''ej krf tgp''
qh'y g'Tqo cpwle'tgxqnwklqp0'Dqvj ''uj ctgf 'y kyj ''o quv'qh'y gkt''eqpvgo r qtctkgu'y g'Tqo cpwle'xkgy ''qh'y g''
vtcpurcvqtøu''=f wv\{ i vq''dg''hckyj hwnø'\*P gy o cp+'vq''y g''qtki kpcn''cu''y g''tcpurcvqtu''qh''y g''3833'Dklng''j cf ''dggp''
\*Ctpqrf +:''cpf ''qh''y g''pgeguuct { "-wpkqp''qh''c''tcpurcvqt''y kyj ''j ku''qtki kpcnø'kp''c''i qqf ''tcpurcvkqp''\*Ctpqrf +0'Vj gkt''
f kuci tggo gpv.''y gp.''y cu''rguu''cdqww'gpf u''y cp''cdqww'o gcpu0'Hqt''Ctpqrf .''ukpeg''J qo gt'ku''c''ercuuke.''y g''tcpurcvkqp''
uj qwf ''cf qr v'yj g''repi wci g''qh'y cv'wpf qwdvgf ''ercuuke.''y g''3833''Dkdng0'Ku''o gxtg.''j qy gxgt.''uj qwf ''tgr nkecvg'y g''
qtki kpcnøu''j gzco gygtu0'P gy o cp.''y j q''ucy ''J qo gt''cu''r tko kkxg''cpf ''r qr wct.''wugf ''dcmcf ''o gxtg''cpf ''y j cv'j g''
ecmgf ''c''-\Lczq/P qto cpø'rcpi wci g''cpf ''c''rcygt''y tkgt''-Y ctf qwt''Uxtggv'Gpi rkuj ø\*Xgpwk'3; ; 7c<'36364='Mgm{ "
3; 9; +0'Ci ckpuv'Ctpqrf øu'Dkdrkecn'o qf gn''P gy o cpøu'y cu''qh'y g''o kunkqpct { ''y j qug''tcpurcwkqp''hqt''y g''-Hgglgguø''
tgvckpgf ''y g''r j tcug''-Nco d''qh''I qf ø'cpf ''tkungf ''wpkyvgnki kdkrk{0

Vj ku'r tqvtcevgf "cpf "rcti gn{ "r qkpvguu"gzgtekug"kp"ktqp{"cpf "cetko qp{"ecuv'nqpi "uj cf qy u0Ctpqrf øu'cwj qtkx{" y cu'y kf gn{ "cempqy rgf i gf "kp"yj g"pkpgvggpyj "egpwt{ "\*cpf "y gm'kpvq"yj g"y gpvkgyj +="j ku'tgeqo o gpf gf "::Mkpi " Lco gu'Gpi rkuj ø'y cu'cf qr vgf "d{ "Dgplco kp"Lqy gw'cpf "Cpf tgy "Ncpi 0P gy o cpøu'r tcevkeg"y cu'rcti gn{ "ki pqtgf 0' Dwv."cu"Xgpwkk\*3; ; 7c+"pqvgu."kv'tgr tgugpwt'cp"ko r qtvcpv'vgpf gpe{ "kp"pkpgvggpyj /egpwt{ "vtcpurcvkqp."qpg" cpvkekr cvgf "d{ "y g"o gf kgxcrk kpi "vtcpurcvkqpu"qh'Tqdgtv'Uqwj g{ ."cpf "gej qgf "kp"Tqdgtv'Dtqy pkpi øu" \$\$Ci co go pqp"\*Tqdkpuqp"3; ; 3-467+"cpf "y g"xgt{ "f khhgtgpv'y qtm'qh'O qttku"cpf "TQUUGVVK"vq"::hqtgki pk gø'yj g" qtki kpcn'\*Xgpwkk'3; ; 7c<"42+"cpf "o cmg'tgcf gtu"eqpuekqwu"qh'yj g"i cr "dgwy ggp"yj gkt"qy p"ewnwtg"cpf "yj g"Qyj gt" y j kej "yj g"qtki kpcn'go dqf kgu0'Vj ku'f kuvkpevkqp"dgwy ggp"tgeguukxg"::hqtgki pk kpi ø'cpf "f qo kpcpv"

±qo guvlecvkpi gʻuvtckpu'qh'vtcpurcvkqp'tgugo drgu'cpqyi gt'o cf g'tgi wrctn( 'kp''yi g'pkpgvggpyi 'egpwvt {ô kp''yi g'' r tghcegu''qh'ECT[ .''Dktej .''O tu'Tco ug{ .''P gy o cp''cpf 'Ctpqrf ô dgwy ggp''y j cv'Lqj p''Dgpuqp'Tqug''ecrngf " ±uej qrctgu''vtcpurcvkqpug'\*\*I tggrl\*I tco cu.''3: 89694+"cpf ''yi qug''f guvkpgf 'hqt''yi g'eqo o qp''tgcf gt.''c'f kuvkpevkqp''y kyi " ergct "gej qgu''qh''yi g''yi gqtk kpi u''qh'I gto cp'Tqo cpvkekuo 0'Ugg''<u>UVTCVGI KGU''QH''VTCPUNCVKQP</u>0

# Vj g'ty gpvlgvj 'egpvvt {

Vjg''w gpvkgvj 'egpwxt { ''qygu''o wej ''qh'kxu''cigpfc.''kp''tgurgev'qh''vtcpurcvkqp.''vq''vjg''cuuworvkqpu''cpf''rtcevkeg''qh''vjg''

Hqtgki p''encuukeu''j cxg''eqpvkpwgf ''vq''dg''tcpuncvgf 'kp''r qr wnct''ko r tkpwi''cr r gcnkpi ''vq''cp''kpetgcukpi n{ ''o qpqnkpi wcn'' tgcf gtuj kr .''nkng''Y qtnf øu''Encuukeu'\*3; 23+''Gxgt {o cp'\*3; 28/+''Nqgd'\*3; 34/+''cpf ''Rgpi wkp''Encuukeu'\*3; 68/+''y g'' ncuv pco gf ''f knvkpi wkuj gf ''d{ ''kwi'f gekukqp''vq''eqo o knukqp''pgy ''tcpuncvkqpu''qh''cm'y qtmu''r wdnkuj gf ''d{ ''kwi'f gekukqp''vq''eqo o knukqp''pgy ''tcpuncvkqpu''qh''cm'y qtmu''r wdnkuj gf ''lko r qtvcpv'' vtcpuncvkqpu''j cxg''dggp''r tqf wegf ''d{ ''uwej ''cu''Eqpuncpeg''I ctpgw''cpf ''O cz''I c{y ctf ''\*T wuukcp''encuukeu+''Ctyj wt'' Y cmg{ ''\*Ej kpgug''r qgvt {+.''I gngp''Y cff gm'\*'o gf kgxcn''Ncvkp''n{ tkeu+.''Y UEQVV''O QP ETKGHH'cpf ''GOXOTkgw'' Y tggm''encuukeu+OF wtkpi ''y g''r gtkqf ''3; 6: ó: 8.''nkytct { ''tcpuncvkqpu''qh''y ku''uqtv'ceeqwpvgf .''ceeqtf kpi ''q''y g''kpf gz'' \tcpuncvkqpwo .''hqt''57''r gt''egpv''qh''cm''tcpuncvkqpu''r wdnkuj gf ''kp''Dtksckp0

Uko krctn(.''y g''pkpgvggpyj /egpwt{"-ihqtgki pk| kpi ø'\tcpurcvkqpu''d{ ''r tqhguukqpcn'r qgw''j cxg''y gkt''gs wkxcngpw''kp''y g'' w gpvkgyj ''egpwt{.''cdqxg''cm''kp''y g''\tcpurcvkqpu''qh''y g''Co gtkecp/dqtp''G| tc''RQWPF''\'\ugg''<u>CO GTKECP''</u>

Vtcpurcvkqp'ku'pqy "o qtg'r tqhguukqpcm( "qti cpk gf "y cp"gxgt"dghqtg0'Vtcpurcvkqp"ci gpekgu'j cxg'ur twpi "wr "kp" ncti g'pwo dgtu="cecf go ke"cpf 'r tqhguukqpcn'eqwtugu'cpf 's wcnkhecvkqpu'ctg''dgeqo kpi 'y g''qtf gt''qh''y g''f c{ 'kp" Dtksckp. "gur gekcm( "cv'r quvi tcf wcvg''ngxgn0'Rtqhguukqpcn'qti cpk cvkqpu'hqwpf gf 'vq'tgr tgugpv'vtcpurcvqtu'kp''Dtksckp" kpenxf g''y g''Kpurkxwg''qh''Nkpi wkuvu'\*3; 32±''y g''Kpurkxwg''qh''Vtcpurcvkpi "cpf "Kpvgtr tgvkpi "\*3; : 8±''cpf "y g'' Vtcpurcvqtuø'Cuuqekcvkqp. "y g''ncwgt "guvcdrkuj gf "d{ ''y g''Uqekgv{ "qh''Cwj qtu''vq'tgr tgugpv'nkvgtct{ "vtcpurcvqtu0'Vj g'' Dtkkuj "Egpvtg'hqt''Nkvgtct{ "Vtcpurcvkqp."y j kej "ku'hwpf gf "d{ ''y g''Ctvu''Eqwpekn'qh''Gpi ncpf .''r tqxkf gu''dwtuctkgu'hqt'' nkvgtct{ "vtcpurcvqtu''cpf "qti cpk gu'xctkqwu''gxgpvu''cpf 'y qtmij qr u0

Dwi'i tgevgt. "cti wedn(. "vj cp"cp{"qh"vj g"ej cpi gu"uq"het"pqvgf "ku"vj g"r ctef ki o "uj khv"vj ev"j cu"vengp"r neeg"kp"vj g" wpf gtuvepf kpi "qh"vtepunevkqp "kuugh"cu"c"r j gpqo gpqp"f wtkpi "vj g"neuv"42"qt"uq"{getu0"Vgtt{"Gei ngvqpøu"tgxkgy" guuc{"Vtepunevkqp"cpf "Vtepuhqto evkqpø"s; 99+"kmwntevgu"vj ku"uj khv0"Vj g"o ekp"vj twuv"qh"Gei ngvqpøu"eeeqwpv."kp" vj g"hti j v"qh"±tgegpv"ugo kqve"gps wkt {ø"ku"vq"wpf gto kpg"vj g"qr r qukvkqp"qh"±uqwtegø"cpf "±cti gvø"vgzv"cpf "vj g" ±hgvkuj "qh"vj g"r tko et{"vgzvø"s3; 99-94+"vengp"hqt"i tepvgf "kp"y tkvkpi "edqw"vtepunevkqp."tgr neekpi "kv"d{"±vj g"pqvkqp" qh"kpvgt vgzwerkvfø"j ku"kenkeu+0Gei ngvqp"go r j cukt gu"vj g"r tqdngo evke"j gto gpgwke"kuuvgu"qh"u{uvgo u"qh" uki pkhkeevkqp"qh"vj kej "vtepunevkqp"ku"e"r etef ki o evke"eeug0C v"vj g"egpvtg"qh"vj ku"pgy "etkkekuo "ku"vj g"ewgo r vgf" f kur neego gpv"qh"gxenwevkxg"cpf "r wtgn("hqto en'etkkekuo ."epf "e'tgeqi pkkqp"qh"vj g"ko r qtvepeg"qh"pgy "f gxgnqr o gpvu"kp"ewnwten'epf "etkkeen'vj gqt{0}

Kp''y g''nki j v'qh''y gug''f gxgnqr o gpvu. 'tgegpv''{ gctu''j cxg''y kpguugf "cp''wr uwti g''qh''kpvgtguv''kp''tcpuncvkqp''uwwf kgu''kp'' Dtksckp<'pgy 'r gtkqf kecnu'htqo ''xgt { "f khhgtgpv'r gtur gevkxgu''\*\*\nabla t cpuncvkqp''cpf ''\nabla kgtcwntg.''3;; 5/=\"\nabla g'\nabla t cpuncvkqp''\nabla g'\nabla t cpuncvkqp''\nabla g'\nabla t cpuncvkqp''\nabla g'\nabla t cpuncvkqp''\nabla g''\nabla t cpuncvkqp''\nabla g'''\nabla g''\nabla t cpuncvkqp''\nabla g''\nabla t cpuncvkqp''\nabl

# Hwt vj gt 't gcf lpi

 $\begin{tabular}{ll} Cuj &qp'3; : 2 = Dcuupgw'3; : 213; ; 3 = Dtcpf'3; 79 = Eqj gp'3; 84 = Eqr grcpf'3; ; 3 = Grku'gv'cr03; : ; .'3; ; 8 = Iqf f gp''gv'cr0' 3; ; 3 = Utcpf'3; : 7d = Utcpf'3; : 7d = Utcpf'3; : 7d = Utcpf'3; : 88 = Utcpf'3; : 88 = Utcpf'3; : 3 = Utcpf'3; : 3$ 

TQI GT'GNNKU'CPF''NK, ''QCMNG[/DTQYP

# Dkqi tcrj kgu

**DQ[GT.'Cdgri**\*38896394; +0C''Htgpej ''J wi wgpqv'y j q'ugwrgf 'kp''Gpi rcpf 'kp''38: ; ''cpf 'r tqf wegf ''o cp{" vtcpurcvkqpu'htqo ''Htgpej 0J g''cnq''r tqf wegf.''hqt''y g''F wng''qh'I nqwegurgt.''c''*Eqo rngcv'Ht gpej ''O curgt ''hqt ''Ncf kgu'' cpf ''I gpwgo gp*'\*38; 6.''tgr tkpvgf ''y tqwi j qw''y g''gki j vggpyj ''egpwt{+.''cpf ''c''Htgpej /Gpi rkuj ''F kevkqpct{''\*Vj g'' J ci wg.''3924+'y j kej ''y gpv'kpvq''pwo gtqwu''gf kkqpu''kp''dqvj ''Gpi rcpf ''Cpf ''Htcpeg''cpf ''y cu''tgxkugf ''kp''3: 5; ''d{'' Dqkrgcw0}

**DWT VQP.'Ukt 'Tkej ctf 'Ht cpeku**'\*3: 436; 2+0'Cp'Gpi rkuj "qtkgpvcrkuv'cpf "gzr mtgt0" g''vtcpurcvgf "vj g''Ctcdkcp'' Pki j w'\*38"xqnu0"3: : 76: +"vj g"Mco c "Uwtc"\*3: : 5+"cpf " $\div$ qvj gt "y qtmu"qh'Ctcdkcp"gtqvqmi {ø'\*J ctxg{"3; 8;  $\ll$ 349+" cu''y gm'cu''y g"Nwdkcf u'qh'f g'Eco qµpu'\*3: : 2+"c"y qtm'qhvgp"vtcpurcvgf "kp"y g"pkpgvggpy "egpwt{."cpf "Ecwmvu" \*3: ; 6+0'Y kyj "j ku'y khg"j g"vtcpurcvgf "f c"Ukrxcøu''O cpwgrlf g'O qtcgu'\*3: : 8+0'Hqt"uqo g"qh'j ku'o qtg"gtqvke" vtcpurcvkqpu'\*uwej "cu''y g"Mco c''Uwtc'"cpf "vj g"Ctcdkcp'Pki j wt"; g"tguqtvgf "vq"r tkxcvg"r wdrkecvkqp"kp"qtf gt "vq" cxqlf "vj g"tkum'qh'r tqugewkqp0

ECTN[ NG.'Vj qo cu'\*39; 763:: 3+0C''Ueqwkuj ''j kunqtkep''epf ''guuc {kun'y j q''r m {gf ''ep'ko r qt vepv'r ctv'kp''y g'' r qr wretk evkqp''qh'I gto cp''rksgtewtg''kp''Gpi repf ''kp''y g''hktun'j erh'qh''y g''pkpgvggpyj ''egpwt {0'J g''y tqvg''e''Nklg''qh'' Uej knrgt '\*3: 4566+''epf ''tepurevgf ''o ep{ ''y qtmu. ''kpenwf kpi ''I qgyj gøu''Y knj gro ''O gkungt u'Ngj t lej t g'\*3: 46+''epf '' Y knj gro ''O gkungt u'Y epf gt lej t g'\*3: 49+.''epf ''y g''xgt { ''r qr wret ''Wpf kpg''d { ''Nc''O qwg/Hqws w² 0

ECTVGT.'Grk cdgvj "\*393963: 28+0Tgr wgf "vj g"o quv'ngctpgf "y qo cp"qh"j gt"f c{"kp"Gpi rcpf ."uj g"y cu"wti gf "d{" Ft"Lqj puqp"vq"vtcpurcvg"Dqgvj kwu0'Ectvgt "vtcpurcvgf "c"Htgpej "guuc{"qp"Rqr gou"Guuc{"qp"Ocp"kp"395; ."cpf "cp" Kcrkcp"vtcpurcvkqp"qh"P gy vqp"kp"vj g"uco g"{gct0J gt"o clqt"vtcpurcvkqp."qh"vj g"y qtmu"qh"Gr kevgwu"\*396; 674+."y cu" y keg"tgr tkpvgf "cpf "tgxkugf "kp"3: 870'Ugxgtcn'qh"j gt"r qgo u'y gtg"gf kxgf "y kxj "hcekpi /r ci g"Htgpej "vtcpurcvkqpu"kp" 39; 80

ECZVQP.'Y knkco "\*e036436; 2+0'V j g'hktuv'Gpi nkuj "r tkpvgt0'Kp"3696197."j g'r wv'j tqwi j "y g'r tguu''j g'hktuv'dqqni' gxgt"'q"dg"r tkpvgf "kp"Gpi nkuj ."Tgewl gnd'qh'y g"J kwqt { gu'qh'Vtq{g."y j kej "j g'j cf "vtcpurcvgf "j ko ugnh0'J ku" gpqto qwu"qwr wv'kpenwf gf "ugxgtcn'qh'j ku''qy p"vtcpurcvkqpu."pqvcdn("qh'c'Htgpej "tgy qtmkpi "qh'y g"Cgpgkf"\*36; 3+" cpf "vtcpurcvkqpu"y j kej "j g"uqo gvko gu'tgxkugf "\*g0 0'Vtgxkucøu"vtcpurcvkqp"qh'y g"Rqn(ej tqpkeqp"qh'J ki f gp+0 EJ CRO CP.'I gqt i g"\*A377; 63856+0'Cp"ko r qtvcpv'rkvgtct { 'hki wtg"qh'j ku''f c{0'J g'r wdnkuj gf "c'ur geko gp"qh'j ku'' vtcpurcvkqp"qh'y g"Knkcf "\*Ugcxgp"Dqqngu'qh'y g"Knkcf +'kp"37; . ."hqmqy gf "d{ "y g"y j qrg'y qtm'\*3833+."y g"Qf { uug{ "\*3836637+"cpf "J qo gtke"-J {o puø'\*3838+."cu''y gm'cu'vtcpurcvkqpu''htqo "Rgvtctej "\*3834+."O wucgwu'\*3838+."

J gukqf "\*383: +"cpf "Lwxgpcn'\*384; +0J ku'J qo gt."y g'uwdlgev'qh'c'r qgo "d{ "Iqj p"Mgcwi\*3: 38+."y cu'uvkm'kp''r tkpv'cv' y g'dgi kppkpi "qh'y ku''egpwt {0

EJ CWEGT.'I gqht g{ "\*e0356263622+0"Vj g"hqtgo quv'Gpi rkuj "y tkgt"qh'j ku"f c{ ."Ej cwegt"cmq"r tqf wegf "o cp{ "
vtcpurcvkqpu0J ku'emug"vtcpurcvkqpu'kpenwf g"r ctv'qh'vj g"Tqo cp"f g"rc "tqug"d{ "f g"Nqttku'cpf "f g'O gwp."vj g"

Eqpuqrcvkq"Rj krquqrj kcg"qh'Dqgvj kwu."vj g"Nkdgt "Eqpuqrcvkqpku'gv'Eqpukrkk'qh'Cndgtvcpq"qh'Dtguekc"kp"vj g"Htgpej "
xgtukqp"qh'Tgpcwf "f g"Nqwgpu."cpf "c"Vt gcvkug"qp"vj g"Cunt qrcdg"hqt"j ku'uqp"\*35; 3+0"Vt qknvu'cpf "Et kug{f g."dcugf "
qp"vj g"KilHkrqunt cvq"qh"Dqeeceekq."cnvgtpcvgu"emug"vtcpurcvkqp"y kj "htgg"kpxgpvkqp"cpf "o cvgtkcn'htqo "Dqgvj kwu0

EQNGTHF I G.'Uco wgrlVc{nqt "\*399463: 65+0"C"rgcf kpi "Tqo cpvke"r qgv'cpf "cp"ko r qtvcpv'hki wtg"kp"vj g"
vtcpuo kuukqp"qh'I gto cp"

Tqo cpvkekuo "vq"Gpi rcpf 0J ku"vtcpurcvkqp"qh"r ct vu"qh"Uej krrgt øu"Y crrgpuvgkp"\*3: 22+"y cu"uvkrrldgkpi "tgxkgy gf" hcxqvtcdn{ '72"{ gctu'rcvgt0

EQXGTF CNG. 'O kgu'\*36:: 6378: +0'Gpi nkuj 'Rtqvguvcpv'tghqto gt''cpf 'dkdnkecn'uej qnct0'Kp''cf f kkqp''vq''j ku''y qtm' qp''Dkdng''tcpuncvkqpu. 'y j kej 'kpenwf gf 'y qtm'qp''y g'I gpgxc''Dkdng''cpf ''c'P gy ''Vguvco gpv''tcpuncvgf 'htqo ''y g''
Xwni cvg'\*375: +''j g''tcpuncvgf ''xctkqwu''y gqmi kecn''tcewi'cpf 'I gto cp''j {o pu0}

EQY RGT.'Y knkco "395363: 22+0 Gpi nkuj "r qgv'cpf "ncy {gt0J g'eqpvtkdwgf "y q'\tcpurc\kqpu'htqo "J qtceg'\q'c" eqmge\kqp"\39796; +'cpf "y tqvg''cdqw'\tcpurc\kpi "J qo gt"\39: 7+0 J g''cnuq''r tqf wegf "\tcpurc\kqpu''qh' J qo gt" \39; 3+"qh'O knuqpøu'Nc\kp''cpf "Kicnkcp''r qgo u'\3: 2: +"cpf "qh'r qgo u'htqo "y g''Htgpej "qh'O o g'f g''rc'O qwg' I w{qp" \3: 23+0

FGP J CO .'Ut 'Lqj p'\*383768; +0'Kkij 'r qgv='dqtp'kp'F wdrkp''cpf ''gf wecvgf 'kp'Nqpf qp''cpf ''Qzhqtf 0'Qr gtcvgf ''y kij ''Eqy rg{ "cu'c'ekr j gt''ugetgvct { ''hqt''y g''gzkrgf ''tq{cn'eqwtv0J g'r tqf wegf 'c'r ctcr j tcug''qh'r ctv'qh'y g''Cgpgkf'' \*3878+0J ku''qyi gt''pqvcdrg''vtcpurcvkqp''y cu''qh'Ekegtqøu''Ecvq''Oclqt'\*386: +0'F gpj co ''y tqvg''y g'hknj ''cev'hqt''O tu'' Mcyi gtkpg''Rj krkr uøu''vtcpurcvkqp''qh'Eqtpgkrrgøu''J qtceg'\*389: +0'J g''ku''cnuq''tgo go dgtgf 'hqt''j ku''r qgo ''Vq''Ukt'' Tkej ctf ''Hcpuj cy ''Wr qp''J ku''Vtcpurcvkqp''qh'Rcuvqt''Hkf qø'\*386: +.'y j kej ''dgi kpu''y kij ''y g''rkpgu<

Uwej 'ku'qwt'r tkf g. 'qwt'hqm{.''qt''qwt'hcvg.''Vj cv'hgy ''dw'uwej ''cu''ecppqv'y tkg. ''\tcpurcvg0'Dw'y j cv'hp'' y go 'ku'y cpv'qh''ctv.''qt''xqkeg. ''Kp''y gg''ku''gkyj gt''o qf guv{ ''qt''ej qkeg0

FT[ FGP.'Lqj p'\*385363922+0Eqpulf gtgf ''y g'hgcf lpi ''o cp''qh'hgwgtu'qh'j ku'f c{="gf wecvgf 'cv'Y guvo kpuvgt 'cpf '' Eco dtlf i g'cpf ''gngevgf ''o go dgt''qh'y g'Tq{cn'Uqelgv{ 'lp'38840Ft{fgp.''cu'Uco wgn'Lqj puqp'y cu''q'tgo ctm'y cu'' y g'hktuv'o clqt ''y gqtkuv'qh'vcpurcvkqp''\*ugg''KO KVC VKQP = OGVCRJ TCUG="RCTCRJ TCUG+"cpf ''y g'hcvgt'r ctv' qh'j ku'hkgtct{ "ectggt 'eqpegpvtcvgf ''qp''y g'vcpurcvkqp''qh'cpelgpv'cpf ''o qf gtp'encuuleu0Cr ctv'htqo ''Xkti kn'cpf '' Qxkf.'Ft{fgp''cf cr vgf ''Uj cngur gctgcp'f tco cu'cpf 'r tqf wegf 'xgtulqpu'qh'Vj gqetkwu'\*38: 66: 7+"Ocko dqwti øu'' J kuqt{ "qh'y g'Ngci wg'\*38: 6+"Dqj qwtøu'Nhg''qh'Zcxkgt'\*38: +"Lwxgpcn'cpf ''Rgtukwu'\*38; 5+"c'r tqug''vcpurcvkqp'' qh'F whtgupq{ øu''Ctv'qh'Rckpvkpi '\*38; 7+"cpf.''kp''j ku''Hcdngu'\*3922+"r ctw''qh'Qxkf øu''Ogvco qtrj qugu''cpf 'vcngu'' htqo ''Ej cwegt''cpf ''Dqeeceekq0

GNK, CDGVJ 'K\*375563825+0'S wggp"qh"Gpi rcpf "cpf "Ktgrcpf"\*377: 63825+0'J gt"npi 'tgki p'y kpguugf 'y g" go gti gpeg"qh"Gpi rcpf "cu"c'y qtrf "r qy gt"cpf "y g'hnqy gtkpi "qh"y g"Gpi rkuj "Tgpckuucpeg0'Grk cdgy "r tqf wegf "c" pwo dgt "qh"Gpi rkuj "tcpurcvkqpu"htqo "ercuukecn'cwj qtu. "kpenwf kpi "y g"Eqpuqrcvkq"Rj krquqr j kcg"qh"Dqgyj kwu"kp" 37; 5."cpf "y qtmu"d{ "Rnwctej ."J qtceg"cpf "Gwtkr kf gu='uj g"cnnq"tcpurcvgf "y q"Qtcvkqpu"qh"Kqetcvgu"kpvq"Ncvkp0 HKV\ I GTCNF.'Gf y ctf "\*3: 2; 6: 5+0'Gpi rkuj "r qgv'cpf "tcpurcvqt."dguv'npqy p"hqt"j ku'tcpurcvkqpu"htqo "Rgtukcp" qh"y g"Twd\* kf\* v'qhQo ct\* Mj c{{\*\*o} "\*3: 7; ="6yj "tgxkugf" "gf kkqp"3: 9; +0'J ku"qyj gt"tcpurcvkqpu"kpenwf g"O qrk\* tg"cpf" F grcxki pg"\*3: 4; +: "Ecrf gt»p"\*3: 75."3: 87+"cpf "I tggm'tci gf {"\*\*yj g"Ci co go pqp"qh"Cguej {nwu"kp"3: 87"cpf "y g" Qgf krwu"qh"Uqr j qergu"kp"3: 2+0

I TQUUGVGUVG.'Tqdgt v'\*e0339763475+0'Dkij qr 'qh'Nkpeqm'htqo ''34570'J g'r tqf wegf .''uqo gvko gu'qp'j ku'qy p'' cpf ''uqo gvko gu'kp''eqmcdqtcvkqp'y kij ''qyi gt ''uej qnctu.''vtcpuncvkqpu'kpvq''Ncvkp''qh'o clqt''I tggm'cwij qtu'y j kej .''cu'' Tqi gt''Dceqp''pqvgf .''ko r tqxgf ''eqpukf gtcdn{ ''wr qp''gzkuvkpi ''vtcpuncvkqpu0'J g'y cu''ekxgf ''cu''cp''cwij qtkx{ ''kp''yi g'' r tqmi wg''vq''yi g''Y {enkhkg''Dkdng''cpf ''wugf ''o qtg''i gpgtcm{ ''d{ ''Y {enkh''cpf ''j ku''hqmy gtu''yi g''Nqmctf u.''cu''y gm''cu'' d{ ''yi g''ncwgtøu''qtyi qf qz''qr r qpgpvu0'J ku''cmgi qtkecn'r qgo ''yi g''Ej ¬vgcw'f oco qwt.''kp''Htgpej .''y cu''vtcpuncvgf ''kpvq'' Okf f ng''Gpi nkuj 0

J QDDGU'Vj qo cu'\*37:: 6389; +0'Qpg''qh''yj g'hqtgo quv'r qrkkecn''y kpngtu''qh''yj g''ugxgpvggpyj ''egpwt {0'J g''y tqvg'' ugxgtcn'y qtmu'kp''Ncvkp.''cpf''

vtcpurcvgf "vj go "kpvq"Gpi rkuj ."y qtngf "y kj "Ukt"Htcpeku"Dceqp"cpf "vtcpurcvgf "uqo g"qh"j ku"guuc{u"kpvq"Ncvkp."cpf "vtcpurcvgf "Vj we{fkfgu"\\$384; +"cpf "J qo gt"\\$389667+0

LQPGU'Y knkco "\*39686; 6+0'Gpi nkij "qtkgpvcn'uej qnct"hnwgpv'kp"o cp{ 'Gwtqr gcp"cpf 'Cukcvke"ncpi wci gu0J g" vtcpuncvgf 'Rgtukcp"cpf "qvj gt 'Cukcvke"vgzvu. 'kpenwf kpi "J kvqrcf guc'\*c"xgtukqp"qh'vj g"Rcpej cwpvtc+"cpf "r tqf wegf" c'Rgtukcp"i tco o ct"\*3993+."y j kej "y cu'uvkn'dgkpi "tgrtkpvgf "kp"3: 6: 0'Y j kng"kp"Kpf kc"qp"i qxgtp/o gpv'ugtxkeg" \*39: 56; 6+."j g"hqwpf gf "vj g"Dgpi cn'Cukcvke"uqekgv{ 'kp"39: 60

TQUEQO O QP.'Gct niqhi\*Y gpw qty 'F kn'mp."A38556: 7+0°Cp"cevkxg"hki wtg"kp"yi g"eqwtv'qh"Ej ctngu"KOJ g" cwgo r vgf "vq"hqwpf "c"nkvgtct { "cecf go { "kp"ko kcvkqp"qh"yi cv"cv"yi g"Wpkxgtukv{ "qh"Ecgp0J ku"ekteng"kpenwf gf "yi g" O cts wku"qh"J cnkrcz. "vtcpuncvqt"qh"Vcekwu. "cpf "Nqtf "O ckwcpf."y j q"dgi cp"c"vtcpuncvkqp"qh"Xkti kn0°Cu"r ctv"qh"yi ku" i tqwr."Tqueqo o qp"y tqvg"÷Vj g"Guuc { "qp"Vtcpuncvgf "Xgtugø'\*38: 6+."vtcpuncvgf "kpvq"Ncvkp"d { "Ncwtgpeg'Gwuf gp" \*3939+0J ku"vtcpuncvkqpu"kpenwf g"ugxgtcn"xgtukqpu"qh"J qtcegøu"*Ctv"qhlRqgvt {* "\*38: 2."38: 6"cpf "392; +"cpf "c" r ctcr j tcug"qh"Rucm "36: 0

TQUUGVVK'F cpvg'I cdt lgri\*3: 4: 6: 4+0'Gpi rkuj "r qgv."r ckpvgt "cpf "vtcpurcvqt."y j q'hqmqy gf "j ku'hcyj gt."yi g" Kcrkcp" o ki t² "I cdt kgrg'T quugvk "kp" y g'cevkxg"f kuugo kpcvkqp"qh"Kcrkcp"ewnwt g"kp"Gpi rcpf 0J g'y cu'hqwpf gt" o go dgt "qh" y g'Rtg/T cr j cgrkxg"Dtqvj gt j qqf "\*3: 6: +."cpf "r tqf wegf "vtcpurcvkqpu"qh" o gf kgxcrl"Kcrkcp"r qgvt { "\*Vj g" Gct n{ "Kcrkcp"Rqgvu."3: 83+"cpf "qh" o gf kgxcrl"cpf "Tqo cpvke"I gto cp"cpf "Htgpej "r qgvt { ."uqo g"r wdrkuj gf " r quvj wo qwun{ "d{ 'j ku"dtqvj gt"Y krrkco ."y j q"j ko ugrh" vtcpurcvgf "F cpvgøu" kplgt pq"kp"3: 870

UEQVV'O QPETKGHH 'Y 0\*3::; 63; 52+0'Rtqf wegf "c"pwo dgt "qh'\tcpurc\kqpu. 'kpenwf kpi '\j g'\y qtmu'qh' Uvgpf cj n'cpf ''Rtqwuv. "cpf '\tcpurc\kqpu'qh'o gf kgxcn'rksgtcwtg'\*\*Dgqy wh'\j g"Ej cpuqp'f g'Tqrcpf +"cu'\y gm'cu'\y g" Uc\f tkeqp'\qh'Rgvtqpkwu'Ctdksgt "cpf "\y q'\y qtmu'd { "Rktcpf gmq0'Vj g"Ueqw'O qpetkghh'Rtk g'ku'cy ctf gf "cppwcmf" d { "y g"Vtcpurc\qtus'Cuuqekc\qp'hqt'\y g'dguv'\tcpurc\qp'htqo "Htgpej 0

 $\begin{tabular}{ll} \textbf{UNFPG[.'Oct{"*A377763843+0'C"ogodgt"qh''yg''tgpqypgf"]Unfpg{'hcokn{"*Rjkrkr"Unfpg{'ycu''jgt''dtqygt+''cpf''cp''korqtvcpv''rksgtct{'rcvtqp0'Ujg''tcpurcvgf''Rgvtctejøu''÷Vtkqphq''fgnc''Oqtvgø'*e6822+''cpf''Rjkrrrrg''Fw''Rrguuku''Oqtpc{øu''÷Guuc{''qp''Nkrg''cpf''Fgcyjø'*37;5''cpf''3822+0'Ykj''Rjkrr.''ujg''rtqfwegf''xgtukqpu''qh''yg''Rucrou.''eqorpgkpi''yg'yqtm'chvgt''jku''fgcyj0 \\ \end{tabular} \label{eq:controller}$ 

VTGXKUC.'Lqj p'qhi\*354863634+0'Hgmqy ''qhi'wy q''Qzhqtf "Eqmgi gu''\*358469; +.''y j gtg''j g''j cf ''enqug''cuuqekcvlqpu'' y kij ''Y {enkh''cpf ''J gtghqtf 0'Cu''Xkect''qh'Dgtmgng{.'j g''r tqf wegf.'hqt''

y g'F wng'qh'Dgtngg{."tcpurcwlqpu'qh'J ki f gpøu'Rqn(ej t qpkeqp'\*35: 9+"y g'F g'Rt qrt kgw kdwu'T gt wo "qh" Dctyi qnqo gy "y g'Gpi rkuj o cp'\*35; : +"cpf "y g'F g'T gi ko kpg'Rt kpekr wo "qh'I krgu'qh'T qo g0J ku''tcpurcwlqp"qh" J ki f gp."eqpvckpkpi "r tqnqi wgu'qp''tcpurcwlqp."y cu'r tkpvgf "d{ "Eczvqp="qh'Dctyi qnqo gy ."d{ "f g"Y qtf g0 V[ PF CNG."Y knkco "\*36; 663758+0'Gpi rkuj "tcpurcvqt"qh'y g"Dkdrg0J ku''tcpurcwlqpu'y gtg''dcppgf "kp'Dtksckp" cpf "j g"j cf "vq'r wdrkuj "j ku''tcpurcwlqp"qh'y g'P gy "Vguvco gpv'kp"Eqnqi pg"cpf "Y qto u0'V{ pf crg'y cu'hkpcm{" cttguvgf "kp'Cpw gtr "kp"3757"cpf "ttkgf "cv'y g'Ecuvrg"qh'Xkrxqtf g'kp"3758."y j gtg"j g'y cu'vqtwtgf "y gp"gzgewgf 0' kp"cf f kkqp"vq"j ku''Dkdrg''tcpurcwlqpu."V{ pf crg'cnuq "f gdcvgf "tgrki kqwu'cpf "rksgtct { "s wguvkqpu'kp"r tkpv'y kj "Ukt" Vj qo cu'O qtg"cpf "tcpurcvgf "y g"Gpej kt kf kqp"O krkktu'Ej t kurkcpk'qh'GTCUO WU'\*r tkpvgf "3755="ugg"F WVEJ " VTCF WKOP +0

V[ VNGT.'Cnzcpf gt 'Ht cugt "\*396: 63: 35+0'Ueqwkij "rey {gt"cpf 'Rtqhguuqt "qh"J kurqt { "cv"Gf kpdwti j " Wpkxgtukx{0'Vj g"htuv'xgtukqp"qh"y g"Guuc{"qp"y g"Rt kpekr rgu"qh!Vt cpurc vkqp"\*39; 3+"y cu"r tgugpvgf "kp"ngewtgu"vq" y g"Tq{cn"Uqekgv{"f wtkpi "39; 2"cpf "r wdrkuj gf "cpqp{o qwun{0'V{ vrgt"o qxgf "kp"y g"uco g"uej qrctn{"ekterg"cu" I gqti g"Eco r dgm="hqmqy kpi "vj g"Guuc{øu"r wdrkecvkqp."Eco r dgm!y tqvg"vq"y g"r wdrkuj gt "vq"cumikh"V{ vrgt"j cf" r rci kctk gf "o cvgtkcn!htqo "j ku"+Rtgrko kpct { "F kuugtvcvkqpø'vq"j ku"vtcpurcvkqp"qh"y g"I qur gnx-"cp"cev"f gpkgf "d{" V{ vrgt0'Vj g"Guuc{"y cu"vtcpurcvgf "kpvq"I gto cp"\*39; 5+"cpf "tgr tkpvgf "kp"Gpi rkuj "o cp{"vko gu0'J g"cnuq"vtcpurcvgf" ugxgp"uqppgvu"qh"Rgvtctej "\*39: 6+"cpf "Uej krrgtøu"Tqddgtu"\*39; 4+"vj g"rcvgt"y g"o quv'uveeguuhvri'qh"hqwt" eqo r gvkpi "xgtukqpu"kp"y g"r gtkqf 0

TQI GT'GNNKU'CPF''NK, 'QCMNG[/DTQYP

# Dwi ctkp'ttcf kkqp

# Vj g'o gf lgxcni gt lqf < plpvj 'vq'hqwt vggpvj 'egpwt lgu

 $O\ gf\ kgxcn'Dwi\ ctkcp''rkxgtcwtg''y\ cu''hqwpf\ gf\ ''y\ ky'\ ''y\ g''tcpurc'kqpu''qh''E[\ TKN''cpf\ 'O\ GVJ\ QF\ KWU''kp''y\ g''pkpy'' \ egpwt\{0$ 

Vj g"{qwpi "Urcxqpke"urcvgu"kp"\j g"ctgc"y gtg"i tcf wcm{ "eqpxgtvgf "vq"Ej tkukcpk\{ "cu"\j g"tkxcnt { "dgw ggp"Tqo g" cpf "Eqpuvcpvkpqr ng"i tgy 0 kp"\j g"pkp\j "egpwt { ."\j g"pgy n{ "guvcdrkuj gf "Dwri ctkcp"urcvg"hgm\'\j g"ur ktkwcn'pggf "hqt" gprki j vgpo gpv."c"\y tkwgp"ewnwtg"cpf "cp"cm j cdgv='\j ku'y cu"cnuq"\twg"qh'q\j gt "Urcxqpke"r gqr ngu0 Vj g"Urcxqpke1 E{tkrike"cm j cdgv'etgcvgf "d{ "\j g"w q"dtq\j gtu"E{tkricpf "O g\j qf kwu"

 $rm \{gf "c"o clqt"tqng"lp" iy lu"r tqeguu0"V j g"Qnf "Dwni ctlcp" iksgtct \{ "mpi wci g"y cu"dcugf "qp" iy g"xgtpcewrct" qh" iy g"Dwni ctlcp" Umxu0"K rgthqto gf "iy g"hwpewlqp" qh" c"eqo o qp" y tkwgp" mpi wci g"hqt" cm"Umxqple" rgqr ngu" cpf "ugtxgf" cu" c" cu" c" wci gv" mpi wci g"hqt" vcpurcwlqp. "kttgur gewlxg" qh" y j gi gt" iy g"uqwteg" vgzv" y cu" lp" I tggni kxgp" iy cv'o cp { "cfqr vgf" iy g"Gcuvgtp" Qt yi qfqz "hckj + "qt" Ncwlp" hqt" iy qug" y j q"lqlpgf" iy g"Ecyj qnle" ej wtej +0 E { tkn'cpf "O gyi qf kwu" wugf" iy g"pgy "crr j cdgv hqt" iy g"hktuv' vtcpurcwlqpu" htqo "I tggni'qh" iy g"P gy "Vguvco gpv." iy g"$ 

Rucm u." y g'Cr quwgu." ugrgevgf "ej wtej "o cuugu." cu'y grilcu'dqqmu'qh'xctkqwu'i gptgu'cpf "uv{ rgu." hqt "gzco r rg"  $Pqo\ qecpqpg'$ " Vj g'Ncy "qp'Lwf i kpi "Rgqr rg="c'hgi cri't gcvkug+" cpf " $Rc\ vgt\ ke$ ." c'eqnrgevkqp" qh'guuc {u'qp'i gpgtcri' vqr keu0 Vj gkt'i tgcvguv'hgcv." j qy gxgt. "y cu'y g'tcpurcvkqp" qh'y g'Dkdrg' y ky "y g'gzegr vkqp" qh'y g'O ceecdggu = y ku'tcpurcvkqp" r rc {gf "cp'ko r qtvcpv'tqrg'kp'f gxgqr kpi "Urcxqpke' ewrwtg0"

Vj g'y qtm'qh'E {tkn'cpf 'O gyi qf kwu'eqpukwwgf 'c'ewmwtcn'r tqlgev'qh'gpqto qwu'f lo gpukqpu0'K'r tqxgu''y cv' vtcpurckqp''ecp'kpuki cvg''gpf wtkpi ''ej cpi gu'kp''y g'ewmwtcn'o cngwr ''qh'c'pckqp0'Vj g'etgckqp''qh''y g'Urcxqpke'' cn' cdgv'cpf ''y g''tcpurckqp''qh'y g'Ej tknkcp''Uetkr wtgu'kpvq'Qnf 'Dwi ctkcp''j cf ''c'pwo dgt''qh'ko r qtvcpv' eqpugs wgpegu0'Hktuv.''kv'dtqng''y g'f qi o c''qh'vtkrkpi wcn'ej wtej ''ugtxkeg'\*J gdtgy .''I tggn'cpf ''Nckp+.''y wu'ngcf kpi ''vq'' y g'tgeqi pkkqp''qh'y g''Urcxqpke''rcpi wci g''cu''cp'ko r qtvcpv''grgo gpv'qh'Gwtqr gcp''Ej tknkcp''ewmwtg0'Ugeqpf .''kv'' s wgurkqpgf ''y g''tgs wktgo gpv'hqt''rkgtcn'vtcpurcvkqp''qh'y g''Dkdng''cpf ''o cf g''r quukdng''c'pwo dgt''qh'ej cpi gu'y ky kp'' Ej tknkcp''ewmwtg.''y gtgd{ ''gpcdrkpi ''y g''Urcxqpke''ewmwtg''vq''o cng''y g'tgrgxcpv''eqppgevkqpu'y ky ''ku''qy p''cpekgpv'' vtcf kkqpu''cpf ''ur gekhe''y qtnf ''xkgy 0'Cpf ''hkpcm( .''d{ ''vtcpurcvkpi ''y g''Dkdng''cpf ''qy gt''tgrk kqwu'y qtmu''kpvq''Qnf '' Dwi ctkcp.''E {tkn'cpf 'O gyi qf kwu''etgcvgf ''c''r gthgev'ewnwtcn''r tqf wev'kp''c''ncpi wci g'y j kej ''j cf ''pqv''r tgxkqwun( ''j cf '' cp{ ''y tkwgp''yzxu0'}

E{tkrl'cpf 'O gyi qf kwu''y wu'hqwpf gf ''y g'hktuv'uej qqrl'qh''vcpurcvkqp'kp''Dwri ctkc. 'cpf ''y gkt''y qtml'r tqxkf gf 'c'' uvcpf ctf 'hqt''qyi gt''vcpurcvqtu'f wtkpi ''y cv'r gtkqf 0'Vj g'kphrwgpeg''qh'y gkt''i tgcv'ewnwtcrl'r tqlgev'y cu.''j qy gxgt.'' eqphkpgf ''vq''Dwri ctkc="kp''y g''Urcxqpke''tgi kqpu''wpf gt''y g'Ecyi qrke''ej wtej .''y g'kf gc''qh'r gthqto kpi ''y g''tkwti { ''kp'' y g''Urcxqpke''rcpi wci g'tgo ckpgf ''wpceegr vcdrg0'Gzr grugf 'htqo ''O qtcxkc.''E { tkrl'cpf ''O gyi qf kwuø'f kuekr rgu''eco g''vq'' Dwri ctkc''cpf ''eqpvkpwgf ''y gkt'y qtrn'y kj ''y g''uwr r qtv'qh''y g''Dwri ctkcp''vuctu0

Y g"j cxg"pq"uwduvcpvkcn"gxkf gpeg"hqt"yi g"gzkuvgpeg"qh"lpvgtr tgvgtu"lp"Dwi ctlc"f wtlpi "yi g"O kf f ng"Ci gu0'
J qy gxgt. "y g"f q"mpqy "yi cv"Cpcuvcukwu"Nkdtctkcp"\*CF": 226: 2+"c"Tqo cp"engti {o cp"cpf "y tkvgt."cevgf "cu" kpvgtr tgvgt"hqt"yi g"Tqo cp"Rqr g"y j gp"Tqo g"cwgo r vgf "vq"eqpxgtv"yi g"Dwi ctlcpu"vq"Ej tkuvkcpkv{"cpf "y j gp"E{tkrl" cpf "O gyi qf kwu"xkuksgf "yi g"Rqr g0Kpf ktgev"gxkf gpeg"hqt"yi g"wug"qh"lpvgtr tgvgtu"o c{"cnuq"dg"f tcy p"htqo "yi g"Ncvkp" engti {øu'uvkr wrcvkqp"yi cv"E{tkrl'cpf "O gyi qf kwu."cu"y gm"cu"yi gkt"f kuekr ngu. "r tgcej "qpn("kp"Ncvkp."y j kej "ko r nkgu" yi cv"yi gkt"ugto qpu"y gtg"kpvgtr tgvgf "kpvq"Dwi ctlcp"hqt"yi g"cwf kgpeg0

#### Uej qqnu'qh'st cpurc skqp 'kp 'b gf kgxcnDwni ct kc

Htqo ''y g''pkpy ''\q''y g''grgxgpy ''egpwt { ''y g''tcpurc\qp''tcf kkqpu''guvcdrkuj gf ''d { ''E { tkri'cpf 'O gyj qf kwu'hrqwtkuj gf '' kp''Qj tkf c''cpf ''Rtgurcx.''y g''rksgtct { ''egpvtgu''qh'hgwf cri'Dwri ctkc.''y j gtg''y g''f kuekr rgu''qh''y g''y q''dtqy gtu''ecttkgf '' qwv'kpvgpukxg''rksgtct { ''tcpurc\qp''cpf ''gf wec\qqpcn'y qtm\0Cnj qwi j ''qr gtc\qpi ''y ky ''cp'\f gp\qecn'rcpi wci g.''y g'' uej qqru''qh''\tcpurc\qp''y j kej ''gxqrxgf ''kp''Qj tkf c''cpf ''Rtgurcx''y qtrngf ''y ky ''f khrgtgp\v'i gptgu.''go r rq { gf ''f khrgtgp\v' o gyj qf u''

```
qh'vtcpurcvlqp"cpf "eqpugs wgpvn{ "f gxgrqr gf "f kthgtgpv'cvkwvf gu'vq'vj g'I tggm'uqwteg"vgzvu0Vj g'vgpukqp"dgw ggp" yj g'htgg"crrtqcej "qh'vj g'Qj tkfc'uej qqn'cpf "vj g'hqto cn'crrtqcej "qh'vj g'Rtgurcx'uej qqn'j cf "c'tqrg'vq'r rc{"kp" uj cr kpi "vj g'Qnf "Dwri ctkcp'ewnwtg."yj kej "rtqxgu'vj cv'cvkwvf gu'vq"vtcpurcvkqp"ecp"i gpgtcvg"f kthgtgpv'ewnwtcn'cpf "kf gqmi kecn'r ctcf ki o u'vj cv'tghrgev'vj g'y qtnf "xkgy "v{r kecn'qh'c'egtvckp"gr qej 0
```

Kp''y g''Qj tkf c'uej qqn'\"ncvg''pkpy ''egpwt \\ + 'kp''y g''uqwj /y guv'qh'Dwi ctkc.''ej wtej ''dqqmu''y gtg''\tcpurc\gf ''htqo ''

I tggn0'Vj g''r tgxcrgpv''cr r tqcej ''y cu''qpg''qh'htgg''\tcpurc\qqp0'Y j krg''tgeqi pk kpi ''gs wkxcrgpeg''qh'o gcpkpi ''cu''y g''

wnko cvg''qdlge\xg.''r tghgtgpeg''y cu''i kxgp''\q''htgg''\tcpurc\qqp''kp''\gto u''qh''u\{pvcz''cpf ''y qtf ''qtf gt.''cpf ''y g''\wg''qh''

f guetkr \kxg''\untcvgi kgu''y cu''cmqy gf 0'Vj g''y qtm'qh''Enko gpv''qh''Qj tkf c'\"\eq0 626; 38+.''hqwpf gt''qh''y g''Qj tkf c'\"\eq0 qqn''

knwuxtcvgu''y ku''cr r tqcej 0'J ku'\tcpurc\qqpu''qh''D\{| cp\qqp''y tkgtu''uwej ''cu''Lqj p''Ej t\{uquvqo ''cpf ''Lqj p''F co cuegpg.''

cu''y gm''cu''xctkqwu''tgrki kqwu'\qz vu''cpf ''ugto qpu.''\qqm''y g''hqto ''qh''\qq''y cymkpi uo'qh'o qtcn'u\qtkgu0

Vj g''Rtgurcx''uej qqn'qh'\tcpurc\qqp''y cu''cnuq''guvcdrkuj gf ''cv''y g''gpf ''qh''y g''pkpy ''egpwt\{.''kp''y g''pqtyj /gcuvgtp''r ctw''

qh'Dwi ctkc='Rtgurcx'ku'iy g'ecr kcn'ek{ "qh'iy g'hktuv'Dwi ctkcp'mkpi f qo 0'Vj g'Rtgurcx''tcpurcvqtu'itkgf "vq'uvc{"cu" enqug''cu'r quukdrg''vq''y g'I tggmi'qtki kpcnı'cpf "vq''cej kgxg''gs wkxcngpeg''qh'o gcpkpi "d{ "tgr tqf wekpi "y g" o qtr j qmi kecn''u{pvcevke''cpf "y qtf/hqto cvkqp''r gewrkctkxkgu''qh'iy g''qtki kpcn'I tggmi'u{pvcz.''gxgp''y j gp''y ku''o gcpv'' xkqrcvkpi "y g''pqto u''qh'Qrf 'Dwri ctkcp0

Qpg'qh'y g'dguvmpqy p'tcpurcytu'f wtkpi "y ku'r gtkqf "y cu'Iqj p'GZCTEJ ."y j q'\{r kecm{ 'kpygto kzgf " vcpurcyqpu'y kj "j ku'qy p'etgcykzg'y qtn0J ku'o quv'ko r qtcpv'ytcpurcyqpu'y gtg"Uz "Fc{u"c'eqo r kreyqp'htqo " ugxgtcnID{| cpykpg'cwj qtu'y j kej "f guetkdgf 'y g'Ej tkrycp'equo qi qp{ "cpf "y g'cej kexgo gpwi'qh'uekgpykhke" y qwi j v."cpf "y g'r j knqur j kecn'y qtm'Uqweg'qh'Mpqy ngf i g'd{ 'Iqj p'F co cuegpg." r ctv'qh'y j kej "y cu'mpqy p'y Qnf 'Dwi ctkcp'hygtcwtg'wpf gt 'y g'ykng''-J gcxgpø'qt''-Vj gqnqi {ø0Kp'y g'r tghcegu'y q'y gug'yy q'ytcpurcydqpu."Iqj p'' Gzctej "gzr tguugf "j ku'y gqtgykecn'xkgy u'qp'y g'y c{ 'kp'y j kej "I tggni\gzwi'j cf "q'dg'ytcpurcyf 'kpyq'Dwi ctkcp'cpf " qp'y g'r tceykeg'qh'eqo r kreyqp."Kg0dqttqy kpi "o cytkcnhtqo "qy gt "cwj qtu0Vj g'kf gc'y cv'y j cv'o cwgtu'ku'y g'' vcpurcydp''qh'y g''o gcpkpi 'tcy gt'y cp''o gtg'uqwpf u'rc{ "cv'y g'' gctv'qh'y g''htuv'Dwi ctkcp''cpf "Urcxqpke'y gqt{ "qh'' vcpurcydp''gzr qwpf gf "d{ 'Iqj p'Gzctej 0J g'tglgevgf 'y qtf/hqt/y qtf 'ytcpurcydp''cpf 'xgtdqug''gzr rcpcydpu''cu'' f gxkcydpu'htqo "y g''qtk kpcn'cpf "wti gf 'ytcpurcyqtu''q''cko 'hqt''gs wkxcngpeg''qh'o gcpkpi u0
F wtkpi "y g''y tgg''egpwtkgu'y j kej 'hnmqy gf "y g''tgki p''qh'Vvct''Uko gqp''\*: 866; 49+"y gtg'y cu''pq''ur gekhke''uej qqn'' y kj 'wpkhqto "r tkpek rgu''qt''eqpegr wcnk gf 'cykwxf g''q''tcpurcydp0'Vj g''qxgtcm''gpf gpe{ "y cu''q''tcpurcyg'kpq''cp'' layur'' layur'

Cwgo r wi'vq'r wti g'y g'j qn( 'dqqmu'qh'Ej tkuvkcpkx( 'htqo 'j gtgukgu'cpf 'f kuvqtvkqpu'dgi cp'kp'y g'y ktvggpy ''cpf '' eqpvkpwgf 'kp'y g'hqwtvggpy ''egpwt { .'r ctvkewrctn( 'kp'y g''Vwtpqxq''

uej qqrll'Vtcpurcvqtu'y gtg'wti gf 'vq'tgxkgy 'vj g'gzkrvkpi 'vtcpurcvkqpu'qh'vj g'ej wtej 'dqqmu.'dw'kp'qtf gt'vq'f q'vj cv' yj g{ 'pggf gf 'c'÷r wtgø'rkvgtct{ 'rcpi wci g0Go r j cuku'qp''ceewtce{ 'rcpf 'vj g'wug'qh'tghkpgf 'xgtdcrlhqto u'o gcpv'vj cv'c'' xgtucvkrg'rkpi wkrvke''xgj kerg'y cu'pggf gf 'vq'tgpf gt''uwej 'hgcwtgu'qh'vj g''qtki kpcrl'cu'r tquqf ke''ghhgew''cpf 'r rc{u'qp'' y qtf u'y kyj 'vj g''uco g''tqqv0'Vj g''cpuy gt''hqt'vj g''Vwtpqxq''uej qqrl'vtcpurcvqtu'y cu''vq''f grkdgtcvgn{ 'tgrtqf weg''I tggm'' y qtf ''qtf gt''cu''c''y c{ ''qh''crrtqzko cvkpi ''vj g''pqto u'qh'I tggm'cu'c''j ki j ''ewrwtcn'o qf grl'cpf ''qh''f tcy kpi ''qp''c''r qqrl' qh'uj ctgf ''gzr gtkgpeg''cpf ''cguvj gvke''crrtgekcvkqp0

Kp" i g"r tqeguu"qh"r tgr ctkpi "i g"pgy "tcpurc kqpu"qh" i g"Qevqkej ."r qgvke"cpf "j qn( "vgz vu." j {o pu."r cpgi {tkeu." ugto qpu"cpf "ur ggej gu." i g"pgy "i gqtgvkecn"r tkpekr rgu"qh" vcpurc vkqp" f gxgmqr gf "kp" ceeqtf cpeg" y kj "i g"ej cpi kpi "rkwti kecn" cpf "cguvj gvke" tgs wktgo gpvu"qh" i g"hqwt vggpyj "egpwt { ."y kj qw" cdcpf qpkpi "E {tkh"cpf "O gyi qf kwuø" vcf kkqp"qh" kki hwpguu "vq" o gcpkpi 0"Vj g"pgy "cwkwf g"vq" o gcpkpi "hqwpf "ku" cguvj gvke" tgcnk cvkqp" kp" vcpurc vkqpu" dcugf "qp" gwr j qp { "cpf" pgqmi kuo u0" cu"c" tguwn "qh" y ku" uwduvcpvkcn" ewrwt cn"r tqlgev "Dwri ctkc" qwuvt kr r gf "Y guvgtp" Gwtqr g"kp" ku"rkpi wkuvke" f gxgmqr o gpv" f wtkpi "y g"y kt vggpyj "cpf" hqwt vggpyj "egpwt kgu0" Y j krg" y g"qhhkekcn" Gwtqr gcp" ewrwt g"qh" y g"rcyg" O kf f rg" Ci gu'uvkm" hckrgf "vq" tgeqi pk g"y g"xgtpcewrt" rcpi wci gu. "Dwri ctkc" j cf" f gxgmqr gf "c"rkvgtct { "rcpi wci g"qh" kwu"qy p. "guvcdrkuj gf "c"u {uvgo "qh" ercuukecn" pqto u"cpf" r gthgevgf" y go "qxgt" c" r gtkqf" "qh" ugxgtcn" egpwt kgu0

Qpg"qh"yi g"o ckp"\tcpurc\kqpu"qh"yi g"V\ttpqxq"\tej qqn"y cu"yi g"Ejtqpkerg"qh"Eqpuvcp\kp"O cpcuk\tu"qh"yi g"\ty grhyi " egp\tm\{ ."y tk\tmyp"kp"j ki j n\{ "ko ci kpc\tmyg"cpf "grqs \twgpv\'xgtug0\'Vj g'\tcpurc\kqp"y cu"o cf g'\hqt"\Vuct"\Kxcp'Crgzcpf gt" kp"3557680\Crnj q\ti j "pq\'eqo r qugf "kp"\xgtug'\hqto ."\yi g"\tv\{ rg'\qh'\yi g'\tcpurc\kqp"\ku"j ki j n\{ "r qg\ke0}

# Qıf 'Dwi ct kcp'tt cpurc vkqpu'r t kqt 'tq'tj g'gki j vggpvj 'egpvwt { < 'qxgt xkgy

Kp"35; 8. "Dwi ctkc"hgm"wpf gt "hkxg"egpwtkgu"qh"Qwqo cp"Vwtmkuj "twrg0Vj gtg"y gtg"pq"o clqt "tcpurcvkqpu"f wtkpi "
y g"ugeqpf "j crh"qh"y g"hqwt yggpyj "egpwt { "cpf "y g"hkhvggpyj "egpwt {."y qwi j "cv"uqo g"egpytgu."uwej "cu"y g"Tkrc"
O qpcuvgt {."eqr { kuvu"cpf "tcpurcvqtu"tkgf "vq"r tgugtxg"tcpurcvgf "rkxgtcwtg0Kdy cu"pqv"wpvkri'y g"ukzvggpyj ."cpf "
gur gekcm( "y g"hqmqy kpi "y q"egpwtkgu."y cv"tcpurcvkqp"y cu"r wtuwgf "cevkxgn( "qpeg"ci ckp0
Vj cv"rcuv"uvci g"qh"y g"j kuvqt { "qh"Qrf "Dwi ctkcp"tcpurcvgf "rkxgtcwtg"ku"mpqy p"hqt "y g"r qr wrct "tcpurcvkqpu"qh"c"
eqmgevkqp"qh"tgrki kqwu"ugto qpu"d { "F co cuegpg"Uwf kx"c"ukzvggpyj /egpwt { "I tggm"y tkxgt="y gug"y gtg"y tkwgp"kp"
y g"xgtpcewrct"I tggm"cpf "r wdrkuj gf "kp"j ku"dqqm"Vt gcuwt { 0"Mpqy p"cu"y g"F co cuegpgu "y g"tcpurcvkqpu"dgi cp"c"
pgy "ttgpf "qh"cf cr vkpi "yzvu"vq"y g"pgy "Dwri ctkcp"rcpi wci g"y tqwi j "gzvgpukxg"wug"qh"y g"xgtpcewrct0Vgp"
tcpurcvkqpu"qh"y gug"yzvu"y gtg"r tqf wegf "kp"f khtgtgpv"Dwri ctkcp"f kcrgewu0

Vj g'F co cuegpgu'y gtg'hcvgt'o qf khlgf 'kp'vj g'gki j vggpvj 'egpwt{ "d{ 'kpvtqf wekpi 'pqp/ecpqpkecn'hkgtct{ 'tgcf kpi u' kpvq''y g'eqmgevkqp0'Vtcpurcvqtu'ugngevgf 'cpf 'cf f gf 'ugewrct''vgz vu.'y j kej 'i tcf wcm{ 'cwtcevgf 'o qtg'kpvgt guv''y cp'' o qtcn'cpf 'tgrki kqwu'ugto qpu0'Qtki kpcnu'y gtg''cf cr vgf 'vq'uwkv'y g'Dwri ctkcp''eqpvgz v.'uq''y cv'vtcpurcvkqpu''pqy 'ugv'' qw''vq''guvcdrkuj ''pgy 'tgrcvkqpuj kr u''dgwy ggp''y tkgtu''cpf ''tgekr kgpvu0

Ki'ku'r gtj cr u'y qtyj 'uwo o ctk kpi ''y g''o ckp''hgcwtgu''qh''\tcpurc\kqp''ce\kxk\{ ''r tkqt''\q''y g''gki j \yggpyj ''egpwt { ''cv''y ku'' r qkpv.''cpf ''dghqtg''r tqeggf kpi ''\q''f kuewuu''\tcpurc\kqp''f wtkpi ''y g''Dwri ctkcp''tgpckuucpeg0

Hktuv. 'tcpurcvkqp'y cu'c'tcy gt''dtqcf 'eqpegr v0'Vtcpurcvkqpu'y gtg'kpvgi tcn'r ctw'qh'y g'pcvkqpcn'rksgtcwtg0'Ukpeg" y gtg'y cu'rkwrg'tgur gev'hqt''cwj qtuj kr 'kp''y g'O kf f rg''Ci gu. 'gxgp''qtki kpcn'vgzwi'kpeqtr qtcvgf ''tcpurcvgf ''grgo gpw'' cpf ''dqttqy gf ''kf gcu. 'ko ci gt { ''cpf 'r rqw0'Qrf 'Dwri ctkcp''tcpurcvqtu'y gtg''cnuq'y tksgtu''cpf ''tcpurcvkqp''y cu'' eqpukf gtgf ''cp''cev'qh''eq/cwj qtuj kr ''cpf ''eq/gf kkpi 0'Ki'ku''y gtghqtg''ko r quukdrg''vq''f tcy ''c'tki kf ''f kurkpevkqp''dgw ggp'' qtki kpcn''cpf ''tcpurcvgf ''rksgtcwtg''f wtkpi ''y ku''r gtkqf 0'Vj gtg'y cu''pq''uxtkev''dqwpf ct { ''cpf ''y ku''cmqy gf ''kpvgto kpi rkpi ''qh''y g''w q''v{r gu''qh''etgcvkxg''y qtn0'P gxgtyj grguu. ''rksgtct { ''tcpurcvkqp''gzkuvgf ''cu''cp''kpf gr gpf gpv'' uxtwewtcn''grgo gpv''hp''y g''u{ uvgo ''qh''Qrf ''Dwri ctkcp''rksgtcwtg0

Ugeqpf. '\tcpurcvgf 'rkvgtcwtg'\ugtxgf 'pqv'qpn( 'Dwi ctkcp'\tgcf gtu'\dw'\cnq'\ur tgcf 'co qpi '\yi g'\qyi gt'\uqwi gtp'\cpf '' gcuvgtp'\Urcxu. 'gur gekcm( 'Twuukcpu. 'Wntcpkcpu. 'Ugtdu'\cpf . 'rcvgt 'qp.''

Tqo cplcpu0J cxlpi "go gti gf "c"egpwt { "gcthgt."Qrf "Dwi ctlcp"hkgtcwtg"r tqxlf gf "yj g"hqwpf cklqp"hqt"yj g" nkgtcwtg"y j lej "cm"uqwj gtp"cpf "gcuvgtp"Urcxu"y gtg"\q"uj ctg"kp"f wg"eqwtug0K/y cu'yj g"o gf kcklpi "hkgtcwtg."kp"c" o gf kcklpi "rcpi wci g."dgw ggp"yj g"D{| cpvkpg"ewnwtg"cpf "yj g"Urcxu."cp"gzr qpgpv'qh'yj g"O gf kgxcn'ekxlrk cklqp" y j qug"o kuulqpct { "dcuku"y cu'uwr r qtvgf "d{ "tcpurcvlqp="j gpeg"ku"cm/Urcxqpke"cpf "kpvgtpcvlqpcn'ko r qtvcpeg0 Hlpcm(."r tkqt "vq"yj g"Tgpckuucpeg."pq"qyj gt "Gwtqr gcp"r gqr rg"eco g"cu"enqug"vq"yj g"cpekgpv'I tggmir j knquqr j gtu"cu" yj g"Dwi ctlcp"tcpurcvqtu0P gki j dqwtkpi "D{| cpvkwo "i cxg"Qrf "Dwi ctlcp"hkgtcwtg"ku"qxgtcm'ctvkuvke"kf gpvkv{."ku" qy p"v{ r g"qh"etgcvkxg"r gtegr vkqp."i gptgu"cpf "r qgvke"xkulqp"cpf "r tqxlxf gf "eqpvcev'y kj "Qtlgpvcn'hkgtcwtgu0Nlpmu" y kj "yj g"Ecyj qrke"Y guv."qp"yj g"qyj gt"j cpf."y gtg'xgt { "y gcm'f wkpi "yj g'O kf f rg"Ci gu0
KVku"f khhewn'vq"eqo r ctg"Qrf "Dwi ctlcp"cpf "Y guvgtp"Gwtqr gcp"hkgtcwtgu"kp"yj gkt"o gf kgxcn'hqto u0Vj g"y q" nkgtcwtgu"f gxgrqr gf "wpf gt "f khhgtgpv'j kuvqtlecn'eqpf kklqpu"cpf "qp"yj g"dcuku"qh'f khhgtgpv'r j knquqr j kgu"cpf "cguy gwle"xcnwgu0Vj gtg"ctg"yj gtghqtg"hwpf co gpvcn'f khhgtgpegu"dgw ggp"yj g"y q"urtgco u"qh'D{| cpvkpg"Qtyj qf qz" cpf "Y guvgtp"Gwtqr gcp"kecrg"kp"yj g'kj j vggpyj "egpwt {0

# Vj g'Dwi ctk:p'tgpcku::peg<'gki j vggpvj 'cpf 'pkpgvggpvj 'egpwtkgu

Vj g'Dwi ctkcp'tgpckucpeg'ku'i gpgtcm(''y qwi j v'vq'j cxg'uvctvgf'y kyj ''y g'r wdrkecvkqp'kp'3984''qh''*Ucxqpke'' Dwi ctkcp''J kwqt {* ''d { ''Rcku { k'qh'Ej krgpf ct'\*3944695+.''o qpm'cpf ''gprki j vgpgt0'Vtcpurcvkqp'hqmqy gf''y g''i gpgtcn'' f gxgmr o gpv'qh'Dwi ctkcp''rkvgtcwtg'f wtkpi ''y g''gki j vggpyj ''egpwt { ''dw'y cu''ej ctcevgtk gf''d { ''c''pwo dgt''qh'' f krvkpevkxg''hgcwtgu0

Vtcpurckqp'f wtkpi ''y g'Dwi ctkcp'tgpckucpeg'cunwo gf 'c'pgy 'hwpekqp'cu'o gf kcyqt'dgwy ggp'o gf kgxcn'cpf '' o qf gtp'ikgtcwtg0Vj gtghqtg'o cp{ "-pgy ''tcpurckqpuø'cr r gctgf .'hqt 'gzco r rg''*Crgzcpf tkc*'\*c'j gtqke'hkekqpcn'gr ke'' cdqw'Crgzcpf gt'qh'O cegf qpkc=39; 8+'cpf 'c'eqmgekqp'qh'gzegtr w'htqo ''y g''*Ctcdkcp'Pki j w* ''y j kej ''j cf'hktw'' dggp'tcpurcyf 'c'hgy 'egpwtkgu'gctrkgt'y ky ''y g'pgy 'tcpurcyqpu'wr f cygf ''q'tghrgev'y g'o qf gtp'kf kqo 0Vj gug'' w q''tcpurcykqpu'r tqxkf gf ''eqpykpwkk{''y ky ''y g''qrf ''rkgtcwtg''cpf ''ctg''y gtghqtg''eqpukf gtgf ''cu'o ctnkpi ''y g'' dgi kppkpi ''qh'rkgtct{ ''tcpurcykqp'f wtkpi ''y g''Dwi ctkcp'tgpckucpeg0'*Uqt kgu''cpf 'Vj qwi j w'*\*3: 24+''d{ ''Uqr j tqpkwu'' qh''Xtcvc'\*395; 63: 35+''o ctngf ''c'y j qrg''pgy ''wci g'lp'y g''f gxgrqr o gpv'qh'tcpurcykqpu'f wtkpi ''y g''gctn{ ''tgpckucpeg0'Vj ku'ku'c'eqngeykqp'qh'366'hcdrgu'qh'Cguqr ''r nwu'xctkqwu'pcttcykxgu0'J gtg.''y g''pgy ''o gf kcykpi ''hwpeykqp''qh''tcpurcykqp''y cu'ergctn{ ''wpf gtuvqqf ''q'kpenyf g'kpygtr tgykpi ''y g''qtki kpcn=cnuq.''y g''qrf ''hkgtct{ ''mpi wci g''y cu'dgi kppkpi ''q''wpf gti q''c'hwpf co gpycni'r tqeguu'qh''=f go qetcyk cykqpø0'Vj ku'eqngeykqp''tgr tgugpyu'y g''hkuv'cwgo r v'vq''f khtgtgpykcyg'uv{rkurke'ngxgnu'qh'y g''rcpi wci g''cpf ''y''cf lwuv'ytcpurcykqp''y g''r gekhke''i gptg''qh'y g''rqtki kpcn0

Dgw ggp"y g"gpf "qh'y g"gki j vggpy "cpf"y g"o kf f rg"qh'y g"pkpgvggpy "egpwt { ."vtcpurcvkqp"y cu'o ctngf "d { "c" i gpgtcn'vgpf gpe { "hqt"+Dwi ctkcpk cvkqpø"htgg"kpvgtr tgvcvkqp"cpf "rkvgtct { "tgxkukqp"qh"y g"qtki kpcn'vq"uvkv" Dwi ctkcp"pcvkqpcn"j kuvqtkecn'cpf "r u { ej qmi kecn'ur gekhkekkgu+0Vj ku'y cu'c"pcwtcn'tguwn'qh'y g"ewnwtcn'cpf " kf gqmi kecn'qxgtdwtf gpkpi "qh'vtcpurcvkqp<"f wg"vq"y g"urqy "f gxgmqr o gpv'qh'y g"Dwi ctkcp"kpvgmgewcn'² rkvg." qtki kpcn'y qtmu"f kf "pqv'dgi kp"vq"cr r gct"wpvkn'y g"ncyg"uvci gu"qh'y g"Dwi ctkcp"tgpckuucpeg0'kVy cu'vtcpurcvqtu'y j q" rckf 'y g"hqwpf cvkqpu"qh'o qf gtp"Dwi ctkcp"hkygtcwtg<"tgewttgpv'y go gu. "ko ci gu. "r mvu. "i gptgu. "xqecdwrct { ." uv/ rkvke"f kxgtukv/ ."gve0'Dwi ctkcp"ewnwtg"pggf gf "vq"rgctp"htqo "pgy "o qf gm"cpf "tcpuhqto "y go "kpvq"pcvkqpcn" qpgu0'Cu'r ctv'qh'y g"vgpf gpe { "vq"cf cr v'y g"qtki kpcn'vq"y g'tgcf gtøu'vcuvg. "vtcpurcvqtu"cnuq"dgeco g"ugo k/cwy qtu." f gxgmqr kpi "y g"eqpvgpv'qh'y g"qtki kpcn'cpf "cf f kpi "vq"y gkt"qy p"vgzv0

Htgpej. "I gto cp"cpf "Twukcp"ugpko gpvcn'hkgtcwtg"y cu'htgs wgpvn{":Dwi ctkcpk gfø"gur gekcm{"ukpeg"kv"r tqxkf gf" c"uwkcdrg"eqpvgzv'hqt"wukpi "y g"erkej ²u'y j kej "Dwi ctkcp"tgcf gtu"j cf "rgctpgf "htqo "ugto qpu."j ci kqi tcr j {"cpf" y g"F co cuegpgu0

Vtcpurcvkqpu'kpvq'Dwri ctkcp'y gtg'qhvgp''dcugf ''qp''kpvgto gf kcvg''xgtukqpu''kp''qvj gt''rcpi wci gu0'Vj ku''ecp''dg'' gzr rckpgf ''kp''vgto u''qh''c''rcem'qh''crr tgekcvkqp''qh''÷eqr {tki j w''cu''y g''npqy ''kv''vqf c{ "cpf ''y g''wti gpv''pggf ''vq''o cng'' eqpvcev'y kj ''ugxgtcn'Gwtqr gcp''rkvgtcwtgu''cv''j g''uco g''vko g0

Vj g'ugrge kqp'qh'\tcpurc kqpu'f gr gpf gf ''qp''y j cv'y cu'eqpukf gtgf ''wughwri \q''yj g''\cti gv'tgcf gt''

tcyj gt''y cp''qp''y g''ko rqtvcpeg''qh''y g''qtki kpcn'\gzv''kp''kxu''qy p''pc\kqpcn'eqpvgz\0'Vtcpurc\kqpu''guugp\kcm{'rtqxkf gf '' y g'Dwri ctkcp''tgpckuucpeg''ewnwtg''y kj ''kxu''dcuke''nkvgtct{''o qf gnu.''o qtg''ur gekhkecm{'y ky 'y qtmu''o gcpv''vq''vgcej '' j wo cp''xktwgu''qt''vq''rtgugpv''j kuvqtkecn'gxgpvu0

Ctqwpf "y g"o kf f rg"qh'y g"pkpgwggpy "egpwt { ."tcpurcvqtu"y gtg"r gqr rg"y j q"j cf "ces wktgf "c"j ki j "rgxgrlqh" gf weckqp"cpf "mpqy rgf i g"qh'y g"ewnwtgu"qh'xctkqwu"Gwtqr gcp"eqwpvtkgu0Vj g{ "y gtg"y gtghqtg"kp"c"r qukkqp"vq" f gxgqrr "cp"kpf kxkf wcn'cr r tqcej "vq"y g"qtki kpcnu"y g{ "y qtngf "htqo "cpf "vq"utkxg"vqy ctf u"cej kgxkpi "c"dcrepeg" dgwy ggp"y g"pggf "vq"r tgugtxg"y g"ctvkrxke"hgcwrtgu"qh'y g"qtki kpcn'cpf ."cv'y g"uco g"vko g. "r tqf weg"tgcf cdrg" vcpurcvkqpu0Kp"y g"eqpvgzv'qh"y g"Gprki j vgpo gpv."y g"r tcevkeg"qh":Dwri ctkcpk cvkqpø'kpgxkcdn("eqpvkpwgf ."dw'kv'i tcf wcm("i cxg"y c{ "vq"qyi gt"o gyi qf u"qh'vtcpurcvkqp0Vj g"i tcf wcn'f gxgqrr o gpv'qh'y g"pcvkqpcn'rcpi wci g"cnrq" r rc{gf "c"r ctv'kp"y ku"r tqeguu0Qh'r ctvkewrct"ko r qtvcpeg"y gtg"y g"vtcpurcvkqpu"d{ "y g"i tgcvguv'y tkxgtu"qh'y g"Dwri ctkcp'tgpckurcpeg."y j qug'vcrgpwu"gpcdrgf "y go "vq'wug'y g'hwn'r qvgpvkcn'qh'y g"rcpi wci g"%R0T Wrcxgknqx."N0 Mctcxgqqx."EOQqyx."P 0Dqpej gx"cpf "qyi gtu+0

F ksgtug"ypf gpekgu"f gxgrqr gf "kp"yj g"ej qkeg"qh"egtvckp"hqtgki p"hksgtcwtgu0\Qp"yj g"qpg"j cpf ."c"o wej "y kf gt"tcpi g" qh"hqtgki p"hksgtct{ "vgzw"dgeco g"npqy p"kp"Dwi ctkc<htgpej ."Twuukcp."I gto cp."Kcrkcp."Gpi rkuj ."Co gtkecp."

Ugtdkcp."I tggm"gve0\Qp"yj g"qyj gt"j cpf ."vtcpurcvqtu"j cf "o qtg"qr r qtwpkkkgu"vq"ej qqug"qtki kpcri'vgzw."f gr gpf kpi " qp"yj g"pggf u"qh"yj g"pcvkqpcrihkdgtcvkqp"r tqeguu0\Y tksgtu"qh"yj g"htgpej "Gprki j vgpo gpv."hqt"kpurcpeg."y gtg"

vtcpurcvgf "qp"c"o cuukxg"uecrg"\*dw"yj ku"f kf "pqv'uvqr "yj g"hrqy "qh'vtcpurcvkqpu"qh"Htgpej "ugpvko gpvcrkuvu+="yj g"uco g" cr r rkgf "vq"Twuukcp"rkxgtcwtg."y j kej "i tcf wcm{ "cuuwo gf "yj g"hwpevkqp"qh"o gf kcvqt"dgw ggp"yj g"Dwi ctkcp"cpf "

Gwtqr gcp"ewnwtgu0\Vj g"o quv'ko r qtvcpv'vtcpurcvqt"htqo "Twuukcp."R0TUNCXGKMQX"\*3: 496; 7+."y cu"qpg"qh'yj g" rgcf kpi "hki wtgu"qh"yj g"Dwi ctkcp"tgpckuucpeg0

Vtcpurcygf "cpf "qtki kpcn"r qgvt { "dgi cp"vq"cr r gct"uko wnxcpgqwun{ "f wtkpi "y ku"r gtkqf 0"Vj g"Dwri ctkcp"r qgvke" vtcf kkqp"f gxgqr gf "qwv"qh"y g"ygpukqp"dgw ggp"hqmmqtke"hqto u"cpf "y qug"qh"kco dke"r qgvt { 0"C "i tgcv"f gcn"qh" f kxgtukv{ "gzkuvgf ."cpf "uv{ rkuvke"cpf "o gvtke"kpvgtr tgvcvkqpu"xctkgf "ceeqtf kpi "vq"y g"vtcpurcvqtøu"qwmqqm"cpf " qdlgevkxgu0"Vj g"±gxkugf "vtcpurcvkqpuø"y j kej "y gtg"wpf gtvcngp"cv"y g"vko g"y gtg"kpf kecvkxg"qh"y g"rkvgtct { "cguvj gvkeu"qh"y g"r gtkqf 0

Uekgpvkhle"cpf "r qrkslecn'vtcpurcvkqp"kphrwgpegf "vj g"f gxgrqr o gpv'qh'pcvkqpcn'cy ctgpguu"cpf "tgxqrwskqpct { "kf gqrqi {0'Ki'f gxgrqr gf "kp"tgur qpug"vq"c"i tqy kpi "kpvgtguv'kp"vj g"kuuwgu"qh'i qxgtpcpeg."rcy."geqpqo keu"cpf "kp" o gf kecn'cpf "pcwstcn'uekgpegu0'Vj g"hktuv'Dwri ctkcp"uej qqrdqqm"Vj g"Hkuj "Rt ko gt."y j kej "y cu"y tkwgp"d { "Rgvgt" DGTQP"\*3: 22693+"cpf "r wdrkuj gf "kp"3: 46."eqpvckpgf "vtcpurcvkqpu"qh'3: "hcdrgu"qh'Cguqr "cpf "y qtmu"d { "cpekgpv" I tggm'cwj qtu0

 $\label{thm:problem:weighthe} White "transfer "transfer$ 

Rqrkkecn'ct kergu'y gtg''tcpurcyf 'cpqp{o qwun{.''cu''r ctv'qh''y g''untwi i rg''hqt''kpf gr gpf gpeg0'Uqo g''tcpurcykqpu''ugv'' qw''vq''i kxg''cp''ceewtcvg''tgpf gtkpi ''qh''kphqto cykqp'\*\*hqmqy kpi ''y g''qtki kpcn'y kyi qw''cp{ ''uwduvcpykcn'f gxkcykqpu\='' qyi gtu'vqqm'y g'hqto ''qh'htgg''kpvgtrtgvcykqp.''cff kpi ''eqo o gpvu.''gzrrcpcykqpu''cpf ''gxgp''crrgcnu'y j gp''y g''r wtrqug'' y cu''vq''cej kgxg''c''r ctykewct''r cykqyke''i qcn0

I kxgp''y g''ewnwtcn'cpf 'r qrkkecn'xcewwo 'y j kej 'tguwngf 'htqo 'hkxg''egpwtkgu''qh'Qwqo cp''twrg.''y g''Dwri ctkcp''
Tgpckuucpeg''y cu''hwpf co gpwm{ 'f khigtgpv'htqo 'f gxgrqr o gpwt'kp''y g'tguv'qh'Gwtqr g0'Kp''Dwri ctkc.''y g''xctkqwu''
f gxgrqr o gpv'uwci gu''qh''Gwtqr gcp''ekxkrk cwqp''j cf ''vq''dg''eqmcr ugf ''cpf ''cduqtdgf ''kp''c''xgt { ''uj qtv''ko g0'Qh''wo quv''
ko r qtwcpeg''f wtkpi ''y ku''r gtkqf ''y cu''y g''pggf ''vq''f ghgpf ''y g''Dwri ctkcp''kf gpwx{ ''cpf ''vq''ugctej ''hqt''cpf ''kf gpwkh{ ''y g''
tqqwu''qh''pcwqpcn'ewnwtg0'Vj ku''ukwcwqp''tguwngf ''kp''c'hwpewqpcn'qxgtdwtf gpkpi ''qh''tcpurcwqp.''y j kej ''j cf ''vq''
ugtxg''y g''wti gpv''pggf ''vq''ces wktg''dcuke''nkwgtct { ''cpf ''ctwkrke''o qf gnu''qp''c''rcti g'uecng=j gpeg''y g''eq/gzknvgpeg''qh''
vj g''y tgg''hqto u''qh''tcpurcwqp''f wtkpi ''y ku''r gtkqf .''pco gn{ ''Dwri ctkcpk cwqp.''CF CRVCVKQP ''cpf ''tcpurcwqp''
y kyj ''eqo o gpvct { 0

Vtcpurcvkqpu'i tcf wcm( 'gzr cpf gf 'vj g'j qtk qpu'qh'Dwi ctkcp'tgcf gtu='vj g'o gf kgxcn'i gptg'u{ uvgo 'y cu'pqy " uvr r rgo gpvgf 'y kyj "

ugpvko gpvcnkuv'ko ci gt {."r qr wrct"gf wecvkqpcn'o cvgtken"r gf ci qi kecn"j kuvqtkecn'epf "uekgpvkhke"\gz vu."vtcxgn'pqvgu" cpf "r qrkxkecn'y tkxkpi u."pqv'vq"o gpvkqp"vj g"ercuukeu"qh'Gwtqr gcp"cpf "pgki j dqwtkpi "Dcmrcp"ewnwtgu0'Dwi ctkcpu" f gxgmr gf "c"rcuvkpi "kpvgtguv'kp"T wuukep"rkxgtcwtg."y j kej "y cu'r gtegkxgf "cu'dqvj "vj g"o gf kcvkpi "rkpm'vq"Gwtqr gcp" ekxkrk cvkqp"cu'y gm'cu'vj g"o ckpuvc {"cpf "i wctcpvqt"qh'Dwri ctkcøu"Urcxqpke"tqqvu0'Kp"cf f kxkqp"vq"ko r qtvkpi "pgy " i gptgu"cpf "ko ci gt {."vtcpurcvkqpu"f wtkpi "vj ku'r gtkqf "cnuq"dgeco g"c"vguvkpi "i tqwpf "hqt"vj g"pcvkqpcn'rkxgtct {" rcpi wci g."ko ci gt {."i gptg"gzr gtko gpvu."r qgvke"ewnwtg"cpf "qvj gt"o clqt"grgo gpvu"qh"ctv'cpf "ewnwtg"kp"o qf go " vko gu0

# Vt cpurc vkqp'kp'vj g'r quv/nkdgt cvkqp'r gt kqf '\*3: 9: 'vq'vj g'r t gugpv+

Vj g"pgy "r gtegr vkqp"qh'y g"hwpevkqpu"cpf "r reeg"qh'vtcpurcvkqpu"kp"y g"pcvkqpcn'ewnwtg."y j kej "y cu'tcf kecm{" f kthgtgpv'htqo "gctrkgt"r gtegr vkqpu."y cu'o quv'eqpxkpekpi n{"r tgugpvgf "kp"y g"ctvkerg"÷Ercuukecn'Gwtqr gcp"y tkvgtu" kp"y g"Dwri ctkcp"repi wci g"cpf "y g"dgpghkv'qh'uwvf { kpi "y gkt"y qtmw/\*3: 95+"d{ "y g'hkvgtct { "etkke"P guj q" DQP EJ GX0Dqpej gx"tglgevgf "y g"kf gc"qh'vtcpurcvkpi "kp"tgur qpug"vq"pcvkqpcn'pggf u"cpf "ecmgf "hqt"tgqtkgpvkpi "vtcpurcvkqp"vqy ctf u"rgctpkpi "cdqwv"cpf "cuuko krevkpi "y g"hkpguv'gzco r rgu"qh'o qf gtp"y qtrf "rkvgtcwtg0'Vj ku" o ctngf "c"wtpkpi "r qkpv'htqo "wkrkvctkcpkuo "vq"y g'r wtuvkv'qh"ctvkuvke"xcnvgu0Dwri ctkcpk cvkqp"pcwtcm{ "dgeco g" qduqrgvg"cu"c"vtcpurcvkqp"o gyj qf "kp"y ku"eqpvgzv0

Cv'y g'dgi kppkpi 'qh'y g'v gpvkgy 'egpwt { .'c'i tqwr 'qh'y tkgtu'cuuqekcvgf 'y kj 'y g'lqwtpcn'O kuwi'3: ; 463; 29+" uwi i guvgf "c"pgy "cguvj gvke"r tqi tco o g"hqt"pcvkqpcn"hkgtcwxtg."qpg"kp"y j kej "vj gqt{"cpf "etkkekuo "qh" vtcpurcvkqpu'qeewrkgf 'cp'korqtvcpv'r rceg0C'pgy 'uvcig'kp''yig'f gxgmqrogpv'qh'r quv'nkdgtcvkqp''tcpurcvkqp''cevkxkv{'' dgi cp0'Vj ku'uvci g'y cu'ej ctcevgtk gf "d{ "eqpvkpwgf "qtkgpvcvkqp" vqy ctf u"Y guvgtp 'Gwtqr g." o ckpn{ "I gto cp" hxgtct { " cpf "rj krquqrj kecn'encuukeu="cv" yj g"uco g"uko g. "T wuukcp "kphrwgpeg" tgo ckpgf "uvtqpi "cpf "yj gtg" y cu "c" i tqy kpi " kpvgtguv'kp"o qf gtp" y kpngtu'uwej "cu" P kgv uej g"cpf "Uej qr gpj cwgt0 Kp"cff kkqp" vq" Y guvgtp 'Gwtqr gcp 'rkvgtcwtg." kpygtguv'cnuq'i tgy 'kp''qyj gt'i gqi tcrj kecn'tgi kqpu. 'yj go gu'cpf'i gptgu. 'hqt''gzco r ng''Uncxqpke. ''Uecpf kpcxkcp''cpf'' Co gtkecp"r qgvt { ."r tqug"cpf "f tco c0"Y kj "kw"cdkrkv{ "vq"hqmqy "cpf "f tcy "kpur ktcvkqp"htqo "o cp { 'Gwtqr gcp" ewnwtgu. "tcpurcvgf" 'rkvgtcwtg" 'y cu"cdrg" 'vq" 'nggr" 'wr" 'y k j "y qtrf" 'rkvgtcwtg0 V j g"dcrcpeg" 'y cu"o ckpvckpgf"co qpi 'f khhgtgpv'kphnwgpegu'y cu'wpr tgegf gpvgf 'cpf 'ku'y g'o quv'f kuvkpevkxg'hgcwxtg'qh'y ku'r gtkqf 0 Vj g's wguv'hqt 'Gwtqr gepk cvkqp'r tqxkf gf ''y g'kpkkcvkxg'hqt 'c'pcwtg'qh'qwuvcpf kpi ''tcpurcvkqpu'qh'Htcpeqr j qpg." I gto cp"cpf "Gpi nkuj "r qgvt { "d { "vj g"r qgv"I gq"O KNGX0"Dwkrf kpi "qp"vj g"r qgvke 'ncpi wci g"f gxgrqr gf 'wpf gt"vj g" kphrwgpeg"qh"U{o dqrkuvu. "tcpurcvqtu"tgcej gf "pgy "uvcpf ctf u"qh"etgcvkxkv{ "cpf "c"pgy "uej qqrl'qh"Dwri ctkcp"r qgvke" qtkgpvcvkqp0Cv'yi g'uco g'vko g.'kpvgtguv'kp''yi g'cpekgpv'encuukeu'tgo ckpgf 'uvtqpi 'cpf 'y cu'r ctvkewrctn( 'gxkf gpv'kp'' yj g'\tcpurc\kqpu'\qh\Crgzcpf gt 'DCNCDCP QX0

Kp"'y g"{gctu"dgw ggp"y g"y qtrf"y ctu."\tcpurcvqtu"r rc{gf"cp"korqtvcpv"tqrg"kp"kpvtqf wekpi "\q"y g"nghvy kpi"rtguu''y g"kfgcu"qh"j wocpkuv"cpf"cpvk/hcuekuv"y qtrf"y tkvgtu."lqwtpcnkuvu"cpf"uekgpvkuvu0

Chryt' I gq'O krgx. 'y g'kpvgpug'r ceg'qh'vtcpurcvkqp'urqy gf 'f qy p0'V j g'ej cpi g'eqwrf 'dg'qdugtxgf 'kp'uwej 'y kpi u'cu' y g'ej qkeg'qh'i gptgu'cpf 'y go gu'cpf 'kp'y g'kpetgcukpi 'ur gekcrk cvkqp'qh'r wdrkuj gtu'kp''ctgcu'uwej ''cu''ercuukecri' rksgtcwtg'qp''y g'qpg'j cpf ''cpf ''o cuu''gpvgtvckpo gpv'rksgtcwtg''qp''y g''qy gt0

Vj g'lo r rgo gpvc\kqp"qh'uqekcrkuv'ewnwtcn'r qrke{"uj qtvn{"chngt"Y qtrf"Y ct"Vy q'y cu'hqmqy gf "d{"\y g" pc\kqpcrl\qrap{\text{qp'qh'r tkxcvg'r wdrkuj kpi "j qwugu'kp'3; 696: 0'Vj gtg'hqmqy gf "c"f gecf g"qh'pc\kqpcrl\puwretk\{."y j kej " engctn\{"kphrwgpegf "\y g"ugrge\kqp"qh'dqqnu'\q"dg"\tcpurc\gf 0J qy gxgt."\y g"3; 82u'ucy "\y g"dgi kppkpi "qh" s wcp\kc\kxg"cpf "s wcrkxc\kxg"ej cpi gu'kp'\yto u'qh'\y g"qtkgp\c\kqp"chqp"cpf "s wcrk\{"qh'\tcpurc\kqpu0Vj gug"ej cpi gu'ctg" u\km'\p"gxkf gpeg'\qf c\{0'Vtcpurc\kqp"dgi cp'\q'y kp'r wdrke'\tgeqi pkkqp"cu'c"etgc\kxg"ce\kx\\{."cpf "c"pc\kqpcn'r qrke\{" y cu''\lor r rgo gp\yf "\q'h\m'gz\kr\\pi i" i cr u'\kp'\y g'\tcpurc\kqp"qh'\hqtg\k p"ercuul\eu0P gy "xgtu\kqpu'qh'qf gt '\tcpurc\kqpu" u\ct\yf "\q'cr r gct."cpf "eqp\kp\yg"\q'cr r gct'\q'\y ku'f c\{0'Vtcpurc\yf "k\xqtcwtg"y kf gpgf '\ku'\ueqr g'\q'\kpen\xf g'cwy qtu" qh'n\xqtc\tf."\ueqp\kh\ke."\q\yten\xf g'\yz\u'\tqt"\tq\ten\xf g'\yz\u'\tq\ten\xf g'\tq\ten\xf g'\yz\u'\tq\ten\xf g'\yz\u'\tq\te

xctkgv{ "qh"r wdnkecvkqpu. "htqo "eqo r ngvg"y qtmu"vq"CP VJ QNQI KGU. "ugtkgu. "dknkpi wcn"gf kxkqpu. "gve0

Co qpi ''y g''o quv'ko r qt vcpv'cej kgxgo gpw'f wtkpi ''y ku'r gtkqf 'j cxg''dggp''y g''tcpurcvkqp''qhy g''eqo r rgvg''y qtmu''qh'' Uj cngur gctg''dgwy ggp''3; 92''cpf ''3; : 3''d{ ''y g''r tqo kpgpv'Dwi ctkcp''r qgv'Xcrgtk'Rgvtqx''cpf ''y g''tcpurcvkqp''qh'y g'' uekgpvkhke''y qtmu''qh''Mcpv''dgwy ggp''3; 79''cpf ''3; : 9''d{ ''Vugmq''VQTDQX0

Vj ku'r gtkqf 'j cu'cnuq'uggp''y g''tcpurc'kqp''qh'r qrkkecn'rkygtcwtg'kp''ugtkgu''cpf 'qyj gt'hqto u.''cu''y gm'cu''y g''y qtmu''qh'' qwuvcpf kpi 'uekgp'kuvu''cpf 'uej qrctu'kp''xctkqwu''f kuekr rkpgu0

C'pgy 'i gpgtcvkqp'qh'vtcpurcvqtu'j cu'pqy 'lqkpgf 'vj g'r tqhguukqp.'j cxkpi 'ces wktgf 'uwduvcpvkcn'hkpi wkurke'unkmu'cv' xctkqwu'ncpi wci g'uej qqnu0C'ur gekcn'eqwtug'hqt'vtcpurcvqtu'cpf 'kpvgtr tgvgtu'y cu'cnuq'guvcdnkuj gf 'cv'Uqhkc'' Wpkxgtukv{ 'kp'3; 960

Vj g'Cuuqekckqp"qh"Dwi ctkcp"Nkgtct{"Vtcpurcvqtu"y cu"guvcdrkuj gf "kp"3; 85"cu"c"dtcpej "qh"y g"Wpkqp"qh" Dwi ctkcp"Y tkgtu0"Uj qtvn("chvgty ctf u."y g"kpf gr gpf gpv"Wpkqp"qh"Vtcpurcvqtu"cpf "Kpvgtr tgvgtu"kp"Dwi ctkc"y cu" hqto gf = kv"j cu"hxg"ugevkqpu"eqxgtkpi "y g"o ckp"ctgcu"qh"y g"r tqhguukqp<"rkvgtct{"tcpurcvkqp."uekgpvkhke"cpf" vgej plecn'tcpurcvkqp."uqekcn'cpf "r qrkkecn'tcpurcvkqp."kpvgtr tgvkpi ."cpf "y gqt{."j kuvqt{"cpf "etkklekuo "qh" vtcpurcvkqp0Vj g"[ qwpi "Vtcpurcvqtuø'cpf "Kpvgtr tgvgtuø'Envd"cv'y g"Wpkqp"r tqxkf gu'uwr r qtv'hqt"{qwpi "r gqr ng"kp" y g"r tqhguukqp0Vj g"Wpkqp"r wdrkuj gu'y g"P gy urgwgt"\*Rcpqtco c."y j kej "eqxgtu"\*tcpurcvgf "rkvgtcwtg"cpf "etkklekuo "qh"\*tcpurcvkqp0'Hcngn"c"qwtpcn'qh'\*tcpurcvgf "Twukcp"rkvgtcwtg"y j kej "egcugf "r wdrkecvkqp"kp"3; ; 2"y cu"cnq" r wdrkuj gf "d{"y g"Wpkqp0C"rcti g"r tqlgev'y j kej "kpxqnxgu"y tkkpi "y g"hktuv'j knvqt{"qh'\*tcpurcvkqp"kp"Dwi ctkc"ku" crtgcf {"wpf gt"y c{0}

Vj g'Wpkqp'j cu'uwdf kxkukqpu'kp''y g'xctkqwu'f kuxtlev'egpxtgu'qh'y g'eqwpxt {0Co qpi ''qyi gt''y kpi u.''kv'qti cpk gu'' cppwcn'tcpurcvkqp''cy ctf u.'i tcpwi'hqt''ur gekcn'tcpurcvkqp''r tqlgevu.''ur gekcnkuv'eqwtugu''cdtqcf.''tckpkpi 'hqt''{qwpi "vcpurcvqtu''cpf 'kpvgtr tgvgtu.''cmqy cpegu'hqt''y g'r gpukqpu''qh'tgvktgf ''r tqhguukqpcnu.''kpvgtpcvkqpcn'uej qrctn{"eqphgtgpegu.''dkrcvgtcn'o ggvkpi u''cu'y gm'cu''pcvkqpcn'eqphgtgpegu''cpf 'y qtmuj qr u0'Vj g''Wpkqp'j cu''dggp''c''o go dgt''qh'HKV''ukpeg''3; 960

#### Hwt yj gt 't gcf kpi

F kpgnqx'3; 82="I gqti kgx'3; 77="Ngunkgp'3; 25="Rkeej kq'3; 94="Rtgxqf wv'k'Dwi ctunc vc'Mwnwt c'3; : 3="Uct c'Dwi ctunc vc'Nwnwt c'Awar c

CPPC'NKNQXC

Vtcpurcvgf 'htqo 'Dwni ctkcp''d{ 'Xgtc'I gqti kgxc

#### Dkqi tcrj kgu

DCNCDCP QX.'Crgzcpf gt '\*3: 9; 63; 77+0'Dwi ctkcp"encudecn'r j krqmi kuv."\tcpurcvqt"cpf 'rksgtct { "etkke0' Rtqhguuqt"qh"cpekgpv'I tggm'rksgtcwtg"cv"Uqhkc"\Wpkxgtukv{."j g"\tcpurcvgf "y qtmu"d { "Cguej { nwu."Uqr j qergu." Gwtkr kf gu"cpf "Ctkrvqr j cpgu."cu"y gm'cu"Cguqr øu hcdrgu0

DGT QP.'Rgvgt "\*3: 22693+0'Gpe{emr gf kuv.'uekgpvkuv.'r j kmuqr j gt.'o gf kecn'f qevqt.''vgcej gt "cpf "vtcpurcvqt0' Cwj qt leqo r krgt "qh"yj g"hktuv'Dwri ctkcp"uej qqrdqqm"Vj g"Hkuj "Rt ko gt.''y j kej "eqpvckpgf "vtcpurcvkqpu"qh"gki j vggp" qh"Cguqr øu hcdrgu "cpf "xctkqwu"y qtmu"d{"I tggm"cwj qtu0'Dgtqp"cnuq"y tqvg"c"pwo dgt "qh"uekgpvkhke "dqqmu"kp" Htgpej 0

cpf "chygty ctf u'dgeco g'\j g'\j qxgtpqt"\qh'\c'\Urcxqpke"r tkpekr cnk\{0'Dq\j "dtq\j gtu'\j cf "gzegmgp\'npq\y ngf i g'\qh'\j g" D{| cp\kpg"ewn\ktg"cpf "ncpi wci g'cu'\y gm'cu'\y g''cpekgp\'encukeu0'\Vj g{ "ur qng'\Urcxqpke."\Nc\kp"cpf "J gdtgy "cpf " y gtg"\ugp\'qp'\f kr mo c\ke"cpf "r tgcej kpi "o kuukqpu'\q'\j g'\Utccegpu'\\E\{tkn'\kp": 73+.\q'\Tqo g'\y j gtg'\y j g\ "f ghgpf gf" y g'\tki j v'\qh'\gxgt\{ "r gqr ng'\q'\dg''gf \wecvgf '\kp"\y gkt'\pc\kxg'\ncpi \wci g''dghqtg'\y g'\Rqr g.\"cpf '\q'\O qtcxkc'\\: 8415+\"\q'' f ghgpf 'Ej tku\kcpv\{0'J cx\kpi "etgc\ugf"\y g'\Urcxqp\ke"crr j cdgv.'\E\{tkn'\cpf "O g\y qf \kwu'\y gtg'\y g'\htu\k'\p''o gf \kgxcn' G\wq \uggra g'\q'\\t\{ "cpf "cuugt\v'\y g'\xgtpce\wct "cu'\y g'\q\h\ke\cn'\D\wi ct\cp'\ncpi \wci g.\"tgr nce\kpi "\Nc\kp"cu'\y g'\ncpi \wci g'\q\" y g'\q'\t\ \\ g'' g'' g'\tq\tan \text{y g'\q'\tan g'' q'\t\ \\ g'' g'' g''\tq\tan g'\tq\" y g'\tq\" y g'\tq\tan g'\tq\" y g

GZCTEJ .'Lqj p'\*; yj/32y 'egpwt{+0'Dwi ctkcp'y tkgt.'r qgv'cpf ''tcpurcyt0'Gzctej 'y cu'c'j ki j n{ 'gf wecygf 'cpf '' ewwytgf 'o cp.'y ky ''c'y kf g'tcpi g'qh'kpygtguw'kp''uekgpykhle'cpf 'r j krquqr j kecn'qr keu0'J ku'o ckp''ytcpurcytqpu'y gtg" \$\buz\int C\{u\''c'\uekgpykhle''cpf 'r j krquqr j kecn'eqo r krcytqp.''cpf ''Rctv'Vj tgg''qh''y g''\upyytgg''qh''\upyytgg'' g''d{ ''Lqj p''} F co cuegpg. ''gpykyrgf ''-J gcxgpø'qt''--Vj gqrqi {ø0'Gzctej 'y cu''y g''hqwpf gt''qh''y g''hktuv'Urcxqpke''y gqt { ''qh'' y cpurcytqp0'J ku'xkgy 'y cu''y cv'y g''y cpurcyt''uj qwrf ''eqpxg{ ''y g''o gcpkpi 'tcyj gt''y cp''y g''o gtg''-uqwpf uø'cpf'' uj qwrf ''cduvckp''htqo ''cff kpi ''nqpi ''gzr rcpcykqpu''yq''y g''yzv0

O KNGX.'I gq'\*3: ; 763; 47+0Rqgv'cpf ''tcpurcvqt''qh''Htgpej .'Gpi rkuj ''cpf 'Twuukcp''rksgtcwstg''cpf ''cpekgpv'I tggm' encuukeu0J g''uwf kgf ''kp''I gto cp{ ''cpf ''vqqm'cevkxg''r ctv'kp''y g''ewnwstcn'rkhg''y gtg0'Kp''3; 3; ''j g''uvctvgf ''r wdrkuj kpi ''y g'' lqwtpcnu''Xg/pk''cpf '' $Rnco\ cm$ 'cu'y gm'cu''stcpurcvkpi ''cpyj qmi kgu0J ku'o ckp''qtki kpcn'y qtm'y cu''y g''r qgo '' $Ugrvgo\ dgt$ '' \*3; 46+0

UNCXGKMQX.'ROFO\*3: 496; 7+0Dwi ctkcp'r qgv.'lqwtpcrkuv.'hqmmqtg'tgugctej gt'cpf 'uvcvguo cp0J ku'vtcpurcvkqpu' qh'Twuukcp.''Y guvgtp'Gwtqr gcp''cpf 'Dcmcp''cwj qtu'eqpvtkdwgf ''vq''y g''o gvtke''cpf ''r tquqf ke''f gxgrqr o gpv'qh'' Dwri ctkcp'xgtug0J g'wugf ''cml'hqto u''qh''vtcpurcvkqp<'Dwri ctkcpk cvkqp.''cf cr vcvkqp'\*\*y j gtg''j g'wugf ''qvj gt''cwj qtuø' kf gcu''cpf ''r rqwi''hqt''j ku''qy p''etgcvkxg''r wtr qugu+:''cpf ''rkvgtcri'vtcpurcvkqp0

 $VQTDQX.'Vugmq'*3:;; 63;: 9+0'Vtcpurcvqt''qh''uekgpvkhle''rkvgtcwtg0J g''uvwf kgf''rcy ''cpf''r j krquqr j { 'kp'I gto cp{'' cpf''vtcpurcvgf''Mcpvou'y qtmu''qxgt''c''r gtkqf''qh''y ktv{''{gctu'*3}; 796: 9+0'Kp''3; 92.''Vqtdqx''y qp''y g''Xkgppc'' Wpkxgtukv{''J gtf gt''cy ctf''hqt''j ku''vtcpurcvkqp''qh''y g''<math>Etkkswg''qh'Rwtg'Tgcuqp''$ cpf''hqt''j ku''tgugctej ''cevkxkkgu''kp'' i gpgtcr0

CPPC'NKNQXC

# E

# Ecpcf kep'ttcf kkqp

Vj g'49"o kmkqp"kpj cdkcpvu"qh'Ecpcf c"ctg"o ckpn{ "qh'Htgpej "cpf "Dtkkuj "f guegpv."dw''y gtg"ctg"cnnq"c"pwo dgt"qh'' ncti g"o kpqtkkgu"y j kej "kpenwf g"y g"qtki kpcn"kpj cdkcpvu"\*Kpf kcpu"y j q"ur gcmic"xctkgv{ "qh'J wtqp/Ktqs wqku"cpf "Cni qps wkcp."cpf "y g"Kpwky'y j q"ur gcmik'pwnkww+."I gto cpu. "Kcnkcpu."Ej kpgug. "Wntckpkcpu"cpf "F wej 0'Vj g" gzr mtcwkqp"qh'Ecpcf c"dgi cp"kp"36; 9"y j gp"Lqj p"Ecdqv'tgcej gf "y g"eqcuvu"qh'P gy hqwpf ncpf "cpf "P qxc"Ueqwc0' Vj g"httuv'r gto cpgpv'ugwngo gpwu'y gtg"o cf g"d{ "vj g"Htgpej "cpf "dgi cp"kp"382: "y j gp"y g"Htgpej "gzr mtgt"cpf" eqmpk gt "Uco wgn'f g"Ej co r nckp"\*e\B79263857+"guvcdnkuj gf "vj g"ugwngo gpv'cv'S wgdge. "mpqy p"cu":P gy "Htcpegø" ukpeg"Lces wgu'Ectvkgt"i cxg'kv'y g"pco g"kp"37560'Kp"3985. "Ecpcf c"y cu"egf gf "vq"Dtkvckp"d{ "vj g"Vtgcv{ "qh'Rctku0' Ewttgpvn{ "c"o go dgt "qh'y g"Dtkkuj "Eqo o qpy gcnj ."Ecpcf c"cnnq'r nc{ u"cp"cevkxg"r ctv'kp":Nc"Htcpeqr j qpkgø"y g" qti cpk cvkqp"y j kej "tgr tgugpvu"Htgpej /ur gcmkpi "eqo o wpkkgu0'Vj g"qhhkekcn'ncpi wci gu"ctg'Gpi nkuj "cpf "Htgpej 0

# Vt cpurc wqp'wpf gt 'Ht gpej 't wng

Vj g'j kunqt { "qh'ntcpurcnkqp"kp'Ecpcf c'dgi cp'y ky "c'mkf pcr r kpi 0'Y j krg"gzr mtkpi "vj g'I wrh'qh'Uv'Ncy tgpeg'kp" 3756. "vj g'Htgpej "pcxki cvqt"Ices wgu'Ectnkgt"\*36; 663776+"eco g'kpvq"eqpvcev'y ky "ugxgtcn'Kpf kcp"ntkdgu0Kp"qtf gt" vq"eqo o wpkecvg"y ky "vj go ."j g'j cf "vq"tguqtv'vq"uki p"rcpi wci g0Dghqtg"ugwkpi "uckn'qpeg'ci ckp."Ectnkgt" wpegtgo qpkqwun{ "±getwkxgf ø'vj g'w q'uqpu'qh'vj g'Ktqs wqku'ej kgh'qh'Uvcf ceqpc"\*r tgugpvf c{ "S w² dge"Ekv{ +"cpf" vqn'vj go "vq"Htcpeg."y j gtg"j g'vcwi j v'vj go "vj g'twf ko gpw"qh'vj g'Htgpej "rcpi wci g0Vj gug"w q"pcnkxgu'dgeco g" vj g'eqwpvt {øu'hktuv'kpygtr tgygtu0

Qp"j ku"ugeqpf "xq{ci g. "Ect\kgtøu"pgy "kp\ugtrtg\ugtu. "Fqp"Ci c{c"cpf "Vcki pqci p{."dgi cp"\q"\ugcej "j ko "cdqw\"P gy "

Htcpeg<\und{ku"i gqi tcr j kecihgcwtgu. "pcwtciltguq\utegu"cpf "kpj cdkcp\u0Vj g{"gxgp"\ucxgf "Ect\kgtøu"gzr gf kkqp"htqo "

ecvcu\utqr j g"d{"\ugcej kpi "\uj g"\uppre cmg"hcegu\u0] qy "\uppre "\utgev'cpf "e\utg"\uppre u\u0] ue\uxx{."c"\u00fctkdng"f kugcug"\u0] c\u0] cf "f geko c\u00fcqf"

Ect\u00fct\u00fcqu\u00fcq\u00ff y j gp"j ku"gzr mtc\u00fc\u00fcqt{"gzr gf kkqp"\u00fc} cu"eqo r ng\u00fcgf."Ect\u00fct\u00fcqt"\u00fcqqn\u00ff ku"\u00fcq\u00ff "kp\u00fctrtg\u00fcqtu"dceni\u00fcq"

Htcpeg. "hqt"d{"\u00fcqt "j cf "u\u00fct\u00fcqf" \u00fcqt\u00fcqt\u00fcq\u00fq\u00fcq\u00fcq\u00fcq\u00fcq\u00fcq\u00fcq\u00fcq\u00fcq\u00fcq\

Cv'ij g'dgi kppkpi "qh'ij g'ugxgpvggpij "egpwt { ."Ej co r nckp"et gcvgf "cp"kpukwwkqp"qh't gulf gpv'kpvgtr t gvgtu"kp" j g" pgy "eqmp { 0 J g"r ncegf "{ qwpi "Htgpej "cf xgpwt gtu"y kj "ij g"cmkgf "vtkdgu"cpf "i cxg" j go "ij g"vcuni'qh'f ghgpf kpi " y g"kpvgtguuu'qh'o gtej cpw. "r ct vkewrctn "ij qug"kpxqnxgf "kp" j g"hxt "vtcf g. "cpf "qhhkekcnu"t gur qpukdng hqt "eqmpk kpi " y g"uj qtgu"qh'ij g"Uv"Ncy tgpeg"T kxgt0"V j gug" { qwpi "o gp"y gtg"t gulf gpv'kpvgtr t gvgtu"kp" j g"ugpug" j cv'ij g { "hxxgf" co qpi "ij g"pcvkxgu. "f tguugf "hng" Kpf kcpu. "ungr v'kp" ygpvu. "j wpvgf . "hkuj gf "cpf "vqqmir ctv'kp" j g'hgcuvu. "f cpegu"cpf " tkvgu" j cv'o cf g"wr "ij g"gxgt { f c { "nkhg"qh" ij gkt" j quvu0"V j tqwi j "f ckn { "eqpvcev'y kj "ij g"pcvkxgu. "ij g"kpvgtr t gvgtu" dgeco g"hco krkct" y kj "ij gkt" y c { "qh'nkhg"cpf" y qtn "xkgy ."cpf" j gpeg"go kpgpvn ("s wcnkhgf" hqt"f gcnkpi "y kj "ij g" vtkdgu0Co qpi "ij g"hktuv'uvej "kpvgtr t gvgtu" y gtg"; vkgppg"Dt Ârf ."P keqncu'O ctuqngv." Igcp"P keqngv. "Qnkxkgt "Ngvctf kh" Igcp"T kej gt." Iccs wgu" J gtvgn'cpf "Htcp±qku'O cti wgtkg0

Vj g'htpi wkurke''o cr ''qh'P gy ''Htcpeg''cv''y cv''ko g'y cu'htci o gpvgf.''y ky ''pwo gtqwu''f kengewi'f gtkxkpi 'htqo ''w q'' repi wei g'heo krkgu<''Cri qps wkep''epf ''J wtqp/Ktqs wqku0'Cny qwi j ''cm''y g''Kpf kep'hepi wei gu''dgnqpi gf ''q''qpg''qh'' yj gug''y q''

ko kłęu."c"f kłątgpvłpytr tgygt"y cu"tgs wktgf "hqt"ur gekłke"rcpi wci gu'uwej "cu"O keo ce."Cdgpcnku."O qpvci pcku."

Cni qps wkcp."J wtqp. "P kr kulpi ."Kqs wqku."Qwcy c. "cpf "uq"qp0Gcej "rcpi wci g"etgcygf "c"pgy "rkpi wknke"dcttlgt0Kp" cf f kklqp. "j g"cdugpeg"qh"y tkwpp"i tco o ctu."cpf "qh"c"y tkwpp"tcf kklqp."o cf g"\j g"f kcnge wif khlkewn/"q"o cuygt0'

Rtqpwpekcvlqp"\"r ctvkewrctn\" "qh"i wwxtcn"uqwpf u+: "kpvqpcvlqp."dtgcyj kpi "cpf "tj { yi o ."pqv'vq"o gpvlqp"\j g"f khlkewn\" kpj gtgpv'kp"\tcpurcvkpi "cduxtcev'Htgpej "xqecdwrt{."etgcygf "rkpi wknke"\tcr u"\j cv'eqwrf "rgef "cp{y j gtg"htqo "c" j wo qtqwu"o knxtcpurcvkqp"\q"c"f kr mo cvke"kpekf gpv0Vj g"o knukqpctkgu."wprkng"\j g"kpygtr tgygtu."f kf "cwgo r v'vq" eqo r krg"i tco o ctu"cpf "f kevkqpctkgu."dwv'\j g{ "eqpvkpwgf" "q"twp"wr "ci ckpuv'ewnwtcn'vcdqqu"\y j kej "eqo r rkecvgf"\j g" vtcpurcvkqp"qh"r tc{gtu0'Hqt"gzco r rg."kv'y cu"pq"gcu{ "vcun'vq"ycej "Qwt"Hc\j gt."y j q"ctv'kp" j gcxgpí vq"pcvkxgu" y j q"j cf "rquv'\j gkt "hc\j gtu."hqt" "q"ur gcm'qh'nqxgf "qpgu"\y j q"j cf "f kgf "y cu"\q"kpuwn'\j go 0

Chryt"Ej co r rckpøn"f gc\j ."{qwpi "r gqr rg"eqpvkpwgf" "q"i q"cpf "rkxg"y kj "\j g"Kpf kcpu"\q"rgctp"\j g"ej cmgpi kpi "etch" qh'kpytr tgykpi 0'Rkgttg"Dqwej gt."Ej ctrgu"Ng"O q{pg."I wkncwo g"Eqwwtg"cpf "P keqrcu"Rgttqv'y gtg"hqwt"go kpgpv" kpytr tgygtu"qh'\j ku"r gtkqf 0'Kp"\j g"y qtf u"qh'Dces wgxkng"f g"Nc"Rq\j gtkg."-\Vj g"o gtej cpw"eqwf" j cxg"qhlgtgf" 322.222"2 ewu'y qt\j "qt\j ogtej cpf kug."dw'\j g\" y qwf "pq\j cxg"uqf" "gxgp"c"r qwpf "qh'\qdceeq"y k\j qwi\j g"

cuukuvcpeg''qh''y gkt''kpvgtrtgvgtuø'\*Octit{"3::53:8="\tcpurcvgf+0

Kp'Oqpvtgcn''y g''eqwtwi'qhvgp''tgswktgf''kpvgtrtgvgtu'hqt''Kpf kcp''ncpi wci gu."cu'y gm'cu''kpvgtrtgvgtu'hqt''Gpi nkuj "cpf"

F wej.''y g''ncpi wci gu'wugf "d{"ogtej cpwi'kp''y g''eqmpkgu'vq''y g''uqwyj "\*P gy 'Gpi ncpf "cpf "P gy "J qmcpf+0I.gcp"

S wgpgv. "Rkgttg''Eqwe." Tgp² 'Ewkngtkgt. 'Htcp±qkug'I qwrki\*qpg''qh''qpn{"y q'y qogp''vq''j cxg''ugtxgf''cu''kpvgtrtgvgtu''

cv''y g''vkog+." Tqdgtv'Rqkkgtu''f w'Dwkuuqp''cpf' 'Nqvku/J gevqt''Rkqv'fg''Ncpi mkugtkg''y gtg''coqpi "y qug''y jq''

kpvgtrtgvgf''hqt''y g''eqwtw0'Vjg{"y gtg''guugpvkcm{"ugwngtu."oknhpgtu."\tcfgtu''cpf''ocpwhcewtgtu."cpf''qpn{"

qeecukqpcm{"y qtnngf''cu''kpvgtrtgvgtu0'Vqfc{."\y g{"y qwnf''dg''eqpukfgtgf''rctv'vkog''htggncpegtu0}

Oknkct{"kpvgtrtgvgtu''hqtogf''cpqyjgt''ecvgiqt{0Vygug''ogp''y gtg''ogodgtu'qh''y g''tgi wct''hqtegu''cpf''qhvgp''jgnf''

O krkct { 'kpvgtr tgvgtu'hqto gf 'cpqvj gt 'ecvgi qt { 0'Vj gug'o gp'y gtg'o go dgtu'qh'vj g'tgi wrct'hqtegu'cpf 'qhvgp'j grf '' eqo o cpf 'r quvu0'Co qpi 'vj g'dgwgt'mpqy p'y gtg'RcwrlNg'O q{pg'f g'O ctkeqwtv.'Iqugr j 'I qf ghtq{ 'f g'Xkgwz 'Rqpv' cpf ''Htcp±qku'J gtvgr0'Kp'3979.'vj g'cto { ''qh'vj g'O cts wku'f g'O qpvecro '\*393467; +.'vj j kej ''j cf ''vtkgf 'kp'xckp'vq'' f ghgpf 'S wgdge'ci ckpuv'vj g'vtqqr u'qh'vj g'Dtkkuj 'I gpgtcrlIco gu'Y qrhg'\*394967; +.'kpenwf gf ''qxgt'3922'Kpf kcpu'' htqo ''xctkqwu''vtkdgu.''cpf ''vgp'kpvgtr tgvgtu0

Kp"38: 4. "y g"i qxgtpqt"qh"P gy "Htcpeg"cpf "uweeguuqt"\q'Htqpvgpce."Lqugr j /Cpvqkpg"f g"Nc"Dcttg."y tqvg<":Qpg" v{r g"qh"r gtuqp"y j q"ku"kpf kur gpucdıg"\q"y j g"ugtxkeg"qh"y jg"Mpi "kp"y ku"eqwpvt {"ku"y jg"kpvgtr tgvgtí ø"\*Dktqp" 3; 8; 475="\tcpurevgf +0Dw"yi g"kpvgtr tgvgtøı"tqrg"y cu"pqv'no kgf "\q"y cv'qh"c"rcpi wci g"kpvgto gf kct {0 Kp"rcev." yi gug"o wnktkpi wcn'o gf kcvqtu. "tgr tgugpvcvkxgu"qh"o gtej cpwi"cpf "ekxkn'cwj qtkkgu"\q"yi g"\tkdgu."cnq"cevgf "cu" i wkf gu. "gzr rqtgtu."dtqngtu. "f kr rqo cw. "co dcuucf qtu"cpf "cf xkugtu"qp"Kpf kcp"chrcktu0Vj g{ "hqto gf "c"uqtv'qh'dwhtgt" y j kej "j grr gf "\q"gcug"yi g"ewnwtg"uj qeni'yi cv'tguwngf "htqo "yi g"gpeqwpvgt"y kyi "yi g"Kpf kcpu0Vj g{ "j cf "c"f ggr " wpf gtuvcpf kpi "qh'yi g"pcvkxg"y c {"qh'yi kpmkpi "cpf "f go qpuvtcvgf"yi cv'vtwg"eqo o wpkcvkqp"ku"cej kgxgf "pqv'cv'yi g" uwr gthkekn'hgxgn'qh'y qtf u. "dw'tcyi gt"yi tqwi j "i gpwkpg"kpvgtcevkqp"y kyi "yi g"ewnwtcn"tgrki kqwu."geqpqo ke"cpf " uqekcn'hpuvkwkqpu"qh'c"eqo o wpkv{0Vj g"wpf gtuvcpf kpi "qh'qyi gtu"j kpi gu"o qtg"qp"y j cv'yi g{"ctg"yi cp"qp"y j cv" yi g{"uc{0Vj g"kpvgtr tgvgt"y j q"j cf "yi g"o quv'kphnvgpeg"qxgt"yi g"Kpf kcpu"y cu'yi g"qpg"y j q"kpvko cvgn("wpf gtuvqpf" yi g"Kpf kcp"uqw0Vj g"Kpf kcpu"i cxg"qpg"qh'yi g"kpvgtr tgvgtu"htqo "yi ku"r gtkqf "yi g"pkempco g"±f qwdng"o cpø"y j krg" cpqyi gt"y cu"ecmgf "±vy q"vko gu"c"o cpø"y j kej "kpf kecvgu"yi g"gzvgpv'vq"y j kej "yi g"kpvgtr tgvgtu"qh'gctn("Ecpcf c" y gtg"kp"wpg"y kyi "yi g"Kpf kcp"o gpvcnkv{0}

# Vt cpurc vlqp'vpf gt 'Gpi rkuj 't wrg'\*398263: 89+

Chwgt "y g"uwttgpf gt "qh'O qpvt² cn'kp"3982. "cpf 'hqmqy kpi "y g"Vtgcv{ "qh'Rctku'y j kej "i cxg"eqpvtqn'qh'y g"eqmpkgu" vq"Dtkxckp "kp"3985. "kv'y cu'y g'wtp"qh'y g'Gpi nkuj "eqps wgtqtu'vq"qti cpk g'y g'cf o kpkutcvkqp"qh'Ecpcf c'y j qug" r qr wncvkqp"j cf "pqy "i tqy p"vq"cr r tqzko cvgn{ "87"2220'Dtwpgv'r qkpvu"qwv'y cv'÷eny qwi j "y g'Eqps wguv'o kpko k gf "y g'r tqhguukqpcn'qr vkqpu'hqt"]Htgpej \_'Ecpcf kcpu. "y gtg'ku"pq"f qwdv'y cv'kv'r tgugpvgf "y go "y ky "c'pgy "ectggt" qr r qtwpkv{."pco gn{ "

tcpurckqpø'\*3; 8; 4667="tcpurcyf+0F wtkpi "y g"o krkct{"twrg"\*398266+. "Gpi rkuj "i qxgtpqtu"r quvgf "vq"S wgdge" Ekk{."Vtqkv/Tkxl&tgu"cpf "O qpvtgcri'cr r qkpvgf "ugetgvct{/vtcpurcvqtu"vq"tcpurcvg"kpvq"Htgpej "\*vj g"rcpi wci g"qh'vj g" o clqtkx{+'vj g"gf kevu"cpf "r tqerco cvkqpu"kuwgf "kp"Gpi rkuj 0Vj cpmu"vq"hqwt"Dtkkuj "qhhkegtu"y j q"y gtg"f guegpf cpw" qh"Htgpej "J wi wgpqwi\*\*Etco cj ² "kp"S wgdge"Ekx{."Dtw{3 tgu"cpf "I wi {"kp"Vtqkv/Tkxl&tgu."cpf "O cwtkp"kp" O qpvtgcn+."vj g"Htgpej "rcpi wci g"gplq{gf "c"ugo k/qhhkekcn'uvcwu"f wtkpi "vj gug"hqwt"vtcpukkqpcn"{gctu0Kp"3986."vj g" hktuv"{gct"qh'ekxkrii qxgtpo gpv."Vj g'S wgdge'I c/gwg"o cf g"kwu"f²dw0Kvy cu"vj g"hktuv'dkrkpi wcn'pgy ur cr gt"kp" P qtvj "Co gtkec0Y tkwgp"kp"Gpi rkuj "cpf "vtcpurcvgf "kpvq"Htgpej ."vj ku"r wdrkecvkqp"y cu'wugf "gzvgpukxgn{"hqt" qhhkekcn'i qxgtpo gpv'eqo o wpkecvkqpu0

Kp"3989."I w{ "Ectrgvqp" \*394663: 2: +"tgr rcegf "Ico gu'O wttc{"cu'i qxgtpqt"cpf "vqqniwr "tgulf gpeg"kp"S wgdge" Ekw{0Ugpukkxg"vq"yi g"pggf u'qh"yi g"Htgpej ."j g"f gekf gf "yi cv'kv'y cu"guugpvkcn'vq"j cxg"yi g"Htgpej "rcy u'cpf" qtf kpcpegu"qh"yi g"+qnf "tgi ko gø'vtcpurcvgf "kpvq"Gpi nkuj ."c"vcuniyi g"Gpi nkuj "o ci kuvtcvgu"f genetgf "vq"dg"dg{qpf " yi gkt"cdknkkgu0O qtgqxgt."Ectrgvqp"pggf gf "c"Htgpej "ugetgvct{"vq"vtcpurcvg"yi g"pgy "Gpi nkuj "r tqerco cvkqpu"cpf" qyi gt"qhhkekcnif qewo gpvu"kpvq"Htgpej 0Vj g"qpn("Ecpcf kcp"y j q"uggo gf "ecr cdng"qhihknkpi "yi ku"f wcnitqng"y cu"yi g" dknkpi wcnilwtknv"Htcp±qkn/Iqugr j "Ewi pgv"\*39426: ; +0Qp"46"Hgdtwct{"398: ."Ectrgvqp"cr r qkpvgf "j ko "+Htgpej "Vtcpurcvqt"cpf "Ugetgvct{"vq"yi g" qxgtpqt"cpf "Eqwpeknj=yi g"f c{"dghqtg."yi g"Eqwpeknj cf "f gekf gf "yi cv'+nwej "c" i qqf "cpf "uwhhkekgpv'vtcpurcvqt"uj cm'j cxg"cp"cr r qkpvo gpv'qh'7"uj kmkpi u'uvgtnkpi "r gt"f c{ø0Hqt"43"{gctu."Ewi pgv' y cu"tgur qpukdng"hqt "qhhkekcn'vtcpurcvkqp"kp"yi g"Rtqxkpeg"qh'S wgdge0Y j gp"j g"f kgf ."j ku"uqp"Ices wgu/Htcp±qku" \*397: 6; 9+"uweeggf gf "j ko 0Uwdugs wgpvn{."yi g"r quv'y cu"hkngf "kp"wtp"d{"Zcxkgt"f g"Ncpcwf ktg."Rj knkr r g"Cwdgtv" f g"I cur² "cpf "Cfy ctf "Dqy gp0

Hqmqy kpi ''y g''guvcdrkıj o gpv'qh''y g''r ctrkco gpvct { ''u { uvgo 'kp'39; 3'cpf ''y g'f kxkukqp''qh''y g''Rtqxkpeg''qh'S wgdge'' kpvq''y q''eqmpkgu'\*Wr r gt 'Ecpcf c''cpf 'Nqy gt 'Ecpcf c+''y g'Ngi kurcvkxg''Cuugo dn( ''cnuq''ces wktgf ''c''vtcpurcvqt''kp'' 39; 50'Kp''ceeqtf cpeg'y kyj ''y g'y kuj gu''qh''y g''o qyj gt ''eqwpvt { .''ncy u'y gtg''gpcevgf 'kp''Gpi rkuj .''dw''Htgpej ''y cu'' cmqy gf ''cu''c''ncpi wci g''qh''vtcpurcvkqp0'Cu''qh'3: 2; .''y g'y qtm'y cu''ecttkgf ''qw''d { ''y q''vtcpurcvqtu.''qpg''hqt''Htgpej '' cpf ''y g''qyj gt''hqt''Gpi rkuj 0

Køytr tgygtu."uq"o cp{"cpf "uq"xkıkldıg"wpf gt "Htgpej "twng."f kf "pqv'f kucr r gct "chygt" j g"Eqps wguv0Vj g"rcti g"vtcf kpi "eqo r cpkgu"ukni'go r m{gf "o cp{"kpytr tgygtu'hqt" j gkt "pgi qvkcvkqpu'y kyj "pcvkxg"uwr r nkgtu0Vj g"P qtyj "Y guv" Eqo r cp{"cmpg"j cf "8: "kpytr tgygtu'kp"3: 26=78" y gtg'htcpeqr j qpg"cpf "34"cpi mr j qpg0Vj g'hqmqy kpi "kpytr tgygtu'cpf "o kuukqpctkgu'r nc{gf "c"egpvtcn'tqng"kp" j g"gzr mtcvkqp"cpf "eqmpk cvkqp"qh" j g"y guvgtp"r nckpu'cpf "y g'pqtyj gtp"vgttkqtkgu<"Rgvgt"Dcmgpf gp." j g"Tgxgtgpf "Iqj p"O eMc{."Hgrkz "O qptqg."Hcyj gt"Cnlgtv'Nceqo dg" \*3: 4963; 38+."Igcp"NøJ gwtgwz."Nqwku"N² xgkn²." j g"Tgxgtgpf "Ico gu"GXCP U."Igtt{"RQVVU"cpf "Rgvgt" GTCUO WUVKi'y gtg"y gtg"hgy "dmqf {"dcwngu"dgw ggp"y j kg"o gp"cpf "pcvkxgu"kp"Y guv'Ecpcf c."kv'y cu'f wg."kp" ncti g"r ctv." 'q" j g"ghqtwl"qh'kpvgtr tgygtu"uwej "cu'Rgvgt"Gtcuo wu"cpf "Igtt{"Rqwu." y j q"cevgf "y kj "f kr mo ce{"qp" dgj cnh'qh'o kuukqpctkgu."gzr mtgtu."uwtxg{qtu"cpf "ncy/gphqtego gpv'qhhkegtu0

Kp"3: 62."Wr gt "cpf "Nqy gt "Ecpcf c"y gtg" wpkgf O'Ugevkqp"63"qh"y g'Cev'qh" Wpkqp"o cf g'Gpi rkuj "y g'uqrg"qhhekcri" repi wei g"qh"y g"wpkgf "Ecpcf cO'Vj ku"y cu"c"eqpugs wgpeg"qh"Nqtf "F wtj co øu"tgr qtv"qh"y g"r tgxkqwu"{gct."y j kej " j cf "cf xqecvgf "c"r qrke{"qh"cuuko krevkpi "htcpeq/r j qpgu"kp"Nqy gt "Ecpcf cO'Htcpeqr j qpgu"y gtg"s wkem'vq"tgcevOQp" 3: "Ugr vgo dgt"3: 63. "y g"Ngi kurevkxg"Cuugo dn{"qh"Ecpcf c"r cuugf "c"dkrn"vcdrgf "d{"; vkgppg"Rctgpv"\*3: 24696+" y j kej "eqpukrvgf "qh"yi tgg"ugevkqpuOK"r tqxkf gf "hqt"y g"vtcpurevkqp"kpvq"Htgpej ."y g"r tkpvkpi "cpf "ektewrevkqp"qh"cm" rgi kurevkqp"d{"y g"pgy "Rctnlco gpv"cpf "qh"cm" or gtken"rey u"tgrgxcpv"vq"Ecpcf kep"chhektuORctgpvxu"dkm'y cu" gpvkrrgf <"Cp"Cev'vq"r tqxkf g"hqt"y g"vtcpurevkqp"kpvq"y g"Htgpej "rcpi wci g"qh"y g"Ncy u"qh"y ku"Rtqxkpeg."cpf "hqt" qy gt "r wt r qugu"eqppgevgf "y gt gy ky O'K'y cu"y g"htuv'dkm'vq"f gcn'ur gekhlecm{"y ky "vtcpurevkqp"cpf "vq"dg"cf qr vgf" d{"c"rgi kurevkxg"dqf {"kp"Ecpcf cOKp"3: 76."qpg"qh'y g"vtcpurevqtu"qh'y g"Ngi kurevkxg"Cuugo dn{."Cpvqkpg"I 2tkp/Nclqkg"\*3: 466: 4+"uvdo kvgf "vq"y g"ur gengt"c"r rcp"hqt"tgqti cplk kpi "y g"cuugo dn{øu"vtcpurevkqp"dwtgcwuO'Vj g" rcp"r tqxkf gf "hqt"y tgg"uvdf kxkukqpu<"rey u."f qewo gpvu."cpf "xqvgu"cpf "r tqeggf kpi uO'Vj ku"qti cplk cvkqp"qh" rctnlco gpv

ct { "\tcpurc\kqp"\ugtx\kegu'\y cu'\q'\rcuv'\hqt"cm quv'322" { gctu0'Gwi ³ pg/Rj ktkr r g'F QT kQP 'y cu'cpqvj gt'\ko r qt\cpv' hki wt g'\kp"qhh\kekn'\tcpurc\kqp'\ko o gf \kcvgn( "\dghqtg"cpf "chvgt" Eqphgf gtc\kqp"\kp"3: 890

F wt\kpi "Dt\kkuj "twrg."qhh\kekn'\tcpurc\qtu'\ugtxgf "cu'o gf \kcvqtu'\dgw ggp"\y g'Gpi rkuj "cpf "\y g'Htgpej <'\y g{ "r tqx\kf gf " c'h\pm'\dgw ggp"\y q'r gqr rgu'\y j q'y gtg'f gux\pgf "\q"eqgz\kuv'\\p"\y g'uco g'\gtt\kqt { 0'C v'\y g'etquut\qcf u'\qh'\y q'\rgi cn' \tcf \kkqpu."e\kx\kf\rcy "cpf "eqo o qp"\rcy ."\y gug'\tcpurc\qtu'\y gtg'co qpi "\y g'h\tuv'\q'\cemg'\y g'f \kh\ke\wn\vcun'\qh"

gzrtguukpi 'Dtkkuj 'rcy 'cpf 'kpukwkqpu'kp'Htgpej 'vgto u0

yj g'r tlxcvg'cpf 'r wdrle 'ugevqtu'j cxg'llp/j qwug''

## Vj g'{ gctu'hqmy lpi 'Eqphgf gtcvlqp'\*3: 89/+

Nksgtct { "'tcpurc'kqp" j cu"pqv"gplq { gf "c"mpi "'tcf kkqp" kp" Ecpcf c"\*ugg" dgmy +0 Qp" y g" qy gt" j cpf . "'y g" tcpurc'kqp" qh"pqp/rksgtct { "'wz wi "\*cf o kpkntc'wz g." eqo o gteken "'wej pkecn'cpf "rgi cn+" j cu" eqp wpwgf "'\q" hrqwtkuj . "r tko ctkn { "cu" c" tgwn y qh" y g"repi wei g"rey u"cpf "r qrkekgu"cf qr vgf "d { "xctkqwu"i qxgtpo gpv" kpukwwkqpu0 Hqt "gzco r rg. "Ugevkqp" 355" qh" y g"Dtkkuj "P qt y "Co gtkec "Cev" \*3: 89+"r reegu" Htgpej "cpf "Gpi rkuj "qp" cp" gs wen'hqq kpi "kp" y g" J qwug" qh" Eqo o qpu" cpf "kp" hgf gtcn'cpf "S wgdge" eqwt w0 F wtkpi "y g"htuv" j crh" qh" y g" y gpvkgy "egpwt { . "y g" o quv"r tqo kpgpv" hki wtgu" kp" pqp/rksgtct { "'tcpurc'kqp" y gtg" Cej krg" Ht² ej gwg" \*3: 6963; 4; + "N² qp" I ²tkp" \*3: 8563; 73+" cpf "Rkgttg" F CXKC WNV0

Kp''3; 56. 'vj g''Ugetgvct { ''qh''Uvcvg. 'Ej ctrgu''J 0'Ecj cp'\*3: 8363; 66+: 'vcdrgf ''c''dkm'r tqxkf kpi 'hqt''yj g''egpvtcnkt cvkqp''qh'' hgf gtcn'i qxgtpo gpv'tcpurckqp"ugtxkegu"cpf "vj g"etgckqp"qh"c"Vtcpurckqp"Dwtgcw'vj cv'y qwrf "dtkpi "vqi gvj gt" uqo g'322"\tcpurcvqtu"y qtmkpi "kp"xctkqwu"i qxgtpo gpv"f gr ctvo gpvu0\Qxgt"\j g"{ gctu."gur gekcm{ "\j qug'hqmqy kpi " yj g'Tq{cn'Eqo o kuukqp"qp"Dkrkpi wcrkuo "cpf "Dkewnwtcrkuo "\*3; 85+"cpf "yj g"cf qr vkqp"qh"yj g"Qllkekcn'lNcpi wci gu" Cev'\*3; 8; +-"yj g'Dwtgcw'j cu'i tqy p"gpqto qwun{0 Kp"kwi'hkhkgyj "{ gct "qh'ugtxkeg. "kv'eqo r tkugf "qxgt"; 22 "\tcpurc\qtu." 322 kpvgtr tgvgtu. '322 vgto kpqrqi kuvu'cpf '772 'uwr r qtv'uvch OK ugtxgf '372 erkgpv dqf kgu'htqo 'Qwcy c'cpf 'c' pwo dgt "qh'tgi kqpcn'qhhkegu"cpf "j cf "cp"cppwcn'dwf i gv'qh'qxgt "& 7"o kmkqp0'Vj g'Dwtgcw'cu'c "y j qng'\tcpurc\yf " crrtqzko cvgn("522"o kmkqp"y qtf u'r gt"{ gct0'Ku'o wnkrkpi wcn'f grctvo gpv'tcpurcvgf "crrtqzko cvgn("42"o kmkqp" y qtf u'r gt"{gct 'htqo "cpf 'kpvq'uqo g'82'hcpi wci gu. "cpf 'kv'eqpvtcevgf 'y qtm'qwv'vq'c'r qqn'qh'722'htggrcpegtu0 Vj g'eqo r gvgpeg'qh'Ecpcf kcp''vgto kpqrqi kuvu'j cu'dggp'tgeqi pk gf 'vj tqwi j qwv'yj g'y qtrf 0'Vj g{ 'j cxg'f gxkugf 'c'' uqwpf "o gyj qf qmi { "hqt "eqpf wevkpi "vgto kpqmi kecn't gugctej ."cpf "j cxg"r tqxkf gf "vtcpurcvqtu"cpf "rcpi wci g" ur gelcrkıxu'y kij "yy q'kpet gcukpi n{ "ghhgevkxg"eqo r wgt kt gf "vgt o kpqmi { "dcpmu" \*ugg" <u>VGT O "DCP MU</u>+0" VGT O KWO " y cu'f gxgmr gf 'd { ''y g''Uget gvct { ''qh''Uvcvg''cpf ''eqpvckpu''qxgt ''qpg''cpf ''c'' j crh'o kmkqp''vgto u0'V j g''qy gt ''dcpm''y g''  $DVS.''y\ cu''etgcvgf''d\{''y\ g'I\ qwxgtpgo\ gpv'fw'S\ wgdge0Tqdgtv'F\ wdwe.'O\ ctegn'Rct^2.'Rkgttg'Cwi\ gt.'P\ cf\ c''Mgtr\ cp''$ cpf "I w{ "Tqpf gcw"j cxg"cm"r rc { gf "c"xkcn"tqrg"kp"yj g"guvcdrkuj o gpv"qh"yj gug"\gto kpqmi { "dcpmi."cpf "kp"yj g" i tqy yj "qh'yj g'pgy "r tqhguukqp"qh'ygto kpqmi kuv0Nkngy kug. "S w² dgeøu "Qhhkeg"f g'nc 'ncpi wg'htcp±ckug' "QNH+." hqwpf gf 'kp'3; 83. 'j cu'dggp'tgur qpukdrg'hqt'eqwpvrguu'kpkkcvkxgu'kp'y g'hkgrf 'qh'hcpi wci g'o cpci go gpv'kp'S wgdge'' cpf "vj g"htcpekt cvkqp"qh"dwukpguu"cpf "kpf wuxt { "kp"r ct vkewrct0"Vj g"Qhhkeg"j cu"cnxq"i ckpgf "tgeqi pkxkqp"hqt"vj g" pwo gtqwu'i nquuctkgu'kv'j cu'r wdrkuj gf 0

Y j krg'f gxgmr kpi "VGTO KWO 'kp''y g''3; 92u.''y g''Vtcpurcvkqp''Dwtgcw'dgeco g'kpvgtguvgf 'kp''O CEJ RP G'' VTCP UNC VKQP 0'Kp''3; 98.''y g''o cej kpg''vtcpurcvkqp''tgugctej ''i tqwr ''cv''y g''Wpkxgtukv² 'f g'O qpvtgcri\*VCWO +'' r tgugpvgf ''y g''Dwtgcw'y ky ''y g''r tqvqv{r g''qh'O | V| QÎ 0'Ukpeg''y gp.''qxgt'': 7'r gt''egpv''qh''cm'Ecpcf kcp''y gcyj gt'' tgr qtvu''j cxg''dggp''vtcpurcvgf ''d{ ''eqo r wgt0

Ecpcf cøu''Vtcpurcvlqp''Dwtgcw'ku''pqv'qpn("'yi g'ircti guv'go r m{gt"qh'vtcpurcvqtu''cpf "kpvgtr tgvgtu'kp"'yi g'eqwpvt{."kv'' cnuq''r rc{u''c'xkxcn'tqrg''kp'ko r rgo gpvkpi "'yi g''r qrke{"qh''qhhkekcn'dkrkpi wcrkuo "cpf "o wrukewruwtcrkuo 0'V'j g''cevkxkkgu" qh''yi g''Dwtgcw'tghrgev'dtqcf gt "pcvkqpcn'qdlgevkxgu''tgrcvgf "'vq"'yi g''r tqo qvkqp"qh'qhhkekcn'rcpi wci gu0'Ki'uj qwrf "dg" pqvgf ."'yi qy gxgt."'yi cv'qxgt": 7'r gt "egpv'qh'cm'vtcpurcvkqp"wpf gtvcngp"kp"Ecpcf c'ku'htqo "Gpi rkuj "kpvq"Htgpej ."
y j kej "tckugu''yi g''ugpukxkxg"kuuwg"qh''yi g''tgrcvkxg"uvcwu"qh'Ecpcf cøu''yy q''qhhkekcn'rcpi wci gu0
Vtcpurcvkqp"kp'Ecpcf c'ku'vtwn{"cp"kpf wuxt{<kv'r tqxkf gu''c''rkxkpi "hqt"o qtg"'yi cp'8.222"r tqhguukqpcn'vtcpurcvqtu."pqv''vq''o gpvkqp''yi g''j wpf tgf u''qh'r ctv'vko gtu'y j q''vtcpurcvg'kp"qtf gt "vq"gctp"gzvtc'kpeqo g0'O quv'rcti g''qti cpk cvkqpu'kp"

vtcpurcvkqp"ugtxkegu0Ukpeg'vj g'gctn('3; : 2u.'vj g'pwo dgt'qh'vtcpurcvkqp'ci gpekgu'cpf 'vtcpurcvqtu'kp'rtkxcvg'' rtcevkeg'j cu'i tqy p'uvgcfkn(0Go rnq{o gpv'qrrqtwvpkkgu'ctg'i qqf'cpf'y qtnkpi 'eqpfkkqpu'cpf'y ci gu'ctg'' tgrwgf 'vq'dg'co qpi 'vj g'dguv'kp'vj g'y qtnf0

### Vj g'qti cpk|cvkqp'qk'vj g'rtqlguukqp

Ecpcf c'ku'c'xkt wcn'r ctcf kug'hqt''tcpurcvqtu="kv'ku'r tqdcdn{ 'y g'r rceg'y j gtg''y g'r tqhguukqp'ku'o quv'uvt wewt gf 0'lp'' c''eqwpvt { 'qh''dct gn{ ''49"o knhqp'r gqr ng. ''y gtg''ctg''pq''nguu''y cp''47'f khhgt gpv'cuuqekcvkqpu''qh''tcpurcvqtu. 'kpvgtr t gvgtu'' qt''vgto kpqnqi kuvu0'Ki'y g'y gtg''vq''kpenwf g''y g''qti cpk cvkqpu''y cv'j cxg'f kucr r gctgf ''ukpeg''y g''hktuv''vtcpurcvqtuø'' cuuqekcvkqp''y cu'hqwpf gf 'kp''3; 3; ''\*vj g''Egteng''f gu''Vtcf wevgwtu''f gu''Nkxtgu''Dngwu+: ''y g''vqvcn'y qwrf ''tgcej ''570'' Dgwy ggp''3; 3; ''cpf ''3; : 6.''c''pgy ''cuuqekcvkqp''qh''vtcpurcvqtu. ''kpvgtr t gvgtu''qt''vgto kpqnqi kuvu'y cu'hqto gf .''qp'' cxgtci g.''gxgt { ''y q''{gctu0}

Vj g"y q"qrf guv'cpf "rcti guv'tcpurcvqtuø'cunqekc\upu"lp"\j g"eqwp\t {"ctg"\j g"Cunqekc\upu"qh"\tcpurcvqtu"cpf" | Kp\uput tg\uput tg\

Vj gtg"ctg"vy q"tgcuqpu"hqt"vj g"r tqrkhgtcvkqp"qh"vtcpurcvqtuø"cuuqekcvkqpu0"Hktuv."dgecwug"r tqhguukqpcn"cuuqekcvkqpu" hem/wpf gt 'r tqxkpeken/lwtkuf kewlqp. 'Ecpef kep 'vtcpurevqtu'o wuv'qti epk g'yi go ugnxgu'd { 'r tqxkpeg0'Vj gtg'etg' cuuqekcvkqpu'qh'vtcpurcvqtu'cpf 'kpvgtrtgvgtu'kp'gki j v'qh'vj g'32'rtqxkpegu'cpf 'kp''qpg''qh'vj g'vy q'vgttkqtkgu0' Vqi gyj gt. "yj gug"pkpg"cuuqekcvkqpu"o cmg"wr "yj g"Ecpcf kcp"Vtcpurcvqtu"cpf "Kpvgtr tgvgtu"Eqwpekrl\*EVKE+."c" pcvkqpcnlhgf gtcvkqp"y j kej "tgrtgugpvu" Ecpcfc"qp"kpvgtpcvkqpcnldqfkgu"uwej "cu"yjg" KpvgtpcvkqpcnlHgfgtcvkqp"qh" Vtcpurcvqtu'\*HKV+"cpf 'vj g'Tgi kqpcn'Egpvtg'hqt'Pqtvj 'Co gtkec'\*TEPC+0'Vj g'TEPC.'hqwpf gf 'kp'3; : 8. 'r tqxkf gu' c'hlpmidgw ggp''y g'EVKE.''y g'Co gtlecp''Vtcpurcvqtu'Cuuqelcvkqp'\*CVC+'cpf'O gzleqøu'Cuqelcels>p'fg'' Vtcf wevqtgu'Rtqhgukqpcngu'\*CVR+0'Vj g'hwpevkqp''qh'EVKE'ku''vq''eqqtfkpcvg''vj g''cevkxkxkgu''qh'vj g'o go dgt''uqekgvkgu'' cpf "vq"ugv"uvcpf ctf u"hqt"i qxgtpkpi "vj g"r tcevkeg"qh"vtcpuncvkqp0"Hqt"gzcorng. "EVKE"ku"tgur qpukdng"hqt"qticpk|kpi" yj g'pcvkqpcn'egtvkhlecvkqp"gzco 'hqt"tcpuncvqtu. "eqphgtgpeg"kpvgtrtgvgtu. "eqwtv'kpvgtrtgvgtu'cpf"vgto kpqnqikuvu0Cv" yj g'3; ; 2"HKV"Y qtnf 'Eqpi tguu'y j kej 'y cu'j gnf 'kp'Dgni tcf g. 'Igcp/Htcp±qku'Iqn{ ."c'Ecpcf kcp'y j q'j cf 'ugtxgf 'cu' rtgukf gpv'qh'EVKE 'htqo '3; : 5'\q'3; : 8.'y cu'grgevgf 'rtgukf gpv'qh'\y g'y qtrf y kf g'hgf gtc\kqp0 Vj g'ugeqpf 'tgcuqp'hqt'vj g'r tqrkhgtcvkqp'qh'vtcpurcvqtuø'cuuqekcvkqpu'j cu'vq'fq'y kvj 'vj g'kpetgcugf 'hgxgrl'qh' ur gekenk cvkqp'kp''y g'r tqhguukqp0'Ukpeg''y g'o kf/3; 92u.''y gtg''j cu'dggp'c'o ctngf 'vgpf gpe{'hqt''tcpurcvqtu'vq'' i tqwr "yj go ugnxgu kpvq"cuuqekcvkqpu"y j kej "tghngev"yj gkt 'hkgrf u 'qh'kpvgtguv0Cr ctv'htqo "yj g"r tqxkpekcn'cuuqekcvkqpu." yj gtg"ctg" wy q"cuuqekcykqpu" hqt "xkuwcn" hcpi wci g"kpygtrtgygtu. "cp" cuuqekcykqp" qh" hkygtct { "\tcpurcyqtu. "cp" cp" cuuqekcvkqp"qh"Uej qqnu'qh"Vtcpurcvkqp"\*ECUV+."vq"pco g"dwv"c"hgy 0"Y kij kp"vj g"QVKCS."ugr ctcvg"eqo o kwggu" j cxg"dggp"etgcvgf "hqt"vgto kpqmi kuvu."eqphgtgpeg"kpvgtrtgvgtu"cpf"eqwtv'kpvgtrtgvgtu0Qvj gt"i tqwru"dtkpi " Oqtgqxgt."cv'vj g'kpkkcvkxg'qh'Lwfkj "Yqqfuyqtvj "qh'Eqpeqtfkc"Wpkxgtukv{."c"ngctpgf "uqekgv("qh'vtcpuncvkqp" uej qrctu'y cu'cnıq'hqwpf gf 'kp'3; : 9<'vj g'Ecpcf kcp'Cuuqekcvkqp'hqt''Vtcpurcvkqp''Uwf kgu''\*ECVU+.''vj g'hktuv'qh'ku'' mkpf 'kp''yi g''y qtnf 0'Kku'r tko ct { "qdlgevkxg''ku''vq''r tqo qvg''cpf 'f kuugo kpcvg''tgugctej 'kp''vtcpuncvkqp''cpf 'tgncvgf 'hkgnf u0

#### Rwdrlæc vkqp u

Uq. "Iwuv'cu'tcpurcvqtuø'cuuqekcvkqpu'j cxg'dgeqo g'kpetgcukpi n{ 'ur gekcnkt gf. 'uq'vqq'j cxg'tcpurcvkqp'r wdnkecvkqpu0' Vj ku'ku''t wg''pqv'qpn{ ''qh'r gtkqf kecnı''dw''cnıq ''qh'dqqmı0Wpvkn'yj g'3; 82u. 'vtcpurcvqtu''uwej ''cu''U{nxc''Encr kp. ''N² qp'' I 2 tkp. "N qp" Nqttckp. 'Rkgttg' F CXKC WNV' cpf "I gevqt' Ectdqppgcw'r tqf wegf "i muuctkgu. "xqecdwrctkgu. "dkrkpi wcn" f kewkqpctkgu'cpf 'y qtmu'qp'wuci g0'Htqo '3; 92'qpy ctf u.'c'f khhgtgpv'v(r g'qh'dqqm'cr r gctgf 'qp'vj g'o ctmgv'vj g' vyto kpqnqi { "cpf "\tcpurc\kqp"\yzvdqqn0\Vj g"\kvrgu"\yj cv"hqmqy "ctg"|\wvv"c'hgy "gzco r rgu"qh"\dqqmu"qh"\yj ku"\y{ r g<K3 pg" f g'Dvkuugt gv'\*/I whf g'f w'tt cf wevgwt.'3; 94. 't gxkugf 'cpf 't gr t kpvgf 'kp'3; 97'cu'/F gwz 'hcpi wgu.'ukz 'hf kqo gu+=" I gqhtg{"Xkxcrg."O kej grl"Ur ctgt"cpf "Tqdgtv"Nctqug"\*I whf g"f g"hc" \text{\text{t} cf wevkqp" \text{crrn} \text{k}\text{v}^2 g. \text{\text{K}}\text{3}; 9: \text{\text{K}}\text{3}; : 2\text{\text{-}}" Tqdgtv'F wdwe''\*O c pwgn'r t c vks wg'f g''vgt o kpqrqi kg."3; 9: + Lgcp'F grkurg''\*N p C p c n' ug'f w'f kweqwt u''eqo o g''o ² vj qf g''' $f \ g'' t \ c f \ we v \ d p. "3; : 2." Nc "V t \ c f \ we v \ d p'' t \ c k u \ q p p^2 \ g. "3; ; 5 + "I \ w \ "T \ q p f \ g c w' "K p t \ q f \ we v \ d p'' w "t c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "K p t \ q f \ we v \ d p "w "t c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "K p t \ q f \ we v \ d p "w "t c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "K p t \ q f \ we v \ d p "w "t c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "k p t \ q f \ we v \ d p "w "t c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "k p t \ q f \ we v \ q p "w "t \ c "v g t \ o \ k p \ q n q i \ k g. "3; : 3 + "I \ w \ "T \ q p f \ g c w' "k p t \ q f \ we v \ q p "w "t \ q p \ q n q i \ k g. "3; : 3 + "I \ w \ q p \ "w \ "t \ q p \ q n q i \ k g. "3; : 3 + "I \ w \ q p \ "w \ "t \ q p \ q n q i \ k g. "3; : 3 + "I \ w \ q p \ "w \ "t \ q p \ q n q i \ k g. "3; : 3 + "I \ w \ q p \ "w \ "t \ q p \ q n q i \ k g \ "t \ q p \ q n q i \ k g \ "t \ q p \ q n q i \ k g \ "t \ q p \ q n q i \ q$ Encwf g'D² f ctf "\*Nc "Vt cf wevkqp" vgej pks wg."3; : 8±"Tqdgtv'Nctqug" vJ gqt kgu'eqpvgo r qt ckpgu'f g'nc '\t cf wevkqp." 3; : ; +0'Vj g'j kuvqt { ''qh'\tcpurcvkqp''ku'cpqvj gt''hkgrf ''vj cv'uggo u'\q''cwtcev'Ecpcf kcp''\tcpurcvkqp''uej qrctu. ''cu'' gxkf gpegf "d{"yj g"hqmqy kpi "vkvrgu<"Nqvku"I OMgm("\*Vj g"Vt wg"Kpvgt r t gvgt."3; 9; =:"Rcwn'COI qti wgrkp"\*Cpvj qrqi kg"  $fg'hc''ocpk^3tg'fg''vtcfwktg.$ "3; : 3+="Igcp'F grkurg'\*Dt kf i kpi 'vj g'Ncpi wci g'Uqrkwf gu."3; : 6="Vtcpurcvkqp'kp" Ecpcfc. '375663; : 6. '3; : 9="Vj g'Ncpi wci g'Crej go kuu.'3; ; 2+="Cppkg"Dtkuug\"\*Uqekqet kiks wg'f g'rc'\'it cf wevkqp0'  $Vj^2 \neg tg''gv'cn^2tk^2''cw'S wgdge.'3; 8: 63; ::: '3; ; 2+0'Vj g''r tgf qo kpcpeg''qh''dqqmu''qp''tcpurcvkqp''r gf ci qi {''kp''y g''}$ cdqxg"rkuv'kpf kecvgu'vj g'ko rqtvcpeg'vj cv'vtcpurcvqt"vtckpkpi "j cu'cuuwo gf 'kp'Ecpcf c'ukpeg'vj g'rcvg'3; 82u0

#### Vtckpkpi

Rtqhguukqpcn'\tcpurc\kqp''j cu''dggp'\cwi j v'cv'\yi g''Wpkxgtuk\{ ''qh''Qwcy c''ukpeg''3; 58. ''cv'O eI km'Wpkxgtuk\{ ''kp'' O qpvtgcn''ukpeg''3; 65. ''cpf ''cv'\yi g''Wpkxgtuk\<sup>2</sup> ''f g'O qpvt<sup>2</sup> cn''ukpeg''3; 730

Y ký "ý g"r wdrkeckqp"qh"ý gkt "tgpqy pgf "*Wy rkuks wg"eqo r c t ² g"f wht cp±cku"gv"f g"n¢cpi rc ku*"kp"3; 7: ."Igcp" F CTDGNP GV"\*3; 266; 2+"cpf "Igcp/RcwriXkpc{"\*3; 32/+"o cf g"c"uwduvcpvkcn"eqpvkdwkqp"vq"vtcpurcvkqp" r gf ci qi {"cpf "j cxg"nqpi "ukpeg"cej kgxgf "kpvgtpcvkqpcn"tgeqi pkkqp"hqt"y gkt"y qtn0"Vj g{"rckf "ý g"i tqwpf y qtm"hqt" y j cv"Xkpc{"j ko ugrh"ecmgf "ý g":Ecpcf kcp"uej qqn"qh"vtcpurcvkqpø\*\*Xkpc{"3; 7: <36: +0"Vtcpurcvqtu"cpf " wgto kpqnqi kuw"dgrqpi kpi "vq"y ku"uej qqn"j cxg"uj ctgf "c"eqo o qp"vgpf gpe{"vq"hqewu"qp"y g"eqpetgvg"tgcrkv{"qh" rcpi wci g."tcyj gt"y cp"qp"cduvtcev"r tkpekr rgu. "cpf "dgrkgxg"y cv"÷y g"r tko ct{"i qcn"qh"cp"cf gs wcvg"vtcpurcvkqp" yi gqt{"ku"vq"hcekrkvcvg"y g"cev"qh"vtcpurcvkpi ø"\*Xkpc{"3; 97<39="vtcpurcvgf+0"}

Vj g'tcrkf'i tqy vj "qh'\tcpurcvqt'\tckpkpi "ukpeg'\tj g'rcvg'3; 82u'ku'tghrgevgf 'kp''pwo gtqwu'r wdrkecvkqpu''qp'\gcej kpi "o gvj qf u'cu''y gm'cu''c''uki pkhecpv'pwo dgt''qh''eqphgtgpegu''f gxqvgf 'y j qm{."qt'kp''r ctv."vq''yj ku'\qr ke0'Qp''7" P qxgo dgt''3; 77."Ecpcf kcp''\tcpurcvqtu''j grf ''yj gkt'hktuv'i gpgtcn'o ggvkpi 'kp''O qpvt²cn'0'Ukpeg''

y cv'j kunqtle"o ggvlpi ."'y g{ "j cxg"qti cpl\ gf "cp"cxgtci g"qh"y tgg"\q'hkxg"eqphgtgpegu."ugo kpctu"qt"o ggvlpi u" cppwcm{0

Vj g''r tqrkhgtcvkqp''qh''r tqhguukqpcri'cuuqekcvkqpu. 'ur gekcrk gf ''r wdrkecvkqpu. ''ttckpkpi ''r tqi tco o gu''cpf 'eqphgtgpegu'' tghrgewi'y g'ko r qtvcpeg''qh''ttcpurcvkqp''kp''Ecpcf c0'Kp''cf f kkqp. ''c''ttwg''ur ktk'qh'eqqr gtcvkqp''gzkuwi'dgw ggp'' r tqhguukqpcri'cuuqekcvkqpu. ''r tqhguukqpcri'ttcpurcvqtu''cpf ''wpkxgtukv{ ''ycej gtu''qh''vtcpurcvkqp0'Vj ku''vtkr ctvkxg'' eqqr gtcvkqp''j cu''ngf ''vq''y g'f gxgrqr o gpv'qh'c''xctkgv{ ''qh''vtcpurcvkqp''vqqnu. ''o cej kpg''vtcpurcvkqp''u{ uvgo u''cpf '' vgto kpqrqi { ''dcpmu0'KV'j cu''cnuq''tguwnygf ''kp''vtcpurcvqt''vtckpkpi ''r tqi tco o gu''y cv''ctg''dgwygt''cf cr vgf ''vq''y g''pggf u''qh'' y g''o ctngv0'Eqqr gtcvkqp''nkgu''cv'y g''j gctv'qh'y g'Ecpcf kcp''vtcf kkqp''cpf ''ceeqwpwu'hqt''y g''ewttgpv'cej kgxgo gpw''qh'' Ecpcf kcp''vtcpurcvqtu0

## Nwgtct{'\tcpurc\range\qp

Cnj qwi j "Ecpcf c'ku'qhhkekcm( 'dkrkpi wcn' y g'xqnwo g''qh'hkvgtct ( '\tcpurcvkqp'ku'uo cm'eqo r ctgf '\q' y g'o cuu'qh' pqp/rksgtct{"\gzvu"\yi cv"ctg"\tcpurcvgf "qp"c"tgi wrct"dcuku0Ceeqtf kpi "\q"\yi g" kpf gz"\Vtcpurcvkqpwo "\si3;: 8+:"\yi g" Pgyjgtrcpfu'r wdrkujgu'33'\kogu'oqtg'rkxgtct{"\tcpurc\kqpu'\yjcp'Ecpcfc."Uygfgp'\ukz'\kogu'oqtg."cpf''Hkprcpf" cpf "Rqtwi cn'vy keg'cu'o wej 0'Kp'Ecpcfc." vj gtg'ku'c 'vgpf gpe{ 'vq'wug'vj g'vgto ":rkvgtct{ 'vtcpurcvkqpø'vq'tghgt 'pqv' qpn("'q"pqxgnı."r qgvt {."guuc {u'cpf 'f tco c'dwi'cnuq"vq"y qtmı"kp"'y g"j wo cpkkgu'cpf 'uqekcn'uekgpegu0 Nkgtct{"tcpurcvkqp"cu"c"i gptg"o cf g"ku"f2dw"ctqwpf"3; 82<":Dghqtg"3; 82"pq"uki pkhecpv"pqxgn"y cu" vtcpurcvgf ø \*\*Utcvhqtf '3; 99 <'x +0'Rtkqt '\q' vj cv'\ko g. 'Ecpcf c' j cf 'r tqf wegf 'pq' o qtg' vj cp' 82/qf f '\kvrgu' \*o ckpn{ " ceeqwpwl'qh'Htgpej "gzr mqtgtu"cpf "xq{ci gtu+: 'j cnh'qh'y j kej 'y gtg'\tcpurcvgf "cpf 'r wdrkuj gf "gnugy j gtg<'kp" Gpi rcpf. 'Htcpeg''qt''y g''Wpkgf''Uvcvgu0'Vj g'tgrcvkxg''uweeguu''qh'hkgtct{''vtcpurcvkqp''ukpeg''y g'3; 82u''ecp''dg'' cwtkdwgf "'q''y g'kpvtqf wevkqp"qh'y g'Ecpcf c'Eqwpeknøu"Vtcpurcvkqp"I tcpwi'Rtqi tco o g'kp'3; 94. "'y g'kpetgcug'kp" yj g'pwo dgt ''qh'S wgdge ''cpf ''Gpi rkuj /Ecpcf kcp'r wdrkuj kpi ''j qwugu. ''cpf ''yj g'hqwpf cwlqp''kp'3; 97''qh''yj g''Cuuqekcwlqp'' qh'Nkgtct{"Vtcpurcvqtu."y j kej "i cxg"nkgtct{"\tcpurcvqtu'y j cv'Rj krkr "Utcvhqtf "ecrogf "c"÷eqrogevkxg"ugpug"qh" kf gpvkv{ ø\*3; 99<xkkk+0Hgy "tcpurcvqtu"ctg"cdrg"vq"o cng"c"rkxkpi "qwv"qh"rkvgtct { "tcpurcvkqp"cmpg. "gxgp"vqf c { 0" O quv'ctg"cecf go keu. "ekxkri'ugtxcpvu. "lqwtpcrkuvu. "ucrctkgf" 'tcpurcvqtu'y ky kp "eqtr qtcvkqpu. "qt" htggrcpegtu0 Qpg" gzegr wkap'y qtyj { "qh'o gpwkap"ku"Uj gkrc"Hkuej o cp"\*3; 59/+:"y j q"j cu'vtcpurcvgf "qxgt"52"dqqmu'kpvq"Gpi rkuj "qxgt" yj g'eqwtug"qh'37"{gctu0Vj gug'kpenwf gf 'y qtmu'd{"uqo g'qh'yj g'dguv/npqy p'S wgdge"cwyj qtu. 'uwej "cu'Cppg" J <sup>2</sup> dgtv.'O ctkg/Encktg'Dncku.'O kej gnl'Vtgo dnc{.'Ices wgu'Rqwrkp.''Xkevqt/N<sup>2</sup>x{''Dgcwrkgw.''[ xgu'Dgcwej go kp''cpf'' Tqej 'Ecttkgt0

Geqpqo ke 'hcevqtu'j cxg"eqpvtkdwgf "vq"vj g"nqy "xqnwo g"qh"nkvgtct { "vtcpuncvkqp"kp"Ecpcfc0"Vj g"i qkpi "tcvg"hqt" vtcpurcvqtu'y qtmkpi 'kp''y g'eqo o gtekcn'qt''cf o kpkuvtcvkxg''ugevqt'ku''vy keg''y g''o czko wo ''tcvg''r ckf ''d{ ''y g'Ecpcf c'' Eqwpeln0Kpkkcm("c"o gtg"hkxg"egpwi'r gt"y qtf."vj ku'tcvg"y cu'uvkm'qpn("32"egpwi'r gt"y qtf "kp"3;; 50P gxgtvj grguu." yj g'Eqwpeknou''Vtcpurcwlqp''I tcpvu''Rtqi tco o g'j cu''gpeqwtci gf 'o cp{'r wdrkuj gtu''vq''ncwpej ''vtcpurcwlqp'' eqmgevkqpu0'Vj g'O qpvt² cn/dcugf 'r wdrkuj kpi 'j qwug'Ng'Egterg'f w'Nkxtg'f g'Htcpeg'\*mpqy p'\qf c{ 'cu'Ngu' f kxkqpu' Rkgttg"Vknug{tg+'y cu'vj g'hktuv'vq'ncwpej "uwej "c'ugtkgu."kp'3; 95."wpf gt'vj g'vkng"Eqnngevkqp'f gu'F gwz "Uqnkwf gu" \*chygt"J wi j "O ceNgppcpøu"pqxgn"Vy q"Uqrkwf gu."3; 67+0Vj g"y q"uqrkwf gu"tghgt"\q"Ecpcf cøu"y q"o ckp"hcpi wci g" itqwru."Hicpeqrjqpgu"cpf"Cpinqrjqpgu."yjq"nlxg"ulfg"d{"ulfg"ykjqw"tgcm("wpfgtucpflpi"qpg"cpqvjgt0Qpg" qh'y g'ur gekhe'qdlgevkxgu'qh'y g'hgf gtcn'i tcpvu'r tqi tco 'ku'vq'gpcdrg'Ecpcf kcpu'vq'dgeqo g'dgwgt'ces wckpvgf'' y ký "ý g"qý gt"uqrkwf g"ý tqwi j "rkvgtcwtg0Kp"3; : ; . "ý g"r wdrkuj kpi "j qwug"S w² dge/Co² tks wg"rcwpej gf "c"pgy " ugtkgu'qh'\tcpurc\kqpu'ecrngf " $Nkw^2tcwtg'f\phi Co^2tkswg O'Ngu'gfkkkqpu'Dqt^2cri'cnuq'r wdrkuj gu'\tcpurc\gf 'y qtmuO'$ Gpi nkuj "nksgtct{"tcpuncvkqpu"ctg"r wdnkuj gf "r tko ctkn{"d{"yj g"hqmqy kpi "uo cmgt"r tguugu<"J ctxguv'J qwug."J qwug"qh" Cpcpuk'P gy 'Rtguu.'Rqte²r ke.'Gzkrg.'Eqcej 'J qwug.'Vcmpdqqmu.'Vwpf tc.'I wgtpkec'cpf 'P E'Nkdtct{0 Cu'hct "cu'r qgvt { "ku'eqpegtpgf." 'y g'o ci c | kpg" Gnkrug" \*3; 8; /+ 'r wdrkuj gu'vtcpurc vkqpu 'qh'r qgvt { "d { "qpg" Gpi rkuj "cpf" qpg"Htgpej "r qgv"kp"gcej "kuuwg0"Vj ku'o ci c| kpg"j cu"kpvtqf wegf "kwu'tgcf gtu"vq"c"hcti g"pwo dgt"qh"S w² dgeqku'cpf " Gpi rkuj /Ecpcf kcp'r qgwl'cpf 'j cu'dtqwi j v'vqi gyj gt'c'f kuvkpi wkuj gf 'cpf 'gxgt/i tqy kpi 'i tqwr 'qh'vtcpurcvqtu'qh'  $r \operatorname{qgvt} \{0O \operatorname{go} \operatorname{dgtu''qh''y'} \operatorname{ku''i} \operatorname{tqwr''j} \operatorname{cxg''kpenwf} \operatorname{gf''} \operatorname{Iqj} \operatorname{p'I} \operatorname{rcuueq''*3}; 2; \circ: 3+ \text{''Htcpm'} \operatorname{T} \operatorname{Ueqw''*3}: ; ; \circ 3; : 7+ \text{'F} \operatorname{II} \operatorname{Uqpgu.''} \operatorname{Iqpgu.''} \operatorname{upqu''} \operatorname{Squameq''*3}: ; \circ 3 : 3+ \text{''Htcpm'} \operatorname{IQeqw''*3}: ; ; \circ 3; : 7+ \text{''F} \operatorname{II} \operatorname{Uqpgu.''} \operatorname{Uqpgu.''} \operatorname{Uqpgu.''} \operatorname{upq''} \operatorname{Squameq''} \operatorname{Squameq$ Les wgu'Dtcww.'Lwf kj 'Eqy cp.'Tqdgtv'cpf''

Ej ctmwg'O grcp±qp. 'Igcp'Cpvqpkp'Dkrctf. 'Ctrgwg'Htcpeketg'cpf'Mcvj { 'O g| gkO Qpn("w q"Gpi nkuj /Ecpcf kcp"r nc {u"y gtg"tcpuncvgf "r tkqt"vq"3; 92."cpf "xgt {"hgy "j cxg"dggp"tcpuncvgf "ukpeg"vj gp0" Vj ku'ecp''dg''gzr nckpgf ''d{ ''yj g''cevkxkv{ ''qh''S wgdge''r nc{/y tki j vu.''y j qug''y qtmu''ctg''r tqo r vn{ ''vtcpuncvgf ''kpvq'' Gpi nkuj ."cpf "cnuq"d { "vj g"r tghgtgpeg"y kyj kp"S wgdge"yj gcvtg"ektengu"hqt"Co gtkecp."Dtkkuj ."T wuukcp"qt"Kcnkcp" r nc{u0Kphrwgpegf "d{"vj g"pgy "uv{ng"qh"f tco c"kpvtqf wegf "d{"O kej gn"Vtgo dnc{"kp"3; 8: ."i tqy kpi "pcvkqpcnkuv" ugpvko gpv. "cpf "vj g"gpj cpegf 'uvcwu"qh"c "v{r kecm{ "S w² dgeqku"rcpi wci g. 'vtcpurcvqtu'y j q"cf cr v'y qtmu 'hqt "vj g" yj gcvtg'dgi cp''vq''pcwtcnlt g''hqtgki p''r nc {u0'Vj g''ej ctcevgtu''qh''Uj cngur gctg. 'Ej gnj qx. 'QaP gkm''Nqtec. 'Dtgej v'qt'' I qnf qpk'y gtg"o cf g"vq"ur gcm'S w² dgeqku0'Kpuvgcf "qh'ugnh/ghhcekpi "vtcpuncvkqpu"y j kej "cko "vq"r tqxkf g"ceeguu'vq" yj g'hqtgki p'y qtm'yj gug'cf cr vcvkqpu'r tqxkf gf 'c'o gcpu'qh'gzr tguukpi 'yj g'ur gekhkekv{ 'qh'S wgdge'\*Dtkuugv'3; ; 2+0 Cpf 'hkpcm(.''y j gtg''v{r gu''qh'nkgtct { ''\tcpurc\kqp''ctg''eqpegtpgf.''k\'ku'ko r quukdrg''\q''ki pqtg'\yi g'kp\ygpug.''qtki kpcn'' gxgp'cxcpvi ctf g'crrtqcej 'qh'hgo kpkuv'tcpurcvqtu0Vj gug'tcpurcvqtu'o ggv'htgs wgpvn{ 'cv'eqphgtgpegu'cpf' ugo kpctuOVj g{ "y qtmlenqugn{ "y kj "'y g'cwj qtu" y g{ "\tcpurcvg"cpf "r wdrkuj "dkrkpi wcn'gf krkqpu'qt"ur gekcn'kuuwgu'qh" o ci c| kpgu'uwej "cu" Vguugt c O Vj g"y qtmu'yj g{ "tcpurcvg"ctg"cm'hkto n{ "tqqvgf "kp 'hgo kpkuv'kf gqrqi { . "cpf "yj g" vtcpurcvkqpu"ctg"ecttkgf "qwv"r tko ctkn{ 'htqo "Htgpej "kpvq"Gpi rkuj 0'S wgdge"pqxgrkuvu. "r qgvu"qt 'hgo kpkuv'yj kprngtu" uwej "cu'P keqng'Dtquuctf.'Nqwr { 'Dgtukcpkm'Nkug'I cwxkp.'Htcpeg'Vj2qtgv.'Ocfgngkpg'I ci pqp'cpf'Iqxgwg" O ctej guucwn/ctg'/tcpurcvgf 'd{ 'vj gkt'Gpi rkuj / Ecpcf kcp'eqwpvgtr ctw0'Uwcppg'f g'Nqvdkpktg/J cty qqf '\*3;; 3+." Detdete'I qf etf .'Meyj { 'O g| gk 'O etrgpg'Y krf go ep. 'Hkqpe'Uteej ep. '[ xqppg'Mrgkp'epf 'I ckrl'Ueqw'etg'rgef kpi " tgrtgugpvcvkxgu''qh''y g'hgo kpkuv''crrtqcej ''vq''vtcpuncvkqp''kp''Ecpcfc0 Qp''y g'y j qrg.''y g'pwo dgt''qh''tcpurcygf 'rksgtct { "dqqmu'f qwdrgf "gxgt { 'rksgt' { gctu'f wtkpi ''y g''3; 92u0'Wpskri'y g'' 3; : 2u. "cm quv"y keg"cu"o cp{"hkgtct{"\tcpurc\kqpu" \kp"y g'\understand g'untkev'ugpug"qh"y g'\understand g'\und Gpi nkuj "yj cp"xkeg"xgtuc0"kp"3; 99. "hqt"gzco r ng. "yj g"uvcvkuvkeu"y gtg"cu"hqmqy u<"H G<"5: 2"\kvngu≓G H<"3; 20"Hkxg" {gctu'ncvgt."vj g"i cr "j cf "pcttqy gf <"H G<772"\kvrgu="G H<6220"Vj tgg"s wctvgtu"qh"cm"Ecpcf kcp"rkvgtct{" vtcpurcvkqpu'j cxg''crrgctgf 'ukpeg'3; 94. "cpf "o qtg''y cp": 2"rgt "egpv'qh''y gug''vtcpurcvkqpu'y gtg''uwdukf k gf 0 Kp"3; 96. "vj g"Ecpcf c"Eqwpekn"guvcdrkuj gf "c"r tkt g"qh" &4722 "vq"dg"cy ctf gf "gcej "{ gct "vq" vy q"qwuvcpf kpi " vtcpurcvkqpu qh'y g'I qxgtpqt'I gpgtcmu'guvcdrkuj gf 'Nkgtct { 'Cy ctf u0Vj g'tgekr kgpvu'kpenvf g'Igcp'Rct². 'Uj gkrc'Hkuej o cp." [xcp"Uggpj qw'\*cm'y tgg"qh'y j qo "j cxg"y qp"y g"cy ctf "y keg+: "Rcvtkekc"Enczvqp. "Tc{"Gngpy qqf." Eqngwg" Vqpi g. 'Htcpm'Ueqw.'I kmgu'J 2 pcwnv.'Rj krkr 'Uttcvhqtf.'Ej ctmqwg'O gmp±qp''cpf 'Icpg'Dtkgtn{0Kp'3; : 3.''y g'' Cuuqekcvkqp"qh"Nksgtct{"Vtcpurcvqtu"etgcvgf"vjg"Iqjp"I rcuueq"Vtcpurcvkqp"Rtk|g"kp"o go qt{"qh"vjg"go kpgpv" y tkgt "cpf "\tcpurc\qt0\Vj g"r tk g"ku"cy ctf gf "cppwcm{ "\q"\j g"dguv'dqqm/rgpi \j "\tcpurc\kqp"d { "c"pgy "\tcpurc\qt0 D{ 'eqpytcuv'y ky 'kpygtrtgykpi .''y g'hktuv'rtqhguukqp'rtceykugf 'kp'Ecpcfc'hqmqy kpi ''y g'cttkxcn'qh'y g'Gwtqrgcpu'kp'' 3756. 'hksgtet { "\tepure klqp' j eu'e' uj qt v' j ku qt { "qh' pq' o qtg' vj ep' 62" { getu0' Y gtg' kv' pqv' hqt' i gpgtqwu' i qxgtpo gpv'

# Hwt vj gt 't gcf lpi

uwr r qtv. "kv"o c { "pgxgt" j cxg"dgeqo g"c"r tqo kpgpv"cevkxkx{0P gxgt y grguu. "y g"tgrcvkxgn{"uo cm'i tqwr "qh'rkxgtct { "vtcpurcvqtu" \*crrtqzko cvgn{"322+"ku"cu" korqtvcpv"cpf" cevkxg"cu" y g"y j qrg"r tqhguukqp"qh" vtcpurcvkqp" kp" Ecpcf c. "c"

eqwpvt { "y j kej "wps wguvkqpcdn( "tcpmu"co qpi "vj g"y qtnf øu hqtgo quv vtcpunc vkpi "pc vkqpu0

Vtcpurcygf 'It qo 'Htgpej 'd{ 'Uctcj 'EONqw

#### Dkqi tcr j kgu

FCTDGNP GV.'Lgcp'N0\*3; 266; 2+0'Dqtp'kp''Rctku''cpf ''gf wecvgf ''cv''y g''N{e² g'Ectpqv'cpf ''y g''Uqtdqppg.'' Fctdgppgv'dgi cp''j ku''cecf go ke''ectggt''kp''Dtksckp''cu''c''tgcf gt''kp''Gpi rkuj ''cv''y g''

wpkxgtukkgu"qh"Y crgu. "Gf kpdwti j "cpf "O cpej guvgt0Kp"3; 59. "j g"y gpv"vq"Co gtkec"y j gtg"j g"dgeco g"cp"kpuvtwevqt" kp"Htgpej "cv"J ctxctf "Wpkxgtukx{"\*3; 5: 6; +0 Kp"3; 62."j g"o qxgf "\q"Ecpcfc."y j gtg"j g"y cu'\q"ur gpf "\j g"tguv'qh"j ku" nkhg"cpf "\q"f gxgnqr "cp"kpygtpcykqpcn'tgr wcykqp"cu"c"\tcpurcykqp"uej qrct0J g"\cwi j v'hktuv'cv'O eI km'Wpkxgtukv{" \*3; 6268+."y j gtg"j g'ugv'wr "c"y tgg/{gct"r tqi tco o g"qh"pki j v'encuugu'kp"\tcpunc\kqp."y gp"cv'Dqy f qkp"Eqmgi g" \*3; 68684+"cpf 'hkpcm{ "cv'Ncxcn'Wpkxgtukx{ "\*3; 84697+."y j gtg'j g"eqpvkpwgf "cu'Rtqhguuqt'Go gtkwu'chvgt'j ku" tgwł go gpw T ct dgrpg v ku dguv npqy p hqt j ku ugo kpcn y qt m qp 't cpurc wqp 'r gf ci qi { ." Un rku ks wg eqo r ct 2 g f w" htcp±cku'gv'f g'høcpi rcku 'y j kej 'j g'eq/cwj qtgf 'y kj 'Igcp/Rcwh'Xkpc{ 'cpf 'r wdrkuj gf 'kp'3; 7: 0

FCXKCWNV.'Rlgttg'\*3:;; 63; 86+0 Ecpcf kcp'tcpurcvqt.'lqvtpcrkuv'uej qrct.'cpf 'c'r kqpggt'kp''y g'hkgrf 'qh' vtcpurcvqt "tckpkpi 0"Y j krg"y qtmkpi "cu"c 'tcpurcvqt 'hqt"r ctnkco gpv. "j g"r tqr qugf "vq" y g"tgevqt "qh' y g"Wpkxgtukv{ "qh" Qwcy c''y cv'c''eqwtug''kp''r tqhguukqpcn''tcpurcvkqp''uj qwrf ''dg''qhhgtgf = j g''y gp''r tqeggf gf ''vq''vgcej ''y cv'xgt { ''eqwtug'' ht "49" {gctu0Cp" gzr gtv'tcpurcyqt" cpf "Uwr gtkpygpf gpv'qh' yj g"Vtcpurcykqp" Dwtgcw'htqo "3; 77' yq "3; 86. "F cxkcwn"  $cnuq''r\ tqf\ wegf\ 'pwo\ gtqwu''r\ wdnlec\ vlqpu''qp''tcpunc\ vlqp''j\ kuvqt\{''cpf\ ''gzkeqi\ tcrj\ \{.''hqt''gzco\ r\ ng''Ncpi\ ci\ g''gv''\ pu''' | pwo\ gtqwu''r\ wdnlec\ vlqpu''qp''tcpunc\ vlqp''j\ kuvqt\{''cpf\ ''ngzkeqi\ tcrj\ \{.''hqt''gzco\ r\ ng''Ncpi\ ci\ g''gv''\ pwo\ gtqwu''r\ wdnlec\ vlqpu''qp'''tcpunc\ vlqp''j\ kuvqt\{''cpf\ ''ngzkeqi\ tcrj\ \{.''hqt''gzco\ r\ ng''Ncpi\ ci\ g''gv''\ pwo\ gtqwu''r\ wdnlec\ vlqpu''qp'''tcpunc\ vlqp''j\ kuvqt\{''cpf\ ''ngzkeqi\ tcrj\ \{.''hqt''gzco\ r\ ng''Ncpi\ ci\ g''gv''\ pwo\ gtqwu''r\ wdnlec\ vlqpu''qp'''tcpunc\ vlqp''j\ kuvqt\{''cpf\ ''ngzkeqi\ tcrj\ \{.''hqt''gzco\ r\ ng''Ncpi\ ci\ g''gv''\ pwo\ gtqwu''r\ wdnlec\ vlqpu'' vlqp''' vlqp$ tcf weekqp"\*3; 83+0

FQTKQP.'Gwi 3 pg/Rj ktkrrg'\*3: 52694+0 Ecpcf kcp'hcy {gt."\tcpurc\qt"cpf "uej qrct0 Crrqkp\ygf" \tcpurc\qt"kp'\yjg" Cuugo dn ("qh'y g'Rtqxkpeg"qh'Ecpcf c'kp'3: 77. 'F qtkqp'y cu'ecngf 'wrqp'yq'j gcf 'kw'Htgpej 'tcpurcyqtuø'dwtgcw'kp'' 3: 7; .'c'r quv'y cv'j g'j gnf 'uwdugs wgpvn('y ky 'y g'J qwug'qh'Eqo o qpu'kp'Qwcy c'wpvkn'3: 920J ku'eqpvgo r qtctkgu'' ur qng'j ki j n{ "qh'j ku'mpqy ngf i g"qh'encuukecn'ncpi wci gu. "cu'y gm'cu'qh'Gpi nkuj . "Htgpej "cpf 'uqo g'Kpf kcp" ncpi wci gu0J g'ku'dgnkgxgf ''vq'j cxg'ko r tqxgf ''vj g''uv{ nkuvke''s wcnkv{ "qh'ngi kuncvkqp''vtcpuncvgf ''kpvq''Htgpej 0 GXCPU'Lco gu'\*3: 23668+0'C''pcvkxg''qh'Mkpi uvqp/wrqp/J wm'kp''Gpi rcpf.''yj g'Tgxgtgpf''Lco gu''Gxcpu.''c'' Ogyj qf kuv'o kpkuvgt. "o cf g"cp"kpxcnvcdrg"eqpvtkdwkqp"vq"vj g"ur tgcf "qh"vj g"I qur gn"kp"Ecpcf c"d { "f gxkukpi "c" y tkolopi 'u{uvgo 'hqt'Kofkop'nopi wci gu0'Y j kng''y qtmlopi 'kp''Wrrgt'Ecpcfc'\*Qpvctkq+:"j g'ngctpgf'Qlkdyc{"cpf'qvjgt" Kof kep 'repi wei gu'epf 'tepurevgf 'r euwei gu'htqo 'y g'Dkdrg'epf 'y g'eevgej kuo . 'eu'y gm'eu'ugxgten'j {o pu0Wukpi " j ku'mpqy ngfi g''qh''uj qtyj cpf.'j g''y gp''f gxkugf ''c''u{ mcdke'hqto ''qh''y tkkkpi 'hqt''Qlkdy c{0Chygt''j ku''\tcpuhgt''\q'' Pqty c{"J qwug"kp"O cpkqdc. "Gxcpu"ngctpgf "vj g"Etgg"ncpi wci g"cpf. "kp"3: 62. "o qf khkgf "j ku"u{ mcdke "u{ uvgo "vq" uwk/'y g'r gewrlctk/kgu'qh'Etgg0'Vj ku'u{ uvgo "eqwrf "dg'ngctpgf "kp"c'hgy "j qwtu0'Gxcpu'dgeco g'mpqy p"cu"÷y g"o cp" y j q'o cf g'dktej dctm'\cmpa''dgecwug''j g''wugf ''dktej ''dctm'kpuvgcf ''qh'r cr gt ''cpf ''\tcpuetkdgf ''\yj g''ej ctcevgtu''qh'j ku'' u{medke"uetkr v'qp"kv'y kyj "uqqvORtqvguvcpv'cpf "Tqo cp"Ecyj qrke"o kuukqpctkgu"crkmg"cf qr vgf "j ku'u{medke 'u{uvgo "vq" j grr ''y go ''ectt { ''qww''y gkt ''gxcpi grkecn'y qtm'y kj ''y g''Kpf kcpuOGxcpu''rghv'dgj kpf ''pwo gtqwu''vtcpurcvkqpu''qh'' tgrki kqwu''vgzwu''y j kej 'j g'j cf 'r tkpvgf 'j ko ugrh'qp'c'o cnguj khv'r tguu0Kp'3: 83. '37''{ gctu'chvgt'j ku'f gcyj . 'vj g'Dtkvkuj " cpf "Hqtgki p"Dkdrg" Uqekgv{ "kp" Nqpf qp"r tqf wegf "vj g"gpvktg" Dkdrg "kp" Etgg"u{ mcdkeu0 

Vj gkt "ghhqt vu"gpcdrgf "Gf o wpf "Rgem'vq" vtcpurcvg" o cp { "dkdrkecn'y qtmu"kpvq" u { mcdkeu. "c" vcum'j g"dgi cp"kp" 3:98" \*J ctr gt'3; : 5+0

GTCUO WU.'Rgvgt'\*3: 5563; 53+0C'pcvkxg'qh'Tgf'Tkxgt.'O cpkqdc.'Rgvgt'Gtcuo wu'y cu'y g'uqp'qh'c'Fcpkuj' o cp"cpf "c"O gwku'y qo cp"cpf "c"ngi gpf ct { "hki wtg"kp" yi g"Ecpcf kcp" Y guw Qxgt "yi g"eqwtug" qh'j ku'nqpi "nkhg. "j g" ugtxgf "cu'kpvgtrtgvgt." tcpurcvqt. "i wkfg. "gzrrqtgt." o crrgtøu "cuukuvcpv. "rtqurgevqt. "hctogt. 'hwt' vtcfgt. "i qxgtpogpv" go rm{gg"cpf "vgcej gt0J g"j grr gf "dtkpi "r gceg"cpf "Ej tkuvkcpkv{ "vq"pwo gtqwu"kpf kcp"vtkdgu. "kpvgtr tgvgf "j wpf tgf u" qh'ugto qpu. "cpf "tcpurcvgf "mpi "gzegtr wi'htqo "yj g'Dkdrg"cpf 'htqo "r tc{gt"dqqmu'kpvq'Etgg0J g'\tcpuetkdgf 'Etgg" wukpi "y g"Ncvkp"crr j cdgv" y g"o wuv'j cxg"dggp"wpcy ctg"qh'y g'u { mcdke 'y tkkpi "hqto "y cv'Lco gu"GXCP U'j cf " f gxgnqr gf +0Nkng'Igtt { 'RQVVU'cpf 'Ej cornckpøu'kpvgtr tgvgtu.'j g'ur gpv'ugxgtcn'{ gctu'cu'c'tgukf gpv'kpvgtr tgvgt0Kp'' cffkkqp"\q"Gpi rkuj ."Gtcuo wu'ur qng"Etgg."Qlkdy c{"cpf"

Drcenhqqv=j g"eqwf "gxgp"tgcf "I tggn0Vj tqwi j "j ku'qy p"r gtuqpcn'ghhqtvu."pwo gtqwu'vtgcvkgu'y gtg"uki pgf." kpenwf kpi "c"y gm/mpqy p"\tgcv{"y j kej "y cu"pgi q\tc\gf" kp"3: 98"d{ "\tj g"rkgwgpcp√i qxgtpqt"qh"O cpk\qdc"cpf '\tj g" Pqtyj y guv'Vgttk/vqtkgu. 'Crgzcpf gt'Oqttku0Ej kgh'Cj/wm/c/mwr '\*Uvct'Drcpngv+'vqrf 'vj g'o go dgtu'qh'j ku'Dcpf " Eqwpekn<":-Rgvgt 'Gtcuo wu'ku'ngctpgf 'kp''yj g'ncpi wci g''yj g'I qxgtpqt 'ur gcmu0']í \_'J g'ku'j gtg''vq''qr gp''qwt''g{gu''cpf " gctu'\q'\j g'y qtf u'\j cv'{qw'cpf 'Kecppqv'wpf gtuvcpf ø'\Gtcuo wu'3; 98468+0'Y j gp'\j g'pgi q\kc\kqpu'y gtg'' eqorngvgf. "vjg"hkgwkgpcpvi qxgtpqt"vqnf"Gtcuowuk":{qw"ctg"vjg"hktuv"ocp"K/gxgt"jgctf"yjq"kpvgtrtgvgf"vq"uwej"c" ncti g'cwf kgpeg'y ky qwi'o cmkpi 'c'o kuvcngø'\*Gtcuo wu'3; 98466+0Kp'r c{o gpv'hqt'y g'hkxg'f c{u'y cv'y g'' pgi qwcwqpu'ncuygf.'j g'tgegkxgf "&4; 2.'vj g'gs wkxcrgpv'qh'c'hwm'{gctøu'gctpkpi u'hqt'c'vtcrrgt0'vj cv'uco g''{gct.'j g'' y cu'j ktgf 'd{ 'vj g'i qxgtpo gpv'cu'cp'kpvgtrtgvgt 'cv'c'ucnct { 'qh'8822'c' { gct. 'c'uwduvcpvkcn'uwo 'kp''yj qug'fc { u0 RQVVU.'Lgtt{'\*e\B: 596; 8+0Hcy gtrguu'cv'w q"{gctu'qh'ci g.'O gwu'Lgtt{'Rqwu'nkxgf "co qpi "y g'hwt'\tcf gtu'lp" Ecpcf c0J ku'f ckn('eqpvcev'y kyj 'vj g'Kpf kcpu'i cxg'j ko 'vj g'qrrqtwpkx('vq'ngctp'Etgg'cpf'Ukqwz.'kp'cff kkqp'vq'' Drcenhqqv."j ku"o qyj gt "vqpi wg0Kp"3: 95. "chwgt "y qtmkpi "hqt "xctkqwu" vtcf kpi "eqo r cpkgu."j g"lqkpgf "yj g"P qtyj "Y guv" o cmgt "cpf "pgi qvkcvqt0"Y j gp"kpvgtrtgvkpi "htqo "cp"Kpf kcp"ncpi wci g"kpvq"Gpi nkuj ."j g"y cu"crrctgpvn{"vgtug="uqo g" uckf "yj cv"-j g"ur qmg"c"urtcpi g"Gpi nkuj ø"\*Hctf { "3; : 6<96+0"Dw"y j gp"j g"kpvgtr tgvgf "kpvq"c"pcvkxg"ncpi wci g."j g" ur qng'r cuulqpcvgn( "cpf "gmqs wgpvn( 0"Vj tqwi j /qwv'j ku'ectggt." vj g"+r crcf kp"qh'vj g'r rckpuø'cu'vj g{ "ecngf "j ko " gplq{gf "yj g'tgur gev'qh'y j kg'o gp'cpf 'pcvkxgu'cnkng. "c'tctg'qeewttgpeg'kp'c'r gtkqf 'o ctngf 'd{'j ki j 'tcekcn'vgpukqp0 LGCP 'F GNKUNG

# Ej kpgug'tt cf kkqp

Ej kpgug."c"Ukpq/Vkdgvcp"rcpi wci g."ku"cp"qhhkekcn'rcpi wci g"qh"yi g"Wpksgf "P cvkqpu"cpf "ku"ur qngp"d{ "o qtg"r gqr ng" yi cp"cp{"qyi gt"rcpi wci g"kp"yi g"y qtnf 0'KV"ku"yi g"qhhkekcn'rcpi wci g"qh"yi g"Rgqr ngøu"Tgr wdnke"qh"Ej kpc"cpf "Vcky cp." qpg"qh"yi g"qhhkekcn'rcpi wci gu"kp"J qpi "Mqpi "cpf "Ukpi cr qtg."cpf "ku"ur qngp"d{ "c"rcti g"ugevkqp"qh"yi g"r qr wrcvkqp" kp"Vj ckrcpf."O crc{ukc"cpf "Xkgypco 0

Vj g'Ej kpgug'icpi wci g'qh'j ki j ''cpuks wkx{ .'y j kej 'i qgu'dcem'vq'vj g'hktuv'o kmgppkwo ''DE.''j cu'tgo ckpgf ''ceeguukdng'' vq'gf wecvgf ''ur gcngtu''qh'Ej kpgug''d{ ''xkt wwg''qh'j cxkpi ''dggp'tgeqtf gf ''kp''vj g'hqto ''qh'ej ctcevgtu.''k0g0kf gqi tcr j u0' Wprkng''c'r j qpgvke''uetkr v.''kf gqi tcr j u'ctg''pqv'chhgevgf ''d{ ''r j qpqmi kecn'gxqnwkqp''cpf ''ctg''vj gtghqtg''rcti gn{ '' ko o wpg''vq''ej cpi g0'Kpgxkcdn{ .''j qy gxgt.''vj g''ur qngp''rcpi wci g''f gxgnqr gf ''cmpi ''kwu''qy p''rkpgu.''cpf ''vj g''i cr '' dgw ggp''vj g''y tkwgp''cpf ''ur qngp''y qtf ''i tgy ''y kf gt''cpf ''y kf gt0'D{ ''vj g''vko g''c''rksgtcwtg''kp''vj g''xgtpcewrct'' go gti gf .''vj g''ur qngp''hqto ''y cu''crtgcf { ''s wkxg''f kurkpev'htqo ''ercuukecn'Ej kpgug0'Vj g''xgtpcewrct'' f kf ''pqv'tgr rceg'' ercuukecn'Ej kpgug''cu''vj g''o gf kwo ''qh'hqto cn'y tkwgp''f kueqwtug''wpvkn'vj g''hktuv'j cnh'qh'vj g''vy gpvkgvj ''egpwt{0} Ercuukecn'Ej kpgug''ku''ej ctcevgtk| gf ''d{

\*c+'ku'j ki j 'f gpukv{.''qhvgp''eqo r ctgf 'vq''yj g''uv{ rg''qh''vgrgi tco u

\*d+'kuu'i too o cvkecn'x gtucvkrkv{ ."y j gtgd{ "vj g'uco g''ej ctcevgt "ecp''hwpevkqp"cu''c 'pqwp. 'xgtd. ''cf lgevkx g''qt ''cf xgtd \*e+''kvu''ur ctkpi ''wug''qh''vgpug''cpf 'pwo dgt

\*f +'ku'\qpcrkx{."c'hgcwtg'y j kej 'ku'r ct\kewrctn{ "tgrgxcpv'kp'hkgtct{ "eqo r qukkqp"cpf 'j gpeg'kp'hkgtct{ "tcpurcvkqp0

Vj gug"ej ctcevgtkuvkeu"j cxg"vtcf kvkqpcm{ "ngf "vq"y kf g"f kvhgtgpegu"kp"kpvgtr tgvcvkqp. "r ctvkewrctn{ "gxkf gpv"kp"vj g"ecug" qh"vtcpurcvkqp0"Vj g"xgtpcewrct "rcpi wci g."pqy "mpqy p"cu"O cpf ctkp"qt"rwqpi j wc. "ku"j gcxkn{ "r qn{ u{ mcdke. "j cu" o qtg"f ghkpkg"y qtf "encuugu. "cpf "o cngu"o wej "o qtg"wug"qh"i tco o cvkecn'o ctmgtu. "vj qwi j "d{ "pq"o gcpu"cu" gzvgpulxgn{ "qt"qdnki cvqtkn{ "cu."uc{ ."Htgpej "qt"I gto cp0"Vtcpurcvkqp"htqo "Gwtqr gcp"rcpi wci gu. "r tgf qo kpcpvn{ "Gpi nkuj ."j cu"r tqi tguulxgn{ "dtqwi j v'o qf gtp"Ej kpgug"enqugt"vq"yj qug"rcpi wci gu. "cv"ngcuv"kp"vgto u"qh"y tkxkpi "uv{ ngu0

C''xcuv'eqwpvt { ''y kij ''ueqtgu''qh'tgi kqpcn'hcpi wci gu. 'Ej kpc''j cu''r tqdcdn( ''y kxpguugf ''\tcpurcvkqp''cpf ''kpvgtr tgvkpi '' cevkxkvkgu''ukpeg''yj g''hktuv''vtkdcn'dcwrg''qt''r tqf weg/gzej cpi g0'Gctn( ''

j knytkecn'y qtmu'uwej "cu''y g'hktuv'egpwt{ "DE'T geqtf u'qh'y g'T tcpf "J knytkcp"eqpvckp"o cp{"tghtgpegu'vq" tcpurckqp"kp"y g'eqpvgzv'qh'f kr mo ce{ "cpf"eqo o gteg0Cu'gctn{"cu''y g'\ j qw'F {pcuv{."kp"y g'pkpy "egpwt{"DE." y gtg"y gtg"ur gekcnii qxgtpo gpv'qhhkekcni'kp"ej cti g'qh'kpvgtr tgvkpi "cpf "tcpurckqp"y qtm±'y gkt "kxrgu'xctkgf" ceeqtf kpi "vq"y g'i tqwr "qh'rcpi wci gu'y g{ "eqxgtgf 0Cp"kpvgi tcnir ctv'qh'r tqvqeqn"y g{ "y gtg"cny c{u'r tgugpv'cv' o ggvkpi u'y ky j'hqtgki p"go knuctkgu0Vj g'vgto "hqt"c'i qxgtpo gpv'kpvgtr tgvgt"qh'y ku'r gtlqf "y cu'uj gt gp. "hkgtcm{" -xqpi wgu/o cpø0Vj g'ewttgpv'Ej kpgug'y qtf "hqt"-xtcpurcvkqpø"/k "hqto u'y g'dcuku'hqt"y g'qhhkekcn'kxrg"cf qr vgf "ukpeg"y g'J cp"F {pcuv{"\*3; 7"DE/CF"9+c'/ki wcp"qt"/kij k "hkgtcm{":xtcpurcvkqp"qhhkekcn\*0J knytkecn'tgeqtf u'cnq" uj qy "y cv'f wtkpi "y g'J cp"F {pcuv{."tcpurcvqtulkpvgtr tgvgtu"\*/kij cpi +'y gtg'tqwkpgn{"go r mq{gf"d{"o gtej cpw"qp" y gkt"npi "tkr u'vq"Uqwj /Gcuv'Cukc"cpf "Kpf kc='y g{"y gtg"cnq"r tgugpv'kp"y g'o gtej cpv'ectcxcpu'dqwpf "hqt"uvcyu" uwej "cu'Dcevtkc"vq"y g'pqty /y guv'qh'Ej kpc0F wtkpi "y g"Vcpi "F {pcuv{"\*83: 6; 28+"c"r gtlqf "kp"y j kej "ewnwtcn" gzej cpi gu'dgw ggp"Ej kpc"cpf "j gt"pgki j dqwtkpi "uvcyu'tgcej gf "pgy "j gki j vu."c"eqpulf gtcdng"pwo dgt"qh" hqtgki pgtu'y j q'hksgf "kp"Ej kpc"y gtg"go r mq{gf"cu'i qxgtpo gpv'kpvgtr tgvgtu"cpf "y gtg"cmy gf "vq"ceeqo r cp{" Ej kpgug"qhhkekcni'qp"f kr mo cvke"o kuklqpu0

Kô'ý g'5.222"{gctu'htqo "ý g'\ j qw'F {pcuv{ "vq'ý g''t tgugpv."ý g''dtgcf/cpf/dwwgt"qh'ý g''Ej kpgug''tcpurcvtøu'y qtm' j cu''cny c{u''dggp'kp''i qxgtpo gpv'cpf "eqo o gteg0'Vj gtg''ctg''gzvcpv'r qgvt{ "vtcpurcvkqpu''f cvkpi "dcem'vq''cv'ngcuv'ý g" hqwty "egpwt{ "DE."dw'yj gug"gctn{ "iksgtct{ "vtcpurcvkqpu'y gtg''o quvn{ "tgeqtf gf "cu''r ctv'qh''ý g''gzr gtkgpeg''qh'' xctkqwu''f kr mo cvke''o kuukqpu0'Vj gtg''j cxg''dggp''r gtkqf u."j qy gxgt."y j gp''vtcpurcvkqp''r re{ gf "c''et wekcn'tqrg''kp'' Ej kpcøu''ewnwtcn'cpf "uqekcn'f gxgrqr o gpv."i qkpi "hct''dg{ qpf "ý g''eqphkpgu''qh'i qxgtpo gpv''cpf "eqo o gteg0'Vj g" o quv'uki pkhecpv'qh''ý gug''r gtkqf u''tgrevg''vq''ý g''tcpurcvkqp''qh'Dwf f j kuv'uetkr wtgu."ý g''y qtm'qh'Ej tkuvkcp'' o kuukqpctkgu."ý g''r qrkxkecn'cpf "ewnwtcn'gxgpvu''ngcf kpi "vq''y g''O c{ "Hqwty "O qxgo gpv."cpf "ý g''go gti gpeg''qh''y g'' Rgqr rgøu'Tgr wdnke''qh'Ej kpc''cpf "uwdugs wgpv'eqpvcev'y ký "Gwtqr gcp''eqwpvtkgu0'Dw''tcpurcvkqp''cpf "kpvgtr tgvkpi " j cxg''cnq''j cf "c''tqrg''q''r re{ "kp''Ej kpc''qwukf g''qh''uwej "r gcm'r gtkqf u''cpf ."cr ctv'htqo "ý g''o clqt 'hcpi wci gu'' kpxqrxgf "kp''y qug''r gtkqf u."c''uki pkhecpv'pwo dgt''qh'Ej kpgug''dqmu''j cxg''dggp''tcpurcvgf "htqo "ý g''grgxgpyj " egpwt { "qpy ctf u''kpyq''uwej "rcpi wci gu''cu''O qpi qnkcp."Y guygtp'Zkc."O cpej wtkcp''cpf "Lcr cpgug0

# Vt cpurc wkqp'qh'Dwf f j kuv'iet kr wwt gu

Vj g'htuv'y cxg'qh'\tcpurc\kqp''ce\kxk\kgu'\kp'Ej kpc''eco g'\kp'\y g'y cng'qh'\y g'\ur tgcf 'qh'D\wf f j kuo 0'D{ '\y g''o kf '' ugeqpf/egpwt { 'CF .'\y g'htuv'Ej kpgug''\tcpurc\kqpu''qh'D\wf f j kuv'u\wtcu''j cf ''dggp'\wpf gt\cngp''\y q\wi j ''uqo g'' uqwtegu''r wv'\y g''{ gct ''cu''gctn{ ''cu''CF ''92+0'Vj ku''o ctngf '\y g''dgi kppkpi ''qh'c''o cuukxg''\tcpurc\kqp''o qxgo gpv.''qh\wgp'' ur qpuqtgf ''d{ ''y g''i qxgtpo gpv.''y j kej ''ncu\wgf ''hqt''pkpg''egpwtkgu0'I kxgp'\y j g'\ko g''ur cp''cpf ''y g''pwo dgt''qh'' \tcpurc\kqp''o gy qf u''cpf ''crrtqcej gu''f kf ''pqv'tgo ckp''u\wc\ke=''gxgp''y g''ewn\wtcn'cpf ''hpi \wku\ke'' dcemi tq\wpf ''qh'\y g'\tcpurc\qtu''ej cpi gf ''eqpukf gtcdn{ ''qxgt'\y g''egp\wt\kgu0

Vj g''tcpurckqp''qh'Dwf fj kn'hwtcu'htqo ''Ucpuntk'lpvq''Ej kpgug''ecp''dg''f kxkf gf ''tqwi j n( ''kpvq''y tgg''r j cugu<'' Gcuvgtp''J cp'F {pcuv{ "cpf "vj g''Vj tgg''Mpi f qo u''Rgtkqf "\*e036: 6487#"Llp'F {pcuv{ "cpf "vj g'P qtvj gtp''cpf " Uqwj gtp''F {pcuv{ "cpf "V gtp'' Uqpi "F {pcuv{ "cof "V gtp'' Uqpi "F {pcuv{ "cof "Y gtp'' Uqpi "F {pcuv{ "cof "Y gtp'' Uqpi "F {pcuv{ "cof "S3322#0 F wtkpi "vj g''htuv'r j cug. "vj g''tcpurcvqtu''y gtg''o qpmu''htqo "Egpvtcn'Cukc"cpf "Zkplkcpi ='vj g''o clqtkv{ "y gtg''tgur gevgf" hqt''y gkt''tgrk kqwu''npqy rgf i g. "dw''y gkt''eqo o cpf "qh''y g''Ej kpgug''ncpi wci g'y cu''xgt { "r qqt0O qpmu''htng'' Rctvj co cuktku''htqo "Rctvj kc''\*vj g''htuv''tcpurcvqt''qh'Dwf fj knv'uwtcu''kpvq''Ej kpgug+"uckf "vq''j cxg''cej kgxgf "c''hckt'' eqo o cpf "qh''Ej kpgug''pqv''nqpi "chxgt''j ku''cttkxcn'kp''y g''eqwpvt { .''y gtg''hgy "cpf 'hct''dgwy ggp0'Vj ku''hpi wknvke'' f kucf xcpvci g''ku''tghrgevgf "kp''y g''tcpurcvkqpu''r tqf wegf "f wtkpi "vj kn''r gtkqf <'cnij qwi j "vj g''hqtgki p''o qpmu''j cf''y g'' cuukuvcpeg''qh''y gkt "Ej kpgug''r wr knu'qt "eqwpvgtr ctvu. "o cp{ "qh''y g''tcpurcvkqpu''uvkn'tgcf "cy my ctf n(OO qtgqxgt."c'' rcti g''pwo dgt''qh''y g''gctn( "Ej kpgug''Dwf fj knv'\tcpurcvkqpu''y gtg''pqv''dcugf "qp''Kpf kcp''yz vu. "dw''y gtg''kpf ktgev'' tcpurcvkqpu''xkc''uqwtegu''p''y g''o qpma'tcpurcvqtøu'o qvj gt''qpi wg0

Vj g'gctn( ''tcpurcvkqp''o gyj qf 'tghrgevgf ''y g'uvtgpi y ''cpf ''y gcmpguu''qh''y gug''tcpurcvqtu. ''cu''y gm'cu''y g'go r j cuku'' r reegf ''qp''y gqnqi kecn''

ceewtce{0'Vtcpurcvkqp"Hqtwo u."qt"/kej cpi ."y gtg"ugv'wr ."y kyj "c"j ki j n( "tgxgtgf "Dwf f j kuv'o qpm'cu'Ej kgh" Vtcpurcvqt"\*{k/j w+0"Vj g'hqtgki p"o qpmøu'\cum'y cu'\j cv'qh'gzrrckpkpi "kp'f gvckn'\j g'rtgekug"o gcpkpi "qh'\j g'\gzvu0"  $\label{thm:linear_weight} \textbf{Wpf gt ''j g'hqtgki p''o qpm'y gtg''qpg''qt''o qtg'' \textbf{Kp} vgtr tgvgtu'' \textbf{\textit{f}} w w''qt'' \textbf{\textit{e}} j wcp \{w + \text{'eqpxgtucpv'y kj ''y g''o qpm'y u'' } \}$ ncpi wci g="yj gkt"\cum'y cu'\q"kpvgtrtgv"yj g"o qpmøu"gzrnlecvkqp"kpvq"Ej kpgug0"kp"yj g"cwf kgpeg"y gtg"ueqtgu." uqo gwlo gu'j wpftgfu. "qh'Ej kpgug"o qpmu"cpf "rc{"uej qrctu"y j q'tgeqtfgf "kp"pqvg"hqto "vj g'hqtgki p"o qpmøu" gzr n'ecvkqp0'Vj g'Ej kpgug''tcpurcvkqp''y cu''y gp''eqo r krgf ''d{ ''y g'Tgeqtf gt''\*dkuj qw+ô y g'r gtuqp'tgur qpukdrg'hqt'' y tkkpi 'f qy p''y g'Kpvgtrtgvgtøu'y qtf u'kp'Ej kpgug0'Vj g'r tqeguu'kpxqnxgf 'eqpuwnkpi 'pqv'lwuv'y g'Tgeqtfgtøu'qy p'' pqvgu. "dw'cnuq"pqvgu'\cngp"d{ "qvj gtu'kp"vj g'cwf kgpeg0'Vj g'vj tgg'uvgr u'qh'kpvgtr tgvkpi . "tgeqtf kpi "cpf 'ej gemkpi " y gtg''y g'dcuku'hqt''cm'Vtcpuncwlqp''Hqtwo 'y qtn0'K'ku''qdxkqwu''y cv'y g'hqtwo u'y gtg''pqv'qpn{ 'o gcpv'vq'r tqf weg'' Dwffjkuv'vgzvu'kp'Ejkpgug. 'dww'y gtg'cnuq'c'nkpf 'qh'kpvgpukxg'ugokpct'qp'Dwffjkuv'uwtcu. 'cpf'kv'y cu'pqv'wpwuwcn' hqt"yj g"Ej kpgug"yzv"cpf "c"f gyckrgf "cppqycykqp"yq"dg"r tqf wegf "uko wrxcpgqwun( 0'Dgecwug"qh"yj g"uvtqpi " yj gqmqi kecn'go rj cuku. 'yj g'hqtgki p'o qpmô f gur kg'j ku'ncem'qh'npqy ngf i g''qh''yj g''vcti gv'ncpi wci gô y cu''cny c{u'' dkngf "cu'y g''Vtcpurcyqt." y j krg''y g'r gtuqp'y j q'f kf "y g'cewcn'y tkkpi "kp'Ej kpgug'y cu'etgf kvgf "cu'y g'T geqtf gt0 Vj g'ugeqpf 'r j cug'qh'uwtc''tcpurcvkqp''y cu'o ctngf 'd { 'vj g'qhhkekcvkqp''qh'r tqo kpgpv'hqtgki p'o qpmu'\*uqo g'' f ktgevn( 'htqo ''y g'Kpf kcp''uwdeqpvkpgpv+''y j q'j cf 'rgctpgf 'Ej kpgug.''cpf 'y j q'y gtg''y wu'cdrg''vq'f grkxgt''c''xgtdcri' Ej kpgug'tcpurcvkqp"qh'tj g'tgzvu'kp'tj g''Vtcpurcvkqp'Hqtwo 'y kvj qwv'tj g'cuukuvcpeg'qh'cp'kpvgtrtgvgt0'Vj gkt'xgtdcn' vtcpurc wkqpu'y gtg'r ww'kpvq'y tkwkpi "d{"yj g'Tgeqtf gt."y j q"yj gp"ej gengf "yj g'y tkwgp"\gz vu'f ktgevn("y kxj "yj g"o qpm/ vtcpurcvqt0'Qpg''qh''yj g''o quv'tgur gevgf ''cpf ''r tqf wevkxg''o qpm/vtcpurcvqtu'y cu''MWTCO CLKXC''\*CF ''5666635+." y j q'tgpf gtgf ''qxgt''522''xqnwo gu''kpvq'Ej kpgug0'Kb'y cu''cnuq''chvgt''y g''cttkxcn'qh''Mwtco clkxc''kp''Ej kpc''\*CF''623+'' yj cv'f gwkrgf 'tgeqtf u'y gtg'ngr v'qh'yj g'pwo dgt 'qh'r ctvkekr cpw'kp'yj g''Vtcpurcvkqp''Hqtwo u0'Vj g''uecrg''qh'hqtwo u'' rtgukfgf"qxgt"d{"Mwtcoclkxc"ycu"rctwlewrctn{"itcpf."htgswgpvn{"pwodgtkpi"qxgt"5.222"rctwlekrcpvu="yig"pqto" hqt"cwgpf cpeg"cv"hqtwo u"j grf "d{"qyj gt"o qpmu"uggo u"vq"j cxg"dggp"kp"yj g"j wpf tgf u"tcyj gt"yj cp"yj qwucpf u0P qv" gxgt { "hqtgki p"o qpm'cevkxg"kp"yj ku'r gtkqf ."j qy gxgt ."j cf "o cuvgtgf "vj g"Ej kpgug"rcpi wci g="uqo g"uvkm'tgrkgf " eqo r ngvgn("qp"kpvgtr tgvgtu"f wtkpi 'hqtwo "uguukqpu0O qtgqxgt."qpg"ecppqv'r tguwo g"vj g"gzkuvgpeg"qh"c"y tkwgp" vgz v'cu'c'dcuku'hqt'tcpuncvkqp0'Dwffjkuv'uwxtcu'y gtg'qhvgp'ngctpgf'xgtdcm('cpf'o go qtktgf'd{'vjg'o qpmu.'yjq' hktuv'tgeksgf "yj g"uwtc'kp"Ucpumtki'kp"yj g"Vtcpumvkqp"Hqtwo ."cpf "yj gp"r tqeggf gf "vq"\tcpumvg"cpf 'kpvgtr tgv'kv'kp" Ej kpgug0'Kp''uwej ''ecugu. ''c''Ucpuntkv'xgtukqp''y cu'tgeqtf gf ''f wtkpi ''vj g''uco g''hqtwo ''cu''vj g''Ej kpgug''xgtukqp0 Vj g"'y ktf "r j cug"qh'uwtc"tcpurckqp"uj qy gf "c"o ctngf "f gr ctwtg'htqo "r tgxkqwu'r tcekegu'kp"'y cv'y g'r tqeguugu'qh" yj gamai kech'gzr nkecklap "cpf" 'tcpurcklap "dgeco g"ugr ctcvgf 0"Vj g"ukt g"ah "Vtcpurcklap" "Hatwo u'y cu't gf wegf" f tco cylecm(ô pqto cm('pq'o qtg''y cp''y tgg'f q| gp'o qpmu'y gtg'kpxqrxgf 0'Vj ku'ku''y twg''qh'cm'hqtwo u'j grf 'htqo " yj g'ncvg'ukzyj "egpwt{"qpy ctf u. "kpenwf kpi "yj qug"r tgukf gf "qxgt"d{"yj g"o quv'r tqrkhke"o qpm/vtcpurcvqt"kp"Ej kpgug" j kuvqt {."ZWCP"\cpi "\*CF"824686+."c"Ej kpgug"o qpmlhco qwu'hqt"j ku'r kni tko ci g"vq"Kpf kc."y j q"tgpf gtgf "qxgt" 3.522 'xqnwo gu'qh'uwtcu'kpvq'Ej kpgug0Qpg'o clqt'tgcuqp'hqt'y g'pgy '\tcpurc\kqp'r tce\keg'y cu'y g'kpetgcugf " nkpi wkuke "cpf "yi gqmi kecn'gzr gt kug "qh'Ej kpgug"o qpmu0Y j gtgcu "cno quv'cp { qpg "eqwrf "lqkp" yi g "qrf/uv{ rg" Vtcpurcvkqp"Hqtwou." vjg"vjktf/rjcug"hqtwou"ygtg"jkijn{"ugrgevkxg<"qpn{"oqpmu"qt"rc{"qhhkekcnu"yksj"urgekcn" cdkkkgu'y gtg"cmqy gf "\q"\cmg'r ctv="cm'gzegr v'yj qug"f ktgevn{ 'kpxqnxgf 'kp"yj g"\tcpurcvkqp"y qtm'y gtg"hqtdkf f gp"\q" gpvgt" y g"hqtwo "r tgo kuguOGcej "r ctvkekr cpv" y cu"cuuki pgf "c"ur geken'f w.{."cpf "y g"pwo dgt "qh"ur geken't gf "r quvu" kpetgcugf "vq"pkpg0'Qh"vj gug."vj g"Rqnkuj gt"\*twpy gp+"y cu"wuwcm("c"i qxgtpo gpv"qhhekcn"pqvgf "hqt"j ku"hkgtct{" cdkrk{="qvj gt"r quvu"y gtg"pqto cm{ "hkrngf"d{"o qpmu0"kp"vj g"Uqpi "F{pcuv{"\*eQ:6+."vj g"i qxgtpo gpv"cv"qpg"r qkpv" guvcdrkuj gf "c"Ucpuntky'uej qqn "tgetwkkpi "uqo g"f q| gp"r wr knu'htqo "xctkqwu"o qpcuvgtkgu"y kij "vj g"kpvgpvkqp"qh" hquvgtkpi "c"pgy "i gpgtcvkqp"qh"Dwffj kuv"vtcpurcvqtu0J qy gxgt."vj g"f gerkpg"qh"Dwffj kuo "kp"Kpfkc"cu"y gm"cu"c" ej cpi g'kp''i qxgtpo gpv'r qrke { 'rgf 'vq'c'tcr kf 'f gerkpg'kp''Dwf f j kuv'vtcpurcvkqp''cevkxkkgu'vqy ctf u'vj g'3272u0'Vj g'' fc{u'qh'y g''Vtcpurcykqp''Hqtwo u'y gtg''qxgt."cpf 'y g''Dwffjkw''tcpurcykqpu'fqpg''chygt'y ku'r gtkqf 'y gtg''

y g'y qtmı'qh'kpf kxkf wcnı'tcy gt''y cp''y g'eqmgevkxg''ghhqtvu'qh'c''wpks wg''tcpurcvkqp''guvcdrkuj o gpv0 Uwtc'tcpurcvkqp'r tqxkf gf "c'hgtvkrg'i tqwpf 'hqt'vj g'r tcevkeg"cpf 'f kuewuukqp"qh'f khgtgpv'tcpurcvkqp"cr r tqcej gu0' I gpgtcm("ur gcmkpi."\tcpurc\kqpu'r tqf wegf 'kp'\j g'hktuv'r j cug"y gtg"y qtf/hqt/y qtf 'tgpf gtkpi u'cf j gtkpi 'emugn('\q" uqwteg/mpi wci g'u{pvcz0Vj ku'y cu'r tqdcdn{ "f wg"pqv'qpn{ 'vq"yj g"mem'qh'dkrkpi wcn'cdkrkv{ 'co qpi uv'yj g"hqtwo " r ct wheler cp. w. "dww'cnuq" 'vq"c" 'dgrkgh' 'y cv' yi g" ucet gf "y qt f u" qh' 'yi g" gprki j vgpgf "uj qwrf "pqv' dg' vco r gt gf "y kyj 0 Kp"  $cf f k k qp'' q'' eqp vqt vgf'' vcti gv' mpi vci g'' u \{pvcz.'' tcpurk gt c k qp' y cu'' wugf'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' tgu v n v' y c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g '' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g '' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' n c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y g c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y g c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y g c v' y g c v' y g'' xgt \{'' k dgt c m \{.'' y k j '' y g'' tgu v n v' y g c v' y$ vtcpurcvkqpu'y gtg'hcktn{ 'kpeqo r tgj gpukdrg'\q'cp{qpg'y kyj qw'c'\y gqrqi kecn'i tqwpf kpi 0'Vj g'ugeqpf 'r j cug'ucy 'cp' qdxkqwu'uy kpi 'vqy ctf u'y j cv'o cp{ 'eqpvgo r qtct{ 'Ej kpgug'uej qrctu'ecm'/ k/ k'\*htgg'\tcpurc\kqp. 'hqt'rcem'qh'c" dgwgt 'vgto +0'U{ pvcevke 'kpxgtukqpu'y gtg'uo qqyj gf 'qwv'ceeqtf kpi 'vq'vcti gv'rcpi wci g'wuci g. 'cpf 'vj g'f tchwu'y gtg'' r qrkuj gf "vq"i kxg"vj go "c"j ki j "rkvgtct{"s wcrkv{0Mwo ctclkxc"y cu"etgf kvgf "cu"c"r kqpggt"qh"vj ku"crrtqcej 0Kp" gzvtgo g'ecugu. 'vj g'r qrkuj kpi 'o ki j v'j cxg'i qpg'vqq'hct. 'cpf 'vj gtg'ctg'gzvcpv'f kuewuukqpu'qh'j qy 'vj ku'chhgevgf 'vj g'' qtki kpcn'o guuci g0F wtkpi ''y g''y ktf''r j cug. ''y g''crrtqcej ''vq''\tcpurcvkqp''y cu''vq''c''i tgcv''gzvgpv'f qo kpcvgf''d{''Zwcp'' \cpi ."y j q"j cf "cp"gzegngpv'eqo o cpf "qh'dqvj "Ucpuntkv'cpf "Ej kpgug."cpf "y j q"cf xqecvgf "vj cv'cwgpvkqp"uj qwrf " dg'r clf '\q'\j g'\uv{ rg'qh'\j g'qtki kpcn'\gz v<'nkgtct { 'r qnkuj kpi 'y cu'pqv'\q'dg'cr r nkgf '\q'uko r rg'cpf 'r nckp'uqwteg'' vgzvu0J g"cnuq"ugv"f qy p"twrgu"i qxgtplpi "vj g"wug"qh"vtcpurkvgtcvkqp."cpf "vj gug"y gtg"cf qr vgf "d{"o cp{"qh"j ku" uweeguuqtu0

# O kudapet lgu'epf 'tt epure vlap'lp'Ej lpe

Vj g'ugeqpf 'y cxg'qh'tcpurckqp'cekxkkgu'y cu'cnq'tgrcvgf '\q'tgrki kqwu'cekxkkgu.'kp'r ctkewrct'vj qug'qh'Iguwkv' o kuukqpctkgu'y j q'cttkxgf 'kp'Ej kpc'kp'vj g'rcvg'ukzvgpyj 'egpwt {0'Vj g'Iguwku.'pqvcdn( 'O cwgq'T KEEK\*37746 3832+"f gekf gf ''vj cv'vj g''dguv'y c{ ''vq''ur tgcf ''vj g''i qur gnu'y cu'vq''ewnkxcvg''Ej kpc¢u''gf wecvgf ''ercuu0'Vq''y ku''gpf .''c'' rcti g''pwo dgt ''qh'uekgpvkhe''y qtmu''y gtg''tcpurcvgf 'kpvq''Ej kpgug''hqt''ektewrcvkqp''co qpi ''uej qrctu''cpf ''i qxgtpo gpv''qhhekcnu0'Uwej ''y qtmu''i ckpgf ''hqt''y g'Iguwkvu'c'j ki j ''tgur gev'htqo ''y g''i qxgtpo gpv''cpf ''yi g''go r gtqtu.''cpf ''cu''c'' tguwnv'hcekrkvcvgf ''yi gkt''o kuukqpct{ ''y qtm0'O kuukqpct{ ''tcpurcvkqp''cevkxkkgu''uvctvgf ''uj qtvn( ''chvgt'Tkeek''cttkxgf ''kp'' Ej kpc''kp''37: 5''cpf ''eqpvkpwgf ''kpvq''yi g''rcvg''ugxgpvggpyj ''egpwt{0'Vj g''o kuukqpctkgu''cevkxg''kp''Ej kpc''f wtkpi ''yi cv'' r gtkqf ''pwo dgtgf ''cv'hgcuv'92.''cm'qh'y j qo ''r tqf wegf ''tcpurcvkqpuc'uqo g'y gtg''f ktgev'vtcpurcvkqpu.''qvi gtu''y gtg'' eqo r krevkqpu''dcugf ''qp''gzkuvkpi ''Y guvgtp'y qtmu0'Qh'yi g''522/r nwu''kkrgu''r tqf wegf ''d{ ''yi g''o kuukqpctkgu.''qxgt''c'' yi kf ''f gcnv'y kj ''xctkqwu''dtcpej gu''qh'uekgpeg0

O knukqpct { "tcpurcvkqp" cevkxkvkgu" j cf "ugxgtcn'ej ctcevgtkuvkeu0Hktuv." c"pwo dgt "qh'o knukqpctkgu" y gtg" cewcm { " crrqkpvgf" 'vq" j g"Ej kpgug" eqwtv." qt" y gtg" i tcpvgf" ur gekcn'hcxqwtu" d { "vj g"go r gtqtu" hqt" j gkt" ugtxkegu" kp" j g"hkgnf" qh'uekgpeg0Ugeqpf. "o cp{"qh'vj g"dqqmu" y gtg" eqo o knukqpgf" y ky "ur gekhke" r wtr qugu" kp" o kpf 0C"  $\sqrt{r}$  kcn'igzco r ng" y cu'vj g"ncti g"pwo dgt" qh'dqqmu" qp" cuvtqpqo { "vtcpurcvgf" htqo "384: "vq"3857" d { "Lqj cpp" Cf co "UEJ CNN' xqp" Dgm\\$373; 63888+" cpf" Lceqdwu" Tj q"\\$37; 56385: +"hqt" y g"O kpi "i qxgtpo gpv." y j kej "y cu'kp" y g"r tqeguu" qh" tgxco r kpi "vj g"Ej kpgug" ecnpf ct0"  $\sqrt{r}$  ktf. "eqmcdqtcvkqp" dgw ggp" o knukqpctkgu" cpf" Ej kpgug" i qxgtpo gpv'qhhkekcnu" y cu'eqo o qp="o cp{"y qtmu" y gtg" eq/vtcpurcvkqpu0Uqo g" Lguvkxu" gplq { gf" c"r ctvkewrtn ("emug" tgrcvkqpuj kr" y ky "c" pwo dgt" qh'eqpxgtvgf" O kpi "F { pcuv{"Ej kpgug" qhhkekcnu" uvej "cu'Z w'I wcpi s k\\$378463855+" [ cpi "Vkpi lwp"\\$377963849+"cpf" "Nk'\ j k' cq"\\$378763852+0"  $\sqrt{r}$  g"dqqmu" qp" cuvtqpqo { "vtcpurcvgf" d { "Uej cm'cpf" Tj q. "hqt" kpuvcpeg. "y gtg" cm'r qrkuj gf" d { "Z w0}

Vj g'uekgpukhe'y qtmu'utcpurcygf 'lqkpvn( 'd{ 'vj g'o kuukqpctkgu'cpf 'Ej kpgug'uej qrctul'qhhekcnu'hcm'kpvq'vj g'' hqmqy kpi 'o clqt'ecvgi qtkgu<

\*c+"Ocyj go cykeu<"yj g"r kqpggtkpi "y qtmi'dgkpi "Gwerkf øu" Grgo gpvu. "y kyj "yj g"hktuv'ukz "ej cr vgtu' vtcpurcvgf "d{"
TKEEKcpf "Zw0'Qvj gt" pqvcdrg" y qtmu'kpenwf g" yj qug" qh' Ctej ko gf gu" cpf "Rctf kgu. "cpf "yj g" S kpi "go r gtqt"
Mcpi zk'ku'uckf "vq" j cxg" cmgp" r ctv'kp" yj g" vtcpurcvkqp" qh' y qtmu' d{"Rctf kgu=
\*d+"Cust qpqo {<"Uej cm" yj q" y cu'eqo o kuukqpgf "d{"dqyj "yj g" O kpi "cpf" yj g" S kpi "i qxgtpo gpvu' vq" cuukuv'kp" yj g" r tgr ctcvkqp" qh"

y g'pgy 'ecrepf ct.'y cu'y g'o quv'r tqrkhe 'tcpurcvqt'kp'y ku'ecvgi qt {=

\*e+"I  $gqi\ tcrj$  {<o quvn{ "kp" y g"hqto "qh" cppqvcvgf "o cru0 kpf kxkf wcn" y qtmu" qp" o kpgtcn" tguqwtegu" cpf "o kpkpi" y gtg" cnuq" tcpurcvgf . "pqvcdn{ "Ci tkeqrogu"  $Fg'tg'o\ gwcmkec =$ 

\*f +"Rj {ukeu<"kpenwf kpi "uwej "vqr keu"cu"j {f tcwrke."o gej cpkecn'cpf "ekxkr'gpi kpggt kpi 0"Vj g"dguv'mpqy p"vkng"ku" S ks k'wuj qw'\*\*Knwurt cvgf "Dqqm'qh'O kt cewnqwu'Gs wkr o gpwu+."cp"co cni co cvkqp"qh'o cvgt kcnu'i ngcpgf 'ht qo " xct kqwu'Gwt qr gcp"r wdrkecvkqpu=

\*g+'T grki kqp<'vj g''hktuv''gz vcpv''vtcpurcvkqp''qh''ugevkqpu''qh''vj g''Dkdrg''y cu''d{ ''Igcp''Dcuugw'\*388463924+0'Vj g''hktuv'' vtcpurcvkqp''qh''vj g''Qrf ''cpf ''P gy ''Vguvco gpvu''kpvq''xgtpcewrct''O cpf ctkp''y cu''f qpg''d{ ''vj g''Iguvkv''RONOF g''Rqktqv'' \*395763: 36+0'Vj gtg''y gtg''cnuq''ugxgtcri'vtcpurcvkqpu''qh''vj g''*Ko kvcvkq''Ej t kurk*''cu''y grii'cu''vtcpurcvkqpu''qh''Ecyj qrke'' ecvgej kuo u0

Chọt "ý g"Rcr criuwr r tguukqp"qh"ý g"Uqekgv["qh"Lguwu."o cp{"Lguwku"twc{gf"qp"kp"Ej kpc0Cxgp"y j gp"ý g" i qxgtpo gpv"wtpgf "ci ckpuv"ý go ."ý g{ "y gtg"r tqvgevgf"d{ "qhhkekcm"cpf "Ej kpgug"eqpxgtvu"cpf "y gtg"i gpgtcm{" cdrg"vq"eqpvkpwg"y ký "ý gkt"vtcpurcvkqp"cpf "o kuukqpct{"y qtm="c"pwo dgt"qh"y go "eqpvkpwgf"vq"ugtxg"ý g"S kpi " i qxgtpo gpv0Lgcp/Htcp=qkuT gtdkmqp"\*387863952+"cpf"Vj qo cu"Rgtgktc"\*38676392: +."hqt"gzco r rg."y gtg" cr r qkpvgf "ur gekcn"Ncvkp"kpvgtr tgvgtu"vq"c"f kr mo cvke"o kuukqp"vq"P gtej kpum"T wuukc"kp"38: ; 0
Vj g"Lguwku."cpf "rcvgt"qvj gt"o kuukqpctkgu."f kf "pqv"gpi ci g"kp"qpg/y c{ "vtcpurcvkqp"dw"y gtg"cnaq"kpuvtwo gpvcn"kp" dtkpi kpi "ý g"Ej kpgug"ercuukeu."cpf "ý gtghqtg"Ej kpgug"r j krquqr j{ ."vq"Gwtqr g0Tkeek"vtcpurcvgf "ý g"+Hqwt"
Dqqmuø\*\*I tgcv\*Ngctpkpi ."F qevtkpg"qh"y g"O gcp. "Eqphwekcp"Cpcrgewt"cpf "O gpekwu+"kpvq"Ncvkp."y j krg"P keqrcu"
Vtki cwn\*\*37996384: +"vtcpurcvgf "ý g"+Hkxg"Ercuukeuø\*\*Dqqm!qh!Uqpi u."Dqqm!qh!T qewo gpvu "Dqqm!qh!Ej cpi gu."
Dqqm!qh!Tkgu."cpf "Vj g"Urtkpi "cpf"Cwwwo p"Cppcn++:"cnuq"kpvq"Ncvkp0Uqo g"qh"yj g"kxrgu"kp"yj g"+Dqqmwø"cpf"
-Ercuukeuø'y gtg"rcvgt"tgvtcpurcvgf "d{"o kuukqp/ctkgu"cevkxg"kp"yj g"S kpi "F {pcuv{0Vj ku"rgf "vq"j gki j vgpgf"kpvgtguv" kp"Gwtqr g"bp"cm'yj kpi u"Ej kpgug."r ctvkewrtn{"kp"yj g"ugxgpvggpyj "egpwt{0}

## Vj g'gpf 'qh'go rktg

Nbpai'o kudqp"gxgpwcm{"rtqxgf"c"hckntg."cpf"chgt"c"ugtkgu"qhio krkct{"fghgcw"y g"O cpej w'twgtu"ci tggf"\q" hqwpf"c"Eqmgi g"qhiNcpi wci gui"\*Vqpi y gp"i wcp+"kp"Rgmkpi "kp"3: 840Uwfgpvu."htuv"cf o kwgf "kp"3: 89."hqmqy gf" cp"gki j v {gct"eqwtug"kp"mpi wci guô kpkkcm["Gpi rktj."y gp"Htgpej."Twutkcp"cpf"I gto cp"/cpf "pcwtcn"cpf"uqekcn" uckgpegu0Vj gkt "r tko ct {"tqrg"y cu"kp"y g"hkgrf"qh"fk r nqo ce {."dw"y g"Eqmgi g"cnuq"tcpurcyf"cpf "r wdrkti gf "dqqmu" qp"rcy."r qrkkeu"cpf "pcwtcn"uckgpegu0Vj gkt "ghhqtu"kp"y g"hkgrf "qh"rcy "y gtg"y g"o quv"uwduvcpvkcn;"rcy "dqqmu" vcpurcyf" lpenwf gf "Y j gcvqpau"kpvgtpcvkqpcn!Ncy."y g"Eqf g"Pcrqngqp."cpf "Dnwpwej nkut"kpvgtpcvkqpcn!Ncy 0 kp"y g"uqwj."y g"Ikcpi pcp"Ctugpcn!ugv'wr "ku"qy p"vtcpurcykqp"dwtgcw!kp"Uj cpi j ck!\p"3: 870Kl'dqy "eqo r ngo gpvgf" cpf"tkxcmgf "y g"Rgmkpi "Vqpi y gp"i wcp."eqpegpvtcvkpi "qp"vgej pkecn'o cpwcnt"dw"cnuq"gzvgpf kpi "kut'ucqr g"vq" go dtceg"c"dtqcf "ur gevtwo "qh"Y guvgtp"uckgpegu0Vj g"dwtgcw'y cu"tgur qpukdng"hqt"Ej kpgug"vtcpurcykqpu"qh" uvcpf ctf "Y guvgtp"y qtmu"ikng"J gtuej gmau"Qwnkpg"qhlCunqpqo {."IAF (F cpcau"Ul uvgo "qhlO kpgtqrqi {"%3: 94+"cpf" Ej ctngu"N{gmau"Rt kpekrngu"qh1I gqrqi {"%3: 95+0Dqyi "y g"Rgmkpi "cpf "Uj cpi j ck'dwtgcwu"go r m{gf 'hqtgki p" gzr gtvu"y j q"j cf "ngctpgf "uqo g"Ej kpgug."cpf "ugxgtcniqh'y go "dgeco g"mpqy p"kp"y gkt"qy p"eqwpvtkgu"cu"-Ej kpc" j cpf ux0Vj g"pqto cn'vtcpurcykqp"r tqegf wtg"y cu"hqt"y g"hqtgki p"

gzr gtwi'vq''tcpurcvg''cpf "gzr rckp''xgtdcm{ 'vq'Ej kpgug''eqmcdqtcvqtu."y j q''vqqm'yi gkt''y qtf u'f qy p''cpf 'o cf g''c'f tchv'' xgtukqp0'Vj gkt''o cpwwetkr wi'y gtg''yi gp''r qrkuj gf ''cpf 'ko r tqxgf ''uv{ rkuvkecm{ ''d{ "qhvgp"o qpqrkpi wcn'Ej kpgug'' uej qrctu'y kyj qw''hwtyi gt''tghgtgpeg''vq''yi g''qtki kpcn0'C''pwo dgt''qh'Ej kpgug''tcpurcvqtu''go r m{ gf ''d{ ''yi g''dwtgcwu." uwej ''cu''Nk'Uj cprcp'\*3: 326: 4+.'y gtg''uekgpvkuvu'kp''yi gkt''qy p''tki j v'cpf ''y gtg''yi gtghqtg''cdrg''vq''eqmcdqtcvg''y kyj ''yi g'' hqtgki p''gzr gtwi'cu''gs wcnu0'Vj g''y qtmu''d{ ''J gtuej gn'F cpc''cpf ''N{ gm'y gtg''r tqf wegf ''d{ ''uwej ''r ctvpgtuj kr u''cpf ''j cf '' c''nqpi ''nkhg''cu''eqmgi g''yzvdqqmu0

Vgej plecn'cpf 'uelgp\lhe'\gto u'r qugf 'c'r ct\lewct'r tqdrgo 0Iqj p'Ht { gt. 'y j q'ugtxgf 'cv'\j g'Ikcpi pcp'C tugpcn'hqt" qxgt '42" { gctu. 'htqo '3: 89. 'gzr rclpgf '\j gkt'o qf wu'qr gtcpf k'\Z kqpi '[ wg| j k'3; ; 6 $\checkmark$ 6; 9+\'hktuv'c'ej gem'y cu'o cf g'\q" ugg'kh'c'\gto 'y cu'kp'\j g''gzku\kpi ''rkgtcwtg''qt''kp'\wug'kp'\tcf g''ektengu=kh'pqv."c'\tcpurc\kqp'y cu'kpxgp\gf ."gkj gt''d { "eqpeqe\kpi "c''pgy "ej ctce\gt."dqttqy kpi "c''f ku\wugf ''qpg."qt''d { "eqkpkpi "c''f guetkr \kxg'\gto "\hqt"gzco r rg'' \pqwtkuj kpi "i cu\g''hqt''\qz\{i gp''qt''\priki j \v'i cu\g''hqt''j \{f t qi gp+''qt''d { "wukpi "r qn\{u\{ncdke'r j qpg\ke''tgr tgugp\c\kqp0'Vj g'' \kxgp\gf '\gto ''y cu'\j gp''gp\gtgf ''kp\q''c''f ke\kqpct { 'hqt''rc\gt 'u\cpf ctf k c\kqp0\F gur k\g'\j ku''c\wgo r \v'c\v'c''u\{u\go ." xctkc\kqp'y cu'tk\p0}

 $\label{thm:continuity:continuit$ 

Vj g'\j ktf 'hqteg'\p'\j g'\tcpurc\kqp'qh'Y guvgtp'y qtmu'y cu'pgkj gt 'qlhkeknipqt'hqtgki p0Kl'go gti gf 'lp'\j g'3: ; 2u' cpf 'y cu'eqo r qugf 'qh'pc\kxg'\pvgngewcn'cpf '\ur gctj gcf gf 'ld 'r qrkkecn'tghqto knu.'\uj g'dguv'mpqy p'\qh'\j go '' dg\pi ''Mcpi ''[ qwy gk\si3: 7: 63; 49+'cpf 'N\cpi 'S kej cq'\si3: 9563; 4; +0'Vq'\to r tguu'\wr qp'\j gk'\eqo r cvkquu'\yj g'pggf '' q'\utwi i ng'\th'\j g \' f kf 'pqv'y kuj '\q'r gtkuj .'\uj g' \'\pytqf wegf ''\y g'qo \text{kquunqu'qh'qy gt 'go r kgu'\p'y qtnf '' j kuqt \'\scrip' tuqkuunqu'\upmqy p'\q'\y g'\yj g'\yj pqegpvke''Ej \text{kpgug+='\uj g \'\cma'\wpf gtvqqm'\utcpurc\text{kqpu'\upwg'y g'h\gn u'qh'' r qrk\text{keu'\cpf 'uqekqmi \ 'cu'c' y c \'qh'gpuwt\pi 'pc\text{kqpcn'\upwg+\upwg'y g'h\gn u'qh'' r qrk\text{keu'\cpf 'uqekqmi \ 'cu'c' y c \'qh'gpuwt\pi 'pc\text{kqpcn'\upwg+\upwg+\upwg'y g'hqewu'dw\yj g'ej cppgn'qh'\upwg+\upwg+\upwg'' y g'h\gm u'qh'' r qrk\text{keu'\cpf '\upwg+\upwg+\upwg+\upwg'' g' g' gk ''qy p0P qv'qpn\('\y\) g'\text{hpu} g'\y g'ej cppgn'qh'\upwg+\u

Vj g'tghqto kuwi'y gtg'xgt{"o wej "kpxqnxgf "kp" y g'tcr kf" tqy y "qh'kpf gr gpf gpv'r wdrkuj kpi "j qwugu'kp" y g'r gtkqf" 3: ; 763; 220 Vj gkt "pgy ur cr gtu'cpf "o ci c| kpgu'ecttkgf "tcpurc kqpu'qh'kgo u'htqo "y g'hqtgki p"r tguu. "cpf "r wdrkuj gf "kp" kpuvcm gpwi'tcpurc kqpu'qh'mpi gt "y qtmu0 Vj g"o quv'r tguvki kqwu'qh'y g'pgy ur cr gtu'y gtg'y g"*Uj ky w'' dcq*" Vj g"Vko gu+"kp"Uj cpi j ck "gf kgf "d{"Nkcpi "S kej cq. "cpf "y g"*I wqy gp"dcq*" P cvkqpcn'T gi kuvgt+"kp"Vkgpvukp." ÷gf kgf "d{"[ CP "Hw'\*3: 7563; 43+0 [ cp"Hwau'tcpurc kqp"qh"Vj qo cu'I wzng{øu'mpi "guuc{"÷Gxqnwkqp"cpf "Gyj keuø" y cu'htuv'r wdrkuj gf "kp" y g"*I wqy gp"dcq*" kp"3: ; 9"dghqtg"dgkpi "kuuwgf "kp"dqqm'hqto "wpf gt" y g"kxrg"*Vkcp{cp"nwp*" \*Qp"Gxqnwkqp+0

Vj ku'dqqm'y cu'c'o krgurqpg'kp'Ej kpgug'tcpurckqp'j kurqt{.''dqyj ''dgecwug'ku'eqpvgpv'\*kv'r qr wrctkt gf ''Uqekcn' F cty kpkuo +''cpf ''uv{rg''vqqm' y g"gf wecvgf "y qtnf "d{ "uvqto ."cpf "dgecwug" [ cp"Hw"rckf "f qy p"kp" j ku"r tghceg" y g"y tgg" f gukf gtcvc"hqt "tcpurcvkqp" y cv" j cxg"dggp "s wqvgf "gxgt "ukpeg."pco gn{ "Hckj hwpguu."Eqo o wpkecdkrkv{ "cpf "Grgi cpeg0'Grgi cpeg" f gtkxgf "htqo " y g"rcpi wci g"qh"ercuukecn"cpvks wkv{ "cu" y g"o gf kwo "qh"vtcpurcvkqp0'Wpf qwdvgf n{ "y g"tki j v"ej qkeg"hqt"kwu"vko g." dgecwug" [ cp"Hw" j cf "vq" y kp"qxgt" y g"gf wecvgf "ercuu" y j q"tgxgtgf "cpvks wkv{ ."vj g"vgto "j cu"ukpeg"dggp"kpvgtr tgvgf " cu" tgcf cdkrkv{ Ø0 [ cpøu"f gukf gtcvc" j cxg"dggp"wughwn"cu"i gpgtcn"i wkf grkpgu."dw" j ku"r tghceg"ku"pqv" y g"y gqtgvkecn" vtgcvkug"kv" y cu"rcvgt" o cf g"qwv"vq"dg0 J g"o cf g"pq"cwgo r v"vq"f ghkpg"cp{ "qh" j ku"vgto u"qt"hqmqy "c"nqi kecn" r tqi tguukqp0'Kp" j ku"r tghceg"cu"y gm"cu" j ku"vtcpurcvkqpu" g"ewnxxcvgf "grgi cpeg0

[ cp"Hw'ugv'pgy 'uvcpf ctf u'd{ "y g"f gr y "qh"j ku'wpf gtuvcpf kpi "qh"y g"Gpi rkuj "rcpi wci g" g"j cf 'ur gpv'y tgg"{ gctu" kp"Gpi rcpf "cu"c"pcxcnlecf gv#cpf "y g"dtgcf y "qh"j ku'mpqy rgf i g" g"cr r gpf gf "gz vgpukxg"eqo o gpvctkgu" q" j ku" vtcpurcvkqpu+"dw"j ku":Qp"Gxqnwkqpø'y cu"pqv."cpf "f kf "pqv'ercko "vq"dg."c"uxtlev'vtcpurcvkqp0'Cr ctv'htqo "dgkpi "c" rquug"tgpf gtkpi "qh"y g"qtki kpcn"kv'kpeqtr qtcvgf "uqo g"qdugtxcvkqpu"d{ "[ cp"Hw"j ko ugrh0[ cp"y gpv'qp"vq"vtcpurcvg" IOUO km"J gtdgtv'Ur gpegt"cpf 'O qpvgus wkgw'kp"y g"uco g'xgkp0'Chgt"3; 25."j qy gxgt."j g"uy wpi "vqy ctf u"rkgtcri" vtcpurcvkqp. "htgs wgpvn{ "tgxkukpi "j ku"vtcpurcvkqpu"vq"gpuwtg"erqugt"eqttgur qpf gpeg"vq"y g"qtki kpcn0'Vj ku"j cf "y g" pgi cvkxg"ghhgev'qh"tgf wekpi "kpvgrki kdkrkv{0Kp"j ku"rcuv'vtcpurcvkqpu."htqo "3; 2: "qpy ctf u."j g"tgxgtugf "f ktgevkqp" ci ckp. "htggn{ "uwduvkwwkpi "o cvgtkcn'qh'j ku'qy p"hqt"y g"qtki kpcn'gzr qukkqpu0'Vj wu"[ cp"go dqf kgf "kp"c"ukpi rg" ectggt"y g"o ckp"vtcpurcvkqp"vtgpf u"qh"j ku'ci g0

Ki'[cp"Hw'ecp"dg"eqpulfgtgf" y g"ockp"tcpurcvkqp hki wtg'kp" y g'hkgrf 'qh'r j krquqr j { 'cpf 'uqekcrl'uekgpeg. 'y g'r tkt g" hqt"hkevkqp"j cu"vq"i q"vq"NKP "Uj w"x3: 7463; 46+."j ku"cm quv"gzcev"eqpvgo r qtct {."cpf "cnxq"htqo "vj g"eqcuvcn"ekv{ "qh" Hw/j qw0'E wnwtcm("cp"qtyj qf qz"uej qrct."Nkp"Uj wøu"hktuv'xgpwtg"kpvq"tcpurcvkqp"y cu'hqtwkkqwu<k'kv'ku'uckf"yj cv'kv" y cu''y g'tgegpv'f gcyj "qh'j ku'y khg. 'kp'3:; 9. ''y cv'o cf g'j ko ''u{orcyj gvke ''vq''y g''ucf ''uvqt { ''qh''Octi wgtkxg''kp''F wo cuøu'' Nc "F co g"cwz "eco 2 nkcu"cpf "rgf" j ko "\q"eqqr gtcvg" y ky "j ku"ht kgpf "Y cpi "Uj qwej cpi "kp" \tcpurc \kpi "y g"pqxgr0\Nkp" Uj w'mpgy 'pq'hqtgki p'hcpi wci gu=j g'eqo r qugf 'kpvq'encuukecn'Ej kpgug'y j cv'Y cpi 'tcpuncvgf 'vq'j ko ''qtcm{0' Eqpulf gtcdrg'ectg.'j qy gxgt.'y cu'i kxgp'\q'tgxkulpi '\j g'f tchv'd { "Y cpi 'cpf "Y gk'J cp0'Vj g'r wdrlecvkqp'qh':-Vj g" rkhg"cpf "f gcyj "qh"yj g"Rctkukcp"rcf { "qh"yj g"eco grrkcuøkp"3: ; ; "y cu"cp"kpuvcpv"uveeguu0"Vj qug"y j q"dqwi j v."tgcf " cpf "r tckugf "kv"j cf "pq"y c{ "qh"lwf i kpi "y j gvj gt "kv"y cu"c"i qqf "\tcpurc\kqp="\y g{ "uko r n( "tgur qpf gf "\q"\y g"dgcwv{ "qh" yj g'y tkkpi 0'Vj g'uvqt { "qh'c'dgcwkhwrl'{ qwpi 'y qo cp'f { kpi "c'\tci ke'f gcyj 'eqpvtkdwgf '\q'kxu'r qr wrctkv{. "cu'\j ku" rkpg'j cf ''cny c{u'i qpg'f qy p'y gm'kp'Ej kpc=''y g'o qtg''cdcpf qpgf ''uj g'y cu''y g''dgwgt0'Kp''3; 23. ''Nkpøu'\tcpurcvkqp''qh'' J cttkgv'Dggej gt''Uqy gøu''Wpeng''Vqo øu'Ecdkp''y cu'r wdrkuj gf''wpf gt''y g''kkng''÷Vj g''Dncem'Uncxg''Crrgcnu''q'' J gexgpø="j g"j cf "Y gk" k"cu"eqmedqtevqt "cpf "vj g{ "y gtg"vq"hqto "c"hcuvkpi "r ctvpgtuj kr 0"D{ "3; 33" "vj g"{ gct "qh'vj g" Tgr wdrkecp'tgxqnwkqp+'Nkp'j cf ''tcpurcygf ''qxgt'72''dqqmu.''cpf ''o qtg''y cp'322''o qtg'y gtg''y eqo g''dghqtg''j g'' f kgf = g'y qtmgf y kij o cp{ eqmcdqtcvqtu. qxgt 42 kp cm tcpurcvkpi tqo 'Gpi rkuj cpf 'Htgpej 0 kpvgtguvkpi n{.'vj g' cewcn'tcpuncvqtu'y gtg'eqo r ngvgn( ''qxgtuj cf qy gf ''d { ''vj g''. tgy tkg''o cpøOP gxgtvj gnguu. ''Nkp''Uj wøu''tcpuncvkqpu'' wpf qwdvgf n{ "qy gf "yj gkt "r qr wrctkv{ "vq"j ku"umkm"y kyj "y qtf u. "cpf "cnuq"vq"j ku"f kuetko kpcvkqp<"yj g"rgcf kpi " eqpvgo r qtct { "uej qrct "S kcp" \ j qpi uj w'j cu'\guvkhkgf "vj cv'f gur kxg" vj gkt "qo kuukqpu'cpf "o kuvcngu." vj g'Nkp" Uj w' vtcpurcvkqpu'\*j g"y cu'tghgttkpi 'r ctvkewrctn( ''vq'F kengpu'cpf 'O qpvgus wkgw+'j cxg"o qtg'y kv'cpf 'hggrkpi ''vj cp''o qtg'' -thekj hwn/tgpf kukqpu'y j kej 'y gtg'r wdrkuj gf 'nevgt0'Nkp'y cu'kpenkpgf 'vq'gzr cpf 'qp'go qvkxg'r cuuci gu'epf 'ew' f guetkr vkqp0J g"cnuq"eqpvtkdwgf "gpvj wukcuvke"r tghcegu"cpf "cpcn(ugu"qh'vj g'ej kgh'xktwgu'qh'vj g'qtki kpcn'y qtmu." y j kej "pq"f qwdv"kpetgcugf "vj gkt"ko r cev0"Vj g"{ qwpi gt"i gpgtcvkqp"y j kej "ncvgt"qxgtvj tgy "vj g"\tcfkkkqp"vj cv"Nkp" Uj w'j grf 'f gct 'cpf 'f kuectf gf 'vj g'wug'qh'vj g'ercuulecriEj kpgug'kp'y j kej 'j g'gzegrigf 'cf o kwgf 'vj cv'vj g{ 'y gtg'' gpi tquugf 'kp'cpf 'kpf ggf 'gptcr wtgf 'd{'j ku'tcpurckqpu0J ku'xcuv'qwr w'kpenvf gf 'ugxgtcn'y qtmu'vj cv'j cxg'' gplq{gf 'rcurkpi 'gurggo ."co qpi 'y qtmu'd{'F wo cu.'F kengpu.'Dcn ce.'F ghqg.'Ueqw.'Egtxcprgu.'Eqpcp" Fq{ng."cu"y gm"cu"o cp{"eqpvgo rqtct{"dguv'ugngtu"cpf "rqvdqkngtu<"j g"tgpf gtgf "kpvq"Ej kpgug"y j cvgxgt"eco g"vq" j cpf 0J g'cnq'f kf 'pqv'o ckpvckp'c'eqpukuvgpv's wcrkv{ <o quv'etkskeu'ci tgg'vj cv'vj g''s wcrkv{ ''qh'j ku''y tkskpi ''  $f \ gvgtkqtcvgf \ 'ugtkqwun( \ 'chvgt''yj \ g'tgxqnwkqp''qh''3; 330$ 

Vj qwi j 'Nkp''Uj w'wugf ''encuulecn'Ej kpgug''\q'\tcpunc\y\_ltgy tkg''\qpi ''pqxgnı.'\j g''ewuqo ct{''o gf kwo 'hqt''j cv'i gptg'' kp''Ej kpc'y cu''\j g''xgtpcewrct'\\*O cpf ctkp+0'Hqt''etgc\kxg''hke\kqp''\j g''xgtpcewrct''tgo ckpgf ''\j g''f qo kpcpv'o gf kwo .'' kpf ggf ''\j g''tgpf ''y cu''tgkphqtegf ''d{''\j g''f guktg''qh''tghqto kuv'cwi qtu''\q''r wv'\j gkt''o guuci g''cetquu''\q''\j g''o cuugu0' Uqo g''\tcpunc\qtu''cnq''cf qr \vgf ''\j g''xgtpcewrct.''r ct\ke\wrctn\{ ''\p''\j g''gctn\{ ''3; 22u. ''dw''gk\j gt ''dgec\wg''\j g\{ ''hq\pf ''\j g'' uv\{ ng''\qq''xgtdqug.''y gtg''kpzr gtkgpegf ''kp''\wukpi ''kv.''qt''cuuwo gf ''\j cv'\j g''tgcf gtuj kr ''\qt''\tcpunc\kqpu''f kf ''pqv''eqpukuv' qh'\j g''o cuugu.''\j g''u\cpf ctf ''o gf kwo ''\pv\kn'\j g''O c\{ ''Hq\wt\j ''O qxgo gpv'\\*3; 3; +'tgo ckpgf ''c''tgnc\kxgn\{ ''uko r ng''hqto '' qh''nkgtct \{ ''Ej kpgug0}

Cm'y g'y j krg."j qy gxgt."c"ewnwtcn'tgxqnwkqp"y cu'dtgy kpi ."y g'o quv'qdxkqwu'o cpkhguvckqp"qh'y j kej "y cu'y g" wug"qh'O cpf ctkp"kp"cm'mkpf u'qh'y tkkpi ."tcyi gt"y cp"lwuv'y tkkpi "f guki pgf "hqt"gpvgtvckpo gpv0'Uq"kv'y cu'pq" eqkpekf gpeg"y cv'y g'O cpf ctkp"xgtukqp"qh'y g"eqo r ngvg"Wpkqp"Dkdng"y cu'cnuq"r wdrkuj gf "kp"3; 3; "\*ugg"Y kengtk" 3; ; 7+0'Ki'cp{ yi kpi ."yi g"Dkdng"tcpuncvqtu'y gtg"wpf gt"i tgcvgt"f go qetcvke"r tguuwtg"yi cp"yi g"pgy "i gpgtcvkqp"qh" ewnwtcn'tghqto gtu'vq"wug"c"y tkwpp"ncpi wci g"yi cv'tghngevgf "qtf kpct{"ur ggej 0'Vj g"Y gprk'\*kQo'encuukecn'ncpi wci g+" Wpkqp"Dkdng"r wdrkuj gf "kp"yi g"uco g"{ gct"uqqp'tgegf gf "htqo "xkgy ."y j gtgcu'yi g'O cpf ctkp"xgtukqp"uwtxkxgf "vq" dgeqo g"yi g"uvcpf ctf "ygzv'hqt"Ej kpgug"Ej tknkcpu0

# Vj g'ty gpvlgvj 'egpvvt {

Vjg'Oc{"Hqwtyj'Oqxgogpv."ykyj'kuu'cigpfc"qh":kpuvcmkpiø'c"pgy"ewnwtg'kp"Ejkpc."pcwtcm{"ceegngtcvgf"yjg" ko r qtvcvkqp"qh"Y guvgtp"y tkklpi u"kp"dqvj "qtki kpcn'cpf" 'tcpurcvgf "hqto u0Rtgxkqwu' 'tcpurcvkqpu. 'vj qwi j "r tqf wegf" kp"eqpukf gtcdrg"pwo dgtu. "j cf "r tqeggf gf "tcpf qo n( "kp" vgto u"qh"ej qkeg"qh"o cvgtkcr0 Vj g"pgy "i gpgtcvkqp"qh" kpvgmgewcni. "cmo quv'cm'qh'y j qo "uggo "vq"j cxg"gpi ci gf "kp" vtcpurcvkqp. "uqo g"qp"c"o cuukxg" uecrg. "y gtg"o wej " dgwgt "gf wecvgf "kp"hqtgki p"ewnwtgu'd { "xktwg"qh"j cxkpi "uwf kgf "cdtqcf "qt "cwgpf gf "o kuukqpct { "uej qqnu kp"Ej kpc=" yj g{ "y gtg"cdrg"\q"eqpegp\tc\g"\qp"y qtmı"y j kej "gplq{gf"tgeqi pkkqp"kp"\yj gkt"qy p"eqwp\tkgu0\Vj g"xctkqwu" xgtpcewrct "rcpi wci g"o ci c | kpgu" yi cv'ur tcpi "wr "cm" j cf "yi gkt" qy p"dkcu. "dw" dgw ggp" yi go "yi g{ "o qtg" qt "rguu" eqxgtgf "y g"o cr "qh'y g"ekxkrk gf "y qtrf 0'KV" cu'dggp "gurko cvgf "y cv'rkvgtct { "y qtmu'htqo "qxgt "52"eqwpvtkgu'y gtg" vtcpurcvgf 'kp" y g"3; 42 u. 'y ky 'y g'Gpi rkuj /ur gcmkpi "eqwpvtkgu'uki pkhkecpvn( "f tqr r kpi "f qy p" y g'ngci wg' vcdrg' vq" c" r qukkqp'dgqy 'T wuukc'cpf 'Htcpeg.'qp'ceeqwpv'qh'yi gkt'eqpugtxcvkuo '\*Ej gp'[ wi cpi '3; :; < 7+0' Rqrkkecn'o qvkxcvkqpu'cnuq'rc{'dgj kpf 'vj g'kpetgcug'kp'vj g'vtcpurcvkqp'qh'Uqxkgv'cpf 'qvj gt'tgxqnvvkqpct{'rkvgtcwtg'' kp''y g''3; 52u.''y j gp''y g'Ej kpgug'Eqo o wpkuv'Rctv{ ''tcpuhgttgf 'kwu'go r j cuku'htqo ''cto gf ''wrtkukpi ''vq''r tqr ci cpf c0' Vj g'hkdgtcnhghv'eqpvkpwgf 'y ky 'kwu'qy p'r tqi tco o g'qh'y qtm'j qy gxgt.'y ky 'r gtj cr u'vj g'dguv'gzr tguukqp''qh'kwu' cur ktckqpu'dgkpi ''y g'hcwpej kpi 'kp'3; 57''qh''y g'i tcpf 'r ncp'hqt''c''Y qtnf 'Nkdtct{.'kpvgpf gf ''vq''gpeqo r cuu''y g'' cpekgpv."o gf kgxcn'cpf "o qf gtp'nkgtcwtg'qh'cm'o clqt"eqwpvtkgu0Vj g'pcvkqpøu'vqr "vtcpuncvqtu'y gtg'tgetwkgf."cpf" wpf gt ''y g''i gpgtcn'gf kqtuj kr ''qh'\ j gpi '\ j gpf wq'\*3:;: 63; 7: +'kp''Uj cpi j ck'y g''Nkdtct{'r wdrkuj gf 'kp'3; 5768'' qxgt '322'ercuuleu'htqo 'c'f q| gp'f khhgtgpv'eqwpvtkgu0'Kv'ku'ko r qt vcpv'vq'uvtguu'vj cv'o quv'qh'vj g'dguv'etgcvkxg'y tkvgtu'' qh'y g'ci g'ngpv'y gkt 'unkmu' q'tcpurckqp."c'hcev'y cv'o cf g'hqt 'cv'ngcuv'xgt { 'tgcf cdrg'r tqf wew0 Kp" y g"3; 52u. "y g"f gdcvg" qxgt "tcpurcvkqp" r tkpekr rgu 'y cv'j cf "dgi wp 'kp" y g"3; 42u 'two drgf "qp. "y g"r qrgu 'qh' eqpvgpvkqp"cu"gxgt"dgkpi "-hkf grkv{ø'xu0'-nkegpegø0'kp"cff kvkqp"vq"vj g"uvcpf ctf "cti wo gpv'kp"uwr r qtv'qh'hkf grkv{." pco gn{"yi cv'yi g"pcvkxg"hgcwtgu"qh'yi g"uqwteg"\gzv'qwi j v'\q"dg"tgvckpgf."yi gtg"pqy "go gti gf "yi g"cf f kxkqpcn"\cti g√ qtkgpvgf "qdlgevkxg"qh"crrtqrtkcvkpi "htqo "Gwtqrgcp"ncpi wci gu"vj tqwi j "vtcpuncvkqp"y qtfkpi "cpf "i tco o cvkecn" f gxkegu''y cv'y g'Ej kpgug''ncpi wci g'y cu'uckf ''q''dg''kp''pggf ''qh0'Vj ku''xkgy ''y cu'hcxqwtgf ''d{ ''nghkuwu'y j q''j cf ''y g'' lcti qp"qh"Uqxkgv"kf gqmi wgu"vq"eqpvgpf "y ky <'y ky "kpvgmki gpv"tgr j tcukpi "dgkpi "hqto kf cdn( "f khhewn." 'y g{ "y gtgô pqv'uwtr tkukpi n(ô kpenkpgf "\q"o kttqt" yj g"qtki kpcn'y qtf kpi 0 Vj g"o clqtkx("j qy gxgt" i cxg"o qtg" y gki j v'\q" yj g" cguyj gykeu''qh''yj g''Ej kpgug''hcpi wci g0Co qpi ''yj qug''y j q''cti wgf ''yj g''ecug''hqt''cguyj gyke''hkegpeg''y cu''Nkp''[ wcpi '' \*3:; 763; 98+. 'y j q''\tcpurc\gf ''o qtg'htqo 'Ej kpgug'kp\q'Gpi rkuj ''y cp''y g''qyj gt''y c{ ''tq\pf 0'Vj gtg''j cf ''dggp''c'hgy '' r kqpggtu'qh'Ej kpgug/Gpi nkuj "tcpurcvkqp"ctqwpf 'y g'wtp'qh'y g"

egpwt { .'hkng''Uw'O cpuj w'\*3: : 663; 3: +'cpf 'I w'J qpi o kpi '\*3: 7963; 4: +'dw'kv'y cu'pqv'wpvkn'y g'3; 52u'y cv'y g'' vtchke'kp'y ku'f ktgevkqp'y cu'qh'cp{ 'eqpugs wgpeg0

Vj g'y ct'y kij "Icr cp." y j kej "dtqng"qw'kp"3; 59." f kutwr yf "icti g"r tqlgewi'kng" y g"Y qtrf "Nkdtct {."dw'lpf kxlf wcn' ghlqtw'y gtg"ukm'xgt { 'ltwkhwf0O cp { "pkpgygpyj /egpwt { 'Gwtqr gcp"pqxgnu'y gtg"cdn( "tcpurcyf" qt"tgytcpurcyf"." dw'r gtj cr u'yj g"pqdrgwi'ghlqtv'qh''yj g'y ct'r gtkqf "y cu''yj cv'qh\ J W'Uj gpi j cq"\*3; 34666+;"y j q"iksgtcm( "i cxg"j ku" nkhg"\q"\tcpurc\kpi "y g"eqo r rgyg"r rc { u'qh'Uj cmgur gctg0J g'hkpkuj gf "53"r rc { u'dghqtg"j g'f kgf ."uxct\kpi "y kyj "Vj g" Vgo rgw'kp"3; 580\ j wxu'\tcpurc\kqpu'y gtg'kp"r tqug=j ku'i qcn'y cu'kpygnki kdktk\ "y kyj qw'uko r nkhec\kqp"cpf ." cdqxg"cm "ur gcnrcdktk\ 0J ku"Eqo rngyg"Rrc { u'y cu'r wdrkuj gf "cu'c"ugv'kp"3; 69."cpf "tgkuwgf ."y kyj "uwr r rgo gpvu."cu" Vj g"Eqo rngyg"Y qtmu'qh'Uj cngur gctg'kp"3; 9: 0Hqmqy kpi "kp"j ku'hqqwygr u. "NKCP I "Uj ks kw'\*3; 246: 9+"cnq" vcpurcyf "y g"eqo r rgyg"y qtmu'qh'Uj cngur gctg'ukpi rgj cpf gf "kp"Vcky cp."kp"c"o qtg"uej qrctn\ "xgkp0Cpqyj gt" f gf kecyf "\tcpurc\qt"y cu'Hw'Ngk'\*3; 2: 688+"dgw'mpqy p'hqt"j ku'\tcpurc\qt"qpu'qh'Dcn ce'kp\q'tkej "cpf "xkdtcpv" Ej kpgug0

Wpf gt "y g''Rgqr ngøu''T gr wdrłe. "y g''Uqxley'Wplqp"y cu''y g''ej lgh'uqwteg''qh'y qtmu'hqt "tcpurckqp" 'q'dgi lp"y kj ."dw' y g''hkgtcwtg''qh'y g"'Vj ktf "Y qtrf" "Culc. "Chtlec "cpf "Ncklp" Co gtlec+"eco g"'q"gplq{"wpr tgegf gpvgf "cwgpvkqp0Cv" y g''uco g''ko g. "y g''tcpurckqp" 'qh'Ej lpgug"y qtmu'kpvq"qy gt "rcpi wci gu'y cu''uvgr r gf "wr "y tqwi j "y g''ci gpe{"qh'y g" Hqtgki p"Ncpi wci gu''Rtguu''\*ugv'wr "kp"3; 72+."y j gtg''pcvkxg" 'tcpurcvqtu''y qtngf "vqi gy gt "y kj "hqtgki p"gzr gtw0' Rgtj cr u''y g" ki j guv''ngxgri'qh'cwgpvkqp"y cu''ncxkuj gf "qp" "Vj g''Ugrgevgf "Y qtmu''qh'O cq" Vug/wpi "\*O cq" \ gf qpi +:"dw' c"i tgcv'o cp{"cpelkgpv'cpf" o qf gtp"ercunleu'y gtg''cmq" 'tcpurcvgf "kpvq"ugxgtcn'Gwtqr gcp"rcpi wci gu0Vj g"fq {gpu''qh'' vcpurcvkqp" kpvq"Gpi rkuj "y gtg" [cpi "J ulkgp/{k\*f cpi "Z kcp{k+"cpf" I rcf {u'| cpi 0Chxgt"y g"ewnwtcn'hco kpg''qh'y g" I tgcv'Rtqrgvctkcp "Ewnwtcn'I gxqnwkqp"\*3; 88698+"y gtg'y cu''cp"gzr rqulkqp"f wlpi "y g''3; : 2u'\*r ctvlewrctn("3; : 46 : 8+"kp"y g''tcpurcvkqp"qh'hqtlgki p"y qtmu. "tki j v'cetquu''y g"dqctf "htqo "cecf go ke"tgcvkugu"q"dguv/ugnrgtu."o clpn(" htqo "Gpi rkuj 0Vj g''s wcrkv{"qh''y gug"tcpurcvkqpu''j cu''dggp''wpgxgp0Vj g''kf g''qh'r wdrkuj gf "tcpurcvkqpu''uwdukf gf" pqvkegcdn("kp"y g"rcyg"3; : 2u''dgecwug"qh'y g''hpcpelcn'cu'y gm'cu''r qrkslecn'eqpuvtckpu''rcegf "d{"r wdrkuj gtu0 Vj g''ncvg/uwr r qtvgf" "Vtcpurcvqtu''Cunqelcvkqp"qh'Ej kpc"y cu''ugv'wr "kp"3; : 4"cpf "r wdrkuj gu'y g''dlo qpy n{":Ej kpgug" Vtcpurcvqtu''Lqwtpcrp'\*kp"Ej kpgug"

#### Vtckpkpi

Vj gʻhkuvʻgzvcpvtgeqtf ʻqhʻcʻpcvkqpcnʻuej qqnʻqhʻhqtki pʻncpi wci guʻlpʻEj lpgugʻj knqt { 'kuʻqhʻy gʻP cvkqpcnʻCecf go { "qhʻRgtukcpʻ\*J vkj vki vq| k'zvg+ʻugvʻwr ʻf vtkpi ʻy gʻ[ vcpʻ\*O qpi qn+ʻf {pcuv{ 'kpʻEj kpc0Uwf gpui'y gtgʻtgetvksgf "tqo ʻy gʻwr gtʻencuuguʻqhʻuqekgv{ 'cpf 'vtclpgf 'vqʻdgʻi qxgtpo gpv'tcpurcvqtuʻcpf 'kpvgtr tgvgtuʻqhʻRgtukcp.'y j kej "y cuʻy gʻo quvʻko r qtvcpv'hqtgki pʻncpi vci gʻhqtʻy gʻO qpi qnuʻqwukf gʻEj kpcʻkpʻvgto uʻqhʻy gktʻvtcf gʻcpf 'o khkct { "cevkxkkgu0Vj gtgʻctgʻpqʻgzvcpvtgeqtf uʻqhʻy gʻcecf go { «uʻu{mcdwu0Vj gʻEqngi gʻqhʻNcpi vci gu.'ugv'vr 'd{ 'yi gʻ' O cpej wʻi qxgtpo gpv'kpʻ3: 84. 'y cu'yj gʻhtuvʻo wnktlipi vcn'Ej kpgugʻcecf go { "f gxqygf 'vq'yj gʻttckpkpi 'qhʻGwtqr gcp'' ncpi vci gʻgzr gt ul'cpf 'ttcpurcvqtu0Klqhlgtgf 'Gpi nkuj .'Htgpej 'cpf 'T wukcp'uvtgco uʻkpʻcpʻgki j v {gct'eqwtug'' eqxgtkpi 'Ej kpgugʻcpf 'hqtgki pʻncpi vci gu.'vtcpurcvkqp'cpf 'uwej 'uwdlgewi'cu'y qtff 'j knqt { "cpf 'i gqi tcr j { ." o cy go cvkeu. 'kpvgtpcvkqpcn'ncy ." cuvtqpqo { "cpf "geqpqo keu0I gto cp'y cu'kpvtqf vegf 'kp'3: : : "cpf 'Icr cpgugʻkp'' 3: ; : 0Vj gtgʻy gtgʻuko krct'tgi kqpcn'cecf go kgu'kp'Ecpvqp'cpf 'Uj cpi j ck'y j gtg'yj gʻdguv'uwf gpw'y gtg'ugpv'yj g' Eqngi gʻqh'Ncpi vci gu'y qtg'y gy gʻtuv iy gtg'ugpv'y'y gy gʻtuv kgu0Chygt'hwpevkqpkpi 'kpf gr gpf gpvn( 'hqt'62"{ gctu.'yj g'Eqngi g'y cu' kpcqtr qtcvgf 'kpvq'y g'P cvkqpcn'Ecr kcn'Wpkxgtukv{ .'yj g'Eqngi g'qh'Ncygtiv kgwy'i vcp+'y j kej 'qhhgtgf 'hkxg/ {gct'eqwtugu'kp'Cpi nkuj .''Htgpej .'T wukcp.'I gto cp'cpf 'Icr cpgug0Vj g'-i gpgtcn'uwf kguo'uwdlgevu'y gtg'uko krct'vq'' y qugʻqhhgtgf 'cv'yj g'Eqngi g'qh'Ncpi vci gu0

Chwgt 'vj g''guvcdrkuj o gpv'qh''vj g'Ej kpgug'Tgr wdrke 'kp''3; 33. 'vj gtg'y cu''pq''guvcdrkuj gf 'r qrke { 'tgi ctf kpi 'vtcpurcvqt 1 kpvgtr tgvgt 'vtckpkpi .''cpf 'o quv'r tcevkkqpgtu'y gtg''ugrh/vtckpgf 0'Wpf gt''vj g''Rgqr rgøu'Tgr wdrke ''qh'Ej kpc. ''kp/ugtxkeg'' vtckpkpi 'ku'r tqxkf gf ''vq''vj qug''ej qugp''vq''y qtm'kp''hqtgki p''chhcktu/tgrcvgf ''i qxgtpo gpv'f gr ctvo gpvu0'Cu''qh''vj g''o kf/3;; 2u."

vtcpurcvkqp lkpvgtr tgvkpi 'j cu'pqv'{ gv'go gti gf 'cu'cp'cecf go ke'f kuekr nkpg'kp'Ej kpc.''vj qwi j 'uqo g'vtcpurcvkqp'' eqwtugu'ctg'qhhgtgf 'cu'r ctv'qh'hqtgki p'rcpi wci g'f gi tggu0Kp'J qpi 'Mqpi .''vj g'vtckpkpi 'qh'uko wncpgqwu'' kpvgtr tgvgtu'dgi cp'kp''vj g'o kf/3; 92u'vq'ecvgt'hqt''vj g'i qxgtpo gpvøu'dknkpi wcn'eqphgtgpeg'pggf u0'Vtckpkpi 'ku'ci ckp'' kp/ugtxkeg''cpf 'r tqxkf gf 'd{ 'vj g'i qxgtpo gpvØJ qy gxgt.''uqo g'dcuke''vtckpkpi 'kp'eqphgtgpeg'kpvgtr tgvkpi 'j cu'dggp'' o cf g'cxckrcdng''vq'wpkxgtukv{ 'uwwf gpvu'kp'J qpi 'Mqpi 'ukpeg''y g'o kf 3; : 2u0

## Hwt vj gt 't gcf kpi

Ecq"Uj kdcpi "3; : 8="Ej gpi '[ wi cpi "3; : ; ="J wpi "3; ; 8="Ucpi "Y gj cp"3; : 9="O c"\ w{ k'3; : 6="Ej cp"cpf "Rqmctf "3; ; 6=" Zkqpi "[ wg| j k'3; ; 60

GXC'J WPI 'CPF'FCXIF'RQNNCTF

## Dkqi tcrj kgu

MWTCO CLXC"\*5666635+0'Mwtco clkxc"dgeco g"c"o qpm'cv'y g"ci g"qh'ugxgp."y j gp"j ku"o qy gt."cp"Kof kcp" r tkpeguu. "f gekf gf '\q"\cng'\y g"o qpcuke"xqy 0'Cv'42."j g'y cu"c"tgpqy pgf '\gcej gt "qh'\y g"Ncti gt "Xgj keng'uej qqn'qh" Dwf f j kuo 0'Cu"c"tguwnv'qh'j ku'hco g. "Mwtco clkxc"y cu"ecr wtgf "d{"y g"Ej kpgug"cto {"y j kej "kpxcf gf "j ku"eqwpvt {." cpf "j g"ngctpgf "Ej kpgug"cu"c"ecr \kxg0J g"y cu"cuuki pgf '\y g'\cum'qh'\tcpurc\kpi "Dwf f j kuv'uwtcu. "cuukuvgf "d{"uqo g" : 22"o qpmu. "cpf "r tqf wegf "qxgt"522"xqnwo gu0

NGI I G.'Lco gu'\*3: 366; 9±0'C "Ueqwkıj "o kuukqpct {. "Ngi i g'y cu'ugpv'\q'j gcf '\j g'Cpi m/Ej kpgug'Eqmgi g'kp" O cmeec 'kp'3; 5; "cpf "o qxgf "\q'J qpi 'Mqpi 'y kj '\j g'eqmgi g'kp'3: 650F wtkpi 'j ku'52/{gct 'uvc { 'kp'J qpi 'Mqpi ." j g'wpf gt \qqm'\j g'tcpurc \kqp"qh'\j g'Ej kpgug'ecpqpkecn'y qtmu." Vj g'Hqwt "Dqqmu'cpf "Vj g'Hkxg'Erc uukeu." y kj '\j g" j gr "\qh'\j g'Ej kpgug'uej qrct "Y cpi "Vcq0'Vj g'\tcpurc \kqpu'y gtg'r wdrkıj gf 'kp'4: "xqnwo gu'wpf gt'\j g'eqmge \kxg'\kmg" Vj g'Ej kpgug'Erc uukeu'\kp'\j g'3: 82u0\Ngi i g'tgwtpgf "\q'Dtkckp'\kp'3: 95.'y j gtg'j g'dgeco g'Rtqhguuqt '\qh'Ej kpgug' cv'Qzhqtf "Wpkxgtuk\{0}

NHCPI 'Uj ks kw'\*3; 246: 9+0'Nkcpi 'Uj ks kw'y cu'dqtp'cpf 'gf wecvgf 'kp''Dgklkpi 'dghqtg'j g'y gpv'vq'vj g''Wpkxgf 'Uvcvgu'' hqt''wpf gti tcf wg''cpf 'r quv'i tcf wcy''uwf kgu''cv'vj g''wpkxgtukkgu''qh'Eqnqtcf q. 'I ctxctf 'cpf 'Eqnwo dkc0'I g'tgwtpgf '' vq''Ej kpc''kp''3; 48''y kij ''cp''O C''kp''Gpi rkuj 'rkxgtcwtg''cpf ''uvctvgf ''rgewtkpi ''cv'c''pwo dgt''qh'Ej kpgug''wpkxgtukkgu." kpenxf kpi ''Rgmkpi ''Wpkxgtukk{0'K'y cu''cnuq''cv'vj ku''ko g''y cv'j g''uvctvgf ''y qtm'qp''tgpf gtkpi ''y g'eqo r rgwg'y qtmu'qh'' Uj cmgur gctg''kpvq''Ej kpgug. ''c''vcum'y j kej ''vqqm'j ko ''j crh'c''egpwt{ ''vq''eqo r rgwg'\Cv'vj g''vko g''qh''y g''Eqo o wpkuv'' vcngqxgt''kp''3; 6; .''Nkcpi ''rghv'o ckprcpf 'Ej kpc''hqt''Vcky cp. ''y j gtg'j g''eqpvkpwgf ''j ku''cecf go ke''cpf ''tcpurcvkqp'' y qtm\0'Dgukf gu''vtcpurcvkpi ''y g''eqo r rgwg''r rc{u''cpf ''uqppgvu''qh''Uj cmgur gctg'\*59''xqnwo gu+''cpf ''qvj gt''rkxgtct{ '' y qtmu.''Nkcpi ''y cu''cnuq''y g''eqo r kgt''qh''cp''Gpi rkuj /Ej kpgug''f kevkqpct{0}

NHP 'Uj w\*3: 7463; 46+0Dqtp''\q'c'r qqt'hcto kpi 'hco kn( 'kp''\j g'Hwlkcp'r tqxkpeg'kp'uqwj gtp''Ej kpc''cpf 'gf wecvgf'' d{ 'mqecn'wwqtu. 'Nkp''Uj w'r cuugf ''\j g'ugeqpf 'f gi tgg''qh'\j g'Ko r gtkcn'ekxkn'gzco kpcvkqpu''dw'pgxgt''o cpci gf ''\q'' o cng''\j g''\j ktf 'f gi tgg''cpf ''y cu''\j wu'f gpkgf ''cp''qhhkekcn'ectggt0Nkng''uq''o cp{ "{qwpi ''o gp''qh'\j g''ko g." j g'y cu'' f ggr n{ ''eqpegtpgf ''cdqw'\j g'hqtgki p''gpetqcej o gpv'qp''Ej kpc''cpf ''w keg''r gvkkqpgf ''j ki j /tcpnkpi ''qhhkekcnu''qp''\j g'' o cwgt0Kp''3: ; 9. "cv'\j g'uwi i gurkqp''qh''Y cpi ''Uj qwej cpi ."Nkp''uxctvgf ''j ku'hktuv'\tcpurcvkqp''qh''c'Y guvgtp''pqxgn'kpq'' Ej kpgug0Ulpeg''Nkp''f kf ''pqv'npqy ''cp{ ''hqtgki p''rcpi wci gu.''Y cpi ."y j q''npgy ''Htgpej ."y cu''j ku'eqncdqtcvqt0Vj '' tguwncpv'\tcpurcvkqp''qh''Nc' F co g''cwz''eco ²nkcu'' tgpf gtgf ''kp''grgi cpv'ercunkecn'Ej kpgug.''y cu''cp''qxgtpki j v'uweeguu'' cpf ''o ctngf ''y g''dgi kppkpi ''qh''Nkpøu''42/{gct''ectggt''cu''Ej kpcøu''o quv'r tqnkheô cpf ''cti wcdn{ ''o quv'kphrwgpvkcnô rkvgtct{ ''tcpurcvqt ''qh'hqtgki p''kvgtcwtgu0Nkp''eq/vtcpurcvgf ''y kj ''qxgt''c'f q| gp''eqncdqtcvqtu.''y g''o quv''pqvcdrg'' co qpi ''y go ''dgkpi ''Y cpi ''Uj qwej cpi '\*Htgpej + ''Y gk'[ k''

\*Gpi rkuj .'kpenwf kpi 'hkxg'F kemppukcp'pqxgnu+.'cpf 'Ej gp'Ikcrkp'\*Gpi rkuj +0Nkpøu'\tcpurc\kqpu'\tcpi gf 'htqo 'uj qtv' uvqtkgu'\q'hwm/rgpi yj 'pqxgnu.'htqo 'tqo cpegu'\q'ercuukeu'qh'Gpi rkuj .'Htgpej 'cpf 'Twuukcp'rkxgtcwxtg0'J ku'mpqy p'' vtcpurc\kqpu'co qwpv'\q'pgctn('4220O cp{ 'qh'yj g'i tgcv'y tkxgtu'qh'gctn(''y gpvkgyj /egpwxt{ 'Ej kpc'y gtg'kpvtqf wegf '' vq'hqtgki p'rkxgtcwxtgu'yj tqwi j ''yj g'y qtmu'qh'Nkp'Uj w0

THE K'O cwgq"\*377463832+0Tkeek'gpvgtgf" jku"pqxkkcvg"kp"3799"kp"Tqo g"cpf" y cu"qtf ckpgf "kp"37: 2"kp"I qc0' kp"37: 4"j g"y cu"ugpv"vq"O cecq. "y j gtg"j g"ngctpgf "Ej kpgug. "cpf" c"{gct"ncvgt. "y kj "vj g"j gr "qh"mqecn'qhhkekcm"kp" Ecpvqp. "j g"ugv"wr "vj g"hktuv"o kuukqp"uvcvkqp"kp"o ckprcpf "Ej kpc0Tkeek'kpkkcm("cf qr vgf" vj g"cwktg"qh"Dwf f j kuv" o qpmu. "qpn("vq"gzej cpi g"kv"hqt" yj cv"qh"Eqphwekcp"uej qrctu"qpeg"j g"f kueqxgtgf" yj g"my "uqekcn"uvcpf kpi "qh"yj g" hqto gt0Vj g"Ej kpgug"vgto u"kpuvki cvgf" d{"Tkeek'hqt" yj g"Ecyj qrke"r tkguv"f wtkpi "vj ku"r gtkqf ô *uj gphw*"cpf" "ukf wqô ctg"uvkn"kp"wug"vqf c{0'Kv"y cu"Tkeek'u"co dkkqp"vq"r tgcej "kp"yj g"Ej kpgug"ecr kxcn"Rgmkpi ."cpf "kp"3823"\*j ku"ugeqpf" cwgo r v+"j g"uweeggf gf "kp"qdvckpkpi "ko r gtkcn"ucpevkqp"hqt"j ku"o kuukqpct{"y qtm"cpf" y cu"i tcpvgf"c"o qpyj n{" uvkr gpf 0'Kp"382869."j g"uvctvgf "eqmcdqtcvkpi "y kj "yj g"*J cprkp*"Cecf go kekcp"Z w'I wcpi s k"y j qo "j g"hktuv'o gv'kp" P cplkpi "kp"3822."qp" yj g"tcpurcvkqp"qh"Gwerkf øu"Grgo gpvuOJ g"cmq"r rc{gf"cp"ko r qtvcpv'r ctv'kp"yj g"\tcpurcvkqp"qt" eqo r krcvkqp"qh"hqwt "qyj gt"y qtmu"qp"ctkyj o gyle"cpf" cuvtqpqo {0P q"qyj gt"o kuukqpct{"cej kgxgf"c"uvcwu" eqo r ctcdng"vq"Tkeekøu"co qpi "yj g"Ej kpgug"rksgtcvlO

UEJ CNN'kap'Dgm'Laj cpp'Cf co "\*37; 463888+0Gpvgtgf "y g"Uqekgv{ "qh'I guwu'kp"3833"cpf "xqmpvggtgf "hqt" o kuukqpct{"y qtmlkp"Ej kpc."cttkxkpi "kp"Rgmkpi "kp"3845."y j gtg"j g's wkemn{"guvcdrkuj gf "j ko ugrh'cu"cp"cwj qtkv{ "qp" cuvtqpqo {0Kp"3852"j g"y cu"cuuki pgf "vq"y qtmlkp"y g"Ej kpgug"i qxgtpo gpvzu'ecmpf tkecn'dwtgcw'j gcf gf "d{"Zw" I wcpi s k'cpf ."kp"eqmcdqtcvkqp"y kyj "Tj q"cpf "c"pwo dgt"qh'Ej kpgug"cuukuvcpvu."vtcpurcvgf "cpf "eqo r krgf "c"rcti g" pwo dgt "qh'dcuke"y qtmu"qp"cuvtqpqo { "cpf "o cyj go cvkeu0Dgukf gu"j ku"eqpvtkdwkqp"vqy ctf u"yj g"pgy "ecmpf ct." Uej cm'cnq "vtcpurcvgf "Ci tkeqrc¢u"F g"t g"o gocnkec "cpf "eqo r qugf "c"dqqm'qp"yj g"o cmkpi "cpf "wug"qh"ecppqpu0' Uej cm'uvc{gf "kp"Rgmkpi "chvgt"yj g"hcmlqh'yj g"O kpi "f {pcuv{ "kp"3866."cpf "vj g"O cpej w'i qxgtpo gpv'ur ggf kn{" cr r qkpvgf "j ko "j gcf "qh'yj g"cuvtqpqo kecn'dwtgcw0Kp"387: "j g"y cu"i kxgp"yj g"vknrg"qh'cp"j qpqtct{ "Hktuv'T cpm" Qhhlekcn"yj g"j ki j guv'c 'hqtgki pgt"j cf "gxgt"cej kgxgf "kp"tgeqtf gf "Ej kpgug"j kurqt{0C"r tqrkhke"vtcpurcvqt"cpf " eqo r krgt "qh'y qtmu"qp"cuvtqpqo { ."o cyj go cvkeu."cpf "ecrgpf tkecn'y qtm"Uej cm'cnaq'y tqvg"c"pwo dgt"qh'vtgcvkugu" hqt"Ej kpgug"eqpxgtvu0J ku"npi guv'y qtm'y tkvgp"kp"c"Gwtqr gcp"rcpi wci g"y cu"j ku"o go qktu0

Y CNG[ .'Ct y wt "\siz:; 63; 88+0Cti wcdn("\y g"o quv'ho qwu'Gpi nkuj "\tcpure\qt"qh'Ej \pgug"cpf "\Lcr cpgug" nkgtcwtg."Y crg{"y qp"c"uej qrctuj kr "\q"Mpi \pi\"Eqragi g. "Eco dt\f i g"cv\y g"ci g"qh"39"dw\y cu'hqtegf "\q"f tqr "qw" qh'wpkxgtuk\f "dgecwug"qh'dcf "g{guki j \text{\t

rtqxlpegu'r tgcej kpi "cpf "rgctpkpi "uwtcu0Cv'y cv'vko g"y g"uwtcu'y gtg"qr gp"vq"gzvtgo gnf "f kxgtug"kpvgtrtgvcvlqpu." cpf "Z wcp"\ cpi "xqy gf "y cv'j g"y qwf "tcxgn'vq"y j gtg"Dwf f j kuo "qtki kpcvgf "vq"rgctp"y g"twyj 0J g"rghv'y g" Ej kpgug"ecr kcn'Ej cpi &cp"kp"843"cpf "f kf "pqv'tgwtp"wykn'8670"Vj g"47"{gctu"qh'j ku"kkpgtct {"y gtg"ur gpv'xkukkpi "o clqt "vgo r rgu"qp"j ku"y c{"vq"kpf kc"cpf "kp"y g"xctkqwu"uwd/eqpvkpgpvcn'uvcyu."y j gtg"Z wcp"\ cpi "rgctpv'Ucpumtk" cpf "uwf kgf "y g"o quv'ko r qtvcpv'Dwf f j knv'uwtcu'wpf gt"y g"i wlf cpeg"qh'tgpqy pgf "o qpmu0Wr qp"j kn'tgwtp"vq" Ej kpc."j g"y cu"eqo o knukqpgf "d{"y g"Go r gtqt"Vckl qpi "vq"tgeqtf "j kn"gzr gtkgpegu"kp"hqtgki p"rcpf u0Vj g"tguwncpv" dqqm"Fc"Vcpi "zkl w'lli"\*1 tgcv'Vcpi "Tgeqtf "qh'y g"Ncpf "vq"y g"Y guv+"ku"cp"ko r qtvcpv'uqwteg"kp"y g"uwf {"qh" Ukpq/Kpf kcp"eqo o wpkecvkqp0Z wcp"\ cpi "f gxqvgf"y g"tgo ckpkpi "42"{gctu"qh'j ku"htly"vq"tcpurcvkpi "Dwf f j knv" uwtcu"kpvq"Ej kpgug="j ku"tcpurcvkqpu"qvcngf "qxgt"3522"xqnwo gu."cpf "j g"cnq"guvcdrkuj gf "dcuke"tcpurcvkqp"twrgu" y j kej "y gtg"hqmy gf "d{"o cp{"o qpm/vtcpurcvqtu"y j q"eco g"chgt"j ko 0O cp{"qh'j ku"vtcpurcvkqpu."uwej "cu"y g" J gctv'Uwtcø"ctg"uvkni'wugf "d{"Ej kpgug"Dwf f j knu"vqf c{0Z wcp"\ cpi "ku"eqpukf gtgf "y g"hqwpf gt"qh'y g"Ncti gt" Xgj keng"kc "zkcpi" "uej qqn'qh'Ej kpgug"Dwf f j knu"vqf c{0Z wcp"\ cpi "ku"eqpukf gtgf "y g"hqwpf gt"qh'y g"Ncti gt" Xgj keng"kc "zkcpi" "uej qqn'qh'Ej kpgug"Dwf f j knu"vqf c{0Z wcp"\ cpi "ku"eqpukf gtgf "y g"hqwpf gt"qh'y g"Ncti gt"

[ CP 'Hw'\*3: 7563; 43+0] cp'Hw'y cu'c'pcvkxg'qh'y g'Hwlkcp'r tqxkpeg'kp'uqwj gtp'Ej kpc0J g'gptqmgf "cv'y g" Hwlkcp'P cxcn'Cecf go {"cu'c'uwf gpv'ecf gv'cv'y g'ci g'qh'35"cpf "y qtmgf "kp''y g'Ej kpgug'pcx{"chxgt'i tcf wcvkqp0Cv" y g'ci g'qh'46"j g'y cu'ugpv'd{"y g'Ej kpgug'i qxgtpo gpv'vq'y g'P cxcn'Eqmgi g'cv'I tggpy kej ."Dtkckp."htqo "y j kej " j g'i tcf wcvgf "kp''3: 9; 0Wr qp''j ku'tgwtp''vq''Ej kpc."[ cp''y cu'cr r qkpvgf "vq''ygcej kpi ."cpf "rcvgt."cf o kpkutcvkxg" r qukkqpu''kp''y g'Ej kpgug''pcxcn'cecf go kgu0Cv'yi g'uco g'vko g."j g'eqpvkpwgf "j ku'uwf { "qh''Y guvgtp'r j kquqr j kecn' cpf "uqekqmi kecn'y qtmu''kp''y g''j qr g''y cv'uwej "mpqy ngf i g'y qwf "eqpvkdwg''vq''y g''utgpi yi gpkpi "qh'Ej kpc0Kp" 3: ; 7"j g''dgi cp''y g''tcpurcvkqp''qh''Vj qo cu''J wzng{øu''Gxqnwkqp''cpf 'Gyj keu0Vj g''dqqm'y cu'r wdnkuj gf 'kp''3: ; : "cpf " dgeco g''y g''tcm(kpi "r qkpv'hqt''o cp{ "tghqto /o kpf gf "Ej kpgug0[ cp''nghv'yj g''pcx{ "kp''3; 22"cpf "kp''3; 24"lqkpgf "y g" Vtcpurcvkqp''Dwtgcw'\*r ctv'qh'yj g''hqtgtwppgt "qh'Rgnhpi "Wpkxgtukx{ +"kp''Dgklkpi 0J g''y qtngf "cu''cp''cecf go ke''cpf "c" vtcpurcvqt''y j krg''wpf gtvcmkpi "xctkqwu'i qxgtpo gpv''cr r qkpvo gpvu''wpvkrl'3; 33."y j gp''yj g''S kpi "i qxgtpo gpv'y cu'' axgtyi tqy p0

Vj qwi j "[ cp'Hwzu'tcpurckqpu'j cf 'c'j wi g'uqekcn'ko r cev'f wtkpi 'j ku'nthgvko g.'kk'ku'j ku'tcpurcvqtzu'r tghceg'vq" \\
\text{Vkcp{cp'hwp'\*}Gxqnwkqp'cpf'Gyj keu+'y j kej 'j cu'nghv'tj g'f ggr guv'o ctm'qp''tcpurcvkqp''uwxf kgu'lkp'Ej kpc0'Vj g'' \\
\text{vcpurcvkqp'etksgtkc''cu'ugv'qwv'kp''y ku'r tghceg.'pco gn{ 'hkf grkv{ .'eqo r tgj gpukdkrkv{ "cpf "gngi cpeg."j cxg'r cuugf 'kpvq'' \\
\text{y g'nc{o cpzu'xqecdwrct{ "cpf "ctg'uvkm'j grf "wr 'd{ "o cp{ 'Ej kpgug'uej qrctu'cu'i qnf gp'twngu0}}

GXC'J WPI 'CPF'FCXIF'RQNNCTF

# E| gej 'tt cf kkqp

 $E|\text{ gej 'ku'c''Y guv'Urcxqpke'hcpi wci g0'V} \{\text{r qnqi kecm}\{.''\text{kv'ku''cp''kphrgevkpi 'hcpi wci g'y j qug'y qtf/gpf kpi u'r gthqto 'c'' xctkgv \{ ''qh'hwpevkqpu''cpf ''kp'y j kej ''y qtf ''qtf gt''wuwcm \{ ''r rc \{ u''c''i tco o cvkecn'tqrg0'V j gug''ej ctcevgtkuvkeu''ctg''uj ctgf '' d \{ ''y g'' }$ 

emuguv'Y guv'Urcxqpke'pgki j dqwt''qh'E| gej .''pco gn{ ''Urqxcn0

 $E| \ gej \ "y \ tkwpp" tgeqtf \ u"i \ q"dcem'q" y \ g"ypy "egpwt \ \{0Dgw \ ggp" y \ g"ypy "cpf" y \ g"w \ gnhy "egpwtkgu." y \ g"hcpi wci g" \ wpf \ gty \ gpv'c" tcr kf "f \ gxgmr o \ gpv0Nkgtct \ "E| \ gej "et \ uvcnk \ gf "qp" y \ g"dcuku" qh'hqwt ygpy / egpwt \ "Egpvtcn" \ Dqj \ go \ kcp" f kcngew0Kf y \ cu'uki pkhecpvn "kphrwgpegf" d\ "y \ g"y \ qtm'qh" y \ g"E| \ gej "y \ kpngt" cpf "tgrk \ kqwu'tghqto \ gt" Lcp" \ J \ wu'*dqtp"e\ 594. "dwtpv'cv'y \ g"uvcng" 3637+." y \ j \ q"y \ cu'tgevqt" qh''Rtci \ wg''Wpkxgtuk \ 0Ngzkecn'eqf \ khecvkqp" qh''y \ g" \ repi \ wci \ g"vqnn'r \ reeg'kp" y \ g'ukz \ ygpy y "egpwt \ \ 0Vj \ g"o \ qf \ go "rcpi \ wci \ g"uj \ qy \ u'cp''kpytpcn'uvcvkhecvkqp "kpvq''ksgtct \ "E| \ gej "*wpkxgtucm \ "wugf "kp"y \ tkkpi "cpf." \ "kp"c"ur \ qngp''hqto ." \ kp'r \ wdre''eqo \ o \ wpkcvkqp+"cpf "eqpxgtucvkqpcn'E| \ gej ." y \ kj "qtki \ kpcn'nqecn'f \ kcngevu'' \ cxkpi "eqcrguegf "kpvq'kpytf \ kcngevu0Vj \ g"o \ quv'y \ kf \ gur \ tgcf "qh''y \ gug''ku'npqy \ p"cu'' \ qdgep^a " \ g-kpc''qt"-eqo \ o \ qp''E| \ gej \ \ 0Vj \ g"ur \ qngp''hqto "qh''hxgtct \ "E| \ gej "j \ cu''pqy "cf \ qr \ vgf "uqo \ g"qh''y \ g''hgcwtgu'' \ qh''qdgep^a " \ g-kpc''cpf ''ku''eqpugs \ wgpvn\ "uj \ qy \ kpi "i \ tgcvgt''hrgzkdkk\ "yj \ cp''uvcpf \ ctf ''hxgtct \ "E| \ gej \ 0$ 

### Vj g'O lf f rg'Ci gu

Vj g"gctrkguv'y tkwgp"gxkf gpeg"qh'kpvgtrkpi wcn'eqpvcev'qp"vj g"vgttkqt { "qh'vj g"r tgugpv'E| gej "Tgr wdrke"eqpukuw"qh" Qrf "Urcxqpke"vtcpurcvkqpu'htqo "I tggm"f cvkpi "htqo "vj g"ugeqpf "j crh'qh'vj g"pkpvj "egpwt { 0'Vj gug"ctg"r tgugtxgf "rti gn{ "kp'htci o gpvu"cpf "uwi i guv'vj cv'vj g"D{| cpvkpg"ewnwtg"j cf "uqo g"kphrwgpeg"kp"vj g"ctgc."vj qwi j "vj ku" kphrwgpeg"f qgu"pqv'uggo "vq"j cxg"rcuvgf "rqpi 0

Ncvlp'dgeco g'vj g'r tkpekr cn'ewnwtcn'o gf kwo "ctqwpf "vj g"gngxgpvj "egpwt { "cpf."eqpugs wgpvn{.'vj g'o ckp'uqwteg" repi wei g'kp'vtcpurcvkqp0'Vj g'mkpf u'qh'vgzv'vtcpurcvgf "f wtkpi "vj ku'r gtkqf "y gtg'r tko ctkn{ "geengukcuvkecn'cpf " rkwti kecn'dw'uqo g'vgzvu'qp'Ej wtej "rcy 'y gtg'cnq'vtcpurcvgf 0

V{r kecn'qh'vj g'wtp'qh'vj g'vj ktvggpvj "cpf "hqwtvggpvj "egpwtkgu'ctg'htgg'cf cr vcvkqpu'qh'Ncvkp'ngi gpf ct { "cpf " cr qet {r j cn'o cvgtkcn'uwej "cu'vj g''cr qet {r j cn'ngi gpf "qh'Lwf cu0'E| gej "j ci kqi tcr j { "qh'vj g''r gtkqf 'y cu''cnuq''i tgcvn{" kphrwgpegf "d { "c''eqnrgevkqp"qh'vj g''nkxgu''qh'vj g''uckpvu''npqy p''cu''*Ngi gpf c''cvt gc0*'Cnuq''f cvkpi "dcem'vq''y ku''r gtkqf "ku" c''E| gej ''xgtukqp''qh'vj g''*Cngz cpf t gku* "c''r qgo ''eqpukuvkpi "qh'32''dqqmu''kp''j gzco gvgt''y tkvvgp''ctqwpf ''33: 2''cpf " cwtkdwgf "vq''I cwnkgt''f g''Nkrng0'Vj g''E| gej ''xgtukqp''ku''dcugf "qp''c''Ncvkp''vtcpurcvkqp''qh''c''Htgpej ''vgzv'cpf ''r gtj cr u'' cnuq''qp''c''I gto cp''xgtukqp''r tqf wegf ''kp''Dqj go kc0

Htqo "y g"y ktvggpy "egpwt {"qpy ctf u."cu'kpvtguv'kp"I gto cp"ewnwtg"ur tgcf "co qpi "y g"E| gej "pqdkkk{ ."I gto cp" gr keu"qh"ej kxcrt {"dgi cp"vq"dg"tcpurcvgf 0Vj gug"y gtg"ugtkqwu"gr keu"y j kej "r qtvtc { gf "ej kxcrt {"cu"c"pqdrg"r wtuwko" kp"y g"ugeqpf "j crh"qh"y g"hqwtvggpy "egpwt {."tcpurcvkqp"wtpgf "vq"I gto cp"vgzvu"qh"gpvgtvckpkpi "tcy gt"y cp" ugtkqwu"crgu"qh"ej kxcrt {."o ckpn{ "o gf kgxcriEgnke"cpf "I gto cp"y go gu"y ky "co qtqwu"o qvkhu0Htqo "y g"3582u" qpy ctf ."r tqug"vtcpurcvkqpu"cnq"dgi cp"vq"dg"o cf g"qh"xctkqwu"i gptgu"qh"ur ktkwcri'gr ke "vgzvu."y ky "I gto cp"cu"y g" o ckp"uqwteg"rcpi wci g"uvkn0Vj gug"y gtg"dkdrkecri'cpf "cr qet {r j criuvqtkgu."guej cvqrqi kecriuvdlgevu."uq/ecrngf "-j gm" pqxgnuo"cdqww"y g"uvtwi i rg"dgw ggp"y g"F gxkri'cpf "I qf 0Vt ql" punt "mt qplnv"\*Vj g"Vtqlcp"Ej tqpkerg+"c"E| gej " vtcpurcvkqp"cpf "cf cr vcvkqp"qh"y g"Ncvkp"J knqt kc"Vt qkcpc"d{"S wkf q"f g"Eqnvo pc."y cu"y g"htuv"r tlpvgf "dqqmlkp" E| gej "\*e08692+0Vj g"o quv'ko r qtvcpv'E| gej "\tcpurcvqt"qh"y g"ugeqpf "j crh"qh"y g"hqwtvggpy "egpwt {"y cu"Vqo a —" "Vy p" "g""Ncvkp" j q"\*e085556362; +"y j q"\tcpurcvgf" tgrki kqwu"cpf "r j kquqr j kecnikkgtcwtg"htqo "Ncvkp0"

# Vj g'ci g'qh'J wo cpkno 'cpf 'Eqwpvgt/Tghqto cvkqp'\*hqwt vggpvj 'vq'lgxgpvggpvj '' egpvwt kgu+

Vj g'hqwtygpyj "cpf 'hkhygpyj "egpwtkgu'y kpguugf "c''wtpkpi 'r qkpv'kp''y g'f gxgrqr o gpv'qh''y g'E| gej "rcpi wci g0' Ctej cke''untwewtcri'grgo gpwi'y gtg''cdcpf qpgf "cpf 'E| gej "qtyj qi tcr j { "y cu''o qf gtpk| gf 0Cu'c'tguwn'qh'tghqto kuv' gpf gcxqwtu."Ncvkp''cnuq''egcugf "vq''dg''y g''gzenwukxg''rkwti kecri'rcpi wci g''ctqwpf "yj g''dgi kppkpi "qh''y g''hkhygpyj " egpwt { "cpf 'rkwti kecri'rgzwi'kp'E| gej ''tcpurcvkqp''dgi cp''vq''dg''kpvtqf wegf 'kpvq''y g''Qtf gt''qh''Ugtxkeg0F wtkpi ''y g'' hktw'f gecf g''qh''y g''hkhygpyj "egpwt { .'hwtyi gt'E| gej ''tcpurcvkqpu'y gtg''o cf g''qh''dkdrkecri'vgzw0'Vj g'hktw'eqo r rgvg'' E| gej ''tcpurcvkqp''qh''y g''Dkdrg''y cu''r tkpvgf 'kp'36: : 0

 $\label{eq:continuous_problem} J \ wo \ cpkuv'tcpurckqpu'htqo \ ''Nckp''tgrtgugpv'vy \ q''dcuke''v'{\{rgu''qh''yjg''ctkuvke'''nkvgtcwtg''qh''yjg''fc{\{0'Qp''yjg''qpg''jcpf.''yjgtg''ku''yjg''fgvcejgf''}} j \ cpf. \ ''yjgtg''ku''yjg''fgvcejgf'' \\$ 

uw{ng'ej ctcevgtkuwe'qh'uqo g'ngi gpf ct{"ceeqwpwu."hqt"gzco r ng"yj g'ngi gpf "qh"Uv'Rtqeqr kwu."cpf "qp"yj g'nyj gt"c" engct "gej q"qh'eqwt vn{"r qgvt{."c"r cuulqpcvg"n{tkekuo ."cpf "c"dngpf "qh"y qtnf n{"gtqvkekuo "cpf "o {uvkecn'geuvcu{"cu" ecp"dg"uggp"kp"ceeqwpwu"qh"yj g'ngi gpf "qh"Uv'Ecyj gtkpg"qh"Cngzcpf tkc0Cr ctv'htqo "ngi gpf u'cpf "dkdnkecn'ygzvu."yj g" E| gej "I wo cpkuvu'cnuq'tcpuncvgf "yj g'y qtmu"qh'GTCUO WU"qh'Tqwgtf co "\*ugg"F WVEJ "VTCF KVQP +."yj g" Ncvkp"encuuleu."I tggmlcwyj qtu."cpf "yj g'y tkkpi u"qh'yj g"Hcyj gtu"qh'yj g"Ej wtej 0Qpg"ko r qtvcpv'tcpuncvqt"qh'yj g" r gtkqf ."Xkmqtkp"Mqtpgnl g"X-gj tf "\*368263742+."cf xqecvgf "yj g"encuulecn'r tkpekr ng"qh"ugpuwo "f g"ugpuw."i kxkpi " r tkqtkv{"q"r tqf wekpi "c"hwpevkqpcn'tcpuncvkqp"kp"yj g"ur ktkv'qh'yj g"vcti gv'ncpi wci g0\ kno wpf "I twd "| "Igngp¶\*cnuq" mpqy p"cu"I grgpkwu<36; 963776+."c"dqqm'r wdnkuj gt."dtqwi j v'qwv'kp"3759"cpf "3766"c"eqo r ctcvkxg"Ncvkp/I tggm/I gto cp/E| gej "f kevkqpct {"d{"yj g"kxng"Ngzkeqp"u{o r j qpwo 0}

Vj g'ugeqpf "j crh'qh''y g'ukz vggpyj "egpwt { "y kpguugf "c'hrqwtkuj kpi "qh'E| gej "rksgtcwtg"co qpi "y g'wtdcp" o gtecpvkrg"ercuu0'Vtcpurcvkqpu'qh'ercuukecn'cpf "eqpvgo r qtct { "rksgtcwtg"y gtg"wpf gtvcngp."cu'y gm'cu''tcpurcvkqpu" qh'o qtg"ur gekcnk gf "o cvgtkcn'htqo "y g'pcwtcn'uekgpegu''cpf "y g'j wo cpkkgu0'Vj g'uqwteg''rcpi wci gu'y gtg" r tgf qo kpcpvn{ "Ncvkp"cpf "I gto cp0'Xcnwcdng"ckf u''vq"vtcpurcvkqp"y gtg"cnuq"r tqf wegf. "kpenwf kpi "uwej " ngzkeqi tcr j kecn'y qtmu"cu''y g'Ncvkpô E| gej ô I gto cp"*Pqo gpercvqt "vtkdwu''npi wku'\**37; 9+"cpf "y g'E| gej /Ncvkpô I tggnô I gto cp"*Unwc 'S wcf tk/npi wku'\**37; : +"dqyj "eqo r krgf "d{ "y g'E| gej "J wo cpkw'F cpkgn'Cf co "| " Xgngurcx¶pc"\*37686; ; +0'C "o clqt"pgy "xgtukqp"qh'y g'Dkdrg. "npqy p"cu'y g''*Mt crkeg'Dkdrg*. "y cu'r wdrkuj gf "dgw ggp" 379; "cpf "37; 60

F wtkpi ''y g'Eqwpygt/Tghqto cykqp'\*htqo ''y g'ugeqpf ''s wctygt ''qh''y g'ugxgpyggpyj ''egpwt{+''y g'o clqtk/{ ''qh'' vtcpurcykqpu'y gtg''qh'j ci kqi tcr j kecn'nkygtcwtg.'y tkwgp''d{ ''y g'Iguwkuu'yq''eqpuqnkf cyg''y g'kphnwgpeg''qh'y g'Ecyj qnke" Ej wtej 0'Vj g{ ''kpenwf gf ''tcpurcykqpu''qh'xctkqwu'y tkwpi u''qp''y g''ewnv''qh'y g''Xkti kp'O ct{0Qpg''qh'y g''o quv'r qr wrct'' vtcpurcykqpu''qh'y cv'r gtkqf .'tgr tkpygf ''o cp{ ''kho gu''f wtkpi ''y g''ugxgpyggpyj ''cpf ''gki j yggpyj ''egpwtkgu.''y cu''c''dqqm'' qh'j {o pu'tgpf gtgf ''o gytkecm{ ''d{ ''Ik ¶'V cpqxum '\*37; 463859+'htqo ''I gto cp''ur ktkwcn'uqpi u''d{ ''O ctykp'' NWVJ GT'\*ugg''<u>I GTO CP ''VTCF KVQP</u>+0

### Vj g'gki j vggpvj 'cpf 'pkpgvggpvj 'egpvwt kgu≺'yj g'ci g'qh'E| gej 'P cvkqpcn'Tgxkxcn

Nkgtct { "tcpurckqp"kpvq"E| gej "hrqwtkuj gf "ci ckp"kp" y g"gki j vggpyj "egpwt { ."cpf "tcpurckqpu" y gtg" o cf g"qh" I gto cp"ercuulecn" y qtmu "qh"tqeqeq"cpf "Cpcetgqpvke" r qgvt { 0Gpi rkuj "cpf "Htgpej "rkvgtcwtg" y gtg" tcpurcvgf "xkc" y g"o gf kwo "qh"I gto cp0Dcmcf u"cpf "uvqtkgu" y gtg" tcpurcvgf "htqo "I gto cp."uqo gvko gu"xkc"kpvgto gf kcvg" xgtukqpu" kp"Rqrkuj 0Vj ku"r gtkqf "cnuq" y kpguugf "cp"kpetgcugf "kpvgtguv" kp"j kuvqtkecn"r tqug"cpf "kp"f tco c0Vj g" y qtmu"qh" y g" I gto cp"f tco cvkuvu" I qwj qrf "Gr j tcko "Nguukpi "cpf "Htkgf tkej "xqp"Uej krgt" y gtg" tcpurcvgf "htqo "y gkt"qtki kpcnu." y qug"qh"Uj cngur gctg"cpf "O qrk² tg"xkc" I gto cp0

Vj g'P cvkqpcn'T gxkxcn'r tqi tco o g'y cu'guugpvkcm{"qpg'qh'gprki j vgpo gpv."cpf "vtcpurcvkqp" j gtghqtg"vgf gf "vq" hqewi'qp"vqr keu'y j kej "y gtg'ceeguukdrg"vq" j g'o cuuguOVj g"vtcpurcvkqpu'y gtg'kpvgpf gf "vq"kpur ktg'c"pcvkqp"y j qug" ugrh'eqphkf gpeg" j cf "uwhlgtgf "f wtkpi "y g"Eqwpvgt/Tghqto cvkqp."y j gp" y g"r wuj "hqt"tgEcyj qrkek cvkqp"wr r qtvgf "d{"y g"J cdudwti "Go r ktg" j cf "i qpg" j cpf "kp" j cpf "y kyj "c"xki qtqwu"r tqi tco o g"qhl gto cpk cvkqpOVj g"i tgcv" y qtmu"qh'y qtrf "rkgtcwtg."gur gekcm{"r qgvt {."y gtg"vtcpurcvgf "kp"qtf gt"vq"o cmg" y go "r ctv'qh'y g"ewnwtcn" tgr gtvqktg"cxckrcdrg"vq" y g"o cuuguOVj g"o quv'uki pkhlecpv'vtcpurcvqt"qh'y g"gctn{"pkpgvggpy "egpwxt {"y cu'Lqugh" Lwpi o cpp"\*399563: 69+"qpg"qh'y g"rgcf kpi "tgr tgugpvcvkxgu"qh'y g"E| gej "o qxgo gpv'qhP cvkqpcnT gxkxcnOJ g" vtcpurcvgf "htqo "Gpi rkuj."Htgpej."I gto cp"cpf "T wunkcpOHtqo "I gto cp."j g"vtcpurcvgf "o ckpn{"I qgyj g"cpf" Uej kmgt."cpf "htqo "T wunkcp"y g"cpqp {o qwu"o gf kgxcn'gr ke"Vj g"Nc{"qh!Rt kpeg"K qtOLwpi o cppvt"hkxg/xqnwo g" E| gej /I gto cp"F kevkqpct{"\*3: 5665; +'y cu'cnnq"c'xcnwcdrg'eqpvtkdwkqp"vq'vtcpurcvkqp"r tcevkegOJ g"ku."j qy gxgt." dgw'tgo go dgtgf "hqt"r tqf wekpi "y g"htuv'E| gej "xgtukqp"qh'O knqpvu"Rctcf kng"Nquv\*3: 26."r wdrkuj gf "3: 33+0%" j ku'vtcpurcvkqpu."Lwpi o cpp"gptkej gf "y g"E| gej "rcpi wci g"d{"j ku'wug"qh'pgqni kuo u "ctej ckuo u'cpf "dqttqy kpi u" htqo "qy gt"Urcx"rcpi wci guOJ ku'vtcpurcvkqp"qh'Ej cvgcwdtkcpf vu'Cvcrc\*\*3: 27+"f go qpuvtcvgf "y g"r qvgpvkcn'qh" o qf gtp"r qgvke"E| gej "kp"c'y c{"y cv'j cf"pqv'dggp"f go qpuvtcvgf "dghqtgO

Cv'y g''dgi kppkpi "qh''y g''pkpgvggpy "egpwt{.''tcpurcvkqp''rc{"cv'y g''egpvtg''qh'c''pwo dgt''qh''f kur w.gu. "gur gekcm{" yi qug''eqpegtpkpi "yi g''ngi kxko ce{"qh''qnf/hcuj kqpgf "ngzkecn'gngo gpwt'kpvtqf wegf "d{"J wo cpktrut'cpf "yi g''uecng''qh'' ngzkecn'dqttqy kpi u'htqo "Rqnkuj "cpf 'htqo "yi g''uqwj gtp''cpf "gcuvgtp''Urcxqpke''ncpi wci gu0'Cpqyj gt''qr ke''qh'' f kur wwg'y cu'r tquqf {0'Vj g''ngcf kpi "E| gej ''nkpi wkuv'qh''yi g'f c{.''Iqugh'Fqdtqxum '\*3975ó3: 4; +''f go qpuvtcvgf ''yi g'' wpuvkkcdkrkv{"qh''s wcpvkcvkxg''o gvtg''hqt''r qgvkecn'y tkxkpi "kp'E| gej =''pgxgtyj gnguu''yi ku''uvxtxkxgf ''kp''vtcpurcvkqpu'htqo "Ncvkp''cpf''I tggm''r qgvt{"'vq''y g''gpf ''qh''yi g''ncuv''egpwt{0

 $\label{thm:prop} Vj g''ugeqpf''j crh'qh''y g''phpgyggpy ''egpwt { 'y kpguugf 'c'tcr kf''f gxgqqr o gpv'qh'E| gej ''kxgtct { ''cpf ''ewnwtcn'hkg.'' kpenwf kpi ''hxgtct { ''tcpurcvkqp0C''pgy ''cvkwf g''q'hqtgki p''hxgtcwtgu'y cu''ej co r kqpgf ''d { ''y g''+O c { ø'i tqwr ''*pco gf '' chyt''y g''cm cpce''O c { +''y j qug''o go dgtu''dgrkgxgf ''kp''c''f go qetcvke.''uqo gvko gu''tcf kecn'f go qetcvke.''cr r tqcej ''q'' r tqi tguu0Vtcpurcvkqpu''dgi cp''vq''ceeqwpv'hqt''c''i tqy kpi ''r tqr qtvkqp''qh'y g''hxgtct { ''qwr w0Hp''cf f kkqp''vq''cpekgpv'' r kxgtcwtg.''vtcpurcvkqpu''pqy ''eqxgtgf ''eqpvgo r qtct { ''y tkkpi ''kp''cm'o clqt''rcpi wci guc'y qtmu''d { ''I qi qn''Rwij mkp.'' Xkevqt''I wi q.''Egtxcpvgu.''Tqdgtv'Dwtpu.''D { tqp.''Uj gmg { .''O kenkgy ke| .''J gkpg.''Rgvl/rk''cpf ''o cp { ''o qtg''y gtg'' vtcpurcvgf 'kpvq''E| gej 0'Vj g'O c { ''i tqwr ''hqewugf ''qp''rkxgtcwtg'y j kej ''y cu''cwtcevkxg'kp''hqto ''cpf ''uwdlgev='yj g { ''vgtghtg''ygpf gf ''vq''f kutgi ctf ''o cp { ''ko r qtvcpv'r qgwl'cpf ''r tqug'y tkxgtu.''uwej ''cu''Nco ctvkpg.''Crhtgf ''f g''Xki p { ''cpf '' Crhtgf ''f g'O wuugv0'Vj g { ''cnnq''f grkdgtcvgn{ ''cxqkf gf ''tcpurcvkpi ''htqo ''I gto cp''uqwtegu''kp''cp''cwgo r v'vq''htgg''E| gej ''rkxgtcwtg''htqo ''kuu''gpvtcr o gpv'kp''y g''I gto cp''ewnwtcn'ur j gtg0'Cv'cp { ''tcvg.''gf wecvgf ''E| gej u'y gtg''cdng''vq''tgcf '' I gto cp''hxgtcwtg''hp''y g''qtk kpcn')} I gto cp''hxgtcwtg''hp''y g''qtk kpcn')} }$ 

Kp"y g"hcuv's wetygt"qh"y g"plogyggpy "egpwt {."mpqy p"cu"y g"\text{Nwo \text{" trype f"chygt"y g"r gtlqf kecn'\text{" wetpurckqp"hqwtkij gf "cu"pgxgt"dghqtg0\text{" y gty tkgtu"i tqwr gf "ctqwpf "y g"r gtlqf kecn'y gtg"equo qr qrkcpu"cpf "y gtg" r ctvlewretn{"cevkxg"kp"tcpurcvkpi "r qgvt {0O quv'r tqo kpgpv"co qpi "y go "y gtg"y g"r qgwt"Lctqurcx"Xtej rlem "\text{3: 756} 3; 34\text{"cpf" [qugh"X\text{Uh" f gmi\text{\text{3}}}: 6763; 34\text{"0Kp"Xtej rlem \text{\

Vqy ctf u'ij g'gpf 'qh'ij g'plpgvggpi 'egpwt { .'ugxgtcn'uej qrctu'dgi cp'\q'gzr tguu'ij gkt'o kui kxlpi u'cdqw' Xtej nlem øu'o gij qf 'qh'ikgtcn'tcpurcvlqp<kk'y cu'hgn'ij cv'r qgvt { "tcpurcvlqp"pggf gf 'vq'htgg'kugnh'htqo "c'urcxkuj " f gr gpf gpeg''qp''ij g'hqto ''qh'iy g''qtki kpcnOC''i tgcvgt'htggf qo 'kp''ij ku'tgur gev'ecp''dg'hqwpf 'kp''ij g''y qtm'qh'Lwkwu'' \ g{gt'\*3: 6363; 23+'y j q''tcpurcvgf 'htqo ''c'xctkgv{ "qh'ircpi wci guO'Vj g''f gdcvg''qp''rkvgtct { "tcpurcvlqp."kpkkcvgf ''d { " vj g'O qf gtpkuv'o qxgo gpv'kp''y g''3: ; 2u."eqpvlpwgf 'y kyj ''o kpqt''kpvgttwr vkqpu''gxgp''chvgt''Y qtrf ''Y ct''Qpg.''r gtj cr u'' wpvkn''y g''acyg''3; 52u.''y kyj ''o cp{ "qwuvcpf kpi 'y tkgtu."tcpurcvqtu''cpf ''rkvgtct { ''uej qrctu''cnkpi ''r ctv'kp''kxO

# Vj g'ty gpvlgvj 'egpvvt {

#### Fgxgrqrkpi 'lj g'lj gqtgvkechhtco gy qtm\'Vj g'Rtci wg'Uej qqn

Vj g'ko r wng'hqt "f gxgmr kpi "c"o qf gtp" yj gqt { "qh' \tcpurc \kqp" kp" i gpgtcn'cpf "qh' yj g' \tcpurc \kqp" qh' r qg\t { "kp" r ct\kevrct"eco g'htqo "yj g'Rtci wg''Uej qqn" c"i tqwr "qh' \uej qrctu" yj q'y gtg' \kp\ytguvgf "kp' r qg\ke' \uep pe ke' \uep po wu'o qf g''qh' \ur ggej "yj qug''cgunj g\ke' \un mpe kqp' \un ku' f kt ge\yf "cv' yj g''nkpi wku\ke' \uki p' \un kugh' O' yj g\t 'yj gqt { "qh' r qg\ke' \uep po vig g' \un tqxg' htqo "\yj g''qwugv' \up tt' gzce\kwf g''cpf 'hqto cn\t c\tqp. "dw' \under\the f 'pqv' qr gtc\yg' y kj " o cyj go c\kecn' qt' \uncv\ku\kecn' o gyj qf u' \under\the y' y g'\under\the v'\uppugO' \under\the k'\uppugO' \under\the k'\uppugO' \under\the k'\uppugO' \under\the y' yg gu'tghgttgf "\uppug' \under\the u'\uppugO' \under\the y'\uppugO' \uppugO' \under\the y'\uppugO' \uppugO' \u

Kp'r ctcmgn'y kj ''y g'f gxgmr o gpv'qh'c'uxtwe/wtcn'y gqt { ''qh'r qgvke'hcpi wci g. 'cwgo r w'y gtg'cnuq'o cf g'vq'f gxgmr " c''y gqt { "qh''y g''tcpurcvkqp"qh'r qgvt { 0'Vj g''uvko wnwu'hqt "c''hwpevkqpcn'wpf gtuvcpf kpi "qh''vtcpurcvkqp"eco g'htqo "y g" hqwpf gt "qh" y g"Rtci wg" Uxtwewtcrkuv "Uej qqn "Xkr? o "O cyj gukwu" 3: : 463; 67 + "kp" j ku "ct vkerg" + Q"r tqdr? o gej " gunij q'r gmcf cygnux ¶o'\*Qp'yi g'r tqdrgo u'qh'E| gej "ttcpurcykqp."3; 35+0Co qpi "qyi gt"uki pkhkecpy'uwxf kgu'kp"yi ku" ctgc."o gpvkqp"uj qwrf "dg"o cf g"qh"Icmqduqpøu"guuc{":Q"r gmcf w"xgt- ø"\*Qp"Xgtug"Vtcpurcvkqp."3; 52+0Icmqduqp" \*3; 52+"f kuewuugu"f khhgtgpegu"kp"vj g"ugo cpvke"ko rqtv"qh"koo dkeu"kp"E| gej "cpf"Twuukcp"cpf"cfxqecvgu"vj g"pggf" hqt"c"hwpevkqpcn"tguj cr kpi "qh"yj g"o gytg"qh"yj g"tcpurcygf "ygzv0"Vj ku"go r j cuku"qp"yj g"hwpevkqpcn"tqrg"qh"hkpi wkuvke" grgo gpvu'kp''y g''tcpurcvgf ''vgzv'r tqxgf 'j ki j n( 'kphrwgpvkcn'cpf 'y cu''cf qr vgf 'kp''y g''3; 42u''cpf '3; 52u''d { ''y g''rgcf kpi '' rtcevkklapgtu'qh'vtcpurcvkap. 'tguvnkpi 'kp'o cp{'hkpg'tgpfgtkpi u'qh'o clqt'y qtmu0'Qvqnct'Hkuejgt'\*3::563;5:+" vtcpurcvgf "htqo "I gto cp. "Gpi rkuj "cpf "Htgpej "cpf "gzrtguugf" jku "dgrkgh "kp" y g' Hwpevkqpcrkuv "crrtqcej "kp" jku "uwwf {" →Q'r gm² f² p¶'d² upkem ej 'f mø'\*Qp''Vtcpurcvkpi 'Y qtmu'qh'Rqgvt { .'3; 4; +0'Hkuej gtøu'hktuv'o clqt''vtcpurcvkqp'y cu'qh' uqo g'qh'yi g'y tkkpi u'qh'Htkgf tkej "P kgy uej g'\*3; 36+0'Co qpi 'j ku'pwo gtqwu'ytcpurcykqpu."c''ur gekcn'r rceg'ku'j grf " d{'j ku'gr qej /o cmkpi 'tcpurcvkqp'qh'I qgvj gøu'Hcww'\*3; 4: +"cpf 'j ku'ugrgevkqpu'htqo 'vj g'y qtm'qh'vj g'Htgpej 'r qgv' Htcp±qku'Xkmqp'\*3; 49+0Cpqyi gt'o knguvqpg'kp''yi g'\tcpurc\kqp''qh'r qgvt { 'y cu'yi g'\tcpurc\kqp''qh'Cr qmkpcktgøu''  $\propto qpg'd\{''Mctgn'' \ cr gm'*3: ; 263; 5: + "dgwgt" npqy p"cu'c" f tco cvkuv'cpf "r tqug'y tkxgt0 kp'hcev. "ukpeg" y g''3; 42u. "cpf" | 100 cvkuv'cpf "r tqug'y tkxgt0 kp'hcev. "ukpeg" y g''3; 42u. "cpf" | 100 cvkuv'cpf | 100 cvkuv'c$ tki j v'wr ''vq''y g'r tgugpv'f c{. "o cp{ ''qwuvcpf kpi 'E| gej 'r qgwi'j cxg'eqpvkpwgf ''vq'f gxqvg''y go ugnxgu''vq''y g'' vtcpurcvkqp"qh"Htgpej 'r qgvt { 'kp'r ctvkewrct0O qf gtp'\tcpurcvkqpu'qh'\j g'r qgvu'qh'cpvks wkv{ 'j cxg'cnuq'eqpvkpwgf '\q' 3; 56+"cpf "Hgtf kpcpf "Ukgdk\"3:; 663; 83+0

Vj g'untwewtchun'ij gqt { "qhi'r qgvle" icpi wci g''r tqxgf "xcnwcdrg" pqv'qpn { "lp''r tqxlf lpi "c'htco g/y qtmihqt" gxgmr lpi "c''j gqt { "qhi'r qgvt { "vtcpurcvlqp." iwl kpi "vj g''r tcevleg" qh'vtcpurcvlqp" lp''i gpgtcn'cpf "vj g''tcpurcvlqp" qh'' r qgvt { "lp''r ctvlewrct 0 Crrnlegf "vq''dlalpi wcn'eqo o wplecvlqp." vj g''hwpevlqpcn'x ley "qh'ircpi wci g''rgf "vq''cp''go r j culu" qp" Hwpevlqpcn'gs wkxcrgpega "untguulpi "vj g''tgrevlqpuj lr "qh'vj g''tcpurcvlgf "vgzv'vq' ku''tgegr vqtu 0 llp''y g''tcpurcvlqp" qh'' r qgvt { ."kv'o ctngf "vj g''gpf "qh'vj g''o gej cplecn'eqr { lpi "qh'vj g''hqto cn'hgcwtgu''qh'vj g''qtki lpcn') llp''cf f kllqp." vj g'' f gxgmr o gpv'qh''gzcev'o gvj qf u'hqt'vj g''cpcn uku''qh'r qgvle "rcpi wci g''o gcpv'vj cv'vtcpurcvlqp." llp''wtp. "dgi cp''vq''dg'' wpf gtuvqqf "lp''ygto u''qh'llpvgtr tgvlpi "eqo r ngz "xgtdcn'uki pu'llp''ur gellile "eqo o wplecvlxg" eqpvgzvu. "cpf "vj ku''ngf "vq''c" o qxg''cy c { "htqo "kttcvlqpcn'cpf "uwdlgevlxg" crrtqcej gu0

Vj g''3; 72 u'ucy 'c'tgxkxcn'qh'kpvgtguv'kp''ktcpurcvkqp''y gqt { .''gur gekcm{ 'kp''y g'y qtm'qh'Ik  $\P NGX[$  '\*3; 48689+.'' r wdrkuj gf 'kp''dqqm'hqto ''cu''Wo  $p\P r$  gmcf w'\*\*Vj g''Ctv'qh''Vtcpurcvkqp+'kp''3; 850Cmj qwi j 'j ku''o gyi qf ''qh''cpcn{ uku'' ku''wuvcm{ ''f guetkdgf ''cu''nkvgtct { .''Ngx { ''uweeggf gf 'kp''kpenwf kpi ''kp''kk''cpf ''wkrk kpi ''y g''hkpf kpi u''qh''s wcpvkxcvkxg'' cpcn{ uku''cpf ô kp''y g''eqpvgzv''qh''eqpvgo r qtct { ''y guvgtp''y gqt { ô hwm{ ''hkpnkpi ''wr ''y kyi ''y g''Rtci wg''Uej qqr0Ik  $\P ''$  Ngx øu'o clqt ''eqpvtkdwkqp''vq''y g'o qf gtp''y gqt { ''qh''r qgvt { ''vtcpurcvkqp''y cu'j ku''cr r rkecvkqp''qh''y g''o gyi qf u''qh''y g'' gzcev''uekgpegu0'Y kyi ''tgo ctnrcdrg''cewkx{ .''}

j g'r kpr qkpygf ''y g''o ckp''r tqdrgo u'qh'r qgyt { ''tcpurcykqp''cpf 'kp''o cp { 'tgur gevu'o ctngf ''qwy'y g''nkpgu''cmpi ''y j kej '' hwwtg''tgugctej ''y qwrf ''r tqeggf 0'Kdy cu''cnuq''ncti gn{ 'f wg''q'j ko ''y cv''gxgp''f wtkpi ''y g'r gtkqf ''qh'r tq/Uqxkgv'' r qrkxkecn'qtkgpycykqp.''E| gej ''y gqtgykekcpu''cpf ''r tceykxkqpgtu''qh''ytcpurcykqp''tglgeygf ''y g''Uqxkgv''ygpgyu.''y j kej '' cr r tqcej gf ''y cpurcykqp.''gur gekcm{ ''y cv'qh'r qgyt { .'htqo ''y g'r qkpv'qh'xkgy ''qh'hqto cn'eqttgur qpf gpeg0'Vj ku'ku'' gxkf gpegf ''d{ ''y g''ncti g''pwo dgt ''qh'qwuycpf kpi ''y cpurcykqpu''qh'r qgyt { ''cpf ''r tqug''f wtkpi ''y cv'r gtkqf ='co qpi ''y gug'' ur gekcn'o gpykqp''uj qwrf ''dg''o cf g''qh'y g''y cpurcykqpu''qh'Co gtkecp''cpf 'Twuxkcp'r qgyt { ''d{ ''Lcp'\ ' a dtcpc'\signs3; 536 : 6+0O qf gtp'E| gej ''y cpurcykqp''y gqt { ''r tqeggf u'htqo ''y g'y qtm'qh'Lk ¶'Ngx { .''dw''gpf gcxqwtu''y ''i kxg''i tgcygt'' y gki j v'y ''hpi wkwke'kuwyu.''kpetgcukpi n{ ''wtpkpi ''ku''cwgpykqp''y gzcev'o gyi qf u''qh''cpcn{ uku''qh''r qgyt { ''ytcpurcykqp0

#### Vt cpurc wap 'c ewxkw 'f wt kpi 'tj g'ty gp wgy 'egp wt {

F gur kxg''yi g''yi gqt gykecn'go r j cuku''qp''yi g''ytcpurcykqp''qh'r qgyt { .''yi g''dwm''qh''ytcpurcykqp''cpf ''r wdrkuj kpi ''uj khygf'' vqy ctf u'r tqug'd { "vj g'dgi kppkpi 'qh'vj ku'egpwt { 00 clqt 'Gpi rkuj . 'Htgpej 'cpf 'I gto cp'y qtmu'qh'tgcrkuo 'y gtg'' vtcpurcvgf."cmpi "y kij "P qtf ke."Urcxqpke."qvj gt"Tqo cpeg."cpf "gxgp"Cukcp"cpf "Chtkecp"y qtmu"qh"hkgtcwtg0"Vj ku" dtqcf 'ur gevtwo ''qh''tcpurcvkqp''y cu''uwr r qtvgf ''d{ ''vj g''guvcdrkuj o gpv''qh''r tqi tco o gu''kp''rkpi wkuvkeu''cv''Ej ctrgu'' Wpkxgtukv{ 'lip''Rtci wg'cpf 'cv'yj g''Wpkxgtukv{ 'lip''Dtpq.'hqwpf gf 'lip''3; 3: 0F ktgev'vtcpurcvkqpu'htqo ''qtkgpvcn' repi wei gu. 'hqt 'gzeo r rg''y g'y qtm'qh'Tedkpf tepeyi "Vei qtg'htqo 'Dgpi erk 'dgi ep''\q'er r get'kp''y g'3; 52u0 V{r kecn'qh'E| gej "\tcpurcvkqp"y qtm'dgwy ggp"\j g"y ctu"y cu"cp"kpetgcugf "kpvgtguv"kp"Co gtkecp"rkvgtcwxtg0"Y kyj "c" hgy "gzegr vkqpu'uwej "cu'Octm'Vyckp"cpf "Icem'Nqpf qp. "pkpgvggpvj "egpwt { "Cogtkecp"rkvgtcwtg"j cf "wpvkn'vj gp" dggp'tgcej kpi 'E| gej 'tgcf gtu'y kj 'c'f grc{ 'qh'cv'rgcuv'qpg'i gpgtcvkqp0kpvgtguv'kp'eqpvgo r qtct{ 'Co gtkecp'' nksgtcwtg'y cu'uq'nkxgn( 'kp''y g'E | gej 'Ncpf u'kp''y g'3; 42u'cpf '3; 52u''y cv'o cp{ 'pqxgnu'cr r gctgf 'kp''tcpurcvkqp'' xgt { "uj qt vn{ "chvgt "vj g"r wdrkecvkqp"qh"vj g"Gpi rkuj "qt ki kpcnu0"Vj g"o quv"uvveeguuhwn'Co gt kecp"cwvj qt "kp"E | gej " "tcpurckqp"y cu"Wr vqp"Ukperckt."o cp{"qh"y j qug"pqxgnu"y gtg"r wdrkuj gf "htqo "3; 28"qpy ctf u0Cnuq"uweeguuhwn kp" El gej "tcpurckqp"y gtg"Y kmc"Ecyj gt. "Vj gqf qtg"F tgkugt. "Ueqw"Hkt i gtcrf. "Ukperckt"Ngy ku. "Iqj p"F qu"Rcuuqu." Iqj p"Uvgkpdgem"Vj qtpvqp"Y krf gt"cpf."co qpi "f tco cvkuvu."Gwi gpg"QøP gkm0"Kp"vj g"3; 52u."cpi rqr j qpg"rkvgtcwtg" y cu''tcpurcygf ''d{ ''y g'f kuckr rgu''qh''y g'Rtci wg''Uej qqrl'rkpi wkuv'Xkr² o ''O cyj gukwu'\*Crq{ u''Unqwo cn''3; 26685.''cpf '' \ f gp m'Xcp wtc.'3; 25696+'cpf ''vj qug''qh'Qvqmct''Hkuej gt'\*kpenwf kpi 'Gtkm'C0'Ucwf gm''3; 26684.''y j qug'' vtcpurcvkqpu'qh'Uj cngur gctg'ctg'eqpukf gtgf ''qwuvcpf kpi +0T wuukcp''rkvgtcwtg''qh''y g'Uqxkgv'r gtkqf ''y cu'' tgrtgugpvgf "dgw ggp" y g'y ctu" d{" y g'r qgw 'F go {cp 'Dgf p{." Xncf ko kt 'O c{cmqxum{."cpf 'ncvgt 'Cngmucpf t 'Dnqn0' Kovetguv'y cu'uj qy p'cnuq'kp'pqxgnu'cpf 'uj qtv'uvqtkgu'y kij 'c'ekxkri'y ct''y go g. 'uwej 'cu'y qug'd { 'Mqpuvcpvkp''Hefkp.'' Xugxqrqf "Kxcpqx."Kxccm"Dcdgn "Dqtku"Rkrp { cm'cpf "Ngqpkf "Ngqpqx0"

F gur kg'lf gqqqi kecn'eqpuvtckpwi'ko r qugf 'd{ 'vj g'twrkpi 'tgi ko g.'vj g'r gtkqf 'ltqo '3; 6: 'vq'3; :; 'y kpguugf 'c'' eqpukf gtcdrg'lpetgcug'lp'\tcpurc\kqpu\0\Rwdrkij kpi 'r qrke{.'y kj 'lkpcpekcn'uwr r qtv'htqo 'vj g'uvcyg.'o cf g'kv'r quukdrg'' vq'dtkpi 'qw'pqv'qpn( 'vgpf gpvkqwu'rksgtcwtg.'dw'cnq'\tcpurc\kqpu'qhi'xcnwcdrg'\*\vj qwi j 'pqv'pgeguuctkn( '' eqo o gtekcm( ''xkcdrg+'vkrgu'qh'y qtrf 'lkgtcwtg0F wtkpi 'vj g'r cuv'52''{ gctu.''vtcpurc\kqpu''kpvq''E| gej ''j cxg''dggp'' r wdrkij gf 'ltqo ''77'rcpi wci gu.'pqv'eqwpvkpi 'vj g'o clqt'lpvgtpc\kqpcrlicpi wci gu\0F ktgev'vtcpurc\kqpu''j cxg''cnq'' dggp''o cf g'ltqo ''0 cp{ 'rguugt 'Gwtqr gcp''rcpi wci gu.'uwej ''cu'Hrgo kij .''Y gnij .''Kegrcpf le.''Nwuc\kcp''Uqtdkcp.'' [ kf kij .''O cegf qpkcp''cpf 'Ecvcrp0'Vj gtg''gzknv'pqy ''0 cp{ 'rf ktgev'\tcpurc\kqpu''qh'ercunkecn'cpf ''eqpvgo r qtct {'' y qtmi'ltqo ''Ctcdke.''Ej kpgug.''Kpf qpgulcp.''Icr cpgug.''Mqtgcp.''Hctuk ''Xkgvpco gug.''ugxgtcrlicpi wci gu'qhl'Kpf kc'' ''twrej ''cu'Dgpi crk''I kpf kv''D fr wccpk''O cre{ crco .''O ctcy k''Rwplcdk'cpf ''Vco kn+''cpf ''Itqo ''uwej ''gzqvke''rcpi wci gu'' cu''Uy cj krk''Ecnrej ks wgn''S wkej 2 .''[ wecvge''cpf ''Kpknkj gv0P qt''j cu''yj g'hkgtct { ''j gtkci g'qh'yj g''f gcf 'rcpi wci gu.'' uwej ''cu''Ceecf kcp.''Cuu{tkcp.''C| ye.''ercunkecn'I tggm''cpf ''Ncvkp.''I gdtgy .''Ucpuntkr''cpf ''Uwo gtkcp.''dggp''hqt qwgp0 Qpg''qh'yj g''pgi cvkxg''r j gpqo gpc.''gur gekcm( ''kp'yj g''3; 92u''cpf ''3; : 2u.'y cu'yj g''o ctrgf ''ur tgcf ''qh'yj g''tcpurcvkqp''qh'' r qgvt { ''y kyj ''yj g''ckf ''qh''-kpvgtrkpgctø'qt''y qtf /'hqt/y qtf ''tcpurcvkqpu='yj ku'y cu''lwnkhkgf ''yj gqtgvkcm( ''d{ ''yj g'' cti wo gpv'yj cv'r qgvt { ''eqwrf ''qpn( ''dg''tcpurcvgf ''d{ ''c'r qgv0V'y g''}

tgcnltgcuqp."j qy gxgt."y cu'r qrkkecn'tcyj gt"y cp"ewnwtcn"kp"y cv'y ku'r tcevkeg'hqmqy gf "y j cv'j cf "dgeqo g"y g" pqto "kp"y g'hqto gt "Uqxkgv'Wpkqp0'Qp"qeecukqpu."y g"eqmcdqtcvkqp"dgw ggp"c"rkpi wkuv'cpf "c"r qgv'j cu" wpf qwdvgf n{ 'tguwngf 'kp'hkpg"\tcpurcvkqpu."dw'kp"o quv'kpuvcpegu'y ku'r tcevkeg'j cu'pqv'gptkej gf "y g'uvqtgj qwug'qh" E| gej "\tcpurcvkqp"qh'hqtgki p"r qgvt {0

Chygt"3; : ; "'y g"i tgcv'wtpkpi "r qkpv'kp"y g"r qrkkecn'qtkgpvckqp"qh'y g"E| gej "Tgr wdrke"cpf "y g"uy kej "vq"c"o ctngv' geqpqo { "tguwngf "kp"hwpf co gpvcn'ej cpi gu"kp"y g"r cwgtpu"qh'r wdrkuj kpi "tcpurcvgf "rksgtcwtg0Qp"y g"qpg"j cpf ." y gtg"y cu"y g"f ghlykkxg"tgo qxcn'qh'h'g gqqi kecn'dcttkgtu. "dw"qp"y g"qy gt"y gt"y gtg"y cu"y g"rquu"qh'uvcy"uwdukf kgu0' kp"y g"hkgrf "qh'vtcpurcvkqp"y ku"o gcpv'c"o ctngf "eqo o gtekcnk cvkqp"qh'y g"dqqn"o ctngv'cpf "c"vgo r qtct { "f gerkpg" kp"r wdrkuj gtuø'kpvgtguv'kp"o qtg"f go cpf kpi "i gptgu."gur gekcm("r qgvt { 0'Vj g"dqqo "kp"r wdrkuj kpi "eqo o gtekcm(" xkcdng"o cvgtkcn "vtcpurcvgf" r tko ctkn("htqo "Gpi rkuj "cpf "I gto cp."j cu"kpgxkxcdn("cwtcevgf" r tqhguukqpcm("rguu" eqo r gvgpv'vtcpurcvqtu."y qwi j "y g"j ki j "uvcpf ctf "qh'vtcpurcvqp" kpvq"E| gej "j cu"o qtg"qt"rguu"dggp"o ckpvckpgf 0 E| gej "ewnwtg"j cu"cv'cm'vko gu"o ckpvckpgf "c"rkxgn("kpvgtguv'kp"y j cv'ku"j cr r gpkpi "cdtqcf 0'Kp"rkkgtct { "vtcpurcvkqp." y ku"j cu"o gcpv'y cv'xktwcm("gxgt { "i gpgtcvkqp"j cu"o cf g"ku'qy p."uqo gvko gu"o qtg"y cp"qpg."vtcpurcvkqp"qh" qwwcpf kpi "y qtmu"qh'y qtrf "rksgtcwtg0'C"uo cm'kmwntcvkqp"qh'y ku"ku"y g"rcev'y cv'y gtg"gzkuv'35"r wdrkuj gf "E| gej " vtcpurcvkqpu"qh'Gf i ct"Cmp"Rqgøu'r qgo "÷Vj g"Tcxgpø0

#### Pqp/nlsgtct{'\tcpurvlqp

Wprkng'rksgtct { "\tcpurc\kqp."eqo o gteken"o gf keen"\uekgp\khe"cpf "\gej p\keen\\tcpurc\kqp"f kf "\pqv'\dgeqo g'\j g'\uxdlgev' qh'\ceef go ke'\uxwf { '\p'\j g'E | gej "T gr wdr\ke"\j qwi j "\k'\y cu."qh'\eqwtug."r tce\kugf "\kh'\qp"c''\ko k\gf "\uecrg\+"d { " ur ge\ker\\uxwf \nad \upday ggp"\j g'\y q'\y ctu\0'Y \kj "\j g'\r tq\\upday \upday \upday

#### Kpvgtrtgvkpi

Kp" i g"Hktuv'T gr wdrke "3; 3: 65; +"o go dgtu'qh'gyi pke"o kpqtkkgu" j cf "i g "tki j v'vq"r rgcf "kp"ny gt "eqwt w'kp" i gkt" qy p"rcpi wci g0Qhhkekcri qt "cwj qtk gf +"kpvgtr tgvgtu'y gtg" j gtghqtg"pggf gf "kp" i gug"cpf "uko krct "kpukkwklqpu." yi qwi j "i g "y gtg"pqv"cv'yi g"ko g"uvtkevn "+r tqhguuklqpcrø"pqt. "cu"c"twrg. "hwm ko g"kpvgtr tgvgtu0Kpvgtr tgvgtu'y gtg" cnuq "wugf "cv'i g "f kr mo cvke "cpf "i qxgtpo gpvcn'rgxgnu0Chvgt" Y qtrf "Y ct"Vy q. "kp" i g"3; 62u"cpf "3; 72u." uko wncpgqwu"kpvgtr tgvkpi "y cu"r tqxkf gf "r tko ctkn ("d "i g "hqmqy kpi "ecvgi qtkgu<"y ctvko g'² o ki t² u'\*Gpi rkuj +." Igy kuj "uwtxkxqtu"qh'i g"eqpegpvtcvkqp"eco r u'\* I gto cp+"ugeqpf /i gpgtcvkqp" Twurkcp"² o ki t² u'\* Twurkcp+" gf wecvgf "E | gej u'htqo "yi g''r tg/y ct" Htcpeqr j krg"gpxktqpo gpv Htgpej +0Hgy "qh'i gug"j cf "cp { "rkpi wkurke "vtckpkpi 0' C"rcti g'pwo dgt "qh'cf" j qe "kpvgtr tgvgtu'y gtg. "cpf" uvkm'ctg. "cnuq "wugf" cu" i wkf g/kpvgtr tgvgtuø'hqt 'hqtgki p'xkukqtu<" yi g''Rtci wg''Kphqto cvkqp" Ugtxkeg'j cf "uqo g"4722"i wkf g/kpvgtr tgvgtu'qp''ksu'rkuv'kp"3; ; 60C''xgt { "uo cm'pwo dgt"qh" yi g"o qtg"j ki j n ("s wcnkhkgf" eqphgtgpeg''kpvgtr tgvgtu'y gtgktg"o go dgtu"qh''C KKEO

# Hwt yj gt 't gcf lpi

 $\label{eq:ceve_power_power} \textit{Ceve'Wpkxgtuksevku'Ectqnkpcg.'Vtcpurevqnqi~kec'Rtci~gpukc'*3;:6/+='I~crep'3;::='Mwhpgtqx^a''gv'cn'3;;6='Ngx''3;79=''O^apgm'3;;21;30$ 

# Dkqi tcrj {

NGX .'Lk ¶\*3; 48689+0E| gej ''y gqtkuv'cpf ''j kuvqtkcp''qh'irksgtcwtg.''dguv'inpqy p''kp''y g''hkgrf ''qh''tcpurcvkqp''hqt''j ku'' y qtm'qp''f gekukqp''o cmkpi '\*\*ugg'<u>FGEKUKQP'O CMKPI ''KP''VTCPUNCVKQP</u>=<u>"ICOG''VJGQT['CPF"</u>

VTCPUNCVKQP
+0Kp''f kuewuukpi 'kuuwgu'kp''tcpurcvkqp''cpf 'irksgtcwtg.''j g''f tgy ''qp''y g''hkpf kpi u''qh''c''y kf g''tcpi g''qh'' f kuekr nkpgu. 'kpenwf kpi ''ugo kqvkeu. 'irkpi vkuvkeu. 'kphqto cvkqp''y gqt { ''cpf ''uvcvkuvkeu0'J g''y cu''r ctvkewrctn( ''kphrwgpegf'' d { ''y g''Rtci wg''Uej qqn''cpf ''cwgo r vgf ''vq''gncdqtcvg''y g''pqvkqp''qh''hwpevkqpcn''gs wkxcngpeg''

# F

# Fcpkij 'cpf 'Pqty gi kcp'ttcf kkqpu

F cpkıj "cpf "P qty gi kcp"ctg"dqy "Kpf q/Gwtqr gcp"rcpi wci gu."j kurqtkecm{ "cpf "untwewtcm{ "tgrcvgf "vq"F wej ." Gpi rkıj "cpf "I gto cp0"Y kij "y g"gzegr vkqp"qh"Hopkıj ."y g"Uecpf kpcxkcp"rcpi wci gu"eqpurkwwg"y g"uwdi tqwr " vgto gf "-P qtf keø "dw"F cpkıj "cpf "P qty gi kcp"dgmpi "vq"f khrgtgpv"uwdv{ r gu<F cpkıj "\*y kij "Uy gf kıj +"dgmpi u"vq" y g"Gcuv"P qtf ke"i tqwr ."P qty gi kcp"\*y kij "Kegrcpf ke"cpf "Hctqgug+"vq"y g"Y guv"P qtf ke0"J qy gxgt ."yi g"rcpi wci g" ukwcvlqp"kp"P qty c{ "ku"eqo r rkecvgf "d{ "vj g"rcev"yi cv"rqt"qxgt"622"{ gctu"\*35; 963: 36+"F gpo ctm"cpf "P qty c{ "hqto gf "qpg"urcvg ."vq"y j kej "cnuq"dgmpi gf "Uej rguy ki /J qnrvgkp ."Kegrcpf ."yi g"Hctqg"Kurcpf u "cpf ."chvgt "ku" tgf kueqxgt { "kp"yi g"gki j vggpyi "egpwt { ."I tggprcpf 0

Eqr gpj ci gp. "kp"F gpo ctm"y cu"y g"ecr kcn"cpf "cf o kpkntcvkxg"egpvtg"qh"y g"tgcm ."cpf "F cpkuj "eqpugs wgpvn{"y g" ncpi wci g"qh"cf o kpkntcvkqp"cpf "qh"y g"cf o kpkntcvqtu0Cu"c"tguwn."c"hkgtct{"ncpi wci g"dctgn{"f knkpi wkuj cdng" htqo "uvcpf ctf "F cpkuj "f gxgmr gf "kp"y g"vqy pu"qh"uqwj gtp"P qty c{."uq"y cv"kp"y g"ncy"pkpgvggpy "egpwt{."mpi "chygt"y g"ugxgtcpeg"qh"y g"wpkqp."y g"r nc{u"qh"J gptkm"klugp"eqwrf "dg"r gthqto gf "kp"y gkt"qtki kpcn"xgtukqpu"cv"y g" Tq{cn"Vj gcvtg"kp"Eqr gpj ci gp0

Dw.'hqpi ''dghqtg''yi cv.''c''o qxgo gpv'j cf ''dggp''ncwpej gf ''vq''etgcvg''c''pgy ''uvcpf ctf 'P qty gi kcp''ncpi wci g.''P{pqtun'i \*P gy 'P qty gi kcp+.''qp''yi g''dcuku''qh''yi g''f kcngewi'qh'twtcn'ctgcu''wpeqpvco kpcvgf ''d{ 'F cpkuj 'kphrwgpeg0'Vj ku'' tguwngf 'kp''c''ukwcvkqp''y ky ''wy q''qhhkekcn'ncpi wci gu''cpf ''c''o qxgo gpv''cy c{ 'htqo 'F cpkuj .''gxgp''hqt''yi g''vtcf kkqpcn'' rkxgtct{ ''o gf kwo .''yi g''pgct/F cpkuj ''P{muo 'n'qt''Dqno 'n'\*dqqn'hcpi wci g+''qh''yi g''uqwj 0

 $V_j$  ku'gpvt { "tgcvu'F gpo ctmlcpf 'P qty c { "cu'qpg''ctgc''kp''y g'r gtkqf 'wr 'vq'3: 22''cpf ''cu'ugr ctcvg''ctgcu'hqt''y g'' o qf gtp''r gtkqf 0

Cu''y g''Lecpf kpcxkcp''rcpi wci g''eqo o wpkkgu''ctg''uo cm''y gkt''pggf 'hqt''tcpurckqp''ku''gxgp''i tgcvgt''y cp'ku''y g''ecug'' hqt''y g''rcpi wci gu''qh''rcti gt''eqwytkgu0Vj gtg''j cu."qh''eqwtug. "dggp''c''eqpukf gtcdrg''co qwpv'qh''o wwcn''tcpurckqp'' dgw ggp 'Lecpf kpcxkcp''rcpi wci gu."y qwi j ''y g''wti g''q''eqo o wpkecvg''j cul'uqo gvko gu''dggp''s wgmgf ''d{''o wwcn'' cpko qukv{."cu''chygt''y g''F cpkij /Uy gf kij ''y ctu''kp''y g''ugxgpvggpyj ''egpwtt{"cpf 'P qty c{øu''uttwi i rg''hqt'' kpf gr gpf gpeg''f wkpi ''y g''pkpgvggpyj ''egpwtt{0'O qtg''ko rqtvcpv''y gtghqtg."j cu''dggp''y g''kphrwgpeg''htqo "cpf '' cwtcevkqp''q'q' gt' Gwtqr gcp''ekxktk| cvkqpu0'Htqo ''y g''gctrkguv'f c{u''cpf 'wr ''q''3; 22''y g''cwtcevkqp''q''I gto cp{''y cu'' d{''hct''y g'' tgcvguv0'Kp''y g''O kf frg'Ci gu. ''y g''J cpugcvke''Ngci wg''j cf ''ugwrgo gpwu''cpf ''vtcf kpi ''r quwu''cmi'qxgt'' Lecpf kpcxkc. ''cpf 'I gto cp''kphrwgpeg''eqpvkpwgf ''wpvkrl'y g''Lej rguy ki ''y ctu'qh''y g''o kf pkpgvggpyj ''egpwtt{0'Opi rkuj '' kphrwgpeg''y cu''d{''cpf ''rcti g''qh'o kpqt''ko rqtvcpeg''y tqwi j qw''o quv'qh''y ku''r gtkqf ''cpf ''y cu''ugxgtgn(''ej gengf'' fwtkpi ''y g''P cr qrqqpke''Y ctu.''y j gp'F gpo ctml'P qty c{''y cu''hqtegf 'kpvq''cp''cmkcpeg''y ky ''Htcpeg. ''cpf'' Eqr gpj ci gp'y cu''dqo dctf gf ''d{''y g''Dtkkuj ''pcx{''kp''3: 290'Dtkkuj ''kphrwgpeg'y cu''tg/guvcdrkuj gf ''kp''y g''rcy''qf c{''d{''hct''y g'' o clqtkx{''qh''tcpurcvkqpu''ctg''htqo ''cpf ''kpvq''Gpi rkuj 0'' colqtkx{''qh''tcpurcvkqpu''ctg''htqo ''cpf ''kpvq''Gpi rkuj 0'' ch''qh''y g''y gpykgy '''qh''y g''y gpyk

Y g'f q'pqv'mpqy "o wej "cdqwv'y g''tcpumcvkqp"ukwcvkqp"kp"Uecpf kpcxkc'kp"gctn( 'vko gu='tcpumcvkqp''j kuvqt { 'dgi kpu" y kyj 'vj g'kpvtqf wevkqp"qh'Ej tkuvkcpkv{ 'ctqwpf 'vj g''{ gct '3222. 'dwv'y g''gctn{ 'O kf f ng'Ci gu''j cxg''nghv'c''hgy 'tgeqtf u0'

Ncvkp."qh'eqwtug."y cu''y g'hkgtct{"rcpi wci g."dw'eqpvtct{"vq''y g'r tcevkeg''qh'Gpi rcpf "kgrcpf.'hgy "vgzwi'y gtg" vcpurcvgf "kpvq''y g'xgtpcewrct0'Vj gtghqtg."y g'gxkf gpeg'y g'j cxg"qh'vcpurcvkqp"cevkxk{ 'ku''o ckpn{ "dcugf "qp''y g" go gti gpeg''qh'Ncvkp''nqcp/y qtf u'kp''y g'F cpkuj "f qewo gpwi'y cv'dgi kp''vq''cr r gct''chvgt''34220'Uczq'kp''j ku''I guvc'' Fcpqtwo."y tkwgp''uj qtvn{ "chvgt''3422."tgpf gtu'Uecpf kpcxkcp''vtcf kkqp."cpf "kp''uqo g'ecugu''wpf qwdvgf n{ "vtcpurcvgu'' Uecpf kpcxkcp''uqwtegu."y tkwgp''cpf "qtcn'kpvq''j ku''qtpcvg''ukrxgt''Ncvkp="dw''pq''qtki kpcnu''j cxg''dggp''r tgugtxgf 0 Kp'P qty c{."uqo g'hgi gpf u'y gtg''vtcpurcvgf 'htqo "Ncvkp''cdqw'3372."cpf 'vj g'Qrf "Vguvco gpv'htqo 'vj g''Xwri cvg'kp'' vj g''y ktvggpyj "egpwxt{0'Vj g'hktuv'y qtn'iqh'rksgtcwxtg''q''dg''vtcpurcvgf 'y cu''Vtkvxtco "qi "Kuqpf."vtcpurcvgf 'kp''3448''d{" Dtqy gt'Tqdgtv."cv'y g''tgs wguv'qh'Mkpi "J ccmqp'J ccmqpugp0

# Vj g'Tgpckucpeg'cpf 'chygt

F cpkij "xgtpcewrct"rkgtcwtg"f gxgrqr gf "urqy n(."cpf "F gpo ctm'y gtglqtg"tgvckpgf "c"tcf kkqp"qh'qtki kpcn'y tkkpi " kp"Ncvkp"tcyj gt"nppi gt"yj cp"yj g"ncti gt"Gwtqr gcp"eqwpvtkgu0Eqpugs wgpvn{."o cp{"\tcpuncvkqpu"htqo "yj g" Tgpckuucpeg"vq"vjg"dgi kppkpi "qh"vjg"pkpgvggpvj"egpwt{"ygtg"kpvq"cpf"htqo"Ncvkp0Ocp{"ecog"hcktn{"hcvg<" Nwf xki 'J qrdgti øu' Pkeqrck' Erko kk' Kygt 'Undvgttcpgwo' \*3963+. 'cp'kpvgtpcvkqpcn'dguv ugngt'kpur ktgf' 'd{ "Vj qo cu" O qtgøu''Wyrkc.''y cu''tcpurcygf 'kpyq'F cpkuj 'hqt''y g'hktuv''y g'd { ''y g'r qgv'Igpu'Dci i gugp'kp'39: ; 0'Vj g'o ckp'' vtcpurcvkqp"gxgpv"hqt"Fgpoctm"cpf"Pqtyc{"rtkqt"vq"vjg"Gprkijvgpogpv"ycu"vpfqwdvgfn{"Ejtkuvkgo"Rgfgtugpøu" vtcpurcvkqp"qh"yj g"Dkdrg. "kphrwgpegf"d{"Nwj gtøu"Dkdrg. "cpf" hpqy p"cu"Ej t0"KKøu"Dkdrg"\*3772+0 Htqo "vj g'Okffg'Ci gu."vj gtg'y cu'c'eqpukfgtcdg'co qwpv'qh'vtcpurcvkqp'htqo "Jki j "cpf'Nqy "I gto cp'kpvq" Fcpkuj ."c"\gpf gpe{"y j kej "y cu"kp"pq"y c{"f ko kpkuj gf "f wtkpi "y g"Tghqto c\kqp."y j gp"Fcpkuj "\j gqnqi kcpu"dgi cp" vq"mqm"vq"Y kvgpdgti "tcvj gt"vj cp"vq"Tqo g"hqt"i vkf cpeg"cpf "kpur ktcvkqp0 Hqt"qyj gt"o qf gtp"repi wei gu. "Nevkp"y eu"qhvgp"yj g"tgre{"repi wei g"\*Lenqdugp"3; :: 589+0"Vj wu"e"pwo dgt"qh" ukz vggpvj / "cpf "ugxgpvggpvj / egpwt { "F cpkuj "y qtmu."o ckpn{ "tgrki kqwu"qpgu."y gtg' \tcpurcvgf "kpvq" \Ncvkp."cpf "htqo " Ncvkp'kpvq'Gpi nkuj =cpf o wej 'qh'vj g'vtchhke'kp'vj g'qrrqukvg'f ktgevkqp'hqmqy gf vj g'uco g'tqwvg0F ktgev'nkvgtct{" vtcpurcvkqp"htqo "Gpi nkuj "qpn("dgi cp"kp"vj g"ncvg"ugxgpvggpvj "egpwxt{"y kj "Fcpkgn"Eqnnkpuxu"vtcpurcvkqp"qh"Htcpeku" S wctrguøu''Gpej kt kf kqp''\*3862. 'F cpkuj ''tcpurcvkqp''3879+. ''cpf ''vj cv'y cu'uvkm'gzegr vkqpcnk'wpvkn'y gm'kpvq''vj g'' pkpgvggpyj "egpwt{."o quv'tcpurcvkqp"qh'Gpi rkuj 'rkvgtcwtg'y cu'xkc'I gto cp0 Kp"qyj gt"tgur gew. "Eqnrkpuøu"ecug"ku"ej ctcevgtkurke "qh"vj g"hktuv"vtcpuncvkqpu"htqo "Gpi nkuj <"j g"y cu"c"o gtej cpv. "j g" y cu'Gpi nkuj .'y qtmkpi 'htqo 'j ku'qy p'ncpi wci g'kpvq'Fcpkuj .'cpf 'j g'ur gpv'o wej 'qh'j ku'vko g'kp'Pqty c{0'Wpvkn' cdqw''y g''o kf f rg''qh''y g''pkpgvggpy ''egpwt { .''Gpi rkuj ''y cu'tgi ctf gf ''cu'c''rcpi wci g''qh'eqo o gteg'tcyj gt''y cp''qh'' ewnwtg."cpf."rtqdcdn("dgecwug"qh"tcfg"tgncwlqpu."Gpinkuj "kphnwgpeg"y cu"uvtqpigt"kp"Pqtyc{"yjcp"kp"Fgpoctm0 Ncti g/uecrg'tcpurcvkqp'htqo 'Tqo cpeg'hcpi wci gu.'kpenwf kpi 'Htgpej .''qpn( 'f gxgmr gf 'vqy ctf u'vj g'gpf 'qh'vj g' gki j vggpyj "egpwt {0Gctn( "gzco r ngu"qh"Htgpej "kphnvgpeg"v( r kecm( "vqqm"yj g"hqto "qh"nqqug"ko kxcvkqp. "cu"kp"Nwf xki " J qrdgti øu'*Rgf gt 'Rcctu*'\*393; ó42+. "y j kej "gej qgu'r cuuci gu'htqo "Dqkrgcwøu'*Ng'Nvut kp.* "dwy'y j kej "ku'þqv'c" vtcpurcvkqp0J qrdgti øu"eqo gf kgu"y gtg"kphrwgpegf "d{"O qrk tg. "uqo g"qh"y j qug"r rc{u"y gtg"cewcm{" 'tcpurcvgf 'hqt" yj g":Fcpkuj "Uci go'htqo "kuu'qr gpkpi 'kp'39440'Qpg''qh''yj g'hktuv'ncti g/uecng''\tcpunc\qtu'htqo "Htgpej.'Ur cpkuj "cpf" qý gt 'hcpi wci gu'y cu'F qtqý gc 'DKGJ N'\*39536: : +.'y j q.'co qpi 'qý gt 'ý kpi u.''\tcpurc\gf "F qp'S wkz qvg'\*399869+"

# Vj g'plpgvggpvj 'egpvwt { <'T qo cpvle'vt cpurcvlqpu

cpf "cf cr vgf "Higpej "r nc { u'hqt "vj g"F cpkuj "uvci g0

Kp"y g"pkpgvggpy "egpwt { ."vtcpurcvkqpu"dgeco g"o qtg"htgs wgpv"y cp"dghqtg0"Vj g"f qo kpcpv"uqwteg"rcpi wci g"y cu" uvkm"I gto cp. "dw"f ktgev"vtcpurcvkqpu"htqo "Gpi nkuj "cpf "y g"T qo cpeg"rcpi wci gu"y gtg"cnuq"hqwpf ."gur gekcm { "chvgt" y g"o kf f rg"qh"y g"egpwt { 0"Y qtmu"d { "cm'o clqt"Gwtqr gcp"r qgvu."f tco cvkrvu"cpf "r tqug"y tkxgtu"y gtg"vtcpurcvgf "cv" uqo g"r qkpv"qt"qy gt. "cpf "kp"cf f kxkqp."y j qrg"pgy "i gptgu"y gtg"kpvtqf wegf ."o ckpn { "qy kpi "vq"vtcpurcvkqp0"Vj ku"ku" vtwg"qh"ej krf tgpøu"rkxgtcwtg."y j kej "eco g"kpvq"gzkuvgpeg"kp"F gpo ctm'tcy gt "rcvgt"y cp"kp"y g"rcti gt "Gwtqr gcp" eqwpvtkgu."cpf "kp"y g"dgi kppkpi "y cu"j gcxkn { "f gr gpf gpv"qp"vtcpurcvkqp"\*J lãtpci gt"

Rgf gtugp"cpf "Uj kpg"3; 9; +."cpf "kv"y qwrf "cnuq"dg"hckt "vq"uc{"yj cv"yj g"f gxgrqr o gpv"qh"yj g"F cpkuj "pqxgrly cu"o wej " kphrwgpegf "d{"\tcpurcvkqpu."pqvcdn("qh"Y cnxgt"Ueqw0Ej ctrgu"F kengpu"y cu"\tcpurcvgf "d{"\NOO qnxng."yj q"dtqwij v" qww"cp"cm quv"eqo r ngvg"F kengpu"gf kxkqp."vj g"ncvgt "xqnxo gu"qh"yj kej "cr r gctgf "cm quv"uko wncpgqwun("y kyj "yj g" Gpi nkuj "dqqm"xgtukqpu"qh"vj g"r tgxkqwun("ugtkcnk gf "pqxgru0Vj ku"\tcpurcvkqp"y cu"qpn("uwr r ncpvgf "kp"vj g"eqwtug" qh"vj g"3; : 2u"d{"Gxc"J go o gt"J cpugpøu"F kengpu0

Vqy ctf u''y g''gpf 'qh''y g''gki j wgpyj 'egpwt {."f tco cvke 'kpur ktc-kqp''eco g''o ckpn{ 'htqo 'I gto cp{."cpf 'I gto cp'' kphrwgpeg''eqpvkpwgf 'kpvq''y g''pkpgvggpyj 'egpwt {."y kyj ''tcpurcvkqpu''cpf 'ko kcvkqpu'qh'I gto cp''Tqo cpvke 'f tco c0' Ncvgt. 'Htgpej 'kphrwgpeg''y cu''tg/guvcdrkuj gf .'Gwi ³ pg''Uetkdg'\*e6: 476: 2+'dgkpi ''qpg''qh''y g''o quv''r qr wrct'' ftco cvkrw0J qy gxgt. 'htqo ''y g''dgi kppkpi ''qh''y g''egpwt { ''y gtg'y cu''cnnq 'kpvgtguv'kp''Uj cngur gctg. 'Ukng''Dg{gt'' \*3: 25683+"cpf ''y g''cevqt ''Rgvgt ''Hqgtuqo ''dgkpi ''y q''qh''y g''o quv'ko r qtvcpv''tcpurcvqtu''cpf ''cf cr vqtu''r tkqt ''q'' Cf xctf ''NGO DEMGOY j gtgcu''Hqgtuqo ''htqo ''y g''dgi kppkpi ''y kyj ''J co ngv'Rt kpf u''chl'F cpo ctm'\*3: 35+'y cu'' r ctvkewrtn{ ''kpvgtguvgf ''kp''y g''tci gf kgu. ''y j kej ''j g''tcpurcvgf ''y kyj ''tgur gev'hqt''Uj cngur gctg/u'vgzv.''y kuj kpi ''vq'' etgcvg''tqrgu''kp''y j kej ''j g'' ko ugrh'eqwf ''uj kpg. ''Ukng''Dg{gt''htqo ''j gt''htuv'Uj cngur gctg/u'vgzv.''y kyj grhyj ''Pki j v+'kp''3: 69''tkgf ''q''cf cr v'j ku''eqo gf kgu''q''eqpvgo r qtct { ''cuvg. ''y kyj ''O tu''J gkdgti .''y g''gcf kpi ''rcf { ''qh''y g'' Tq{cn'Vj gcvtg. ''cmkpi ''cp''cevkxg''r ctv'kp''uj cr kpi ''y g''ur ggej gu''qh''y g'' gtqkpguO'Vj ku''o gcpv''gzvgpukxg''tgy tkkpi O' Vj wu. 'O cnxqrkq''cpf ''y g''r rqv'qtki kpcm( ''egpvtgf ''ctqwpf ''j ko ''y gtg'tgo qxgf 'htqo ''y g''cf cr vcvkqp''qh''Vy grhyj ''' '' cf ''3; 96+0

Kp"y g"eqwtug"qh"y g"pkpgvggpy "egpwt {."y g"o ckp"y tkvgtu"cpf "i gptgu"kp"cm"o clqt "Gwtqr gcp"hcpi wci gu"y gtg" eqxgtgf 0KV ku"ej ctcevgtkvke "y cv"o cp{"vtcpurcvkqpu"y gtg"d{"r qgvu"cpf "f tco cvkvvv0"Vj wu"y g"r qgv"Qgj ngpuej n $\mathfrak D$ gt" vtcpurcvgf "I gto cp"hckt{"vcngu"\*3: 38+"cpf "y g"r qgv"cpf "r j krquqr j gt"P 0HUU TWP F VXK "vtcpurcvgf "Dgqy wrh" \*3: 42+"I cpu"Ej tkvkcp"Cpf gtugp"vtcpurcvgf "pwo gtqwu"r nc{u"hqt"y g"Tq{cn"Vj gcvtg."cpf "y g"r qgv"J qri gt" F tcej o cpp"r tqf wegf "c"ur ktkvgf "xgtukqp"qh"D{tqpøu"F qp"Lvcp"\*Rctv"Klp"3: : 2"cpf "Rctv"Klp"3; 24+0

# Fgpo ctmlp'tj g'ty gpvlgtj 'egpvvt{

 $\label{thm:linear:lin$ 

Cv'cp{ 'tcvg.'r wdrkuj gf 'dqqmu'ctg''qpn{ 'vj g'\kr 'qh'\j g'\kegdgti 0'Vj g'o clqtkv{ 'qh'eqo o gtekcn'cpf 'cf o kpkuvtcvkxg'' vtcpurcvkqpu'ctg''pgxgt''tgi kuvgtgf 'cu'uwej .''cpf 'vj ku'ecvgi qt{ 'y qwrf 'wpf qwdvgf n{ 'dg''gxgp''dwrnkgt''kh'o cp{ 'F cpkuj '' eqo r cpkgu''j cf ''pqv'cf qr vgf 'Gpi rkuj '\*qt.''kp''uqo g''ecugu.''I gto cp+''cu''y gkt''eqo r cp{ 'hcpi wci g0'Gxgp''uq.''y g'' xqnwo g''qh''vtcpurcvkqp''ku'uvci i gtkpi 0

Gpi nkuj "ku"o qtg"kp"f go cpf "y cp"cmlqy gt"ncpi wci gu"r ww\qi gy gt."dqy "cu"uqwteg"cpf "\cti gv\ncpi wci g=\np"3;; 3." kw'ceeqwpygf "hqt"3.74: "qh"y g"4.558"\kwngu"r wdrkuj gf ."cpf "y ku"\spf gpe{"wpf qwdygf nf "cnuq"cr r nkgu"\q"pqp/ r wdrkuj gf "kcpuncwlqpu0J qy gxgt." y gtg"ku"cnuq"c "hckt"co qwpv'qh'vtcpuncwlqp"htqo "cpf "kpvq" gto cp." y j kej "ku" hqmy gf "kp"ko r qtvcpeg"d{"Htgpej ."Ur cpkuj ."Kcnkcp"cpf "T wunkcp0"Vj ku"hcev'ku"tghngevgf "kp"y g"vtclpkpi " r tqi tco o gu"cxckncdng"hqt"eqo o gtekcn'vtcpuncwqtu." y j kej "r tqxkf g"f gi tggu"kp"y g"ncpi wci gu"o gpwlqpgf 0Dw" vtcpuncwlqp"\cngu'r nceg"htqo "cpf "kpvq"r tcevkecm("cmlGwtqr gcp"ncpi wci gu"cpf "y qug"qh"c"i tgcv'o cp{"Vj ktf "Y qtnf" eqwpvtkgu0Vj ku"\spf gpe{"ku"uvtgpi y gpgf "dgecwug."ukpeg"y g"3; 82u." y gtg"j cu"dggp"uqo g"ko o ki tcwlqp"qh"gy pke" i tqwr u"y j q"wugf "\q"dg"xgt{"tctg"kp"Uccpf kpcxkc0Cr ctv'htqo "Vwtng{"cpf "hqto gt" wi quncxkc."Xkgyco ." y g" kpf kcp"uwdeqpwlpgpv."cpf "Utk'Ncpnc"j cxg"cnuq"{kgrf gf "c"pwo dgt"qh'lo o ki tcpu"y kyj "xct{kpi "ncpi wci g" dcemi tqwpf u0Dw'uo cmleqo o wpkkgu"htqo "cmleqtpgtu"qh"y g"y qtrf "ecp"dg"hqwpf "kp"o qf gtp"F gpo ctmx"y ku" gpvcknu"c"pggf "hqt"kpvgtr tgvgtu"vq"cpf "htqo "c"i tgcv'pwo dgt"qh'lopi wci gu0Vj g"tckpkpi "qh'uwej "kpvgtr tgvgtu"ku" wpu{uvgo cvke"cpf "j cr j c| ctf 0Vj gtg"j cxg"dggp"qeecukqpcnleqwtugu"cv'y g"Eqr gpj ci gp"Dwukpguu"Uej qqn"dw" y gtg"ku"pq"guvcdnkuj gf "rtqi tco o g0

#### Qti cpk c skqp 'qh'sj g'r t qhguukqp

Vj g''qti cpk cwqp'hqt'F cpkuj ''nkgtct { ''tcpurcvqtu'ku'F cpun'Qxgtuâ wgthqtdwpf .'c'uwdugewqp''qh'y g'F cpkuj "
y tkgtuø'wpkqp0Cv'y g''o qo gpv.''y g''r tqhguukqp''ku''pqv'c''y tkxkpi ''qpg'kp'hkpcpekcn'vgto u='y g''tcvgu''ctg''co qpi ''y g''
nqy guv'kp'P qtyj gtp''Gwtqr g.''cu''r wdrkuj kpi ''eqo r cpkgu''j cxg''dggp''wpy kmkpi ''vq''tgpgy ''y g''ci tggo gpv'qh'3; : 2.''cpf "
r ctvkewrctn( ''vq''r c { ''gzvtc'hqt''f kum'xgtukqpu''qh'o cpwuetkr w0S wcrkv{ .''j qy gxgt.''ku''i gpgtcm( ''i qqf ''cu''eqo r ctgf ''vq''
y g''pqto u'htqo ''y g''hktuv'j crh''qh'y g''egpwt { .''cpf ''tcpurcvqtu'kpvq'F cpkuj ''i gv'uqo g''eqo r gpucvkqp''hqt''y g''nqy ''
tcvgu''y tqwi j ''uvcvg''r c { o gpv'hqt''wug''qh'y gkt'y qtm'kp''r wdrke''rkdtctkgu0Cu''cp''gzr gtko gpv.''y g''uvcvg.''kp''eqqr gtcvkqp''
y kyj 'F cpum'Qxgtuâ wgthqtdwpf .''j cu''cnnq'kpvtqf wegf ''uwr r qtv'hqt''tckpkpi ''cpf ''hwtyj gt''gf wecvkqp''cdtqcf ''hqt''
rkwgtct { ''tcpurcvqtu0

Vj g'F cpum'Qxgtuâ wgthqtdwpf 'j cu'y tgg'cppwcn'rkgtct { 'r tk gu<'y g'o clqt'r tk g'qh'Ç5.222.'cpf 'w q'uo cmgt' qpgu.'qpg'pco gf 'chwgt'Y knuvgt.'y g'pkpgvggpy / egpwxt { 'vtcpurcvqt'qh'J qo gt.'cpf 'qpg'chwgt'M0Grhgnv.'c'w gpvkgy / egpwxt { 'vtcpurcvqt'qh'Crkeg'kp'Y qpf gt rcpf 0}

Cv'ij g'o qo gpv."eqo o gtekcn'tcpurcvqtu'o c{"ej qqug"dgwy ggp"c"pwo dgt"qh'wpkqpu0'Vtcpurcvathqtgpkpi gp."yj g"qrf" wpkqp"hqt"uy qtp"tcpurcvqtu."pqy "eqqr gtcvgu'y kyj "Gtj xgtxuur tqi rki v'Hqtdwpf "\*ugg"dgrqy +0'Ki'ku"qr gp"vq"cm" uy qtp"tcpurcvqtu."y j kej "o gcpu"vj cv'uqo g'o go dgtu"ctg"r ctv'vko g"qt"tgvktgf 0'Uqo g"hwnko g"r tqhguukqpcnu"j cxg" hqwpf "vj ku"ukwcvkqp"wpucvkuhcevqt { ."cpf "vj ku"ku"qpg"tgcuqp"hqt"vj g"guvcdrkuj o gpv"\*kp"3; ; 2+"qh"c"pgy " qti cpk cvkqp."F cpurn'Vtcpurcvathqtdwpf ."vj cv'nkngy kug"tgr tgugpvu"uy qtp"vtcpurcvqtu"cpf "kpvgtr tgvgtu+0 Gtj xgtxuur tqi rki v'Hqtdwpf "ku"c"wpkqp"dqvj "hqt"rcpi wci g"ugetgvctkgu"y kyj "y q"vq"vj tgg"{ gctu"qhl"vgtvct { "gf wecvkqp"cpf "hqt"i tcf wcvgu"htqo "vj g"Eqr gpj ci gp"cpf "¤ tj wu"Dwukpguu"Uej qqru'y kyj "htqo "6"vq"8"{ gctu"qhl" vgtvkct { "gf wecvkqp0'Y kyj "o qtg"vj cp"32.222"o go dgtu."kv'ku'd{ "hct"vj g"rcti guv'vtcpurcvqtuo'wpkqp0 Vqmghqtgpkpi gp"3; ; 5"ku"c"wpkqp"hqt"hwm'cpf "r ctv'vko g"kpvgtr tgvgtu"cpf "tcpurcvqtuo'O quv'o go dgtu"ctg"y kyj qw" hqto cn'vtckpkpi "kp"vtcpurcvkqp"qt"kpvgtr tgvkpi "cpf"vgpf"vq y qtm'y kyj "ko o ki tcpv'cpf "hxwg/wugf "rcpi wci gu0

#### Vt cpurc vqt 'tt ckpkpi

Cnj qwi j 'hcpi wci g'uwf kgu'cv'F cpkuj 'wpkxgtukkgu'cpf 'dwukpguu'uej qqnu'pqto cm{ 'eqo r tkug'cp'gngo gpv'qh' vtcpuncvkqp.''vj gtg'ku'j ctf n{ 'cp{ 'hqto cn'vtckpkpi 'qh'pqp/ur gekcnk gf 'vtcpuncvqtu0'Vj g'gzegr vkqp'ku'c'qpg/{ gct'' fkr nqo c'eqwtug'cv'vj g'Egpvtg'hqt''Vtcpuncvkqp''Uwf kgu'cpf 'Ngzkeqi tcr j { 'cv'Eqr gpj ci gp'Wpkxgtukx{ .'y j kej '' eqo dkpgu'vj gqtgvkecn'uwf kgu'y kyj 'r tcevkecn'gzco kpcvkqpu'kp''vtcpuncvkqp''dgwy ggp'F cpkuj ''cpf ''cpqvj gt'Gwtqr gcp'' ncpi wci g'\*pqto cm{ 'Gpi rkuj +0'Cu'r ctv'qh'vj ku'eqwtug.''ecpf kf cvgu'o c{ 'ej qqug'c'ukz/o qpvj 'eqwtug'kp'' UWDVKVNKP I 0

Eqo o gteken'epf ''gej pkeen'tepurevqtu''tef kkqpem( ''ucv'hqt''y g''÷tepurevãt ''gzeo kpekqpø''y j kej ''eqpukurgf ''qh'' tepurevkqpu'htqo ''epf ''kpvq''e'hqtgki p''repi wei g''epf ''ep''qten'\guv'y j kej ''kpenvf gf ''kpvgtr tgvkpi ''hqt''r etvkekr epvu''ev'e'' o ggvkpi 0'Vj ku'\guv'j cu''pqy ''dggp''tgr reegf ''d{ ''ep''O C''f gi tgg''kp''e'hqtgki p''repi wei g'htqo ''y g'¤ tj wu''qt''y g'' Eqr gpj ei gp''Dvukpguu''Uej qqr0'Vq''dg''eeegr vgf ''eu''e'uy qtp''tepurevqt.''egtvekp''o kpko wo ''tgs wktgo gpvu''edqxg''r euu'' rgxgri'o wuv'dg''o gv'kp''tgrgxcpv'f kuekr rkpgu0

 $\label{thm:condition} Vj g''dwulpguu''uej qqnu''wugf ''q''tckp''ncpi wci g''uget gwct kgu''y ksj ''c''npqy ngf i g''qh''y t gg'''schngt''3; : 6''w q+''hqt gki p'' ncpi wci gu0'Vj g''r tqi tco o g''qqni'w q''{ gctu.''cpf ''y cu''cnnq''wugf ''cu''c''dcuku'hqt''y g''tget wkso gpv'qh'eqo o gtekcn' ncpi wci g''vgcej gtu''*wy q''{ gctu''qp''vqr ''qh''y g''htuv'wy q+''cpf ''O C''ecpf kf cvgu''y ksj ''c''o clqt''cpf ''c'o kpqt''hqt gki p'' ncpi wci g''*ukz''{ gctu''qh''vgtvkct { ''gf wecvkqp''kp''cm+0'Vj g''r tqi tco o g''j cu''pqy ''dggp''uj qtvgpgf ''cpf ''tgqti cpk gf 0' Vj gtg''ku''c''y tgg/{ gct''DC''r tqi tco o g''eqo r tkukpi ''wy q''hqtgki p''ncpi wci gu0'KV'kpenxf gu''tcpurcvkqp.''dwv'ku''pqv'uq'' eqo r ngvgn(''hqewugf ''qp''kv'cu''dghqtg0'Qp''vqr ''qh''yj cv.''yj gtg''ku''c''wy q/{ gct''O C''eqwtug''kp''qpg''hqtgki p''ncpi wci g0'Vj g'' O C'''eqwtug''kpenxf gu''uqo g''kpvgtr tgvkpi .''dw''yj gtg''ku''pqv''c''hxmn{ ''hngf i gf ''kpvgtr tgvgtuø''eqwtug''kp''F gpo ctm0'Qp''yj g'' qyj gt''j cpf .''Vj g''Eqr gpj ci gp''Dwukpguu''Uej qqn''kp''eqqr gtcvkqp'y ksj ''yj g''Gwtqr gcp''$ 

#### Tgugctej 'cpf'rwdnæcwqpu

Kpwgtgun'kp''tcpurcvkqp''yi gqt { 'f kf 'pqv'gzkun'cu'uwej 'dghqtg'3; 22.'cmj qwi j 'kuqrcvgf 'tgo ctmu'ecp'dg'i cyj gtgf 'htqo '' yi g'kpvtqf wevkqpu'vq'xctkqwu'vtcpurcvkqpu.'tcpi kpi 'htqo ''C0Uãtgpugp'Xgf gn''y j q'kp''yi g''r tghceg'vq'j ku'vtcpurcvkqp'' qh'Uczqøu''-f ctm'cpf ''f khhkewn'Ncvkpø''vq''yi g''o qtg''eqpukf gtgf '' cpf ''hgpi yi kgt ''eqpvtkdwkqpu''qh'hco qwu''pkpgvggpyi /egpwt { ''vtcpurcvqtu''rkng''Gf xctf ''NGO DEMG''\*Uj cngur gctg+'' cpf ''Ej tknkcp''Y KNUVGT'\*J qo gt+0

Ngo deng'ku'v{r kecn'qh'j ku'ci g'kp''yi cv'j g'j cu'nkwrg''vq''uc{ ''cdqw''yi g'r tqdrgo u'qh''vtcpurcvkqp''dw'f go qpuvtcvgu'j ku'' cy ctgpguu'qh'y g'f khhewnkgu'y tqwi j 'j ku'cpcn( uku'qh'y g'r gewrlctkkgu'qh'Uj cngur gctgøu'uwdlgev'o cwgt''cpf " VTCF KVKQP +<'vj cv'vj g'\tcpurcvqt'\uj qwrf 'eqo dkpg'hkf grkx{ 'y ky 'c'tgcuqpcdrg'co qwpv'qh'htggf qo ='j g'ku'cnuq'' xgt { "o wej "cy ctg"qh"yj g"f khhkewnkgu"kpj gtgpv"kp"tgpf gtkpi "c"encuulecn"o gvtg"kp"c"o qf gtp"ncpi wci g0 Vtcpurcvkqp''uwf kgu''kp''y g'vy gpvkgyj ''egpwt { ''dgi cp''y kyj ''y gtm'qh''Rcwn'Twdqy .''Rtqhguuqt''qh''Eqo r ctcvkxg'' Nkgtcwtg'cv'yi g''Wpkxgtukv{ "qh'Eqrgpj cigp."yjq'ytqvg"c'nkwrg''dqqm'qp"∺qtkikpcnu'cpf ''tcpurcvkqpuø'\*3;4;+'cpf'' c'pwo dgt 'qh'qyj gt 'uwwf kgu'qh'kpf kxkf wcn'\tcpurcvqtu'qt '\tcpurcvkqpu00Gtke'Lceqdugpøu''Vtcpurcvkqp<'C''Vtcf kkqpcn' Etch/\*3; 7: +"y cu'c'o clqt'eqpvtkdwkqp'\q'kpvgtpcvkqpcn'\tcpurcvkqp'uej qrctuj kr. "cnvj qwi j 'kv'gzrtguun{ "f kuuqekcvgf" grgi kgu. "xkgy gf "ci ckpuv" y g"dcemi tqwpf "qh" O ctrqy gøu "gf weckqp" cpf "rcpi wci g" tckpkpi 0°C "eqo dkpckqp" qh" rksgtct { 'kpvgtguv'cpf 'encualecn'uej qnctuj kr 'ku'cnuq'ej ctcevgtkuvke'qh'Mpwf ''Uatgpugpøu''Vj qo cu'Nqf i gøu'' Vt cpurc vkqp"qh"Ugpgec øu'F g"dgpghkekku"Eqo r c t gf "y knj "Ct vj wt "I qrf kpi øu'Xgt ukqp"\*3; 82+0 Vtcpurcvkqp''yi gqt {'r tqr gt.'f tcy kpi ''qp''yi g''\tcf kkqp''qh''Ngx .''y cu'kp\tqf wegf 'kp\q'F gpo ctm'kp''NONOC mlgt wgpøu'' Nkwgtât "qxgtuò wgnug"\*Nkgtct { "Vtcpurcvkqp="3; 94+: "y j kej "o ckpvckpu' y g'ko r qtvcpeg"qh' y g''vtcpurcvkqp"qxgt' y cv' qh'y g'qtki kpcn0'Htqo 'y g'dgi kppkpi 'qh'y g'3; 92u. 'c'pwo dgt 'qh'y gugu'j cxg'dggp'y tkwgp'qp'xctkqwu'cur gewl'qh' vtcpurcvkqp. "dww'o quw'qh''y gug''tgo ckp''wpr wdrkuj gf O'Qpg''gzegr vkqp''ku''Xki i q''J lãtpci gt''Rgf gtugpøu'' Qxgtuò wgrugu/vgqt k'\*Vtcpurcvkqp"Vj gqt {='3; 95+." yj g'yj ktf 'tgxkugf ''gf kkqp''qh'y j kej '\*3; : 9+'ku'yj g'uvcpf ctf " Fcpkij 'kpvtqf wevkqp''vq''vtcpurcvkqp''uwvfkgu01 cf'\*3; 96+'ku'eqo rngvgn{'cvj gqtgvkecn'dw'cpvkekrcvgu''vj g'y qtm'qh''  $\label{eq:continuity} \emph{y} \emph{ g'o cpkr wrcvqtu'kp''eqpegpvtcvkpi ''qp''y} \emph{ g''j kuvqtkecn'cpf ''ewnwtcn'dcemi tqwpf ''hqt''Ukng''Dg{ \textit{gt}\ou''cf cr vcvkqpu''qh''}}$ Uj cngur gctg00 ãngt 'P kgnugp'\*3; 96+'ku'c'uej qnctn( 'uwwf { "qh'F cpkuj "\tcpunc\kqpu'qh'J qo gt''dw'ku'y gcm'kp" i gpgtcn'\tcpurc\kqp"\yi gqt{0'O wpej /Rgvgtugp"\%3; 98+"ku"c"o ckpn{"dkdnkqi tcrj kecn'ceeqwpv'qh'pkpgvggpyj /egpwxt{" rtqug'hkevkqp'\tcpurcvgf'kpvq'Fcpkuj 0Nqtgpvugp"gv'cr0\\*3;: 7+'fkvewuugu'\tcpurcvkqp''cpf'pgy '\gej pqmi {.''y j gtgcu'' Dcctkpi "3; ; 4+"i kxgu"cp"kpvtqf wevkqp"vq"kpvgtr tgvkpi 0"kp"tgegpv"{ gctu. "c"pwo dgt"qh"pgy "eqpvtkdwkqpu"j cxg" crrgctgf. "dw'o quv'qh'y gug'ctg'ctvlærgu. "cpf "y g'o clqtkv{ "ctg'y tkwgp'kp'Gpi rkuj "qt"qy gt"o clqt "Gwtqrgcp" ncpi wci gu0O gpvkqp"uj qwf "dg"o cf g"qh"F tcuncw"\*3; : 9+."J lãtpci gt"Rgf gtugp"\*3; : : +:"Lcnqdugp"\*3; ; 6+"cpf" I qwrlgd'\*3;;6e+0

F gpo ctmˈkuˈvqqˈuo cmˈcˈeqwpvt { 'vq'j cxgˈdggpˈcvˈvj gˈhqtghtqpvˈqhˈcˈecr kxcnˈkpvgpukxgˈctgcˈnkngˈO CEJ RP G'' VTCP UNC VKQP 0J qy gxgt. 'ko r qtvxpvˈy qtmˈy ky kpˈvj gˈhkgnf 'j cuˈdggpˈf qpgˈy ky kpˈvj gˈhtco gy qtmˈqhˈvj gˈGW hkpcpegf 'GWTQVTC'r tqi tco o g. 'cpf 'KDO 'F gpo ctmˈj cxgˈf gxgmr gf 'c'o cej kpg/cuukuvgf 'vtcpurcvkqp'' r tqi tco o g0'Vj g'o quvˈqtki kpcnˈeqpvtkdwkqpˈkpˈvj gˈhkgnf 'j cuˈr tqdcdn{ 'dggp'o cf gˈd{ 'vj gˈuo cmˈY RP I GT'' eqo r cp{ .'y j q'j cxgˈeqpukuvgpvn{ 'f gxgmr gf 'vtcpurcvkqp'r tqi tco o guˈhqtˈREuˈ¾F wpdctˈcpf 'J lãtpci gt 'Rgf gtugp'' 3; ; 2=F wpdct 'cpf 'Cpf gtugp''3; ; 3+0

lqwtpcn" Rgt ur gevkxgu'kp" Vt cpurc vqrqi {0'CTM" knuwgf "d{" 'y g'Eqr gpj ci gp'Dwukpguu' Uej qqn "ku'c'o qpqi tcr j" ugt kgu. "ugxgtcn'xqnwo gu'qh'y j kej "j cxg'f gcnv'y ky "'tcpurc vkqp0'E GDCN. "rkngy kug'htqo "'y g'Eqr gpj ci gp''Dwukpguu' Uej qqn "y cu''y g'hqtgtwppgt "qh'y g'uco g'kpurkwwkqpøu'Eqr gpj ci gp''Uwf kgu'kp''Ncpi wci g0'Wpf gt "dqy "pco gu'y ku" r wdrkec vkqp" j cu'r tkpvgf "o cp{"ct vkergu''qp" tcpurc vkqp0'J gto gu''ku''c'r gt kqf kecn'qp "rkpi wkurkeu'htqo "'y g'¤ tj wu" Dwukpguu''Uej qqn "qhvgp" y kyj "ct vkergu''qp "vtcpurc vkqp" cpf "rgz keqi tcr j {0'Vt cpurc vãt gp. "'y g'o ci c| kpg"qh'y g" Vtcpurc vãt gp. "'y g'o ci c| kpg"qh'y g" Vtcpurc vãt ppkpi gp. "cpf "Urt qi "qi "gt j xgt x. "'y g'o ci c| kpg"qh'Gt j xgt xuur tqi rki v'Hqtdwpf . "eqp vckp" c'pwo dgt "qh' ct vkergu''qp "vtcpurc vkqp" cpf "kpvgtr tgvkpi "cpf "tgxkgy "tgrgx cpv'r wdrkec vkqpu. "r ct vkewrctn{ "f kevkqpctkgu0}

# Vj g'ilswc vlqp'lp'P qt y c{

Gxgp'dghqtg'3: 36. 'kpf gr gpf gpv'P qty gi kcp'\tcpurc\kqpu'j cf 'dgi wp'\q'cr r gct0'Vj wu'Uj cngur gctg'\tcpurc\kqp'' dgi cp'\kp'39: 4. 'P knu'Tqugphgnf v\u'\tcpurc\kqp'\kp'39; 2''eqo r tkukpi ''ugxgp''egpvtcn'y qtmu. ''cpf 'Iqj cp''Uvqto 'O wpej '' vtcpurc\gr ''Uej kngt\u''\F qp''\Ectrqu'\kp''3: 340'V\tcpurc\qqpu'\htqo 'Tcekpg.''I qgvj g.''O cf co g''f g''Uvcµn''X\kevqt''J wi q'' cpf ''qvj gtu'\hqmy gf '\tcr kf n\{0J qy gxgt.''o cp\{ ''y qtmu'\qh'I gto cp. ''\htgpej ''qt'\Gpi rkuj ''qtki kp''y gtg'\u\km'\tgcf '\kp'' Fcpkuj ''\tcpurc\qqpu'\qh'\vj g'Qnf ''\kgrcpf ke'\uci cu'\dgi cp'\y ky ''Iceqd''Ccm\u''\n\cepti arc'\uci c'\s'3: 38642\n\0

Vj g'hktuv'tcpurcvkqp'lpvq''±wtcrl'P qty gi kcpø'y cu'J cpu'J cpugpøu'tcpurcvkqp''qh'J qtceg'\*39; 963: 22±0J qy gxgt." kv'y cu''y g'r kqpggt 'qh'P qty gi kcp''cu''cp'kpf gr gpf gpv'rcpi wci g.'Kxct''Ccugp.'y j q'tgcm( "f tgy "cwgpvkqp''vq''y g'' r quukdkrkvkgu''qh''y ku''o gf kwo ''y kyj ''j ku''3: 75"tcpurcvkqp''qh'r qgo u''cpf ''r tqug''gzvtcewi'htqo ''Uj cmgur gctg." Egtxcpvgu. "Nwij gt."Uej kmgt."cpf ''D{tqp'kpvq''rcpf uo °n''y g'hqtgtwppgt''qh''P{pqtum0}Ccugp''cnq''r rcppgf ''c'Dkdrg'' kp''P{pqtum0}'cpf ''y g'P gy ''Vguvco gpv.''tcpurcvgf ''d{ ''Grkcu'Drkz."cr r gctgf 'kp''3: : ; 0'Vj g''eqo r rgvg'Dkdrg.''j qy gxgt." qpn{ ''cr r gctgf ''kp''3; 43."y j gtgcu''y g''Uco kcpu''qh'P qty gtp'P qty c{ ''j cf ''j cf ''y gkt''qy p'P gy ''Vguvco gpv.'' vcpurcvgf ''d{ ''P kgnu'Uvqenhrgyi .''ukpeg''3: 56'\*cpf ''y g'I tggprcpf ''Kpvkvu''y gkt''Dkdrg.''tcpurcvgf ''d{ ''Rcwrl'Gi gf g.'' ukpeg''3988±0

Vj g"cf j gtgpvu"qh"*P{pqt um*"f grkdgtcvgn{ "vt kgf "vq"gpt kej "vj g"pgy "rcpi vci g"cpf "vq"i kxg"kv"r tguvki g"vj tqwi j "vtcpurcvkqpu"htqo "vj g"ercuuleu0"Vj ku"ku"vj g"dcemi tqwpf "hqt"vtcpurcvkqpu"htmg"Ctpg"I ctdqti "cpf "Qrcx"O cf uj wuxu" Uj cmgur gctg"vtcpurcvkqpu"\**O cedgvj* "kp"3; 23"cpf "*Mcwr o cppgp"k"Xgpgvkc* "kp"3; 27+0

Vj g'htuv'f gecf gu'qh'y g'v gpvkgy 'egpwt{ 'y gtg'ej ctcevetk gf 'd{ 'o cp{''tcpurcvkqpu'htqo 'Gpi rkuj .'Htgpej 'cpf'' I gto cp. 'uq'y cv'o quv'o clqt'y tkgtu'y gtg'tgr tgugpvgf 'kp'P qty gi kcp'dghqtg'Y qtrf 'Y ct''Vy q0O gpvkqp''o wuv'dg'' o cf g'qh'P kgnt'Mlâ t'cpf 'O ci pwu'I tãpxqrf øu'tcpurcvkqp'qh'F qp'S kzqvg'\*3; 3: +'cpf ''tcpurcvkqpu'qh'y g'ercuukeu<' c'htgg'x gtukqp'qh'y g''Qf {uug{ ''d{ ''Ctpg'I ctdqti 'kp''3; 3: .'hqmqy gf 'd{ ''R0Ouvd{gøu'Kkef '\*3; 42+'cpf ''Qf {uug{ ''} \*3; 44+0Ouvd{g'cnq''tcpurcvgf 'I tggm'vtci gf kgu''d{ ''Uqr j qergu'\*3; 46+ ''Cguej {nxu'\*3; 48+'cpf ''Gwtkr kf gu'\*3; 4: +0 kp''y g''3; 42u''cr r getgf ''y g''ugtkgu''Mrc uukung''dqnxò tm''46''vkurgu'kp''cm''eqpvckpkpi ''tcpurcvkqpu'qh'y g''ercuukeu.'' hqmqy gf 'kp''y g''3; 52u''d{ ''Dqnxgtm'ht ''o knqo crf gt gp''y kj ''o gf kgxcn'ercuukeu''tknrg''y g''Tqrcpf unxcf gv'\*Ej cpuqp'' f g'Tqrcpf + ''vtcpurcvgf ''d{ ''C0F cj rg0Vj g''3; 52u''cnq''ucy ''c''pgy ''tcpurcvkqp''qh''45''Uj cngur gctgcp''r re{u''d{ ''} J gptkn'lT {wgt'\*3; 5465+ ''cpf ''y q''o qtg''r re{u'hqmqy gf 'kp''3; 560Uj cngur gctg'y cu''cnq''vtcpurcvgf ''dy''y g'' Tkmo' 'n'y kj ''43''y qtmi'd{ ''xctkqwu''tcpurcvqtu'f wtkpi ''3; 45664. ''cpf ''c''pgy ''eqmgevkqp''qh''r re{u''tcpurcvgf ''d{ ''C0' Dlgtng'\*3; 7: 6: 2+0O quv'tgpqy pgf 'kp''y ku''ecvgi qt{ .''j qy gxgt. ''ctg''J ctxki ''Mktcpøu''O cedgyj '\*3; 84+''cpf ''J co rgv'' \*2: 90 O

Vj tqwi j qw''y g''y gpvkgyj "egpwt { "vj gtg''j cxg''dggp''o cp { "vtcpurcvkqpu''htqo "vj g'Twuukcp0'Vj wu''Etko g''cpf" Rwpkuj o gpv''j cu''cr r gctgf "kp''pq''rguu''y cp''ukz "f khhgtgpv''vtcpurcvkqpu."cpf "c''eqo r rgvg''pgy "gf kkqp''qh'F quvq { gxum { "y cu''r wdrkuj gf "kp''3; ; 60}

Gpi rkuj 'ku''y g'f qo kpcpv'rcpi wci g'hqt''vtcpurcvkqpu'kpvq'P qty gi kcp.'hqmqy gf 'd{ 'I gto cp.''Uy gf kuj .''Htgpej .'' F cpkuj .''T wuukcp''cpf ''Ur cpkuj 0'Vj g''dguv''uqrf ''vtcpurcvkqp''gxgt''ku''cp''Cuvtkf ''Nkpf i tgp''ej krf tgpøu''dqqn1\*88.222'' eqr kgu+.''hqmqy gf ''d{ ''hxg''f gvgevkxg''uvqtkgu''d{ ''Kcp''O ceNgcp'\*62667.222''eqr kgu+0'Cnyj qwi j ''Gpi rkuj ''ku''y g'' f qo kpcpv'rcpi wci g.''y ku''ku''rguu''uq''y cp''kp'F gpo ctm''cpf ''Uy gf gp0

 $Y gm/mpqy p''eqpvgo r qtct \{ ''vtcpurcvqtu''kpenwf g''Cppc/Nkuc''Co cf qw.''hco qwu''hqt''j gt''vtcpurcvkqp''qh''Rtqwuv'*3; 856; 6+.''Qrg''O kej cgri''$ 

Ugndgti .''y j q''tcpurcvgf 'O wukn'\*3; ;  $266\pm$ ''Qrex''Cpi gm''y j q''tcpurcvgf 'Iq $\{egøu''Wn/uugu''*3; ; 5\pm$ ''cpf 'Mctk''cpf '' Mgm'Tkuxkm'hco qwu'hqt''y gkt'522''tcpurcvkqpu'htqo ''36''rcpi wci gu0

Cu'hqt''tcpurcvkqpu'htqo 'Pqty gi kcp.'kv'ku'y qtyj ''o gpvkqpkpi ''yj cv'Vj qt'J g{gtf cj nøu'dqqmu'j cxg''dggp''tcpurcvgf '' kpvq''pq''rguu''yj cp''89''rcpi wci gu.''Kdugpøu''r rc{u'kpvq'72.''cpf ''ej krf tgpøu''dqqmu''d{'Cko²g''Uqo o gthgrf v'cpf ''Iquvgkp'' I cctf gt''kpvq''52''rcpi wci gu0

#### Qti cpk cskqp'qh'sj g'rtqhguukqp

Vj g'P qty gi kcp''ucvg''i wctcpvggu''r wtej cug''qh'722''eqr kgu''qh'72''\tcpurcvkqpu''r gt''cppwo 'hqt''r wdrke''rkdtctkgu0' Vj gtg''ctg''r repu''vq''gzvgpf ''y ku''cttcpi go gpv''vq''kpenwf g''\tcpurcvkqpu''qh''y g''ercuukeu0'Cu''kp'F gpo ctm''\tcpurcvqtu'' cnq''tgegkxg''r wdrke''rgpf kpi ''tki j wi'o qpg{ 'hqt''y g''wug''qh''y gkt''\tcpurcvkqpu''d{ ''r wdrke''rkdtctkgu0'Vj ku''cttcpi go gpv'' ku''dcugf ''qp''cp''cev'qh''Rctrkco gpv'htqo ''3; : 9. ''ceeqtf kpi ''vq''y j kej ''\tcpurcvkqpu''ctg''vq''tgegkxg''y g''uco g''\tgcvo gpv'' cu''qtki kpcri'y qtmi'qh'hkevkqp''cpf ''ur gekcrkuv'rksgtcwtg.''y g''r wdrke''ngpf kpi ''tki j wi'o qpg{ .''dcugf ''qp''y g''pwo dgt''qh'' eqr kgu''j grf ''d{ ''y g''kdtctkgu.''vq''dg''j cpf gf ''qxgt''vq''y g''tgur gevkxg'\tcpurcvqtuø'\wpkqpu<''P qturn'Qxgtugwgthqtgpkpi ''\*P Q+'hqt''rksgtct{ ''tcpurcvqtu''cpf 'P qturn'hci rkvgtâ t 'hqthcwgtô qi ''qxgtugwgthqtgpkpi ''\*P HH+'hqt''\tcpurcvqtu''qh'' pqp/hkevkqp0'Y j gtgcu''kp''F gpo ctrn'r wdrke ''rgpf kpi ''tki j wi'o qpg{ ''ku''r ckf ''f ktgev'vq''eqr {tki j v'j qrf gtu.''kp''P qty c{ '' i tcpw''htqo ''y g''hwpf u''y wu''tckugf ''ctg''qpn( ''i kxgp''chvgt''cr r rkecvkqp''vq''y g''tgur gevkxg''wpkqpu0'Hxtvj gt''hwpf u''ctg'' tckugf ''d{ ''tq{ cnkgu''qp''r j qvqeqr kgu0}

 $\label{thm:power} P\ qtum'Qxgtugwgthqtgpkpi\ ."y\ j\ kej\ "f\ cvgu'htqo\ "3;\ 6:\ ."j\ cu'492"o\ go\ dgtu0O\ go\ dgtuj\ kr\ "ku'd{"crrnkecvkqp"cpf" uwdlgev'vq"crrtqxcn'd{"c'dqctf."y\ j\ kej\ "tgcf\ u'w\ q''vcpurcvkqpu''d{"vj\ g''crrnkecpv."eqo\ r\ ctkpi\ "vj\ go\ "y\ kej\ "vj\ gkt" qtki\ kpcn0P\ Q."y\ j\ qug"o\ go\ dgtu'dgw\ ggp"vj\ go\ "eqxgt"62"repi\ wci\ gu."qti\ cpk\ gu"o\ ggvkpi\ u'cpf\ "ugo\ kpctu'dw'ku''cnuq'' c''vcf\ g''wpkqp."eqpenwf\ kpi\ "ci\ tggo\ gpwi'y\ kej\ "vj\ g''ucvg."vj\ g'hgf\ gtcvkqp"qh'r\ wdnkuj\ gtu."vj\ gcvtgu."tcf\ kq"cpf\ "VX."gve0'\ O\ go\ dgtuj\ kr\ "qh'P\ HH'ku'f\ gr\ gpf\ gpv'qp''vcpurcvkqp"qh'322"r\ ci\ gu0Dgw\ ggp'vj\ go\ 'vj\ g'w\ q'wpkqpu'tgr\ tgugpv'cdqw''\ ;\ 2"r\ gt''egpv'qh''cm'yz\ g''kcpurcvqtu0$ 

Vtcpurcvqtu'f q"pqv'j cxg'o wej "lqd"ugewtk{ô pq"uqekcn'dgpghku'qt"vcz"f gf wevkqp"hqt"gzr gpugu'lpewttgf 'kp" eqppgevkqp"y kij "y gkt"y qtnô cpf "y gtg"ctg"tgrcvkxgn{ 'hgy "uvcvg"dwtuctkgu."cnij qwi j "y g'O kpknt { "qh'Ewnwtg" uggo u'y knkpi "vq"eqpvtkdwg"vq"o ckpvckpkpi "c"j ki j "rgxgn'qh'eqo r gvgpeg"co qpi "vtcpurcvqtu0Cniq."r wdrkij gtuø" hggu."y j kej "tgo ckpgf "xkt wcm{ "wpej cpi gf 'hqt "pgctn{ "42"{ gctu."ctg"uvknif kui tceghwn{ "nqy."y qwi j "pqv's wkxg"uq" dcf "cu'kp"F gpo ctn0kp"3; ; 6."c"hwn vko g'nkvgtct { "vtcpurcvqt"eqwrf "v{r kecm{ "gctp"cp"cppwcn'lpeqo g"qh'uqo g" Ç34.222."y j kej "r rcegu"vtcpurcvqtu'co qpi "y g'nyy guv'r ckf "o go dgtu"qh'uqekgv{0Eqpvtcevu'y kij "y gcvtgu'cpf "dqqm' envdu'ctg'uqo gy j cv'o qtg"nwetcvkxg."dwv'y ku'ku'c'uo cm'o ctngv0

Vj g'ukwcvkqp"qh'eqo o gtekcn'tcpurcvqtu'ku'f khtgtgpv<'y gkt'tcvg'r gt'r ci g'y qtmu'qw'cv'o qtg'y cp'yi tgg'\lo gu'yi cv' qh'c'h\sqtct{"\tcpurcvqt0Vj g'Ucvucwqtkugt w'Vtcpurcvatgtu'Hqtgpkpi "\*UVH+"hqwpf gf "kp'3; 35."j cu'cdqw/392" o go dgtu, 'y j q'dgwy ggp"yi go "eqxgt"38"rcpi wci gu0Vq"s wchkl{"\tqt'o go dgtuj kr."\tcpurcvqtu'o wn'r cuu'c'f khtkevn'' cpf "\pvgtpcvkqpcm("tgeqi pk| gf "gzco."\py"y j kej "ur gekcn'cwgpvkqp"ku'r ckf "vq"\gej pkecn "rgi cn'o gtecpvkrg." geqpqo ke'cpf "cf o kpkntcvkzg'rcpi wci g0Vj g'qti cpk| cvkqp"qh'kpygtr tgygtu."P qtuniVqmyghqtdwpf."j cu'cdqw/82" o go dgtu, 'y j gtgcu'yi g'hkzg'qt"ukz "eqphgtgpeg"kpygtr tgygtu'y j q"gzknv'kp"P qty c{"dgmpi "vq"Ckt€0
Vj g'P Q'cpf "yi g'P HH'eqqr gtcvg"y kyj "qyi gt "P qty gi kcp"y tksgtuø'wpkqpu'cpf "ctg"chhklcvgf "vq"Mqr kpqt"cpf "
P qty ceq."y j kej "ctg"÷eqmgevkpi "uqekgvkguø'nqt"eqr {kpi "cpf "ecdng"\ygxkukqp"tki j w'tgur gevkxgn{0Vj g{"ctg"cnuq" chklcvgf "vq"y g"P qtf ke"Y tksgtuø'Eqwpeki'cpf "y g'Gwtqr gcp"Y tksgtuø'Eqpi tguu."yi g'qpn{"kpygtrevkqpcn' qti cpk| cvkqp"y kyj "cminkpf u'qh'y tksgtu"cpf "tcpurcvqtu'cu'o go dgtu0Cm!P qty gi kcp"tcpurcvqtuø'cpf "kpygtr tgygtuø' wpkqpu"ctg"cnuq"o go dgtu'qh'yi g"H F¦ TCVKQP "RP VGTP CVKQP CNG"F GU'VTCF WEVGWTU\*HkV+0P Q'ku" cnuq'tgr tgugpygf "kp"yi g'CtvkruwøEqwpeki'qh'P qty c{."yi g'Eqwpeki'nqt"Dqqmu."Tgcf kpi "cpf" Y tkskpi ."yi g"
P qty gi kcp"Ncpi wci g'Eqwpeki'qh'P qty c{."yi g'Eqwpeki'nqt"Dqqmu."Tgcf kpi "cpf" Y tkskpi ."yi g"
P qty gi kcp"Ncpi wci g'Eqwpeki'ncpf "yi g'Gwtqr gcp"wpkpp"qh'hksgtct{"tcpurcvqtuô yi g'Eqpugki'Gwtqr 2 gp"f gu" Cuuqekcvkqpu'f g"Vtcf weysutu'Nkv² tcktgui\*'EGCVN+0

Vj g'o ckp'r tk g'hqt'rksgtct { "'tcpurc kqp'ku' vj g'cppwcn' Dcurkcp''r tk g. "c'dtqp| g'uewr wtg''cpf "P MT '52.222" \*crrtqzko cvgn( 'Ç5.222+'hqt' vj g'dguv'-cf wnø' vtcpurc kqp''cpf 'vj g'uco g'uewr wtg''cpf ''co qwpv'hqt'' vj g'dguv' vtcpurc kqp''hqt''ej krftgp''cpf ''cf qrguegpw0'Htqo ''3; 8: "vq'3; ; 6"vj gtg'y cu''

c'r tk g'htqo 'vj g'Eqwpekn'hqt 'Ewnwtg'hqt 'c'f kuskpi wkuj gf 'vtcpurcvqt0Vj g'O kpkurt { ''qh'Ewnwtg'j cu''cp''cppwcn'r tk g'' y j kej 'hcmu'kpvq''xctkqwu''ecvgi qtkgu. ''cpf 'vj g''eqpugtxcvkxg'Tkmo onhqtdwpf gv'j cu''c''xgt { ''r tgurki kqwu''r tk g''hqt'' vtcpurcvkqp''kpvq''i qqf ''Tkmo or c'f ghkpkkqp'y j kej 'j cu'tgegpvn( ''dggp''gzvgpf gf ''uq''cu''vq''kpenwf g'f kcrgev'cpf'' cxcpv'i ctf g''rcpi wci g0

#### Tgugctej 'cpf 'r wdrkec skapu

Uq'hct."yi gtg'ku'pqv'o wej "\q'dg'hqwpf "kp"yi ku'ecygi qt{0Vj g'hktuv'uej qrctn( "kpvtqf wevkqp"\q'yi g''ctgc"y cu'U{rhguv'' Nqo j gko øu''*Qo ugvlkpi uvgqt k*"Vtcpurcvkqp"Vj gqt{."3; ; ; +"cpf 'kp'3; ; 3"yi g''cpyi qrqi { "F gv'wo wrki gu'mvpuv'\*Vj g" Ctv'qh''yi g''Ko r quukdrg+."gf kxgf ''d{ "Rgt"S xcrg."cr r gctgf 0/I qf v'qtf 'ki lgp'\*gf kxgf ''d{ ''O qtvgp''Mtqi uvcf +'y cu''c" Hguwej tkhv'qp"yi g''qeecukqp"qh'yi g''hqtvkgyi "cppkxgtuct{ "qh'yi g'P qturh'Qxgt/ugwgthqtgpkpi "\si3; : : +0'Vj g''gctrkguv'' kpvtqf wevkqp"vq"yi g''r tqdrgo u''qh''vtcpurcvkqp'ku''vq''dg'hqwpf "kp"/I {rf gpf cru'Cmwgng'O ci cukp'\*xqnwo g'4."3; 9: +0 O gpvkqp"uj qwrf ''dg''o cf g''cnnq''qh''yi g''gzegr vkqpcm{ 'i qqf ''Gpi rkuj / P qty gi kcp''f kevkqpct{ "Ecrr grgpu'Uqt g'' Gpi grum/Pqt um'Qtf dqm''d{ ''yi g''i tcpf ''qrf ''o cp''qh'P qty gi kcp''vtcpurcvqtu." J gtdgtv'Uxgpngtwf <''yi ku''eqwrf ''ugtxg''cu'' c''o qf grlhqt''dkrlpi wcn'f kevkqpctkgu'cm'qxgt''yi g'y qtrf 0

# Hwt yj gt 't gcf kpi

XKI I Q'J LÓTPCI GT'RGFGTUGP'CPF'RGT'S XCNG

#### Dkqi tcrj kgu

**DKGJ N.'Ej ct mwc'F qt qvj gc**"\*39536: : +0F cpkuj "y tkvgt"cpf "\tcpurcvqt="\j g'hktuv"y qo cp'kp"F gpo ctm'vq"o cng"c" nkxkpi "cu"c"y tkvgt0Cu"j gt "hcvj gt"f kf "pqv'dgrkgxg"kp"gf wecvkqp"hqt"y qo gp."Dkgj n'y cu"rcti gn{"ugrh/vcwi j v."dw'uj g" o cpci gf "vq"ces wktg"c"pwo dgt"qh'Gwtqr gcp"rcpi wci gu0Uj g"\tcpurcvgf"cpf "cf cr vgf "Htgpej ."I gto cp"cpf "Kcnkcp" r rc{u'hqt''y g'uvci g."dw'uj g'ku'dguv'tgo go dgtgf "hqt"j gt"egrgdtcvgf "\tcpurcvkqp"qh'Egtxcpvguø'F qp'S wkzqvg"\*399869+0

DQNUGP.'O qi gpu'\*3; 326: 9+0F cpkij "tcpurcvqt"qh"o qtg"vj cp": 22"dqqmı."o ckpn{ "htqo "Gpi rkij ."I gto cp"cpf" Htgpej 0Dqkugp"y cu"cp"cto { "qhhkegt=j g"y tqvg"dqqmı"qp"o krkct { "o cwgtu"cpf" y cu"o cf g"rkgwgpcpv'eqmpgn'kp" 3; 730D{ "vj gp."j qy gxgt."j g"j cf "crtgcf { "uvctvgf" tcpurcvkpi 0Co qpi "j ku"dguv'mpqy p"tcpurcvkqpu"ctg"O grxkmgøu"  $Oqd\{"Fkeni*3; 77+$ "Vj qo cu'O cppøu"F t "Hcwwwi"\*3; 79+"cpf "gur gelcm{ "Lq { egøu"Wn{ uugu. "y j kej "j g"hktuv'dtqwi j v' qwv'kp"3; 6; "dwv'mgr v'tgxkukpi "vknij g"r wdrkuj gf "c"vj ktf "gf kkqp"kp"3; : 20

I TWP F VX H . 'P leqnc k'Ht gf gt kni Ugxgt kp'\*39: 563: 94+0 F cpkuj "vj gqmi kcp. "r j knjuqr j gt "cpf "r qgv."y j q"cniq" f gugtxgu "etgf kv"hqt "j ku"xgt { "hkpg" tcpurc kqpu."ej kghn { "qh"o gf kgxcn"r qgvt { 0 I twpf wki "y tqvg"c"i tgcv"o cp { "j { o pu." uqo g"qh"y j kej "ctg" ttgg" tcpurc kqpu "qh"o gf kgxcn" Nc vkp"qt" I gto cp" Tghqto cvkqp" r qgo u. "cpf "j g"dtqwi j v'qw"c" htgg" dw"ur ktkgf "xgtug" tcpurc vkqp" qh" Dgqy wrll \*Dlqxwrh" 3: 42+0 I g"cniq" tcpurc vgf "Uczqøu" I gwc "F cpqt wo " \*F cpo ctmi Tki gu" Mt ãppkng." 3: 3: 646+"kpvq" c"eqnwthwn F cpkuj. "ej ctcevgt kt gf "d { "ctej ckuo u"cpf" o cp { "nqcp" y qtf u"htqo "twtcn f kcnge vu0

NGO DEMG. 'Ej thrkep'Nwf xhi 'Gf xctf'\*3: 376; 9+0F cpkij 'r qgv'cpf' 'tcpurcvqt0'Ngo deng'j gnf'f gi tggu'lp'' fkxlpk/{ "cpf "ij g"ct wi'cpf "ur gpv'o quv'qh'j ku'rhg"cu'uej qqno cuvgt "cv'xctkqwu'uvcvg'i tco o ct'uej qqno0J g"tcpurcvgf" ugxgtcn'Dtkkuj "r qgvu. "kpenwf kpi "D{tqp"cpf "Uy kpdwtpg."dw'j ku'tgr wcvkqp"tguvu'qp"j ku'Uj cngur gctg' tcpurcvkqpu" \*3: 83697+0J g"kpkkcm/{ "dgi cp"cu'c'tgxkugt"qh'cp"gctnkgt 'tcpurcvkqp"qh'r ctv'qh'ij g"ecpqp. "dw'ij g"o clqt 'r ctv'qh'ij g" tcpurcvkqp"ku'gpvktgn/{ "j ku'qy p'y qtn0J g"o cpci gf "vq"eqo dkpg"o cuvgt { "qh'ij g"drcpm'xgtug'hqto "y kyj "pcwtcn' F cpkij."eqnqwtgf "d{ "ij g"f kevkqp"qh'ij g"i tgcv'Tqo cpvke"r qgvu0J ku'o ckp'y gcmpguu. "htqo "c"o qf gtp'r qkpv'qh'xkgy." y cu'c'vgpf gpe{ "vq"vqpg"f qy p"xkqngpv'cpf "dcy f { "gngo gpvu"kp"Uj cngur gctg0

Y KNUVGT.'Ej t kn/kcp'Ht gf gt kn/k39; 963: 62+0F cpkuj "tcpurcvqt"qh'I qo gt"cpf 'Gwtkr kf gu='ngewtgt"cv'Uqtã" Cecf go { "cpf "c"o kpqt "Tqo cpvke"r qgv0"Y knvgt 'ku'dguv'npqy p"

hqt'j ku'\tcpurc\kqpu''qh'\j g''kkcf''cpf'' $Qf\{uug\}$ ''\\$3: 5869+.'y j kej ''ctg''dqyj ''uqwpf ô htqo ''c'uej qrctn\''r qkpv'qh'xkgy ô cpf ''kpur ktgf ''cu'r qg\ke''etgc\kqp0'Rtgxkqwu'\tcpurc\kqpu''qh'J qo gt''y gtg''cxckrcdrg''kp'F cpkuj ''y j gp''j g''uvct\gf ''j ku'' y qtm''dw''j g''hgnv''y cv''j g''o ckp''j kpi ''j g''eqwrf ''rgctp''htqo ''j ku''r tgf geguuqtu''y cu''-y j cv'pqv'\q''f qø0'Kpuvgcf ''qh'' wukpi ''gzku\kpi ''\tcpurc\kqpu''cu''c''o qf gn''j g''nqqngf '\q''y g''ngcf kpi ''F cpkuj ''Tqo cp\ke''r qgv'Cf co ''Qgj rgpuej n\\ gt'' hqt''kpur ktc\kqp0'J g''r tqf wegf ''y q''j gzco g\gt''\tcpurc\kqpu=''y gug''y gtg''qwu\cpf kpi ''kp'\gto u''qh''nkpi \ku\ke'' etgc\kx\k\\''\q''gwr j qp\''cpf ''tj\' y o 0

XI I Q'J LÓTP CEGT'RGF GTUGP

# Fwej 'ttcf kkqp

Vj g'F wej /ncpi wci g'ctgc'eqo r tkugu''y g'P gyj gtncpf u'cpf 'Hncpf gtu.''tqwi j n{ ''y g'pqtyj gtp'j cnh'qh''y g'hgf gtcn' uvcvg''qh'Dgni kwo 0Vqf c{ .''y gtg''ctg''ctqwpf ''43"o knkqp''ur gcngtu''qh'F wej <'37"o knkqp''kp''y g'P gyj gtncpf u'cpf ''ukz'' o knkqp''kp''Hncpf gtu0

Iβ"ig g"o gf kgxcil'r gtkqf "ij g"ctgc"y cu'r qrkkecm("f kxkf gf ."y kj "uqo g"r ctwi'qy kpi "cmgi kcpeg"\q"Htcpeg"cpf "qvj gtu" \q"ij g"M gto cp+"J qn("Tqo cp"Go r ktg0Iβ"ij g"Ikhnggpvj "cpf "ukz vggpvj "egpwtkgu"ij g"xctkqwu"f wej kgu"cpf "eqwptkgu" qh'ij g"Nqy "Eqwpvtkgu"y gtg"i tcf wcm( "wpkgf "wpf gt"ij g"Dwti wpf kcp"cpf "ij gp"ij g"J cdudwti "f {pcurkgu0Vj g" Cki j v("I gctuø"Y ct"\*378: 6386: +"y j kej "dgi cp"cu"c'tgdgmkqp"ci ckpuv'ij g"Ur cpkuj "J cdudwti "mkpi "Rj ktk" "KK" tguwngf "kp"c"pqtyj /uqwj "f kxkulqp."cu"ij g"pqtyj gtp."Ecπkpkuvf qo kpcvgf "F wej "Tgr wdrke"i ckpgf "kpf gr gpf gpeg" cpf "ij g"Uqwj gtp"P gyj gtmcpf u'tgo ckpgf "Ecyi qrke"wpf gt"Ur cpkuj "cpf "uwdugs wgpvn("C wurkcp"twg0Clngt"ij g" Htgpej "Tgxqnwkqp"qh"39: ; "dqvj "eqwpvtkgu"eco g"wpf gt"Htgpej "eqpvtqn0Hqnmy kpi "P cr qrgqpøu"f ghgcv'kp"3: 37" yj g{ "hqto gf "ij g"uj qtv'nkxgf "Wpksgf "Mlpi f qo "qh'ij g"P gyj gtmcpf u."htqo "y j kej "Dgni kwo "dtqng"cy c { "kp"3: 520' Qtki kpcm("f qo kpcvgf "d{ "c"Htgpej /ur gcmkpi "dqwti gqkukg."Dgni kwo "kr"pqy "c"kpi wkukecm("f kxkf gf "cpf" rqrkkecm("f gegpvtcrk gf "uvcvg"kp"y j kej "F wej /ur gcmgtu"cpf "Htgpej /ur gcmgtu"j cxg"gzenwukxg"tki j wi'kp"ij gkt"qy p" tgi kqpu"\*Hrcpf gtu"cpf "Y cmqpkc."tgur gevkxgn( +="yj g"ecr kcn"Dtwugnu"ku"qhhkekcm( "dktpi wcn\*F wej ô Htgpej +"cpf" yj g"uo cml gto cp/ur gcmkpi "o kpqtkv("kp"ij g"gcuv'gplq { u"eqpuvkwwkqpcn"r tqvgevkqp0Ifp"y g"p gyj gtmcpf u."yj g" pqtyj gtp"r tqxkpeg"qh"Htkgurcpf "ku"dkdpi wcn\*F wej /Htkukcp+"cu"y gm"Htkukcp"dgkpi "ur qngp"cmpi ukf g"F wej "d{" crr tqzko cvgn("c"s wctvgt "qh"c"o knkqp"r gqr ng. "gxgp"vj qwi j "qpn("c"uo cml' tqr qtvkqp"qh"vj gug"cnq"wug"Htkukcp"cu"c" y tkvgp"ncpi wci g0

Vj g"j kurqt { "qh'\tcpurc\kqp"kpvq"F wej "j cu" { gv'\q"dg'y tkvgp0Kpf kxkf wcn'cur gewi'j cxg''dggp''kpxgurki cvgf "cpf" f qewo gpvgf "kp"qpg'y c { "qt "cpqvj gt."dw'pq"i gpgtcn'uwtxg { u"qt "u { pvj gvke "gzr qukklqpu"ctg"ewttgpvn { "cxckrcdrg0} }

### Vj g'o gf kgxcnir gt kqf

P gz v''q''pqyi kpi 'ku''npqy p''cdqw''xgtpcewrt''ewwtg''kp''y g''Nqy 'Eqwpvtkgu''f wtkpi ''y g''gctn( ''o gf kgxcn''r gtkqf .'' ulpeg''y g'y tkwgp''rcpi wci g'y cu''Ncvkp0'Vj g''xgt { ''htci o gpvct { "gxkf gpeg''y cv'j cu''dggp''r tgugtxgf .''j qy gxgt .''ngcxgu'' rkwrg''f qwdv''y cv''y g''F wej ''y tkwgp''tcf kkqp''dgi kpu''y ky ''tcpurcvkqpu0'Co qpi ''y g''xgt { ''httuv'y qtf u''tgeqtf gf ''kp'' Qnf ''F wej ''ctg''kuqrcvgf ''yto u''qeewttkpi ''cu''kpygtnkpgct''i rquugu''kp''Ncvkp''o cpwuetkr wi'htqo ''y g''gki j y ''cpf ''pkpy '' egpwttkgu0'Vj g''qnf guv'f kuewtukxg''yzwi'kp''cp''gcuvgtp''hqto ''qh'Qnf ''F wej ''mpqy p''cu''Qnf ''Nqy ''Htcpeqpkcp''ctg''y g'' ypy /'egpwt { ''Ectqnkpi kcp''\*qt''Y cej ygp/f qpem+''r ucno u ''kpygtnkpgct''xgtukqpu''qh''y g''Ncvkp''Xwri cvg='y g { ''r tqdcdn( '' eco g''kpyq''dgkpi ''kp''y g''dqtf gt''tgi kqp''dgw ggp''y g''o qf gtp''P gyj gtncpf u''cpf ''I gto cp{ ''dwv'j cxg''dggp''r tgugtxgf '' qpn( ''kp''htci o gpvct { ''hqto ''kp''ukzvggpy /'egpwt { ''eqr kgu''cpf ''i rquugu0}

C'eqpvkpwqwu'vtcf kklqp'qh'y tkwgp'F wej 'ecp'dg'f cvgf 'dcem'vq'y g'ncvg''gngxgpyj 'egpwxt { .'y j gp''y g'uq/ecngf '' rtqdcvkq''rgppcg.''c'ukpi ng''uj qtv'ugpvgpeg'kp'Qnf 'F wej 'vqi gyj gt''y kyj 'kwu'nkgtcn'vtcpuncvkqp'kpvq''Ncvkp'\*qt.''nguu'' nkngn{ .'xkeg''xgtuc+''y cu''y tkwgp'f qy p''d { "c''Y guv'Hngo kuj "o qpm'vt { kpi "qwv'c''pgy "s wkm'kp'c''o qpcuvgt { "kp" Gpi ncpf 0'Vj g''o cpwuetkr v'y cu''f kueqxgtgf 'kp''Qzhqtf 'kp''3; 53."cpf ''qwt''o qpm'o c { "y gm'j cxg''etquugf ''y g''Ej cppgn' kp''qt''uj qtvn{ "chvgt''3288"cu'r ctv'qh''y g''Hngo kuj "eqpvkpi gpv'ceeqo r cp { kpi "Y kmkco "y g''Eqps wgtqt.''y j q'y cu'' o cttkgf ''vq''y g''f cwi j vgt''qh''y g''Eqwpv'qh''Hncpf gtu0'Vj g''o quv'uwduvcpvkcn'vgzv'kp''Qnf "

F wej 'ku''y g'Gi o qpf '\*qt'Ngkf gp+"Y kngt co 0'Kl'f cvgu'htqo ''ctqwpf ''3322''cpf 'ku''c'F wej ''xgtukqp''qh''cp'Qnf 'J ki j " I gto cp''eqo o gpvct { ''qp''y g'Uqpi ''qh'Uqpi u''d { ''y g'Dgpgf kevkpg''o qpm'Y kn'ntco ''qh'Gdgtudgti ''kp''Dcxctkc0' Cnj qwi j ''y g''y q''ncpi wci gu'y gtg''uvkm'enqug''vq''gcej ''qvj gt''cv''y ku''uvci g.''y g'F wej ''uetkdg''y tkkpi ''kp''y g'' o qpcuvgt { ''qh'Gi o qpf ''kp''J qmcpf ''u { uvgo cvkecm { ''cf cr vgf ''j ku''uqwteg''vgzv''vq''hkv''j ku''qy p''r tqpwpekcvkqp''cpf '' xqecdwct { 0

Ki'ku'ewuvqo ct { "vq'tghgt"vq'vj g'hcpi wci g'htqo "vj g'w gnhvj "egpwt { "qpy ctf u'cu'O kf f ng'F wej 0Co qpi "vj g'gctnkguv" nkgtct { "r tqf wewi kp 'O kf f rg'F wej "ctg" y g'y qtmı 'qh'J gptke 'xcp 'Xgrf gng. 'y j q'y tqvg 'kp 'y g'rcvgt 'j crh'qh' y g" w grłnj "egpwt { "kp"cp"gcuvgtp"f korgev"erqug"\q"I gto cp0J ku"tj {o kpi "Nklg"qh"Uckpv"Ugtxcvkwu"qh"e0382692"y cu" dcugf "qp"c"Ncvkp"xkxc"htqo "c"j wpf tgf "{gctu"gctrkgt0J ku"Cgpgkf."cnxq"kp"tj {o kpi "eqwr rgvu."y cu"cnxqi gyj gt"o qtg" kppqxcvkxg."cu'kv'y gpv'dcem'vq"Htgpej "ugewrct"uqwtegu<'dcugf "qp"vj g"Cpi rq/P qto cp"*Tqo cp"f ø'Gpgcu*'htqo " ctqwpf '3372. 'k/kpvtqf wegf 'y g'eqwt vn( "gr ke 'kpvq'dqy 'F wej "cpf 'I gto cp'rkvgtcwtg. 'hqt "cny qwi j 'xcp'Xgnf gng" r tqdcdn( "dgi cp"j ku" Cgpgkf "kp"F wej "j g"gxgpwcm( "hkpkuj gf "kv"kp"Vj wtkpi kc"kp"c "rcpi wci g"vj cv"eqwrf "tgcf kn( "dg" wpf gtuvqqf "dqyi "d{ "F wej "cpf "d{ "J ki j "I gto cp/ur gcmkpi "cwf kgpegu0'Xcp"Xgrf gngøu'nqxg'n{ tkeu. 'hkpcm{ .'j ctngf " dcem'\q'\yi g'Htgpej '\tqwdcf qwt'\tcf kkqp''cpf 'j grr gf 'kp\tqf weg'\yi g''eqwt\n\( ''O kppgucpi 'kp\q' I gto cp''rk\gtc\wtg0 Qp''y g'y j qrg. "o gf kgxcn'F wej 'rksgtcwtg''cpf 'rgctpkpi . "cpf ''y wu''y g'y tkvgp''tcf kkqp'i gpgtcm(. 'tgrkgf 'j gcxkn(" qp'hqtgki p/rcpi wci g'uqwtegu.'r ctvlewrctn( "Ncvlp"cpf "Htgpej 0Kp"yj g'wy grhyj "cpf "yj ktvggpyj "egpwtkgu"yj g" geqpqo ke "cpf "ewnwtch egptg"qh'i tcxkx{ "kp" i g"Nqy "Eqwptkgu'nc { "kp" Hncpf gtu. "y kj "hnqwtkuj kpi "vqy pu'nkng" Dtwi gu'cpf 'I j gpv0D{ ''y g'hqwt vggpy 'egpwt{.''y g'F wej { ''qh'Dtcdcpv.''y ky ''vqy pu'nkng'Dtwuugnu.''Ngwx gp''cpf '' Cpw gtr.'j cf 'dgi wp'\q'tgr rceg'Hrcpf gtu'cu'\j g'o ckp'ewnwtcn'hqewu0Cnj qwi j ''y g'Eqwpw'qh'Hrcpf gtu'gplq{gf 'c' ncti g'f gi tgg''qh''cwqpqo {.''yj g{ ''qy gf 'r qnkkecn'nq{cnx{ ''vq''yj g'Htgpej 'mkpi u0'Vj g''uqwyj gtp'r ctvu''qh''yj g''eqwpvt{ '' \*pqy 'kp'pqtvjgtp'Htcpeg+'ygtg'Htgpej/urgcmkpi.'cpf'Htgpej'ycu'wugf'htgswgpvn{'cv'eqwtv0'Vjg'wgmhyj/egpwt{" Htgpej 'r qgv'Ej t² vkgp'f g''Vtq{gu'y tqvg'j ku'Eqpvg'f w'I tccnhqt'vj g'Hrgo kuj 'Eqwpv'Rj krkr 'qh'Cnuceg0 Ki'ku'pqv'uwtrtkukpi. "vj gp. "vj cv'o wej "ugewrct "cpf "hkevkqpcn'y tkukpi "kp"O kffrg"F wej "ku'dcugf"qp"Htgpej "o qfgnu0" Co qpi ''y g'r tg/eqwt vn{ "ej cpuqpu'f g'i guvg. 'klg0'y g'Ectqrkpi kcp''qt 'Htcprkuj 'tqo cpegu'egpvtgf 'ctqwpf ''y g'hki wtg'' qh'Ej ctrgo ci pg. ''y g'Okf f rg'F wej 'xgtukqp'\*gctn( ''y ktvggpy 'egpwt { +''qh''y g'Htgpej 'Tgpcwf'f g'Oqpwwdcp'' i kxgu'c'i qqf 'kfgc"qh'vjg'yc{''yg'∺ocwgt"qh"Htcpegø'ycu'cfcrvgf0'Cnyjqwij'kp'c'hgy'rncegu'vjg'Htgpej'ku" hqmy gf "cm quv'y qtf "hqt"y qtf." y g'F wej "\gz v'ecppqv'dg" \tcegf "dcem'\q"qpg'lf gp\lhcdrg' Htgpej "o cpw.etkr v'dw' gej qgu'f khhgtgpv'Htgpej 'xgtukqpu0O cp{ "gr kuqf gu'j cxg"dggp"xgt{ "uwduvcpvkcm( "cnvgtgf ."cpf "vj g{ 'f q"pqv'cny c{ u" qeewt 'kp''y g'uco g''qtf gt0'Vj g''o quv'r tqdcdrg''gzr rcpcvkqp'hqt''uwej 'f kxgti gpekgu''ku''y cv''y g{ 'tghrgev'cp''qtcn' vtcf kkqp. "cpf "y cv'y g'y tkwgp "xgtukqp "y cu'eqo r qugf "qp "y g'dcuku"qh o go qtk gf "gr kuqf guô cu'ku cnuq 'uwi i guvgf " d{"yj g"hcti g"hvqtg"qh"hqto wncke"r j tcugu"cpf "yj g"y c{"kp"y j kej "hqo g"gr knqf gu"ctg"cr r ctgpvn("hj cr gf "cu"hgrh/ eqpvckpgf "gpvkkkgu0

Vj g'eqwtw("Ctvj wtkcp"tqo cpegu'cmq"tgcej gf "vj g'Nqy "Eqwpvtkgu"xkc"Htcpeg0Vj g'vgej pks wgu'qhl'tcf kecn' tgo cpkgo gpv!\*tguj cr kpi +'cpf "gpvt grcego gpv!\*tpvgty gcxkpi + "cpf "vj g'eqo r rgz "vgz wcn't grcvkqpu'dgwy ggp" qtki kpcnu"cpf "cf cr vckqpu'y j kej "tguwn'ttqo "vj ku "ecp"dg'kmwntcvgf "y kaj "tghgtgpeg"q"vj g'o cuukxg"\/cpegrqv'' eqo r krcvkqpô uqo g"; 2.222"xgtugu'kp"cmô r w'vqi gvj gt"ctqwpf "3542"kp"Dtcdcpv\/K'eqpvckpu'vgp"Ctvj wtkcp" tqo cpegu."vj g'egpvtcn'vj tgg"qh'y j kej "ctg'vtcpurcvkqpu'ltqo "c'Htgpej "e{erg0'Vj g'qvj gtu."kpugtvgf "kp"f kthgtgpv'' r rcegu'\*vy q'tqo cpegu'dgwy ggp"r ctvu"qpg"cpf "vy q."vj g'tgo ckpkpi "hxg'dgwy ggp"r ctvu"y q"cpf "vj tgg+"ctg" tgy tkkpi u'qh'gzknkpi 'O kf f rg"F wej "xgtukqpu'qh'Htgpej "uqwtegu."dw'j gtg'vqq"vj g'eqo r krgt"ttggn("cf f gf "cpf" qo kwgf "gr kuqf gu."cpf "r tqxkf gf "hpmkpi "r cuuci gu'kp"cp"cwgo r v'vq"j qrf "vj g'gpvktg"e{erg"vqi gvj gt0 Vj g'ko r cev'qh'vj gug'y qtmu'tgcej gf "kt0Kk'ku'vj qwi j v."hqt"gzco r rg."vj cv'vj g'o ckp'Ctvj wtkcp'tqo cpeg'kp'O kf f rg" F wej "y j kej "ku'pqv'c'vtcpurcvkqp"qt"cf cr vcvkqp."vj g"Y crgy gkp"dgi wp"d{"Rgppkpe"cpf "eqo r rgvgf"d{"Rkgvgt" Xquvcgtv."r quukdn("ctqwpf"3482."o c{"j cxg"dggp"y tkwgp"cu'cp"cpuy gt"q"yj g'urki j vn{"gctrkgt"\/kcpurqqv'xcpf gt" J ci j gf qej vg."c'xgtug'tgpf gtkpi "qh'vj g"Htgpej "\/cpegrqv'gp"rtqug0'Vj g"o quv'ko r qtvcpv'O kf f rg"F wej "cpko cn' gr ke."Tg{pctf"\/yj g'Hqz."

ecp'egt vckpn('dg'tgcf'cu'c'uc ktg'qp''y g'eqwt vn('xcnwgu''qh''y g'Ectqnkpi kcp''cpf'Ctyj wtkcp''e{ergu0 Dw'y gtg"ctg"qy gt"tgcevkqpu."y j kej "f ktgevn( "kpxqnxg"qy gt"ewnwtcn'\tcf kkqpu"cpf "tgncvkqpu0'Vj g"gzvtgo gn(" r tqnkhe'Iceqd'xcp'O cgtrcpv.'yi g'cwj qt'qh'uqo g'452.222'hkpgu'qh'xgtug'y j q'nkxgf 'kp''yi g'ncwgt'j cnh'qh'yi g'' y ktyggpy "egpwt { . "dgi cp" j ku 'ectggt 'y kj "c 'pwo dgt "qh 'eqwt vn { "tqo cpegu 'o quvn { "dcugf "qp 'H gpej "uqwtegu 0' I tcf wcm{ 'j qy gxgt'j g'wtpgf 'cy c{ 'htqo 'hkevkqp''vqy ctf u'j kuvqtkecn'f kf cevke''cpf 'gpe{ emqr gf ke''y qtmu. ''eqxgtkpi " xkt wcm( "gxgt { 'hkgrf 'qh'mpqy rgf i g'htqo 'i gqi tcr j { ''vq''o gf kekpg. "cpf 'kpenxf kpi 'dqvj 'dkdrkecn'cpf 'ugewrct'' j kuvqt {01Kp'luq'fqkpi.'j g'tgr megf'Htgpej 'luqwteg''\gz vu''y kyj ''Ncvkp''qpgu.''vj g''y qtrf''qh''gpvgtvckpo gpv''y kyj ''vj g'' y qtrf "qh"gtwf kkqp0"Vj g"uy kej "htqo "Htgpej "\q"Nc\kp"cu"c"uqwteg"ncpi wci g"ku"u{o r vqo c\ke0"Nc\kp."\yj g"j ki j/ uvcwu'ncpi wci g'qh'gf wecwqp. 'ngctpkpi 'cpf 'vj g'Ej wtej. 'o ctngf 'c'ewrwtcn'f kxkf g0'Vj g'tcpurcwqpu'qh'f kf cewe' cpf 'ur ktkwcn'y qtmu'htqo 'Ncvkp'kpvq'y g'xgtpcewrct 'ergctn( 'uj qy 'yj g'wpgs wcn't grcvkqp 'dgw ggp'yj g'w q'y qtnf u0' Uej qrcuvke 'vj gqrqi { .'hqt 'gzco r rg. 'tgo ckpgf 'vj g'r tgugtxg 'qh' Ncvkp. 'cpf 'qpn{ 'vj g'o qtg'r qr wrctk kpi 'vj qtmu 'qp 'vj g' uwdlgev. "kpvgpf gf" hqt"c" hc {"cwf kgpeg." y gtg" vtcpuncvgf" kpvq" F wej 0 Vgz w eqpvckpkpi" r tcevkecn o gf kxcvkqp" gzgtekugu'cpf "f gxqvkqpcn'vtgcvkugu."qp"vj g"qvj gt"j cpf. 'y gtg"vtcpuncvgf "o wej "o qtg"htgs wgpvn(0Kp"uqo g"kpuvcpegu" y qtmu"qh"vj ku"mkpf "y gtg"tgpf gtgf "dqvj "kpvq"r tqug"cpf "kpvq"xgtug<"vj g"xgtug"vtcpurcvkqpu"vgpf gf "vq"cf qr v"o qf gu" qh'r tgugpvcvkqp'tgo kpkuegpv'qh'vj g'ugewrct'tqo cpegu'cpf ''qh'qtcn'vtcfkxkqpu.''y j krg'vj g'r tqug'xgtukqpu'cr r gct'vq'' j cxg"dggp"kpvgpfgf"hqt"rtkxcvg"tgcfkpi "qt"hqt"tgcfkpi "cnqwf"kp"vjg"uo cm'ugok/tgnkikqwu"eqoo wpkxkgu"v{rkecn'qh" y g'o gf kgxcn'Nqy 'Eqwpvtkgu0

Cu'wtdcpk ckqp"cpf "hkytce{ "kpetgcugf" 'qy ctf u'y g"gpf "qh'y g'O kf f rg'Ci gu. "y g"f kxkf g"dgw ggp" Nckp"cpf" xgtpcewrct "ewnwtg" pcttqy gf 0 kp" uqo g"ektergu. "uwej "cu'y g"ewnwtcm( "kphnwgpvkcn" ugo k/t grki kqwu" eqo o wpkkgu" qh" y g"F gxqwlq" O qf gt pc ""cmq" mpqy p"cu'y g":Dtgyj tgp" qh'y g"Eqo o qp" Nkhgø+" kp" y g"P qtyj gtp" P gyj gtrepf u'kp" y g" rcwg" hqwt wggpyj "cpf "hkhnggpyj "egpwt kgu. "o qtcrki kpi "cpf "f kf cevke" y qtmu" y gtg" y tkwgp "kp" dqyj "Ncvkp" cpf "F wej ."qt" vtcpurc yf "xgt {"uqqp"chygt" y gkt" hktuv" cr r gctcpeg0 kp" j ku" F g"hdt ku" ygwqpkec hdwu" "Qp" dqqmu" kp" F wej +"I gtctf" \ gtdqrf "qh"\ wr j gp" f kgf "35; : +"cti wgf "y cv" kv" y cu" ko o cvgtkcn'y j gyj gt" dqqmu" y gtg" tgcf "kp" Ncvkp" qt" y g" xgtpcewrct. "cu" mpi "cu" y g{"y gtg" gf kh kpi "cpf "y kyj kp" y g" tgcf gtøu kpygngewch i tcur 0 Cv" y g"uco g" ko g. "y g" go gti gpeg" qh" cp" kpetgcukpi n ("r qy gthwrio gtej cpv'ercuu" kp" y g" y pu" etgcvgf "c" f go cpf "hqt" dkripi wcn'cpf "gxgp" o wnkripi wcn'r j tcug/dqqmu. "qh" y j kej "y g" hqwt yggpyj / egpwt {"F wej / Htgpej "Nkxt g" f gu" o gukgt u" Dqqm'qh' vtcf gu+" ku" y g"hktuv'cwgurgf "ur geko gp0

# Vj g'Tgpckucpeg

Kp"y g"eqwtug"qh'y g'hkhuggpy "egpwt { "ugxgtcn'r ctvu"qh'y g"Nqy "Eqwpvtkgu"eco g'wpf gt"y g"eqpvtqn'qh'y g" Dwti wpf kcp'f wngu0'Vj g{ "ugv'qwv'vq"etgcvg"c"o qtg"egpvtcnk gf "cf o kpkuvtcvkqp"y j kej "wugf "Htgpej "cu"kwu"f qo kpcpv" ncpi wci g0/Cnj qwi j "j g"Dwti wpf kcpu'uj qy gf "rkwrg"kpvgtguv'kp"rkvgtct { "r cvtqpci g." vj g'uq/ecngf "Ej co dgtu'qh" Tj gvqtke."mkpf u"qh'nkvgtct{"i wknf u"hqt"y gm/vq/fq"dwtij gtu"yj kej "y gtg"kpvtqf wegf "kp"yj g"Nqy "Eqwpvtkgu"kp"yj g" hkhoggpyj "egpwxt { . "y gtg"o qf gmgf "qp"Htgpej "gzco r mgu"dqyj "kp"yj gkt "qti cpk| cwkqp"cpf "kp"yj g"v{r g"qh"y qtm"yj g{"  $r\,tqf\,wegf\,0"Vj\,gkt\,"qwwr\,ww'eqpvckpgf\,"c'uki\,pkhkecpv'pwo\,dgt\,"qh''tcpurcvkqpu''htqo\,"vj\,g''Htgpej\,."cpf\,"vj\,g''j\,ki\,j\,"r\,tqr\,qt\,vkqp''$ qh'Htgpej 'mcpy qtf u'kp''y gkt'xqecdwrct { 'ku'kpf kecvkxg''qh''y g'y gki j v'qh'Htgpej 'cv'y ku'vko g0 nkhg. "dww'kv'f kf "pqv'ko o gf kcvgn( 'hgcf 'vq'\tcpurcvkqpu0'Vj g'xgt { 'hktuv'r tkpvkpi 'r tguugu'kp''yj g'Nqy 'Eqwpvtkgu'y gtg'' ugv'wr 'kp'uo cm'pqtyi gtp''vqy pu='yi g{ 'r wdrkuj gf 'o quvn{ 'Ncvkp''dqqmu''dwv'kv'uqqp''dgeco g'engct''yi cv'yi g''nqecn' o ctmgw'y gtg'vqq'nko kgf. 'dqyj 'hkpcpekcm( "cpf 'kpvgmgewcm( .'vq'uwrrqtv'uwej "gzrgpukxg"gpvgtrtkugu0Kp''yjg' ukz vggpvj "egpwt{."Cpw gtrô d{"pqy "vj g"o ckp"geqpqo ke"cpf "r qr wrcvkqp"egpvtg"cpf "c"ewnwtcn'o gvtqr qrku"/ dgeco g''yi g''o quv'ko r qtvcpv'r wdrkuj kpi 'egpvtg'kp''yi g'Nqy 'Eqwpvtkgu0J gtg''dqqmu'eqwrf ''dg''r tkpvgf 'hqt'' kpygtpcykapen'o etngwi'kp"e"tepi g"qh'hepi wei gu"epf "qhygp"kp"o wnykrkpi wen'hato 0'Kk'y eu'j gtg"enuq'yj ev'htqo "etqwpf" yj g'o kffrg"qh'yj g'ukz vggpyj "egpwxt{"yj g'Gwxtqrgcp'Tgpckuucpeg'y qwxf'dg'vtcpurcvgf'kpvq'Fwej 0'Vj g'o qfgtp" F wej 'xgtd''xgt w ngp'ku'hktuv'cwguvgf 'kp'kw'ewttgpv'o gcpkpi '\*vq''vtcpurcvg+'kp''y ku'r gtkqf 0

Ncyt''kp''y g''ukz'ygpyj "egpwt{"o wej "qh''y g''tcpurc'wqp''cevkxk\{"cuuqekcygf 'y ky 'y g''dtgcm'y tqwi j "qh''y g'' Tgpckucpeg''kp''xgtpcewrct "ewnwtg''y cu''kpygpf gf 'hqt''y g''uco g'\{r g''qh''cwf kgpeg0'Y j gtgcu''y g''J wo cpkuv'' kpygngewcn'² rksg''wgf "Ncytp''cu''ku''o gf kwo "cpf "xctkqwu''r qr wrctk| kpi "cpf "ej cr dqqmi'xgtukqpu''kp''F wej "cr r gcrgf" vq''c' o qtg''tcf kkqpcni'r wdrke. "y g''tcpurc'wqpu''htqo "y g''Ercuukeu''y j kej "dgi cp''q''cr r gct''kp''Cpw gtr "ctqwpf 'y g" o kf f rg''qh'y g''egpwxt { "y gtg''clo gf "cv'c''r tqur gtqwu''cpf "ewnwtcm\{ "r tqi tguukxg''wtdcp''² rksg0'Vj g''hktuv'o clqt" vtcpurc'yqh'y g''ercuukeu''kpyq''F wej "y cu''y g''Cpw gtr "Tj gvqtkekcp''Eqtpgrku''XCP "I J KUVGNG''\*e'68732695+." y j q''kp''y g''3772u''cpf "3782u''r tqf wegf "eqo o gtekcm\{ "uweeguuhwritgpf gtkpi u''qh'y qtmu''d\{ "Qxkf.''Xkti kn''Vgtgpeg" cpf "J qtceg."cu''y gm'cu''qh'GTCUO WU''cpf ô xkc''c''Ncytp''xgtukqpô Uqr j qergu0'Kp''j ku''r tghcegu''xcp''I j kuvgrg'' ej kf gf "y g''I wo cpkuvi'hqt''y tkklpi "qpn\{ "lp''Ncykp''cpf."cv'y g''qy gt "gpf "qh'y g''uccng."xqkegf "J ku''eqpvgo r v'hqt'' -y qtyi rguux'o gf kgxcn'tqo cpegu''cpf "qy gt "gpygtyckpo gpv'hkgtcwtg0I g'Iwwkhlygf "j ku''qy p'y qtm'd\{ "r qkykpi "pqv'' qpn\{ "q''y g''kpytkpuke''o gtkx'qh''j ku''qtki kpcm''dw''cmq''q''tcpurc'kqpu''dgkpi "r wdrkıj gf "kp''qy gt''o qf gtp''rcpi wci gu0' V\{ r kecn'qh''y g''gtrukk\{ "hrgzkdkk\{ "cpf "cdwpf cpeg"qh''y g''ercuukecn''rcpi wci gu0' v\qr verg'' y kij "y g'r wtk\{ .'hrgzkdkk\{ "cpf "cdwpf cpeg"qh'y g''ercuukecn''rcpi wci gu0'

Cpqyi gt "r j gpqo gpqp"qh"kpetgcukpi "ko r qt wpeg"y cu'yi g"t cpurc kqp"qh"yi g"Dkdrg."o quvn{"d{"Rtqvguvcpvu."ukpeg" yi g"Rtqvguvcpv'gyi ke "gzr gevgf "dgrkgxgtu"vq"j cxg"f ktgev'ceeguu"vq"yi g'y qtf "qh"I qf 0"Kp"yi g"gctn{"r j cugu"qh"yi g" Tghqto cvkqp"c"F wej "xgtukqp"f gtkxgf "htqo "NWVJ GTøU"I gto cp"Dkdrg"\*ugg" GTOCP "VTCF KVKQP +"y cu" eqo o qpn{"wugf 0"Htqo "yi g"3782u"qpy ctf u"yi g"uq/ecmgf" ":Vy q"Ceguø'Dkdrg"y cu'y kf gn{"tgcf 0"Vj ku'y cu"c"j {dtkf" rtqf wev."kp"y j kej "yi g"Qrf" Vguvco gpv'y cu"dcugf "qp"Nwj gt"cpf" yi g"P gy "Vguvco gpv'j cf "dggp" tcpurc vgf "qp"xgt {"fkhqtgpv'r tkpekr rgu"htqo "yi g"qtki kpcn"I tggn0"C"

uvcpf ctf 'xgtukqp'f kf 'pqv'eqo g'cdqw'wpvkn'y g'ugxgpvggpy 'egpwt { . 'y j gp''y g'F wej 'Uvcvgu'I gpgtcn' eqo o knukqpgf "cp"gp\ktgn("pgy "\tcpurc\kqp"y j kej "y cu"\q"dg"ecttkgf "qwv"cmpi "nkpgu"uko krct"\q"\j g"Gpi nkuj " Cwj qtk gf "Xgtukqp."k0g0r tgr ctgf "d{"c"eqmgevkxg."cpf "cu"emqug"\q'vj g"uqwteg"\gz vu"cu"vj g"tgekr kgpv'ncpi wci g" y qwrf 'r gto kolVj g'F wej "∹Ucvgu'Dkdrgø'cr r gctgf "kp'38590"koly cu'j wi gn{ "kphrwgpvkcn'cu'c"nkpi wkuvke "cpf "ewnwtcn" r qkpv'qh'tghgtgpeg. "cpf "tgo ckpgf "vj g"uvcpf ctf "F wej "Dkdrg" wpvkn'vj g'vy gpvkgvj "egpwxt {0 D{''y g''ko g''y g''÷Uvcvgu'Dkdrgø'cr r gctgf.''y g''Gki j v{'[gctuø'Y ct'j cf''twp''o quv''qh''kxu''eqwtug.''y g''F wej 'Tgrwdrke'' j cf 'i ckpgf 'kpf gr gpf gpeg."cpf 'y g'r qrkken 'geqpqo ke 'cpf 'ewnwtcrlegpvtg'qh'y g'Nqy 'Eqwpvtkgu'j cf 'uj khvgf '' f gekukxgn( "htqo "yj g'uqwj gtp"\q'yj g'pqtyj gtp"P gyj gtrcpf u. "cpf "\q"J qrcpf "kp"r ct \kewrct0Co uvgtf co "j cf"  $tgr\, megf\,'Cpw\,\,gtr\,'cu''yj\,\,g''pgy\,\,''r\,\,wdrkuj\,\,kpi\,\,''ecr\,kcr0/C''uwr\,tc/tgi\,\,kqpcrl'F\,\,wej\,\,''uvcpf\,ctf\,\,''mpi\,\,wci\,\,g''y\,\,cu''i\,\,tcf\,\,wcm\{\,''',\,\,w'',$  $\label{thm:condition} $$\operatorname{ch}_{0}'' = g.'' = g.''$ cpf "vj g'r qy gt "qh'c "ugnh/eqpuekqwu"cpf "j ki j n{ "nksgtcvg"o gtej cpv'encuu"kp "kx."o gcpv'vj cv'vj g'f go cpf "hqt" vtcpurcvkqpu'eqwrf ''qpn( 'kpetgcug0'Kp''y g'hktuv'f gecf gu''qh''y g''ugxgpvggpy ''egpwt { ''F wej ''ewnwtg''eqpvkpwgf ''y g'' f grkdgtcvg'hgctpkpi 'r tqeguu'cuuqekcvgf 'y kj ''y g'xgtpcewrct'Tgpckuucpeg''qh''y g''ukzvggpyj 'egpwt { .''dww'uqqp'' ko kscvkqp"wtpgf "kpvq"go wrcvkqp0"Vj g"o gtecpvkrg"dcug"qh"vj g"F wej "geqpqo { "cpf" 'vj g"etgcvkqp"qh"c"ugcdqtpg" eqo o gteken'go r ktg'hquvgtgf "cp"cevkxg"kpvgtguv'kp"r teevkeen'mpqy ngf i g"cpf 'kp" y kpi u'hqtgki p0O qtgqxgt. 'kp" y g" r qrkkecm("cpf 'kf gqmi kecm("vqrgtcpv'erko cvg"qh'vj g'F wej "Tgr wdrke."vj g'uekgpegu'cpf "o qf gtp'r j krquqr j {" hnqwtkuj gf. "cpf "ukpeg"d { "pq"o gcpu"cm" y g"dwti j gtu"qh" J qncpf "tgcf" Ncvkp"qt" Htgpej. "vtcpurcvkqpu" y gtg"ecngf "hqt0 Vjg'rtqfwevkqp"qh'vjg"ugxgpvggpvj/egpwt{"∹ctej/vtcpurcvqtø'Icp"Jgpftkmu| 'INC\GOCMGT"\*383; 1426: 4+'ecp" kmwutcvg" yi ku'y kf g/tcpi kpi "kpvgmgewcn'j wpi gt0I nc| go cngt." y j q"htgs wgpvgf "yi g"kpvgmgewcn'² nkvg" f gur kvg'j ku" o qf guv'uqekcn'dcemi tqwpf ."y qtmgf "o quvn{ 'htqo "Ncvkp"cpf "Htgpej ."qeecukqpcm{ "cnuq"htqo "I gto cp"cpf "Kicnkcp0" Kp"cm"j ku"tcpurckqpu. "y j kej "tcp" 'q"qxgt" 82" 'kxrgu. "j g"y tqvg" c"eqpuekqwun("r wtkuv" F wej 0.7 ku"r tqhguukqpcrkuo "ku" gxgt {y j gtg"crrctgpv."cpf "j g'htgs wgpvn{"etkkek| gf "qnf gt"\tcpunc\kqpu'hqt"kpceewtcekgu."r tkf kpi "j ko ugnh'qp" eqpuwnkpi "gzknkpi "xgtukqpu'kp"qyj gt 'hcpi wci gu'cu'y gm0Cv'yj g'uvctv'qh'j ku'ectggt. 'kp'3865. 'j g''xtcpurcvgf "c''Ncvkp" vgzv<sup>1</sup>/4gi p'Dcterc { øu' Ct i gpku+'xkc''yi g'Htgpej = 'j g'tgwtpgf 'vq'kv'kp'38: 2. 'pqy 'tgpf gtkpi 'kv'f ktgevn{ 'htqo 'Ncvkp0' Qtki kpcni'kp'I tggm'Rqtwi wgug''qt''Gpi rkuj .'j qy gxgt.'j g'\tcpurcvgf 'xkc'Ncvkp''qt''Htgpej 'kpvgto gf kcvg''xgtukqpu0' Inc| go cngt øu'gctn{''y qtm'tcpi gf''y kf gn{.''cpf''gpeqor cuugf''o quvn{''j kuvqt{.''f kf cevke''y qtmu'cpf''tcxgn'dqqmu0'Kp'' 387: 'j g'dtqwi j v'qwi'y g'S wtø p'kp'F wej .'y qtmkpi 'htqo 'y g'Htgpej 'xgtukqp'd { 'y g'qtkgpvcnkuv'Cpf t² 'f w'T { gt'' \*3869+0'Y j krg"\tcpurc\kqpu'rkng'\j gug'r tqdcdn( 'uc\kuhkgf '\j g'i gpgtcn'kp\ygngewcn'ewtkquk\{ ''qh'j ku''qwy ctf/mqmkpi " cwf kgpeg. "yj g"kpvgpug"r j krquqr j kecn'f gdcvgu"qh"vj g"ncwgt"j crh"qh"vj g"ugxgpvggpvj "egpwt { "y gtg"t gnc { gf "vq"F wej " tgcf gtu'y kj qw'uwhkekgpv'mpqy ngf i g'qh'hqtgki p'ncpi wci gu'kp'c'nqpi 'ugtkgu'qh'\tcpunc\kqpu'qh'xktwcm( ''y g'' eqo r ngvg'y qtmu'qh'O qpvcki pg. "F guectvgu'cpf "Ur kpq| c0O cp{ ''qh'F guectvguø'Ncvkp'y qtmu'j cf ''dggp''vtcpurcvgf " kpvq"Htgpej."cpf" jku"Htgpej "yqtmu"kpvq"Ncvkp="Inc|gocngt"wugf"dqvj"xgtukqpu"yjgpgxgt"rquukdng."eqpuwnkpi" o cyj go cykekcpu. "o wukeqnqi kuvu"cpf "qyj gt 'ur gekcrkuvu"cu"yj g"pggf "ctqug0J g"y cu'wpf qwdygf n{ 'yj g'hktuv' r tqhguukqpcn'tcpuncvqt'kp'F wej 0 Vj g'o ckp'nksgtct { "tcpuncvqt"qh'vj g'r gtkqf 'y cu'cti wcdn( "Iqquv'XCP 'F GP "XQP F GN"\*37: 96389; +: 'i gpgtcm(" tgi ctf gf "cnuq"cu" y g"i tgcvguv'r qgv'cpf "r rc{y tki j v'qh"j ku"ci g0J ku"y qtm"cu"c" tcpurcvqt "kmwuxtcvgu"uqo g"qh" y g" nkıgtct { "r tgqeewr cıkqpu"qh"yi g"klo g"cpf "yi g"enqug"kpvgtcevkqp"dgwy ggp"\tcpurcvkqp"cpf "qtki kpcn"y tkıkpi 0"Y kıj "j ku"

tgi ctf gf "cnq"cu"y g" i tgcyguv"r qgv'cpf "r re {y tki j v'qh"j ku"ci g0J ku"y qtm"cu"c" 'tcpurevqt 'kmwutcygu'uqo g"qh"y g" nkytct { "r tgqeewr cwlqpu"qh"yi g" wo g"cpf "yi g"emqug"kpytcewlqp"dgwy ggp"vtcpurevkqp"cpf "qtki kpcn"y tkwlpi 0"Y kyj "j ku" o qf guv"dcemi tqwpf "cpf "nko kyf" uej qqnkpi ."Xqpf gn"y gpv"vq"i tgcv"rgpi yi u"vq"rgctp"hktuv"Ncwp"cpf "yi gp"I tggm"cu" j ku"kf gcu"cdqww"nkytcwutg"o cwutgf 0"Gctn("qp."kp"yi g"3842u."y j gp"j g"y cu"y tkwlpi "F wej "vtci gf kgu"kp"yi g"Ugpgecp" xgkp. "j g"vtcpurevgf "y q"qh"Ugpgecøu"r re {u0"Hqmqy kpi "yi g"vtcpurevkqp"kp"3857"qh"yi g"P gq/Ncwkp"r re { "Uqrj qo rcpgcu"d{ "j ku"eqo rcvkqv"J wi q"I tqwxu."Xqpf gn"y tqvg"y q"hwtyi gt"r re {u"eqpegtpkpi "yi g"dkdnlecn" Iqugr j ."cpf "yi g"yi tgg"y gtg"qhvgp"r gthqto gf "vqi gyi gt"kp"yi g"Co uvgtf co "yi gcvtg0"Y j gp"j ku"J wo cpknv"htkgpf u" j grr gf "j ko "f kueqxgt"I tggm"vtci gf { "j g"vtcpurevgf"Uqr j qerguø"Grgevt c"cpf "dgi cp"eqpuekqwun("vq"f gxgmr "cp" Ctkwqynlcp"v{ r g"qh"vtci gf { "kp"F wej 0"Cr ctv"

htqo "c"pwo dgt"qh"tcpurckqpu"kpensk kpi "J qtcegøu"r qgo u"cpf "Qxkf øu"J gt qkf gu"f qpg"r wtgnf "cu"r tkxcvg"gz gtekugu" j g"cnq"tgpf gtgf "cm"qh"Xkti krikpvq"F wej ."htuv"kp"r tqug"\*3868+"cpf "vj gp"kp"xgtug"\*3882+"dghqtg"i qkpi "qp"vq" y tkg"j kr"qy p"Ej tknkcp"gr ke"Lqj p"vj g"Dcr kuv"\*3884+0J kr" rcf "Lgr y c"\*387; +"cp"go wrckqp"qh"I gqti g"
Dwej cpcpøu"ukz vggpvj /egpwt { "P gq/Ncvkp"r rcf "Lgr y gu "y cu"eqpegkxgf "cu"cp"Ctknvqvncp"o qf gn'vtci gf { ."cpf" Xqpf gn'y cu"unkm"vtcpurcvkpi "Uqr j qergu"cpf "Gwtkr kf gu"kp"vj g"3892u."y j gp"j g"j cf "tgcej gf": 20
D{ "vj gp."j qy gxgt."vko g"j cf "r cuugf "j ko "d{ 0"Vj g"r qr wrct "dqz/qhhkeg"uweeguugu"qp"vj g"Co uvgtf co "uvci g"y gtg" pqp/ercuulecn"r rcf u. "co qpi "y j kej "vtcpurcvkqpu"qh"Ur cpkuj "eqo gf kgu"cpf "vtci keqo gf kgu"ueqtgf "j ki j nf 0Ctqwpf" 3892"j qy gxgt"vj gf "vqq"j cf "vq"o cng"y cf "hqt"vj g"pgy "ewnwtcnhcuj kqp0Cu"Htcpeg"dgeco g"vj g"f qo kpcpv'r qy gt" kp"Gwtqr g. "Htgpej "Ercuulekuo" y cu"kpvtqf wegf "kpvq"vj g"P gvj gtrcpf u"xkc"c"rcti g"pwo dgt "qh"vtcpurcvkqpu0O cpf "qh" vj go "y gtg"f gnkdgtcvgnf "o cf g"vq"tgr rceg"gzknvkpi "xgtukqpu"y j kej "f kf "pqv'hqmqy "vj g"twrgu"qh"Htgpej /Ercuulekuv" r qgvkeu0Vtcpurcvkqp"ecp"tctgnf "j cxg"r rcf gf "c"o qtg"qr gpnf "r qngo kecn'cpf "hqto cvkxg"tqng"vj cp"cv'vj ku"vko g0Vvj g" vtkwo r j "qh"Htgpej "Ercuulekuv" kp"vj g"Co uvgtf co "vj gcvtg"y cu"eqo r ngvg<kp"uwdugs wgpv"f gecf gu"vj g"pwo dgt"qh" vtcpurcvkqpu"eqpukuvgpvnf "gzeggf gf "vj cv'qh"qtki kpcn'y qtm0

### Vj g'b qf gtp'r gt kqf

Vj g'ewnwtcn'f qo kpcpeg''qh''Htcpeg''eqpvkpwgf 'hqt''y g''dgwgt''r ctv''qh''y g''gki j vggpyj ''egpwt{0'Cv''y g''uco g''ko g.''y ku'' xgt{"f qo kpcpeg''dtqwi j v'cdqwv''c''egtvckp''r cvtkqvke''tghrgz.'y j krg''qyj gt'hqto u''qh''gzr tguukqp''eqwpvgtcevgf ''y g'' Htgpej ''o qpqr qn{ 'kp''r ctvkewrct''f qo ckpu0'Cu''c''tguwrv.''c''o qtg''f khhgtgpvkcvgf ''r kewrtg''go gti gu0'F wej ''ewnwtg'' j gpeghqtyj ''vcpurcvgf ''htqo ''c''f khhgtgpv'tcpi g''qh''uqwteg''ncpi wci gu.''cpf ''i gptg''f kuvkpevkqpu''dgeco g''o qtg'' ko r qtvcpv'kp''y g''ugngevkqp0

Y kj "j g'hwtyj gt"gzr cpukqp"qh"gf weckqp"cpf "hkgtce{"j g'hqecn'o ctngv'hqt"F wej "dqqmu'eqpvkpwgf" q'i tqy."cv'c" vko g'y j gp''y g'Tgr wdrke''dgeco g''o qtg''y cp''gxgt''cp''kpvgtpcvkqpcn''o wnkrkpi wcri'r wdrkuj kpi 'egpvtg0'Vj g'' Co uvgtf co "r wdrkuj gt "Kucce" Vkt kqp "\*3927687+" y qwrf "dg" y g"hkt uv 'vq 'r wdrkuj "gzenwukx gn ( "dqqmu 'kp 'F wej 0 Vj g" r j gpqo gpqp'ku'tgrcvgf 'vq'vj g'i tcf wcn'f genkpg'qh'Ncvkp'cu'vj g'qdxkqwu'ewnwtgf 'o gf kwo .'cpf 'kw'tgr rcego gpv' y ký "dqý "Htgpej "cpf "F wej 0'Y j gtgcu"kp"ý g"htuv"j crh"qh"ý g"ugxgpvggpý "egpwt { "ý g"r tqr qt vkqp"qh"F wej "cu" ci ckpuv'Ncvkp''dqqmu'r tkpvgf 'kp''J qmcpf 'y cu''cr r tqzko cvgn( '9''vq''3.'kp''yi g''ncvgt''j crh''qh''yi g''egpwxt { 'kv''j cf ''crtgcf { '' ej cpi gf "\q"c"r tqr qt \kqp"qh"4"\q"30"Vj g"\tgpf "eqp\kpwgf" \kp"\j g"hktuv"j cm"qh"\j g"gki j vggp yj "egp wt { ."y j gp"\j g"tc \kq" qh'F wej 'xgtuwu'Ncvkp'dqqmu'dgeco g'4'vq'30Kp'vj g'pgzv'72"{ gctu'F wej 'dqqmu'qwpwo dgtgf 'y qtmu'kp'Ncvkp'd{ " 8"vq"30"Htgpej."qp"vjg"qvjgt"jcpf."ergctn("uvtgpi vjgpgf"kvu"rqukklqp0"Hqmqykpi"vjg"tgxqecvkqp"qh"vjg"Gfkev"qh" P cpvgu'lp'38: 7"Htgpej 'J wi wgpqui'hrgf 'vq'vj g'F wej 'Tgr wdrle'lp'uwej 'pwo dgtu'vj cv'lp'Co uvgtf co 'cnqpg'cp' guvko cvgf "42"dqqmuj qr u'qwv'qh'c 'vqvcn'qh'uqo g"472"uqnf "cno quv'gzenwukxgn{ "Htgpej "dqqmu0  $P\ gxgt\ y\ grguu'\ y\ g'f\ go\ cpf\ ''hqt'F\ wej\ ''tcpurc\ kqpu''eqp\ kpwgf\ ''q''kpetgcug.''r\ ct\ kewrctn (\ ''co\ qpi\ ''y\ g''dqwti\ gqkukg''y\ kyj\ ''$ yj gkt 'kpvgtguv'kp'f ki guvkdng'xgtukqpu'qh'yj g'pgy 'kf gcu'kp''yj g'uekgpegu'cpf 'r j kmquqr j { .''cpf 'kp''yj g'pgy 'hqto u'qh'' nksgtct { "r tqug0"Wpvkrlctqwpf "vj g"o kf f rg"qh"vj g"gki j vggpvj "egpwxt { "Htgpej "y cu"vj g"o ckp"rcpi wci g"htqo "y j kej " F wej "tcpurckqpu'y gtg"o cfg. "gxgp" y qwi j "y ku'y cu'r tqdcdn ("o qtg" twg" kp"c" f qo ckp" hng" y g"ctwi y cp" kp. "uc (." tgrki kqp0'Dw: 'hqt''y g'hktuv'\ko g. 'Gpi rkuj "cpf "I gto cp'eco g'kpvq''y g'r kewtg0'Kp''y g'hkgrf ''qh'r qr wrct'r tqug. 'hqt'' gzco r ng. "tcpuncvgf "y qtmu"eqpukuvgpvn{"ceeqwpvgf "hqt"wr "vq" w q" y ktf u"qh" y g"vqvcn"r tqf wevkqp" y tqwi j qww" y g" ugxgpvggpvj "cpf "gki j vggpvj "egpwtkgu." y kj "Htgpej. "Gpi rkuj "cpf "I gto cp"cu" vj g"o ckp"uqwteg hcpi wci gu0 kp" vj g" muv's wctvgt "qh'vj g'gki j vggpvj "egpwt { . "j qy gxgt . "vj g'r tqr qt vkqp"qh'Htgpej "vtcpum vkqpu'f getgcugf "xgt { " Vtcpurcvkqpu'htqo 'Gpi nkuj 'tgo ckpgf 'kpuki pkhecpv'wpvkn'ctqwpf '3922.''vj gp''guvcdnkuj gf 'c'eqpuvcpv'r tgugpeg'hqt'' o quv'qh''y g''egpwt { ''cpf ''f gerkpgf ''qpn( ''vqy ctf u''y g''gpf ''qh''y g''r gtkqfô y j gp''Htgpej ''tgxqnwkqpct { ''cto kgu'j cf '' qxgttwp" y g"P gyj gtrcpf u0"Vtcpurcvkqpu" htqo "y g"I gto cp" j ctf n{"r rc{gf"c"r ctv"cv"cm" wpvkn"ctqwpf" 3992." dw"d{" yj g"gpf "qh"yj g"egpwt { "I gto cp"j cf "dgeqo g"hct"cpf "cy c { "yj g"o quv"ko r qt vcpv 'uqwteg 'hcpi wci g0"Vj g"r cwgtp" y qwrf 'tgo clp''y g'uco g'hqt'c'i qqf'y j krg<'qh'cm'y g'pqxgnu'r tlpygf'llp''J qmcpf'llp''

y g'3: 42u'cpf '3: 52u'qxgt'82'r gt'egpv'y gtg'\tcpurc\dqpu.'cpf 'qh'\y gug''ctqwpf '82'r gt'egpv'y gtg'\dcugf 'qp'I gto cp' qtki kpcnı0Kp'\y g'gctn\ 'pkpgvggpy /egpwt \ 'F wej ''y gcvtg'\qq.''y gm'qxgt''j cnh'\y g'r rc\u'y gtg'\tcpurc\dqpu0Co qpi '' y g'o quv'r qr wrct''cwj qtu'hqt'\y g'uvci g'y gtg'r tqrkhe'y tkxgtu'rkng'C0Y 0Khrcpf ''cpf 'Cwi wuv'xqp''Mq\y gdwg0' Dgwy ggp''39; 2''cpf ''3: 52''ctqwpf ''52''qh'Khrcpf øu''cpf ''pq'hgy gt'\y cp''342''qh'Mq\y gdwgøu'r rc\u'y gtg'\vcpurc\gf ''kpq'' F wej 0

Ko"y g"getn("gki j vggpyj "egpwt{"Opi nkij "o qf gnu"cpf "tcpurcvkqpu"ltqo "Opi nkij "r tqxgf "kplmvgpvkcn"kp"rewpej kpi "
ur gevcvqtkcn"y tkklpi u"kp"y g"P gvj gtrcpf uOCf f kuqp"cpf "Uvggrgøu"Opi nkij "Ur gevcvqt"y cu"tgpf gtgf "kpvq"F wej "kp"ku"
gpvktgv{ "kp"3942690Lwwwi"xcp"Chltep"\*38: 663957+:"y j q"j cf "cntgcf { "tkgf" j ku"j cpf "cv"c"Higpej /mpi wci g"
-Ur gevcvqtø'cpf "tcpurcvgf "F glagøu"Tqdkpuqp"Et wuqg"cpf "Uy khvtu"C"Vcng"qhtc "Vwd"kpvq"Higpej ."uvctvgf "c"xgt { "
uweeguulwn"F wej "Ur gevcvqt"kp"39530Kty qwrf "twp"vq"582"kuwgu"wpvkn"3957."cpf "y cu"hqmqy gf"d{"c"j quv"qh"
uko krct"r gtkqf kecm"kp"y j kej "gxgt { "uwdlgev"wpf gt"y g"uwp"y cu"f kwwungf 0Kp"cm"yj g"gki j vggpyj "egpwt { "ucy "uqo g"
92"ur gevcvqtkcn"ugtkgu. "dqvj "vtcpurcvgf"cpf "qtki kpcn"kp"J qmcpf"cmpgoVyj g"qvj gt"pgy "r tqug"i gptg."cpf "qpg"y kyj "
c"mpi gt"hwwtg."y cu"yj g"pqxgn0J gtg"Gpi nkij "cpf"I gto cp"o qf gnu."Ncwtgpeg"Uvgtpgøu"Uppvko gpvcn!Lqwtpgf"cpf"
I qgvj gøu"Y gt y gt "co qpi "yj go ."eqo dkpgf "q"i kxg"tkug"vq"c"F wej "y cxg"qh"ugpvko gpvcn!pqxgnu"cv"yj g"gpf "qh"yj g"
gki j vggpyj "egpwt {0Vyj g"gr knvqmt { "i gptg."kp"y j kej "Gpi nkij "gzco r ngu"r tgf qo kpcvgf ."ngpv'kugnh"r ctvkewrtn("y gm"
vq"c"r qtvc {cn'qh'dqwti gqku'xcnwgu"cpf "xktwgu0Vj g"dqqm'pqy "i gpgtcm("tgi ctf gf"cu'vj g"hktuv'o qf gtp"pqxgn'lp"
F wej ."Uttc 'Dwti gtj ctv'\*39: 4+"d "Dgvlg"Y qnth"cpf "Cci lg"F gngp."ecp"j ctf n("dg"ko ci kpgf"y kyj qw"
Tlej ctf uqpøu"gr knvqmt { "y qtmu"cu'r tgf gegunqtu0Dgvlg"Y qnth"j gtugnh "y j q"r tqf wegf "uqo g"3: 2"kkngu."r wdnkuj gf"
45"tcpurcvkqpu"ltqo "Gpi nkij ."Htgpej "cpf"I gto cp0

Kp"dtqcf "qwwlpg." 'y g"r cwgtp"qh" 'tcpurcwlqp" gwcdrkuj gf "lip" y g"gctn ("plipgyggpy "egpwt ("eqpylpwgf" lipvq" y g" w gpvkgyj O'Vtcpurcvkqpu'htqo "y g"ercuukecn'ncpi wci gu'tgvckpgf "j ki j "r tguvki g"dw'y gtg"pwo gtkecm{ 'urki j vO' Gpi nkuj ."Higpej "cpf "I gto cp"tgo clogf "yj g"o quv"ko r qt vcpv 'uqwteg 'ncpi wci gu. "gxgp" yj qwi j "yj gkt 't gnc vkxg" ko r qt vcpeg'ej cpi gf 'eqpukf gtcdn( 0'kp''y g''cdugpeg''qh't grkcdrg''dkdrkqi tcr j kecrl'uwt xg{ u''cpf ''qh''uwvf kgu''qh'' uwłhkekgpv'ueqr g'cpf "f gr yj "eqxgtkpi "yj g'xcuv'ctgc"qh'F wej/ncpi wci g'dqqm'r wdrkuj kpi "cpf "tcpunckqp"kp"yj g" pkpgvggpyi "cpf "vy gpvkgyi "egpvvtkgu."qpn( "qpg"qt" vy q"tcpf qo "cur gevu" ecp"dg" kpf kecvgf "j gtg0Cu" I gto cp" eco g"vq" dg"uggp"cu"c"o clqt "ncpi wci g"hqt" y g"uelgpegu"lp" y g"plpgyggpy "egpwt { ."ky"eqpuqnlf cygf "kxu"lpygtpcylqpcn"r qulxllqp" kp"qyj gt"tgur gewi'cu'y gm0O quv'qh'yj g'F wej "tcpurcvkqpu'qh'Uecpf kpcxkcp"y tkgtu'kp'yj g'hcwgt"j crh'qh'yj g" pkpgvggpyi "egpwt { . 'hqt "gzco r ng. 'y gtg"dcugf "qp"I gto cp"xgtukqpu0'Dw'kp"yi g"nkvgtct { 'hkgnf 'yi g'j kuvqtkecn'pqxgn' y cu'rcti gn( 'dqtpg'd{ ''tcpurcvkqpu'htqo 'Gpi nkuj .''cpf ''y g''tgcnkuv'cpf 'pcwtcnkuv'pqxgn'd{ ''Htgpej ''y qtmu0Kp''y g'' ncwgt "r ct v'qh' y gp vkgyj "egp wt { "y g"cuegpf cpe { "qh' Gpi nkuj "j cu'dggp "r ct vkewrctn { "pq vkegcdrg" kp "x kt wcm { "gxgt { "  $f\ qo\ ckp. \ 'ht qo\ ''y \ g'' \ key pegu'' cpf\ ''y \ g'' \ ctw'' q''y \ g'' \ kqxkwcn'' o\ gf\ kc0'Y\ j\ krg'' qxgt''y \ g'' \{\ gctu''y \ g''P\ gy \ gtrcpf\ u'' j\ cxg'' \ kqxkwcn'' o\ gf\ kc0'Y\ j\ krg'' qxgt''y \ g'' \{\ gctu''y \ g''P\ gy \ gtrcpf\ u'' j\ cxg'' \ kqxkwcn'' o\ gf\ kc0'Y\ j\ krg'' qxgt''y \ g'' \{\ gctu''y \ g''P\ gy \ gtrcpf\ u'' j\ cxg'' \ kqxkwcn'' o\ gf\ kc0'Y\ j\ krg'' qxgt''y \ g'' \{\ gctu''y \ g''P\ gy \ gtrcpf\ u'' j\ cxg'' \ kqxkwcn'' o\ gf\ kc0'Y\ j\ krg'' qxgt''y \ g'' \ g'$ dggp"co qpi "vj g"vqr "vgp"pcvkqpu"kp"vj g"y qtrf "kp"vgto u"qh"dqqm"r wdrkuj kpi ."uqo g"62"r gt"egpv"qh"vj g"vqvcri'pwo dgt" qh'F wej 'dqqmu'dtqwi j v'qwv'ctg''tcpurcvkqpu. 'cpf 'ctqwpf '42'r gt'egpv'qh'vj gug'ctg''tcpurcvgf 'htqo 'Gpi nkuj O'Kp''y g'' hkgrf "qh'rkxgtct { "r tqug." y gm'qxgt" j crh'vj g"vqvcn'pwo dgt "qh'vkxrgu'ctg" vtcpurcvkqpu. "cpf "qh'vj gug"ctqwpf "w q"vj ktfu" ctg'htqo 'Gpi nkuj 0

Kp''Hrcpf gtu. 'y j gtg'kp''y g''gki j vggpy ''cpf ''pkpgvggpy ''egpwtkgu''y g''wr r gt''gej grqpu''qh''y g''dqwti gqkukg''j cf '' cf qr vgf ''Hrgpej ''cu''y gkt''rcpi wci g''qh'ewnwtg. ''o wej ''r qr wrct 'tgcf kpi ''o cwgt''kp''F wej ''y cu''vtcpurcvgf ''htqo ''y g'' Hrgpej 0'Y j gp''Dgri kwo ''i ckpgf ''kpf gr gpf gpeg''kp''3: 52. ''y g''rcpi wci g''qh''y g''cf o kpkutcvkqp''y cu''y cv''qh''kwu''

rgcf kpi "encuugu. 'k0g0'Htgpej 0'Qxgt" yj g"pgzv'322" { gctu'qt" uq. "yj g"i tcf wcn'go cpekr cvkqp" qh' yj g'F wej /ur gcmkpi " r qr wrcwlqp"qh"Hrcpf gtu"o gcpv"vj cv"vtcpurcwlqp"ces wktgf "cp"cnxqi gyj gt"pgy "f ko gpukqp0"Hqnqy kpi "vj g"Gs wcnkv{" Ncy "qh'3:;:."y j kej "tgeqi pk gf" F wej "cmpi ukf g" Htgpej "cu' y g" eqwp vt { øu' qhhkekcn'hcpi wci g."c'o cuukx g" ghhqt v' qh' ngi cn'cpf "cf o kpkutcvkxg" tepurcvkqp" y cu'ugv'kp" o qvkqp. "cpf "eqpvkpwgu" 'vq" vj ku" f c {0 Cm'pcvkqpcn'ncy u"ctg" ko o gf kcvgn( "vtcpurcvgf 'kpvq" vj g" qvj gt 'rcpi vci g. "cpf "vj g" pcvkqpcn' Rctnkco gpv'j cu'kvu' uko wncpgqwu'kpvgtr tgvcvkqp" ugtxkeg0'Y j gtgcu'F wej /ur gcnkpi 'Hrcpf gtu'cpf 'Htgpej /ur gcnkpi 'Y cnqpkc'ctg'pqy 'o qpqrkpi wcn'\gttkqtkgu.'kp'' yj g'dkrkpi wcn'ctgc''qh''yj g''ecr kxcn'Dtwuugnu''cm'qhhkekcn'f qewo gpvu''cr r gct''kp''dqyj ''rcpi wci gu0 Vjg'ujggt'xqnwog''qh'rtqhguukqpen'\tepunevkpi'kp''yjg''Pgyjgtnepfu''epf''Hnepfgtu''enuq''ngf''\q''\tepunevqtuø' qti cpk cvkqpu'dgkpi 'guvcdrkuj gf 0Kp'J qrrcpf 'cp''cuuqekcvkqp''y cu'hktuv'ugv'wr ''cu''gctn( ''cu''3; 530'Vj g''r tgugpv'F wej '' Uqekgv{ "qh"Vtcpurcvqtu"y cu"hqwpf gf "kp"3; 78="F wej "hkgtct { "\tcpurcvqtu"j cxg"\j gkt "qy p"\ugevkqp"kp"\j g"Uqekgv{ "qh" Cwij qtu0Vjg":Dgni kcp"Ej co dgt 'hqt"Vtcpurcvqtu. "Kpvgtrtgvgtu"cpf 'Rj krqrqi kuvuø"y kvj "Hrgo kuj "cpf "Htcpeqrj qpg" uwdf kxkukqpu."eco g'kpvq'dgkpi 'kp'3; 770Vj g'F wej 'cpf 'vj g'Dgni kcp"cuuqekcvkqpu"gcej 'j cxg'vj gkt"qy p" r wdrkeckqpu. "cpf "dqvj "ctg"chhkrkcvgf "vq"vj g"H F TCVKQP "KP VGTP CVKQP CNG"F GU"VTCF WE VGWTU"\*HKV+0 Kp"y g"P gyj gtrepf u'y g'r tgurki kqwu'O ctrkpwu'P klj qhh'Rtk g"hqt"rkxgtet { "trepurerkqp"y eu guvedrkuj gf "kp"3; 75."cpf" ugxgtcn'F wej "eqo r cpkgu"j cxg"f gxgrqr gf "cpf "o ctmgvgf "o cej kpg" \tcpurc \kqp"u{ uvgo u0'Ukpeg' \kj g'3; 72u'cpf" 3; 82u'c'pwo dgt'qh'j ki j gt'gf wecvkqp'kpuvkwwgu'hqt''y g''tckpkpi ''qh''tcpurcvqtu'j cxg''dggp''ugv''wr 'kp''dqyj ''eqwpvtkgu0' Vj g'ncuv'vy q'f gecf gu'cnuq'y kapguugf 'c'tgo ctnocdrg'hrqwtkuj kpi 'qh'vj g'pgy 'f kuekr nkpg'qh'vtcpurcvkqp'uwvf kgu'kp'vj g' Nqy 'Eqwpvtkgu0

### Hwt yj gt 't gcf kpi

F g'T {pen'cpf "Y gmgpj w{ ugp '3; ; 4='J gto cpu'3; ; 3d.'3; ; 3e='Mqtr gn'3; ; 5c='xcp'J qqh'3; ; 30

VJ GQ'J GTO CPU

# Dkqi tcrj kgu

GTCUO WU'qh'Tqwgtfco.'Fgulfgtlwu'\*368963758+.''vjg'i tgcv'equo qrqrkcp'J wo cpkuv.'flf'pqv'dgi kp''vq''rgctp'' I tggm/wpvkn/j g"y cu"ctqwpf "520°Co qpi "j ku"o quv"uweeguuhwn/gctn("/tcpurcvkqpu"htqo "I tggm/kpvq"Ncvkp"y gtg"y g" uc liktecn'f konqi wgu'qh'Nwekop'qh'Uco quovg. "dgi wp'kp"o'r ro{hwn'eqpvguv'y kij "Vj qo cu'O qtg. 'hktuv'r wdnkuj gf 'kp" 3728"cpf "c"r qr wrct "uej qqn/dqqm'\gzv'kp"ku'tgxkugf "cpf "gprcti gf "3736"gf kxkqp0"J ku'\tcpurc\kqpu'qh'Gwtkr kf gu" \*J gewdc"cpf"Krj ki gpkc"kp"Cwku-"cnuq"crrgctgf"kp"3728."cpf"jg"\cemgf"c"pwo dgt"qh'ujqtvgt"\tcpurcvkqpu"cu"ygm" \*Nkdcpkwu."Knqetcvgu."gki j v'qh'Rnwctej øu"*Oqtchk*c"guuc{u+0/Gtcuo wuø'uwrtgog"cej kgxgogpv."jqygxgt."ycu'yjg" o qpwo gpwn'cpf 'eqpvtqxgtulcn'y qtm'qp'y g'P gy 'Vguwco gpwlp'y g'uwo o gt'qh'3726'j g'j cf 'f kueqxgtgf 'c''  $o\ cpwwetkr\ v'eqr\ \{\ ''qh''Nqtgp|\ q''Xcmcøu'r\ j\ kmmi\ kecn'etksks\ wg''*y\ tkswpp''ctqwpf\ ''3672+''qh''y\ g''Ncvkp''xgtukqp''qh''y\ g''$ Pgy "Vguvco gpv'kp"IGTQO GøU"Xwri cvg"\*ugg"<u>NC VKP "VT CF KVKQP</u>+0'Gtcuo wu'ucy "kv'kpvq"r tkpv'nguu'vj cp"c"{gct" ncvgt."cpf "eqpvkpwgf" "Xcncøu'r kqpggtkpi" y qtnØJ g"eqncvgf" cpf "etkkecm("eqorctgf" gctn("I tggm'o cpw.etkrv" xgtukqpu'qh'vj g'P gy 'Vguvco gpv'uq'cu'vq'guvcdrkuj 'c'tgrkcdrg'uqwteg'vgzv.'cpf 'ugv'qwv'vq'r tqf weg'j ku'qy p'' eqr kqwun("cppqvcvgf" 'tcpurcvkqp. "kpvgpf gf" 'cu'c'eqttgevkqpô pqv'c'tgr rcego gpvô qh'I gtqo gøu'vgz v0'Vj g'dqqm' y j kej "crrgctgf "kp"3738"eqpvckpgf "vjg"hktuv"I tggmlP gy "Vguvco gpv"gxgt"r wdrkuj gf "\*vjqwij"pqv"vjg"hktuv"gxgt" rtkpvgf +"vqi gvj gt"y kvj "Gtcuo wuo"Ncvkp"vtcpuncvkqp"cu"y gm"cu"cppqvcvkqpu."etkvkecn"eqo o gpvct { ."cp"crqnqi kc"hqt" yj g'I tggmlcpf "Ncvkp" vgzvu 'cpf 'c"o gyj qf qnqi kecn'kpvtqf wevkqp0C"o cp"kp"c"j wtt {. 'Gtcuo wu'uvctvgf 'tgxkukpi "cpf" gzr cpf kpi "yj g"dqqm'cu'uqqp"cu'yj g"kpm'y cu'f t { = "yj g"f ghkpkkxg"hkhyj "gf kkqp"qh'yj g"*P qxwo "Vguxc o gpwo .* "y j kej " tcp''vq'5.222'r ci gu."cr r gctgf 'kp'37570

I NC\ GO CMGT.'Lcp'J gpf t kmi '\*383; 1'426: 4+"o c{"dg"tgi ctf gf "cu"y g"htuv"r tqhguukqpcn'vtcpurcvqt "kpvq" F wej 0J g"vtcpurcvgf "pgctn("92"dqqmu."o quvn("htqo "Htgpej "cpf "Ncvkp0"Vj g{"kpenwf g"hkevkqp"cpf "pqp/hkevkqp." encuukeu'\*Nkx{."Ugpgec."J qo gt."Rnwctej ô y g"ncwgt"y q"xkc"Ncvkp"xgtukqpu+"cu"y gm'cu"o qf gtpu'\*GTCUO WU." O qpvcki pg. "Rwi gv"f g"nc"Ugttg."gve0+0J ku"vtcpurcvkqp"qh"y g"Mqtcp"y cu"dcugf "qp"c"Htgpej "xgtukqp0"I nc| go cmgt" o cf g"c"o clqt"eqpvtkdwkqp"vq"y g"kpvgmgewcn"f gdcvgu"qh"j ku"f c{"y tqwi j "j ku"vtcpurcvkqpu"qh"y g"j ki j n{" eqpvtqxgtukcn"r j knquqr j kecn'y qtmu"qh"Ur kpq| c"

cpf 'F guect vgu0'kp' 'tcpurc vkpi 'F guect vgu' 'htqo '3778' qpy ctf u+'j g' 'qqm'i tgcv'r ckpu' 'q' y qtm'htqo 'cm'cxckrcdrg' xgtukqpu'kp' 'Ncvkp' 'cpf 'Htgpej .'cpf 'vq' f gxkug'r wtkuv' F wej 'vgto u'hqt'r j krquqr j kecn'eqpegr vu0

NGHGXGTG.'Cpf t² '\*3; 6763; ; 8+0'Vtcpurcyt"cpf "tcpurcytp" uej qrct0J cxkpi "tgcf "I gto cpke"repi wci gu"kp"j ku" pcvkxg"I j gpv"\*Dgri kwo +"cpf "rksgtct { "tcpurcytp"cv"Guugz "\*Dtkckp+"j g"o cf g"tcpurcytp" y gqt { "cpf "j kurqt { "j ku" o ckp"tgugctej "hkgrf "y j krg"vgcej kpi "cv"y g"wpkxgtukkgu"qh"J qpi "Mqpi ."Cpw gtr "cpf "hkpcm("Cwwkp."Vgzcu0J ku" \textit{Vtcpurcvkpi "Nkgtcwtg"\*3; 99+"qr gpgf "wr "y g"j kurqt { "qh"tcpurcvkqp" y gqt { "hqt" y g"Cpi rqr j qpg" y qtrf 0'Htqo "y g" o kf/3; 92u"qpy ctf u." j g"y cu"cuuqekcvgf "y ky "y g"f guetkr vkxg"cpf "vcti gv qtkgpvgf "crrtqcej "vq"y g"uwf { "qh" vtcpurcvkqp" l kf gqp"Vqwt { ."Iqu² "Nco dgtv"gv"cn0+" l'nqt" y j kej "j g"dgeco g"cp"ghtgevkxg"cf xqecvg0'Kp" y g"3; : 2u." j g" grcdqtcvgf "j ku"qy p"y gqtgvkecnhtco gy qtmhqt"uwf { kpi "gur gekcm("rksgtct { "vtcpurcvkqp."uggkpi "vtcpurcvkqp" urqpg" hqto "qh"+tgy tkkpi ø'co qpi "qy gtu."uvtguukpi "ewnwtcn'tcy gt"y cp"hkpi vkurke"cur gevu."cpf "f knewnukpi "vtcpurcvkqp" j kurqt { "kp"ygto u"qh"r qgvkeu."kf gqmi { ."r cvtqpci g"cpf "+wpkxgtug"qh"f kneqwtugø0J g"cr r rkgf "y gug"eqpegr vu"vq" xctkqwu"j knqtkecn'ecugu "\*Nghgxgtg"3; ; 4c+"cpf "vq"vtcpurcvkqp"vgcej kpi "\*3; ; 4e+0

XCP 'F GP 'XQPF GN.'Lqquv'\*37: 96389; + "vj g"o clqt"r qgv'cpf "r rc {y tki j v'qh'vj g"F wej "I qrf gp"Ci g. "y cu"cnq" c"r tqrkhe "tcpurcvqt0"J ku"gctn( "tgpf gtkpi u"y gtg"f qpg"htqo "Htgpej "cpf "Kcrkcp0"Kp"vj g"3842u"j g"r tqf wegf "vj g"hktuv" kpvgi tcn'vtcpurcvkqpu"kpvq"F wej "qh"vy q"r rc {u"d { "Ugpgec."cpf "y gpv'qp"vq"vtcpurcvg."d { "y c { "qh"gzgtekug."cm"qh" J qtceg" "kpvq"r tqug+"cpf "Qxkf øu" J gt qlf gu0"Vj ku"r tgr ctgf "j ko "hqt"j ku"f qwdrg"vtcpurcvkqp"qh"vj g"eqo r rgvg"Xkti krc" hktuv"kp"r tqug"\*3868+"vj gp"kp"xgtug"\*3882+0Cu"j g"gzej cpi gf "vj g"Ugpgecp"o qf gn"hqt"cp"Ctkurqvgrkcp"eqpegr vkqp" qh"vtci gf { "kp"j ku"qy p"f tco cvke"y tkkpi ."j g"vtcpurcvgf"Uqr j qerguø"Grgevt c"kp"385; "cpf "cpqvj gt"hqwt"r rc { u"d { "Uqr j qergu"cpf 'Gwtkr kf gu"kp"vj g"3882uô vj g"hktuv'uwduvcpvkcn'dqf { "qh"cpekgpv'I tggn"f tco c"vq"dg"tgpf gtgf "kpvq" F wej 0

XCP'I J KUVGNG.'Eqt pgrki'\*e03732695+'y tqvg'kp'Cpw gtr 'cu'c'o go dgt'qh'y g'mqecn':Ej co dgt'qh'Tj gvqtkeø' cv'c'vko g'y j gp'y g'ekv{ 'y cu'c'equo qr qrkxcp'egpvtg'qh'ewnwtg'cpf 'eqo o gteg0'Vj g'hktuv'Tgpckuucpeg''vtcpurcvqt'' kpvq'F wej .'j g'tgpf gtgf 'Qxkf øu'J gtqkf gu'\*3775+''Xkti knøu'Cgpgkf '\*3776.''3778+''y g''eqo gf kgu'qh''Vgtgpeg'' \*3777+''cpf 'J qtcegøu''Ucvktgu'\*378; +'kpvq''y g''y gp''r tgxcrgpv'xgtug'hqto u'hqt''cp'kpvgngewcm{ 'r tqi tguukxg'wtdcp'' 2rkxg0'J ku'xgtukqp''qh'Uqr j qerguø'Cpvki qpg'\*3777+''dcugf ''qp''c''Ncvkp''etkd.''y cu'y g'hktuv'vtcpurcvkqp''qh''c''I tggm' vtci gf { 'kpvq'F wej ='hguu'ceeqo o qf cvkpi ''y cp''j ku'qvj gt'vtcpurcvkqpu.''kv'r tqxgf ''vq''dg''xcp''I j kuvgrgøu''qpn{ '' eqo o gtekcn'hcknvtg0

XCP 'O CGTNCP V.'Lceqd'\*\*e\( \textit{B}\)452\( \textit{e}\) 3+"\( \textit{j}\) g"+\( \textit{l}\) g''-\( \text{l}\) g''-

VJ GQ'J GTO CPU

# H

# Hopkij 'ttcf kkqp

Hkprcpf "j cu'uj cr gf 'kwu'qy p'kf gpvkv{ 'kp'vj g'ur ceg'dgwy ggp'o clqt'ewnwtgu0'Uweeguukxg'r j cugu'qh'ewnwtcn'cpf "rhpi wkuvke'kphrwgpeg'j cxg'etgcvgf "c'uqekgv{ 'kp'y j kej "o wruk/ 'qt'dkrkpi wcrkuo "cpf 'tcpurcvkqp'j cxg'r rc{gf 'c" uki pkhkecpv'tqrg0

Htqo "y g"y kt vggpy "egpwt { "qpy ctf u."y g"f qo kpcpv'ewnwtcn'kphrwgpeg kp"Hlpncpf "eco g"htqo "Uy gf gp=hqt'hkxg" egpwtkgu'Hlpncpf y cu'r ctv'qh'y g"Uy gf kuj "tgcm "cpf "uj ctgf "kp"Uy gf gpøu'ewnwtcn'cpf "o krkct { "j kurqt { 0'Vj ku" r gtkqf "gpf gf "kp"y g"gctn( "pkpgvggpy "egpwt { ."y j gp"Uy gf gp"nquv'o krkct { "f qo kpcpeg kp"y g"pqty "vq"T wuukc "Hpncpf y cu'egf gf "vq"T wuukc kp"3: 2; ."vq"dgeqo g"cp"cwqpqo qwu'I tcpf "F wej { 'y ky kp"y g"Vuctkuv'Go r ktg0'Vj g" Hlppkuj "pcvkqpcrkuv'o qxgo gpv'i cy gtgf "urtgpi y "vqy ctf u'y g"gpf "qh'y g"egpwt { ."cpf "kpf gr gpf gpeg"y cu" f gentgf "kp"3; 390'Vj g"gctn( "f gecf gu"chvgt "kpf gr gpf gpeg"ucy "cp"kpetgcug"kp"I gto cp"kphrwgpeg."cpf "y ku" eqpvkpwgf "wr "vq"y g"gpf "qh"Y qtrf "Y ct"Vy q0'Vj g"f qo kpcpv'ewnwtcn'kphrwgpeg"ukpeg"y gp"j cu'dggp"Cpi nq/ Co gtkecp0

Vqf c{."Hprcpf 'ku'r tko ctkn{ "Uecpf kpcxkcp'kp" vgto u'qh'ku'ewnwtcn'qwnqn0Ku'Uy gf kuj "j gtkci g'ku'o cpkhgurgf 'kp" vj g'r tgugpeg'qh'c'Uy gf kuj /ur gcnkpi 'o kpqtkx{ "cpf 'kp''y g'hcev'y cv'Uy gf kuj 'ku'qpg'qh''y g'y q'qhhkekcn'pcxkqpcn' repi wci gu."cmpi ulf g'Hppkuj 0Qhhkekcn'f qewo gpw."pqxkegu."r tqf wev'f guetkr kqpu'cpf ''y g'hkng'cm'cr r gct'kp''dqy' repi wci gu."cpf ''xcpurcxkqp''dgwy ggp''y go 'ku''y wu'y kf gur tgcf 0Vj g'mpi /uvcpf kpi 'ewnwtcn'hpmu'dgwy ggp''Hprcpf'' cpf ''Uy gf gp'j cxg'o gcpv'y cv'y ku'xcpurcxkqp''cexkxk{ "j cu'dggp''tgrcxkxgn{ 'wpr tqdrgo cxke<'y g'rcpi wci gu'ctg''pqy'' ugo cpxkcm{ "emug."f gur kg'y g'' gpgxke'f khhgtgpeg0C wkwf gu''q''Uy gf kuj ''j cxg''tgo ckpgf ''co dkxcrgpv<'y g'' Uy gf kuj /ur gcnkpi ''² rkxg''ugtxgf ''kp''y g''pkpgyggpy ''egpwt{ ''cu'c'ej cppgn'hqt''Gwtqr gcp'kphrwgpegu."y j kej 'hgf 'kpvq'' y g''tkug''qh'Hkppkuj ''pcxkqpcrkuo ='qp''y g''qy gt''j cpf .''y g''nqpi ''egpwtkgu''qh''Uy gf kuj ''twrg''j cf ''r tgxkqwun{ "qduxtweyf'' y g''go gti gpeg''qh'Hkppkuj ''cu''c''pcxkqpcn'hcpi wci g0

Hlpropf øu'j kunqtkecm( 'r tgectkqwu'r qukkqp'dgwy ggp'Gcuv'cpf 'Y guv'ku'o cvej gf 'd{ 'vj g'tgrovkxg'kuqrovkqp'qh'vj g'' Hlppkuj 'ropi wci g0'Hlppkuj 'ku'c'Hlppq/Wi tkcp'ropi wci g."pqv'r ctv'qh'vj g''Kpf q/Gwtqr gcp'hco kn(='kv'ku'vj wu'' wptgrovgf 'vq'vj g'I gto cpke'ropi wci gu'vq'vj g'y guv'cpf 'vj g''Uroxqpke'qpgu'vq'vj g''gcuv0C''uvtqpi n( 'ci i nwkpovkpi '' ropi wci g. 'kv'ku'erqugn( 'tgrovgf 'vq'Guvqpkcp. 'cpf 'f kuvcpvn( 'vq'I wpi ctkcp0'Hlppkuj 'ku'vj g''pcvkxg'ropi wci g''qh''cdqw'' ; 5''r gt''egpv'qh'vj g''eqwpvt {øu''ewttgpv'r qr wrovkqp''qh'hkxg''o krrkqp0'Vj gtg''ctg''cdqw''522.222''Uy gf kuj /ur gcrrkpi '' Hlppu0

# Vj g'Uy gf kij 'r gt kqf '\*vq'3: 2; +

Hlppkij "cpf "Uy gf kij "ur gengtu" j exg'nkxgf "cmpi ukf g'qpg''cpqvj gt "kp" Hlppcpf "ukpeg''vj g''getn{ 'O kf f ng'Ci gu0' F wt kpi ''y g''Uy gf kij ''r gt kqf . 'Hkppkij /Uy gf kij ''dkrkpi wenkuo ''y eu''pqto en'eo qpi ''vj g''wr r gt "eneuugu" cpf " cf o kpkwtevkxg" eqtr u0'Qhhleken'f qewo gpwi'y gtg''kuwgf "kp" Nevkp. "nevgt "kp" Uy gf kij <'vj ku''o gepv''y ev''y g''Hkppkij / ur genkpi ''twten'r qr wnevkqp''j ef ''vq''tgn{ ''qp''engtmi''qt''qvj gt "gf weevgf ''r gqr ng''vq''vtepunevg''qt''kpvgtr tgv''hqt''vj go ''y j gp'' pgeguwet {0'Chvgt''y g''T ghqto evkqp. ''y g''uvewu''qh''Hlppkij ''y eu''tekugf . ''r et vlewretn{ ''hqmy kpi ''y g''hktuv''vtepunevkqpu'' qh''y g''Dkdng0

Ej tkukcpkk{ "j cf "eqo g"\q"H\propf "ctqwpf "y g"gpf "qh"\y g"hktuv'o kngppkwo ."dw"kv'y cu"pqv'wp\kn'y g"hknggpy " egpwt { "y cv"\y g"D\kdng"dgi cp"\q"dg"\tcpurc\yf "kp\q"\y g"xgtpcewrct0\Vj g"hktuv'\tcpurc\yt cpurc\yt "qh"cp{ "pq\yg" y cu"c"hknggpy / egpwt { "o qpm"pco gf "L3/pu"Dwf f g."y j q"\tcpurc\yf "r ctw"qh"\y g"D\kdng"\kp\q"Uy gf kuj 0 Vtcpurc\yqp"\kp\q"H\pp\kuj "dgi cp"\q"ces \wktg"

j kuqtkecn'ko r qtvcpeg''y kij "'y g''y qtm'qh''O kmcgn'CI TKEQNC''\*e03732679+."c''Nwj gtcp''tghqto gt"cpf 'hqwpf gt"qh'' nksgtct { "Hwpkij 0J ku''tcpurckqp"qh''y g''P gy "Vguvco gpv''cr r gctgf "kp"376: ."hqmqy gf "d{ "cdqw''c "s wctygt "qh''y g" Qrf "Vguvco gpv'kp"3773640°C "hqto gt"uwf gpv'qh''Nwj gt."Ci tkeqrc''tcpurcvgf "y kij "c'ergct''ugpug'qh''tgrki kqwu" o kuukqp. "kp"'y g''dgrkgh''y cv''y g''F kxkpg"Y qtf "uj qwf "dg"o cf g"ceeguukdrg''vq"cm'r gqr rg0'Kp"j ku''r tghceg''vq''y g''P gy "Vguvco gpv."j g'y tksgu''y cv'y g''Y qtf "uj qwf "dg"-r wdrke."eqo r tgj gpukdrg''vq"cm'o gp."cpf "eqpegcrgf "htqo "pq/ qpgø'\*\*tcpurcvgf +0'Kp"cf f kkqp."j g''uvcvgu''y cv'j ku''cko "ku''vq''hqmqy "y g''qtki kpcn'cu''erqugn("cu''r quukdrg0'Cmpi ukf g" y g''qtki kpcn'cu''erqugn("cu''r quukdrg0'Cmpi ukf g" y g''qtki kpcn'uqwteg''yzvu."Ci tkeqrc''cnnq''o cf g''wug''qh''gzknkpi "tcpurcvkqpu''kpvq"I tggm''Ncvkp."I gto cp"cpf" Uy gf kij <'y ku''ku''gxkf gpv'kp"j ku''Hlppkij ."y j kej "kpvtqf wegf "pgy "mcpy qtf u''cpf "o cpkhgurgf "uqo g''i tco o cvkecn' hgcwtgu''y j kej "y gtg''dqttqy gf 'htqo "xctkqwu''rcpi wci gu."kpenwf kpi "y g''r tgpqo kpcn "ctvkerg/rkng''wug''qh''egtvckp" hwpevkqp'y qtf u=Hlppkij "j cf."cpf "uvknij cu."pq''ctvkergu0

C'\'j g'\'do g'Ci tleqre''y cu''y tlkkpi ''j gtg''y cu'pq''y tlkypp''uvcpf ctf ''Hppkuj 0'Vj gtg''y cu''c''nqpi ''tcf kklqp''qh'' j qo kryke''Hlppkuj ''y j kej ''j ge'qwrf ''f tcy ''qp.''dw'j g'y cu'kp'hcev'etgcvkpi ''y g'y tlkypp''uvcpf ctf ''rcpi wci g'cu'j g'' tcpurcyf 0J g''dcugf ''y ku''uvcpf ctf ''qp''y g'f kergev'qh''uqwj /y guv'Hlppcpf.''ur qnpp''ctqwpf ''y g''ek\f' ''qh''Vwtmv'\*\time dq'' kp''Uy gf kuj +: 'y j kej ''y cu''y g'ewnwtcn'egpvtg'qh'Uy gf gpwt'Hlppkuj ''r tqxkpeg0'Vj g''Uy gf kuj ''cwj qtkkgu''gpeqwtci gf ''y g''kf gc''y cv'y g''uqwj /y guv'f kergev.''tcyj gt''y cp''y g''gcuvgtp''f kergew''ur qngp''erqugt''vq ''T wuukc.''tgr tgugpvgf ''y g'' o quv'cwj gpvke''Hlppkuj 0'Ci tleqre''y cu''cnq''eqpuekqwu''qh'y g''pggf ''vq''guvcdrkuj ''c'i gpgtcn'uvcpf ctf ''rcpi wci g0 C''Hlppkuj ''tcpurcvkqp''qh'y g''y j qrg''Dklrg''f k''pqv''cr r gct ''wpvkn'38640'Vj g''tcpurcvqtu'y gtg''kpuvtweyf ''q''uc{" erqug''q''y g''qti kpcn''yz u''cpf ''y g''Nwj gtcp''kpygtr tgvxkqp.''vq' y tksg'c''Hlppkuj ''y cv'y cu''cu' qqf ''cpf '' pcwtcn''cu'r quukdrg''cpf ''eqwf ''dg''wpf gtuvqqf ''kp''crir ctw'qh'y g''eqwpvt{."cpf ''yq'o ckpvchp'c'uv{nkuke''wpk\star}''qtg'' ggp''y g''xctlqwu''r ctw'qh'y g''stcpurcvkqp''y g''tcpurcvqtuw''eqo o kwgg. ''wpf gt''Gunkn'Rgvtcgwu. ''dwkn''qp''y g''gctrkgt''y qtm'' qh''Ci tleqre''cpf ''qy gtu''dw'y qtngf ''f ktgew(''htqo ''y g''qtk kpcn''rcpi wci gu0'Cm'y g''equw''qh''tcpurcvkpi ''cpf'' rtkpvkpi ''y gtg''eqxgtgf ''d{''y g''uvcyô cp''pf keckqp'qh''y g''o r qtvcpeg''cwcej gf ''q''y g'y qtm'0'Vj ku''tcpurcvkqp''qh'' y g''Dklrg''tgo ckpgf ''y g''uvcyô cp''kpkrhyp'rb''hlprcpf ''wpkrhy' g''3; 52u0'Kv'rrc{gf ''cp''gpqto qwu''tqrg''kp''uvcpf ctf kl kpi '' Hlppkuj ''ur gmkpi ''cpf ''u{pvcz."cpf ''y g''hnwgpeg''qh'kwu''n{g''ecp''dg''uggp''kp''y g'y qtm'qh'o cp{''y tksgtu''cpf ''r qgwu.'' cpf ''gxgp''qeecukqpcm(''kp''y g''hnwgpeg''qh'kwu''n{g''ecp''dg''uggp''kp''y g'y qtm'qh'o cp{''y tksgtu''cpf ''r qgwu.'' cpf ''gxgp''qeecukqpcm(''kp''y g''ngm''ng'''y g'''y g'''y g'''y g'''y g'''y g'''y g'''y g'''

Vtcpurcvkqp'kpvq'Hkppkuj ''y wu'uvctvgf 'y kij 'dkdrkecn'vtcpurcvkqp0'Ngi cn'vtcpurcvkqp.''y j kej 'f gxgrqr gf 'rcvgt.'r tqxgf '' o wej ''o qtg''r tqdrgo cvke<'y g'rcy u'qh'vj g'Hkppkuj ''r tqxkpegu'y gtg'kp'Qrf ''Uy gf kuj .''y j kej 'y cu'ksugrh'cp'' wphco krkct'rcpi wci g'vq'o cp{ ''qh'vj g''vtcpurcvqtu=''y gtg'y cu'pq'vtcf krkqp''qh'qtcn'qt'y tkwgp''rgi cn'Hkppkuj ''vq''dwkrf '' qp.''cpf ''o cp{ ''qh'vj g''rgi cn'eqpegr wi'j cf ''pq''Hkppkuj ''gs wkxcrgpw0'KV'qqm'wy q'o qtg''egpwtkgu'hqt'uvcpf ctf ''rgi cn' Hkppkuj ''vq''vcng''uj cr g'\*Ccnqpgp'3; : 8.''Ucpf dcemc'3; : 8.''O clco cc'3; ; 3+0

Vj g''qnf guv'Hlppkuj ''tcpurcvlqp''qh''c''ngi cn''yzv'f cvgu''dcem''q'37: 2=''y g''o cpwuetkr v'ku''kp''y g''j cpf y tkkpi ''qh''O ctwk'' Qrexkpr qkmc.''ej cr rekp''cv''y g''Uy gf kuj ''eqwtv.''dw''y g''cewcn''tcpurcvlqp''o c{ ''j cxg''dggp''f qpg''d{ ''Lcemmq'' Rkyctkpr qkmc''\*Lceqdwu''Rgvtk'Hlppq+0'Vj g''tcpurcvlqp''ku''j gcxkn{ ''o ctmgf ''d{ ''Uy gf kuj ''kpvgthgtgpeg0'Vj g''hktw'' r tkpvgf ''xgtulqp''qh''y g''Hkppkuj ''ncy ''cr r gctgf ''kp''397; .''vcpurcvgf ''d{ ''Uco wgn'Hqtu² p''\*Hqtuggp+\*'cp''qhhkeken'' vcpurcvqt ''kp''y g''Uqem/j qm ''cf o kpkuvtcvlqp.''dw''y g''Hkppkuj ''j g''wugf ''y cu''cntgcf { ''ctej cke0'Vj tqwi j qwv'Hkppkuj '' j kuvqt { .''ngi cn''yzvu''j cxg''dggp''uki pkhkecpvn{ ''kphrwgpegf ''d{ ''vcpurcvlqpu''cpf ''d{ ''eqpegr wu''dqttqy gf ''htqo ''qvj gt'' repi wci gu.''hktuv''Uy gf kuj ''cpf ''revgt''Twuukcp0

Vtcpurcvkqpu"qh"qvj gt "v{r gu"qh"cf o kpkutcvkxg"vgzv"f wtkpi "vj ku"r gtkqf ô uvcwwgu. "tq{cn"f getggu. "gve0ô y gtg"cv"hktuv" r tqf wegf "tcvj gt "ur qtcf kecm{0"Vtcpurcvkqpu"qh"gf kevu"y gtg"tgcf "cmqwf "htqo "vj g"r wr kv"\*krrkxgtce{"y cu"j ki j "cpf" r tkpvgf "o cvgtkcn"uecteg+0"Kp"qtf gt "vq"eqr g"y kij "vj g"kpetgcukpi "nqcf "qh"cf o kpkutcvkxg"cpf "ngi cn'vtcpurcvkqp"cpf "vq" o ckpvckp"uqo g"f gi tgg"qh"wpkhkgf "uv{ng."vj g"hktuv"qhhkekcn"r quv"qh"Hkppkuj "vtcpurcvqt"\*htqo "Uy gf kuj +"y cu" guvcdrkuj gf "d{"vj g"i qxgtpo gpv"kp"Uvqenj qmo "kp"39570"Vj g"vtcpurcvqt"y cu"kpuvtwevgf "vq"vtcpurcvg"emqugn{"cpf" ceewtcvgn{="vj g"vtcpurcvkqpu"eqpvckpgf" o cp{"mqcp"y qtf u"cpf" uvt wewtgu"eqr kgf "htqo "Uy gf kuj ."cpf"uqo g"htqo "Ncvkp"qt"Htgpej 0"Kp"i gpgtcn"vj g"qhhkekcn"vtcpurcvqtu"kp"vj g"gki j vggpvj "egpwxt "vgpf gf "vq"cf j gtg"urcxkuj n{"vq"

 $uqwteg/wzv'hqto\ u'cpf\ 'y\ gtg''guu''kpvgtguvgf\ 'kp''cej\ kgxkpi\ 'pcwtcpguu''kp''yj\ g''cti\ gv'hcpi\ wci\ g0$ 

Vj g''qhhlekcn'Hlppkij "tcpurcvqtøu'r quv'y cu'tg/guvcdrkij gf "chvgt''y g''qhhlekcn'dtgcm'y kij "Uy gf gp''kp''3: 2; ."cpf ''y g'' pwo dgt ''qh''qhhlekcn'tcpurcvqtu''uqqp''i tgy 0'Qpg''kphrwgpvkcn'tcpurcvqt''y cu''y g''j kuvqtkcp''cpf ''hkpi wkuv'Tgkpj qnf ''xqp'' Dgengt."y j q''uqwi j v'vq''nkdgtcvg''ngi cn'Hlppkij ''htqo ''Uy gf kij ''kphrwgpeg0

Nkgtct{"tcpurckqp"y cu'xktwcm{"pqp/gzkrvgpv'f wtkpi "vj g"Uy gf kuj "r gtkqf 0'Hkppkuj "rksgtcwtg"kugrh'f kf "pqv'dgi kp" vq'hrqwtkuj "wpvkrl'y g"pkpgvggpyj "egpwt{0'Nkgtcwtg'y cu'rqpi "eqpukf gtgf "vq"j cxg"c"eqttwr vkpi "kphrwgpeg."cpf "y gtg'y cu'rkwrg'f go cpf "{gv'hqt'rksgtct{"tcpurckqpu<'y g'rksgtcvg"gf wecvgf "ercuugu"j cf "ceeguu"vq'rksgtct{"y qtmu"kp" Uy gf kuj "cpf "I gto cp."cpf "vq"c"rguugt"gzvgpv'kp"Htgpej "cpf 'Gpi rkuj 0

Gf weckqp"hqt"hkgtce{"y cu'wpf gt vcngp"d{"y g"Nwj gtcp"Ej wtej "htqo "y g'ugxgpvggpy "egpwt{"qpy ctf u0Vj g" eco r cki p"pcwtcm{"r tqf wegf "c"pggf "hqt"y kpi u"vq"tgcf."htqo "cp"CDE"r tko gt"vq"c"vtcpurcvkqp"qh"Nwj gtøu"*Lo cm" Ecvgej kuo <*kp"qtf gt"vq"o qvkxcvg"y g"r gcucpwu"vq"ngctp. "kp"38: 8"y g"cwj qtkkgu"uvkr wrcvgf "y cv'r gto kuukqp"vq" o cp{"y qwf "pqv'dg"i tcpvgf "wpvkri'y g"{ qwpi "r gqr ng"eqwf "f go qpuvtcvg"c"dcuke"ngxgn'qh'rksgtce{0Vj g"eqo dkpgf" kphrwgpeg"qh"y g"Ej wtej "cpf "y g"cf o kpkrvtcvkqp"y wu"gpuwtgf "y cv'gctn{"vtcpurcvkqp"y qtm'j cf "c"f ghkpkg" r tci o cvke"cpf "f kf cevke"r wtr qug. "y j kej "vgpf gf "vq"qxgttwrg"eqpukf gtcvkqpu"qh'vcti gv'rcpi wci g"pcwtcrpguu"qt" cgunj gyke"xcnwg0

C v'y g'uco g''ko g. "r ctv'qh''y g''xgt { "o qvkxg'hqt 'vtcpurcvkqp'y cu'vq''dqquv'y g'uvcwu'qh'y g'Hkppkuj 'hcpi wci g0' Vqy ctf u'y g'gpf 'qh''y g''Uy gf kuj 'r gtkqf . "y g'r qukxkqp''qh'Hkprcpf ô cpf ''y gtghqtg''cnuq''Hkppkuj ô f genkpgf ''y ky kp'' y g''Uy gf kuj 'uvcvg. "cpf 'kp'Hkprcpf 'kugrh'dkrkpi wcrkuo ''dgeco g''nguu'eqo o qp. 'y ky ''y g''wr r gt ''cpf ''o kf f rg''encuugu'' tgvtgcvkpi ''o ckpn{ ''yq''Uy gf kuj 0'Vtcpurcvkqp''y cu'y wu'c''y c { ''qh''eqwpvgtcevkpi ''y ku''vtgpf 0

F wtkpi ''y g''Uy gf kıj 'r gtkqf ''cu''c''y j qng. ''tcpurc vqtu''qhvgp'j cf ''c'tcyj gt ''cr qnqi gvke''cpf 'f ghgpukxg''cvkwxf g''vq''y gkt'' vcti gv''vgzw0'Vj g''tcpurc vqtøu'y qtm'y cu''pqv'j ki j n{ ''tgi ctf gf .''etkkekuo ''y cu''ugxgtg. ''cpf ''y g''tcpurc vqtøu''pco g'y cu'' qhvgp''pqv'o gpvkqpgf ''kp''y g''r wdrkuj gf ''y qtm0'Cv'y g''dgi kppkpi ''qh'y g''r gtkqf .''vtcpurc vkqp''j cf ''pgxgtyj gnguu''dggp'' uggp''kp''r qukxkxg''vgto u.''cu''c'y c{ ''qh''gptkej kpi ''y g''Hkppkuj ''rcpi wci g''cpf ''gf wecvkpi ''y g''r gqr ng=''d{ ''y g''gpf ''qh''kv.'' vtcpurc vkqp''j cf ''dgeqo g''o gtgn{ ''c''o gcpu''qh'f ghgpf kpi ''y g''rcpi wci g''cpf ''unqy kpi ''f qy p''kvu''f gerkpg0

# Vj g'Twukcp'r gt kqf'\*3: 2; 63; 39+

Hkppu'j cf 'nqpi 'dggp'kpxqnxgf 'kp'Uy gf gpøu'y ctu'y kj 'Twuukc0Vj g'hkpcn'f ghgcv'qh'Uy gf gp'kp'3: 2; 'o gcpv'y cv' Hkpncpf 'dgeco g'r ctv'qh'y g'Twuukcp'Go r ktg. 'dww'y tqwi j qw'y g'hqnqy kpi 'egpwt { 'Hkpncpf 'ces wktgf 'c'hcti g'' f gi tgg'qh'ngi kuncvkxg'cpf 'ewnwtcn'cwqpqo {0

Kp"y g"o kf/pkpgvggpy "egpwt {. 'Grkcu''N' PPTQV"\*3: 246: 6. 'eqo r krgt "qh'y g"Hkppkuj "pcvkqpcri'gr ke" \*\*Mcrgxcrc\*+'ugv' cdqw'tgxkukpi "cpf "wr f cvkpi "y g"Hkppkuj "rgi cri'rcpi wci g"cpf "tgytcpurcvkpi "uqo g"qh'y g"o ckp"rgi cri'vgzw0 g" o qf gtpk gf "y g"rcpi wci g"cpf "cwgo r vgf "vq"o cng"kv'uqwpf "o qtg"pcwtcn" vtcpurcvgf "c"lwtkf kecn'o cpwcn'cpf "cf f gf "vq"kv'c"htv'qh'cdqw'3.222"pgy "rgi cri'vgto u. "cpf "cevgf "cu'rcpi wci g"tgxkugt 'hqt" wvch'Ecppgrkpøu"pgy "vtcpurcvkqp" qh'y g"rcy "qh'Hkprcpf 0'Hkppkuj "dgeco g"cp"qhhkekcn'rcpi wci g"qh'Hkprcpf . "crqpi ukf g"Uy gf kuj . "kp"3: 85. "dw" Uy gf kuj "tgo ckpgf "y g"r tko ct { "rcpi wci g"qh'y g"rcy "wpvkriy gm'kpvq"y g" y gpvkgy "egpwxt {0F wtkpi "y ku'r gtkqf ." Twuukcp"y cu'cnuq "wugf . 'hqt "kpuvcpeg"qp"uvtggv'uki pu"cpf "kp"uqo g"qhhkekcn'f qewo gpvu. "dw'kv'pgxgt" cwckpgf "y g" uvcwu"qh'cp"qhhkekcn'pcvkqpcn'rcpi wci g0

Vj g''o quv'ko r qtvcpv'hgcwtg''qh''y ku''r gtkqf 'ku''y g''go gti gpeg''qh''kkgtct { "tcpurckqp."uwr r qtvgf "d { "c'hrqwtkuj kpi " pckqpcn'hkgtcwtg."hktuv'kp''Uy gf kuj '\*o cp { 'qh''y g''ngcf kpi 'hki wtgu''qh''y g''pckqpcnkuv'o qxgo gpv'y gtg''Uy gf kuj / ur gcnkpi +''cpf "'y gp''kp''Hkppkuj "\*ugg''Mqxcrc''3; : 7+0Qpg''qh''y g''qy gtkpi 'hki wtgu''cv'y g''dgi kppkpi ''qh''y g''Hppkuj " pckqpcnkuv'o qxgo gpv'y cu''y g''r j krquqr j gt''cpf ''ewnwtcn'cekxkuv'Iqj cp''Xkrj gro "Upgro cp'\*3: 286: 3+0Kp''y g''r cy'' g''r vdnkuj ''Hppkuj ''tcpurckqpu''qh''nkgtct{ ''encurkeu'htqo ''qyi gt'' ewnwtgu. 'hqt''ctvkurke. ''r cvtkqvke''cpf ''gf weckqpcn'tgcuqpu0Vy g''kf gc''y cu''uwr r qtvgf "'d{ ''Grlcu''N}/pptqv''cpf ''cnuq''d{ " y g''Hppkuj ''Nkgtcwtg''Uqekgv{ '\*hqwpf gf 'kp'3: 53+'y j kej ''y cu''cy ctg''qh''y g''pggf ''q''kpvtqf weg''nkgtct{ ''o qf gnu'' kpvq''Hppkuj ''hq''tf gt''q''urko wrcvg''y g''eqwpvt{ øu''qy p''tkgtct { ''ewnwtg0Chvgt''uqo g''f grc { ''\*r ctvn{ ''hqt''r qrkxkecn'' tgcuqpu''cpf ''r ctvn{ ''dgecwug''qh''y g''r tgxckrkpi ''cpvk/rkgtcwtg''

cwkwf gu'co qpi ''y g'tgrki kqwu'tgxkxcrkuv'o qxgo gpw+''y g'r rcp''eco g''vq''htwkkqp''llp''3: 8; =''y g''rcuv'f gecf gu''qh''y g'' egpwt { ''ucy ''c'uki pkhkecpv''dqqo ''kp''nkvgtct { ''vtcpurcvkqp0

Kp'3: 93."cp"cppwcn'eqo r gwkkqp"y cu'ugv'wr "d{"Upgmo cp."y j q'y cu'pqy "ej ckto cp"qh'y g"Nkgtcwtg"Uqekgv{0'Vj g" Uqekgv{"gxgp"f tgy "wr "c"nkuv'qh'y tkgtu"cpf "y qtmu"vq"dg"vtcpurcvgf."eqpvckpkpi "pqv'qpn{"nkgtct{"\*g0 0' Uj cngur gctg."F kengpu."O qnk tg."Ej cvgcwdtkcpf +"dw'cnq"j kuvqtkecn'cpf "r j knquqr j kecn'y tkkpi u"\*O cecwrc{."Hqz." Tqwuugcw+0C"hwtyi gt "nkuv'y cu'eqo r krgf "kp"3: : 90'Vj g"Nkgtcwtg"Uqekgv{"yi wu'r rc{gf "cp"ko r qtvcpv'tqrg"cu'c" eqo o kuukqpgt "qh"vtcpurcvkqpu."gkji gt "f ktgevn{"qt "kpf ktgevn{."d{"uwi i guvkpi "ewnwtcnlrkvgtct{"i cr u"yi cv'pggf gf "vq"dg" hkrgf "cpf "kp"o cp{"ecugu"r wdrkuj kpi "yi g"tguwnkpi "tcpurcvkqpu0'Uqo g"rkvgtct{"tcpurcvkqpu"kpvq"Hkppkuj "y gtg"cnuq" r wdrkuj gf "kp"y g"Wpkgf "Uvcvgu."y j gtg"y cu'c"nkxgn{"eqo o wpkx{"qh"Hkppkuj "go ki tcpvu0" ko"3: 2: "ap"yi g"kpkkcykxg"ah'yi g"Nkystcwxtg"Lhekov{"cnf "ayi gt "ewnwtcnlektergu "yi g"Hkppkui "Loncvg"hov/yr "c"hwpf "ya"

Kp"3; 2: ."qp"\j g"kpkkc\kxg"qh'\j g"Nkgtcwtg"Uqekg\{"cpf"q\j gt"ewnwtcn'ektergu."\j g"Hkppkij "Ugpc\g"\ugv'\wr "c"hwpf"\q" uwr r qt\"Hkppkij "\tcpurc\kqp"\cpf"qtki kpcn'y qtmı+"kp"hkgtcwtg"cpf "uekgpeg0"Vj g"uvc\gf "cko "y cu"ci ckp"\q" u\ko wrc\g"Hkppkij "ewnwtg"d\{ "kpeqtr qtc\kpi "\j g"ercuuke"y qtmı''qh'q\j gt"ewnwtgu."\y j kej "y qwrf"\j gp"\ugtxg"cu" ec\cn\{ u\u'\hqt"Hkppkij "hkgtcwtg."\uekgpeg"cpf "\uej qrctuj kr 0Cf cr \cdot\kqp"\q"\ukk'\j g"\cu\gu'\cpf "pggf u"qh'\j g"Hkppkij "tgcf gtuj kr "y cu"gpeqwtci gf ."\ugz\uekgpeg"cyf"\ukgtc\tau\"\undersetyz\undersetyz\undersety\undersety\undersety\undersety\undersety\undersety\underset\undersety\underset\undersety\underset\undersety\underset\undersety\underset\undersety\underset\

F wtkpi ''j g'hktuv'r ctv'qh''j g'T wuukcp''r gtkqf ''tcpurc vqtu'y gtg'qhvgp''ekxkn'ugtxcpvu'qt''o krkct { 'r gtuqppgn'y j qug'' y qtm'ir ww'j go 'kp''vqwej ''y kyj ''qvj gt''rcpi wci gu0'Kp''j g''rcwgt''j crh ''tcpurc vqtu''y gtg''o qtg''rkngn( ''vq''dg''y tkvgtu'' y go ugnxgu<''r qgvu. ''wpkxgtukx( ''vgcej gtu''cpf ''r tqhguuqtu'\*hqt''gzco r ng''Lwj cpk'Cj q. ''Kro ctk'Mkcpvq. ''IOY 0'Ecroo pkwu.'' Mcctmq''Hqtuo cp+0'Vj g{ ''tcpurc vgf ''r ctvn( ''hqt''y g'' gpgtcn'tgef gt''dw''r ctvn( ''cnvq''hqt''y g''kphrwgpvkcn'ewnwtcn'ektengu'' kp''Hlprcpf .''hqt''uwxf gpvu'y j q'y qwrf ''dg''y g''pgzv'² nkwg''cpf ''hqt''ctvkuvu'y j q'y qwrf ''dg''kpur ktgf ''d{ ''y g''tcpurc vkqpu''vq'' r tqf weg''y gkt''qy p'y qtmu''qh''ctvô kp''Hlppkij 0'Vj g''o qvkxcvkqp''y cu''y wu''dqy ''gf wecvkqpcn'cpf ''cguy gvke0'Nkvgtct { '' vtcpurc vkqp''o gcpv''y g''etgcvkqp''qh''c''ewnwtg. ''cpf ''y g''tcpurc vqtu''y gtg''y gm''cy ctg''qh''y ku0'Vtcpurc vkpi ''j cf ''c''j ki j '' uvcwuc''y gtg''y gtg''o cp{ ''tcpurc vqtu. ''cpf ''y g''Hlppkij ''tgef gtuj kr ''xcnwgf ''y gkt''y qtm'0

Dgw ggp"cdqw/3: 82"cpf "3; 39."c 'lckn( 'tgrtgugpvckxg'ugrgevkqp'qh'Gwtqr gcp'iksgtcwtg'dgeco g'cxckrcdrg'kp'' Hlppkij "iqo g'j cf "cntgcf { "dggp"cxckrcdrg'kp"Uy gf kij +0Vj g'r gcni'qh'iy ki'vtcpurckpi "cevkxk/ "eco g'kp'iy g'rcuv' yi tgg'f gecf gu'qh'iy g'egpwx{0Hqo "I gto cp{ 'eco g'J gkpg." I qgi g."Uej kngt "cpf "qi gt "encukeu="gur gekm{" rqr wrt "y gtg'vtcpurckqpu'qh'uqtkgu'qh'xkmci g'nkg."y j kej "j cf "s wkg"cp"kphnwgpeg"qp'iy g'f gxgmr o gpv'qh'iy ki" rqr wrt "i gptg'kp"Hppref 0C"Hppkij "xgtukqp"qh'Uj cngur gctgøu"O cedgyj "j cf "cr r gctgf "kp"3: 56."cpf "qh'Dwp{cpøu" gf kh{kpi "Rkii tho øt/Rt qi t guu'gxgp"gctnkgt "3: 2; +="Ueqw'cpf "F kengpu."cpf "qh'eqwtug"o qtg"Uj cngur gctg "itugg" Rccxq"ECICP F GT+"eco g'rcvgt0Vtcpurcvkqpu'htqo "Htgpej 'uvctvgf "y kj "yi g'y qtmu'qh'F wo cu'r 3 tg0Vj g'htuv' Hlppkij "vtcpurcvkqpu'htqo "Twukcp"f cvg'htqo "yi g'3: 82u="Vwti gpgx"cpf "Vqnnvq{"y gtg"r ctvkewretn{"rqr wrct0" Uecpf kpcxkcp"ercukeu'y gtg"vtcpurcvgf "f wkpi "yi g'uco g'r gtkqf ="r ctvkewretn{"kphnwgpvkcn'y gtg"yi g'vtcpurcvkqpu'qh" E00 Dgmo cpøu'Uy gf kij "vqpi u."y j kej "\*qi gyi gt 'y kj "yi qug"qh'Uej kngtøu'n{tkeu+'eqpvkkwgf "vq'yi g'y gcmgpkpi "qh'yi g"ttcf kkqpcn'uvqr j g'uvtewwtg'kp"Hppkij "n{tke'r qgxt {"cpf "yi g'tkug'qh'htggt"o gytgu'cpf "tj {yi o u'vqy ctf u'vj g" gpf "qh'yi g'egpwxt{0Vtcpurcvkqpu'qh'yi g'I tggmlcpf "Ncvkp'ercukeu'i qv'wpf gty c {"kp"yi g'3: 2u="vtcpurcvqtu'y gtg" qhxgp"uej qqngcej gtu'vtcpurcvkpi "ur gekhecm("hqt'vej qqn'wug."cpf "yi gtg'y cu'uqo g'etkkekno "qh'vtcpurcvqtu'y gtg" qhxgp"uej qqngcej gtu'vtcpurcvpi "ur gekhecm("hqt'vej qqn'wug."cpf "yi gtg'y cu'uqo g'etkkekno "qh'vtcpurcvqtu'y gtg" y cu'co qpi "yi qug'y j q'vtcpurcvpf "htqo "Kcnkcp' iksgtcwtg'cttkxgf "rcvgt."uctvkpi "y kj "yi g'3; 32u='yi g'y tksgt'Iqgn!Ngj vqpgp" y cu'co qpi "yi qug'y j q'vtcpurcvpf "htqo "Kcnkcp0

Vj g''tcpurc'kqp''qh''rksgtcwtg'hqt''ej krf tgp''cpf "{qwpi 'r gqr rg''cnq''uctw'kp''y g''o kf/pkpgvggpyj ''egpwt{'\*Qnknckpgp'' 3; : 7+0'Dghqtg''y ku.''o quv'qh''y g''hgy ''dqqmu''cxckrcdng'hqt''ej krf tgp''j cf ''dggp''tgrki kqwu''cpf 'f kf cevke="cdqw''j crh''qh'' y gug''y gtg''tcpurc'kqpu.''o quvn{''htqo ''I gto cp.''gkj gt''f ktgevn{''qt''xkc''Uy gf kuj 0'Kp''3: 69.''y tgg'kphrwgpvkcn'' vtcpurc'kqpu''cr r gctgf <'c'eqnrgevkqp''qh''Guvqpkcp''hqm''vcrgu''cpf ''y q''pqxgnu0'Qh''y g''rcwgt.''qpg''y cu''y g''r qgv''Cpvk'' T®{\'au''\tcpurc'\kqp''qh''\y g''\wr nkhkpi ''uvqt{''qh''y g''uwhhgtkpi u''qh''I gpqxgxc.''d{''y g''I gto cp''y gqmi kcp'Ej tkuvqrj'' xqp''Uej o kf ='y ku''dgeco g''gzvtgo gn{''r qr wrct''kp''Hkprcpf ''cpf ''y gpv'kpvq''ugxgtcn'tgr tkpvu0'Vj g''qy gt''y cu'' r quvo cuvgt ''Qvq''Vcpf ghgnau''cdtkf i gf ''cf cr vcvkqp.''dcugf ''qp''I g{i gtau''}

I gto cp''cf cr vcvkqp. "qh'F ghqgau'Tqdkpuqp'Et wuqg0'Vj gtg'hqmqy gf ''tcpurcvkqpu'htqo ''Cpf gtugp. ''y g'I tko o "dtqy gtu. "cpf "'y g'Hkprcpf "Uy gf g'\ cej tku''Vqr grkwu. ''y g'hcy gt 'hki wtg''qh'Hkppkuj "ej krf tgpau'rksgtcwtg0 F wtkpi "'y g'hcwgt''j crh''qh''y g'pkpgvggpyj "egpwt{."cdqw''j crh''qh''cm'vtcpurcvkqpu''qh''ej krf tgpau'rksgtcwtg''y gtg''qh'' I gto cp''qtki kpcnı'\*f ktgevn{ "qt'kpf ktgevn{ +."cpf "c''s wctvgt''qh''Gpi rkuj "uqwteg''vgzw0'Vj g''gzekkpi "dw''qxgtvn{ "oqtcrk kpi "y qtmu''qh'Htcp| "J qhro cpp''y gtg''r qr wrct. "cu''y gtg''Lqj cppc''Ur {tkau''J gkf k'dqqmu0'Vj g''3: 82u''cpf "3: 92u''ucy "cp''Gpi rkuj "kpxcukqp''qh''ej krf tgpau'rksgtcwtg. "r gtj cr u'r ctvn{ "kphrwgpegf "d{ "y g''pggf "hgnv''d{ "Dcr vkuv'' cpf "O gyj qf kuv'o kuukqpctkgu''hqt''cr r tqr tkcwg''Uwpf c{ "Uej qqn'o cytkcn0

#### Chagt 'lpf gr gpf gpeg'\*3; 39'qpy ctf u+

Hlprcpf "i clpgf "ku" kpf gr gpf gpeg "kp"3; 39. "hqrrqy kpi "y g"T wuukcp "T gxqrwkqp0 "kpf gr gpf gpeg "ur ctrrgf "qhh'c "pgy " y cxg"qh'iksgtct { "tcpurckqp="c"hqwpf cvkqp"y cu'ugv'wr "vq"r tqxkf g"i tcpur hqt"dqvj "y tkkpi "cpf "tcpurckpi "y qtruu'qh" rksgtcwtg0 Nksgtct { "tcpurckqp"pqy "gz vgpf gf "vq"o qtg"f kuvcpv'ewrwtgu0 Egtxcpvguø "F qp" S wkz qvg"y cu'vtcpurcvgf " kp"3; 496: "\*ugg" IOC0 J QNNQ+"dw'Nckp" Co gtkecp "iksgtcwtg" f kf "pqv'cttkxg" qp" y g"uegpg "wpvkt'y g"3; 82u="y g" r qgv'Rgpvk'Ucctkuc" j cu'dggp "qpg"qh" y g"o ckp "tcpurcvqtu"qh" y ku'iksgtcwtg. "gur gekcm ("y g"y qtruu"qh" P gtwf c0' Ej kpgug "iksgtcwtg" cpf "r j krquqr j { "y gtg"hktuv'vtcpurcvgf" | kp" y g"3; 42u. "y ky "c'ugeqpf" r gcm'qh'kpvgtguv'kp" y g" 3; 72u="o quv'vtcpurcvkqpu"y gtg"f qpg"xkc" I gto cp"qt" Gpi rkuj. "dw'Rgpvk'P kgo kpgp. "hqt"gzco r rg. "eqpvkpwgu" y qtm'htqo "Ej kpgug"qtki kpcru"f ktgevn (0 Vtcpurcvkqpu"qh'Icr cpgug"r qgvt { "\*d { "Vwqo cu'Cpj cxc."cpf "rcvgt" Mck" P kgo kpgp+"cpf "Icr cpgug"f tco c'uvctvgf "q"hrqwtkij "kp" y g"3; 82u0 Vtcpurcvkqpu"htqo "Chtkecp" ewrwtgu"ctg "gxgp" o qtg"tgegpv0

 $Vj\ tqwi\ j\ qwi'yj\ g''j\ kuvqt\ \{\ ''tcpurcvkqp''kp''Hkprcpf\ . ''yy\ q''tcf\ kxkqpu''j\ cxg''j\ gnf\ ''uy\ c\ \{\ 0'Kp''qpg\ .''cr\ r\ n\{\ kpi\ ''vq''\ n''\}\ p'''$ vtcpurcvkqpu"htqo "ercuulecri'cpvks vkx{ "cpf "\q'ngi cri'cpf "dkdrkecri\tcpurcvkqp." y g'\gpf gpe { "j cu''dggp'\q''\tcpurcvg" tcyj gt 'hkygtcm( 'kp''y g'hktuv'kpuvcpeg.''y kyj ''cp''g{g''vq''y g''gf wecvkqpcn'r wtr qug''qh''y g''yz wi'kp''s wguvkqp="hcygt" xgtukqpu'qh'yi g'uco g'\gzvu'y qwrf ''yi gp''dg''r tqf wegf .'i kxkpi ''r tkqtkx{ ''vq'c'o qtg''pcwtcn'Hkppkuj 0'Ko ci kpcvkxg'' hlevkqp. "qp" y g"qy gt" j cpf. "y cu"qhygp" tgpf gtgf 'hktuv" kp" y g"hqto "qh" CFCRVCVKQP "O cedgy 'hktuv" crr gctu" cu" c" Hkpp. 'kp"c 'Hkppkıj 'ugwkpi +="ncvgt" 'tcpuncvkqpu' \gpf gf 'vq" uj qy "o qtg" tgur gev' vq' vj g' uqwteg' \gz v0 Hqt 'kpuvcpeg." O qf gtpkn/\gej pks wgu'uwej "cu'untgco "qh'eqpuekqwupguu'r tqxgf "fkhhewn/\q"\tcpurcvg"cv'hktuv/\p"\j g'3; 62u" vtcpurcvqtu'y gtg'uvkm'wpj crr { "y kyj "cp'kpf ktgev'htgg'uv{ rg. "cpf 'vgpf gf "vq'r tghgt "c'o qtg":-pcwtcnø'f ktgev'qt 'kpf ktgev' ur ggej 0Ncvgt "tcpurcvkqpu" "tuwej "cu'yj qug"d { "vj g'r qgv"Rgpwk"UCCT KMQUMK'qh 'hqt "gzco r rg. "Lq { eg"cpf "Ucrkpi gt+" y gtg"cdrg"\q"gzr mkv"cpf "uvtgvej "Hkppkuj "o qtg"htggn( "\q"ceeqo o qf cvg"\j g"r cwgtpu"qh"\j g"uqwteg"\gzv0 Qyj gt "kphrwgpvkcn'hkvgtct { "vtcpurcvqtu"qh"yj g"vy gpvkgyj "egpwt { 'kpenwf g"yj g"r qgvu"Qvvq"O CP P KP GP . "Gkpq"Ngkpq." cpf "[tl34L{nj@"rkvgtct{"uejqnct"cpf"rqgv"X0C0Mqungppkgok="ytkvgtu"V{{pk"Vwvrkq."Gknc"Rgppcpgp"cpf"Ccng" V{ppk="cnuq"Guc"Cftkcp."Cpurgo "Jqmq."Ctvq"J@moodctlc"Kmqpgp/Mckrc."Lwjcpk"Lcurrctk"Gkpq"cpf"Lcm;"Mcrkoc." Mtkırkkpc''Mkxkxwqtk''Lwj cpk'Mqpmmc.'O ctmmw'O cppkrc.'Cctpq''Rgtqo kgu.'Cppkmrk'Uwpk''Qkrk'Uwqo kpgp.''Kpngtk'' Vwqo kmqumk "Vjqo cu"Y ctdwtvqp" "kpvq" Uygfkuj+"cpf" Gokn'∖kmkcewu" "Itggm'kpvq" Uygfkuj+0 Vtcpurckqpu'pqy cf c{u'ceeqwpv'hqt''lwuv'qxgt''42'r gt''egpv''qh''cm'\kurgu'r wdrkuj gf''kp''Hkprcpf 0'C''i qqf''72'r gt''egpv'' qh'nksgtct{'\ksrgu'ctg'\tcpurc\kqpu=cdqw'j crh'qh'\j gug'ctg'htqo 'Gpi nkuj .'hqmqy gf 'd{'Uy gf kuj 'cpf 'I gto cp0Cu' hct "cu"ej krf tgpøu"hkgtcwtg ku"eqpegtpgf. "ttcpurckqpu"ceeqwpv'hqt "cu"o wej "cu"97"r gt "egpv'qh"cm'tkxrgu"r wdrkuj gf " \*Mwkxcuo@nk'3;:7+0

Ukpeg'kpf gr gpf gpeg."o quv'qhhekcn'\tcpurc\kqp"j cu'dggp'dgwy ggp'Hkppkuj "cpf "Uy gf kuj 0'Gur gekcm{ 'ukpeg'\j g'' 3; 82u."\j g'pwo dgt''qh'\tcpurc\qtuø'r quwu'j cu'i tqy p'f tco c\kecm{ ."cu'j cu'\j g'tcpi g''qh'\rcpi wci gu'\tcpurc\qf 'kp\q0' Vj g''o ckp'Gwtqr gcp''rcpi wci gu'ewttgpvn{ "j gcf "\j g''hkn0

### Vtcpurcyqt 'ttckpkpi

yj gug'y gtg''yj gp''ej gemgf ''cpf ''etkkek gf 'kp''f gwkr0'X gtukqpu''o ki j v'dg''ugpv'dcem'hqt''hwtyj gt''t gxkukqp''ugxgtcn''ko gu." cpf ''yj g'hggf dcem'r tqeguu''o ki j v'eqpvkpwg'hqt''{ gctu0'Gxgp''guwcdrkuj gf ''r qgwu''cpf ''vtcpurcvqtu.''uwej ''cu''Qwq'' O cppkpgp''cpf ''Gkpq''Ngkpq.''eqpvkpwgf ''vq''uwdo kv'uco r rgu''qh''yj gkt''y qtm'vq''qyj gt''gzr gtwu'hqt''eqo o gpwu''cpf '' cf xkeg0

C'uko krct'crrtgpvkeguj kr'u{uvgo 'j cu''qrgtcvgf'kp''uqog''wpkxgtukv{'hcpi wcig'fgrctvogpvu'kp''tgegpv'fgecfguk'Gkrc'' Rgppcpgp. "hqt"kpucpeg. "tckpgf" o cp{"rkxgtct{"tcpurcvqtu"kp"j gt"J grukpnk'ugo kpctu"f wtkpi "vj g"3; 92u0 Kpurkwakapen'tekpkpi "qh'tepurevatu'epf 'kpvgtr tgvgtu'uvetvgf 'kp''yi g'nevg'3; 82u. "y j gp'hawt'nepi wei g'kpurkwayu'y gtg"  $ugv'wr " lp" Vwt mw. "Vco \ r \ gtg. "Ucxqprlppc" cpf "Mqwxqrc+0" Vj \ g\{ "y \ gtg' lpf \ gr \ gpf \ gpv. "pqp/cecf \ go \ ke'' lpuvkwwgu't wpplpi "pqp/cecf \ go \ ke'' lpuvkwwgu't wpplpi "pqp/cecf \ go \ ke'' lpuvkwwgu't wpplpi "pqp/cecf \ go \ le'' lpuvkwwgu't wpplpi "pqp/cecf \ go \ le''' lpuvkwwgu't wpplpi "pqp/cecf \ go \ lpuvtwygu't wpplpi "pqp/cecf$ yj tgg/{gct'fkrmqoc'eqwtugu0Kp'3;:3."vj gug'kpuvkwwgu'y gtg'wri tcfgf'cpf'kpeqtrqtcvgf'kpvq''yj g'wpkxgtukv{" u{uvgo "cu"f gr ct vo gp vu"qt "uej qqnu"qh"vtcpunc vkqp"uvwf kgu"\*cv"vj g"vvpkx gt ukvkgu"qh"Vvvt mvx."Vco r gt g. "Iqgpuvvw"cpf" J gnukpnk 'tgur gevkxgn( +0'Vj ku'ej cpi g'dtqwi j v'cecf go ke 'uvcwu'cpf 'c'nqpi gt'r gtkqf 'qh'uwf { "\*hkxg'vq'ugxgp"{ gctu+" ngcf kpi "\q'\j g'O C'f gi tgg"cpf 'hwtyj gt"\q'nkegp\kcvg"cpf 'f qevqtcn'f gi tggu0'K/cnuq'r tqxkf gf "c'uvtqpi 'ko r gww'hqt" r tqhguulqpcn'cecf go le'tgugctej 'kp''\tcpurc\lqp''uwf kgu0C''uj qtvgt''DC'f gi tgg''y cu'kpvtqf wegf 'kp''3;; 60 Vj g'ncpi wci gu'qhhgtgf 'cu'o clqtu'ctg'ewttgpvn{ 'cu'hqmqy u0Kp''Vwtmw<'Gpi nkuj .'Htgpej .'I gto cp'\*Ur cpkuj 'ku' r ncppgf +="kp"Vcorgtg<"Gpinkuj. "I gtocp. "Twuukcp="kp"Ucxqpnkppc<"Gpinkuj. "Twuukcp. "I gtocp="kp"Mqwxqnc<" Gpi rkuj .'Twuukcp.''Uy gf kuj 0'Uwf gpv'kpvcng'tghrgevu''y g'r qr wrctkx{ "qh'Gpi rkuj ="yj gtg'ku'c'ewttgpv'uj qtvci g''qh'' vtcpurcvqtu'cpf 'kpvgtrtgvgtu'ur gekcrk kpi 'kp'Htgpej.'cpf 'vq'uqo g'gzvgpv'cnuq'kp'Twuukcp0 Wpkxgtukx{ "ncpi wci g"f gr ctvo gpvu"cnuq"kpenxf g"vtcpuncvkqp"eqvtugu."cpf "uqo g"tvp"cf f kxkqpcn"qr vkqpu"qp"cur gevu" qh'tcpurcvlqp''yi gqt { "qt'r tcevleg0'Vj g'F gr ctvo gpv'qh'Tqo cpeg'Ncpi wci gu'cv'yi g'Wpkxgtukv{ "qh'J gnukpnk'uvctvgf" c'ur gelicht cyliqp'llip''Hit gpej 'tcpurcyliqp'llip''3;; 6. 'llip't gur qpug''vq''vj g'pggf 'liqt''GW'tcpurcyqtu0'Vj g'F gr ctvo gpv'qh'' Hopkuj "cv'vj g"Wpkxgtukx{ "qh"Xccuc"j cu"c"uvtqpi "kpvgtguv"kp"vtcpurcvkqp"uvwf kgu. "r ctvkewrctn{ "y kij "tgur gev"vq" vgto kpqmi {"cpf"hcpi wci g"hqt"ur geken'r wtr qugu0

Vj gtg'ku'cp'kpetgcukpi 'uwr r n( ''qh'lkp/ugtxkeg''eqwtugu. 'twp''d{ ''y g''xctkqwu'f gr ctvo gpvu'qh''vtcpurcvkqp''uwf kgu. ''cf wn'' cpf 'hwt y gt ''gf wecvkqp''egpvtgu. ''y g''r tqhguukqpcn''cuuqekcvkqp. ''y g''pcvkqpcn''yto kpqnqi { ''egpvtg''cpf ''r tkxcvg'' gpvgtr tkug0'O quv'qh''y gug''eqwtugu''ctg''Hkppkuj ô Uy gf kuj ''qt''Hkppkuj / Gpi rkuj 0'Vj gtg''ctg''r rcpu''vq''ugv'wr ''c''pcvkqpcn'' I tcf wcvg''Uej qqn'qh''Vtcpurcvkqp''Uwf kgu0'C''pcvkqpcn'egpvtg''hqt''eqqtf kpcvkpi ''eqphgtgpeg''kpvgtr tgvgt''vtckpkpi ''j cu'' dggp''ugv'wr ''cv'yi g''Vvtrmv'Uej qqn''y j kej ''j quvgf ''cp''kpvgtpcvkqpcn'eqphgtgpeg''qp''kpvgtr tgvcvkqp''kp''Cwi wuv'3; ; 60 C''Nkegpugf ''Vtcpurcvqt''Gzco kpcvkqp''ku'twp''d{ ''c''pcvkqpcn'dqctf ='uweeguu''kp''y ku''gzco kpcvkqp''i tcpw'y g''uvcwu''qh'' c''egtvkhkef ''vtcpurcvqt.''f ggo gf ''eqo r gvgpv'vq''vtcpurcvg''qhhkekcn'f qewo gpvu''cpf ''egtvkhkecvgu0

# Qti cpk cwqp'qh'vj g'r tqhgunqp

Vj g'r tqhguulqp"qh'tcpurcvlpi "cpf "lpvgtr tgvlpi "j cu'i tqy p"gpqto qwun{ "lp'Hlprcpf "ulpeg"Y qtrf "Y ct"Vy q0'Vj ku" j cu'ngf "vq'ko r tqxgo gpwi'kp"ucpf ctf u'cpf "lp'vj g'ngi critki j wi'qh'tcpurcvqtu"cpf "lpvgtr tgvgtu0 P qtf ke"eqqr gtcvlqp"j cu'ngf "vq'c"lqkpv'ci tggo gpv'\*kp"hqteg"ulpeg"3; : 9+"qp"ekkt gpuø'tki j wi'vq"j cxg"ceeguu'vq"cp" kpvgtr tgvgt "lp"egtvckp"eqpvgz vu. "cv'r wdrke "gzr gpug0'Cm'P qtf ke"eqwpvtkgu"uggm'vq"gpuwtg"vj cv'P qtf ke"ekkt gpu"ecp" wug'vj gkt "qy p"pcvkxg"ncpi wci g"kp"vj gkt "f gcrlpi u"y kj "vj g"cwj qtkkgu0'Y kj "vj g"i tqy vj "lp"ko o ki tcvkqp"ngxgnu." EQO O WP KV[ "RP VGTRTGVRP I "ku"pqy "c"hgcwtg"qh"gxgt{f c{"rkhg."dw'o wej "qh"kv'ku'uvkm'f qpg"qp"cp"co cvgwt" dculu0

Vj g'Hlppkuj 'Cuuqekcvkqp'qh'Vtcpurcvqtu'cpf 'Kpvgtr tgvgtu'\*UMVN+'y cu'hqwpf gf 'kp''3; 77'cpf 'j cu'dggp'c'o go dgt'' qh''y g' FEDÉRATION KP VGT/P CVKQP CNG'F GU'VTCF WE VGWTU'\*HKV+'ukpeg''3; 790'KVku'cnuq'c'o go dgt''qh''y g'' EqpugkriGwtqr²gp'f gu'Cuuqekcvkqpu'f g''Vtcf wevgwtu'Nkv²tcktgu0'KVo ckpvckpu'erqug'rkpmu'y ky ''qy gt'P qtf ke'' cuuqekcvkqpu'cpf 'ku'kp''y g''r tqeguu'qh''guvcdrkuj kpi ''o qtg''rkpmu'y ky ''y g''Dcnke''uvcvgu0'Vj g''UMVN''j cu'hkxg'' f kxkukqpu<'rkkgtct { ''tcpurcvkqp.'pqp/hkevkqp'\*f qewo gpv+'\tcpurcvkqp.'cwf kq/xkuvcri'o gf kc'\tcpurcvkqp.'kpvgtr tgvkpi.'' cpf ''tgugctej ''cpf ''vgcej kpi 0'E wttgpv'o go dgtuj kr ''ku''ctqwpf ''3.622=''d{ ''hct''y g''rcti guv'f kxkukqp''ku''y g''pqp/hkevkqp'' qpg.''y j kej ''kpenwf gu''uekgpvkhke.''dwukpguu''cpf ''vgej pkecn'\tcpurcvqtu0'O go dgtuj kr ''ku''dcugf ''qp''cr r rkecvkqp''cpf '' tgeqo o gpf cvkqp0

Vj g'UMVN'r wdrkuj gu''y g'lqwtpcn'M®p $\nu$  $\mathbb{R}$  $\mathbb{R}$  $\mathcal{R}$  $\mathcal$ 

Vj g''UMVN''cy ctf u''w q''cppwcn'r tk gu<'y g'CI TKEQNC''Rtk g'hqt''cp''qwuvcpf kpi ''\tcpurc\kqp''qh'r tqug''qt''f tco c.'' cpf ''y g'L0C0 QNNQ''Rtk g'hqt''qpg''qh'c''pqp/hke\kqp''y qtn0'Vtcpurc\qtu''ctg''cnıq''grki kdrg'hqt''i tcp\u''d{ ''xctkqwu'' uvc\u'g.''rkdtct{ ''cpf ''r tkxc\u'g'hq\upf c\kqp\u0

Vj g"rgi cn'tki j wi'qh''vcpurcvqtu'ctg"gzegr vkqpcm{ 'y gm't gi wrcvgf "kp"Hkprcpf 0'Vtcpurcvqtu'\*cpf "y gkt"f guegpf cpw." pqy "hqt'72"{ gctu+"j cxg"dggp"r tqvgevgf "d{ "Hkppkij "eqr {tki j v'rcy "ukpeg"3: 4; 0'Ewttgpv'eqr {tki j v'rgi kurcvkqp"j cu" dggp"f gxgmr gf "kp"eqqr gtcvkqp"y kyj "qvj gt"P qtf ke"eqwpvtkgu0'Cu"c"o go dgt"qh'y g"Lqkpv'Qti cpk cvkqp"hqt"y g" Cf o kpkuvtcvkqp"cpf "Eqpvtqn'qh'Eqr {tki j w'kp"Hkprcpf."yi g"UMVN"tgegkxgu'tgr tqi tcr j ke"eqo r gpucvkqp"htqo "yi g" Ucvg"cpf "f kuvtkdwgu"yi gug"hwpf u'vq"ku"o go dgtu'kp"yi g'hqto "qh'i tcpw"qh'xctkqwu'mkpf u0'Ki'pgi qvkcvgu"ci tggo gpw" y kyj "r wdrkuj gtu."cpf "j cu'ugewtgf "vtcpurcvqtuø'tq{cnkgu'htqo "yi g'Hkppkuj "Dtqcf/ecuvkpi "Eqo r cp{."vq"eqxgt"cm' dtqcf ecuv'eqr {tki j v'vtcpurcvkqpu0

Hlpropf "cniq" j cu'c "r tqhguulqpcn'cuiqelcvlqp" hqt "vtcpurcvlqp" ci gpelgu" cpf "c" vtcf g" wpkqp" cuiqelcvlqp" hqt "vtcpurcvqtu0 O cp{ "vtcpurcvqtu" y qtm'htggropeg. "cpf "o cp{ "r ctv'vlo g"qpn{0 llp" ur kg"qh'cp" co r ng" uwr r n{ "qh'r tqhguulqpcni." vtcpurcvlqpu" eqpvlpwg" vq" dg" eqo o kuulqpgf "cniq" htqo "pqp/r tqhguulqpcni" qp" cp" cf" j qe" dcuku0 Dgecwug" y gtg" ctg" pqv" gpqwi j "pcvlxg" ur gcngtu" qh'ur gelshe" vcti gv" rcpi wci guô qyi gt" y cp" Uy gf kuj ô y qtnlipi "htqo "Hlppkuj". "Hlppu" qhygp" pggf "vq" vtcpurcvg" lipvq" c'hqtgki p" rcpi wci g" vg" lipvy lipvy "QH" vtcP UNC V lipvy "lipvy "c'hqtgki p" rcpi wci g" lipvy "c'hqtgki p" lipvy "

Rtqhguukqpcn'\tcpurcvqtu'kp"Hkprcpf "j cxg"r j qpg"cpf "eqo r wgt "ceeguu'\q"c"pc\kqpcn'\gto kpqmi { "ugtxkeg"y ky "c" f cvcdcug"y j kej "ur gekcnk gu'kp"\gej pqmi { "dw'cnıq"eqxgtu"qy gt "ctgcu'kp"eqo o gteg. "cf o kpkıntc\kqp"cpf " ngi kurcvkqp0

#### Tgugctej 'cpf 'r wdrlec wqpu

Dghqtg''y g'uej qqnu'qh''tcpurc'kqp''uwf kgu''y gtg'hqwpf gf .''tgugctej ''qp''tcpurc'kqp''y cu''ur qtcf ke.''o quwf '' wpf gt wngp''cu''cp''qhhuj qqv''ce'kxk/{ ''qh'f gr ctvo gpwu'qh''nkytcwtg''qt''r j knqmi { .''cpf 'f gcnkpi ''cno quv''gzenwukxgn( '' y kyj ''nkygtct { ''tcpurc'kqp0'Qxgt''y g''r cuv'hkhvggp''{ gctu.''j qy gxgt.''o qtg''f kxgtug''ctgcu''qh''tgugctej ''j cxg''uvctvgf ''vq'' hqwtkuj ''kp''y g'uej qqnu''qh''tcpurc'kqp0'Ctgcu''qh''ur gekcnk| cvkqp''kpenwf g''kpvgtr tgvkpi ''cpf ''eqi pkxkxg''r tqeguukpi '' \*Vwtmw+''i gpgtcn'y gqt { .''ygto kpqmi { ''cpf ''ej knf tgpøu''nkygtcwtg''\*Vco r gtg+:''VJ kP WCNQWF''RTQVQEQNU'' uvwf kgu''cpf ''cuuguuo gpv'\*Ucxqpnkppc+:'eqpvkpvkpi ''tckpkpi ''cpf ''cuuguuo gpv'\*Mqwxqnc+0

Vj g'uej qqnu'qh'\tcpurc\kqp'uwf kgu'twp'\j gkt'qy p'r wdrkec\kqp'ugtkgu0'Vj g'Hcewn\{ ''qh'J wo cpkkgu'cv'\j g'' Wpkxgtuk\{ ''qh'Xccuc'r wdrkuj gu'c'ugtkgu'dcugf ''qp'ku'cppwcn'ugo kpctu'qp'hcpi wci g'hqt'ur gekcn'r wtr qugu'cpf '' y gqt \{ ''qh'\tcpurc\kqp0'Vj g''Nkgtcwtg'F gr ctvo gpv'qh'\j g''Wpkxgtuk\{ ''qh'L\ x@m\(n\B)\ cu'r wdrkuj gf ''c'ugtkgu''qp'' rkgtct \{ ''\tcpurc\kqp0'Vj g''Vco r gtg''Uej qqrl'qh''Vtcpurc\kqp''Uwf kgu'r wdrkuj gu''c''dkdrkqi tcr j \{ ''qh'\tcpurc\kqp''uwf kgu.'' y kj ''c'ugr ctcvg''xqnwo g'hqt''tgugctej ''kp''Hkppkuj 0

Tgegpv'tgugctej 'o qpqi tcr j u'cpf 'eqmgevkqpu'kpenxf g'Ccnxqpgp'3; ; 8."Ngr r kj cm g'3; ; 6."Qkxkpgp'3; ; 5." Rwxtxkpgp'3; ; 7"cpf 'Vktmmqpgp/Eqpf kk'cpf 'Nchhrlpi '3; ; 5."co qpi 'o cp{ 'qyj gtu0

Hlppkuj 'tgugctej 'lpp'eqo r wcwlqpcn'ikpi wkuskeu'cpf 'o cej kpg'\tcpurcwlqp'j cu'o cf g'f tco cwe'r tqi tguu'lpp'tgegpv' {gctu0'Vj tgg'o clqt'r tqlgewi'o c{ "dg"o gpwlqpgf "j gtg0'C v'ij g'F gr ctvo gpv'qh'I gpgtcn'Npi wkuskeu'cv'I gnulpnk' Wplxgtukx{ .''ij g'Tgugctej 'Wplx'hqt'O wnktlpi wcn'Ncpi wci g'Vgej pqmi { "cko u'vq'f gxgmr "r tqi tco u'hqt'vgto " kf gpwlhecwlqp"cpf 'tgvtkgxcn 'f kuco dki wcwlqp"cpf 'yi g'ceewtcvg'uwthceg'r ctukpi "qh'gzvgpukxg"eqtr qtc'\*kp'r ctwlewct." yi g'Dcpni'qh'Gpi rkuj "eqtr wu'qh'422"o kmlqp"y qtf u="r tqlgev'r ctvpgtu'ctg''yi g'EQDWKNF 'i tqwr "cv'yi g'Wplxgtukx{" qh'Dkto kpi j co 0'C'ugeqpf 'r tqlgev'cv'I gnulpnk'cpf 'Mqwxqnc''j cu'dggp'y qtmkpi 'y kyi 'RDO 'qp''cwqo cwle'Hlppkuj / Gpi rkuj 'ttcpurcwlqp."cpf 'qp'f gxgmr kpi 'uvcpf ctf k gf 'o cej kpg''tcpurcwlqp'ckf u'hqt''yi g'Gwtqr gcp'Wplqp0'C''yi ktf " r tqlgev."Mkgrkmqpg. 'ku'c'r tkxcvg/ugevqt 'gpvgtr tkug'y j kej 'ku'f gxgmr kpi "cp''cwqo cwle''tcpurcwlqp'u{uvgo 'htqo " Hlppkuj ''q'Gpi rkuj ='yi ku'u{uvgo 'j cu'dggp''

rlægpugf "d{ "P qmkc" Vgrgeqo o wpkeckqpu"cpf "vj g"r tqlgev"j cu"cn.q"r tqf wegf "c"pwo dgt "qh"j cpf/j grf "grgevtqpke" f keklqpctkgu" "Dtceg"3;;6+0

#### Hwt yj gt 't gcf kpi

Ccnqpgp''3; : 8="Ngj vq''3; : 8="Mqxcrc''3; : 7="O clco cc''3; ; 3="Qnknckpgp"cpf "Rwcmrc''3; : 9="Ucpf dcenc''3; : 9="Uqtxcrk'' 3; : 70

CPFTGY 'EJ GUVGTO CP

#### Dkqi tcrj kgu

CI THEQNC.'O knc gri\*e@732679+0Nwj gtcp'tghqto gt.'j wo cpkuv'cpf 'hqwpf gt'qh'nksgtct { 'Hkppkij .'y j kej 'j g'' xkt wcm( "et gevgf "cu'j g''tcpurc vgf 0J g'y cu'ugpv'vq''Y kwgpdgti "kp''3758''vq''uwf { 'wpf gt''NWVJ GT''\*ugg'<u>I GTOCP'' VTCF KVQP</u> +'cpf 'O gropej vj qp='vj gtg'j g'dgi cp'j ku'Hkppkij ''tcpurc vkqp''qh'vj g'P gy ''Vguvco gpv.'y kij ''vj g''cko ''qh'' gzr tguukpi ''vj g''dkdnkecn'o guuci g''kp''y g''gxgt { f c { 'ncpi wci g''qh''qtf kpct { 'Hkppu0J g''ncygt'tgwtpgf ''vq''ygcej kpi ''cpf'' geengukcu kecn'r quwu'kp''Vwtmw'cpf ''y cu''cr r qkpvgf ''dkuj qr ''qh''Vwtmw'kp''37760Ci tkeqroøu''tcpurc vkqp''qh''y g''P gy '' Vguvco gpv'y cu''r wdrkuj gf ''kp''376: ='j g'y qtngf ''htqo ''y g''I tggm'dw''cnuq''y kij ''y g''j grr ''qh''vtcpurc vkqpu''kp''I gto cp'' cpf ''Uy gf kuj 0J g''cnuq''tcpurc vfq''y g''Qnf ''Vguvco gpv0

ECLCPFGT.'Rccxq'Go kn'\*3: 6863; 35+0Rqgv.'wpkxgtukv{ 'ngewtgt'cpf ''tcpurcvqt'htqo ''Uy gf kuj '\*Twpgdgti +'' cpf ''Gpi nkuj 0'Kpur ktgf ''d{ ''y g''qr gpkpi ''qh''y g''Hkppkuj 'P cvkqpcn'Vj gcvtg'kp'J gnukpnk'kp''y g''3: 92u.'Eclcpf gt''ur gpv'' j ku'nkhg''vtcpurcvkpi ''cml'Uj cngur gctgøu''r rc{u'\*gzegr v'*Rgt kergu*+'kpvq'Hkppkuj 0'J ku''vtcpurcvkqpu''j cxg''j cf ''i tgcv'' kphrwgpeg''qp''Hkppkuj ''y gcvtg''cpf ''rksgtcwtg=''y g{ ''ctg''urkm'y g''qpn( ''qpgu''cxckrcdng'hqt''o cp{ ''qh''Uj cngur gctgøu'' r rc{u0}

J QNNQ.'Lwj q'Cwi ww'\*3:: 763; 89+0Rtqhguuqt 'qh'gf weckqp.'Wpkxgtuk\{"qh'J gnl\pnk"cpf"c'r qn\{i my\0J qmq" uwf \left\{ 'hqt'h\xg"\{ gctu'\kp"X\kgppc''cpf 'Ng\kr | \ki 'y j \kg'\uwr r qt\kpi ''j \ko ugrh'd\{ '\tcpurc\kpi \0J g'\revgt'\tcpurc\gf ''cp" gpqto qwu''co qwp\v'\gqxgt''422'\kwgu+"dq\j "r\kgtct\{ ''cpf ''pqp/h\ev\qp. ''cmpi u\f g'j \ku''o c\p''\cecf go \ke''qeewr c\kqp''cpf '' chgt''tg\kt\pi \0J g'\tcpurc\gf ''htqo ''o cp\{ ''rcpi wci gu. 'Gwtqr gcp''cpf ''pqp/Gwtqr gcp. '\kpenwf \kpi ''Ctcd\ke''cpf ''Ugtdq/Etqc\kcp\0J g'\uxct\gf ''y \kj ''Y \kn\co ''\Lco gu\pu\u''\ur ggej gu'\yi gp'\y gp\'qp'\q''gf wec\kqpcn'ercu\keu'\\Rgu\cmq| | \k''
O qp\guuqt\k+:''r j \kmqqr j \{ '\struct\gf ''\pgr cp. ''Upgro cp. ''T wu\gm''F guect\gu. ''Rrc\q. ''P \kg\\ uej g+''cpf ''n\kgtcwtg=''j g''cnq''
r qr \wrt\\ gf ''y qtm\u'\nq''y g'' gpgtcn'r \wdr\e0J qm\u'' cf ''u\wej ''c'\tgr \wc\kqp''y \kj ''r \wdr\k\uj gtu'\yi cv'\yi g''eq\wf ''y \ko ugrh''
uwi i gu\u'y qtm\u'\yi c\u'\pggf gf '\u'\dg'\tcpurc\yf '\mathrale gco r ng'\under qu\u\q\ gx\un\under .''I qg\u' g. ''\ci qtg. ''H\tcpeg+\0J g''\yi cf ''
eqpu\kf gtcdng'\ewn\wt\cn\\hp\n\wgpeg''cu'\c'\\tcpurc\up\to

N' PPTQV.'Grleu'\*3: 246: 6+0Ngcf kpi 'lki wtg'qh'y g'Hkppkij 'pcvkqpcrkuv'o qxgo gpv.'o gf kecrif qevqt.'hqmmqtkuv." y tkgt.'eqo r krgt 'qh'y g'Hkppkij 'pcvkqpcri'gr ke''*Mcrgxcrc* 'cpf 'r tqhguuqt 'qh'Hkppkij 'rksgtcwtg'cpf 'rcpi wci g''
\*I gnikpnk+0N\*/pptqv'y cu''co qpi 'vj qug'y j q'dtqwi j v'yj g'ur ktk/qh'yj g'Gprki j vgpo gpv'vq'Hkprcpf 0Co qpi 'c''
o wnkwf g'qh'qvj gt 'cevkxkkgu.'j g'ces wktgf 'r tqhkelgpe{ 'kp'c'pwo dgt'qh'hcpi wci gu'dw'vtcpurcvgf 'o quvn('dgw ggp''
Uy gf kuj 'cpf 'Hkppkij 0J ku'tcpi g'y cu''cuvqpkuj kpi <'r ctwi'qh'J qo gt.'r qgvt{.'j {o pu.'j kuvqt{.'cu'y gm'cu'uekgpvkhe.''
rgi cri'cpf 'o gf kecn'vgz vu'O'Vj tqwi j 'j ku'vtcpurcvkqpu''cpf 'rkuvu'qh'vgej pkecn'vgto u'j g'j grr gf 'vq'etgcvg''c'dcuke'Hkppkij ''
xqecdwrct{ 'kp''dqvcp{.'o gf kelpg''cpf 'rcy 0J g'y cu''c'r tqrkhle'y tkgt''cpf 'r wdrkuj gf 'o cp{ 'ctvkergu'\*vqo g'kp'vj g''
lqwtpcn'j g''gf ksgf +'qp''vtcpurcvkqp.'f gcrkpi 'y kj 'o cwgtu''cu'xctkgf 'cu''yj g''ghlgevu'qh'uj qtvgpkpi 'y qtf u'kp''
vtcpurcvkqpu''qh'j {o pu.'vj g''r tqdrgo u'qh'vtcpurcvkpi 'r qgvt{.'cpf 'y c{u'qh'etgcvkpi 'pgy 'Hkppkuj 'vgto u'kp''f khlgtgpv''
hkgrf u'OChygt 'tgvktkpi 'htqo 'j ku'r tqhguuqtuj kr 'j g''gf ksgf 'c'Hkppkuj ô Uy gf kuj 'f kevkqpct{ 'cpf 'ej cktgf 'vj g''
eqo o kvgg'y qtmkpi ''qp''yj g''Hppkuj 'j {o p''dqqn0}

O CPP IP GP.'Qwq'\*3: 9463; 72+0'Ngewtgt'kp'Hkppkuj.'Wpkxgtukv{ "qh'J gnukpnk"cpf "r qgv0J g''tcpurcvgf "c''y kf g" tcpi g'qh'r qgvt { "cpf "f tco c'\*qxgt'322.222'nkpgu+'kpenwf kpi 'T wpgdgti "cpf "Vqr grkwu'htqo "Uy gf kuj.'J gkpg'cpf " I qgvj g'htqo "I gto cp.'O qrk² tg'htqo 'Htgpej.'Rgvl/hk'htqo "J wpi ctkcp"cpf "J qo gt.'Uqr j qergu"cpf 'Gwtkr kf gu'htqo " I tggn0J g'y cu''cnq'ncpi wci g'tgxkugt'hqt''y g'Dkdrg''tcpurcvkqp''eqo o kwgg"

CPFTGY 'EJ GUVGTO CP

# Ht gpej 'tt cf kkqp

Rtlqt"\q"\y g"revg"O lf f rg"Ci gu. "\tcpurc\kqp"\p"Htcpeg"\ecppqv'dg"\uggp"\p"kuqre\kqp"\tqo "\y g"\NCV\P" \VTCF KV\QP" qh"Y guvgtp"Gwtqr g0Vj qwi j "\tcpurc\kqp"\kpu\revgtpcewrt "rcpi wci gu"dgi cp"\kp"\y g"grgxgpyj "\egpwt { "\kp"Gwtqr g."\y g" httuv"\tcpurc\kqpu"\kpu\revgtpcewrt "rcpi wci gu"dgi cp"\kp"\y g"grgxgpyj "\egpwt { "\kp"Gwtqr g."\y g" httuv"\tcpurc\kqpu"\kpu\revgtpcewrt "rcpi wci gu"dgi cp"\kp"\y g"grgxgpyj "\egpwt { "\kp"Gwtqr g."\y g" httuv"\tcpurc\kqp"\y cu" ectt\kgf "qw"\kp\q"\Nc\kp"\cpf" y cu"\wwcm\{"\wpf gt\cngp"\kp"\op qp\cwt\kgu\revgtp" wt\kpi "\y g"grgxgpyj "\cpf" "\wg gr\wg gry\kp\kgu" "\cpurc\kqp" \kp\q"\\kp\q"\kp\

Vj g'hqwpf cvkqp"qh'vj g'hktuv'wpkxgtukkgu'kp"Htcpeg'kp'vj g'vj ktvggpvj "egpwt{"i cxg"\tcpurcvkqp"kpvq"Htgpej "c"tgcn" ko r gww0C"egpwt{"rcvgt."vj g'wug"qh'Qnf "Htgpej "\*cu"qr r qugf "vq"Ncvkp+"dgi cp"vq"r tgxckn'kp"cf o kpkntcvkxg" f qewo gpvu. "dw'Ncvkp"o ckpvckpgf "kuu'uwr tgo ce{"cu"vj g"ncpi wci g"qh'uej qnctuj kr "wpvkn'vj g"Tgpckuucpeg"uki pcmgf "vj g"f genkpg"qh'vj g'i tgcv'Ncvkp"\tcf kkqp0J qy gxgt."vj ku'y cu"c"unqy "r tqeguu"cpf "vj g"wug"qh'Ncvkp"kp"uekgpvkhke" tcpuncvkqpu"ncuvgf "y gm'kpvq"vj g"gki j vggpvj "egpwt{"\*Mgm{"3; 9; +0

I wkmcwo g'f g'Nqtkuøu' $Tqo\ cp'f\ g'nc'Tqug'*eB457+$ 'kpenwf gu''tcpunc'kqpu''qh''Nc'kp''yzvu.''cpf''Xkti knøu''Cgpgkf''y cu'' cnuq''tcpunc'yg' 'kpvq''Qrf''Htgpej ''kp''yj g''yj ktvggpyj ''egpwt {0'Nc'kp''tcpunc'kqpu''qh''Ctcdke''o gf kecn''tgc'kugu''y gtg'' yj go ugnxgu''r ww'kpvq''Qrf''Htgpej .''cu''y gtg''c''pwo dgt''qh''ej tqpkergu''qh''Htgpej ''j kuvqt {''y j kej ''j cf''dggp''y tkwgp''kp'' Nc'kp.''hqt''gzco r ng''J kuvqt kec''Htcpeqt wo ''d {''I t²i qktg'f g''Vqwtu''y j kej ''f cvgu''htqo ''y g''ukzyj ''egpwt {.''cpf''y g'' yj ktvggpyj ''egpwt {''y qtm'}J kuvqt kc''Tgi wo ''Htcpeqt wo 0

Wpf gt"\u00ed g"\u00ed g\u00ed g\u00ed

# Vj g'tıkz vggpvj 'egpvwt { <'vj g'f gxgmqr o gpv'qh'Ht gpej 'cpf 'vt cpurc vlqp'qh'vj g'encudeu

Vj g'ukz vggpvj ''egpwt{ ''y kpguugf ''c'eqpukf gtcdrg'kpetgcug'kp''y g'pwo dgt ''qh''vtcpurc'kqpu. 'f wg''vq''y g'uko wrc'kpi '' kphrwgpeg''qh''y g'T gpckuucpeg''cpf ''y g'kpvtqf we'kqp''qh'r tkpvkpi ''vgej pqrqi {0T gpgy gf 'kpvgtguv'kp''y g'ercuukeu''rgf '' y g''J wo cpkuu''vq''tgwtp''vq''qtki kpcri'uqwtegu''cpf ''d{r cuu'o gf kgxcri'uej qrcuvkekuo .''y j kruv'y g''ugewrctk cvkqp''qh'' mpqy rgf i g'y j kej ''y cu''vtki i gtgf ''d{ ''y g'T gpckuucpeg''r tqo qvgf ''vtcpurcvkqp''kpvq''y g''xgtpcewrct''hqt''cp''gzr cpf kpi '' tgcf gtuj kr 'y j q'f kf ''pqv'j cxg'f kgev'ceeguu''vq''ercuukecri'uqwtegu0

 $\label{thm:linear:lin$ 

Vj gtg"y gtg"cnıq"pwo gtqwu'\tcpurc\kqpu'\htqo "Kcrkcp"f wtkpi "\y ku'r gtkqf 0Dqyi 'O ctqv\\kp"3766+"cpf "Rgrg\kgt"\kp" 3769+"\tcpurc\kqpu'\htqo "rcpi wci gu"qyi gt"\y cp"ercuukecri'cpf "Tqo cpeg"rcpi wci gu" y gtg"tguvtke\vgf "\q'Gpi rkuj "cpf 'I gto cpke'y qtmu."r gtj cr u'\y g"o quv'ko r qt\cpv'dgkpi "Htcp±qku'Dcwf qkpøu" \tcpurc\kqp"qh"Htcpeku'Dceqpøu'\Guuc\u0

Qpg"qh"yi g"dguv"npqy p"Hi gpej "tcpurcvqtu"qh"yi g"r gtkqf ."Lces wgu"CO [ QV"\*37356; 5+."kpvtqf wegf "ugxgtcn"I tggm" y qtmu"vq"Hi gpej "tgcf gtu."kpenvf kpi "Rnwctej øu"*Nkxgu*"cpf "Nqpi wuø"*F cr j pku"cpf "E j nqg.* "yi g"ncwgt "htqo "yi g"yi ktf" egpwt { "DE0Cmj qwi j "j ku"vtcpurcvkqpu"y gtg"vq"dg"etkkek gf "d { "uwdugs wgpv"vtcpurcvqtu"hqt"dgkpi "vqq"hkgtcn"yi g" vgzvu"y gtg"y tkwgp"y kj "yi g"Hi gpej "tgcf gt "kp"o kpf <"Co {qv"r tqxkf gf "i nquugu"cpf "f ghkpkkqpu"y j kej "f kf "pqv"gzkuv" kp"yi g"uqwteg"vgzv0J ku"vtcpurcvkqp"qh"Nqpi wuø"y qtm"y j kej "y cu"tgxkugf "kp"yi g"pkpgvggpyi "egpwt { "d { "Rcwn/Nqwku" Eqwtkgt."ku"uckf "vq"dg"dgwgt "npqy p"yi cp"Nqpi wuø'qtki kpcn'y qtm0Kp"r ctcmgn'y kyi "cwgo r vu"cv"cej kgxkpi "erctkv{ "qh" gzr tguukqp."yi g"wug"qh"co r nkhecvkqp"cu"c"tj gvqtkecn'f gxkeg"ku"cnuq"gxkf gpv"kp"vtcpurcvkqpu"f cvkpi "htqo "yi ku"vko g." cu"ecp"dg"uggp"kp"O kej gn'f g"Vqwtuø'xgtug"

vtcpurcvkqp"qh"Xkti knøu"Rcunqtcn/Rqgo u"3738+."y j kej "ku"nqpi gt" y cp"kuu uqwteg" yzv0 Vj g'j kunqtlecn'cpf 'ewnwtcn'eqpvgzv'kp'y j kej 'ttcpuncvkqp'y cu'r tcevkugf 'cpf 'xkgy gf 'kp'vj g'ukzvggpvj 'egpwt{ 'ku' etweken'\q'cp'\wpf gtuvcpf kpi ''qh'kwu'f gxgmr o gpv0Kp'375; .''c'tq{en'qtf kpcpeg'j cf 'f getggf ''Htgpej '\q''dg'\y g'' qlhkekcn'hcpi wci g'qh'y g'uvcyg."cpf 'y g'rkvgtct { "ekterg"mpqy p"cu"y g"Rn² kcf g"cf xqecvgf 'y g'ko r qukkqp"qh'Htgpej " cpf. "yj tqwi j "ewnkxcvkpi "kwu'wug. "kwu'guvcdrkuj o gpv'cu"c 'rcpi wci g"qh'gs wcn'uvcwuu'vq "Ncvkp0"kp'376; . "yj g'r qgv'cpf" Ncvkpkuvlqcej ko "f w'Dgmc{"\*3744682+"y tqvg" F²hgpug" gv/kmwut cvkqp" f g"hc'hcpi wg'ht cp±ckug." c"r co r j ngv'y j kej " j cu'dggp"f guetkdgf"cu"∹cp"cpyj qmi{"qh'cm'cti wo gpvu'ci ckpuv'\tcpuncvkqpø'™Oqwpkp"3;;6⊲35="\tcpuncvgf+0" Vtcpurcvkqp. "kp"qyj gt"y qtf u. "y cu'uggp"cu"cp"qduvcerg"vq"etgcvkxkv{ "kp"yj g"xgtpcewrct0'D{ "eqpvtcuv."yj g"uwwf { "cpf" ko kscvkqp'kp'Htgpej ''qh'encuukecn'vgzvu''y cu'tgi ctfgf''cu''c''nkvgtct{'i gptg.''cpf''cu'rqgvt{''y cu''yg'fqo kpcpv'nkvgtct{'' hqto "o cp{"xgtug"tcpurcvkqpu"y gtg"rtqf wegf "kp" y cv'xgkp0F w'Dgrrc{." j ko ugrh'c 'tcpurcvqt 'qh'Xkti kn" f knikpi wkuj gf "dgwy ggp"r qgvkecn'cpf "pqp/nkgtct { "\gz wi'cpf "eqpulf gtgf "\j g"hqto gt "wpvtcpurcvcdrg0'Vj g"\tcpurcvgf " vgzv'y cu'uggp''cu'wpcdrg'\q'r tqxkf g''÷j g''i tceg''cpf ''grgi cpeg''qh''y g''qtki kpcnø''y g''kpvtqf wevkqp''kpvq''Htgpej ''qh''cp'' crłegp'repi wei g'hato "dgłepi "ep"wpuwto awpwedre "qduweere OF w'Derre (øu et klekuo "qh' tepurc lap'y eu pav'y kaj aw' eqpugs wgpegu. "cu"y tkgtu"f wtkpi "yj ku'r gtkqf "vgpf gf "vq"f kuvcpeg" yj go ugnxgu"htqo "vtcpurcvkqp0" yj g"vtcpurcvkqpu" r gthqto gf "d{" 'y g" Rrt kcf g" ecp "dg" f guetkdgf "cu" c" eqo dkpc kqp "qh" hkygtcrkuo "cpf "kppqxc kqp. "y ky "eqpukf gtcdrg" eqkpci g'qh'pgqrqi kuo u'f gtkxgf 'htqo 'Ncvkp'cpf 'I tggn0

C'u{py guku'qh'ukz vggpyj /egpwt { "y qwi j v'qp''tcpurc vkqp''ecp''dg''hqwpf "\p''O kej grif g''O qpvcki pgøu''Guuc { u'\*37: 26 :: +0O qpvcki pg''vcmu''cdqwv''c''j kgtctej kecn'tgrævkqpuj kr "dgwy ggp''repi wci gu."y kyj "y g''xgtpcewret''dgkpi "uggp''cu" yi g''y gengt "kf kqo 0J g''cnq''f tcy u''c''f knkpevkqp''dgwy ggp''cgunj gyke''cpf "kphqto cykzg''vgzwi'cpf "uggu''y g''ncwgt''cu" dgkpi "nguu''r tqdngo cyke''hqt''yi g''tcpurcyqt0'Vj g''eqpegr v'qh''c''j kgtctej { "qh'ncpi wci gu."y kyj "encuukecn'ncpi wci gu''cv'' yi g''vqr "cpf "xgtpcewret''ncpi wci gu''cv'' yi g''dqwqo ."f qo kpcygf "ukz vggpyj /egpwt { "yj qwi j v."cpf "-xwri ctø'xgtpcewret'' rcpi wci gu''y gtg''eqpugs wgpwt { "tgi ctf gf "cu'wpuwkcdng"o gf kwo u''nqt''y g''f kuugo kpcykqp"qh''ewnwtg0 Vtcpurcykqp''cevkxkk { "r tkqt "vq''3822"egpvtgf "qp''encuukecn'nkgtct { "yz wt0J qy gxgt."yi g''tcpurcykqp''qh''uekgpykhke''yz wt'' kpetgcugf "eqpukf gtcdn( "f wtkpi "yi kri'r gtkqf ."yi kri'cur gev'qh''tcpurcykqp''pqv''dgkpi "chtgevgf "d{ "yi g''hkgtct { "f gdcygu" gr kqo k| gf "d{ "yi g''kxf krf go'Kr'kn''cnuq'y qtyi "pqykpi "yi cv'o cp{ "encuukecn'y qtmi'y gtg''tcpurcygf "kp"yi g''hkgrf u''qh'' ctej kgewtg."ci tkewnwtg. "pcwtcn'j knqt { "cpf "o gf kekpg."q'pco g''dw'c'hgy 0'Cu''y gm''cu'y qtmi'd{ "Rrkp{ ."I crgp" ctej kgewtg."ci tkewnwtg."pcwtcn'j knqt { "cpf "o gf kekpg."q'pco g''dw'c'hgy 0'Cu''y gm''cu'y qtmi'd{ "Rrkp{ ."I crgp" cpf "J kr qetcvgu."tcpurcykqpu'y gtg''o cf g''qh''Ncybp''xgtukqpu''qh''Ctcdke''y qtmu''cpf "qh''eqpvgo r qtct { "uekgpykhke" vgzw0'Qxgtcm "tcpurcykqp''hwpeykqpgf "cu'c''o gcpu''qh''ur tgcf kpi "npqy ngf i g''co qpi "yi g''o cuugu''cpf "qh''gptkej kpi " yi g''Htgpej "rcpi wci g0

# Vj g'lgxgpvggpvj 'cpf 'gli j vggpvj 'egpvwt lgu<igu'Dgngu'Kpllf ³ rgu

Vj g"getn("retv'qh'y g"ugxgpyggpy" "egpwt{"y cu'y g"i tgcv'ci g"qh'Htgpej "Encusekso ."dw'tcpurcvkqpu"y gtg" kpetgcukpi n("gzr gevgf "\q"eqphqto "\q"y g"hkgtct{"ecpqpu"qh'y g"f c{0Vj g"htgg"f {pco ke"tcpurcvkqpu"npqy p"cu"Ngu" Dgngu'Kphf 3 ngu'cko gf "\q"rtqxkf g"vcti gv'vgzwi'y j kej "ctg"r ngcucpv'\q"tgcf ."cpf "\y ku'eqpvkpwgf "\q"dg"c"f qo kpcpv' hgcwtg"qh'tcpurcvkqp"kpvq"Htgpej "y gmlkpvq"y g"gki j vggpyj "egpwt{0Encusecn'cwj qtu'y gtg"tgr tqf wegf "kp"c"hqto "y j kej "y cu"f kevcyf "d{"ewttgpv'Htgpej "hkgtct{"hcuj kqp"cpf" o qtcnkv{0Qpg"qh'y g"o ckp"hki wtgu"\q"cf qr v'y kı" crrtqcej "y cu"P keqrcu"RgttqvF øCDNCP EQWT V"\*3828686+"y j q"cf cr vgf "encusecn'vgzwi'\q"ewttgpv'ecpqpu"cpf" i gptgu"\*vj tqwi j "qo kuukqpu"cpf "-ko r tqxgo gpwø+"\q"uwej "cp"gzvgpv'yi cv'uqo g"qh"j ku'\tcpurcvkqpu"ctg"eqpukf gtgf" vcxguvkgu"qh'y gk"qtki kpcnx0F øCdncpeqwtv'vtcpurcvgf" o cp{"I tggmlcpf "Ncvkp"cwj qtu "kpenxf kpi "Ekegtq."Vcekwu" cpf "Vj we{f kf guvQy gt"vtcpurcvqtu"y j q"cf qr vgf "y ku'cr r tqcej "qh"-ko r tqxkpi ø'yj g"uywteg"vgzv'd{"f qevqtkpi "kv'q" uwkv'ewttgpv'ugpukdkrkkgu"kpenxf g"Nqwku'I kt{"\*37; 86388: +"Dgpugtcf g\*\*38356; 3+"Rkgttg"Rgttkp"\*3842697+"Rcwn' Rgnkuqp"\*38466; 5+"cpf "Igcp"Ugi tckp"\*384663923+0"kp"38: 3."O qpukgwt"f g"nc "Xcnxgtkg"r wdrkuj gf "c"r tqug" vcpurcvkqp"qh"J qo gtke"xgtug=kp"c"eqo o gpvct {"ceeqo r cp{kpi "y g"tcpurcvkqp."j g"lwwklygf "j kı"CF CRVCVkQP" qh'cpekgpv'ewnqo u'kp"yto u'qh'r tqr tkgv{"cpf ."r ctcf qzkecm{."hckj hwpguu'\q'y g"cwj qt"-y j q"f kf "pqv'kpvgpf "\q" qh'gpf "y g'tgcf gtø\*'s wqygf "kp"O qwpkp"3; 7713; ; 6-84+0\*Ugxgtcn'guuc{u'qp"y j g"

J qy gxgt. "cu'r qlpvgf "qw'd { "Dcmctf "\*3; ; 4 < 372 + "y g" Dgmgu'lphlf  $^3$  ngu'cr r tqcej "y cu'pqv'wpkxgtucm ("ceegr vgf 0lp" " r ctcmgn'y kj "vj g"nkgtct { "vtgpf "qh'vj g" Dgmgu' Kphf 3 ngu "o qtg"nkgtcn'cr r tqcej gu'y gtg"r wy'hqty ctf "d { "Ngo ckurtg" f g'Uce{ '\*38356: 6+.'y j q''\tcpurc\yf 'c''\Nc\\p''\xgtu\qp''qh''\y g''D\xdrg'\kp\q''Htgpej .''cpf ''R\xgttg/F cp\xgrl J \wgv\\*38526 3943+."y j q."kp" F g" Kpvgt r t gvc vkqpg" 3883+. "wti gf" 'y g" \tcpurc vqt" \q" \uj qy "j wo krk \{" \qy ctf u' \uj g" \uqwteg" \gz v0' O go dgtu'qh'y g'Cddg{ 'qh'Rqtv'Tq{cn'pgct'Rctku.'uvtkxgf 'hqt'hkf grkv{ 'kp'y gkt'o cp{ '\tcpurc\kqpu'cpf'' tgvtcpurcvkqpu'qh'tgrki kqwu'vgzvu. 'kpenwf kpi 'Cpf t² 'F w'T { gtøu'vtcpurcvkqp''qh'vj g'S WTø P 'kp'38690 Cu'y gm'cu'cpekgpv'vgzw'qp''ctej kgewtg'kp''Ncvkp. "eqpvgo r qtct { "y qtmu'qp"o gf kekpg"cpf "r j cto ceqmi { "cpf "vgzw" kp'Higo kij 'cpf 'Rqtwi wgug'y gtg'tcpurcygf OC'i tqy kpi 'pwo dgt'qh'Ur cpkij .''Kicrkcp'cpf 'Gpi rkuj 'y qtmi'kp''dqvj " yj g'hkgtct { "cpf "pqp/nkgtct { "f qo ckpu"y gtg"cn.q "\tcpurcvgf "f wtkpi "yj g"ugxgpvggpyj "egpwt { 0 Vj g { "kpenwf gf " Egtxcpvguø'Fqp'S wkzqvg. 'O ctkpqøu'Cfqpku'cpf 'Tqdgtv'I tggpøu'RcpfkuqO'Vtcpurcvkqpu'qh'O cej kcxgmkøu'' Fkueqwtug. "Htcpeku" Dceqpøu" Oqtcrl Guuc { u. "cpf "Iqj p" Nqengøu" \tgc\kugu. "Ekxkrl I qxgtpo gpv" cpf "Guuc { "qp" I wo cp" Wpf gt uvc pf kpi . "eqpvtkdwgf "vq"c"tkej "r j krquqr j kecn'cpf "r qrkkecn'f gdcvg"f wt kpi "vj ku'r gt kqf 0 Vj g'grgi cpv'gki j vggpvj /egpwxt { ''\tcpurcvkqpu''qh''vj g'ercuukeu''y gtg''vj g'f kuvqtvgf ''nqqmkpi /i rcuu''vj tqwi j ''y j kej " o cp{"xkgy gf "yj g"ercuukeu"kp"yj g"ci g"qh"Gprki j vgpo gpv0"Vtcpurcvkqp"nquv'r qr wrctkv{."dqyj "cu'c"rkvgtct{"i gptg"kp" kughl'cpf "cu"cp"kpuxtwevkqpcn'vqqn "cpf "vq"cp"kpetgcukpi "gzvgpv'kv'y cu'uwr r ncpvgf "d{ "cp"kpvgtguv'kp"eqpvgo r qtct{" hqtgki p'y qtmu'kp'y g'hkgrf u'qh'uekgpeg'cpf 'rkkgtcwtg0

Vj g"gki j vggpyj "egpwt { "ucy "c"i tcf wcn'nquu'qh'lkpvgtguv'kp"encuukecn'ncpi wci gu'cpf "c"i tqy kpi "kpvgtguv'kp"I gto cp" cpf "Gpi nkuj "ewnwtgu0'Vj g"r j knquqr j gt "cpf "gpe { emqr gf knv'F kf gtqv'\*39356: 6+'y cu"gur gekcm{ "mggp"qp"Gpi nkuj " nkvgtcwtg"cpf "r tqf wegf "cp"ko kcvkqp"qh'Uco wgn'T kej ctf uqpøu'Rco gnc0'Xqnxcktg'\*38; 66399: +'y cu'kpuvtwo gpvcn' kp"f gxgmr kpi "c"r cuukqpcvg'kpvgtguv'kp"Gpi nkuj "y qwi j v'cpf "nkvgtcwtg'kp"Htcpeg0'Vj g"f tco cvknv'Igcp/Htcp±qku" F weku'\*395563: 38+'cf cr vgf "Uj cmgur gctkcp" vtci gf kgu'hqt "y g'Htgpej "uvci g. 'r tqxkf kpi "cp"cnvgtpcvkxg"gpf kpi "vq" Qvj gnq0'Vj ku'kpvgtguv'ewno kpcvgf "kp"y g"y kf gur tgcf "vtcpurcvkqp"qh'Gpi nkuj "I qvj ke"pqxgnu'f wtkpi "y g"I qvj ke" tgxkxcn'cv'y g"gpf "qh'y g"egpwt {0

Vj tqwi j qw'y g'gki j vggpy 'egpwt { ''tcpurcvkqpu'htqo ''Gpi nkuj ''qwpwo dgtgf ''y qug'htqo ''cp { ''qyi gt''ncpi wci g0' J qy xgt.''y gtg'y gtg'uqo g''tcpurcvkqpu'qh'I gto cp''cpf ''Kcnkcp'y qtmu.''hqt''gzco r ng''Cpvqkpg'f g'Tkxctqn' vtcpurcvgf ''F cpvgøu'Fkxkpg'Eqo gf { ''kp''39: 50

Vj gqtgvkecn'f kuewunkqpu''qh''vtcpurcvkqp''eqpvkpwgf 'f wtkpi ''y g''gki j vggpyj ''egpwt {0Lgcp''rg'Tqpf 'f øCrgo dgtv' \*39396: 5+.''y j q''eqnrcdqtcvgf ''y kyj 'F kf gtqv''qp''y g''eqo r krcvkqp''qh''*NøGpe{enqr* ² f kg. ''eqo o gpvgf ''gzvgpukxgn( ''qp''

tcpurcvkqp"f kthkewnkgu."uggkpi "ko kvcvkqp"tcvj gt"vj cp"vtcpuetkr vkqp"cu"c"uwkvcdrg"dcuku"hqt"vj g"cev'qh"vtcpurcvkqp0' CFCRVCVKQP "y cu"pqv'uggp"cu"dgvtc { cn'dw'tcvj gt "cu"c"o gcpu"qh"cf lwuvkpi "vj g"hqtgki p"y qtm'vq"uwkv" eqpvgo r qtct { "vcurgu0Ej ctrgu"Dcvgwz" \$39356: 2+"uvtguugf "vj g"pggf "hqt"i tco o cvkecn'tguvtvewvtkpi "kp"vtcpurcvkqp0' Vtcpurcvkqp"y cu"cnuq"emugn{ "cuuqekcvgf" y kij "vj g"f kf cevke"hwpevkqp"qh'rkvgtcwvtg"f wtkpi "vj ku"r gtkqf 0'Qp"vj g" y j qrg. "j qy gxgt."vj ku"y cu"c"r gtkqf "qh'vtcpukvkqp"f wtkpi "y j kej "vtcpurcvkqp"vj gqt { "y cu"i gwkpi "tgcf { "vq"rgcxg"vj g" ci g"qh"ercuukekuo "dgj kpf "cpf" r tgr ctg"vj g"i tqwpf "hqt"vj g"Tqo cpvke"kpukvvgpeg"qp"rkvgtcrkuo 0

## Vj g'Tqo cpwe'gtc

Vj g'Tqo cpvkeu'dtqwi j v'rkvgtcrkuo ''dcem'kpvq''hcuj kqp''kp''y g''pkpgvggpyj ''egpwt{.''wpf gt''y g''kphrwgpeg''qh'I gto cp'' r j krquqr j { ''\*ugg''<u>I GTO CP ''VTCF KVKQP</u> +0'Vj g{ ''uqwi j v'vq''÷tcpuhgt''y g''etgcvkxg''r qy gt''qh''i tgcv'y tkvgtu''qh''qy gt'' rcpi wci gu''kpvq''y gkt''qy pø'\*Mgm{ ''3; 9; 5+.''cpf ''go r ktlekuo ''i cxg''y c{ ''vq''c''o qtg''r j krquqr j kecn'cr r tqcej 0'Co qpi '' pkpgvggpyj /egpwt{ ''tcpurcvqtu.''Ices wgu''F gmkrg'\*395: 63: 35+.''Rcwn'Nqvku''Eqwtkgt'\*399463: 47+.''Ngeqpvg''f g'' Nkurg'\*3: 3: 6; 6+.''Ej ctrgu''P qf kgt''\*39: 263: 66+.''Crhtgf ''f g''Xki p{ ''\*39; 963: 85+.''Crgzcpf tg''F wo cu'\*3: 24692+'' cpf ''Htcp±qku'Xkevqt''J wi q'\*3: 4: 695+'y gtg'r ctvkewrctn{ 'y gm'mpqy p0

Kp"y g"htuv" crh'qh"y g"pkpgvggpy "egpwt {."y g"ej qkeg"qh"vtcpurcvkqp"uvtcvgi {"f gr gpf gf "qp"y j gy gt "y g"uqwteg" vgzv"y cu"c"ercuukecri'qt "c"tgegpv"y qtn0Hqt"gzco r rg. "Nkwt² "vtcpurcvgf "y g"htuv"r ctv"qh"Vj g"kdcf "kp"o gf kgxcri'xgtug" kp"3: 69<"j g"f grkdgtcvgn("wugf "c"hqto "qh"rcpi wci g"y j kej "r tg/f cvgf "y g"eqf khecvkqp"qh"Htgpej "kp"y g"ugxgpvggpy " egpwt {0

Kp"F g"hφGur th"f gu"t cf werkapu"\*τ wdrkuj gf "kp"3: 42±" yj g"y tkyt."etkke"cpf "tcpurcyt"O cf co g"f g"Ucµnl\*39886 3: 39±"utguugf "yj g"ikytct { "hwperkap"qh"tcpurcykap"cpf "kuu"wughwpguu"kp" yj g"tgpgy cn'qh"yj g"wcti gv"ewnwtg0 Vj g"r tghceg" 'q"Ngeappy"f g"Nkurgøu"tcpurcykap"qh"yj g"*Khcf* "cppawpegf "yj cv'yj g"gtc"qh"yj g"*Dgngu"Kphf* ³ ngu"y cu" qxgt." yj knn'Ej cvgcwdtkcpf "f guetkdgf "j ku"tcpurcykap"qh"O knappøu"Rctcf kug"Nquv"cu"±tcegf ø"\*ecns w² +"wukpi " tguqwtegu"qh"yj g"vcti gv"rcpi wci g"yj cv"y gtg"enquguv"vq"yj qug"qh"yj g"uqwteg"rcpi wci g0Vj g"± ngcukpi ø'hqto "qh"yj g" Htgpej "ygzv"y cu"pqy "tgi ctf gf "cu"ugeapf ct { "vq"yj g"enqug"tgr taf werkap"qh"yj g"uv{ ng"qh"yj g"uqwteg"yzv="yj g" Tqo cpyke"ci g"y cu"nqankpi "hqt"hqtgki ppguu0"Vtcpurcykap"y cu"apeg"o qtg"tgi ctf gf "cu"cp"ceegr wcdng"nkytct { "ceykxky" ."cpf "o cp{"encuukecn'y qtmu"y gtg"tgytcpurcyf"kp"c"ur ktk/qh"j knytkecn'tguxkwykapp."y j kej "tgr tgugpygf"c" engct"ur nk'y kj "yj g"tcf kkyp"qh"yj g"*Dgngu"Kphf* ³ ngu0Co qpi uv"yj g"o cp{"y qtmu"y j kej "y gtg"tgytcpurcygf"y gtg" Xkti knyu"Genqi wgu "j kn"Rcuvqt cn'Rqgo u"cpf "yj g"Cgpgkf"."J qo gtøu"Gr keu "cpf "Ctkuvqvgøu"O gvc rj {ukeu "Rqrkskeu" cpf "Nqi ke0

C'eqpulf gtcdrg'pwo dgt'qh'Gpi rkuj 'r qgw'cpf 'y tkgtu'y gtg''tcpurcvgf 'f wtkpi ''y ku'r gtkqf .''y kj 'pwo gtqwu'' tcpurcvkqpu'qh'Uj engur gctkcp''vgzw'dgkpi ''o ef g0'O knqpøu''*Ret ef kug''Nqw*'y eu''tcpurcvgf ''d { 'F gnkrg''cpf '' Ej evgewdtkcpf '\*398: 63: 6: +0'Vtcpurcvkqpu''qh'D { tqp. 'Eqngtlf i g. ''Ueqw''cpf 'F kengpu''hqwpf ''cp''gei gt''o etngv.''cu'' f lf ''y qug''qh'Co gtkecp''rkvgtcwtg0'Ej etngu''Dcwf gncltg''\*3: 43689+'y eu''c''hgtxgpv''tcpurcvqt''qh''y g'y qtmu''qh''Gf i et'' Cmcp''Rqg0

Vj gtg'y cu'cnıq'c'i tqy kpi 'kpvgtguv'kp'uekgpeg.'y kj 'vj g'r j krquqr j gt''Rcwr/i o krg''Nkwt² '\*3: 236: 3+'tgvtcpurcvkpi " J kr r qetcvgu''dgwy ggp''3: 5; "cpf ''3: 83."cpf ''o cp{ "vtcpurcvkqpu'qh''eqpvgo r qtct { 'y qtmu''cnkpi ''r reeg'kp''y g''hkgrf u'' qh''o gf kekpg."pcwtcn'uekgpeg''cpf ''i gqi tcr j { ."co qpi ''qvj gtu0'Vj g''kpvgtpcvkqpcnk cvkqp''qh''uekgpeg''cpf ''y g'' eqpuvcpvn { "gzr cpf kpi ''r qvgpvkcn'tgcf gtuj kr 'hwgngf ''cp''gxgt''i tqy kpi ''f go cpf 'hqt''y g''vtcpurcvkqp''qh''eqpvgo r qtct { ''y qtmu0'

Vj g'pkpgvggpvj 'egpwt { ''y cu''cnıq''ej ctcevgtk gf ''d { ''c'r tcevkeg''qh'r tqf wekpi 'r ctcngn'vtcpurcvkqpu''kp''xgtug''cpf ''r tqug0'I kxgp''y g'f khhewn { ''cpf ''cf f kkqpcn'eqpuvtckpvu''wpf gt 'y j kej ''xgtug''vtcpurcvkqp''j cu''vq''dg''r tqf wegf .''r tqug'' vtcpurcvkqp''dgeco g'y kf gur tgcf ''cpf ''uqqp''f gxgnqr gf ''kpvq''c''hkgtct { ''i gptg0

## Vtcpurcykqp'kp'tjg'tygpvkgtj'egpvvt{

Vj g'Tqo cpvke'ugctej 'hqt'kppqxcvkqp''y tqwi j ''y g'wug'qh'vtcpurcvkqp''y cu'r wtuwgf ''y gm'kpvq''y g'w gpvkgyj ''egpwt{." cpf 'kpvgpug'vtcpurcvkqp''cevkxkv{ ''d{ ''pwo gtqwu''cwj qt/vtcpurcvqtu''ej ctcevgtk gf ''y g'hktuv'f gecf gu0 Vj g''pwo dgt''qh''cwj qt/vtcpurcvqtu'y j q'r tqf wegf ''Htgpej ''xgtukqpu''qh'hqtgki p''y qtmu''qt''tgvtcpurcvgf ''y g''ercuukeu'' f wtkpi ''y ku'r gtkqf ''ku''eqpukf gtcdrg0Co qpi ''y go .'Cpf t² 'I kf g'\*3: 8; 63; 73+'vtcpurcvgf ''Uj cngur gctg.''Xcrf t{ ''

 $\label{thm:linear:condition} \begin{tikzpicture} Wtcpurckqpu'qh'eqpvgorqtct { ''y qtmu'pqy ''crrgct'cmo quv'uko wncpgqwun( ''y ky ''y g''qtki kpcnu.''y ky ''\tcpurckqp'' htqo ''Gpi rkuj ''rgcf kpi ''y g''y c { 0O quv'Gpi rkuj ''cpf 'Co gtkecp''dguv'ugngtu'ctg''\tcpurcvgf''kpvq'Htgpej = "WP GUEQ'' uvcvkuvkeu'hqt''y g''{ gctu''3}; : 365'kpf kecvg''y cv'crrtqzko cvgn{ ''5.722''\tcpurcvkqpu''y gtg''r wdrkuj gf 'kp''Htcpeg''f wtkpi '' y cv'r gtkqf 0O qtg''tgegpv''guvko cvgu''uwi i guv''y cv''\tcpurcvkqpu''tgrtgugpv''lwuv''qxgt''8''r gt''egpv''qh''y g''58.222''\tkurgu'' r wdrkuj gf ''kp''Htcpeg''gxgt { ''{ gct.''cpf''hqt''uqo g''r wdrkuj kpi ''j qwugu''cu''o wej ''cu''52''r gt''egpv''qh''y gkt''qwur wv''eqpukuvu'' qh''\tcpurcvkqpu0\Rtqdrgo u''qh''rksgtct { ''\tcpurcvkqp''ctg''htgs wgpvn{ ''tckugf''kp''y g''o gf kc''cpf''ugxgtcn''cy ctf u''y cxg''dggp'' etgcvgf ''\q''cempqy rgf i g''qwuvcpf kpi ''\tcpurcvkqpu''kpvq''Htgpej .''r gtj cr u''y g''dguv''mpqy p''qh''y gug''dgkpi ''y g''r tkz'' Rkgttg/Htcp±qku'ECKNN: .''y j kej ''y cu''etgcvgf ''kp''3; : 20$ 

#### Tgugctej 'cpf 'tckpkpi

Vj gqtgkecn'kuwgu'j cxg''dggp''cf f tguugf ''d{ ''hpi wkwu.''r j krquqr j gtu''cpf ''tcpurcvqtu0'lfp''3; 68. "Xcrif t{ ''NCTDCWF'' r wdrkuj gf ''j ku''*Uqwu'nkpxqecvkqp'f g''Uckpv'L² t\/vo g*. "c''eqo r gnkpi ''tkdwg''q''j kurqtkecn'hik wtgu''kp''y g''hlgrf ''qh'' vtcpurcvkqp''cpf 'c''eqnrgevkqp''qh'j gctvlgn''guuc{u''qp''ku''r tcevkeg0'lfp''3; 77. "I gqti gu'O QWP IP'' r wdrkuj gf ''*Ngu'Dgngu'' lfplf ''ngu*''c'f kuewuukqp''qh'j kurqtkecn'cti wo gpvu''ci ckpuv'vtcpurcvkqp0'J g''hqmyy gf ''yj ku''kp''3; 85''y kyj ''*Ngu''r t qdrif o gu'' yi ²qtks wgu'f g''nc ''vt cf wevkqp*. "y j kej ''tgrtgugpygf ''c''wtplpi ''r qlpv'lp''yj g''yj gqtgkecn'uwf { ''qh''vtcpurcvkqp0'Qvj gt'' y gm/mpqy p''eqpvgo r qtct { ''Htgpej ''yj gqtkuru'kpenwf g'Igcp/Tgp² ''Ncf o ktcn''J gptk'O guej qppke''cpf ''Cpvqkpg'' DGTO CP 0'Dqvj ''O guej qppke''cpf ''Dgto cp''hqmqy ''yj g''Tqo cpvke''vtcf kkqp''kp''cti wkpi ''ci ckpuv'yj g''pcwtcrk cvkqp'' cpf ''cr r tqr tkcvkqp''qh''y g''uqwteg''yzv'd{ ''yj g''cti gv'ewnwtg0'Tgpgy gf ''kpvgtguv'lp''yj g''j kurqt { ''qh''vtcpurcvkqp''yj gqt { ''cpf ''r tcevkeg''ku'kmwutcvgf ''kp''y qtmu''d{ ''O lej gri'Dcmctf '\*\\$;;;4+'cpf ''Nkgxgp'F øj wnv'\\$'3;;2+0P wo gtqwu'' r wdrkecvkqpu''qp''ur gelcrk gf ''tcpurcvkqp''j cxg''gzr mtgf ''yj g''f kf cevkeu''cpf ''r tcevkeg''qh''dqyj ''tcpurcvkqp''cpf ''kpvgtr tgvkpi ''ku''eqpegtpgf . ''yj g''dguv'mpqy p''tgugctej gtu''kpenwf g''F cpkec''Ugngunqxkej ''cpf '' kpvgtr tgvkpi ''Ocu''ct''cu''kpvgtr tgvkpi ''ku''eqpegtpgf . ''yj g''dguv'mpqy p''tgugctej gtu''kpenwf g''F cpkec''Ugngunqxkej ''cpf '' kpvgtr tgvkpi ''kp''g ggt'' kg''ys'; 7c''cpf ''3;;7d+0

Htcpeg'ku'ewttgpvn{"cp'ko rqtvcpv'egpvtg'hqt'tgugctej "cpf "\tckpkpi 'kp'\tcpurc\kqp"cpf 'kpvgtrtg\kpi 0GUKV.'y j kej 'ku' c''rctv'qh'\j g''\Wpkxgtuk\{"qh'\j g''\Uqtdqppg'P qwxgmg'kp'Rctku."gplq{u'c''y qtnf y kf g'tgrwc\kqp."dgkpi 'qpg'qh'\j g'' hgy 'kpukwwkqpu'y j kej "qhhgt"f qevqtcn'rtqi tco o gu'kp'\tcpurc\kqp"cpf "kpvgtrtg\kpi 0KUKV'\Kpukww'Uwr²tkgwt'' føkpvgtrt² vc\kqp"gv'f g''\Vtcf we\kqp+'ku'cpq\j gt''y gm'npqy p'\tckpkpi "egpvtg."cnuq'dcugf 'kp'Rctku0Kp''cf f kkqp." ugxgtcn'\wpkxgtuk\kgu'qhhgt "eqwtugu''y j kej 'kpenxf g'c''eqo rqpgpv'qh'\tcpurc\kqp"cpf 'kpvgtrtg\kpi 0 C''eqmge\kqp"qh''dqqmu''qp'\tcpurc\kqp''uwf kgu'ku'r wdrkuj gf 'd{ ''RWN'\Krtguugu'Wpkxgtukcktgu''f g''Nkng+'\wpf gt'\j g'' gf kqtuj kr 'qh'O kej gn'Dcnctf.'cpf 'cpq\j gt''d{ 'F kf kgt'' twf kkqp.'\wpf gt'\j g''cgi ku'qh'F cpkec'Ugngunqxkej '' \*eqmge\kqp'\tcf we\kqnqi kg+''dq\j 'tghrge\kpi ''c''i tqy kpi 'kp\gtgu\kp'\j g''uwdlge\v'qh'\tcpurc\kqp''kp''Htcpeg0Lq\ktpcnu'' fgf kecvgf '\q'\tcpurc\kqp''kpenxf g''\tcf wkt g''cpf ''Rcrho rugunguO

### Qti cpk/cvkqp'qh'vj g'rtqhguukqp

Vjg"UHV"qt"Uqek?v?"htcp±ckug"fgu"\tcfwevgwtu"\Cuuqekc\kqp"qh"Htgpej"Vtcpurcvqtu+'ycu"

hqwpf gf 'lp'3; 69'cpf 'r wdrkuj gu'ku'qy p'lqwtpcri'*Vtcf wkt g0*'Wpvkri'y g'gctn{ '3; 92u.'y j gp''y g'CVN'\*Cuuqekcvkqp'' f gu'\tcf wevgwtu'rkw² tcktgu'f g'Htcpegô Htgpej 'Cuuqekcvkqp''qh'Nksgtct{ ''Vtcpurcvqtu+'y cu'hqwpf gf .'vj g'UHV'' tgr tgugpwgf ''cm'ecvgi qtkgu'qh'\tcpurcvqtu.'kpenwf kpi ''rksgtct{ ''vtcpurcvqtu0'Vj g''cko u''qh'y g'UHV'kpenwf g'r tqvgevkpi '' y g''tki j w''qh'\tcpurcvqtu''cpf ''ugvvkpi ''crrtqrtkcvg'\tcvgu''qh'tgo wpgtcvkqp0'O qxgu''ctg''ewttgpvn{ ''chqqv'\q''tguvtkev'y g'' r tcevkeg''qh'eqwtv'kpvgtrtgvkpi ''q''s wcrkhlgf 'kpvgtrtgvgtu'O

Klu'lp''y g''r quv'y ct''r gtkqf "y cv'tcpurcvkqp''kp''Htcpeg''j cu'dgeqo g'c''r tqhguukqp."cu''qr r qugf "vq'cp''cpekrat { " cevkxk/{0Gxgp'uq."o wej "qh'y g''tcpurcvkqp''y qtm'qp''y g''htggrcpeg''o ctngv'ku'uvkm'wpf gtwngp''d{ "r ctv'vko g" vtcpurcvqtu'y j q''ctg''pqv'pgeguuctkn( "s wcrkhgf "cpf "y j q''vgpf "vq''ceegr v'my gt''hggu."y wu''hqtekpi "vtcpurcvkqp''tcvgu" f qy p."vq''y g''ej ci tkp''qh''y g''±r tqhguukqpcnx0Ukpeg''3; 79."vtcpurcvqtuxo'tki j vu''j cxg''dggp''eqxgtgf "d{ "rgi kurcvkqp." y j kej "r wu''y go "qp''cp''gs wcn'r ct''y ky "y tkxgtu''cu''tgi ctf u''eqr {tki j v'cpf "uqekcn'kpuwtcpeg0'Vj g''O kpkut { "qh" Ewnwtg''j cu''cwgo r vgf "ukpeg''y g''3; : 2u''vq''ko r tqxg''y g''ukwcvkqp''cpf "uvcwu''qh''vtcpurcvqtu''d{ "o gcpu''qh" rgi kurcvkqp."y j kurv'y g''EP N'\*Egpvtg''pcvkqpcn'f gu''Ngwtgu+"r tqxkf gu''i tcpurcvqtu''vq''g g''tcpurcvkqp''qh''egtvckp'' hqtgki p'y qtm'0C''uo cm'pwo dgt''qh''dwtuctkgu''ctg''cnnq''cy ctf gf "vq''vtcpurcvqtu''vq''cempqy rgf i g''qwuvcpf kpi "vtcpurcvkqp''y qtm'qt''vq''hcekrkcvg''y g''tcpurcvkqp''qh'y qtmi'y j kej "ctg''wprkngn("vq''cwtcev'c''y kf g''tgcf gtuj kr 0

### Hwt vj gt 't gcf lpi

O [ TICO 'UCNCO C/ECTT

## Dkqi tcrj kgu

CO [ QV.'Lees wgul\*37356; 5+0Htgpej "J wo cpkn/cpf "tcpurcyt0Y j knn/Rtqhguuqt"qh'I tggn/cpf "Ncvkp"cv" Dqwti gu. "Co {qv'tcpurcyf" "Vj²ci³pg"gv'Ej ctkerl g"\*3769+."\j g"\j ktf/egpwt{"I tggn/y qtm'qh''J grkqf qtqu."hqt" y j kej "j g"y cu'tgy ctf gf "d{"Mkpi "Htcpeku'K'y kj "\j g"cddg{"qh''Dgmq| cpg0J ku''tcpurcvkqp"qh''Nkxgu'\*377; 687+"y cu" hqmqy gf "d{"hwtyj gt'tq{cn'wwgrci g."cpf "uwdugs wgpvn{"d{"\j g"dkuj qr tke"qh''C wzgttg0J g'\tcpurcvgf "ugxgp"dqqmu'qh" F kqf qtwu'\*3776+."Nqpi wuø'F crj pku'cpf "Ej nqg"\377; +"cpf "Rnwctej øu''Qrgtc"Oqtcn/c"\3794+0J ku''nkxgn{"cpf "kf kqo cvke"xgtukqp"qh''Rnwctej øu''Xkgu'f gu'j qo o gu'knwunt gu'y cu''q"r tqxkf g"Uj cmgur gctg"y ky "o cvgtkcn'hqt"j ku" Tqo cp"r ræ{u."cpf "Ukt"Vj qo cu"P qtyj "cnuq"dcugf "j ku'Gpi rkuj "\tcpurcvkqp"qp"k0Co {qv'\qqmi tgcv'r ckpu'\q''hlpf" cpf "kpvgtr tgv'y g''dguv'cwj qtkkgu0Vj g'uko r nkek{"cpf "r wtk{"qh'j ku''rcpi wci g'y qp"\y g''r tckug'qh'O kej gn'f g" O qpvcki pg"cpf 'Co {qv'cej kgxgf 'lo o gpug'r qr wrctk{"gzgtekukpi "i tgcv'kphrwgpeg"qxgt "uweeguukxg"i gpgtcvkqpu'qh'' Htgpej "y tkgtu0

DGTO CP.'Cpwqkpg'\*3; 696; 3+0Htgpej ''y gqtkuv'cpf ''tcpurcvqt''qh''Ncvkp'Co gtkecp''rkgtcwtg''cpf 'I gto cp'' rj kquqrj {0'Dgto cp'ku'y gm'mpqy p'hqt''j ku'rj kquqrj kecn'uvcpeg''qp''tcpurcvkqp.''y j kej ''ngf ''j ko ''vq''tglgev'cp'' gyi pqegpvtkuv'crrtqcej ''vq''tcpurcvkqp''cu'tgrtgugpvgf ''d{ ''tcpuhqto cvkqp''cpf ''CF CRVCVKQP 0'J ku''dguv'mpqy p'' y gqtgvkecn'y qtm'ku''Nø' rtgwxg'f g'nø' vtcpi gt.''hqt'y j kej ''cp''Gpi nkuj ''vtcpurcvkqp''ku''cxckrcdng''\*Dgto cp''3; ; 4+0'J ku'' y qtm'kp''i gpgtcn'j cu''dggp''j ki j n{ ''kphrwgpvkcn'cpf ''j cu''kpurktgf ''ewttgpv''y gqtkuvu'uwej ''cu''Ncy tgpeg''Xgpwkk'\*ugg'' UVTCVGI KGU'QH'VTCP UNCVKQP +0'Qpg''qh''y g'uvtgpi y u''qh''Dgto cpøu''y qtm'ku''y cv'j g'nkpmu''j ku'rj krquqrj kecn' y qwi j v''q''ur gekhle''ecug''uwwf kgu''qh''tcpurcvkqp0

ECKNN: .'Rkgt t g/Ht cp±qkt'\*3; 2969; +0'Y j knuv'y qtmkpi "cu'cp"kpuwtcpeg"engtm'kp'Rctku. "Eckm² "uwwf kgf "r ctv vko g" cpf "qdvckpgf "c"f qevqtcvg"kp"r qnkkecn'geqpqo {0J ku"eqo o cpf "qh'Gpi nkuj "ncvgt"cmqy gf "j ko "vq"guvcdnkuj "j ko ugnh" cu"c"r tqhguukqpcn'vtcpuncvqt. "cpf "kp"3; 5; "j ku'vtcpuncvkqp"qh'O cti ctgv'O kej gmzu"I qpg"Y kyj "ij g"Y kpf "y qp"hktuv' r tk g"kp" y g"Uqek² v² "f gu'i gpu'f g'ngwtgu0Cp"kplwt { "uwuvckpgf "f wtkpi "j ku"ej knf j qqf "o gcpv'y cv'j g"y cu"pqv' eqpuetkr vgf "f wtkpi "Y qtnf "Y ct"Vy q. "cpf "j g"ur gpv'y g"{ gctu'htqo "3; 62"vq"3; 67"vtcpuncvkpi "Cpi nq/Co gtkecp" encuukeu"cpf "r wtuvkpi "tgugctej "qp"ukzvggpy /egpwt { "Gpi nkuj "y gcvtg0"kp"y g"{ gctu'hqmqy kpi "y g"Y ct"j g"y qtngf " vtgnguun("vq"r tqo qvg"kpvgtpcvkqpcn'vpf gtuvcpf kpi 0J g"hqwpf gf "y g"Dkdnkqyj 3 s wg"kpvgtpcvkqpcng."cpf "

FøCDNCPEQWTV.'P leqre u'Rgt t qv'\*3828686+0'Utqpi n( 'kphrwgpegf 'd{ "Ncvkp"ewnwtg. "f øCdrcpeqwtv'y cu'c" rgcf kpi 'tgr tgugpvcvkxg"qh'vj g"Dgngu'Kphtf ³ ngu<'j g"cf xqecvgf "cp"cr r tqcej "kp"y j kej "vqr "r tkqtkv( 'y cu'i kxgp"vq" grgi cpeg"qh'gzr tguukqp"kp"vj g'vcti gv'rcpi wci g0J g'ucy "vtcpurcvkqp"cu'c"r tqeguu'qh'CFCRVCVKQP "cpf" eqpukf gtgf "kv'hgcukdrg"cpf "ceegr vcdrg"vq"kpvtqf weg"-ko r tqxgo gpvwø'kp"vj g"vcti gv'vgzv0FøCdrcpeqwtv'vtcpurcvgf" o ckpn( "j kurqtkecn"tj gvqtkecn'cpf "o qtcn'vgzvu."kpenwf kpi "Qevcxkwu'\*3859+."vj g"Qtcvkqu'd{ "Ekegtq"cpf"vj g"y qtmu" qh'Vcekwu'cpf 'Zgpqrj qp0J g"pqv'qpn( "-egpuqtgfø'vj gug"y qtmu'kp"vj g"eqwtug"qh'vtcpurcvkpi "vj go "dw'cnuq" -eqttgevgfø'cp{ "hcewcn'gttqtu'j g"gpeqwpvgtgf "cpf"i gpgtcm( "cko gf"vq"-ko r tqxgø'qp"vj g"uqwteg"vgzv'y j gpgxgt"j g" f ggo gf "kv'pgeguuct{0}

FCEKGT.'Cppg'Oct lg'\*386963942+0Htgpej ''tcpurc vqt''qh''Ctkuvqvg.''Rrcvq.''Rnwctej ''cpf 'Jqtceg.''coqpi ''ocp{"qyi gtu0Ujg'yqp''i tgcv'ceercko'hqt'jgt''tcpurc vkqpu.'yjkej 'ycu'wpeqooqp'hqt'c'yqocp''qh'jgt''fc{0Kp''yjg''rtghceg''vq''jgt''tcpurc vkqp''qh''yjg''gzrrckpgf''ycv'ujg'ycu'pqv''tcpurc vkpi'hqt''yjqug'yjq''ecp''tgcf''yg''qtki kpcn'cpf ''fkuvkpi wkujgf''dgwyggp''-ugtxkrgø''\*yqtf/hqt/yqtf+''tcpurc vkqp''cpf''-pqdrgø'\*qt''ugpug/hqt/ugpug+''vtcpurc vkqp''

FQNGV." vlgppg"\*372; 668+0°C 'Htgpej 'r tlpvgt"cpf 'r wdrkuj gt"y j q"dgeco g"y gm"npqy p"hqt"j ku"vtcpurcvkqpu"qh" y g"ercuuleu0Dqtp"kp"Qtr² cpu."j g"uwf kgf "kp"Rctku"cpf "revgt"kp"Rcf wc. "Kcn{0°Vj gtg"j g"f gxgmqr gf "cp"kpvgtguv"kp" tj gvqtke"cpf "kp"y g"y qtmu"qh"Ekegtq"kp"r ctvkewrct. "i tcf wcm{"dgeqo kpi "kpxqnxgf"y kyj "vj g"mkpf "qh"r j knquqr j kecn" y kpmkpi "vq"y j kej "vj g"ej wtej "y cu"qr r qugf 0°Kp"3752"j g"dgeco g"ugetgvct { "vq"vj g"Dkuj qr "qhi"Nko qi gu."y j q"y cu" Htgpej "co dcuucf qt"vq"vj g"Tgr wdrke"qh"Xgpkeg0Qp"F qrgvxu"tgwtp"vq"Rctku. "Htcpeku"Kcy ctf gf "j ko "vj g"r tkxkrgi g" hqt"32"{gctu"qh"r tlpvkpi "cp{"y qtmu"qh"Ncvkp."I tggm"Kcnkcp"qt"Htgpej "qtki kp"y j kej "y gtg"vj g"r tqf wev'qh"j ku"qy p" r gp"qt"y gtg"wpf gt vcmpp"wpf gt "j ku"uwr gtxkukqp0J ku"r wdrkecvkqpu"kpenwf gf "dqvj "cpekgpv"cpf "o qf gtp"vgz vu." tcpi kpi "htqo "vj g"P gy "Vguvco gpv"kp"Ncvkp"vq"Tcdgrcku"kp"Htgpej 0

F qngv'ku'etgf kgf ''y kj ''y g'hktuv'hqto wncwlqp''qh'vtcpuncwlqp''y gqt { ''kp''*Nc''o cpk³ t g'f g'dkgp''vt cf wkt g'f øwpg'ncpi wg'' gp'høcwrt g'\**J qy ''vq''vtcpuncwg''y gm'htqo ''qpg''ncpi wci g'kpvq''cpqyi gt+''y j kej ''j g'r wdrkuj gf ''kp''37620'Vj ku''u{pyi guku'' qh'vtcpuncwlqp''r tqdrgo u'tglgevgf ''y qtf/hqt/y qtf ''vtcpuncwlqp.''f guetkdkpi ''y g'urci gu''qh'y g''vtcpuncwlqp''r tqeguu''cpf '' cnuq''y g''qdrki cwlqpu''y cv'vtcpuncwqtu'j cf ''vqy ctf u''y gkt''y qtm0J g''ku''c'j ki j n{ ''u{o dqrke'hki wtg'kp''Htcpeg''dgecwug'' j g''nquv'j ku''nkbg''f wg''q''cp''cmgi gf ''cf f kwlqp''vq''c''Rncwqpke''vgzv'y j kej ''ecuv''f qwdv'qp''y g''gzkuvgpeg''qh''gvgtpcn'hkbg0' F qngv'y cu''dwtpv'cv'y g''urcng'y kj ''j ku''dqqmu''kp''37680

NCTDCWF.'Xcnt{"\*3::363;79+0'Htgpej "r qgv."pqxgrkuv'cpf "etkke"y j q'y cu'y gm'mpqy p'f wtkpi 'y g'hktuv'j cnh' qh'y g'y gpvkgyj "egpwt{0J ku" $\tilde{n}$  wxt gu'eqo r rgvgu'\*Eqo r rgvg"y qtmu+"eqpukuvu"qh'32"xqnwo gu0Nctdcwf "j cf "cp" gzvgpukxg"mpqy ngf i g"qh'hqtgki p'hkytcwtg"cpf "vcpuncvgf "y kf gn{."j ku'uqwtegu"go dtcekpi "y qtmu'd{"Y j kw cp." Hcwmpgt. "Loo gu'Iq{eg."I 0M0Ej guvgtvqp"cpf "Uco wgn'Dwvgt."co qpi "o cp{"qyi gtu0Nctdcwf øu'ugtkgu"qh'guuc{u'qp" vcpuncvkqp." $Uqwu'rvlpxqecvkqp'f g'Uckpv'L^2t^1/v$  g."r wdrkuj gf "kp"3; 68."egngdtcvgu"cpf "go r j cukt gu'y g'eqo r ngzkv{"qh" vcpuncvkqp0

O QWP IP.'I gqti gu'\*3; 326; 5+00 qf gtp'Htgpej "vj gqtkuv'cpf "c''r tqrkhe' 'tcpurcvqt "qh'Kcrkcp' 'rkvgtcwtg. 'kpenwf kpi " y qtmu'd { "Lceqr qpg'f c''Vqf k'F cpvg. "Ucp'Htcpegueq. "I wkrco q. "P keeqrl/40 cej kcxgrrk "Xgtf c. 'O qpvcrg''cpf " Ucrxcvqtg'S wcuko qf q00 qwpkp''y tqvg''gzvgpukxgn { "qp" 'tcpurcvkqp. "j ku'y kf g"gzr gtkgpeg"

# I

# I gto cp'ttcf kkqp

Iξο"y g"Gwtqr gcp"eqpvgzv"y g"ygto "f gwwej" " gto cp-"kn"wpwwcn'kp"cu"hct "cu"hct "cu"kv'kn"pqv"f gtkxgf "htqo "cp"qnf gt"pco g" hqt"c"eqwpvt {"qt"c"vkdg0 [Kpkkcm] ."kv'kpf kecwgf "c"eqo o qp"xgtpcewrct="cpf" "gxgp"\qf c { "rkpi wkurke"cpf" ewnwtcn" eqppqvcvkqpu"qh"y g"vgto "f gwwej "ctg"y kf gt"y cp"r tgugpv f c { "r qrkkecn'cpf" i gqi tcr j ke "tgcrkkgu"uwi i guv0 [Kp"y g" gki j y "egpwxt { ."y gwf kumicpf" 'y g" Ncwpcvg" y gqf kuewu'tghgttgf" 'q"y g"f kergewu'ur qngp" d { "y g" g to cpke "ktklgu" y ky kp"Ej ctrgo ci pgxu"tgcno <"Crgo cppke. "Htcpeqpkcp. "Uczqp. "Vj wtkpi kcp"cpf "Dcxctkcp0 Vj g"tgi kqpcn'xctkcpu" qh"y g"xgtpcewrct" r tqxkf gf "y g"hpi wkurke"o cvtkz "hqt"y g"i tcf wcn'f gxgnqr o gpv"qh" gto cp"cu"c"hkytct { "repi wci g." cpf "gxgpwcm | "qh"o qf gtp" J ki j "I gto cp"\* J qej f gwwej +θ"Vj g"r qrkkecn'dqtf gtuô gzvgtpcn'cu"y gni'cu"kpvgtpcnô qh" y g"I gto cp/ur gcmkpi "uvcyu" j ctf n | "gxgt"eqkpekf gf "y kj "y g"hpi wkurke"dqtf gtu<"gxgp"\qf c { "y g"uco g"f kcrgev'ku" ur qngp"qp"dqy "ukf gu"qh"y g"I gto cpô F wej "dqtf gt."kp"Nwzgo dqwti "cu"kp"y g"Cktgn"kp"Htgpej "Nqttckpg"cu"kp" y g"Uqwj gtp"Tj kpgrepf ."kp"Htgpej "Cnxceg"cu"cetquu"y g"Tj kpg. "kp"P qty gtp"Uy ky gtmcpf "cu"kp"Uqwj gtp"Dcf gp." kp"Cwurkcp"V { tqn "Ucri dwti "cpf "wr r gt"Cwurkc"cu"kp"DcxctkcO"Y j krg"o qf gtp" J ki j "I gto cp"ku"y g"hkgtet { "repi wci g"wugf "d{ "Cwurkcpu." I gto cpu"cpf " gto cp/+"Uy kuu"crkng." I gto cp"hkgtcwtg"r ctcf qzkecm | "tghrgewi" dqy "y gkt"eqo o qp"ewnwtcn" gtkci g"cu"y gm"cu"y gkt"ewnwtcn" nwtcrkv{0

### Vj g'Qrf 'J ki j 'I gto cp'r gt kqf '\*gki j vj 'kq'vgpvj 'egpwwt kgu+

 $\label{thm:continuous} Vj g''r tqeguu''qh''tcpulqto kpi 'I gto cp'f kcrgewi'tqqvgf 'kp''qtcrl'r tg/Ej tkuvkcp''vtcf kvkqpu''kpvq''c''y tkvvgp.''rkvgtcrl' repi wci g''dgi cp''kp''y g''gki j vj ''egpwwt {0'Cmj qwi j ''vj gtg''y gtg''pwo gtqwu''cwvqej vj qpqwu''vgzwu.''vj g''dwrm''qh''y tkvkpi u'' kp''Qrf 'I ki j 'I gto cp''y gtg''vtcpurcvkqpu''htqo ''Ncvkp0'Htqo ''c''f guetkr vkxg''r qkpv''qh''xkgy .''y g''o c{ ''f kuvkpi wkuj ''hqwt'' dcuke''v{r gu''qh''vgzw.<}$ 

\*c+'kpvgtrkpgct'xgtukqpu'y j kej 'ctg'xktwcm{ 'kpeqortgj gpukdrg'y kej qwv'y g'Ncvkp'uqwteg'vgzvu
\*d+'vgzvu'y j kej 'tgugodrg'kpvgtrkpgct'xgtukqpu.'uwej 'cu'vj g'vtcpurcvkqp'qh'vj g'*Gxcpi grkecrlJ ctoqp{* ''d{ ''Vcvkcp
\*e+'':htggø'qt'tgrcvkxgn{ '':htggø'vtcpurcvkqpu'uwej ''cu'vj g'Qrf'J kij'I gtocp'\*Kulfqt''cpf'PQVMGTøu'vyqtmu
\*f+''cfcrvcvkqpu'cpf'rctcrjtcugu'uwej ''cu'Ejtkuwu'wpf'fkg'Ucoctkvgtkp''cpf'Rucro''35: '\*\*vtcpurcvgf''cv'
Htgkukpi+0

Y j gp"cwgo r v kpi "vq"cuuguu" y g"cej kgxgo gpwu"qh"o gf kgxcn" vcpurcvqtu" qpg" y cu"vq"dgct "kp"o kpf "y g" kuvqtkecn" eqpv kpi gpekgu" cpf "y g"v { r q mi kecn" cpf "hwpev kqpcn" eqpuvt ckpwu" wpf gt "y j kej "y gt g" y gt g" y qt mkpi 0 "Dt kf i kpi "y g" nkpi wkuvke" cpf "ewnwt cn" cr "y j kej "ugr ct cvgf" o gf kgxcn" vcpurcvqtu" ht qo "cpv ks wkv "t gs wkt gf "gpqto qwu" et gcv kx g" ghqt w0 "Kv" y qwrf . "y gt ghqt g. "dg" c" o kui wkf gf "cpcej t qpkuo "kh" qpg" y gt g" vq" lwf i g"y gug" Qrf "J ki j "I gto cp" vcpurcv kqpu" d { "r t gugpv f c { "pqto u" cpf" uvcpf ctf u0 }

Kokkem(."vj g'I gto cp"xgtpcewrctô y j kej "j cf "pq"rkvgtct{"vtcf kkqpô o ckpn{"ugtxgf "f kf cevke"r wtr qugu<" i muuctkgu."y qtf /hqt/y qtf "vtcpurcvkqpu"cpf "kpvgtrkpgct"xgtukqpu"uwej "cu"vj g'Qnf "J ki j 'I gto cp"Dgpgf kevkpg'T wrg." y gtg"wugf "kp"o qpcuvgtkgu"kp"vj g'vgcej kpi "qh"Ncvkp0J qy gxgt."vj gtg"y gtg"uqo g"pqvcdrg"gzegr vkqpu"htqo "vj ku" uqwteg/vgzv'qtkgpvgf "f kf cevkekuo 0Nqecvgf "cv"f khrgtgpv"r qkpvu"qh"vj g"v{r qmi kecn'ur gevtwo "cpf "hwrhkrrkpi "s wkwg" f knvkpev'hwpevkqpu."vgzvu"uwej "cu"vj g"*Kulf qt* "vtcpurcvkqp"\*e0 22+"Qvhtkf "xqp"Y gknugpdwti øu"vtcpurcvkqp"qh"vj g"*rkdgt" gxcpi grkctwo* "\*e0 85693+"cpf."rcvgt."Y krrktco "xqp"Gdgtudgti øu"r ctcr j tcug"qh"

y g''Uqpi "qh'Uqpi u'\*\*e'\(\mathbb{B}\)282+"dtknkcpvn\(\)" o gv'\y g''eqo o wpkecvkxg''ej cmgpi g''r qugf "d\{\) "Ncvkp."d\{\}"Ej tkurkcp''f qevtkpg" cpf "encunkecn'ewnwtg0P QVMGT "xqp"Uv'I cmgp"\*e\(\mathbb{Q}\) 7263244+"y cu'wpks wg''co qpi "tcpuncvqtu'kp"\y g'\Qpf "J ki j " I gto cp"r gtkqf "y kij "tgi ctf "vq"dqyi "y g'xctkgv\{\}"qh'\gz wu''j g'\tcpuncvgf "cpf "j ku''o qf g'\qh'\tcpuncvkqp\)Cr ctv'htqo " Ej tkurkcp''y gqmi kecn'hkgtcwtg."j g''wtpgf "j ku''cwgpvkqp"\q"r j kmqur j kecn'cpf "r qgvke"\gz wu."uwej "cu''DQGVJ KWU\g'' Rj kmqur j kcg''Eqpuqrcvkq'\"\ugg''\nCVKP "VTCF KVKQP +"cpf "Xkti km\u''Dweqrkec." tgur gevkxgn\(\) 0F tcy kpi "qp"\y g'' ghhgevkxgn\(\) " tcpuhgttgf "y g''o quv'eqo r ngz "kf gcu''cpf "uwdvng''pqvkqpu''htqo "Ncvkp"kpvq'kppqxcvkxg."\{\} gv'kpvgmki kdng''I gto cp\)Cv' y g''uco g''ko g."j g'y qtnngf "y kij kp''y g'' kf cevke''tcf kkqp''qh'y g''r gtkqf." 'tcpuncvkpi 'hqt''j ku''uwf gpvu\g'ucng\)

# Vj g'O lf f rg'J li j 'I gto cp'r gt lqf '\*grgxgpvj 'tq'hqwt vggpvj 'egpwwt lgu+

Ki'ku'j ctf "vq"ko ci kpg" yi g"gxqnwkqp" qh"o gf kgxcn'I gto cp"kpvq" c"rkvgtct { "ncpi wci g"y kyj qww" yi g"cuukuvcpeg" chhqtf gf " d{'Novkp0Gzkukpi 'ukfg'd{'ukfg'y kj 'Novkp'fwtkpi 'yjg'O kffg'J kij'I gto cp'rgtkqf.'yjg'I gto cp'ncpi wcig' i tcf wcm{ "qr gpgf "wr "pgy "cpf "kpetgcukpi n{ "ur gekcnkt gf "ctgcu"qh" wuci g0"Vj g"i tqy kpi "pwo dgt"cpf "v{ r qmqi kecn" xctkgv{ "qh'\tcpurcvkqpu'r tqf wegf "f wtkpi "vj ku'r gtkqf "tghrgev'cp"kpetgcukpi "pggf 'hqt"eqo o wpkecvkqp"qp"o cp{" ngxgnu. "r tcevlecn" ur gewrcylxg" cpf "gpygtyclplpi <'y gqnqi lecn" r j knquqr j lecn" ngi cn" gf wecylqpcn cpf "cguyj gyle0 V j ku" pggf. "kp"wtp. "ngf" 'vq"hwt yi gt"gzr cpukqp"cpf "fkhhgtgpvkcvkqp"qh"I gto cp"qp" yi g"pqto cvkxg" ngxgn "r ctvkewrctn("qh" ngzlecn'lpxgpvqtlgu."dw'cnuq"qh'u{pvcz0Chygt"622"{gctu'qh'hlpi wkurle"fgxgnqrogpv."lpvgpugn{"lphnwgpegf"d{" Nckp. "y g"I gto cp'hcpi wci g'hkpcm ('tgcej gf 'vj g'uvci g'y j gp'kv'eqwrf 'eqr g'tgcf kn ('y kj 'vj g'hqto cn'cpf " lpvgmgewcn'ej cmgpi g'r qugf 'd { 'Ncvlp'\gzvu0'Hqt'gzco r mg. 'ctqwpf '3432. 'Cmltgej v'xqp'J cmlgtuvcf v'pqv'qpn( " vtcpurcvgf "Qxkf øu" Ogvco qtrj qugu" kpvq" I gto cp. "j g"cnuq" vtcpur qugf "vj go "kpvq" vj g"eqpvgo r qtct { "kf gcnk gf "y qtnf" qh'eqwt vn ("i cmcpvt {00 kf f ng'U ki j 'U gto cp''tcpuncvkqpu''qh''Vj qo cu'Cs wkpcuø'cpf 'O gkuvgt''Genj ct vøu''y tkklpi u'' ghłge wxgn ("f go qpuvtc vg" vj c v" vj g" I gto cp" xgtpce wrct "y cu'pqy "ecr cdrg" qh" gzr tguukpi "vj g" uwd vrg kgu qh" yj gqnqi kecn'cpf "rj knquqrj kecn'f kueqwtugu0D{ 'vj g'hqwtvggpyj "cpf 'hkhvggpyj "egpwtkgu. 'nkvgtct{ 'I gto cp'j cf " gxqnxgf 'kpvq''c''eqo r tgj gpukxg''eqo o wpkecvkxg''u{uvgo ''eqxgtkpi ''cm''ctgcu''qh''j wo cp''cevkxkv{ ''cpf ''kpvgtguv0'Kp''vj ku'' r tqeguu'\tcpurc\kqpu'cpf 'tgrcvgf 'hqto u'qh'kpvgtrkpi wcn'cpf 'kpvgtewnwtcn'\tcpuhgt 'qh'o ckpn( 'Ncvkp'cpf 'Htgpej " uqwteg'\gz vu. "o qf gnu'cpf "o cvgtkcnu'r nc { gf "cp'ko r qt vcpv'r ct v0Cu'hct "cu'\gz v'r tqf wevkqp"cpf "t gegr vkqp"ctg" eqpegtpgf."Ncvkp/I gto cp"dkrkpi wcrkx{"y cu"vj g"twrg0Engtkeu"cu"y gm"cu"gf wecvgf "nc{o gp"y tqvg"kp"Ncvkp."qt"kp" I gto cp. "qt" kp"dqyj 00 gkuvgt "Genj ctv" cpf "I gkptkej "Ugwug. 'hqt" kpuvcpeg. "wugf "Ncvkp" cpf "I gto cp" cnvgtpcvgn (." f gr gpf kpi "qp" yi gkt "cwf kgpegu="cpf "Iqj cpp" I gkrgt "xqp" Mc { ugtudgti . "yi g"o quv'r qr wrct "hkhvggpyi /egpwt { " rtgcej gt. 'f tchygf 'o quy'qh'j ku'I gto cp'ugto qpu'kp'Ncykp0Cu'I gto cp'i tcf wcm{ 'go cpekrcygf 'kyugrh'htqo 'Ncykp'' nkgtct { "\tcf kkqp."\tcpurc\kqpu."r ctcmgn\\gz vu."eqo r krc\kqpu."CF CRVC VnQP U'cpf "r ctcr j tcugu."gur gekcm("qh" nkıgtcwitg'hqt'ur gelicn'r wir qugu. 'y cttcpvgf 'vj g'eqpvkpwkpi 'eqpvcevu'dgwy ggp'vj g'vy q'ewnwitgu0Gxgpwcm{.'kp'vj g'' hkhoggpyj "egpwxt { "cwqej yj qpqwu'I gto cp"\gzvu. "eqxgtkpi "ur gekhke"ctgcu"qh"mpqy ngfig. "y gtg"\tcpuncvgf"kpvq"qyj gt" Gwtqr gcp'hcpi wci gu. 'kpenwf kpi 'Ncwkp0

Higpej 'kphnwgpeg'qp'O kf f ng'J ki j 'I gto cp''dgi cp''d''dg''hgn/'kp''y g''gngxgpyj ''egpwt {='kv'kpetgcugf 'f wtkpi ''y g'' w grhyj ''cpf ''y kt wgpyj ''egpwt kgu. ''eqpvkpwgf ''y tqwi j ''y g''hqwt wgpyj ''cpf ''y gcngpgf 'kp''y g''hkhwgpyj ''egpwt {0'Vj ku'' kphnwgpeg'o cpkhguwgf ''kuughh'kp''pwo gtqwu''nqcp''y qtf u.''y g''hqto cwlqp''qh''y qtf u''cpf ''r j tcugqnqi {.''dw''uectegn( 'kp'' O kf f ng'J ki j ''I gto cp''u{ pvcz0'Y j kng''kp''y g''w grhyj ''cpf ''y ktvggpyj ''egpwtkgu. ''O kf f ng'J ki j ''I gto cp''eqwt vn( ''gr keu'' cpf ''n tkecn'r qgvt { ''y gtg''kpur ktgf ''d { ''Htgpej ''o qf gnu.''y ku''nkgtct { ''ewttgpv'f kf ''pqv'kpvgttwr v'y g''Ncvkp''vtcf kklqp0'' Tcvj gt. ''kv'tcp''cmpi ukf g''y g''o ckpurtgco ''qh'tgrki kqwu''cpf ''r tqhcpg''nkgtcwtg''kp''o gf kgxcn'Ncvkp''cpf ''O kf f ng'J ki j '' I gto cp0'F gur kwg'y g''cr r ctgpv'ghtgewu'qh'Htgpej ''nkgtcwtg''qp''O kf f ng'J ki j ''I gto cp''nkgtcwtg. ''f ktgev'dqttqy kpi u'' cr r gct''vq''y cxg''dggp''tgncvkxgn( ''tctg0'Htgs wgpvn(.''y g''gzcev'urcwu'qh'I gto cp''yz wu''xkw' «/xku''r tguwo gf ''Htgpej '' uqwtegu''ku'f khhewn'vq ''cuegtvckp0'Hqt''kpuvcpeg. ''uej qnctu''ctg''wpegtvckp'y j gyj gt''y g''f gxkcvkqpu''qh''J ctvo cpp''xqp'' Cwgu''Gt ge''htqo ''Ej t² kgp''f g''Vtq{ guø''Gt ge''gv'Gplyf g''ctg''f wg''q''J ctvo cpp''gzgtekukpi ''

eqpulf gtcdrg'r qgvle'rlegpeg."qt'y j gvj gt"j g'f tgy "qp"cp"wpmpqy p"Htgpej "uqwteg"\gzv."qt"gxgp"qp"cp"lpvgto gf kcvg" F wej "xgtulqp0"kp"vj gkt"j cpf rlpi "qh"Htgpej "o cvgtlcri"I gto cp"r qgvu"\gpf gf "vq"gzgtekug"eqpulf gtcdrg"htggf qo ." cf cr vlpi ."cdtlf i kpi "qt"gzr cpf kpi "cpf "go dgmkuj kpi "vj gkt"o cvgtlcrn"uqo gvko gu"cf f kpi "eqo o gpvctlgu0"Hqt" j kuvqt kecn"cpf "u{ uvgo cvle"tgcuqpu. "kv"y qwrf "dg"o kurgcf kpi "cpf "kpcrrtqrt kcvg"vq"lwf i g"vj g"tgrcvkqpuj kru"dgwy ggp" O lf f rg"J ki j "I gto cp"vgzvu"cpf "vj gkt"mpqy p"qt"r tguwo gf "Htgpej "uqwtegu"d{"tgf wevkxg."uqwtegvgzv"qtkgpvgf" uvcpf ctf u0

### Vj g'gctn('b qf gtp'J ki j 'I gto cp'r gtkqf

Kp"y g"hknggpyi "cpf "ukz vggpyi "egpwtkgu"yi g"r tqeguu"qh"I gto cp"f gxgrqr kpi "kpvq"c "hkytet { "rcpi wci g"i cyi gtgf" o qo gpwo 0F krvkpi wkij gf "d{ "vj gkt "eqphld gpv"j cpf rkpi "qh"uv( rg. "vj g"hknggpyj /egpwt { "tcpurc kqpu"qh"Htgpej " pqxgnu"d{ "Grkucdgyj "xqp"P cuucw Ucctdt Ãengp. "Grgqpqtg"xqp"" uvgttgkej "cpf "Vj Ãtkpi "xqp"Tkpi qrukpi gp"dgct" y kpguu"q"yi ku"f gxgrqr o gpv0Dguld gu"ugxgtcrly tkwgp"xctkcpvu"qhT gto cp. "c"eqo o qp"rkvgtct { "rcpi wci g" i tcf wcm( "guvcdrkuj gf "kuughl'llp"vj g"I gto cp"rcpi wci g"ctgc0Vj ku"r j gpqo gpqp"ku"enqugn( "cuuqekcvgf "y kj "O ct vkp" NWVJ GT z'j ku"Dkdrg"vtcpurc vkqp"cpf "qvj gt "y tkkpi u"j grr gf "vq"guvcdrkuj "c"rkvgtct { "hqto "qh"I gto cp"y j kej "y cu" qtkgpvgf "vq vctf u "cpf "o qf grrgf "qp. "vj g"xgtpcewrct"tcvj gt"vj cp"qp"Ncvkp0P gxgtvj grguu. "gur gekcm( "kp"yj g" J wo cpkuv"gtc. "Ncvkp"eqpvkpwgf "cu"vj g"f qo kpcpv"rcpi wci g"kp"r tkpvkpi "cpf "y tkkpi ."cu"y gm!cu"lp"vgcej kpi 0Y j krg" rqgvt { "y tkwgp"kp"Ncvkp"cko gf "cv"c"uqekcn!cpf "kpvgngewcn² rksg." I gto cp"y cu"vj g"rcpi wci g"qh"vj g"r gqr rg"cpf "qh" rqr wrct"r qgvt { 0Gxgpwcm( ."kp"yj g"ugxgpvggpyj "egpwt { ."vj ku"vgpukqp"dgwy ggp"Ncvkp"cpf "I gto cp. "dgwy ggp"-ji ki j ø" cpf "-rqy ø"y cu"tguqrxgf "kp"yj g"r qgvt { "qh"O ctvkp"QRKV\ 0Cu"hct"cu"vj g"j krvqt { "qh"tcpurcvkqp"kpvq"I gto cp. "cpf" vj g"j krvqt { "qh"I gto cp"cu"c"rkvgtct { "rcpi wci g"ctg"eqpegtpgf ."Qr k\ øu"r qgvt { "o ctmu"yj g"tcpukkqp"vq"yj g"o qf gtp" J ki j "I gto cp"r gtkqf 0

Kp"yj g"gctn("o qf gtp" J ki j "I gto cp"r gtkqf. "tcpurcvkqp"eqpegr vu"cpf "r tkpekr ngu"qh" tcpurcvkqp"y gtg"c"egpvtcn'vqr ke" qh'f kuewuukqp"gxgp"dghqtg"yi gug"gzr nkek/f kueqwtugu'tgcej gf 'yi gkt"enko cz 'kp"Nwj gtøu"*Ugpf dt kgh'xqo "* Fqro gwej gp"\*3752+0Hqt"kpuvcpeg." vj g"\tcpurcvkqpu"qh" vj g"uq/ecmgf" Xkgppgug" Uej qqro"qh" vj g"hqwt vggpvj" cpf" gctn( 'hkhvggpyi 'egpwtkgu'guugpvkcm( 'hcmlkpvq'vy q'ercuugu.''vj wu'eqpvkpwkpi ''vj g''o gf kgxcn'vtcf kakqp<'qp''vj g''qpg'' jcpf."yjcv"ycu"ecnngf"*ckipg"fgywej*."c"uejqnctn{"uqwteg/vgz√qtkgpvgf"Igtocp"yjkej"uwdokwgf"vq"Ncvkp" pqto u. "cpf "qp" y g" qy gt" j cpf "tcpurc kqpu" kpvq" I gto cp" kp" ku" ewttgpv" y tkvgp" hqto u. "htgg" htqo "y g" eqputckpw qh" Ncvlp'\*vj ku'y cu'ecngf "i go ckpg'Vgwuej +0'Vj g'ej ctcevgtkuvle'hqto u'cpf 'tgcf gt/qtkgpvgf 'hwpevlqpu'qh'vj gug'' vtcpurcvkqpu. "dcugf" qp" Ncvkp" qt" Higpej "uqwtegu. "y gtg" gzr rckpgf" cpf" lwuvkhkgf 'kp" y g'r tghcegu0 C'uko krct "f kej qvqo { "o c { "dg"qdugtxgf "kp"\tcpurc\kqpu"d { "gctn("I gto cp" J wo cpkuvu0'Hqt"kpuvcpeg." P kmcu'xqp" Y {ng'\*e\( B63269: +.'\y j q'\y cu'eqpxkpegf ''qh'\y g'kpj gtgpv'r tko ce{ "cu'y gm'cu'\y g'nkpi wkuke "cpf 'uv{nkuke" uwr gtkqtkx{ "qh'j ku'Ncxkp"uqwtegu. "uxtqxg"vq" \tcpurcvg" \j go "kpvq" I gto cp" cu'rkxgtcm{ "cu'r quukdrg0 Y j gyj gt"j ku'\gzvu" y qwrf "dg"kpvgmki kdrg"vq"vj g"eqo o qp"tgcf gt"y cu"qh"pq"eqpegtp"vq"j ko 0"P qv'uwtr tkukpi n{ ."vj g"o qtg"r tci o cvke." wcti gv/qtkgpvgf "tcpurcvkqp"o gyj qf "r tcevkugf "cpf "r tqr ci cvgf "d{" 'yj g"j wo cpkuvu "Cmltgej v'xqp" G{d" \*3642697 + "cpf" a J gkptkej "Uvgkpj qgy gnl\*36346: 4+"r tqxgf "vq"dg"o qtg"r qr wrct0Cu"Cndtgej v"y cu"r ctvkewrctn( "eqpegtpgf" y kj "vj g" kpvgmki kdkrkv{ "qh'j ku'\tcpurcvkqpu."j g'cf cr vgf 'vj g'rcpi wci g"cpf 'uwdlgev'o cwgt 'qh'Rrcwwuxu'eqo gf kgu'vq'hkhvggpvj / egpwt { "I gto cp"r qr wrct "ewnwtg"cpf "o krkgw."cu"y gm"cu"vq"vj gcvt kecn'eqpxgpvkqpu0"Uvgkpj qgy gn"hqmqy gf "uko krct" vtcpurcvqtkcn'r tkpekr ngu0kp"j ku'gzr cpukxg'\tcpurcvkqp"qh'Cguqr "j g'kpvtqf wegf "pwo gtqwu'r tqxgtdu. 'tj {o gf 'xgtugu'' cpf "cmxukqpu"\q"\qr kecn"gxgpvu0Vj ku"kpvgtr tgvcvkxg"o gyj qf "qh"cf cr vkxg"cpf "tgetgcvkxg"vtcpurcvkqp"Uvgkpj qgy gn" lww.khkgf "y kij "tghgtgpeg"\q"J qtcegøu"\qrqu."cu"hqto wrcvgf "kp"Fg"ctvg"rqgvkec."cpf "\q"IGTQO Gøu"r tkpekr rgu" \*ugg" NCVRP "VTCF KVKQP +0'O wtpgtøu'I gto cp"xgtukqp"qh"Xkti knøu"Cgpgkf "\*3737+"ku"cpqyi gt"gzco r ng"qh"vj ku" -pcwtcnk kpi ø'tcpuncvkqp"o gyj qf <j g"o cngu"pq"cwgo r v'cv'ko kvcvkpi "Ncvkp"r ctvkekr ng"eqpuvt wevkqpu="cpvks wkv{ "ku" vtcpur qugf "vq"ukz vggpvj/egpwt{"I gto cp{."tghrgevkpi "j gt"ewuvqo u."vtcfkkqpu"cpf "kf gcu0"Y j krg"O wtpgt"ku"s wkxg" cy ctg"qh"yi g"s wcrkxcvkxg"f khhgtgpeg"dgwy ggp"Ncvkp"xgtug"cpf "I gto cp"f qi i gtgn"j g"ku"pgxgtyi grguu"r tqwf "vq"j cxg" dggp'kpurtwo gpvcn'kp''y g'tguwttgevkqp''qh'Xkti knøu''gr ke'htqo "Ncvkp'f gcyj ''vq''I gtocp'hklg0

Cp{"ceeqwpv'qh'vj g"j kmqt{"cpf "vj g"vj gqt{"qh'vtcpurcvkqp"kpvq"I gto cp"y qwrf "dg"kpeqo r rgvg"y kvj qww'O ctvkp" QRKV\ "\*37; 96385; +"cpf "Lwuwu'I gqti "Uej qwgn'\*3834698+0Dqvj "qeewr { "r ctvkewrctn{ "ko r qtvcpv'r qukskqpu"kp"vj g" vtcpukskqpcn'r gtkqf "htqo "gctn{ "o qf gtp" vq"o qf gtp" I ki j "I gto cp0 kp" F gwwej g"Rqgvgt g{"\*3846+"Qr kv| "cti wgu" vj cv" vtcpurcvkqp"ugtxgu"c"f wcn'r wtr qug<"vtcpurcvkpi "htqo "I tggm'cpf "Ncvkp"r qgwl"ku"i qqf "gzgtekug"hqt" vj g"vtcpurcvqt." cpf "kv"ku"qh"dgpghkv"hqt"I gto cp"cu"c"hkytct{"rcpi wci g"d{"gpj cpekpi "kwl"rcvgpv"r qvgpvkcn0Dqvj "Qr kv| "cpf "Uej qwgn' y gpv"y gm'dg{qpf "eqo o qp"hknygpvj "cpf "ukzvggpvj /egpwt{"r tcevkegu"kp"vj gkt"wug"qh'I gto cp"cpf "kp"vj gkt" vtcpurcvkqp"o gvj qf u"dgecwug"vj g{"y gtg"eqpxkpegf"vj cv'I gto cp"y cu"c"hwn{"hrgf i gf "rkvgtct{"rcpi wci g"qt."y kvj "r tcevkeg."o ki j v'dgeqo g"qpg."cpf "vj cv'kv'y cu"ecr cdrg"qh'r qgvke"cpf "qtcvqtkecn'uv{rg"ugeqpf "vq"pqpg0

### Nwyj gt 'cpf 'Dkdrg'tt cpurc skqp

Cu'hct "cu'Dkdng" tcpurc kqp "kpvq" I gto cp"ku "eqpegtpgf." 'y g"r gtkqf "unt gej kpi "ht qo "y g"ncvg" gngxgpy "vq" y g" ukz vggpy "egpwt { "y cu'cp" gtc" qh' gzr gtko gpvc kqp" cpf "eqpuqnkf c kqp < kv'r tqf wegf "ur gekcn'eqr kgu "hqt" y g"nck { "cpf" hqt" y g"r qqt. "knwunt c vgf" "cu'y gm' cu'gz vt cxci cpvn { "knwo kpc vgf" eqr kgu "kp" y g"x gt pcewret. "eqn gevkqpu "qh' dkdn'ecn' vgz wu'hqt "hkwti kecn'r wtr qugu. "gve0" y g"T ghqto c kqp" o ctngf" c"wt pkpi "r qkpv'kp" y g"j kuvqt { "qh' I gto cp" Dkdng" vt cpurc kqp. "y ky "Nwy gt" cpf "qy gt "Rt qvguvc pv't ghqto gt u't gx gt vkpi "vq" uqwt eg "vgz wu'kp" I gdt gy "cpf" I t ggm' hqt" y gkt" vt cpurc kqpu "qh' y g" Qnf" "Vguvco gpv' cpf" y g" P gy "Vguvco gpv." t gur ge kx gn { 0 Gx gp" y g" Dkdng" vt cpurc kqpu "qh' y g" Ecyi qn'e "Eqwpyt / T ghqto c kqp." d { "J kgt qp { o wu'Go ugt" P V. "3749 + "cpf" qy gt u. "y gt g" o qf gngf" qp" Nwy gt øu' vgz v0' kpf ggf. "ukpeg" y g'ugeqpf" s wct vgt "qh' y g" ukz vggpy "egpwt { ."Nwy gt øu'kphrwgpeg" y cu'r gt xcf gf" y g"gpvkt g" I gt o cp" vt cf kkqp" qh' Dkdng" vt cpurc kqp. "kt gur ge vkx g" qh' tgi kqpcn'qt" f gpqo kpc kqpcn'chhkrc kqpu0

## Vj g'b qf gtp'J ki j 'I gto cp'r gt kqf

Qtki kpcvkpi "kp" ij g"I gto cp" Gprki j vgpo gpv'r gtkqf." vj g"I khhgtgpv'uvtcpf u"qh'vtcpurcvkqp" vj gqt { "ewttgpv'kp" ij g"r cuv" w q"egpwtkgu" o c { "dg"vtcegf "dcemi'vq" Iqj cpp" Ej tkuvqr j "I QVVUEJ GF" \*3922688 +"cpf" j ku" Ngkr | ki "ekterg." uvcwpej "f ghgpf gtu" qh" Gprki j vpgo gpv'xcnwgu. "cpf" vq" vj gkt" Uy kuu" cpvci qpkuvu. "Iqj cpp" Icmqd" DQF OGT" \*38; : 6 39: 5 + "cpf" Iqj cpp" Icmqd" DT GKVKP I GT" \*3923698 + "tgur gevkxgn { 0I qweej gf øu" cpf" Dtgkklepi gtøu" qr r quef "xkgy u" qp" vtcpurcvkqp." y j kej "ercuj gf "qxgt" Dqf o gtøu" vtcpurcvkqp" qh" O knappøu" \*Rctcf kng "Nquv" \*3954 + "tghrgev" y gkt" f knakpev" uvcpeg" qp" r qgvkeu. "cguvj gvkeu" cpf" 'hkvgtct { "ncpi wci g0" Dqvj" 'uvduetkleff" vq" yj g" tcvkqpcrkuv" xkgy "ceeqtf kpi "vq" yj kej" yj gtg" ku" cp" guugpvkcnit gugo drepeg" dgwy ggp "ncpi wci gu" cpf" yj g{"ctg." yj gtghqtg. "vtcpurcvcdrgô cv'rgcuv' kp" r tkpekr ng0" Dqvj" ci tggf" yj cv'f khigtgpv' ncpi wci gu" ctg" pqv'o ktqt" ko ci gu" qh" gcej "qvj gt0" Vj gtg" y cu" c" f khigtgpeg" qh" qr kplqp" cu" vq" yj gvj gt" c" vtcpurcvkqp" yj qwf" 'dg" r gto kwgf" vq" go wrcvg" hpi wknake. "uv{ nkuvke." cpf" hqto cn'hgcwtgu" qh" yg" uqwteg" vgzv'cpf" yj gtgd { "xkqrcvg" cti gv'ukf g" pqto u0I qweej gf" o ckpvckpgf" yj cv'c" i qqf" vtcpurcvkqp" j cf" vq" dg" kp" ci tggo gpv" y kj" yj g" r tkpekr ngu" qh"

gprki j vgpgf. "pqto cvkxg"r qgvkeu01Ki'vj g"qtki kpcn'qt"uqwteg"vgzv'f kf "pqv'eqphqto "y kvj "vj gug"twrgu. "vj g"vtcpurcvqt"  $y\;cu''f\;w\{/dqwpf\;''q''lo\;r\;tqxg.\;''gzr\;cpf\;''qt\;''cdtlf\;i\;g0'Vj\;g''tcpurc\ vlqp''j\;cf\;''q''dg''c'I\;\;gto\;cp''yzv.''yj\;tqwi\;j\;''cpf\;''yi\;tqwi\;j\;0''$ Dtgkkpi gt. 'kp'eqpvtcuv.'o ckpvckpgf 'vj cv'vj gtg'y gtg'pq'uwr gthnwqwu'y qtf u'kp'rkxgtct { ''y qtmu'qh'ctv0Cpvkekr cvkpi " J gtf gt "cpf "J wo dqnf v." j g"cti wgf "vj cv" vj g"o gpwnkskgu" qh" f khhgtgpv" pc skqpu" ctg" tghnge vgf "kp" vj g"r gewrkctkskgu" qh" yj gkt 'tgur gevkxg'hopi wci gu0Vj gtghqtg. 'c'\topurc\kqp"o wuv'pqv'xkqrovg'\yj g"÷yj qwi j vuø'\*/I gf cpengp+'qh'\yj g''qtki kpcn' qt"f gxkcvg"htqo "kvu"uqwteg"kp"cp{"qvj gt"y c{0'Qp"vj gqtgvkecn'ngxgn"Dtgkkpi gtøu"kf gcu"y gtg"f gxgmr gf "d{"  $\label{thm:like} \textbf{Ht} \texttt{kgf} \texttt{tkej} \texttt{'I} \texttt{qwk} \texttt{gd'} \texttt{M} \texttt{nqr} \texttt{uvqem'*} 394663 : 25 \texttt{+'cpf'} \texttt{Iqj} \texttt{cpp'} \texttt{I} \texttt{qwk} \texttt{tkef'} \texttt{'J} \texttt{gtf} \texttt{gt'*} 396663 : 25 \texttt{+'y} \texttt{j} \texttt{q'kpxguvgf'} \texttt{'y} \texttt{g''} \texttt{-ur} \texttt{ktk} \texttt{p'} \texttt{'s} \texttt{log} \texttt{log} \texttt{gt'} \texttt{-log} \texttt{gt'} \texttt{-log} \texttt{gt'} \texttt{-log} \texttt{gt'} \texttt{-log} \texttt{-log} \texttt{gt'} \texttt{-log} \texttt{-lo$ qh'y g'qtki kpcn'y ky 'y g'wnko cvg''cwy qtkx{0Vj ku'eqpegr v'y cu'r w'vq'y g'r tcevkecn'vguv'd { 'Iqj cpp'J gkptkej 'Xquu'' \*397363: 48+'kp'j ku'tcpurcvkqpu'qh'J qo gt'\*39; 5+0'Vj g'tcpurcvkqpu'qh'F cpvg'cpf 'Uj cngur gctg'd{ 'Cwi wuv' Y knj gno "UEJ NGI GN"\*398963: 67+."qh"Tcdgncku"d{"I qwrkgd"Tgi ku."qh"Ctkqurq"d{"Iqj cpp"I tkgu."cpf "qh" Egtxcpvgu'd{ "Nwf y ki "Vkgeml\*399563: 75+"pqv'qpn( "dgmpi "vq"vj g"uco g"vtcf kkqp="vj g{ "tgcnk g"r ctv'qhl'vj g" Tqo cpvke "r tqlgev"y j kej "cko gf "cv"ceewo wrcvkpi "y qtnf "rkvgtcwtg"kp" y g"I gto cp"rcpi wci g0 Kp"ugxgpvggpvj/"cpf "gki j vggpvj/egpwt{"eqpvkpgpvcnl'Gwtqrg."Htcpeg"rnc{gf "c"ngcf kpi "tqng"kp"rqnkkeu."vj g" uekgpegu'cpf "vj g"ctw0'Htgpej "kpvgmgewcnu."kpenwf kpi "vtcpurcvqtu."uj ctgf "c"dgrkgh'kp"vj g"kpj gtgpv'uwr gtkqtkv{ "qh" yj gkt 'ncpi wci g'cpf 'ewnwtg0'Dgecwug'qh'yj ku'eqpxkevkqp'Htgpej 'ttcpuncvqtu'hgn/lwuvkhkgf 'kp'cf cr vkpi 'ttcpuncvgf' vgz wi'kp''uwej ''y c{u''cu''vq''o cmg''yj go ''eqphqto ''pqv''qpn(''vq''yj g''i tco o cvkecn''ngzkecn''cpf ''ugo cpvke''pqto u''cpf '' rkgtcwtg0'Utkev'encudekuv'pqto u'twrgf 'f tco c'cpf '\*gr ke+'r qgvt { .'y j gtgcu''y g''o qtg'hrgzkdrg'eqpxgpvkqpu''qh''*Ngu''* Dgngu'Kplkf 3 ngu'y gtg"cr r nkgf "\q'\tcpurcvgf "r tqug'hkevkqp0'Htgpej "ewnwtcn'r tgf qo kpcpeg"y cu'tghrgevgf . "kp"wtp." d{"yi g"rcti g"pwo dgt"qh"I gto cp"ko kxxkqpu"qh"Htgpej "rkxgtct{"o qf gnu."cpf "qh"xtcpurxxkqpu"htqo "Htgpej "kpxq" I gto cp0Cpf "cnj qwi j "o cp{"f khhgtgpv"v{r gu"qh"vgzw"y gtg"cnuq"vtcpuncvgf "htqo "Ncvkp." I tggm"cpf "qvj gt"o qf gtp" Gwtqrgcp'hcpi wci gu. 'I gto cp'tcpurcvqtu'htgs wgpvn ('wugf'kpvgto gfkcvg'Htgpej 'tcpurcvkqpu'cu'uqwteg'vgzvu. 'gxgp'' kh'c'eqr { 'kp''y g''qtki kpcn'rcpi wci g'y cu''cxckrcdrg0'Htgpej 'o gf kcvkqp''y cu'r ctvkewrctn( 'ghhgevkxg'kp''kpvtqf wekpi " I gto cp'tgcfgtu'\q'Dtkkuj 'rjkquqrj{.'hkevkqp'cpf'ftcoc0'Htgpej'\tcpurcvkqpu'qh'Nqeng.'Rqrg.'Cffkuqp.'Fghqg.'' Uy khv. 'Tkej ctf uqp'cpf 'Hkgrf kpi 'kpkkcm( 'ugtxgf 'cu'uqwteg' \gzvu'hqt' \tcpurc kqpu'kpvq'I gto cp0F kuewuukqpu'd { " Htgpej "tcpurcvqtu"cpf "etkkeu"qh"Dtkkuj "rjkrquqrj { "qh"vjg"kfkqu{petcukgu"qh"Gpirkuj "pqxgnu"cpf "gurgekcm{"qh" yj g''crrctgpv''-cpqo cnkguø'qh''Uj cngurgctgøu''r nc{u''o gv'y kaj 'eqpukfgtcdng'kpvgtguv'kp'I gtocp{0'Vj wu.'ktqpkecm{." yj g"Htgpej "yj go ugnkgu"y gtg"kpuvtwo gpvcn'kp"wpf gto kpkpi "yj gkt"uggo kpi n( "wpcuuckredrg"r qukkkqp"cu"rgi kurevqtu"kp" o cwgtu"qh'i qqf "ugpug."\cuvg"cpf "uv{ rg0'Dgecwug"cu'I gto cp"y tkvgtu'i tgy "hco krkct"y kij "Dtkkuj "vj qwi j v'cpf" nksgtcwtg." y g{ "dgi cp" \q"tgugpv'y j cv'o cp{ "qh' y go "eco g' \q"r gtegkxg" cu'f kuqt \kpi "ghhge \u"ecwugf "d{ "Htgpej " o gf kcvkqp0'Vj g''i tcf wcn'vtcpukvkqp. 'kp''yj g''eqwtug''qh''yj g''gki j vggpyj ''egpwt{.'htqo ''dtqcf ''ceegr vcdkrkv{ ''vq''xkt wcn'' tglgevkqp"qh"Htgpej "o qf gnu. "kpenxf kpi "kpvgto gf kcvg"Htgpej "vgzvu. "d{ "I gto cp"y tkvgtu. "dqvj "kp" y gqt { "cpf "kp" rtcevkeg. "ku'c'nkvgtct { 'r j gpqo gpqp'y k j 'hct/tgcej k pi 'ewnwtcn'k o rnkecvkqpu0Tghrgevk pi 'c'uki pkhkecpv'ej cpi g'kp'' yj g''tcpurc'kqpcn'eqpegr wi'cpf. "o qtg'i gpgtcm(.'kp''yj g''wpf gtn(kpi ''cguyj gvke.''yj ku''tcpukkkqp''ku''wnko cvgn('' u{orvqocvke"qh"c"rctcfkiocvke"ejcpig"kp"vjg"Igtocp"jkuvqt{"qh"vjqwijv<"vjg"gocpekrcvkqp"htqo"Htgpej"  $kpvgmgewcn'cpf \ ''ewnwtcn'j \ gi \ go \ qp\{. ''ceeqo \ r \ cpkgf \ ''d\{ \ ''\dot{y} \ g'f \ go \ kug''qh''tcvkqpcnkuo . ''cpf \ ''\dot{y} \ g''gxgpwcn'r \ tqr \ ci \ cvkqp''qh''$ cp'cwqpqo qwu'I gto cp'pcwqpcn'nkgtcwtg0 Htgpej "o gf kcvkqp"qh"Gpi rkuj "rksgtcwtg"dgi cp"gctn( "kp"vj g"gki j vggpvj "egpwt (0"KVtgcej gf "ksu"r gcm"kp"vj g" Rtqvguvcpv'r ctvu'qh'I gto cp{ 'cpf 'kp''Uy k\| gtrcpf.'kp'\'y g'3942u0'Cv'c'\ko g''y j gp'kp'\ Atkej.'J co dwti 'cpf''

uqo gy j cv'rcvgt 'kp''Ngkr | ki '\*kp''y g''3962u+'kpf kt gev'vt cpurcvkqp'y cu't glgevgf 'kp'hcxqwt ''qh'f kt gev'vt cpurcvkqpu''qh''
Gpi rkuj ''pqxgnu''cpf ''r rc {u. ''Htgpej ''o gf kcvkqp''eqpvkpwgf ''gnugy j gt g''kp'I gto cp{0Cu''hct ''cu''pqxgnu''ct g''eqpegt pgf .''
kv'xkt wcm{ ''gpf gf ''y kj ''y g''÷dkt y ø'qh''y g''o qf gt p'I gto cp''pqxgn''Y kgrcpf øu''F qp''U nxkq''xqp'Tqucnxc''\*3986+.''cpf ''

y ky ''Drepngpdwti øu''guuc { ''qp''y g''pqxgn'\*\**Xgt uwej ''Ãdgt'f gp'Tqo cp.* ''3996+0

Cu'hct "cu'f tco c'y cu'eqpegtpgf."Htcpeg'r tqxkf gf "o wej "qh'vj g"o cvgtkcn'cu'y gm'cu'vj g'vj gcvtkecn'o qf gnu='ugxgtcn' I gto cp'\tcpurc\kqpu'qh'Gpi rkuj 'r rc{u'y gtg'dcugf 'qp'kpvgto gf kcvg'Htgpej 'xgtukqpu0UI CMGURGCTG.'j qy gxgt.'' dgkpi "yj g'f tco cvke"cpvkf qvg'vq'vj g'twrgu"cpf "eqpxgpvkqpu"qh'encuukekuv'Htgpej "f tco c."y cu"gksj gt'tgcf "kp"Htgpej " vtcpurcvkqp'\*g0 0'd{''Xqnxcktg+.''kp''kxu''qtki kpcn'Gpi nkuj '\*g0 0'Rqr gøu''gf kxkqp+.''qt''j g''y cu''vtcpurcvgf 'f ktgevn{''Intqo '' Gpi rkuj "kpvq" I gto cp0" Y j gp. "kp" 3963. "Ecur ct" Y knj gno "xqp" Dqtem'r wdrkuj gf "j ku" 'tcpurc kqp" qh" Lwrkwu 'Ecguct." Iqj cpp'Ej tkuvqrj 'I QVVUEJ GF 'ko o gf kcvgn( 'eqpf go pgf 'dqvj 'vj g'\tcpurcvkqp''cu'y gm'cu'vj g''dctdctke'Gpi nkuj " qtki kpcn0'Dqvj "tcp"eqwpvgt"vq"j ku"uvtcvgi { "qh"tghqto kpi "vj g"I gto cp"vj gcvtg0'I qwuej gf "hcxqwtgf"r nc{u."o ckpn(" qh'Htgpej ''qtki kp. ''y j kej 'eco g'emuguv'\q'tgcnk kpi 'j ku'kf gcn'qh'qtf gt''d { ''qdugtxkpi ''y g'Ctkuvqvgncp'twrgu. ''cpf ''d { '' gzgtekukpi "o qf gtcvkqp"dqyi "y kyj "tgi ctf "vq"cevkqp"cpf "vq"yj g"wug"qh"ncpi wci g0"Y j gp"Gf y ctf "[ qwpi øu" Eqplgewt gu'qp'Qt ki kpcdEqo rqukkqp'\*397; +'y cu'tcpurcvgf 'f ktgevn( 'htqo 'Gpi rkuj 'kpvq'I gto cp'uqqp'chvgt'kvu' r wdnkecvkqp. 'vj g'eqpegr vu'qh''∹qtki kpcn'i gpkwuø'cpf "qh''∹qtki kpcn'eqo r qukxkqpøô y j kej 'vy gtg'vq'tgxqnwkqpk g'' cguyj gyke"yj gqt {"cpf "r qgyke"r tceykeg"kp" I gto cp { "f wtkpi "yj g"ugeqpf "j cm" qh"yj g"gki j yggpyj "egpwt {ô y gtg" gpyj wukcuvkecm{ "crrnkgf" "q"Uj cngur gctg" cpf "j ku'y qtmu0Ceeqtf kpi n{."Y kgncpf øu'y gm/vko gf "rtqug' 'tcpurcvkqp" qh" 44"r nc{u"\*398368+"o gv"y kyj "eqpukf gtcdng"r wdnke "kpvgtguv0F gur kvg"I gtuvgpdgti øu 'ugxgtg"etkskekuo. "vj ku" vtcpurcvkqp"eqpukf gtcdn( 'kphrwgpegf 'vj g'f tco cvkuvu'qh'vj g'tgxqnwkqpct { 'nkvgtct { 'o qxgo gpv'npqy p'cu'' Uwto "wpf" Ftcpi. 'pqvcdn( 'Iqj cpp''Y qrhi cpi 'xqp'I qgvj g. 'Icmqd'O kej cgn'Tgkpj qrf 'Ngp| 'cpf 'Htkgf tkej 'Uej kngt0Iqj cpp'' Iqcej ko "Guej gpdwti øu"hktuv"vtcpurcvkqp"qh"Uj cmgur gctgøu"eqo r ngvg"y qtmu"\*399769139: 4+"o ctmu"c"hwtyj gt" ko r qt vcpv'uvci g'kp''y g'I gto cp'Uj cmgur gctg'tgegr vkqp. "c'r tqeguu'cv'y g''gpf "qh'y j kej "Uj cmgur gctg'j cf "ces wktgf" yj g'uvcwu'qh'c'pcvkqpcn'I gto cp'r qgv.''cpf 'uqo g''qh''j ku''y qtmuô pqvcdn("*J co n*gvô qeewr kgf 'c'r nceg'kp''yj g''xgt{" egpvtg'qh'I gto cp'hkgtcwtg0

J cxkpi "uctygf."kp"39; 7. "y ksj "y g"tgxkukqp"qhlc"ktcpurcykqp"qhlc"*Olf uwo o gt "Pki j wtul'Ft gco*."d{"3: 32"Cwi wuv" Y knj gno "UEJ NGI GN"j cf "r wdrkuj gf "cpqyj gt"35"qhl'Uj cngur gctgøti"r nc {u0}[ gctu"ncyt."Nwf y ki "Vkgemicpf "qvj gtu" eqo r ngvgf "y g"r tqlgev0Uej ngi gnøti"r tkpekr ngu"qh"ktcpurcykqp"y gtg"dcugf "qp"y g"kpvgtr tgvcykqp"qh"y qtmu"qh"ctv"cu" qti cpkuo u0Uj ctkpi "J gtf gtøti"xkgy. "j g"eqpukf gtgf "gxgt{"kkgtct{"y qtmi'qhl"ctv"cu"cp"gpykv{"eqo r tkukpi "hqto "cpf" eqpvgpv0Wprkng" J gtf gt"cpf "y g"*Uwto "wpf "F tcpi*" "r qgwu."y j q"cti wgf "y cv"y ku"gpykv{"y cu"eqo o gpuwtcy"y ky "-pcwtgø"wpeqpuekqwun("etgcygf "d{"c"i gpkwu."Uej ngi gnleqpukf gtgf "y ku"gpykv{"cu"cp"-qti cpke"etgcygf" hqto ø"\*qti cpkæj g"Mvpuhqto +"y j kej "tgwnngf "htqo "c"eqpuekqwu."kpvgpykqpcnietgcvkxg"ghqtv0Ceeqtf kpi n(."gcej "Uj cngur gctgcp"f tco c"y cu"c"umkhwnn("eqpuwtweyf"qti cpkuo."kp"y j kej "gxgt{"f gvckni\*gcej "uegpg."ej ctcevyt"gvc0" y cu"tgncygf "vq"y g"y j qng"d{"kpj gtgpv'pgeguukv{"cpf "htqo "y j kej ."kp"wnp."kvf gtkxgf "ku"o gcpkpi 0Qpn("d{"vcmkpi "pqvg"qh"cpf "xcpurcykpi "gxgt{"f gvckni\*gvqvf."y j g"r gtkgev'qti cpkuo 0Vj g"ncpi wci g"j cf "vq"dg"ki j vcpf "r ngcukpi ."cpf "y g"tgcf gt"y cu"vq" i gv"y g"ko r tguukqp"y cv"ulj g"y cu"tgcf kpi "cp"qtki kpcniI gto cp"yzv."pqv'c"tcpurcykqp0fp"qy gt"y qtfu "Uej ngi gn" vtkgf "vq"eqo dkpg"y g"-qdlgevkxgø'cpf "y g"-tundlgevkxgø'cur gevu"qh"vcpurcyqp"y ky "vcti gvukf g"tgs wktgo gpvu."qp"y g" qpg"j cpf ."cpf "etgcvkxg"tcpuhqto cvkqp"cpf "pcwtcnk cvkqp"kp"ceeqtf cpeg"y ky "vcti gvukf g"tgs wktgo gpvu."qp"y g" qpg gt0

d{"y go "eqcrgueg"qp"c"j ki j gt"r mpg0Vj ku"ecwugu"i tcxg"r tqdrgo u"hqt"vtcpurcvqtu"dgecwug. "kp"y g"eqwtug"qh"vko g." y g"rcpi wci g"qh"uwej "vgzvu"j cu"eqo g"vq"dg"cuuqekcvgf "y ky "ur gekhle"ewnwtg/dqwpf "eqpegr vu."eqpxgpvkqpu." cvkwf gu"cpf "hggrkpi u0Dgecwug"y g"cuuqekcvkxg"eqo r rgzgu"f khlgt "htqo "rcpi wci g"vq"rcpi wci g."cpf "htqo "ewnwtg" vq"ewnwtg. "vtcpuhgt "ecp"qpn( "dg"ceeqo r nkuj gf "d{ "go r nq {kpi "y g"÷cnkgpcvkpi ø'o gy qf "qh"vtcpurcvkqp<"y g" vtcpurcvqt "vcngu"j ku"dgctkpi u"htqo "y g"wpkv{ "qh"hqto "cpf "eqpvgpv"qh"y g"uqwteg"vgzv."cpf "htqo "y g"uqwteg" mpi wci g0Uej rgkgt/o cej gt "cf xqecvgf "y g"wug"qh"c"rtqrgt "rcpi wci g"hqt "vtcpurcvkqp."y j kej "kpgxkcdn( "gpvckrgf" rcpi wci g"ej cpi g0Chvgt"cm "qpn( "d{ "f gxkcvkpi "htqo "guvcdrkuj gf "pqto u"eqwrf "y g"crkgp"qt "hqtgki p"kpetgo gpv"dg" xkuwcrk gf "kp"y g"vcti gv"rcpi wci g0O quv'ko r qtvcpv."y qwi j ."Uej rgkgto cej gt "y cu"eqpxkpegf "qh"y g"kppqxcvkxg." dw"cnuq"qh"y g"tgi gpgtcvkxg"r qy gtu"qh"vtcpurcvkqp0

Rtcevkecm ("gxgt {"o qf gtp" tcpurc vlqp" y gqt {ô cv'ngcuv' kp" y g"I gto cp/ncpi wci g"ctgcô tgur qpf u." kp" qpg" y c {"qt" cpqy gt." \q" Uej ngkgt/o cej gtøu" y {r qy gugu0 V j gtg" cr r gct "\q" j cxg" dggp" pq" hwpf co gpvcm {"pgy "cr r tqcej gu0" V tcpurc \qtu" cpf "\y gqt kuw." uwej "cu" Wtt kej "xqp" Y kroo qy k\y / O qgmgpf qthh' kp" y g"pkpgvggpy "cpf 'Go kn' Ucki gt 'kp" y g" y gpvkgy "egpwt {."cf xqecvgf." y ky "f khngtgpv'go r j cugu" cpf 'hqt" f khngtgpv'tgcuqpu." y g" pcwtcnk kpi "o gy qf" qh" v tcpurc vkqp0 Y cnvgt "Dgplco kp" hcxqwtgf" y g"r tkpekr ng" qh" cnkgpc vkqp" \*ugg" ngwt C" NCP I WCI G+0 P gxgt y grguu." cwgo r wi'j cxg" dggp" o cf g" \q" tcpuegpf "\y g" cpvkpqo {"qh" pcwtcnk kpi "cpf" cnkgpc vkqp." \q" hkpf" c" u {py guku" qt" c"eqo r tqo kug" \*g0 0 Uej cf gy cnf v'3; 49+0

Kp"yj g"eqwtug"qh'yj g"pkpgvggpyj "egpwt { "tcpurcvkqp"cevkxkxkgu"kp"yj g"I gto cp/ur gcmkpi "eqwpvtkgu"kpvgpukhkgf "cpf" gzr cpf gf 0'Vj ku''cr r nkgu''pqv''qpn( ''vq''dgmgu'ngwt gu''dww''cnuq''vq''y g''pcwtcn'uekgpegu."o gf kekpg."gpi kpggtkpi .''y g'' rcy. "geqpqo keu"cpf "i gpgtcn"o cwgtu0"Y j krg" y g"dwrm"qh" \tcpurc \kqpu"eqp \kpwgf "\q"dg"dcugf "qp" y g"Tqo cpeg" ncpi wci gu. "gur gelcm ("qp"Htgpej. "cpf "kpetgcukpi n ("qp"Gpi nkuj "uqwtegu. "qvj gt"ncpi wci gu"cpf "ewnwtguô kpenwf kpi " pqp/Gwtqrgcp"qpguô dgi cp"\q"o cmg"\j gkt"rtgugpeg"hgno"Uqo g"qh"\j g"uki pkhecpv"fgxgmqro gpvu."ej cpi gu"cpf" ej ctcevgtkuvke"uj khvu"ctg"tghrgevgf "kp"CP VJ QNQI KGU"qh"rkvgtcvvtg"kp"vtcpurcvkqp."gur gekcm( "kp"uq/ecngf" cpyj qmi kgu"qh"y qtrf "rkxgtcwxtg."y j kej "j cxg"dggp"r wdrkuj gf "kp"rcti g"pwo dgtu"ukpeg"yj g"o kf f rg"qh"yj g"pkpgyggpyj " egpwt{0'Hqt'kpuvcpeg.'wpvkn'yj g'gpf ''qh'yj g'gki j vggpyj ''egpwt{.'I gto cp'tgegr vkqp''qh'Htgpej ''nkvgtcwtg''j cf'' hqewugf "qp"r qrkkecn"uekgpvkhke"cpf "i gpgtcm{ "ngctpgf" qt"kphqto cvkxg"o cwgt. "qp" yj g"f tco c"cpf" yj g"pqxgr0Ky cu" pqv'wpvkn'y gmlkpvq''y g'pkpgvggpyj 'egpwxt { ''y cv'Htgpej 'r qgvt { .'Tqo cpvke''cpf 'eqpvgo r qtct { .''y cu''dgkpi ''o cf g'' cxckrcdrg'\q'I gto cp/ur gcmkpi 'tgcf gtu.'o ckpn{ 'yj tqwi j 'cpyj qrqi kgu0I tqy kpi 'geqpqo ke'cpf 'ewnwtcn'eqpvcevu'' dgw ggp'I gto cp{"cpf "Dtkckp"tckugf" 'y g"cy ctgpguu'co qpi 'I gto cp"tgcf gtu" qh" Dtkkuj "chhcktu0 gv. "cwj qtu'uwej" cu"Y knkco "Y qtf uy qt y "cpf "Nqtf "D{tqp"y gtg"o ckpn( "tgegkxgf "cu"kpf kxkf wcn'r gtuqpcnkkgu'tcyj gt"y cp"cu" tgrtgugpvcvkxgu'qh'vjgkt"eqwpvt{"qt"qh'Dtkkuj "hkgtcwxtg0Kp"eqpvtcuv."hqt"c"nqpi "vkog"vjg"vtcpurcvkqpcn'ogfkcvkqp" qh'Uecpf kpcxkcp''cpf 'J wpi ctkcp''nkytcwtgu'y cu'r tko ctkn( 'i qxgtpgf 'd { 'ko ci qmi kecn'uvgtgq/v(r gu''cpf '' rtgeqpegrvkqpu'tgrcvkpi 'vq'vj qug'eqwpvtkgu.'tcvj gt'vj cp'd{'pkpgvggpvj/egpwxt{'j kuvqtkecn'tgcrkvkgu0Cv'vko gu.'vgzvu'' y gtg"ugrgevgf. "cpf"uqo gvko gu"ur gekhlecm ("tcpurcvgf. "kp"ceeqtfcpeg"y kyj "vj g"cpvj qrqi kuvuø'r gtuqpcn'vcuvgu. "qt" y ký "ý gkt "xkgy u "cpf "kpvgpvkqpu "eqpegtpkpi "I gto cp "rkvgtcwtg" cpf lqt "r qrkvkecri'chhcktu "kp "c "y kf gt "kpvgtpcvkqpcri" eqpvgzv0kp"f wg"eqwtug. "Twukcp"pqxgnu"cpf "Uecpf kpcxkcp"f tco c"vqqm"yj gkt"r rceg"dgukf g"vtcpurcvkqpu"qh"Htgpej " cpf 'Gpi nkuj 'hkevkqpcn'r tqug'cpf 'f tco c. 'tgur gevkxgn(0'Y j kng 'Ueqw.'F kenngpu'cpf '\ qnc'y gtg'\tcpuncvgf 'r tqo r vn(." J gpt {"Ico gu'y cu'ki pqtgf 'hqt"o cp { "f gecf gu0"Vj g"Dtkkuj "cpf "Co gtkecp"O qf gtpkuv'r qgvu."vqq."j cf "vq"dkf g"vj gkt" who g0

F wtkpi "Y qtnf "Y ctu'Qpg"cpf "Vy q"\tcpurc\kqp"ce\kxk\kgu"y gtg"\kphn\kgpegf "d{"pwo gtqwu'\hce\qtu."\wpcxc\krcd\kt\{"qh" uqwteg"\gz wu'cpf "r qnk\kecm{"o q\kxc\yf "egpuqtuj kr "dg\kpi "\y g"o quv'\qdx\kqwu"\qpgu\Kp"\xct{\kpi "f gi tggu"\yj ku"cnuq" cr r \kgf "\q"\yj g"\qeewr \kgf "| qpgu"\qh"I gto cp{"\kp"\yj g"\ko o gf \kc\yf" quvy ct"r gt\kqf ."cpf "\k'eqp\kp\wgf "\kp"\yj g"I gto cp" F go qetc\ke"T gr wdr\ke"\wp\kri3; :: 0\P gxgt\yj grguu."\yj g"\Kpf gz"\tcpurc\kqpwo "\hqt"3; : 8"\uj qy u"\yj c\'pgctn\{"cu"o cp{" dqqmu"y gtg"\tcpurc\yf" cpf "r wdr\kuj gf "\kp"\Gcu\yI gto cp{"\sqrt{y}; 6+"cu"\kp"I tgc\y'Dt\kc\kp"\s, 26+\0D\{"eqo r ct\kuqp."38: 9" \tcpurc\yf" quy cf" fgqqnu"cr r gctgf "\kp"\Htcpeg."cpf ": 239"\kp"\yj g"\Hgf gtcn'T gr wdr\ke"\qh"I gto cp{0\Kp"f kx\kf gf "I gto cp\{."\yj g" qr r qugf "\kf gqqqi \kgu"r qnk\kecn'cpf "geqpqo \ke"\u\{u\yo u."cpf "o kr\kct\{"

cmłcpegu"qh"y g"y q"I gto cp"urcygu" cf "cp"ghłgev"qp"y j cv"ygzvu"y gtg"ej qugp"hqt"\tcpurcykqp"cpf."cv"\ko gu. "gxgp" qp"y g"o cppgt"qh"\tcpurcykqp0U{ uvgo cyke"eqo r ctkuqpu"dgwy ggp"\tcpurcykqp"cevkxkykgu"kp"Gcuv"cpf "Y guv"I gto cp{" tgo ckp"\q"dg"o cf g0

Htqo '3; 78'\q'3; : 8'\j g'pwo dgt'\qh'\tcpurc\gf 'dqqmu'r wdrkuj gf 'kp'\j g'Hgf gtcriTgr wdrke'\qh'I gto cp{'kpetgcugf 'd{" 622'r gt'egpv0Dqqmuj qr u'kp'I gto cp{'cdqwpf 'y kj '\tcpurc\qqpu'kp'r tce\decm{'cm'ctgcu.'cko kpi 'cv'ej krf tgp'cu'' y gm'cu'cf wnu0J qy gxgt.'kp'\j qug''ctgcu'\qh'\uekgp\khe'\tgugctej 'y j gtg'\ko g'ku'\qh'\j g''guugpeg.'\uej qrctu''ctg'' gzr ge\gf '\q''tgn{'qp'\j gkt'\qy p''\kpi wkr\ke''eqo r g\gpeg'tc\j gt'\j cp''qp'\tcpurc\kqpu.''gur ge\kcm{'htqo '\Gpi r\kuj 0'} Eqpxgtugn{.'\kp''tgegp\f gecf gu'I gto cp''\uej qrctu.''gur ge\kcm{'\j qug'\y qtr\kpi '\kp'\j g''pcwtcr\uegbegu.''\kp''o gf ke\kpg'' cpf '\kp''tgrc\yf ''\kp''tgrc\yf ''\kp''tgrc\yf ''\kp''tgrc\yf ''\kp''tgrc\yf ''\kp''tgrg\xk\kpi u''j cxg''dgeqo g''ceewurqo gf ''\q''r wdr\kuj \kpi '\j g\t'\tgugctej ''\tgu\xmu''\kp'\Gpi r\kuj ''\tcy gt'\j cp'' y ck\kpi ''\htq'' go ''\q''dg'\tcpurc\yf '\tq'' gto cp''e\kpgo cu''cpf '\kp'\ygrgx\ku\kqp.''y j gtg'\j g''r tqr qt\kqp''qh'\htqtki p''\kro u.'' \hco \kn\{''ugt\kgu.''ej krf tgp\x\upgu''r tqi tco o gu''cpf ''f qewo gp\xct\kgu''\ku'\xgt\{''j ki j .''F WDD\RP I '\ku'i gp\gtcm\{''r tg\gtt\gf '\q'' UWDV\K\N\RP I 0

#### Qti cpk| cvkqp 'qh'\f g'r t qhguukqp 'cpf '\tcpurcvqt '\tckpkpi

Vj gtg"ctg"y q"rtqhguukqpcn'cuuqekcvkqpu'hqt"vtcpurcvqtu'kp"I gto cp{<Dwpf guxgtdcpf "f gt"F qro gwej gt"wpf "
@dgtugv| gt"gX0\*DF ©+"cpf "Xgtdcpf "f gwuej ur tcej ki gt"@dgtugv| gt "rkvgtctkvej gt"wpf "y kuugpuej chwkej gt"Y gtmg"
gX0\*XF ©+="dqvj "ctg"o go dgt"uqekgvkgu"qh"HKV0

Fk mo c'eqwtugu'hqt''tcpurcvqtu'cpf lqt'kpvgtr tgvgtu'ctg'dgkpi "qhhgtgf "d{"o cp{"I gto cp'wpkxgtukkgu." r qn{ vej pkeu'cpf "xqecvkqpcn'cecf go kgu-'kp'Dgthp'" wo dqnf v+:"Dqpp'" qpn{ 'hqt''tcpurcvqtu'ur gekchk kpi "kp" Qtkgpvcn'ncpi wci gu+:"F Auugnf qth'" rksgtct { "vtcpurcvqtu'qpn{ +:"Higpudwti ."J gkf gndgti ."J knf guj gko ."M³4p." Ngkr | ki ." O ckp| ."O Apej gp"cpf "Ucctdt Aengp." co qpi "qy gt"r ncegu0'kp"cf f kkqp." pwo gtqwu'qy gt "kpukwwgu." dqy "r wdne"cpf" r tkxcvg. "qhhgt "vtckpkpi "hqt "vtcpurcvqtu"cpf "kpvgtr tgvgtu0'Gzco kpcvkqpu"cf o kpkuvgtgf "qwwlxf g''y g''cecf go ke" gwcdrkuj o gpvu"ctg''uwr gtxkugf "d{"'y g''tg i kqpcn'Ej co dgtu"qh'Eqo o gteg"cpf lqt"d{"tg i kqpcn'i qxgtpo gpw0'Cu''y g" ewttkewr "ctg"pqv'tvcpf ctf kk gf ."'y g''s wchx{ "qh''vtckpkpi "cpf" y g''r tqhkekgpe{ "qh''i tcf wcvgu''xct{ "eqpukf gtcdn{ 0'kp''y g" cdugpeg"qh'ngi cn'tgs wktgo gpvu."cp{ qpg"o c{"wug''y g''f guki pcvkqp" kpvgtr tgvgtø'qt" ktcpurcvqtv0} Vj g''Gwtqr @wej gu''Odgtugy| gt/Mqngi kwo "cv'Utv@pp'ku'c'tghwi g'ur gekhlecm( "hqt''kvgtct{ "tcpurcvqtu0'Hqwpf gf "kp" 3; 9: "d{ "Gro ct"Vqr j qxgp." kpvgt" cnkc "vtcpurcvqt"qh''Dgengw'kpvq''I gto cp. "y ku''egpvtg'qhhgtu''tcpurcvqtu." guvcdrkuj gf "qt"dwf f kpi ."kf gcn'hcekrkkgu'hqt" y gkt"y qtm\*c'ur gekcnk gf "hkdtct{ ."wr/vq/f cvg''gngevtqpke''gs wkr o gpv." eqpvcev'y kj "eqmgci wgu."cpf" c''r gceghwily qtmkpi "gpxktqpo gpv0'Vj g''F gwwej g''Cnref go kg''hAt"Ur tcej g''wpf" F kej wpi "cpf" y g''F gwwej g''Nkgtcwthqpf u''cy ctf "r tk| gu''q "f knkpi wkuj gf "hkgtct{ "'tcpurcvqtu0'

### Tgugctej 'cpf'rwdrlecvkqpu

Y j kg'hqt'o cp{"{gctu'tgugctej "qp"r tcevlecn'hwpevkqpcn"hpi wkurke"cpf "r gf ci qi lecn'cur gewi'qh'tcpurcvkqp" f qo kpcvgf. "\j gtg'j cu'dggp"kpetgcugf "kpvgtguv'kp"j kuvqtkecn'uwdlgewi'kp"tgegpv'{gctu."gur gekcm{"kp"\j g"\j gqt{"cpf" r tcevleg"qh'tcpurcvkqp"by" j g"O kf f rg"Ci gu'cpf "kp"\j g"Tgpckuucpeg."cpf "kp"gki j vggpvj /"cpf "pkpgvggpvj /egpwt{" vj gqtgvkecn'f kucqwtugu"qp"vtcpurcvkqp0I tcf wcm{\"o qtg"cwgpvkqp"ku"dgkpi "r ckf "vq"\j g"cewcn'vtcpurcvkqpu" r tqf wegf "f wkpi "\j g"r cuv'\j tgg"egpwtkgu."vq"\j g"vtcpurcvqtu'cpf "\j g"ewnwtcn'eqpvgzw0Cnq."pgy "tgugctej " o gvj qf u'ctg"dgkpi "cr r nkgf 0Cu"hct"cu'nkygtcwtg"kp"vtcpurcvkqp"ku'eqpegtpgf."o quv'tgugctej "j cu'vtcf kkqpcm{" vgpf gf "vq"dg"uqwteg/vgzvqtkgpvgf "cpf."vq"uqo g"uqo g"gzvgpv."r tguetkr vkxg0"Y kj "\j g"i tqy kpi "kpxqnxgo gpv'qh" nkgetct{"uej qnctu."j knqtkecn'f guetkr vkxg"cr r tqcej gu"j cxg"tgegpwn{"eqo g"kpvq"\j gkt"qy p0
Tgugctej "kp"f khtgtpyv'tcpurcvkqp/tgrcvgf "ctgcu'ku'dgkpi "ecttkgf "qw'kp"o cp{"cecf go ke'kpurkwkkqpu."o ckpn{"d{" kpf kxkf wcnô r quv'i tcf wcy'uwf gpwi'cpf "gucchkuj gf "uej qnctu'crkng0Vj g"Egpvtg"hq"\j g"Uwf {"qh"Nkytct{" Vtcpurcvkqp"\sqrvy "po "tgugctej" "h\tepta"f kg"tkytctkuej g"@dgtugv\ wpi +"lqkpvn{"ur qpuqtgf"d{"\j g"I gto cp" Tgugctej "Eqwpeki\sef gwwej g"Hqtuej wpi ui go gkpuej chw-"cpf "I \sqrvy "kyppv "kykgtuk\sqrvy "ku"'i gekcn'ecug0Ukpeg"ku" dgi kppkpi u'kp"3;: 7. "ugxgtcn'f q| gp"uej qnctu'u gekcnk kpi "kp"f khtgtgpv'pcvkqpcn'r j knqni kgu"j cxg"eqqr gtcvgf "kp"cp" kpvgtf kuckr nkpct{"tgugctej "r tqi tco o g0Vj g{"j cxg"ugv'yj go ugnxgu'\j g"\cuniqh'ygr qkki "ugpyt "ctgcu'cpf" "cur gewi'qh'hkygtct{"tcpurcvkqp"kpvq"I gto cp"ukpeg'\j g"dgi kppkpi "qh'\j g"ki j vggpyj "egpwt{."y ky j"c"

xkgy "vq"f tchkpi "cp"qwrkpg"j kurqt { "qh"vtcpurcvkqp"ewnwtg"kp"vj g"I gto cp/ur gcnkpi "eqwpvtkgu"f wtkpi "vj g"r cuv"vj tgg" egpwtkgu0

Dqyi 'r tqhguukqpcn'qti cpk cvkqpu.''vj g'DF ©'cpf 'XF ©.''r wdrkuj ''vj gkt''qy p''lqwtpcnı<''Ngdgpf g''Ur t cej gp''\*DF ©+'ku'' gf kxgf ''d{ ''Htkgf tkej ''Mtqmo cpp''cpf ''I Ãpvj gt''J cgpuej ''cpf 'r wdrkuj gf ''d{ ''Ncpi gpuej gkf v0'O kvygkvypi udrc w'hÃt '' F qno gwej gt ''wpf ''©dgt ugv/ gt ''ku''vj g''qhhkekcn'qti cp''qh''vj g''DF ©''kp''Dqpp0'F gt ''©dgt ugv/ gt ''\*XF ©+'ku''gf kxgf ''d{ '' J gri c''Rcgvuej ''kp''J gkf gnlgti 0

Cr ctv'htqo ''y g'lqwtpcnı''qh'r tqhguukqpcn'qti cpk cvkqpu.''y gtg''ctg''c''pwo dgt''qh''qy gt''lqwtpcnı.''y g'dguv'npqy p''qh'' y j kej ''ku''VGZV/eqpVGZV0Vtcpurcvkqp''Vj gqtkg.''Fkf cmkm'Rtczku.''y j kej ''ku''gf ksgf ''d{ ''Lwtxc''J qn' /O @pw@k'cpf'' J cpu''Xgto ggt''cpf''r wdrkij gf ''d{ ''Lwtxwi'I tqqu''Xgtrci 0

I gto cp'uej qnctu'j cxg'dggp'co qpi 'y g'o quv'cevkg'lp'y g'lkgrf 'qh'tcpurckqp'uwf kgu'cpf 'j cxg'r tqf wegf 'c'xgt { " ncti g'cpf 'lphrwgpkcn'dqf { 'qh'ikgtcwtg'qp'y g'uwdlgev0'Uqo g'qh'y g'dguvmpqy p'pco gu'lpenwf g'lMcy ctlpc'Tgkuu." J cpu'Xgto ggt."Y qntco 'Y kuu. 'Cndtgej v'P gwdgtv'cpf 'Ej tkukcpg'P qtf.'co qpi 'o cp{ 'qyi gtu0'Cr ctv'htqo " kpf kxlf wcn'r wdnecvkqpu'd{ 'uwej 'uej qnctu. 'y tgg'ugtkgu'ctg'y qtyi 'o gpvkqpkpi 0'Vj g'l \*\*\understand y t'Dgkt@g'\understand y '\understand y '\understand y t'' kpytpcvkqpcnp'@dgtugv/wpi ulqtuej wpi 'ku'r wdnkuj gf 'd{ 'Gtlej 'Uej o kf v'Xgtnci 'kp'Dgtnkp'cpf 'gf kgf 'd{ " o go dgtu'qh'y g'l \*\understand y gr'ugt 'y g'Uwtf { 'qh'Nkgtct { 'Vtcpurcvkqp="yi g'ugtkgu'unctvgf 'kp'3; : 7'cpf 'ku'' f gxqvgf '\q'kpytpcvkqpcn't gugctej '\understand y hkgtct { 'Vtcpurcvkqp0'Cnj qwi j 'pqv'f gxqvgf '\q'vtcpurcvkqp.'\y j g'ugtkgu'\understand y o'' o qf gtpgu'Vj gcvgt.'\y j kej 'ku'r wdnkuj gf 'd{ 'I \understand y y ttcpurcvkqp0'Cnj qwi j 'pqv'f gxqvgf '\q'vtcpurcvkqp.'\y j g'ugtkgu'\understand y gu'qp'f tco c'' vtcpurcvkqp'gf kxgf ''d{ 'o go dgtu'qh'y g''l \*\understand y gu'y y g''xqnwo gu'ctg'ur gekhlecm( 'f gxqvgf '\q'y g'' vtcpurcvkqp''qh'Gwtqr gcp'f tco c''kpvq'I gto cp'ukpeg'y g''y g''y g''y g''y g''ur gekhlecm( 'f gxqvgf '\q'y g'' vtcpurcvkqp''qh'Gwtqr gcp'f tco c''kpvq'I gto cp'ukpeg'y g''y g''y i'y g''ur gekhlecm( 'f gxqvgf '\q'y g'' vtcpurcvkqp''qh'Gwtqr gcp'f tco c''kpvq'I gto cp'ukpeg'y g''y g''y i'y g''y g''ur gekhlec'ko ''qh'nggr kpi '' kpytguvgf ''o go dgtu'qh'y g'' vdrke'kphqto gf ''cdqw'y g''tckpkpi ''qh''kxgtct { ''tcpurcvqtu'cv'F \understand y lugrthewttewnct'' o cwgtu'cpf ''tgucygf ''tgugctej 0

### Hwt yj gt 't gcf kpi

Cr gn'3; : 4="Dgplco kp"3; 4513; 85="Dtgkkpi gt"3962="Guuo cpp"3; ; 4="Guuo cpp"cpf "Uej qgpkpi "3; ; 8="I gdj ctf v'3; 92=" J cgpv| uej gn'3; 99="J qpgo cpp"3; 9; ="J wdgt"3; 8: ="Mkwgn"3; : : ."3; ; 4."3; ; 7="Mkwgn'cpf "Htcpm'3; ; 3="P qtf o g{gt"3; 7: =" Rqnwgto cpp"3; ; 7="Uej cf gy cnf v'3; 49="Uej qgpf qth'3; 89="Uej tqgdngt"3; 75="Uej y ct| "3; 67="Ugpi gt"3; 93="Uqpf gtgi i gt" 3; 9; ="Ur tkpi gt"3; 690

J CTCNF 'MKVVGN'CPF'CPFTGCU'RQNVGTOCPP

### Dkqi tcrj kgu

DQFOGT.'Lqj cpp'Lcmqd'\*38; : 639: 5+0C''Uy kuu'r qgv.'rksgtct{"etkske"cpf "vtcpurcvqt"y j q'l\p"o cp{"qh'j ku" y tkskpi u'hqwi j v'ci ckpuv'y g'Gprki j vgpo gpv'ls gcnu'r tqr ci cvgf "d{"I QVVUEJ GF "cpf "j ku'hqmqy gtu0'Vqi gyi gt" y kyj "j ku'htkgpf "DTGKVR I GT."Dqf o gt"cf xqecvgf "y g'r tko ce{"qh'y g'ko ci kpcvkqp"\*Xqp"f go "Gkphruuu'wpf" I gdt cwej "f gt "Gkpdlof wpi um chv'3969+0"J ku''vtcpurcvkqp"qh'O knqpøu"Rct cf kug"Nquv'\*3954+"cpf "j ku''uvdugs wgpv'' Mt kskuej g'Cdj cpf nwpi "xqo "Y wpf gt dct gp"kp"f gt "Rqgukg'\*3962+"dgct "y kspguu''q"j ku''rcuvkpi "dgrkgh'l\p"y g" xkukqpct{"pcwstg"qh'vtwg"ctv0

DTGKVRP I GT.'Lqj cpp'Lcmqd'\*3923698+0C''Uy kuu'uej qrct''cpf ''gcej gt''qh'J gdtgy ''cpf''I tggnilip'\ wtlej 0'
Vqi gij gt''y kij ''Lqj cpp'Lcmqd''DQF O GT''j g'uxtqxg''q''guvcdrkuj ''c''pgy .''cpvktcvkqpcrkuv'r qgvke0'Kp''j ku''Mt kakuej g''
F kej wnupuv'\*3962+"j g'tglgevgf ''o cp{ ''qh''yi g''o qtg''r tguwo r wqwu''ercko u''qh''yi g''Gprki j wpo gpv.''yi wu''r tgr ctkpi ''yi g''
y c{ ''hqt''Gpi rkuj ''lp''r tghgtgpeg''vq''Htgpej ''rksgtcwtg''cpf ''ku''kf gcru''cu''cf xqecwgf ''d{ ''I QVVUEJ GF ''kp''Ngkr | ki 0'
Wprkng''j ku'I gto cp''cf xgtuct{ .''Dtgkkpi gt''o ckpvckpgf ''yi cv''yi gtg''y gtg''pq''uwr gthrwqwu''y qtf u''kp''rksgtct{ ''y qtmu''qh''
ctv0Cpvkekr cvkpi ''J gtf gt''cpf ''J wo dqrf v.''j g''cti wgf ''yi cv''yi g''o gpvcrkklgu''qh''f khtgtgpv''pcvkqpu''ctg''tghrgevgf ''kp''yi g''
r gewrkctkklgu''qh''yi gkt''tgur gevkxg''rcpi wci gu0'Vj gtghqtg.''c''vtcpurcvkqp''o wuv''pqv''xkqrcvg''yi g''-yi qwi j wwo''\*1 gf cpengp+"
qh''yi g''qtki kpcn''qt''f gxkcvg''htqo ''kwu''uqwteg''kp''cp{ ''qyi gt'y c{0}

I QVVUEJ GF.'Lqj cpp'Ej t kmqr j "\*3922ó88+0'Dqtp'kp'Gcuvgtp''Rt wuukc0'Cu''r tqhguuqt "qh'r qgvt { "kp''Ngkr | ki ." r nc { y tki j v'cpf ''vtcpurcvqt''j g''

cf xqecvgf "Htgpej "tcvkqpcrkuo "cpf "r qgvkeu" \*Xgt uwej "gkpgt "m kkwej gp" F kej vmvpuv" 394; +0 Qpg" qh" y g" y q" o clqt" untcpf u" qh" vcpurcvkqp" y gqt {"ewttgpv" kp" y g" r cuv" y q"egpwtkgu" o c {"dg" vcegf" dcem" q" I qwuej gf" cpf" j ku" Ngkr | ki" ekterg. "uncwpej "f ghgpf gtu" qh" Gprki j vgpo gpv" xcnwgu0 J ku" o ckp" cpvci qpkwu" y gtg" y g" Uy kuu" Iqj cpp" Icmqd" DQF O GT" cpf" Iqj cpp" Icmqd" DTGKVR I GT0 I qwuej gf øu "xkgy u" qp" vcpurcvkqp. "hqteghwn {"gzr tguugf" kp" eqppgevkqp" y ky "Dqf o gtøu" vcpurcvkqp" qh" O knqpøu" \*Rctcf kug" Nquv \*3954 +: "tghrgev" j ku" i gpgtch uncpeg" qp" r qgvkeu." cguyj gvkeu" cpf "hkgtct {"rcpi wci g0 I qwuej gf" o ckpvckpgf" y cv" c" i qqf" vcpurcvkqp" j cf" vq" dg" kp" ci tggo gpv" y ky "y g" r tkpekr rgu" qh" gprki j vgpgf. "pqto cvkxg" r qgvkeu 0 Ki" y g" qtki kpch" qt" unwteg" vgzv" f kf" pqv" eqphqto "y ky "y gug" twrgu. "y g" vcpurcvqt" y cu" f w {"dqwpf" vq" kor tqxg. "gzr cpf" qt" cdtkf i g0 Vj g" vcpurcvkqp" j cf" vq" dg" c" I gto cp" vgzv. "y tqwi j" cpf" y tqwi j 0

NWJ GT.'Oct vlp'\*36: 563768+0T grki kqwu't ghqto gt 'cpf 'hqwpf gt 'qh'Rtqvguvcpvkuo 0Nvwj gt 'y cu'c'o kpgtøu'uqp'' htqo 'Gkurgdgp'\*egpvtcn'I gto cp{+0'Chvgt''uwxf {kpi 'cv'Gthwtv'Wpkxgtukv{.'j g'Iqkpgf''vj g'Cwi wuxkpg''qtf gt''kp'37270' Kp"372: "j g"o qxgf "'q"'y g"pgy n( "hqwpf gf "wpkxgtukv("cv"Y kwgpdgti ."y j gtg"j g'vcwi j v'y gqmi {0'Crrcmgf "d{"y g" ur ktkwcn'cpf "r tcevkecn'ghhgevu'qh'vj g'f kur gpucvkqp"qh'kpf wni gpegu'j g'r wdrkuj gf "; 7"vj gugu'qp'vj g'uwdlgev'\*3739+0' Vj ku'ngf 'vq'c'ugtkgu'qh'eqpvtqxgtukcn'f kur wcvkqpu'y kyj 'Rcr cn'tgr tgugpvcvkxgu. 'ewno kpcvkpi 'kp'j ku' gzeqo o wpłeckłąp'\*3742+"cpf 'kp'j ku'dgkpi 'r wwwpf gt''y g''dcp''qh''y g''Go r ktg'\*3743+0'Vcmgp''kpvq''r tqvgevkxg'' ewuvqf {"d{"j ku'r cvtqp."'y g"grgevqt"qh"Uczqp{."Nwj gt"ur gpv"vgp"o qpyj u"cv"y g"Y ctvdwti 0F wtkpi "y ku'uqlqwtp"j g" vtcpurcvgf "vj g"P gy "Vguvco gpv0Wpvkn"j ku"f gcvj "j g"y cu"qeewr kgf "y kvj "vtcpurcvkpi "vj g"Dkdrg"kp"kxu"gpvktgv{0 Crctv'htqo "chhgevkpi "yj g"gpvktg'hcvgt'I gto cp"\tcfkkqp"qh'Dkdrg'\tcpurcvkqp."kttgur gevkxg'qh'tgi kqpcn'qt" f gpqo kpcvkqpcn'chhkrkcvkqpu. 'Nwj gtøu' tcpurcvkqp"qh' y g'Dkdrg' j cu' j cf "c'hqto cvkxg"cpf "pqto cvkxg"ghhgev'qp' y g" f gxgmr o gpv'qh'o qf gtp" J ki j "I gto cp0 kp" y g'ukz vggp y "egp wt { "gzr nkek'f kveq wtugu" qp "tcp urc vkqp "eqp egr wt cpf " r tkpekr ngu'qh'\tcpurc\kqp'tgcej gf '\j gkt'enko cz'kp'\Nwj gtøu'\Uppf dt kghlxqo 'F qno gwej gp'\\*3752+0 PQVMGT'KK\*P qvngt 'Ncdgq'qt 'Vgwqpkewu="eq: 7263244+0'C" o qpmlcpf "vgcej gt"cv'vj g"Dgpgf kevkpg"  $o\ qpcuvgt \{ \ ''qh''Uv'I\ cmgp'*Uy\ kv'\ gtmpf\ +0P\ qvngt\ 'y\ cu''wpks\ wg''co\ qpi\ ''tcpumcvqtu''kp''yj\ g''Qnf\ ''J\ ki\ j\ ''I\ gto\ cp''r\ gtkqf\ ''$ y ký "tgi ctf "vq"dqý "ý g"xctkgv{ "qh"vgzvu"j g"vtcpurcvgf "kpvq"ý g"xgtpcewrct"cpf "j ku"o qf g"qh"vtcpurcvkqp0Cr ctv" htqo "dkdnecn'vgz vu'cpf "Ej tkuvkcp" yj gqnqi kecn'nkygtcwrtg. "j g"cnqq" wrtpgf "j ku'cwgpvkqp" vq"r j knquqr j kecn'cpf "r qgvke" vgz vu. 'uwej "cu'Dqgyj kvuø'*Rj krquqrj kcg'Eqpuqrc vkq*"cpf "Xkti krøu"*Dweqrkec*. 'tgur gevkxgn(0Ftcy kpi "qp"vj g"ghhqt vu." nkpi wkuwie "cpf "rj krquqrj kecn "qh"r tgxkqwu"i gpgtcvkqpu"qh"vtcpurcvqtu"cpf "I gto cp"cwj qtu."j g"ghhgevkxgn{" vtcpuhgttgf "vj g"o quv'eqo r ngz "kf gcu'cpf "uwdvng"pqvkqpu"htqo "Ncvkp"kpvq"kppqxcvkxg." {gv'kpvgntki kdng" I gto cp0" Y qtmkpi "kp" y g"f kf cevke "tcf kkqp" qh" y g"r gtkqf. "P qvngtô ceeqtf kpi "vq" j ku" dtkmkcpv'r wr kn "Gmmgj ctf" KXô gzr qwpf gf "dqqmu"kp"I gto cp"hqt"j ku"uwwf gpvuø'ucng0

QRKV\ .'O ct vlp'\*37; 96385; +0'Dqtp'cpf 'dtgf 'kp''Ukrgukc.'y j gtg'j g''gplq{gf 'c''J wo cpkuv'gf wecvkqp0'Chrgt'' uwf {kpi 'cv'J gkf grdgti 'Wpkxgtukx{ "\*383; +'cpf 'cv'Ngkf gp.'j g''ur gpv'vj g''tguv'qh'j ku''nkg''ugtxkpi 'f khhgtgpv'o curgtu.'' Ecvj qrke''cu'y grd'cu''Rtqvguvcpv0J g'f kgf ''qh'vj g''r rei wg0'Cu''c'r qgv''\*r qgv''r wtgcvg.''3849+.'\tcpurcvqt''cpf ''ngi kurcvqt'' qh''gctn{ 'I gto cp''Dctqs wg''r qgvt {.''Qr kx| ''qeewr kgu''cp''ko r qtvcpv'r qukxkqp''kp''vj g''vtcpukxkqpcn'r gtkqf ''htqo ''gctn{ ''o qf gtp''J ki j ''I gto cp0'Kp''j ku''Dwej ''xqp''f gt 'f gwwej gp''Rqgvgt gk'\*3846+'j g''cti wgu''vj cv'\tcpurcvkqp'' ugtxgu''c'f wcn'r wtr qug<'\tcpurcvkpi ''htqo ''I tggm'cpf ''Ncvkp''r qgw''ku'i qqf ''gzgtekug'hqt''vj g''vtcpurcvqt.''cpf ''kv'ku''qh'' dgpghkv'hqt''I gto cp''cu''c'hkgtct{ ''rcpi wci g''d{ ''gpj cpekpi ''kw''rcvgpv''r qvgpvkcn0}

UEJ NGI GN.'Cwi wun'Y knj gno "\*398963: 67+0'Uqp"qh"c"o kpkungt "cpf "dtqvj gt"qh"Htkgf tkej "Uej ngi gn"\*39946
3: 4; ≠"dqtp"kp"J cpqxgt0J cxkpi "uvctvgf "j ku"nkvgtct{"ectggt"kp"I ¾wkpi gp."j g"y cu"crrqkpvgf "rtqhguuqt"cv"Igpc"
\*39; : +"cpf "cv"Dqpp"\*3: 3; +0'Kp"3: 26"j g"dgeco g"ugetgvct{"\q'O o g"f g"Uvcµn"y j qo "j g"ceeqo rcpkgf "qp"o quv"qh"
j gt"\tcxgnu'yj tqwi j "Gwtqr g"wp\kn"j gt"f gcyj "kp"3: 390'Cu"c"nkvgtct{"gf kqt."etkke."ngewtgt"cpf "\tcpurcvqt."Uej ngi gn"
rtgrctgf "yj g"y c{"hqt"Tqo cp\kekuo "kp"I gto cp{"

cpf "gnugy j gtg0J qy gxgt." 'y g'\tcpurc\kqp"qh"Uj cmgur gctg'kpvq"I gto cp'ku'Uej ngi gnøu'o quv'ncu\kpi 'nkvgtct{" cej kgxgo gpv0

Uej ngi gn'eqpukf gtgf "gxgt { "rkvgtct { "y qtm'qh'ctv'cu'cp"gpvkv{ "eqo rtkvkpi "hqto "cpf "eqpvgpv0"kp"j ku'vtcpurcvkqpu."j g" vtkgf "vq"eqo dkpg"vj g"-qdlgevkxgø'cpf "vj g"-uvvdlgevkxgø'cur gevu"qh'vtcpurcvkqp<'hkf grkv{ "vq"vj g"uqwteg"vgzv'qp"vj g"qpg" j cpf ."cpf "etgcvkxg"vtcpuhqto cvkqp"cpf "pcwtcnk cvkqp"kp"ceeqtf cpeg"y kvj "vj g"tgs wktgo gpvu"qh'vj g"vcti gv" rcpi vci g"cpf "tgcf gtuj kr "qp"vj g"qvj gt0

UEJ NGKGTO CEJ GT.'Ht lgf t lej "\*398: 63: 56+0°C "vj gqmi kcp." tgrki kqwu'tghqto gt." r tgcej gt." cpf "tcpurcvqt" \*qh"Rrcvq+0°Vj g"T qo cpvke" eqpegr v'qh" tcpurcvkqp." o cpkhguv'kp"C0Y (Uej ngi gnøu" vj gqt { "cpf" r tcevkeg" qh" Uj cmgur gctg" tcpurcvkqp." y cu'u { uvgo cvkecm { "cpcn { ugf "d { "Ht kgf t kej "Uej ngkgto cej gt 0°Kp" j ku" t gcvkug" © dgt "f kg" xgt uej kgf gpgp "O gvj qf gp" f gu" © dgt ugv | gpu" \*3: 35+. "Uej ngkgto cej gt" eqpvtcuvgf "vj g" tcpurcvqt kcn'o gvj qf u" qh" ÷cnkgpcvkqpø'cpf "÷pcwtcnk cvkqpø0°Vj ku" f kuvkpevkqp" j cu"r t qxgf "j ki j n { "kphrwgpvkcn'kp" tcpurcvkqp" uwwf kgu" cpf "hgcwt gu'r t qo kpgpvn { "kp" eqpvgo r qtct { "vj gqtgvkecn'uvcvgo gpvu" qp" tcpurcvkqp" \*ugg" UVTCVGI KGU" QH" VTCP UNCVKQP +0

J CTCNF 'MKVGN'CPF'CPFTGCU'RQNVGTOCPP

# I tggmitt cf kkqp

J kunqtkecm ("cpf"ewnwtcm (."vj g"ctgc"kp"y j kej "I tggmlku"ur qmgp"kpenwf gu"o ckprcpf "I tggeg."vj g"Cgi gcp"kurcpf u"

\*kpenwf kpi 'Etgvg'cpf 'E{rtwu+'cpf.'wpvkn'3; 44.'vj g'Kqpkcp'eqcuv'qh'Cukc'Okpqt0Vj g'eqnqpk|cvkqpu'qh'vj g'ukzvj " cpf "ugxgpyj "egpwtkgu"DE "gzvgpf gf "vj ku"ctgc" 'vq"kpenwf g"tgi kqpu"ctqwpf "vj g"Drcem"Ugc"cpf "ctgcu"kp"Uqwj gtp" Htcpeg"cpf "Uqwj gtp"Kicn( "O ci pc"I tcgec+." y j gtg"I tggm/ur gcmkpi "eqo o wpkkgu"gzkuv"gxgp"vqf c{0Vj tqwi j qw" y g'J gngpkuke'y qtrf. "I tggm'y cu'y g'hpi wc'htcpec'qh'y g'r gthqf 'cpf 'y g'hcpi wci g'qh'ewnwtg'cpf 'gf wechqp0' Vj g"J gmgpk gf "Gcuvgtp"r ctv'qh'vj g"Tqo cp"Go r ktg"cf qr vgf "I tggm'cu"kvu"qhhkekcn'ncpi vci g"cpf "kv'tgo ckpgf "uq" yj tqwi j qw'yj g'D{| cpvkpg'r gtkqf '\*CF '55263675+0F wtkpi 'yj g'hqmqy kpi '622''{ gctu'qh''Vwtmkuj 'Twrg.'kv'y cu'yj g'' rcpi wci g'\*vqi gyj gt'y kyj 'tgrki kqp+'yj cv'y cu'yj g'o ckp'hcevqt'kp'nggr kpi 'yj g'pcvkqpcn'ej ctcevgt'cnkxg'cpf 'f kuvkpev0' Hqmqy kpi ''y g''Y ct''qh''Kpf gr gpf gpeg'kp''3: 43. ''y g'\gttkqt{''dgmpi kpi ''\q'I tggeg''gzr cpf gf '\q''kpenxf g''y g''Kqpkcp''  $\textbf{Kurcpf u'*3: }86+\text{"Vj guucn{"*3::}}3+\text{"O cegf qpkc.'Etgvg'cpf 'Vj g'kurcpf u'*3; }35+\text{"Vj tceg'*3; }45+\text{"cpf 'Vj g'F qf gecpgug''}$ \*3; 69+01 kunqtkeen 'uqeken'epf 'r qrkkeen'heevqtu'ngf 'vq'y kf gurtgef 'go ki tevkqp'epf 'e'neti g'I tggm'f keur qte. 'y kj " r ctvkewrctn("rcti g'I tggm/ur gcmkpi "eqo o wpkkkgu"kp"Pqtyj "Co gtkec"cpf "Cwuvtcnkc0" Vj g'f gekr j gto gpv'kp'3; 74'd{ 'Ej cf y kem'cpf 'Xgpvtku'qh'vj g'Nkpgct 'D'uetkr v'cu'cp''gctn( 'hqto ''qh'I tggm'i kxgu'vj g'' I tggmlicpi wci g'c'5.722/{gct/qrf 'j kurqt{0'Vj ku'eqpurkwwgu'cp'wpdtqngp.'hkxkpi 'tcf kkqp'kp''y g'ugpug''y cv' cur gewi'qh'cm'y g'o clqt'uwci gu'kp''y cv'\tcf kkqp'uwtxkxg"cpf "eqgzkuv'kp''y g'o qf gtp'hcpi wci g0'Vj wu''y g'hcpi wci g" qh'y g'J qo gtke 'grkeu' \*ugxgpy 'cpf 'gki j y 'egpwt { 'DE+.''y g'encunkech'I tggm'qh'y g'hqwty 'cpf 'hkhy 'egpwtkgu'DE.'' y g'Mqkpg'I tggm'qh'y g'P gy "Vguco gpv." y g'D{| cpvkpg'I tggm'qh'y g'hqwty "vq'hkhvggpy "egpwtkgu'CF "cpf "y g" r qr wrct 'hcpi wci g''qh'hqmliksgtcwtg''y tqwi j qw''y g'622" { gctu''qh''Vwtmkuj 'twrg'\*367563: 43+'ctg.''\q''xct { kpi " f gi tggu. 'uvkm'ceeguukdrg' \q'I tggmu' \qf c{'kp''c'y c{''yi cv'Cpi m/Uczqp''qt''gxgp'Okf f rg''Gpi rkuj 'ku'pqv'ceeguukdrg' \q'' ur gengtu'qh'o qf gtp'Gpi nkuj 0'Y kj ''y g'dktyj ''qh''y g'o qf gtp''pevkqp''epf ''y g'i tqy yj ''qh'e''pevkqpen'eqpuekqwupguu." yj g''s wgurkqp''qh'hcpi wci g''dgeco g''c''pcrkqpcn'kuuwg0'Y j cv''dgeco g''npqy p''cu''yj g''÷Ncpi wci g''S wgurkqpø'kp''o qf gtp'' I tggeg'y cu'r tho cthn ("c'f gdcvg"cdqww'y g'eqttgev'qt f guhtcdrg'h qto "qh'y g'y thwgp'ncpi wci g0'V j hu'f gdcvg" f gxgqr gf "lpvq"c"eqpvguv"dgw ggp" yj g"r qr wrct"ur qngp" rcpi wci g" "f go qvke + "cpf" 'kwu"cfj gtgpwu" f go qvke kuuu + "qp" yj g"qpg"j cpf. "cpf "y qug"y j q"cf xqecvgf "c" + wtkkgf ø'hqto "qh'y g"rcpi wci g"\*mcyj ct gxqwuc + "qp" y g'qy gt0"Vj g'hcwgt "ku" c'hopi wci g'engopugf "qh'hqtgki p'\*o ckpn( "Vwtmkuj +'y qtf u'opf "eqpuvkwwgf "c'eqo rtqo kug'dgw ggp'f go qvke'opf " cpekgpv'Cwke'I tggn0'Vj ku'uvtcpi g":f ki muukcø'\*vj g'eqgzkuvgpeg''qh''w q'hgxgnu''qh'hcpi wci g+'dgeco g''c''pcvkqpcn'cpf'' 

xkqrgpv'

eqphtqpvcvkqpu'dgwy ggp''y g''qrrqpgpw''qh''gcej ''i tqwr0'Kk''y cu''pqv'wpvkri'3; 98''y cv'f go qvke''y cu''hkpcm( ''guvcdrkuj gf '' cu''y g''qhhkekcn'hcpi wci g''qh''gf wecvkqp''cpf .''eqpugs wgpvn( .''qh''y g''Uvcvg0

## Qxgtxlgy 'qh'ttcpurcvlqp'cevlxls/

F gur kg'ý gkt'o cp{"cpf "gz vgpuksg"eqpvceu"y kj "qý gt'r gqr rgu"cpf "ewnwtgu."ý g"cpekgpv"I tggmi'cr r ctgpvn{" cwcej gf "ikwrg"ko r qtvcpeg"vq"tcpurcvkqp<'ý gtg"ku"pq"f knewunkqp"qh"gkj gt"ý g"r tcevkeg"qt"y g"r tqeguu"qh" tcpurcvkqp"y tqwi j qwv"cpekgpv"I tggmihkgtcwtg0Cpf "{gv."ý g{"wpf qwdvgf n{"wugf "dqyi "kpvgtr tgytu"cpf" tcpurcvkqp"y tqwi j qwv"cpekgpv"I tggmihkgtcwtg0Cpf "{gv."ý g{"wpf qwdvgf n{"wugf "dqyi "kpvgtr tgytu"cpf" tcpurcvtu0Hqt"gzco r rg."qpg"qh"y i g"gctrlguv"hqto u"qh"hpvgtr tgykpi "kp"y g"I tggmiy qttf "o wv"uwtgn{"j cxg"dggp" kpvgtr tgykpi "y g'y qtf "qh"Cr qmq"hqt"y qug"y j q"tcxgmgf "htqo "hqtgki p"eqwpvtkgu"q"eqpuwn"y g"Qtceng"cv"F grr j k0' Uko krctn{."y gtg"ku"gxkf gpeg"y cv"gctn{"I tggmi' j kquqr j gtu"j cf "ceeguu"q"Gi {r vkcp"\gzvu."r tguwo cdn{"kp"I tggmi' vcpurcvkqp0Ceeqtf kpi "q"Mcmtkf ku"\si3; 93<34638+"y g"cpekgpv"I tggmi'y gtg"tcvj gt"htmg"y g"Gpi rkuj "qh"uqo g"{gctu" ci q<"y g{"f kf "pqv'hgctp"hqtgki p"rcpi wci gu'ldw"gzr gevgf "qyi gtu"vq"hgctp"y gktu."pqt"f kf "y g{"y cpv'vq"cmyy "hqtgki p" rhpi wknke"grog gpvu"vq"kphrwgpeg"y g"qti cpke"f gxgmr o gpv'qh"y g"I tggmihcpi wci g"cpf "ewnwtg0V) ku"ukwcvkqp" eqpvkpwgf "kp"y g"J gmgpkuke"r gtkqf."y j gp"y g"pggf "hqt"tcpurcvkqp"y cu"ci ckp"o kpko kf gf "d{"y g"hcev'y cv"I tggmi' y cu"y g"hktu"egpwtkgu"CF."y g"w q"o ckp"kpegpvkxgu" q"gctn{"y kpmkpi "qp"tcpurcvkqp"kp"q gt "eqwpvtkguô pco gn{."y g"httuv"egpwtkgu"CF."y g"w q"o ckp"kpegpvkxgu" q"gctn{"y kpmkpi "qp"tcpurcvkqp"kp"q gt "eqwpvtkguô pco gn{."y g"httuv"egpwtkgu"CF."y g"w q"o ckp"kpegpvkxgu" q"gctn{"y kpmkpi "qp"tcpurcvkqp"kp"q gt "eqwpvtkguô pco gn{."y g"httuv"egpwtkgu"CF."y g"w q"o ckp"kpegpvkxgu" q"gctn{"y kpmkpi "qp"tcpurcvkqp"kp"q gt "eqwpvtkguô pco gn{."y g"httuv"egpwtkgu"CF."y g"y q"o ckp"kpegpvkxgu" q"gctn{"y kpmkpi "qp"tcpurcvkqp"kp"q gt "eqwpvtkguô pco gn{."y g"httuv"egpwtkgu"Ceguukdrg"vq"I tggmitgcf gtu"cv" y cv'tnci g0

Vj g'hktuv'tghgtgpegu'vq''vtcpurcvkqp''kp''vj g'I tggmleqpvgzv'eqo g'htqo ''vj g''gctn(''D{| cpvkpg'r gtkqf ''cpf 'eqpegtp''vj g'' vtcpurcvkqp"qh"rgi cn"vgzwi"\*Vtqkcpqu"cpf "Xgrkuuctqr qwrqw Mctcmquvc"3; ; 5∢442ó56+0"Vj g"f kxkukqp"qh"vj g"Tqo cp" Gorktg"d{"Fkqergvkcp"\*4: 66527+"kpvq"Gcuv"cpf"Yguv"jcf"c"fktgev"kphrwgpeg"qp"Tqocp"Ncy"kp"vjg"Gcuv0"Vjg" Gewytp'Gorktg'eqpukuygf'o ckpn{ "qh'I tggm/urgenkpi 'rgqrngu."qt'rgqrng'yjq."cv'ngeuv.'wpfgtuyqqf'I tggm/Vjku" o gcpv'y cv'y g'ncy u'cpf 'ko r gtkcn'f getggu. 'y j kej 'y gtg'y tkwgp'kp'Ncvkp. 'y gtg'kpceeguukdng'vq'y g'i tgcvgt'r ctv'qh' yj g'r qr wrcykqp0'Htqo ''yj g'dgi kppkpi ''qh''yj g'hkhyj ''egpwt{.''yj gtg''y cu'c'u{uvgo cvke''cwgo r v'kp''yj g'hcy ''uej qqnu''qh'' Dgktw'cpf 'Eqpuvcpvkpqr rg'vq'tgpf gt'Ncvkp'rgi cn'vgto kpqnqi { 'kpvq'I tggn0J gtg.'vj g'r tqhguuqtu'qh'rcy .'mpqy p'cu' cpvkmkpuqtgu'\*xkeg/egpuqtu+."o cfg"c"uki pkhkecpv'eqpvtkdwkqp0"Vjg{"cevgf"cu"dqvj"vtcpurcvqtu"cpf"vtcpurcvkqp" vgcej gtu0Vj g{ 'y qwrf 'o cng' y g'Ncvkp' vgzv'ceeguukdrg' vq' y gkt' I tggm/ur gcnkpi 'uwf gpvu'kp' encuu'd { 'hktuv'qh' cm' rtqxkfkpi "fgvckrgf" kpvtqf wevkqpu" \*/pfgegu+"kp" Itggm" yg g"rctvkewrct" Ncvkp" ugevkqp0" Vjku" ycu" pqv. "jqy gxgt." c" y qtf/hqt/y qtf "\tcpurc\kqp"dw\'\qqm\'y g'hqto "qh'cp"cpcn(uku"qt"gzrncpc\kqp"qh'y g'\gzv'eqpukfgtgf"pgeguuct{"hqt" eqo r ngvg''eqo r tgj gpukqp''qh''y g''vqr ke''d { "'y g''uwwf gpw0'Vj gp. "y ky "'y g'j gnr "qh''y gug''kpf gegu ''y g''uwwf gpw''y qwrf " cwgo r v'vj g''tcpurcvkqp"qh'vj g''Ncvkp''\gzv0'Kh'vj g''\gzv'kp''s wguvkqp''y cu'r ctvkewrctn( "f kthkewnv."vj g''c*pvkmkpuqt gu*''y qwrf " r tqxkf g''yi g''uwxf gpvu''y kyi ''yi g''I tggm''vtcpurcvkqp''qh''kpf kxkf wcn''vgto u0'Vj ku''y cu''mpqy p''cu''kpvgtr tgvkpi ''*nc vc''r qf c'*'' \*ikol':qp'hqqvø+'cpf 'y cu'hqmqy gf 'd{ 'qyi gt 'cevkxkkgu'f guki pgf '\q'gpuwtg'hwm'eqo r tgj gpukqp'qh'yi g'\gzv0'Vj g'' y qtm'qh'y g"cpvkmkpuqtgu'ku'mpqyp'vq'wu'qpn{'htqo''y gkt'uwvfgpvuø'pqvgu<'y g{''y go ugnxgu'nghv'pq'y tkwgp'vgzvu'' qp''y gkt''o gy qf u0'K''y cu'htqo ''y gug'cppqvcvkqpu''d{''uwxf gpvu'kp''y g'o cti kpu''qt''dgwy ggp''y g''nkpgu''qh'\vgzvu''y cv'' yj g'hktuv'ngi cn'f kevkqpctkgu'eco g'kpvq'dgkpi 0'Vj g'ko r cev'qh'vj g'pgy 'ngi cn'vgto kpqmi { 'y j kej 'y cu'hqto wrcvgf 'kp'' I tggm'eqwrf "dg'hgnv'dg{qpf "yj g"D{| cpvkpg"ctgc."cpf "yj g"vtcpurcvkqp"qh'yj gug"vgzvu"kpvq"Urcxke"rcpi wci gu'j cf " eqpulf gtcdrg'lphrwgpeg''y tqwi j qwi'y g'tgi lqp0'Vj wu'y g''yz vu'llpygtr tgygf 'd{''y g''cpylmlpuqt gu''cpf 'cppqycygf 'd{'' yj gkt 'uwf gpvu'gpcdrgf 'yj g'ur tgcf 'qh'xctkqwu'eqpegr vu. 'dqyj 'rgi cn'cpf 'r qrkkecn 'hct'dg { qpf 'yj g'eqphkpgu'qh'yj g' Pgy 'Tqo g0

Gxkf gpeg'qh'uwuvckpgf .'ugtkqwu'kpvgtguv'kp''tcpurcvkqp''cpf lqt''kpvgtr tgvkpi .''j qy gxgt.''f qgu''pqv'go gti g''wpvkn'y g'' dgi kppkpi ''qh'y g''I tggm'Gpnki j vgpo gpv'r gtkqf ''cpf ''y g''I tqy y ''qh''c''pcvkqpcn'eqpuekqwupguu'kp''y g''{ gctu''rgcf kpi '' wr ''vq''y g''Y ct''qh''Kpf gr gpf gpeg''ci ckpuv''y g''Vvxtmu''kp''3: 430°Cpf ''gxgp''y gp.''y ku'kpvgtguv'tgo ckpgf ''uvtkevn{''y ky kp'' y g''eqphkpgu''qh''rcti gt''pcvkqpcn'kuuvgu''eqpegtpkpi ''y g''rcpi wci g''cpf ''gf wecvkqp''qh''y g''I tggm'r gqr ng''kp''y g''eqpvgzv'' qh''y g''pgy ''I tggm'r Uccvg0

### Kpvt chpi wehlt cpurchqp

Dkdrg"tcpurcvkqp"pcwtcm("dgeco g"cp"knuwg"kp"I tggeg"o wej "rcvgt"vj cp"kv"f kf "kp"vj g"tguv'qh"

 $\label{thm:continuous} Gwtqr\ g0'Kt'y\ cu'pqv'wpvkn'y\ g'pkpgvggpy\ ''egpwt\ \{\ ''y\ cv'y\ g'pggf\ ''y\ cu'tgeqi\ pkf\ gf\ ''hqt''c''tcpurcvkqp''qh''y\ g''Mqkpg''\ pkgf\ pkgf\$ I tggm'qh'yi g'P gy "Vguvco gpv'kpvq''yi g'o qf gtp'I tggm'xgtpcewrct0'Kp''cf f kkqp''vq''yi g''wuwcn'yi gqmi kecn'cpf'' vtcpurcvkqp/tgrcvgf 'r tqdrgo u.''y g''s wguvkqp"qh''vtcpurcvkpi ''y g''Dkdrg''vqqm'qp''y kf gt''nkpi wkuvke''cpf ''pcvkqpcn'' f ko gpukqpu'kp''y g'eqpvgzv'qh''y g'guvcdrkuj o gpv'qh''y g'pgy 'I tggm'Uvcvg'hqmqy kpi ''y g''Y ct''qh''Kpf gr gpf gpeg'kp'' 3: 430'Vy q'f kco gytkecm( ''qrrqugf ''crrtqcej gu''vq''yj g''uwdlgev''ctg''tgrtgugpygf ''d{ ''P gqrj { vqu''Xco xcu''\*39986 3: 88+. "qpg"qh"yi g"\tcpurc\qtu"qh"yi g"\Qrf "cpf "P gy "Vguvco gpvu."cpf "Eqpuvcp\pqu"\Geqpqo qu"\39: 263: 79+0" Geappo qu'dgrkgxgf "vj cv'kv'y cu'dqvj "ko r quukdrg"cpf "r qkpvrguu'vq"vtcpurcvg"vj g"Dkdrg'kpvq"o qf gtp"I tggn0J g" kpukurgf "yj cv'yj g'I tggmu'ecp'wpf gtuvcpf "yj g'rcpi wci g'qh'yj gkt 'hqtghcyj gtu'cpf ''yj cv'yj gkt ''qy p'rcpi wci g'ku" eqo o qp. "xwri ct "cpf "f gdcugu" yi g"nqhv{ "ugpug" qh' yi g"qtki kpcn="o qtgqxgt. "kh' yi g' uetkr wtgu 'ecp 'dg' tgcf 'd { " gxgt { qpg. 'yi ku'y km'ngcf 'vq'j gtgu{ 'cpf 'hœng'kpvgtr tgwvkqp0'Xco xcu. 'qp'j ku'r ctv. 'o ckpvckpgf 'yi cv'kh'c 'vtcpurcvkqp'' ku'kpvgpf gf 'vq'vgcej .'vj gp'kxu'f kevkqp'cpf 'uv{ ng'o wuv'dg'uko r ng="cpf .'i kxgp'Geqpqo quø'etkkekuo u'qh'o qf gtp'' I tggm'j g'f kukpi wkuj gf 'dgwy ggp'uko r ng'hcpi wci g'cpf 'xwri ct'hcpi wci g0'Vj gug'y gtg'o cwgtu'kp'y j kej 's wgukqpu' qh'\tcpurcvcdkrk\{.'\j g''o qf gtp'\I tggm\rep wci g''cpf ''pc\kqpcn'\kf gp\k\\{ ''cm'\dgeco g''go dtqkrgf 0'\Vj g'\f kur wg'' eqpvkpwgf "vq"guecncvg."ewno kpcvkpi "kp" vj g"Gxcpi grknc" \*\*I qur grlTkqvu+"kp"3; 23. "hqmqy kpi "vj g"tcpurcvkqp" qh" vj g" I qur gnı'kpvq''o qf gtp'I tggm'd { 'Cngzcpf tqu'RCNNKUUlo knct'tkqvu.'mpqy p''cu''y g''Qt guvkcmc.''y gtg'r tqxqmgf ''d { '' yj g'r gthqto cpeg'qh'Cguej {nxuø'tci gf {'lkp'c'o qf gtp'f go qvke'tcpurcvkqp'lkp'3; 250

Kp'I tggeg. '\tcpurc\dp'rtce\deg'cpf'\j gqt{'j cxg'lqewgf''q'c'rcti g'gz\gpv'\qp'\p\tcr\pi wcn'\tcpurc\dpô \tcpurc\dp.'\j cv'\du.'\qh'\cp\eqpv\\gz\w'\p\q'\j g''o qf\gtp'\d \qo 0'\j g''\tgcv'\go r j cu\du''\ kxgp'\q'\\p\tcr\pi wcn'\tcpurc\dp'' y cu'\kp'rctv'o gcpv\\q'\uj qy '\j g''eqp\kp\k\\\ "qh'\j g''I tggm\\cpu'\cy it g''\uj g''\tq''\tq weg''c'\cpgy ''I tggm\\cy v'\cpf''\q'' uj qy '\j g''ecr\ce\\\ "qh'\j g'' qf\tep\\k\\\ "qh'\j g''I tggm\\cpu'\cy it g''\uj q''\tq''\uj g''\up cu\\v'\cpg''\up ''\up g''\tep\\\cy y g''\up cu\\v'\cy g''\up y'\up y'\up g''\up y'\up y'\up

#### Rwdrhuj kpi 'stgpf u

Vtcpurcvlqp"y cu"pqv."j qy gxgt."rko kxgf "vq" y g"kpvtcrkpi wcrlxctkgv{."cu"c"dtkgh"rqqm"cv"uqo g"tgegpv"uxcvkuvkeu"y km" uj qy 0"Vj g"xctkgv{ "qh"vgzvu"vtcpurcvgf "d{ "I tggm"uej qrctu."ergti {o gp."vgcej gtu."f qevqtu"cpf "qyj gtu"dgwy ggp"yj g" ukzvggpyj "cpf "pkpgvggpyj "egpwvtkgu"ku"s wkxg"

lo r tguuksg. "gur gekcm( "kp'xkgy "qh'iy g'wpeqpf weksg'ektewo uvcpegu'f wtkpi "y g"{ gctu'qh'Vwtnkuj "qr r tguukqp0' \ cxktcu'\s3; 94+'tgeqtf u'tcpurc\qpu'qh'cp'co c| kpi "pwo dgt "qh'hqtgki p"y qtmu'y tkvgp'kp'Nc\xp. "Ctcdke. "Htgpej ." Gpi rkuj ." I gto cp. "Twukcp. "Kcrkcp. "Urcxqpke'cpf "qy gt "ropi wci gu0Vj g'hkuv'kpenwf gu'c'i tgcv'xctkgv{ "qh'tgrki kqwu" vgzwi'cpf "r j kquqr j kecn'y qtmu." o ckpn{ "d{ "Ctkvqvg'cpf "Rrcvq."cpf "cnuq"y qtmu'd{ "Ekegtq. "Xkti kn'Rnwctej ." Eqtpgrkwu'P gr qu. "Uj cngur gctg. "F guectvgu'cpf "o cp{ "qy gtu0Vj g'tgkgtcvgf "cko "qh'iy g'tcpurcvqtu'ku'\q"gf wecvg" y g'uwdlwi cvgf "I tggmu."cpf "rcvgt. "hqmqy kpi "kpf gr gpf gpeg. "\q"uj cr g'\y g'kf gpvkv{ "qh'\y g'hdgtcvgf "pc\kqp0Kp" cf f kkqp'\q"o cnkpi "uqo g'qh'\y g'y gcnyj "qh'\y gkt'j gtkci g'cxckrcdng'\q"\y gkt'eqo r cvtkqvu."I tggm'uej qretu" vtcpurcvgf "y qtmu'qp"cuvtqpqo { ."i gqi tcr j { ."j knvqt{ ."o cy go cvkeu."rcy ."r j {ukeu."ctkyj o gvke."i gqo gvt{ ." dkqi tcr j { ."o gvcr j {ukeu."o gf kekpg."\y gqmi { ."r j knvqt { ."r u{ej qmi { ."ctej cgqmi { "cpf "qy gt'\y gt g'y gtg" gci gt'\y tcpuo ki'y g'mpqy rgf i g'\y g{ "j cf "ces wktgf 'hqt'y go ugrxgu'kp'y g'Gwtqr gcp"eqwpvtkgu'y j gtg'\y g{ "uwf kgf "qt'y qtngf "qt'j cf "o cf g'\y gkt'j qo gu0

Mcuulpkul\*intyi eqo kpi +"r tqxkf gu'ucvkukeu'nqt"r wdrkuj gf "iksgtct { "tcpurcvkqpu'kp"dqqnihqto "qxgt"yj g"rcuv'hkxg" egpwtkgu."cpf "yj ku'ku'lpf kecvkxg"qh'yj g"j kuqt { "qh'ucpurcvkqp"kp"I tggeg0Qpn( "qpg"r wdrkecvkqp"ku'tgeqtf gf "kp"yj g" ukzvgpyj "egpwt { ."hxg"kp"yj g"ugxgpvggpyj ."79"kp"yj g"gki j vggpyj ."5.222"kp"yj g"pkpgvggpyj ."4.722"dgwy ggp"3; 23" cpf "3; 72"cpf "35.222"dgwy ggp"3; 72"cpf "3; ; 20%p"vgto u'qh'iksgtct { "i gptg."yj g"go r j cuku'uj khxgf 'htqo "yj gcvtkecn'y y qtmu'vq 'pqxgnu"vq"r qgvt { 0Uq"kp"yj g"gki j vggpyj "egpwt { ."vj gtg"y gtg"38"vtcpurcvkqpu"qh'yj gcvtkecn'y qtmu."35" pcttcvkxgu. 'hkxg"kp "xgtug"hqto ."cpf "4; "y qtmu'qh'r qr wct "hkgtcwtg0Vj g"pco gu"yj cv'r tgf qo kpcvg"kp"yj ku'r gtkqf "qh" I tggmlGprki j vgpo gpv'ctg"I qnf qpk'cpf ."rcvgt."O qn&tg0Vj gug"ctg"hqnuy gf "kp"yj g"pkpgvggpyj "egpwt { "d { "Xqncktg."Cnhkgtk'cpf "T cekpg0Htqo "3: 67"qpy ctf u."kv'ku'yj g"pqxgn'yj cv'r tgf qo kpcvgu."i tcf wcm{ "eqo kpi "vq" ceeqwpv'hqt"79"r gt "egpv'qh'yj g"vqvcn'hkytcwtg"vtcpurcvgf ."y kyj "tcpurcvkqpu"kpvq"I tggmlqh'F wo cu."Ucpf "cpf "O gtko 2 g0Qh'yj g"37"pqxgrkuni'vtcpurcvgf "kp"yj ku'r gtkqf ."36"ctg"Htgpej "cpf "qpn{ "qpg"\*Y cnxgt"Ueqw+"Gpi nkij 0' Ukzv{/ugxgp"r gt "egpv'qh'yj g"vqvcn'pwo dgt "qh'vtcpurcvkqpu"ctg'htqo "Htgpej ."cpf "y ku'j ki j "r gtegpvci g'tghrgewi'yj g" hcev'yj cv'o cp{ "qtki kpcn'y qtmu"kp"Gpi nkij ."I gto cp"cpf "Ur cpkuj "y gtg"vtcpurcvgf "kpvq"I tggmlxkc"Htgpej = "kv'cnq" tghrgewi'yj g"Htgpej "qtkgpvcvkqp"qh'ewmxtg"cpf "gf wecvkqp"kp"yj g"pgy "I tggmlwcvg0

Kp"yj g"r gtkqf "dgwy ggp"3; 23"cpf "3; 72."hkytct { "vtcpurcvkqpu'y gtg"ci ckp"vpf gtvcngp"o quvn{ "htqo "Htgpej "%58"r gt"

egpv+. ''y qwi j ''kv'ku'pqvcdrg''y cv''y g'r gtegpvci g''qh''\tcpurc\kqpu''htqo ''Gpi rkuj ''\tkr rgu'\*\4706''r gt 'egpv+0'Vj ku'r gtkqf '' ucy "y g"tcpurckqp"qh'y qtmu"d{"I wi q."Xgtpg."\ qrc."Dcn ce."Hrcwdgtv."O cwr cuucpv."Uvgpf j cn "Uj cngur gctg." Y knf g. "Uj cy. 'O cwi j co. 'Iq{eg. 'QøP gkmlcpf 'Grkqv. 'dww'k/cnuq'ucy 'o cp{ 'tcpurcvkqpu'qh'T wuukcp. 'Uecpf kpcxkcp." I gto cp"cpf "Kichcp"y tkigtu. "kpenwf kpi "Vqnivq { ."Fquvq { gxum( ."Ej gmj qx."I qi qn "Vwti gpgx." J co uwp. "Kilugp." Utkpf dgti .'J cwr vo cpp.'P kgv| uej g.'F øCppwp| kq'cpf 'Rktcpf gmq0'Gpi rkuj 'dgi kpu'vq'r rc{ 'c'r tgf qo kpcpv'tqrg'qp'' yj g"tcpurckqp"uegpg"chygt"3; 66. "y j gp"I tggeg"eqo gu"wpf gt"Cpi m/Co gtkecp"kphrwgpeg"cpf "Gpi rkuj "ku" kpvtqf wegf 'kpvq'I tggm'uej qqnu'chvgt''422''{ gctu''qh'Htgpej 'f qo kpcpeg0'Dgvy ggp'3; 73''cpf ''3; ; 2.''Gpi nkuj ''cpf'' Co gtlecp'hkgtcwtg'eqpvkpwgu'\q'r tgf qo kpcvg. "vj qwi j "y kyj "c'pqvcdrg'wr uwti g'kp'\tcpurc\kqpu'qh'Ncvkp'Co gtlecp" nksgtcwtg0Ocp{"qh"y g"o quvceeqo r nkij gf "w gpvkgyj /egpwt{"kvgtct{"tcpuncvqtu"y gtg"o clqt"y tkvgtu"kp"y gkt" qy p'tki j v.'hqt'gzco r ng''Vj gqvqmku.''Mc| cpv| cmku.''Mquo cu''Rqnkxku.''UGHGTKU.''Rtgxgncmku'cpf''GN[VKU0 Tgegpv'uvcvkuvkeu'uj qy ''y cv'crrtqzko cvgn{ '6.422''dqqmu'y gtg'rwdrkuj gf 'kp'I tggeg'kp'3; ; 60Qh'y gug. 'qpg'y ktf'' y gtg"tcpurctqpu"htqo "qyj gt"rcpi wci gu0"Vj ku'r gtegpvci g"ku'uko krct'hqt"yj g"ko o gf kcvgn("r tgegf kpi "{ gctu0' Nkgtcwtg"ceeqwpwi'hqt'72"r gt"egpv'qh'y g"vqvcn'dqqmu'vtcpurcvgf. 'hqmqy gf "d{"y g"pcwtcn'uekgpegu'\*37"r gt"egpv+" cpf "uqekcn'uekgpegu'\*32"r gt "egpv+0"Vj g'r tgf qo kpcpv'uqwteg "ncpi wci g'ku'Gpi nkuj '\*84"r gt "egpv+. "hqmqy gf 'd{" Htgpej "39"r gt "egpv+."qvj gt "Gwtqr gcp"rcpi wci gu "39"r gt "egpv+"cpf "Cukcp"cpf "Ncvkp"Co gtkecp"rcpi wci gu "40" rgt'egpv₩

# Vt cpurc vlqp'vj gqt { 'cpf 'vt cpurc vlqp'o gvj qf u

MCMT KF KU'\*3; 58+"cuugt vu''y cv''y g''j kuvqt { "qh''vtcpurcvkqp''y gqt { "kp'T tggeg'dgi kpu''y ky 'P kmqrcqu''UQHKCP QU." y j q''nkxgf "cpf 'lf kgf 'lkp''Xgpkeg'lkp''y g''hktuv'j crh'qh''y g''ukzvggpy "egpwt { 0'

Uqhkcpqu'y cu'y g'hktuv'uej qrct'vq''tcpurcvg'cpf'y tkxg''cdqwv'tcpurcvkqp'kpvq'o qf gtp'I tggm'cpf''y g'hktuv'vq'y tkxg''c'' i tco o ct"qh'y g'eqo o qp'hcpi wci g'qh'y g'I tggmu. 'y qwi j 'y ku'y cu'pqv'r wdrkuj gf 'wpvkd'3: 920Kp'j ku'r tqnqi wg/ f gf kecklap 'va 'F kap { ukqu. 'Dkuj qr ''ah'O { nar avco qu''cpf 'J gtuap guqu. 'y j kej 'r t ghcegu'j ku 'vt cpurcklap ''ah'Rugwf a/ Rnwctej øu''Qp''ij g''Gf wecvkqp''qh'Ej krf t gp''\*r tkpvgf 'kp''Xgpkeg'kp''3766+. "Uqhkcpqu'tckugf 'hqt''ij g''hktuv''vko g'kp''ij g'' I tggm'eqpvgzv'y j cv'Mqwukxkku'\*3; ; 6< : +'tghgtu'vq''cu'vj g''-j qy ''cpf 'y j {ø'qh'vtcpurcvkqp0J ku'r tko g''eqpegtp''y cu'' y ky "tcpurcykap"cu'c"o gcpu'ah'gf wecykap"cpf. "eapugs wgpyn(."y ky "y g"wug'ah'c"rcpi wci g'y j gtg'y g"go r j cuku" y qwrf 'dg'qp''y g'pcwtcrpguu'qh''y g''cti gv'kf kqo 'cpf 'qp'hcekrkscvkpi ''y g'tgcf gtøu'wpf gtuvcpf kpi 0J qy gxgt.''kv'ku'' Gxi gpkqu'XWNI CTKU.'kp'j ku'Qp''\j g'Fkueqtf'kp''\j g'Rqrkuj 'Ej wt ej gu0J kuqt kecn'cpf 'Et kkecn'Guuc{=" Vtcpurcvgf 'lt qo 'Ht gpej 'kpvq''vj g'Rqrwrct'I t ggmlNcpi wci g. 'ly kij 'I kwqt kecn'cpf 'Et kskecn'P qvgu. 'r wdrkuj gf 'kp'' Ngkr | ki "kp"398: .'y j q"cewcm( "f gcnv'y ky "uqo g"qh"vj g"hwpf co gpvcn's wguvkqpu"cdqwv"vtcpuncvkqp"cpf "y j q"f kf" cwgo r v'vq"cpuy gt"y go 0"Vj ku"y qtmlku"y g"tcpurcvkqp"qh"cp"guuc { "d { "Xqnxcktg"y j kej "j cf "dggp"r wdrkuj gf "kp"y g" rtgegfkpi "{gct'kp'Dcurg0'Kv'ku'c'dkrkpi wcn'gfkxkqp'ykyj 'c'eqortgjgpukxg'kpvtqfwevkqp'cpf'pqvgu'tgrcvkpi 'vq'vjg' vtcpuncvkqp"rtqdngo u'Xwri ctku"gpeqwpvgtgf 0Xwri ctku"go rj cukt gf "vj cv'vtcpuncvkqp"uj qwrf "dg'kpvq"vj g"ewttgpv" kf kqo "qh"yj g"vcti gv"tgcf gtuj kr. "uj qwrf "dg"ej gengf "d{"c"pcvkxg"ur gcngt"\*cp"gctn{"tgeqi pkkqp"qh"yj g"pggf "hqt" gf kkpi +"cpf "urtguugf "vj g"ko rqt vcpeg"qh"wukpi "pqvgu"hqt "erctkhecvkqp0 Vj gug"cpf "uko krct"s wguvkqpu"y gtg"gzco kpgf "o qtg"u{ uvgo cvkecm{ "d{ "F ko kxtkqu"MCVCTV\ KU"kp"yj g"r tqmqi wg"vq" j ku'tcpurcvkqp'kp'39: 6''qh'*Nc''Uekgpeg'f w'I qwxgtpgo gpv*'d{'Tgcn'f g'Ewtdcp0'Vj ku'ku''yj g'hktuv''vko g'kp''yj g'I tggm' eqpygzy'y cy'y g'ecp'\cmi'qh'c'y gqt { "qh'\tcpurc\kqp0"Vj g'hktuv's wguxkqp'!Mcvcty ku'tckugf 'tgi ctf kpi '\tcpurc\kqp" o gyj qf "y cu'y j gyj gt "j g'uj qwrf "eqphlog"j ko ugrh 'vq" uej qrcuvke "tcpurc vkqp. "vcmlopi "tghwi g"dgj kof "quvgpukdrg" hkf grkx{"cpf"uej qrctrkpguu."vj wu'hqtekpi "vj g"wphqtwpcvg"tgcf gt"kpvq"o gpvcn'eqpvqtvkqpu'tcvj gt"vj cp"r tqxkf kpi "j ko " y ky 'kpvgngewcn'gplq {o gpv0'Qpg'f kuvkpevkxg'hgcwtg'qh'Mcvctv| kuø'y tkvkpi 'qp'\tcpuncvkqp'ku'yj cv'j g'\qqm'j ku' gzco r ngu'htqo "vj g'uweeguuhwn'\tcpurcvkqpu'qh'qvj gtu."tcvj gt"vj cp'htqo "j ku'qy p'\tcpurcvkqpu0J g'qr vgf 'hqt" r tgugtxkpi "y g'ugpug'qh'y g'qtki kpcn'yzv'cpf "gpuwtkpi "y g'pcwtcpguu'qh'y g'vcti gv'rcpi wci g'cu'j ku'w q'r tko g" eqpegtpu0Qpn('lkp''y ku'y c{.'j g'uwi i guvgf.'f qgu''y g''tcpurcvkqp''hwrhkriku'o kuukqp''kp''y cv'kv'ecp''y wu'dg'eqo r ctgf'' vq''y g''qtki kpcn'cpf ''cnuq''uvcpf ''cu''cp''kpf gr gpf gpv'\vgz v0'Vj g''ugeqpf ''s wguvkqp''j g'f kuewuugf ''y cu''y g''hqto ''qh''I tggm' vq"dg"wugf "cu"yj g"\cti gv'hcpi wci g"\c"s wgurkqp"yj cv"gxgt { "I tggm'y tkgt "cpf "\tcpurc vqt 'hgnv'qdrki gf "\q"eqpukf gt+0" Mcvcty kuzu'cpuy gt'ku'vq'tgur gev'y g'nkxkpi 'ncpi wci g'qh'j ku'ci g. "gptkej kpi 'kv'y ky "grgo gpvu'y j gtg'pgeguuct { 'htqo " qrf gt 'I tggm'cpf 'hqtgki p'hcpi wci gu0J g'yi gp'o qxgf 'qp'\q'yi g'r tqdrgo ''qh'yi g'hcem'qh'\tcpurc\kqp'\qqnı." f kevkqpctkgu"cpf "tghgtgpeg"dqqmu"\*c"ukwcvkqp"yj cv'j cu'pqv'ej cpi gf "xgt{"o wej "vqfc{<'yj g"vtcpurcvqt"htqo "cpf" kpvq"o qf gtp"I tggmlku'uvkmlhcegf "y kyj "c"ncemlqh"i qqf "i gpgtcnlcpf "ur gekcnkt gf "dkrkpi wcnl'f kevkqpctkgu+0"J g" eqpenwf gf "y kj "ukz "twrgu"eqpegtpkpi "yj g"tgpf gtkpi "qh"rkxgtcn"cpf "o gvcr j qtkecn"gzr tguukqpu. "ej cpi gu"kp"ugpvgpeg" uvtwewtg. "tcpurckqp" wukpi "eqttgur qpf kpi "VN"r j tcugu "cpf" gzr tguukqpu. "yj g"f gi tgg" qh'htggf qo "kp" yj g"VN. "yj g" vtcpuhqto cvkqp"qh"wpeqppgevgf "ugpvgpegu"kpvq"eqj gukxg"f kueqwtug"cpf "vj g"r gtkrj tcuvke"qt"eqpegr wcn" vtcpurkvgtcvkqp"qh'vgto u0"Vj ku'hwpf co gpvcn'vgzv'qp"vtcpurcvkqp"vj gqt { "cpf"rtcevkeg"gpfu'y kj "c"uvcvgo gpv'qp"vj g" nkpi wkuke "cpf" gf weckqpcn'wughwpguu'qh'\tcpurckqp0Ceeqtfkpi "\q"Mqwukxkku'\3;; 6335+:"=39: 6'ecp'tki j vn{ 'dg' uggp"cu''y g"{ gct''kp''y j kej ''tcpurcvqmi { ''y cu''dqtp''kp''o qf gtp''I  $\,\,$ tggegø''\*tcpurcvgf +0  $\,\,$ Vj g'hcpi wci g'cpf 'hkgtcwtg'qh'yj g'pgy 'I tggnluvcvg'\*chygt'3: 43+'y gtg'xgt{ "o wej 'lkphrwgpegf 'd{ '\tcpurcvkqpu' htqo "qvj gt"hcpi wci guOMQTCKU."TK CU."Uqmqo qu"cpf "Mcnxqu."hqwt"hqwpf kpi "hki wtgu"qh"o qf gtp"I tggmlewnwtg." i cxg"o wej "Vko g"cpf "vj qwi j v"vq"vj g"r tqdrgo u"qh"vtcpurcvkqp"cpf "y gtg"kphrwgpegf "kp"vj gkt"qtki kpcn'y qtmu"d{ "vj gkt" cevkxkkgu'cu'vtcpurcvqtu0Cfcocpfkqu'MQTCKU'ycu'eqpegtpgf'ykj'dqyj'kpvgt/'cpf'kpvtcrkpi wcrivtcpurcvkqp0Jg'' o cf g'uqo g'kpvgtguvkpi 'r qkpvu'eqpegtpkpi 'hkf grkv{ 'vq'kf gcu'tcyj gt''y cp''y qtf u'cpf 'Ivuvkhkgf 'kp''y ku''y c{ 'vj g'' cffkkqp"qh"y qtfu"kp"jku"tcpurckqpu"yjcv"ctg"pqv"kp"yjg"qtkikpcn"dwv"pgeguuct{"kp"jku"xkgy"vq"tgpfgt"yjcv"yjg"

cwj qt"÷o gcpuø"y j kej "tckugf "hqt"yj g"hktuv"vko g"kp"yj g"I tggmleqpvgzv's wguvkqpu"tgncvkpi "vq"kpvgpvkqpcnkv{ "cpf" yj g"

uwd/vgzv0Mqtcku'cnuq'uvtguugf 'vj g'xcnwg'qh'

vtcpurcvkqp"kp"vgto u"qh"gptkej kpi "vj g"vcti gv"rcpi wci g0Nkng"Mqtcku."TKL CU"Rj gttckqu¢u"kpvgtguv"kp"vtcpurcvkqp" tghrgevgf "j ku"eqpegtp"y kyj "rcpi wci g"cpf "gf wecvkqp0"J g"kpvtqf wegf "vj g"kf gc"qh"vtcpurcvkqp"cu"c"etgcvkxg"y qtm" r ctvkewrctn{ "dgpghkekcn"vq"dqvj "vtcpurcvqt"cpf "tgcf gt"r tqxkf gf "vj cv"kv"eqpxg{u"hckj hwm{ "vj g"ugpug"qh"vj g"qtki kpcn" cpf "tgur gevu"vj g"r gewrlctkvkgu"qh"vj g"vcti gv"rcpi wci g0"Uqmo qu"\*39; : 63: 79+"vj g"I tggm"pcvkqpcn"r qgv."cpf "Mcnxqu"\*39; 463: 8; +"j ku"eqpvgo r qtct{."j cf "xgt{"uko krct"crrtqcej gu0Dqvj "ucy "vj g"vtcpurcvkqp"r tqeguu"cu"cp" gzgtekug"cpf "r tgr ctcvkqp"hqt"qtki kpcn"y qtm"vj tqwi j "cuuko krcvkpi "cpf "tghcuj kqpkpi "kp"vj gkt"qy p"y c{"xctkqwu" grgo gpvu"htqo "vj gkt"uqwtegu0

F wtkpi 'y g'ugeqpf 'j crh'qh'y g'pkpgyggpy 'egpwt { .'xctkqwu'uvcvgo gpwl'qp''tcpurcvkqp'o gyj qf u'ur gekhkecm { ô tcj gt"j cp"j g"tqrg"qh"tcpurcvkqp"kp"j g"y kf gt"eqpvgzvô dgi cp"vq"crr gct"htgs wgpvn{ "kp"rtqrqi wgu"vq"tcpurcvkqpu" cpf "kp"ctvkengu"kp"r gtkqf kecnu"cpf "pgy ur cr gtu0"kphnwgpvkcn"kp" y ku"i gpgtcn"f gdcvg" y gtg" y gtg" y g"xkgy u"qh" Go o cpwgn" Tqkf ku'\*3: 5863; 26+'y j q.'kp''y g'r tqrqi wg''vq''j ku''vtcpurcvkqp''qh'Ej cvgcwdtkcpf øu''*Klip² t c kt g*.''pqvgf ''y g'f khhkewnkgu'' j g"gpeqwpygtgf "cpf "gzrnckpgf "j ku'r tghgtgpegu'hqt "ugpug/hqt/ugpug"cu'ci ckpuv'y qtf/hqt/y qtf "\tcpurcykqp." yj qwi j " cv'y g'uco g'uko g'r c{kpi "r ct vkewrct "cwgpukqp" 'vq" y g'nkpi wkunke "kf kqo "qh'y g'ucti gv'ncpi wci g'cpf "tt {kpi "vq'uvggt" c" o kffrg"eqwtug"dgwy ggp"yi g"r qr wrct"cpf "r wtkuv"hqto u"qh"I tggn0Tqkfku"hqmqy gf "emqugn("yi g"vtcpurcvkqp" crrtqcej gu'y j kej 'y gtg'r qrwct'f wtkpi 'j ku'klo g'cpf 'untguugf 'vj g''tgo gpf qwun( 'r qukkkxg''dw'cnuq'pgi cvkxg'' ghłgewi'qh'i qqf "cpf "dcf "tcpurckqpu0'Qpg" tcpurckqp" y j kej "r tqhqwpf n( "kphnwgpegf "I tggmirkytct { 'y tkkpi "cv'y g" www. g'y cu'y g'tcpurcwlqp"qh'\ qrcøu"Pcpc"d{ "Kqcppku"Mco dqwtqi rqw'\*3: 7363; 24+. 'r wdrkuj gf 'kp'3: : 20' Rct vkewrctn{ 'ko r qt vcpv'cpf 'kppqxcvkxg'hqt''y g''vko g''y gtg''y g'xkgy u'j g''gzr tguugf 'kp''y g'r tqmi wg''vq''y ku'' vtcpurcvkqp. "y j gtg"j g"cwgo r vgf "vq"vtcpuegpf "dqyj "vj g"rkpi wkuvke"cpf "vtcpurcvkqp"f krgo o cu"d { "cti wkpi "vj cv"j ku" r tko g'eqpegtp''y cu''vq''cej kgxg''cp''gs wkxcrgpv''ghhgev''qp''vj g'T tggm'tgcf gt''cpf ''vj cv'j ku''ej qkeg''qh'nkpi wkuvke''kf kqo '' y cu'f kevcygf 'd{'vj ku'eqpukf gtcvkqp''cmpg0'kp''c''uko krct''xgkp.''Nqtgp| qu'O cxkrku'\*3: 8263; 34+''dgrkgxgf 'vj cv'c'' vtcpurcvkqp"uj qwrf "pqv'dg"gxcnwcvgf "qp"vj g"dcuku"qh"c"eqo r ctkuqp"y kij "vj g"qtki kpcn'dwv"kp"vgto u"qh"kwu"qy p" eqpegr wcn'eqj gtgpeg'cpf 'hqto cn'cr r tqr tkcvgpguu0Nkng'o quv'qvj gt 'y tkvgtu'qp'\tcpurcvkqp.'j g'pqvgf 'vj g'' kphrwgpeg"qh"\tcpurcvgf" y qtmu"qp" y g"pcvkqpøu"rkvgtcwtg"cpf" qp" y g"f gxgrqr o gpv"qh" y g"pcvkqpcn"rcpi wci g0 Equvku" Reneo cu'\s: 7; 63; 63+'hqt''j ku'r ctv'f kurkpi wkuj gf 'dgwy ggp''y g'\tepunevqt''eu''kpvgtr tgvqt''epf ''y g'\tepunevqt''eu''  $etgcvqt"cpf"gzco~kpgf"'yj~g'xct\\ kpi~'hcvgu'qh'yj~g'qtki~kpcn'cpf~'ku'cwj~qt'kp''yj~gkt"gpeqwpvgt'y~kyj~'yj~g'ty~q'f~khhgtgpv''$ v{rgu'qh'\tcpurcvqt0Jg'fkf'pqv'uggo'\q'dgrkgxg'\yicv'c'eqortqokug'ecp'dg'cejkgxgf'dgwyggp'\yig'\yq'rqukkqpu.'k0 g0'qh''y g''tcpurcvqt''cu''kpvgtrtgvgt''cpf''y g''tcpurcvqt''cu''\*tg+etgcvqt0

Vj g'P qdgn'r qgv.'I gqti g'UGHGT KU.'uxtguugf "vj cv'vj g''o ckp''cko 'kp''j ku''xtcpurcvkqpu''y cu''vj cv''÷j g'']I tggm\_'' ncpi wci g''dg''ergcpugf "cpf "gptkej gf 'uq''cu''vq''dgeqo g''hwpevkqpcn'cpf ''cdrg''vq''ŏdgctö''c''vgzv''eqo kpi ''gkxj gt''htqo ''vj g''

rkgtcwtg'qh'y g'Y guv'qt'htqo 'y g'qrf gt'rkgtcwtg'qh'qvt'rcpf ø'\*3; : 2463='tcpurcvgf +0J g'eqpugs wgpvn('f kxkf gf'' j ku''qy p''\tcpurc\kqp''y qtm'kpvq''kpvgtn'pi won''y j kej ''j g''ecngf''*cpvki t c r j k*'\*eqr { +:''cpf''kpvtcn'pi won''y j kej ''j g''ecngf'' o gwi tcrj k'\*tcpuetkr vkqp+0Cp"cpvki tcrj k'qh'vj g'qtki kpcn''j g'o ckpvckpgf .'ku'uweeguuhwn'cpf 'hwpevkqpu'qpn(" y j gp'k/hqmqy u'vj g'dguv'rksgtct { 'o qf gnu'cxckrcdrg'kp'vj g'vcti gv'rcpi wci g0'Y kj 'kpvtcrkpi wcn'vtcpurcvkqp.'vj kpi u'' ctg'pqv'uq''uko r ng0Cnyi qwi j 'vj g'I tggml'vtcpuncvqt''qh''cpekgpv'I tggml'vgzvu'ku''qdxkqwun{ 'cv''cp''cfxcpvci g''qxgt''vj g'' hqtgki p'\tcpurcvqt'ukpeg'\j g'uqwteg'\gzv'ku'ceeguukdrg'y ky 'rguu'o gf kcvkqp. 'kxu'\tcpuetkr vkqp'kpvq'\j g'o qf gtp'' rcpi wci g'ku'pgxgtyj grguu'pqv'cry c{u'gcu{"qt"ucvkulcevqt{0'Uko krctn{."Ughgtku"o ckpvckpgf"vj cv'cpekgpv'vgzvu'y gtg" qhygp"tcpurcygf "kpvq" yi g"o qf gtp" \*f go qwle+"rcpi wci g"vq"r tqxg" yi g"tguqwteghwpguu" qh" yi g"rcwgt. "dw" y kyi qw" f wg" cwgpwlqp"dgkpi "r ckf "vq"gptkej kpi "vj g"o qf gtp"kf kqo "y kyj "grgo gpwi htqo "vj g"cpekgpv rcpi wci g0 Qf {uugwu'GN[VKU.'I tggegøu'ugeqpf 'Pqdgn'rqgv.'y cu'cnuq'cp'ceeqo rnkuj gf '\tcpurcvqt.'j cxkpi '\tcpurcvgf'' o ckpn( "Htgpej ."dw/cnnq'Twukep."Urcpknj "cpf "Korkep"rqgvn."cpf ."qh'eqwtug."cpekgpv'I tggm'rqgvn0'Nkng'Ughgtkn." j g"cnuq"\tcpurcvgf" 'y g"Crqecn{rug"qh"Uv'Iqjp0Gn{vku"hcxqvtgf" htgg"\tcpurcvkqp." y ky "gorjcuku"qp" y g" hwperkqpcrkx{ "qh'yi g'\cti gv'rcpi wci g0J g'f kf."j qy gxgt."o cmg'cp'ko r qt\cpv'f kuxkperkqp''dgw ggp'\tcpurcvkpi " r qgo u''y cv'qpg'hkngu'cpf. "qh''y gug. "qpn{ ''y qug''y cv'ngpf ''y go ugnxgu''vq''tcpuncvkqp. "cpf 'r qgo u''y cv'qpg'hggnu" qdrki gf "\q"\tcpurcvg"cu'dgkpi "tgrtgugpvcvkxg"qh"c"r ctvkewrct"r qgv"qt"cu'dgrqpi kpi "\q"c"y j qrg"\j cv"kv"y qwrf "dg" y tqpi "\q'ur nkv'\wr 0'Kp"\j g'hktuv'kpuvcpeg."\j g"\tcpurc\qt"ku'htgg"\q'i kxg'\wr 'y j gp'hcegf 'y kj "kpuwto qwp\cdrg" rtqdrgo u0Kp" yi g"ugeqpf "kpuvcpeg." j qy gxgt." yi g"\tcpurcvqtøu" cko "o wuv'uko rn("dg"\q"cej kgxg" yi g"dguv'r quukdrg" tguwn/0Nkmg"Ughgtku."Gn(vku"kpvtqf wegu"pgy "vgto u"vq"f guetkdg"j ku"vtcpurcvkqp"r tcevkeg<j g"tghgttgf "vq"kpvgtrkpi wcn" vtcpurcvkqp"cu"c"f ghygt k'i tcrj k"\*ugeqpf"y tkkpi +"cpf"kpvtcnkpi wcn'vtcpurcvkqp"cu"c"o qf gtp"I tggmlo qtrj k"\*hqto +0

### Vj g'r t gugpv'f c{

Vj g''3; : 2u''cpf ''3; ; 2u''kp''I tggeg''j cxg''uggp''y g''go gti gpeg''qh''tcpurc\kqp''uwf kgu''cu''cp''kpf gr gpf gpv'f kuekr rkpg0' Vj g''s wgukqpu''y cv''j cxg''eqpegtpgf ''I tggn'\tcpurc\qtu''cpf ''tcpurc\kqp''uej qrctu'\\wwxcm{'y g''uco g''r gqr rg+''ctg.''qp'' y g''y j qrg.''uko krct''q''y qug''y cv''eqpegtp''y gkt''eqmgci wgu''kp''qy gt''eqwpvtkgu0J qy gxgt.''y g''kuuwg''qh''kpvtcrkpi wcn' vtcpurc\qtap''tgo ckpu''c''f krxkpevkxg''cpf ''o wej ''f gdcvgf ''\qr ke'\\cdot\cpf ''r tcevkeg+'kp''y g''I tggn'\eqpvgz\0'Eqpvtkdwkqpu'\q'' y g''y gqt { "cpf ''r tcevkeg''qh''dqyj ''rkvgtct { "cpf ''pqp/rkvgtct { ''tcpurc\qtp''j cxg''dggp''kphqto gf ''kp''tgegpv''{ gctu''o ckpn{ '' d{ ''rkpi wkrxkeu.''eqo r ctcvkxg''rkpi wkrxkeu''cpf ''rkvgtct { ''y gqt { 0'C ''hckt''co qwpv'qh'y qtm'y cu''dggp''f qpg''kp''y g''ctgcu''qh'' vgto kpqrqi { ''cpf ''o cej kpg''tcpurc\qq0

#### Tgugctej 'cpf'rwdrkecvkqpu

Ewttgpv'tgugctej "r tqi tco o gu'lpenwf g'c'dkdnkqi tcr j { "qh'vtcpurcvkqpu'lpvq'I tggm'qh'hqtgki p'rkvgtcwtg'lp''y g'' plpgvggpyj "cpf "vy gpvkgyj "egpwtkgu0Tgugctej "dgi cp''ugxgtcn'{ gctu''ci q''cu''r ctv'qh''y g''Qr gtcvkqpcn'Rtqi tco o g''qh'' Tgugctej "cpf "Vgej pqmi { "hwpf gf "d { "vj g''Gwtqr gcp''Wpkqp0'Vj g''cko "ku'vq''r wdrkuj "vj g''dkdnkqi tcr j { "lp''hkxg'' xqnwo gu''cpf "kp''grgevtqpke''hqto ."cpf "vq''etgcvg''cp''grgevtqpke''eqtr wu''qh''

vtcpurcvkqp"uco r ngu'hqt"tgugctej "cpf "vgcej kpi "r wtr qugu0°C"uko krct"tgugctej "r tqi tco o g'ku'dgkpi "ecttkgf "qw'd{" vj g'O qf gtp"I tggmlTgugctej "Egpvtg"cpf "f gcnu'y kyj "hqtgki p"dqqmu'kp"I tggeg. "vtcpurcvkqpu"cpf "vtcpurcvqtu"qh" hqtgki p"y qtmu0°Vj ku'tgugctej "eqxgtu'vtcpurcvkqpu'r wdrkuj gf "kp"dqqmlhqto . "kgo u'r wdrkuj gf "kp"r gtkqf kecnu'cpf " pgy ur cr gtu"cpf "vtcpurcvkqpu'kp"o cpwuetkr vu. "gzvcpv'qt "kpf ktgevn{"tghgttgf "vq. "cpf "eqxgtu'vj g'r gtkqf "htqo "vj g" ukzvggpvj "egpwxt { "vq"3: 85."vj qwi j "cp"gzvgpukqp"vq"3; 22"ku'cntgcf { "r rcppgf 0

Vj g'i tqy kpi 'kpytguv'kp''tcpurc'kqp''cu'c'f kuckr rkpg''cpf ''cu'c'r tqhguukqp''ku't ghrgevgf ''kp''y g''pwo dgt''qh''tcpurc'kqp'' eqphgtgpegu''y j kej ''j cxg''cmgp''r meg''kp''I tggeg''kp''tgegpv''{ gctu0Ugxgtcn'eqphgtgpegu''j cxg''dggp''qti cpk' gf ''d{ ''y g'' I tggm'\Ncpi wei g''kp'' I tggm'\Ncpi wei g''kp'' Gwtqr gcp''Eqo o wpkkgu''qp''Vtcpurc'kqp''cpf ''y g''I tggm'\Ncpi wei g''kp'' Gwtqr g.''y g''Kqpkcp''Wpkxgtukv{ ''kp''Eqthw.''cpf ''y g''I gmgpke'Cuuqekc'kqp''qh''Vtcpurc'vtqu''cpf ''Kpytr tgygtu''kp''y g'' Rwdrke''Ugevqt0Cppwcn'u{or qukc''ctg''cnuq''j grf ''kp'F grr j k=''y gug''ctg''qti cpk' gf ''d{ ''y g''O kpkrt { ''qh'Ewrawtg''cpf '' cf tguu''kuuwgu''tgrc'kpi ''vq''y g''tcpurc'vtqp''qh'I tggmi'kxgtcwtg''kpvq''xctkqwu''Gwtqr gcp''ncpi wei gu0'Vcmru''cpf '' gzj kdkkqpu''qp''xctkqwu''cur gewi'qh''tcpurc'vtqp''ctg''qti cpk' gf ''d{ ''y g''Htgpej ''Kpukwwg''kp''Cy gpu0 O qtg''tgegpv'f gxgmr o gpwu'kpenxf g''r ncpu''vq''guvcdrkuj ''c''Egpytg''nqt''Nkxgtct{ ''Vtcpurc'vtqp''kp''F grr j k0'Vtcpurc'vtqp'' ugo kpctu''ctg''dgkpi ''qti cpk' gf ''d{ ''y g''pgy n{ ''hqwpf gf ''P cvkqpcn'Dqqm'Egpytg.''cpf ''c''pgy ''r tqi tco o g''qh'hwpf kpi '' j cu''dggp''crr tqxgf ''d{ ''y g''O kpkrt { ''qh'Ewrawtg''nqt''tcpurc'vtqpu''qh'I tggmi'Nkxgtcwtg''kpvq''y gt''rcpi wei gu0

#### Vtckpkpi

Rtqhguulqpcn'\tclplpi 'lp'\tcpurc\lqp''cpf 'lpvgtrtg\lpi "gzkuw'lp'I tggeg'qp''yi g'\gt\lct{ "ngxgn'lp''dqyi 'yi g'r wdnle''cpf " rtkxcvg"ugevqtu0"Vjg"hktuv"cvvgorv"vq"fgxgmqr"c"eqortgjgpukxg"vtckpkpi"rtqitcoog"hqt"vtcpuncvqtu"cpf" kpvgtrtgvgtu'y cu'vjg'hqwpfkpi'kp'3;99'qh'MGOGFK\*Egpvtg'hqt'Vtcpuncvkqp'cpf'Kpvgtrtgvkpi+'yjkej'dgicp'' qr gtckqp'kp'Eqthw'y q"{ gctu'rcvgt0Vj g'pggf 'hqt'uwej 'c'egpvtg'j cf 'hqpi 'dggp'tgeqi pk gf .'dw'ku'guvcdrkuj o gpv' y cu'r tgekr kxcygf "d{ "I tggegøu"ko o kpgpv'ceeguukqp" \q" \j g" Gwtqr gcp" Eqo o wpkx{ "cpf" y kj "I tggm'dgeqo kpi "qpg" qh'y g'Eqo o wpkx{ øu'qhhkekcnhcpi wci gu0'V j ku'Egpxtg''qr gtcvgf "c''y q/{ gct "eqwtug"cv'r quv'i tcf wcvg'hgxgn'cpf 'y cu" uwdugs wgp vn{ "kpeqtr qtcvgf "kpvq" vj g"F gr ctvo gpv"qh" Hqtgki p"Ncpi wci gu. "Vtcpurcvkqp" cpf "Kpvgtr tgvkpi "cv" vj g" Kqpkcp"Wpkxgtukx{ "kp"Eqthw."y j kej "ku"y g"qpn("ceetgf ksgf" \tcpurc \kqp"uej qqrl\kp"I tggeg0\Hqwpf gf \kp"3; : 6."\y g" f gr ctvo gpv'dgi cp"qr gtcvkqp"kp"3; : 80KK'qhhgtu'c'hqwt/{gct"wpf gti tcf wcvg'r tqi tco o g."y ky "r ncpu'hqt" r quvi tcf wcvg'eqwtugu'cntgcf { 'kp'r nceg0'Qyi gt'wpkxgtukkgu'\*uwej 'cu'Cyi gpu'cpf 'Vj guucnqpknk+'j cxg'\tcpurcvkqp'' eqwtugu'cu'r ctv'qh'vj gkt'hqtgki p'hcpi wci g'f gr ctvo gpw0'Uko krctn{.''yj g'Rcpf gkq'Wpkxgtukv{ 'j cu'htqo ''vko g''vq''vko g'' qhhgtgf "c"ukzo qpyj "eqwtug"hqt"\tckpkpi "eqphgtgpeg"kpvgtrtgvgtu0"Vj ku'y cu'hwpfgf "d{"\jg"Eqookuukqp"qh'\jg" Gwtqrgcp'Eqo o wpkx{'kp''qtfgt''vq''rtqxkfg''uwkxcdn{/vtckpgf''I tggmlkpvgtrtgvgtu'lhqt''vjg''GWO Ugxgtcn'hqtgki p'ewnwtcn'kpurkwwgu'cnuq'qhhgt''tcpurcvkqp''eqwtugu0'Vjg'Htgpej''Kpurkwwg'kp'Cyjgpu'qhhgtu'xctkqwu'' eqwtugu'ngcf kpi "\q'kwu'qy p"f kr mo c'kp"r tqhguukqpcn\tcpurc\kpi "cpf "\q'c"r quvi tcf wcvg"f kr mo c'cy ctf gf "d{ "vj g"  $\label{thm:continuous} \begin{tabular}{l} Kpurkwag''qh''Vtcpurcvkqp.''Kpvgtrtgvkpi''cpf''Kpvgtpcvkqpcn''Tgrcvkqpu''cv''yi g''Wpkxgtukv{''qh''Uvtcudqwti 0'Vj g''Htgpej ''' which is the standard of the stan$ Kpurkwwg"cnuq"twpu"c"ugr ctcvg"rkvgtct{"\tcpurcvkqp"eqwtug"cu'r ctv'qh'kvu'Egpvtg'hqt"Nkvgtct{"Vtcpurcvkqp"y j kej ." co qpi 'qvj gt' vj kpi u. 'ku'ce kxg' kp' vj g'r tqo q kqp' qh' Htgpej "cpf' Itggmlrkxgtcwxtg' kp' vtcpurc kqp0 Xctkqwu' qvj gt' rtkacvg"kpunkwwgu'kp"Itggeg"qhhgt"vtckpkpi "rtqitcoogu'hqt"vtcpuncvqtu"cpf"kpvgtrtgvgtu'\*qhvgp"kp"cuuqekcvkqp"ykyj" vtcpurcvkqp"f gr ctvo gpvu"cv"hqtgki p"vvpkxgtukxkgu+"cpf "ugxgtcn"qh"vj gug"r tgr ctg"uvvf gpvu"hqt"vj g"Kpuvkvvvg"qh" Nkpi wkuwó'F kr Vtcpu'gzco kpckqp0

#### Vj g'qti cpk|cvkqp'qh'vj g'rtqhguukqp

Vj g'hqmqy kpi 'r tqhguukqpcn'cuuqekckqpu'gzkuv'kp'C yi gpu'cpf 'Vj guucmpknke'Vj g'J gmgpke'Uqekgv{ "qh'Vtcpurcvqtu" qh'Nkytcwtg. "Vj g'Rcpj gmgpke'Cuuqekckqp"qh'Vtcpurcvqtu'\hqwpf gf '3; 85+"Vj g'Rcpj gmgpke'Cuuqekckqp"qh' Rtqhguukqpcn'Vtcpurcvqtu'\hqwpf gf '3; 7+"cpf ''Vj g'J gmgpke'Cuuqekckqp''qh'Vtcpurcvqtu'cpf ''Kpytr tgygtu'kp''yj g'' Rwdnke''Ugevqt'\hqwpf gf '3; 7+0'Vj tgg''qh''yj gug''ctg''HKV''o go dgtu'cpf ''yj g'hqwtyj ''ku'kp''yj g''r tqeguu''qh''cr r n{ kpi 'hqt'' o go dgtuj kr 0

Vj g'gzkuvgpeg'qh'c'pwo dgt'qh'r tqhguukqpcn'kpvgtr tgvkpi 'ci gpekgu'cpf 'vj g'cr r gctcpeg'kp'tgegpv'{ gctu'qh'ugxgtcn'r tqhguukqpcn'vtcpurcvkqp'ci gpekgu'dqvj 'kp'Cvj gpu'cpf 'kp'Vj guucnqpknk'

tghrgewi'c'i tqy kpi 'cy ctgpguu'kp'I tggeg'qh'yi g'pggf 'hqt'r tqhguukqpcn'\tcpurc\qtu'cpf 'ku'j gm kpi '\q'tckug'\yi g'' r tqhguukqp.'y j kej 'pgxgtyi grguu'tgo ckpu'rcenkpi 'kp'r tguvki g'cpf 'tgo wpgtc\kqp0\Vj qug'gpi ci gf 'kp'' yi g'r tqhguukqp''ctg''dgi kppkpi '\q'tgcnk g'\yi g'pggf 'hqt''eqmcdqtc\kqp''cpf ''eqqr gtc\kqp''cpf ''hqt''c'r tqhguukqpcn'dqf { '' yi cv'y qwrf ''dg''tgur qpukdrg''hqt''ugwkpi ''uvcpf ctf u'cpf ''r tqo q\kpi ''yi g'r tqhguukqp0\O qxgu''ctg''cntgcf { ''dgkpi ''o cf g'kp'' yi ku''f ktge\kqp0

## Hwt vj gt 't gcf lpi

# Dkqi terj kgu

GN[ VKU'Qf { uugwu'\*3; 336; 8+0Tgcn'pco g'Qf { uugwu'Cngr qwf j gmku='dqtp'kp'Etgvg'qh'r ctgpvu'htqo 'Ngudqu0' Gn( vku'r wdrkuj gf 'j ku'hktuv'r qgo u'kp'3; 57"cpf 'guvcdrkuj gf 'j ko ugrh'cu'qpg'qh'vj g'ngcf kpi 'lki wtgu'qh'vj g'uq/ecmgf " ÷Vj kt vkguø'I gpgtcvkqpø'vj j kej 'cnuq'kpenwf gf 'UGHGTKU0F wtkpi 'vj g'r quvy ct''{ gctu'j g''nkxgf 'kp''Htcpeg'hqt" gzvgpf gf 'r gtkqf u''cpf 'cuuqekcvgf 'y kyj 'vj g''ngcf kpi 'r qgvu''cpf 'ctvkuvu'qh'j ku'i gpgtcvkqp=j g''cnuq'vtcxgmgf 'y kf gn{ " qwvukf g''Htcpeg''cpf 'I tggeg0J g''r wdrkuj gf ''38"eqmgevkqpu''qh'r qgvt { "cpf ''vy q''ncti g'xqnvo gu''qh'etkkecn'guvc { u''cpf '' vtcpurcvgf 'y qtmu''d { ''Tko dcwf .''vj g''eqo vg'f g''Ncwt² co qpv.'Iqwxg.''Wpi ctgvk''Nqtec.''O c { cmqxum( .'I gpgv.''cpf ô htqo ''cpekgpv'I tggmô Ucrrj q.''Etkpci qtcu''cpf ''y g'Tgxgncvkqpu''qh''Uv'Iqj p0J g''y cu''cy ctf gf ''vj g'Pqdgn'Rtk g''hqt'' Nkvgtcwtg'kp''3; 9; 0

MCMT HF NU. 'Kqcppku' \*3; 236; 4-10 Ercunkecn'uej qrct "cpf" r tqhguuqt "cv'vj g"Wpkxgtukx{ "qh"Vj guucnqpknk'cpf. "rcvgt." Cvj gpu0J g'ku'mpqy p'hqt" j ku'vtcpurcvkqpu "qh'vj g"Khcf" cpf "Qf { uug{ "kpvq"o qf gtp" I tggm" kp"eqmcdqtcvkqp" y kyj " P kmqu'Mc| cpv| cmku0 Mcmtkf ku'y cu'egpuwtgf "d{"c'f kuekr nkpct{ "eqwpekri'qh'vj g"Wpkxgtukx{ "qh'Cvj gpu'\*f wtkpi "vj g" I gto cp"qeewr cvkqp+'hqt"c'y qtm'j g'r wdrkuj gf "kp"f go qvke" I tggm'y kyj qw'ceegpvu'cpf "eqpugs wgpvn{ "rquv'j ku" r qukxkqp"cv'vj g'Wpkxgtukx{ 0

MCVCTV\ HI.'F to lst lqu'\*e095263: 29+0 Mcvctv| kı'r re {gf 'c'egpvtcn'tqng'lp''y g'f gdcvg'qp''y g'I tggmirepi wei g'' s wguvkqp0O quv'qh'j ku'y qtmitgo ckpgf 'wpr tkpvgf .'dw'qpg'y qtmiy cu'r tkpvgf 'chvgt'dgkpi ":-xtcpurevgf ø'kpvq''y g'' rectpgf 'hcpi wei g0J g'y tqvg'kp''y g'r qr wet 'hcpi wei g'\*cu'ur qngp'kp''Eqpuvcpvkpqr qrkvcp''ektergu+''cpf 'y ky qw''cp{ "eqo r tqo kug'y ky j''y g''ngctpgf 'ttcf kkqp0J g'y cu'qpg'qh'y g'o quv'tgo ctmcdng''r gtuqpcnkkgu'qh'y g''{gctu'r tgegf kpi "y g'I tggmiT gxqnwkqp''qh''3: 43"cpf 'c'tgr tgugpvcvkxg''qh'y g''ur ktk'qh'y g''Gprki j vgpo gpv0Hqt''Mcvctv| ku 'hcpi wei g'' y cu'pqv'cp''gpf 'kp''kugrh'dw'c'o gcpu'hqt''y g''r tqr qi cvkqp''qh''npqy rgf i g. "cpf 'y ku'eqpxkevkqp'y cu'tghrgevgf 'kp''y g'' rcpi wei g''qh'j ku''tcpurcvkqpu''cpf 'y tkkpi u0J g'o cf g'y j cv'y cu'hqt''y cv'ko g''c'tgxqnwkqpct{ 'r tqr qucn'pco gn{ "y cv'cpekgpv'I tggmi'uj qwf 'dg''cwi j v'y tqwi j 'y g''o gf kwo 'qh'o qf go 'I tggmz'd{ "o gcpu'qh''tcpurcvkqp''dqy' 'htqo "cpekgpv'I tggmi'cpf 'htqo "o qf gtp''Gwtqr gcp'hcpi wei gu0Kp''y ku'y c{.'j g''uwi i guvgf .'hgctpkpi 'y qwrf 'dg''o cf g'' cxckrcdng''q''cmi'r gqr rg. 'kpenwf kpi ''y qug''hqt''y j qo ''cpekgpv'I tggmitgo ckpu'c'dcttkgt .'lwuv'cu''Ncvkp''y cu'' kpceeguukdng''q''ctf kpct { 'r gqr rg''kp''Gwtqr g''hqt''o cp{"{gctu0}}

MQTCKL'Cf co cpf kqu\*396: 63: 55+0Vj g'uqp'qh'c'o gtecp\kg'hco kn( "kp'Uo {tpc."j g'uwf kgf "o gf kekpg'kp" O qpvr gmkgt. "hkpcm( "guvcdrkuj kpi "j ko ugrh'cu'c'uej qrct'cpf "kpvgmgewcnl\p"Rctku."y j gtg'j g'ur gpv'y g'tguv'qh'j ku" nktg0Mqtcku'dgrkgxgf "kp"gf wec\kqp"cu'y g"dguv'o gcpu'qh'gs wkr r kpi "j ku'hgmqy "eqwpvt {o gp'hqt'y gkt'hwwtg" kpf gr gpf gpeg'htqo "Vvttnkuj "T wrg. "cpf "y cu'cnq'qpg'qh'y g'httuv'I tggmkpvgmgewcni'vq"gpxkuci g'y g" go cpekr cvkqp"qh'y g'I tggmu'kp'y g'hqto "qh'c'pcvkqp/wcvg."f ghkpgf "kp"vgto u'qh'ku'rcpi wci g'cpf "vtcf kkqpu0J ku" y tkkpi u'ctg"xqnwo kpqwu."r ctvkewctn( "tgi ctf kpi "y g'tghqto "qh'y g''I tggm'hcpi wci g0J ku'eqpvtkdwkqp'vq'y g" Ncpi wci g'S wguvkqp'y cu'vq"grcdqtcvg'y tgg"r tkpekr rgu</br>
Ncpi wci g''s wguvkqp'y cu'vq"grcdqtcvg'y tgg"r tkpekr rgu</br>
Ncpi wci g''y g''t g''y j ki' j g''y gkt''f guegpf cpwl'o wuv'i ckp''ceeguu'kp''qf gt''vq''erko "y g''tki j v'qh'pcvkqpcn'ugrh/f gvgto kpcvkqp="ugeqpf". "y cv'y g''y ckypy c''vq''dtgcm'y ku''xkekqwu''ekterg'ku''q''crng''y g''o qf gtp''\sur qmgp+"rcpi wci g"'

cu''y g''dcuku."cpf ''uq'hct''cu''r tcevkecdrg''vq''÷eqttgevø'kv'kp''qtf gt''vq''o kpko kţ g''y qug''grgo gpwu'y j kej ''o quv'f kuvkpi wkuj '' kv'htqo ''kvu''cpekgpv''r tgf geguuqt''\*Dgcvqp''3; ; 6<523+0

RCNNKU'Cngzcpf tqu'\*3: 7363; 57+0Dqtp'kp''Rktcgwu'cpf 'uwwf kgf 'r j knqmi { 'kp'C yi gpu0'Rcmku'y gpv'cdtqcf " y j krg'uwm' {qwpi "cpf 'f gxqvgf 'j ko ugm'vq'c'eqo o gtekcn'ectggt0J g'y tqvg'r qgvt { ."dw'cdqxg''cm'wugf 'j ku'nkgtct { " vcngpv'kp''tcpurcvkqp0J g''vcpurcvgf 'Gwtkr kf gu.''Uj cngur gctg.''Vj we { f kf gu''cpf 'gxgp''Mcpv'vq'f go qpuvtcvg''yj g'' r quukdkrkv{ 'qh''wukpi 'f go qvke'I tggm'hqt''uq'f khrkewn''c''vgzv0J ku'i tgcvguv''cej kgxgo gpvu'y gtg''yj g''vcpurcvkqpu''qh''yj g'' I qur gnu''cpf ''yj g''*Klkcf 0* 

TH CU\*39796; : +0Eqo o qpn("npqy p"lp"I tggm'cu'Thi cu'Xgrguhprhu'qt"Rj gttckqu "htqo "y g"cpelgpv'pco g"qh" Xgrguhpq. "Rj gtck"c"\qy p"lp"Vj guucn(0J g"y cu'y g"htuv'\q"f tcy "wr "c"\xx qrkhecn'eqpuhkwhqpø'hqt"c"pgy "qtf gt "y cv' o ki j v'uweeggf "y g'xkqrgpv'qxgty tqy "qh'y g'Qwqo cp"go r ktg0Cr ctv'htqo "j ku'r qrkhecn'xkulqp."Thi cu'r ræ{gf "cp" ko r qtvcpv'tqrg'lp"y g'f gxgrqr o gpv'qh'c"pchqpcn'I tggm'rkgtcwtg0J ku"\xxcm'y crm'q"cto uø'kp"xgtug."\(Dcwrg'J \{o p.\)"y cu' crr gpf gf "\q"j ku"\xxrqrkhecn'eqpuhkwhqpø'qh'39; 90J ku'hktuv'y qtm"\(V) g'Uej qqn'lqt'F grkecvg'Nqxgtu'r wdrhuj gf "\p" Xkgppc"\q"39; 2."j cu'\qp"hcev'dggp"\uj qy p"\q"dg"c"\tcpurchqp"qh'\uj tgg"unqt\gu'd\{"Tgunhl'f g"rc"Dtgvqppg."cpf" cnj qwi j "pqv'y g"gctrlguv'\tcpurchqp"qh'Gwtqr gcp"hlevkqp"\qpvq"I tggm'kv'dgi cp"c"uj qtv'rkxgf"r j cug"qh'\qpvgtguv'\qp" hlevkqp"f gcrhoi "y kj "eqpvgo r qtct{"wtdcp"rhg."y j kej "y cu'\crpp"wr" y q"{gctu'rcvgt"y kj "y g"cpqp{o qwu'qtki kpcn' unqt\gu."\Tgunnu'qh'Nqxg."cpf "y ku'eqngev\qp."\qp"ku'wtp."r ræ{gf "ku'r ctv'kp"guvcdrhuj kpi "o qf gtp"I tggm'hlevkqp0' Tki cu'y cu'gzgewgf "d\{"y g"Vwtmu'\qp'Xwg'39; : 0

UGHGTKL'I gqt i g'\*3; 22693+0T gcn'pco g'I gqt i g'Ughgtkcf ku0J g'y cu'dqtp'kp'Uo {tpc'cpf 'o qxgf ''q'C yi gpu'' y kyi 'j ku'hco kn{ ''kp''3; 360Ughgtku'uwnf kgf ''Ncy ''kp''Rctku'cpf ''uwdugs wgpvn{ ''gpvgtgf ''yi g'I tggmlF kr mo cvke''Eqtr u." htqo 'y j kej 'j g'tgvktgf ''kp''3; 84."tgwxtpkpi ''q'C yi gpu'hqt ''yi g''ncuv''{ gctu''qh''j ku''nkhg0J ku'hktuv'eqmgevkqp''qh''r qgo u." \$\langle \text{Utqrj g''\*Vxtpkpi ''Rqkpv+"cr r gctgf ''kp''3; 53"cpf ''o ctmu''yi g''dgi kppkpi ''qh'cp''cewcn'wxtpkpi ''r qkpv'kp'I tggml' rksgtcwxtg0J ku''r qgvt { ''y qp''o cp{ ''cy ctf u."ewno kpcvkpi ''kp''yi g''P qdgn'Rtkl g''hqt''Nksgtcwxtg''kp''3; 850J g'y cu'' kpvgtguvgf ''kp''\tcpurcvkqp''cpf ''kp''3; 4: ''r wdrkuj gf ''c''\tcpurcvkqp''qh'Xcn't { ."y j krg''j ku''\tcpurcvkqpu''qh'Grkqv'\*\delta g'' \delta \text{Vi g'' Y cuwg'Ncpf' ''cpf ''O wtf gt ''kp''yi g''Ecvj gf tcn+''j cf ''c'' tgcv'kphrwgpeg''qp''ncvgt'I tggml'r qgvt { 0J g'y cu''r ctvkewrctn{ '' kpvgtguvgf ''kp''kpvtcrkpi wcn'\tcpurcvkqp''cpf ''c''eqmgevkqp''qh''j ku''tcpurcvkqpu''qh''cpekgpv'I tggml\gz vu'wpf gt ''yi g''kxrg'' \delta \text{Vtcpuetkr vkqpu''y cu''r quvj wo qwun{ ''r wdrkuj gf ''kp''3; : 20

**UQHKCP QU'P kmpm qu'**\*hktuv'j crh'qh'ukz vggpvj "egpwt { +0'Dqtp'kp'Eqthw."j g'y cu'c'ngctpgf "I wo cpkuv'dtqwi j v'wr " qp''vj g'ercuukecri'kf gcn="cv''vj g'uco g''vko g."j g''uj qy gf "cp''kpvgtguv'kp''vj g''

o qf gtp'I tggm'\qpi wg'cpf 'kp'\j g''gf wec\kqp''qh'j ku'\uwdlwi cvgf 'r gqr rg0'Y qtmkpi 'kp''Xgpkeg. 'Uqhkcpqu'y tqvg'c'' i too o ct"qh"yi g"o qf gtp"I tggm"repi wci g"\*y j kej "y cu"pqv"r tkpvgf "cv"yi g"Vko g+"cpf "vtcpurcvgf "yi g"Rugwf q/ Rnwctej cp'\tgc\kug'\qp"\Vj g'\Gf wec\kqp"\qh'Ej knf t gp. "r wdnkuj gf "\wpf gt"\yj g'\kxng"\Rgf ci qi wg'\kp'37660\J ku" vtcpurcvkqpu'tghrgev'j ku'eqpegtp'y kij ''vj g'gf wecvkqp''qh''vj g'I tggm'pcvkqp0J g''dgnkgxgf ''vj cv''vj ku''gf wecvkqp''y qwrf '' dg'dguv'ceeqo r nkuj gf 'kh'yj g'I tggmu'eqwrf 'tgcf ''cpf ''uwf { ''yj g'dqqmu'nghv'd { ''yj gkt ''cpegurqtu0 VTKCPFCHI NNKFKU.'O cpqrku'\*3::563;7;+0'Rtqhguuqt''qh''Nkpi wkurkeu''cv''y g''Wpkxgtukx{''qh''Vj guucnqpknk'cpf''c'' ngcf kpi "o go dgt "qh'yj g"uq/ecngf ":Gf wecvkqp" Uqekgv{ ØC wyj qt "qh'c "Uvcvg/eqo o kuukqpgf 'i tco o ct "qh'f go qvke" I tggmir wdrkuj gf "kp"3; 63. "y j kej "j cu"r tqxkf gf "cp"ko r qt vcpv"tghgt gpeg"r qkpv"dqyj "hqt "uwdugs wgpv"yj gqt gvkecn" f gdcvg"cpf "hqt"y tkvgp"wuci g. "r ctvlewrctn( "kp"gf wecvkqp0J g"y cu"o ckpn( "kpvgtguvgf "kp"o cvvgtu"tgrcvkpi "vq" vtcpurcvkqp"j kuvqt { "cpf "etkskekuo . "eqo r ctcvkxg"uv{ rkuveu"cpf "vj g"vgcej kpi "qh"hqtgki p 'hcpi wci gu0 XKNCTCU'[ cppku'\*399363: 45+0C'y tkygt'cpf '\tcpurcvqt'y j qug'o ckp'eqpegtp'y cu'y kj 'yj g'I tggmlrcpi wci g0' Kp'3: 36'j g'r wdrkuj gf. 'kp'Eqthw.'c'dqqm'gpvkngf "Vj g'Tqo cke'Vqpi wg'\*-Tqo ckeø'dgkpi 'vj g'vgto 'wugf 'vq'f guetkdg'' yj g"r qr wrct" I tggmlxgtpcewrct+0"Vj g"dqqmly cu"r tkpvgf "kp"tgxqnwkqpct { "ur gmkpi ."y kyj qwv."qh"eqwtug. "ceegpvu"qt" dtgcyj kpi u0J g"gzr rekpgf "j ku"u{ uvgo "kp"c"dtkgh"÷gzr repevqt { "pqvgø"cpf "yj gp."cu"gzco r rgu"qh"yj g"÷Tqo cke" repi wei gø'kp'xgtug'epf 'r tqug.'j g'r wdrkuj gf 'hqwt'qtki kperl'r qgo u.'vqi gyj gt'y kyj ''\tepurevkqpu'htqo ''Cpeetgqp.'' Rrcvq"cpf "Vj we {f kf gu0J ku'o ckp"ercko "vq"hoo g"cu"c" tcpurcvqt "y cu"j ku 'vtcpurcvkqp"qh'vj g"r ugwf q/J qo gtke" Devt cej qo {qo cej kc'kp''y g'37/u{mcdmg'xgtug''qh''y g''tcf kkqpcn'I tggmlqmuqpi.''vqi gyj gt''y kjj ''cp''ceeqo r cp{kpi " r tqmi wg"gzr nckpkpi "j ku'xkgy u'qp"\tcpunc\kqp0

XWNI CTKU'Gxi gpkqu'\*393863: 28+0C "pcvkxg"qh'Eqthw0Kp"j ku"{qwj."j g'y cu'c'r tqi tguukxg"cpf "cp"cf o ktgt"qh" Xqncktg0J ku'y qtmu"qp"yi g'Htgpej "r j knquqr j gt"cpf "yi g'i tgcv'hco g'j g'ces wktgf "y kyj "j ku'qy p'r tqi tguukxg" vgcej kpi "kp"yi g'Qtkppv'ctqwugf "yi g'kpvgtguv'qh'Ecyj gtkpg'Kkqh'T wuukc."cpf "chvgt"3992."j g'guvcdrkuj gf "j ko ugrh'cv" j gt"Eqwtv0Cv'j gt"tgs wguv."j g'ceegr vgf "qtf kpcvkqp"cu'c'r tkguv'cpf "eqpugetcvkqp"cu'dkuj qr."vcmkpi "qxgt"yi g'pgy n{" guvcdrkuj gf "Wntckpkcp"ctej f kqegug"qh'Mj gtuqp0Qpg"qh'j ku'o quv'ko r qtvcpv'y qtmu."Qp"yi g'Fkveqtf "kp"yi g'Rqrkuj " Ej wtej gu0J kvvqtkecn'cpf "Et kkecn'Gvuc{='Vtcpurcvgf "htqo "Htgpej "kpvq"yi g'Rqrwct"I tggmlNcpi wci g."y kj " J kvvqtkecn'cpf "Et kkecn'Pqvgu"y cu'r wdrkuj gf "kp"Ngkr | ki "kp"398: 0

FCXIF 'EQPPQNN[

J

# J gdt gy 'tt cf kkqp

J gdtgy "ku"c"o go dgt"qh"y g"pqty/y gungtp"dtcpej "qh"y g"Ugo kke"hco kn( "qh"ncpi wci guOKl"uctvgf "cu"qpg"qh"o cp{" Ecpccpkg"f kergevu."dw"ku"dgi kppkpi u"cu"c"ncpi wci g"kp"ku"qy p"tki j v"ecp"dg"kf gpwkhgf "y ky "y g"cf qr wqp"qh"y cv" f kergev'd{"y g"Kutcgrkgu"y j q"ugwrgf "kp"y g"Ncpf "qh"Kutcgrlhp"e\B222"DE"cpf "y j q"eqpwkpwgf "vq"wug"kb"f wtkpi "y gkt" r gtkqf u"qh"pcwkqpcrlkpf gr gpf gpeg"\*e\B222"DE/7: 9"DE"cpf "739"DE/CF "92+0Qwwkf g"y qug"r gtkqf u"qh"pcwkqpcrl kpf gr gpf gpeg."ur qngp"J gdtgy "y cu"tgr ncegf."htuv'd{"Ctco cke"cpf "I tggm"y gpô y j gp"y g"Lgy u"y gtg"hqtegf "vq" ngcxg"y gkt"ncpf ô d{"y g"xctkqwu"ncpi wci gu"co qpi uv'y j qug"ur gengtu"y g{"ugwrgf 0Cv'y g"uco g"wo g."y j gtgxgt" Igy kij "kf gpwk/"y cu"pqv'hquv."J gdtgy "eqpwkpwgf "vq"dg"wugf "cu"y g"ncpi wci g"qh"tgrki kqwu"tkwgu"cpf "tgckpgf "y g" r tgukli g"y cv'i qgu"y ky "kwu"ucww"cu"y g"-J qn("Vqpi wga"y ku"dgkpi "c"o kzwttg"qh"J gdtgy "cpf "Ctco cke0Klcnq" eqpwkpwgf "vq"dg"wugf "kp"c'iko kygf "tcpi g"qh'y tkwpp"hwpevkqpu0Cmlncyt"wugu"qh'y g"ncpi wci g"y gtg"y wu"enqugn{" tgncyf "vq"dg"wugf "kp"c'ff "ewnwtg0Eqpvcev'y ky "qy gt "ncpi wci gu"tguwngf "kp"eqpuvcpv'ej cpi gu"vq"ku"qtki kpcn" hqto ."Ipenwf kpi "uqo g"qh"ku"o quv'hwpf co gpvcn'vtcku."gur gekcm{"cu"o qtg"cpf "o qtg"qh"y g"ncpi wci gu"kp"s wguwkqp" y gtg"pqpUgo kke0

Nkng''y g'wug''qh''y g'hcpi wci g'kughh 'ktcpurckqp'kpvq'I gdtgy 'ku'ej ctcevgtk gf 'd { 'kpj gtgpv'f kueqpvkpvkx { <ku'' j kuvqt { 'ku'o ctngf 'd { ''c'ugtkgu''qh'pgy ''dgi kppkpi u. ''gcej ''qpg''ej ctvkpi ''c'ugv'qh'pgy ''tqwgu. 'vq''dg'hqmqy gf 'hqt''c' nko kgf ''r gtkqf ''qh''ko g''dghqtg''dgkpi ''cdcpf qpgf 'hqt''{ gv'cpqyi gt''ugv0Cpf ''ukpeg''y g''egpvtgu''qh''Igy kuj ''ewnwtg'' uj khvgf ''eqpvkpwcm{ .''c''pgy ''dgi kppkpi ''pqto cm{ ''eqkpekf gf ''y kyj ''c''vgttkqtkcn'uj khv0Kv'ku'hckt''vq''uc { .''j qy gxgt .''yi cv'' y ku'f guetkr vkqp''cr r nkgu'hktuv'cpf ''hqtgo quv'vq''Y guvgtp''vtcf kkkqpu="qwt''npqy ngf i g''qh''vtcpurcvkqpcn'dgj cxkqwt''kp'' q'y gt''r ctwi'qh'y g''Igy kuj ''F kcur qtc''ku'uxkn'vqq''uecpv{ ''vq''uwr r qtv'c''tgnkcdng''ceeqwpv'qh'pqp/Y guvgtp''vtcf kkqpu0

### Vt cpurc vkqp'f wt kpi 'cpvks wkv{

Vj g'J gdtgy ''Dkdrg'kpenwf gu'erget 'tghgtgpegu'\q'ktepurwkqp. 'kpenwf kpi ''hckuqp'kpygtr tgykpi '\*gd 01 gpguku'64-45-0'
Cmq. ''ugxgterl'r cuuci gu'tgxgerl'kteegu'qh'eewerl'ktepurwkqp'\*gd 0G| tc"3-96: ''kp"J gdtgy ''xu0G| tc"7-36'qt"8-2''kp"
Ctco cke-40Qp"yj g"gxkf gpeg"qh ''co qpi 'qyj gt 'yj kpi u. 'yj g'kpygthgtgpeg"qh'qy gt. ''qhrgp"gcuknf 'kf gpwkhcdrg''repi wei gu''
cpf ''ygxwerl'ktef kkqpu. 'kv'uggo u'tgeuqpedrg'\q'uwi i guv'yj ev's wkg''c 'pwo dgt 'qh'r cuuci gu'kp'yj g'Qrf ''Vguvco gpv''
o c{"j cxg"dggp'ktepurcyf 'htqo ''qyj gt'uqwtegu0J qy gxgt. ''yj gtg'ku'xgt { 'rkwrg''qpg''eep'uc { ''cdqw'\yj gug''r cuuci gu''cu''
ttepurcwlqpu'ff wg''\q''yj g''cdugpeg''qh''ep{ ''eqpetgyg'\ygxu''yj kej ''o ki j v'j cxg''dggp''cmpp''cu''yj gkt''ko o gf kcyg''uqwtegu0
Vj gtg''eep''dg''pq'f qwdv'\yj ev'uqo g''ktepurcwlqp''kpvq"J gdtgy ''qqmi'r reeg'ff wkpi ''yj g"getrf ''rj cugu'qhi'yj g''r quv'dklrheeri'
r gtkqf 0J qy gxgt. ''yj g''ceweri'vgzwu''yj ev'j cxg''eqo g'ff qy p'vq'wu''ctg'o ckpn( ''eqphlypgf ''vq''dklrheeri'xgtugu''s wqygf ''kp''
O kij pele''ygzwi'epf ''ktepurcyf. ''cu'r ctv'qh'yj gkt'kpygtr tgwxkxg''tgevo gpv'kpvq''yj g''pgy ''dtepf ''qh'J gdtgy ''yj kej ''
y cu'kp''wug''ev'yj g''ko g''\*Dgpf cxkf ''3; 89''epf ''3; 93+0Nevgt''qp. ''kp'yj g''Nepf ''qh'Ktregri'cu'yy gm'eu''kp'ppki j dqwtkpi ''
eqwytkgu'yj gtg''yj g''Ley u''j ef ''ugwrgf '\*\o quv'pqvcdn( ''Gi {r v+: ''tcpurcvkqp'uvctvgf ''vq''dg''eettkgf ''qw''htqo ''J gdtgy .''
o ckpn( ''kpvq''Ctco cke''cpf ''I tggmô hktuv'qtcm( .''yj gp''kp'y tkkpi 0V'y g''o ckp''qdlgevkxg''qh''y ku''tcpurcvkqpen'gh'ty'
y cu'vq''tgpf gt''yj g''Letkr wtgu''eeeguukdrg''vq''y g''gruu''rgtpgf ''uq''uq''gpcdrg''y go ''vq''hqmy ''yj g''pewtg''qh''
vcu'vq''tgpf gt''yj g''Letkr wtgu''eeeguukdrg''q'yj g''rguu''rgtpgf ''uq''u''q''gpcdrg''yj g'' vq'''qp''yj g''pewtg''qh''
vtepurcvkqp''cpf ''yj g''tqr gt''y c {u''kp'y j kej ''kyij qwrf ''dg''rgthqto gf .''cu'yy gm''cu''qp''yj g''
vot''top''y g'''y g'''cyg'''y g'''y g''

\*\*p"r tkpekr rg"kphgtkqt+"ucwu"qh"\tcpurc\kpi ."\tcpurc\qtu"cpf "\tcpurc\gr"\kp\u"y g"\kp\u"y g"\u"y g"\u"y q\u"r gkkqi gf "rcpi wci g"\u"y gtg"\upy gtg"\

### Vj g'O lf f rg'Ci gu

Hqmqy kpi "c"mpi "kpvgtxcn"vtcpurcvkqp"kpvq" J gdtgy "tguwo gf "kp" o gf kgxcn'Gwtqr g"cpf "y cu'kp"hwm'uy kpi "d{ "vj g" gpf "qh'y g'y grhy "egpwt {00 quv'qh'y g'yzvu'tcpurcygf 'y gtg'pqy "ey qtmu'qh'y kuf qo ø'kogo'uekgpvkhke'vgzvu  $Ocp\{''qh''y' g''uej qmtn\{''y qtmu'hktuv''ugmgevgf'hqt''ktcpumvkqp''y gtg''ktgcvkugu''kp''Ctcdke''qp''Igy kuj ''my'''* \textit{\textit{J}} cmmj c''+cpf''' le constant of the constant of$ gyj keu"\*O wuct +"y tkwgp"d { "Lgy u'kp"O wurko "Ur ckp"qt"P qt yj "Cht kec0P q"pggf "hqt" \tcpurc \kqp"j cf "ct kugp"y j gp" yj g" Igy kuj "tgcf gtu'nkxgf "kp"ctgcu'y j gtg"Ctcdke"y cu'c'uj ctgf 'nkxgtct { 'ncpi wci g0J qy gxgt."d { 'vj g'wy gnhyj "egpwt { ." Igy kuj 'hoo krkgu'j cf 'crtgcf { 'o qxgf 'vq'Ej tkurkcp'\gttkxqtkgu.'o quv'pqvcdn('kp'uqwj gtp'Htcpeg'cpf 'pqtvj gtp'Kcn(.'' cpf "vj gkt"f guegpf cpvu"y gtg"vpcdrg"vq"tgcf "Ctcdle0"kpvgtguv"kp"vj g"cej kgxgo gpvu"qh"Lgy kuj "uej qrctuj kr "tgo ckpgf"  $uvtqpi."cpf"c"rtguukpi"pggf"vq"j\ cxg"vj\ g"vgzwu"vtcpurcvgf"vj\ gtghqtg"go\ gti\ gf\ 0 J\ gdtgy\ ."yj\ kej "y\ cu"kp"wug"cu"c"$ r tkxkrgi gf 'hkgtct { 'hcpi wci g. 'dgeco g''y g''vcti gv'hcpi wci g'r ctvn { 'dgecwug' Igy u'hkxkpi 'kp'f khhgtgpv'r ncegu'pq''  $mpi\ gt''uj\ ctgf''cp{\{''qvj\ gt''o\ gcpu''qh''eqo\ o\ wplecvlqp0C''tgewttgpv''r\ cwgtp.''gxgp''vj\ qwi\ j\ ''pqv''cp''gzenwulxg''qpg.''y\ cu''' }$ yj wu''vq''j cxg''c''\tgcvkug''\tcpurcvgf''cv''yj g''tgs wguv''qh''cp''kpvgtguvgf''r cvtqp.''y j q''o gtgn(''tgs vktgf''yj g''r tqur gevkxg'' vtcpurcvqt"\q"dg"tgcuqpcdn( "hnvgpv'kp"Ctcdke0"Vj gtg"ku"pq"gzr nkekv'o gpvkqp"qh'tgo vpgtcvkqp."dwv'kv'uvcpf u'\q" tgcuqp"vj cv'cv'ngcuv'uqo g"vtcpuncvqtu"tgegkxgf"uqo g"r c{o gpv."gkvj gt"htqo "vj g"kpf kxkf wcn':eqo o kuukqpgtuø'qt" htqo "vjg"mqecn'eqpitgicvkqp. "kp"yjkej" vjg"eqoo kuukqpgtu "qhvgp"qeewrkgf" mg{"rqukvkqpu0Coqpi" vjg"oquv" kphrwgpvkcn'vtcpurcvkqpu''qh'Igy kuj "÷y qtmu''qh'y kuf qo ø'eqo r ngvgf 'f wtkpi "vj ku'r gtkqf ''ctg' Bahya 'kdp''Rcs wf cøu" Hovot 'j cNgxcxqv'\*F wkgu'qh'vj g'J gctv+.'O cko qpkf guø'Oqtgj 'Pgxwnj ko '\*I wkf g'qh'vj g'Rgtr ngzgf +.'cpf 'Lwf cj " J crgxkøu''*Ughgt'j c/Mw/ctk0* 

Kovet guv'kp 'uej qretuj kr 'uqqp 'ur tecf 'vq'pqp Ley kuj 'dqqmu'cpf 'vj go gu. 'recf kpi 'vq'pwo gtqwu'vtcpurcvkqpu'kpvq''

J gdtgy 'qh'y qtmu'qh'r j krquqr j {.'irqi ke.'i tco o ct.'cuvtqpqo {.'o gf kekpg.'r j {ukeu.'cpf 'xctkqwu'qvj gt'o gf kexcn' uekepegu0'J gtg.'Ctcdke'y cu'qhvgp'c'o gf kevkpi 'repi wei g'qpn{.'gur gekcm{ 'kp''y g'ecug'qh'I tegnicpf 'Ncvkp.'' kpenvf kpi 'o cp{ 'qh'Ctkurqvrgøu'y qtmu0'Qvj gt'uqwteg'repi wei gu'y gtg'revgt'cf f gf 'vq''y g'rkuv0'Vj g'o quv'' eqo r tgj gpukxg'r tgugpvcvkqp'qh'J gdtgy 'vtcpurcvkqpu'kp''y g'O kf f rg'Ci gu'cpf 'vj g'Tgpckurcpeg'r gtkqf .'cu'y gm'cu' y g'tqrg'qh'Igy u'cu'ewnwtcn'o gf kcvqtu'dgwy ggp'Gcuv'cpf 'Y guv.'ku'uvkm'Uvgkpuej pgkf gt'\*3: ; 5="o quv'qh''y g'vgz w'' o gpvkqpgf 'vj tqwi j qw''y ku'3299/r ci g'xqnwo g'ctg'uvkm'dwtkgf 'kp''o cpwwetkr w0

 $\label{thm:local_local$ 

C'uki pkhecpv'gzegr vkqp"vq"y ku'twrg"y cu' Mahbarot "Kkoon" y g"J gdtgy "tcpurcvkqp"d{"Lxf cj 'Al-Harizi "qh' Al-Harizi "Qh' Al-Harizi "wpf gt vqqn'y g"tcpurcvkqp"cu'c"r tgr ctcvqt {"gzgtekug"hqt"y tkkpi "j ku'qy p"eqngevkqp" qh'o cs o v'kp"Ctcdke 'Al-Harizi "wpf gt vqqn'y g"cu'c"tguwn'qh'y g"ecpqpk cvkqp"qh'y g"o cs o v'kp"Ctcdke "nksgtcwtg." cu'y gm'cu' Al-Hariri's "qy p"r tgurki g. 'Tahkemoni "eco g"vq"dg"j grf 'kp"j ki j "guvggo "kp'Igy kij "ewnwtg0Qvj gt "nksgtct {" tcpurcvkqpu'y j kej "gplq { gf "eqpukf gtcdrg"r tgurki g"cpf "f kntkdwkqp"kpenxf g"Cdtcj co "kdp"J cuf ckvu'Dgp"j c/Ogrgnj "xg/j c/Pc/kt"\*? Dctrcco "cpf "Lqucrj cv+"Mcnkr"cpf "F ko pc. "O kuj ng"Ugpf gdct"\*c"xgtukqp"qh"Vj g"Ugxgp" Uci gur+cpf "y g"Crgzcpf gt"Tqo cpeg0Vj g"o cti kpcnk cvkqp"qh"o gf kgxcn'nksgtct { "tcpurcvkqpu'kp "uej qretn("y qtm" gur gekcm("y qug"y j kej "f kf "pqv'qtki kpcvg"kp"y g"Gcuv."j cu'rcvgn("dgi wp"vq"uj qy "uki pu'qh'y gcngpkpi ."cu'y kpguu" y g"tgegpv'r tkpvkpi "qh'c"349; "J gdtgy "tcpurcvkqp"qh"Mpi "Ctwul\*Ngxkcpv'3; 8; +"cpf "y g"tgr tkpvkpi "qh'c"3763" tcpurcvkqp"qh"Co cf ku'f g'I cwrc"\*O creej k'3; : 3+0

O cp{"o gf kgxcri\tcpurc\kqpu"y gtg"r tgegf gf "d{"rgpi y} {"kp\tqf we\kqpu."y j kej "y gtg"qxgt/y j gm kpi n{"cr qmi g\ke" kp"\qpg0"Vj ku"o c{"dg"gzr rekpgf "kp"\gto u"qh"\y g"r tqdrgo c\ke"ko ci g"qh"\tcpurc\kqp"kp"\tcf kkqpcriIgy kuj "ewn\tg." y j gtg"\y gu"qmi /uvcpf kpi "tgukuvcpeg"\q"\tcpurc\kpi "\y g"J gdtgy "Uetkr wtgu0O gf kgxcriJ gdtgy "\tcpurc\qtu" qh\gp"hgn\qdrki gf "\q"cum'\y j gtgef gt\pu"hqti kxgpguu'hqt"kpf wri kpi "kp"\y g"cev'qh"\tcpurc\kpi ."gur gekcm{ "kh'\y g" tcpurc\qt" y cu"kpkkc\gf "d{"\y g"tcpurc\qt" j ko ugrh0O cp{"hgn\qdrki gf "\q"cr qmi k g"hqt"\cemkpi "\y g"r ct\ke\wett" yzv'\y g{"wpf gt\qqmi\q"\tcpurc\gd\p"\y g"ecug"qh"\-y qtmu"qh'\y kuf qo \alpha"o ckpn{"dgecwug"qh"\y gkt"ho kgf "hco khctk\{" y kj "\y g"uvdlge\o cwgt="kp"\y g"ecug"qh"\-y qtmu"qh'dgecw{\alpha"\y g"cr qmi {"tghrge\gf" y kf g/ur tgcf "cr r tgj gpukqp" tgi ctf kpi "\-kf rg"\cm\tho"\thpcm{\cent\centy} gtg"uq g\ko gu"qhhgtgf "hqt"\y g"nkpf "qh"repi wci g"wugf "kp"\y g" tcpurc\kqp" tgcuqpu"hqt"cq qmi kpi "qw"qh"ej qkeg"qt"qw"qh"pgeguuk\{0V\y gug"\tcpurc\qtu" o c{"qt"o c{"pq\y' gxg" ctg" htu\centy g" hqtgo qu\centy gt" qwf"qh"ej qkeg"thtu\centy g" hqtgo qu\centy geg"kp" rqmi g\keu"\y gy gt"uq g\kog" tgcuqpu"hqt"cq qmi g\keu"\y gy gt"tqw"qh"ej gkt"tgcf gtuj kr. "dw"\y gkt"qxgt/kpf wri gpeg"kp"cq qmi g\keu"\y gwf "dg"uggp"hktu\centy gf" hqtgo qu\centy "cu"c"eqpxgp\kqp"qh"o gf kgxcriJ gdtgy "\tcpurc\kqp0

Vj g'kpvtqf wevkqpu'cnuq'qhhgt'ko r qtvcpv'kpuki j wi'kpvq''r tgxckrkpi "xkgy u'qh'y g''pcwtg''qh'\tcpurcvkqp''cpf "y g''r tqr gt" y c{u'qh'j cpf rkpi 'kv'wpf gt''y g''eqpf kkqpu'qh'y g''ko g0J wi g''i cr u''gzkrvgf ''dgwy ggp''y gqtgvkecn'qdugtxcvkqpu''cpf " pqto cvkxg''r tqpqwpego gpvu'qp''y g''qpg''j cpf "cpf "cewcn'vtcpurcvkqpcn'dgj cxkqvt''qp''y g''q gt. "cpf "y g''vtcpurcvqtu" y go ugrxgu'y gtg''pqv'vqvcm( "drkpf "vq''uwej "f kretgr cpekgu0Kp''r tcevkeg."o cp{ "qh'y g''r tqdrgo u'uvgo o gf 'htqo "y g'' tgewttkpi "pggf "vq''vtcpurcvg''htqo "c''tkej "rcpi wci g.'y j kej "y cu'y gm'uvkvgf "vq''y g''r vtr qug''kv'ugtxgf ."kpvq''c" rcpi wci g'y ky "c''tcyj gt''uo cm'tgr gtvqktg."cp''kpgxkcdrg''qweqo g''qh''kur'j cxkpi ''dggp''uq''rqpi ''eqphkpgf ''vq''c''ho kxgf " tcpi g''qh''wugu."cpf ''qpgu''y cv'j ctf n{ "eqpewttgf ''y ky ''y g''pcwtg''qh''y g''uqwteg''yzvu0'Y j gp''y g''qtki kpcn''cv'j cpf " y cu'y tkvgp''kp''Ctcdke."cf f kkqpcn'r tqdrgo u''ctqug''htqo "y g'hco kn{ "tgugo drcpeg''dgw ggp''y g''uqwteg''cpf ''vcti gv'' rcpi wci gu.''y j kej ''qhvgp''rgf ''y g''tcpurcvqtu''cuvtc{0}

I gpgtcm("ur gcnkpi ."o gf kgxcn'tcpurcytu"j cf "vy q"f khłgtgpv'utcvgi kgu"vq"ej qqug"htqo ."f gr gpf kpi "vq"c"ncti g" gz vgpv'qp"y g"r tguki g"qh'y g"vgzv'uwdo kwgf "vq"tcpurcytq0"Vtcpurcytu"qh"-ko r qt vcpvø'y qtmo o quvn("uekgpvkhle" wz wi"wwwcm("ej qug"vq"uvc{"cu"emug"cu"r quwkdrg"vq"y g"Ctcdke"y qtf kpi ."tgr reckpi "vo cm"tgrcwxgn("my /tcpm" ugi o gpvu"qpg"cv'c"vko g."cpf "vj g"tguwnkpi "vgzv'eqpugs wgpvn("tghrgevgf "vj g"untwewtg"qh'yj g"qtki kpcn/lip"cp"cwgo r v" vq"tgf weg"y g"i cr "dgw ggp"y g"w q"rgzkecn't gr gtvqktgu."pgy "y qtf u"y gtg"cnuq"eqkpgf ."gkyj gt"yi tqwi j "f ktgev" dqttqy kpi "vy kyj "c"o gcuwtg"qh'cf lwuxo gpv'vq"y g"vcti gv"repi wci g+'qt"d{"y c{"qh'mqcp/vtcpurcvkqp0"Vj g"J gdtgy " wz wi"yi wu"cdqwpf gf "kp"kpvgthgtgpeg"cv'cmirgxgnu."dqyj "f grkdgtcvg."qt"cv'rgcuv'eqpvtqmgf ."cpf "ceekf gpvcn/D{" eqpvtcuv."y j gp"kv'eco g"vq"nkgtct{"cpf "qyj gt "rguw/r tkxkrgi gf "vgzvu."yj g"vtcpurcvqtuô uqo gvko gu"yj g"xgt{"uco g" r gtuqpuô uwemlo wej "emugt"vq"f qo guwe"o qf gnu."gur gekcm("vj qug"qhhgtgf"d{"yj g"s wcuk/dkdrkecn'rcpi wci g"wgf" kp"J gdtgy "o gf kgxcn'r qgvt{0Vj g"y q"vntcvgi kgu"ecp"dg"uggp"o quv'ergctn("kp"ygzw'y j kej "ctg"dqyj "hej qrctn("cpf" nkygtct{"kp"pcwtg."hqt"gzco r rg"*Uglgt 'j c/Mw/ctl0*Vj gug"y gtg"uqo gvko gu"vtcpurcvgf "cu'kh'yj g{"y gtg"r wtg"helgpeg" cpf "hqo gvko gu"cu'kh'yj g{"y gtg"dcukecm("rkytcwtg0)

Kp'tgvtqur gev.''yi g'uvtcvgi { "cf qr vgf "d{ ''vtcpurcvqtu''qh''uekgpvkhke''vgz vu''r tqxgf ''vtwn( ''kppqxcvkxg0'Qtki kpcm( ''c''ergct'' ecug''qh''vtcpurcvkqpgug.''yi g''

tguwnkpi "untwewtgu"cpf "xqecdwct{"y gtg"i tcf wcm{"cuuko krcvgf "kpvq"y g"rcpi wci g"cv'rcti g0"Y j cv'eco g"vq"dg" mpqy p"cu"Vkddqpkf "J gdtgy ø"chgt"y g"o quv'kphrwgpvkcn'hco kn{ "qh'o gf kgxcn'vtcpurcvqtu"\*ugg"VJ G"VkDDQP kF U+." et{uvcnk gf "cu"c"xctkgv{ "kp"kuu"qy p"tki j v<"pqv'lwuv'c"rgi kko cvg"xctkgv{ ."dw'qpg"y j kej "y cu"eqpukf gtgf "o quv" crrtqrtkcvg"hqt"rctvkewrct"wugu0D{"eqpvtcuv."y g"y c{"rkvgtct{"vgzvu"y gtg"vtcpurcvgf" j cf "xgt{"rkvrg"ko rcev'qp" J gdtgy "ewnwtg"cpf "pgzv'vq"pqpg"qp"y g"rcpi wci g0

Vtcpurckqp"kpvq" J gdtgy "eqpvkpvgf" kp" T gpcknucpeg "Gwtqr g"vqq."pqy "o ckpn( "kp"Kcn(."y j kej "dgeco g"c"pgy " egpttg"qh'o wnkhpi wcnI gy kij "ewnwtg0I fpvgtgurkpi "cu"gcej "kpucpeg"qh'vtcpurckqp" o cf g"dgw ggp"vj g"ukzvggpvj " cpf "vj g"gki j vggpvj "egpwt {"o c{"dg."y j gvj gt "kp"vgto u"qh'ej qkeg"qh'i gptg."cwj qt."vgzv."qt "gxgp"vtcpurckqp" uvtcvgi {"\*kpenwf kpi "xctkckqp"kp"vj g"rcpi wci g"qh'vtcpurckqp"cpf "vj g"xct {kpi "o qf gu"cpf "gz vgpv'qh":Lwf ckl kpi ø'vj g" vgzvu: "vtcpurckqp" y cu"j ctf n{ "pqvkegf "cu"c"f knvkpev'ewnwtcn'cevkxk/ "f wtkpi "vj cv' gtdqf 0Hqt"kpucpeg."vj g" kpxgpvqt {"qh"r tkxcvg" Lgy kij "hdtctkgu"kp"Kcn( "cv'vj g"enqug"qh"vj g" T gpcknucpeg" Dctwej uqp"3; ; 5+'vj qy u'vj cv' qy pgtu"y gtg"nggp"vq"eqngev'J gdtgy "vgzvu"dw'vj cv'xgt {"hgy "qh'vj gug"y gtg"vtcpurckqpu0O qtgqxgt."wprkng"vj g" O kf f ng"Ci gu."J gdtgy "tcpurckqp"f wtkpi "vj ku'kpvgtko "r gtlqf "uggo u'vq"j cxg"rcengf "cp {"f knvkpev'r tqhkng0Kr" egtvckpn( "rci i gf "dgj kpf "cm quv'cp { y kpi "Lgy u'f kf "kp" J gdtgy ."y j kej "kvgnth'y cu"pq"npi gt"w "vq"Gwtqr gcp" uvcpf ctf u"cp { y c { 0O wej "qh'vj ku'y cu"dqwpf "vq"ej cpi g"y ky "y g"pgzv'dgi kppkpi ."y j kej "y cu"kyko cvgn( " eqppgevgf "y kj "y g"J cunerv."vj g"J gdtgy "Gprki j vgpo gpv'o qxgo gpv'cko gf "cv'dtkpi kpi "Lgy kij "ewnwtg"enqugt "vq y g"cej lgxgo gpwu"qh"Egpvtcn'Gwtqr gcp"ewnwtgu0V j g"pgy "dgi kppkpi "eqkpekf gf "y kj "{ gv'cpqvj gf "gttkqtkcn'tij klv</br/>vj g"ewnwtcn'egpvtg"o qxgf "htvu'vq" J gto cp { 'vj gp"hwty gf "vq"y g"gcu0Hkpcm(."kv'cnq"o ctngf "y g"gtfkqtkcn'tij klv</br/>vj g"ewnwtcn'egpvtg"o qxgf "htvu'vq" J gdtgy "tcfkkqp<"tqo "pqy "qp"vj gtg'y qwf "dg"cp"cm quv'f ktgev'hkpg"qh" fgxgqr o gpv'kp"vtcpurckqp"cevkxk{"pgcf kpi "tki j v'wr "vq"y g"r tgugpv0

### Vj g'Gprki j vgpo gpv'r gt kqf

Gxgp" y g"wpkpkkcygf 'hqtgtwppgtu" qh' y g" J cumcnc" kp" y g" o kf f ng" qh' y g"gki j yggp y "egpwt { "eqwrf" ugg" y cv' y gtg" y cu'xktwcm ("pq"ej cpeg"qh"ecvej kpi "wr "y kij "y g"ekxkrk gf "y qtrf "y kij qw"c"o clqt "kpxguvo gpv"kp" tcpurcvkqp0' Vtcpurckpi 'y cu'pqv'qpn( 'cp'qdxkqwu'y c{ 'qh'r tqf wekpi '\gzw's wkemn( 'cpf 'kp's wcpkk\( .'y j kej 'ku'qpg'y c{ 'qh' f go qpurtcrkpi "y g"gzkurgpeg"qh"yi g"pgy "ewnwtg. "dw/k/y cu"cnuq"c"eqpxgpkgpv'o gcpu"qh"gzr gtko gprkpi "y kj " cp{yi kpi ''yi cv'y cu''yi qwi j v'y qtyj { ''qh'\tgcvo gpv'd{ ''xktwg''qh'kvu''cuuqekcvkqp''y kyj ''cp''gzkuvkpi ''ewnwtg''qh'j ki j '' rtguki g0J qy gxgt. 'tki j v'htqo "vj g'uvctv'c"fkuvtguukpi "vgpukqp"tgxgcngf "kuugnh'dgwy ggp"vj gug"tgeqi pk gf "pggf u'cpf" yj g'lpcdkrkv{ "qh'J gdtgy "vq"gzrtguu"gxgt { yj kpi "vj cv"j cf "dggp."ngv"cmpg"eqwrf "j cxg"dggp."hqto wrcvgf "kp"qvj gt" ewnwtgu0Kt'y cu'ld gqrqi { 'y j kej 'y cu'o qdkrk gf '\q'crrgxkcvg'\j g'\gpukqp0Vj g'uqnwkqp'eco g'htqo 'cp'kpi gpkqwu' tgxgtucn'qh'o gf kgxcn'r tcevkegu. 'y j kej 'y gtg'uvkm'xgt { 'o wej 'kp'hqteg0'Cr qmi gvkeu. 'y j kej 'y gtg'dcugf 'qp''  $gzci\ i\ gtc\ kpi\ ''j\ g'f\ ghkekgpekgu''qh''\ tcpurc\ kqp.''y\ gtg't\ gr\ regf\ ''d\{\ ''c''eqpuekqwu''ghhqt\ v'\ 'q''j\ ki\ j\ n'ki\ j\ v'\ 'y\ g''r\ qy\ gt''cpf\ ''$ xgtucvkrkv{ "qh'yi g'hcpi wci g."gxgp'kh'yi ku'kpxqnxgf "wukpi "hcnug"cti wo gpvu0Cu"gctn{ "cu"397768."c"encko "y cu"o cf g" kp"yj g"hktuv"r tgr gtkqf kecn"qh"yj g"J cumc nc" "vq"yj g"ghhgev"yj cv"y j gtgcu" +y qtf u"qh"y kuf qo ø'y gtg"kpf ggf " wpvtcpurcvcdrg." J gdtgy "eqwrf "j ctf n( "dg'tkxcrngf 'y j gp'kv'eco g'vq'vj g'vtcpurcvkqp"qh" +y qtf u'qh'dgcwv(ø'y j kej " y gtg'uqqp'\q'dgeqo g'\j g'egp\tg'qh'cwgp\kqp0D{ "eqpuvcp\n("cuugt\kpi "\j g"cdkrk\{ "qh'J gdtgy "\q'f q'r tgekugn("\j cv" y j kej "j grf "uq"o cp{"f kthkewnkgu"kp"unqtg."c"hcxqwtcdrg"erko cvg"y cu"etgcvgf "tki j v"htqo "vj g"unctv."cpf "vj ku"o cf g"kv" r quukdng'\q'r wtuwg'c'j ki j n{ 'co dkkqwu'r tqi tco o g'cpf '\q'cej kgxg'o cp{ 'qh'kxu'i qcnu0'Vj ku'kf gqnqi kecn'uqnwkqp'' y cu'uwr r ngo gpvgf 'd{ 'cpqvj gt 'eqpi twgpv'o qxg'qh'hct/tgcej kpi 'eqpugs wgpegu<'rkpi wkuvke 'ceegr vcdkrkv{ 'y cu' r quksgf "cu"c"o clqt "tgs wktgo gpv. "vq"cp"gz vtgo g"o cti kpcnkt cvkqp"qh"cp{ "tgcn'y kuj "vq"tgeqpuvt wev'vj g"hgcwvtgu"qh" yj g'uqwteg'\gz v0'Vj g'r tkqtkx{ ''yj wu'cuuki pgf '\q'eqo r n{ kpi ''y kyj ''yj g'pqto u''qh''÷r wtgø'J gdtgy ''y cu'\q'r tqvgev'yj g'' go gti kpi 'pgy 'ewnwtg'htqo 'dgkpi 'uwdo gti gf 'wpf gt' y gki j v'qh'c' j wi g'xqnwo g'qh'ko r qt vgf 'vgz w0 Vj g'o qf gn'y ky kp'y j kej 'c''tcpurc qt. 'nkng'cp { 'y tkgt. 'y cu'qdnki gf '\q'o cpqgwxtg'y cu'kp'hcev'o wej 'pcttqy gt'' yj cp''yj g''uwo "vqvcn'qh''J gdtgy "tguqwtegu. "dgecwug''qpn( ''yj g'hcpi wci g'f qewo gpvgf ''lp''yj g''Qnf "Vguvco gpv'y cu" o cf g"cxckrcdrg"hqt"cewcrlwug0'Vj g"f gekukqp"vq"tguvtkev"

y g"repi wei g"wagf "\q"\y g"o quv'ercuwlecn'hqto "qh'I gdtgy "y cu'ls gqrqi kecm{"o q\kxc\ysf"ci ckp<k\"y cu'r ctv'qh'\y g" qxgtcm'uw i rg"ci ckpuv'cp{\yi kpi "\yi cv'uo cengf "qh'\yi g"Lgy kuj "Qt\yi qf qz{"qh'\yi g"\wo g0\Retef qzkecm{"gpqwi j ."\yi ku" gz \tago g"ctej ck| c\kqp."\y j kej "y cu'\q"i qxgtp"ceegr \cdktk\{"f \takpi "\yi g"gctn\"\ J \cumere\" rgtkqf ."\j cf "cp"\wo rq\tap\" kpqxc\kxg"ghlgev'qp"I gdtgy ."cu'\yi g"mkpf "qh'\tapi wei g"pqy "o cf g"eqo r \tau\tau\{"f \tap\" rpy "hpi \ku\ta\" ko g"dggp"qw'qh" \tago\" vg' g"Dkdrg"\y cu'\tap\" rgt "dq\" i'u'\cu'\tap\" ru'\tap\" rgt "lyo"\yi g"Dkdrg"\y cu'\tap\" rgt "lqto \u "\q" dg"\tap\" ru'\tap\" rgt "lyo"\yi g" ly g" ly j "pgy "hpi \ku\ta\" log u'\tap\" rcu" c'tgugtxqkt "qh''cewcrk\ gf "lqto \u "\q" dg"\tago\" cu'\tap\" rgt "lyo"\yi g" gt "y gtg. "kp"c'\tap\tap\" lyo"\yi g' repi wei g"\tap\ i wo gp\" lyo g''\y gtg" lyo gtg" lyo gtg" lyo gtg" lyo gf "lyo gf "l

I kxgp" y cv" J gdtgy "Gprki j vgpo gpv" o cf g"ku" f²dw'kp" I gto cp{."kv" y cu" pcwtcm{ "y g"nqecn'ewnwtg" y j kej "y cu" ecnngf "wr qp" 'vq" cev'cu" c 'uwr r nkgt "qh' \gz vu' cpf "o qf gnu. "gur gekcm{ 'ukpeg" o cuvgt { "qh' I gto cp" y cu' cpq y gt 'kf gcn' qh' yj g"*J cumcrc* "kwugrh0J qy gxgt."tcyj gt"yj cp"wtpkpi "\q"\j g"o qf gn/ewnwtg"kp"kw"eqpvgo r qtct { "uvcvg."\j g"pgy " ewnwtcn'r ctcf ki o "wuwcm{ "r nc{gf "kv'uchg'd{ "wukpi "gctnkgt"hqto u'qh'I gto cp"cu"c"tghgtgpeg"r qkpv."ugngevkpi "kvgo u" cpf "o qf gnu"y j kej "j cf "qpeg"cwckpgf "uqo g"ecpqpk cvkqp00 cp{"qh"yj g"vgzvu"cpf "cwyj qtu"ugrgevgf 'hqt"vtcpuncvkqp" j cf "kpf ggf "qeewr kgf "c"r qukkkqp"pgct "vj g"gr kegpvtg"qh"vj g"hkx kpi "I gto cp"u{ uvgo ."dwv'o quv'qh"vj go "j cf "ukpeg" dggp"tgrgi cvgf "vq"c"o qtg"r gtkr j gtcn'r qukkqp"qt"y gtg"eqpukf gtgf "uki pkhecpv"htqo "c"j kuvqtkecn'r gtur gevkxg"qpn{0' Hqt"c"r gtkqf "qh"vko g. "kpenwukqp"kp"c"I gto cp"cpyj qmi {." yj g"mkpf "qh"uqwteg"y j kej "tctgn( "tghrgew"ewttgpv" cuvgu." uggo u'vq'j cxg'dggp"cp'ko rqtvcpv'etkgtkqp'hqt'ugrgevkpi "c'vgzv'hqt'vtcpurcvkqp."gur gekcm{ 'ukpeg'o cp{ "J currcre" r gtuqpu'lpkkcm( 'eco g'kpvq'eqpvcev'y kj ''j g'I gto cp''vgzvu''j tqwi j 'uwej 'eqmgevkqpu0'Vj ku''vko g'mi 'gzrmkpu'y j { " pq'r qgo "qh''Uej kmgt "cpf "I qgvj g."hqt "gzco r ng."y cu''vtcpuncvgf "wpvkn'vj g'hktuv's wctvgt "qh'vj g'pkpgvggpvj "egpwxt {0' qdust weskpi "y g"stcpurcskqp"qh"eqpvgo r qtct { "y tkgtu"cpf "ygzvu"cpf "j gpeg"r gtr gwcskpi "sko g"rci "cpf "uvci pcskqp0 F wtkpi ''y g'hktuv'f gecf gu''qh''y g''J cuncre. ''tcpurcvkqp''y cu'hcti gn( 'tguvtkevgf ''vq''uj qtv''vgzvu''qt'htci o gpvu''qh'hqpi gt'' qpgu."pqv'qpn("dgecwug"uj qtv'vgzw"ctg"kpj gtgpvn("gcukgt"vq"j cpf ng."dwv"cnuq"dgecwug"vj g{"ctg"r ctvkewnctn("uwkscdng" hqt"r gtkqf kecnı"cpf "tgcf gtu."y j kej "ku"y j gtg"cmhktuv"tcpurcvkqpu"cpf "o cp{ "qh"y g'uwdugs wgpv"qpgu"y gtg"kp"hcev" r wdrkuj gf 0'Vj ku'ku'r ctvn( 'y j { 'kk'vqqm'c'nqpi 'vko g'hqt'pqxgnu'cpf 'f tco cvke'vgzvu. 'cpf 'gxgp'pqxgmcu'cpf 'uj qtv\*gt+'' uvqtkgu."vq"dg"ugngevgf "hqt"vtcpuncvkqp0

S wkg"c"pwo dgt"qh"y g"ygzw"y j kej "y gtg"vtcpurcvgf "htqo "I gto cp"y gtg"y go ugrxgu"vtcpurcvdpu"htqo "qvj gt" repi wci gu0Vj wu."y g"go gti kpi "pgy "J gdtgy "ewrwtg"f kf "eqo g"kpvq"eqpvcev"y kyj "qvj gt"ewrwtgu"cu"y gm "kh"qpn{" vj tqwi j "vj g"o gf kcvkqp"qh"I gto cp0Vj g"o gf kcvkpi "ewrwtg"pcwtcm("cf cr vgf "vj g"hqtgki p"vgzwu"cpf "o qf gnu"vq"ku" qy p"pggf u0C "ewrwtg"y j kej "i kxgu"r tkqtkx{ "'q"rkpi wknke"ceegr vcdkrkx{ "kp"vgto u"qh"ku"qy p"pqto u"cpf "r c{u"rkwrg" cwgpvkqp"vq"vj g"hgcwtgu"qh"vj g"uqwteg"vgzv"ku"wprhngn{" "vq"s wguvkqp"vj g"cf gs wce{ "qh"c"o gf kcvkpi "vgzv"cpf ."kpf ggf ." hqt"c"xgt{ "nqpi "vko g"r tqr qpgpvu"qh"vj g"J gdtgy "J cumene" "j ctf n{ "uvqr r gf "vq"r qpf gt"vj ku"r qkpv0Vj g"qxgtcm" vqrtcpeg"hqt"kpf ktgev"vtcpurcvkqpô ci ckp."s wkg"c"y j krg"chgt"vj g"I gto cp"o qf gn'ewnwtg"j cf "eqo g"vq"tgi ctf "kv"cu" pq"npi gt"cr r tqr tkcvgô y cu"tghrgevgf "kp"c"r tqrkhgtcvkqp"qh"ugeqpf/j cpf "vtcpurcvkqpu."uvctvkpi "y kyj "vj g"xgt{ "hktuv" o qf gtp"vtcpurcvkqp"lypvq"J gdtgy ."c"htci o gpv'qh"Gf y ctf "I qwpi øu"Vj g"Eqo rrckpv."qt "Pki j v'Vj qwi j w"qp"Nby." F gc yj "cpf "Ko o qt vcrkv{"."wpf gt vcngp"kp"cmi'kngrkj qqf "d{ "O qugu'O gpf gnuuqj p"\*I knqp"3; 9; #0Vj wu."gxgp" uqo gqpg"hkng'O gpf gnuuqj p."y j q"eqwrf "j cxg"lwuv"cu"gcukn{ "vtcpurcvgf "htqo "vj g"Gpi rkuj "qtki kpcn"cf qr vgf "vj g" cr r tqcej "hcxqwtgf"d{"vj g"

r tqr qpgpwi'qh''y g''go gti kpi ''pgy ''rksgtcwstg''y j gp''qr gtcvkpi ''qp''kwi'dgj crh''y j kej ''y cu''s wksg'f khlgtgpv'htqo ''j ku'' qy p''dgj cxkqwt''y j gp''j g''qr gtcvgf ''cu''c'tgr tgugpvcvkxg''qh''y g''I gto cp''ewnwtg'\*\*Vqwt { ''3; : : +0F wtkpi ''y g''httuv'' f gecf gu. ''o quv'kpf ktgev''stcpurcvkqpu''y gtg''qh''Gpi rkuj ''cpf ''Htgpej ''qtki kp. ''uq''y cv'o cp { ''kf gcu''qh''y g''Htgpej '' Tgxqnwkqp. ''hqt ''kpuvcpeg. ''qpn( ''tgcej gf ''y g''J gdtgy ''tgcf gt''kp''c''o gf kcvgf ''cpf ''o kki cvgf ''hqto 0'Vj qug''hgy '' vtcpurcvkqpu''qh''pqp/I gto cp''yzvu''y j kej ''y gtg''pqv''o gf kcvgf ''xkc''I gto cp''y gtg''ugrf qo ''ceegr vgf ''cu''cp''kpvgi tcn'' rctv'qh''y g''pgy ''r ctcf ki o .''r ctvn( .''cv''ngcuv.''dgecwug''y g{ ''nqqngf ''nkng''tgrkeu''qh''cp''gctrkgt''j kuvqtkecn''r j cug''tcvj gt'' y cp''hqtgtwppgtu''qh''c''pgy ''gtc0

Cp"kpytgukpi "gzco r rg"qh"o cp{"qh"y g"r qkpw"o cf g"uq"hct"ku"qhhqtgf "d{"Uj cngur gctgat"hcvg"kp"J gdtgy "
\*Cm ci qt"3; 97+2'd{"y g"dgi kppkpi "qh"y g"pkpgygpy "egpwt{."y g"J gdtgy "ewwtchlo krkwl" cf "eqo g"vq"tgi ctf"

y g"Dctf."y ky "y j qo "kv"y cu"ces wckpvgf "o ckpnf "xkc"I gto cp."cu"c"o clqt"hki wtg"qh"y qtnf "rksgtcwtg0J qy gxgt."

y ku"crrtgekvkqp"kp"tgcnk{"co qwpvgf "vq"pqy kpi "o qtg"y cp"rc{kpi "rkr/ugtxkeg"vq"Uj cngur gctgat"ko rqtvcpeg"kp"

cp"cwgo rv"vq"go wcvg"-o qf gtpø'ewwtgu."cpf "hqt"c"mpi "ko g"Uj cngur gctgat"r qukkqp"xhu/«/xhu"J gdtgy "

rksgtcwtg"kwgnhtgo ckpgf "o cti kpcnDkVy cu"pqv\wpvkn3: 38"y cv\y j g"hktuv\mpqy p"gzegtrv'qh"c"Uj cngur gctgcp"\gzv"

y cu"r wdrkuj gf 0Dghqtg"3: 96."y j gp"yj g"hktuv"r ce{""Qy gmq+"y cu"vtcpurcvgf "kp"ku"gpvktgv{."cpf "htqo "y g"qtki kpcn"

qpn{"o qpqmi wgu"cpf "qy gt"uj qtv"r cuuci gu"htqo "j ku"vtci gf kgu"y gtg"vtcpurcvgf ."cpf "gxgt{"ukpi ng"qpg"ku"hngnf"vq"

j cxg"dggp"o gf kcvgf 0Vj gug"htci o gpvu"y gtg"pqto cm{"rtgugpvgf"cpf"ceegr vgf"cu"kpuvcpegu"qh"r qgt {0Cvvy g"

uco g"ko g."pq"uqppgvo yj g"Uj cngur gctgcp"uj qtv"r qgo "rct"gzegngpegô y cu"vtcpurcvgf "wpvkn3; 38."o quv"

rtqdcdn{"dgecwug"J gdtgy "j cf "j cf "cp"wpkpvgttwr vgf "uqppgv"vtcf kkqp"qh"ku"qy p"cpf "f kf "pqv'pggf"vq"gzr gtko gpv"

kp"y kn"ctgc"\*Vqwt{"3;; 7<Ej cr vgt"8+0O quv"pkpgyggpy /egpwt {"vtcpurcvkqpu"qh"Uj cngur gctg"y gtg"o cf g"d{"

o kpqt."kh'pqv'qcm("qduewtg"hki wtgu."cpf "pqpg"qh'y go "y qp"cp{"hco g"y tqwi j "y gug"vtcpurcvkqpu"0Kp"hcev"y g"

vtcpurcvkqpu"y gtg"o qum{"r wdrkuj gf"kp"o cti kpcn"r gtkqf kecnu."uq"yj cv"y g"i tgcv'o clqtkx{"qh'yj g"hgy "htci o gpwu"y cv"

f kf "cr r gct"kp"r tkpv'y gpv'xktwcm["wppqvkegf 0

P q'ulpi ng''tcpurc lqp''wpf gt vcngp'f wt lpi ''y g'Gprki j vgpo gpv'r gt lqf 'uvcpf u'qw'cu'kpuvt wo gpvcn'kp''y g''gxqnwlqp'' qh'J gdt gy ''ewnwt g0J qy gxgt. ''tcpurc lqp''cu'c'o qf g''qh'i gpgt c lpi ''vgz vu. ''cu''y gm'cu''y g''ewo wrc lxxg''y gki j v'qh'' vcpurc vgf ''r tqf we vuô vgz vu'cpf ''o qf gnu'cnkng. 'j cf ''cp''gpqto qwu'ko r cev'qp''ku''eqwt ug0'Vj g''o quv'qwu vcpf lpi ''f qo clp''kp''y ku't gur gev'ku''pq'f qwd v'ej knf tgpøu''nksgt cwt g. ''y g''nkng''qh'y j lej ''J gdt gy ''j cf ''pgxgt''j cf ''cpf ''y j lej ''y cu'' o qf gnrgf ''cno quv''gzenwulxgn{ ''qp''y g''I gto cp''gz co r ng'\*Uj cxkv'3; : 8."3; ; 4+0 kp''ur kg''qh''y g''t grc lxxg''dtgxkv{ ''qh'' enqug''eqpvcev'dgwy ggp''y g''w q''ewnwt gu. ''tcegu''qh'I gto cp''kphrwgpeg''ecp''u km'dg''uggp''kp''uqo g''ct gcu''qh'J gdt gy '' ewnwt g''cpf ''rcpi wci g''q''y ku''f c{0

## Vj g'Tgxkxcnir gt kqf

F wtkpi ''y g'pkpgvggpy 'egpwt{.''y g'ewnwtcn'egpvtg'i tcf wcm{ ''o qxgf 'hwtyi gt ''gcuv.'hktuv'y kyi kp''y g'I gto cp'' ewnwtcn'f qo ckp'kugrh'cpf ''y gp''qw''qh'kv''cpf ''kpvq''y g'Urcxke''tgi kqp0'Uwdugs wgpv'i gpgtcvkqpu'y kpguugf 'htgs wgpv' ej cpi gu''qh''cwkwf g''cpf ''dgj cxkqwt.''dwv''pq''pggf 'y cu''pqy ''hgnv'hqt''c''dtcpf ''pgy ''dgi kppkpi 0'Gxqnwkqp''y cu''pqy '' r tqeggf kpi ''o qtg''gxgpn{ ''cpf ''tcpurcvkqpcn'pqto u''eco g''erqugt ''cpf ''erqugt''y qug''y j kej ''qr gtcvgf ''kp''qyi gt'' Y guvgtp''ewnwtgu0

Vj g'i tcf wcn'uj khv'gcuwy ctf u'kpgxkxcdn{ "dtqwi j v'J gdtgy "y tkgtu'kpvq"eqpvcev'y kj "gxgt"pgy "ewnwtgu0'Vj gug" eqpvcewi'j cf "wy q"eqo r ngo gpvct { "ghhgewc'y kj "y g'pgy "u{uvgo u'kp"y g'dceni tqwpf ."pgy "i cr u'y gtg"dgkpi " kf gpvkhkgf "cpf ."cv'yj g'uco g'vko g."xctkqwu'qr vkqpu'hqt"hknkpi "yj go "cnuq"r tgugpvgf "yj go ugnxgu0P qt"y gtg"yj g'i cr u" pqy "eqphkpgf "vq"yj g'tgcm "qh"vgzvv{r g."yj go g"cpf "eqo r qukkqp"cu"yj g{ "j cf "dggp"dghqtg0Tcyj gt."yj g{ "o cpkhguvgf "yj go ugnxgu'qp"yj g'ncpi wci g'r ncpg"cu"y gn0'kp"xkgy "qh'yj g'pgy "vcunu'kv'j cf "vq"r gthqto ."yj g'ewttgpv" hqto "qh'J gdtgy "eqwf "pq"nqpi gt"dg"tgi ctf gf "cu"cf gs wcy."pqv'gxgp"d{ "y c{ "qh'kf gqnqi kecm{"o qvkxcvgf "y kuj hwri yi kpnkpi 0'K/uqqp"dgeco g"engct "yj cv'o cp{ "kpukkwkqpcnk gf "o qf gu"qh'dgj cxkqwt."kpenwf kpi "yj qug"ko r qtvgf 'htqo " I gto cp"c"hgy "f gecf gu"dcem"eqwrf "pqv'hwrhkrl'yj g'pgy "r wtr qugu"cpf "j cf "vq"dg"tgr ncegf 0'Uctvkpi "kp"yj g"3: 42u." Twukcp"j cf "i tcf wcm{ "dgeqo g"yj g"enquguv'cxckrcdrg"u{ uvgo ."cpf "kv'y cu'yj ku"ewnwtg"y j kej "y qwrf "pqy "r tgugpv' J gdtgy "y kyj "o quv'qh'ku"pgy "ej cmgpi gu"cpf "r tqxkf g"o quv'qh'yj g"qr vkqpu"hqt"o ggykpi "yj go 0'T wukcp"cnq" dgeco g'yj g"o ckp"uqwteg"qh'yzxu"

hqt"\tcpurc\lqp."\dqyi "qt\ki \kpcn'cpf "o gf \kc\vgf 0\Kpf \kt\gev'\tcpurc\lqp"\y cu'\u\kn'\eqo o qp."\cpf "cv'\ngcuv'\qpg"\ko r qt\vcpv' r\k\vgtct{\ "eqo r ngz."\Lecpf \kpcx\kcp"\y t\k\kpi "qh'\yi g'\gpf "qh'\yi g'\egp\wt\{."\y cu'\ko r qt\vgf "\kp\q"\J gdtgy "cm quv' gzen\wt\xgn{ '\kp\cq" \kqp" \kqp"

Vj g'dgj cxkqwt'qh'J gdtgy 'kp'tgncvkqp'vq'Twuukcp'f wtkpi 'vj ku'r gtkqf.'y j kej 'j cu'eqo g'vq'dg'npqy p'kp'J gdtgy " j kuvqtkqi terj {"cu'yi g'Tgxkxen'rgtkqf."kpxqnxgf"o wej "o qtg"yi ep"c"uko rng"tgeqi pkkqp"qh'yi g'newgtøu'excknedknkv{0" Qpg'eqwrf 'uc{ 'yj cv'J gdtgy 'dgj cxgf 'cu'kh'yj g'Twukcp'u{uvgo 'y gtg'r ctv'qh'kx 'cpf 'c'f qo kpcpv'r ctv'cv'yj cv0' Gur gekcm ("ukpeg" yi g"3: 82 u." y j gp" yi g"f gr gpf gpe {"r cwgtpu" j cf "crtgcf {"dggp" guvcdrkuj gf "\*Gxgp/\qj ct" 3; ; 2+." yj g"pgy "r ctcf ki o "y j kej "vqqmluj cr g"i tcf wcm( "tgr rcegf "vj g"r tgxkqwu"qpg"dcugf "qp"I gto cp"cpf 'y cu'vq" f qo kpcvg'J gdtgy "ewnwtg'hqt"o cp{'i gpgtcvkqpu."gxgp"chvgt"vj g"egpvtg"j cf "o qxgf "qwv'qh'Twuukc"ci ckp0'Qp"vj g" hceg"qh"kx." J gdtgy "r wtkuo "y cu'uwkm'uwtqpi n{ "cf xqecvgf ." y qwi j "pq"nqpi gt"qp" y g"dcuku"qh" y g"Dkdrg"cmpg0" J qy gxgt. "yj g"wpf gtn(kpi "o qf gn'y j kej "y cu"cr r nkgf "\q"dqyj "qtki kpcn'y tkkkpi "cpf "\tcpurc\kqp."tgi ctf rguu"qh" uqwteg'hcpi wci g."y cu'kp'hcev'j ki j n{ 'Twuukhkgf 0'Vj ku'eqpvtkdwgf 'o wej '\q"vj g"r tqeguu'qh'gptkej kpi 'cpf " f kxgtukh{kpi "yj g"cxckrcdrg"tgr gtvqktg0Co qpi "qyj gt"yj kpi u."kx"o cf g"kx"r quukdrg"hqt"yj g"hktuv"vko g"vq"etgcvg"c"hkpf " qh'uko wrcvgf 'ur qngp'hcpi wci g'kp'r tqug'hkevkqp='yi ku'dgeco g'pgeguuct { 'kp'xkgy "qh'yi g'pgy 'mkpf u'qh'nkvgtcwtg'' y j kej 'y gtg'pqy 'dgkpi ''tcpurcvgf.''cpf 'f gur kvg''y g'hcev''y cv'J gdtgy 'kvugrh'j cf 'j ctf n( ''uvctvgf ''vq''dg''vugf ''cu''c'' ur qngp'hcpi wci g'ci ckp0Gzvgpf kpi 'vj g'tcpi g'qh'qr vkqpu'cxckrcdrg'vq'vj g'y tkxgt'cpf 'vtcpurcvqt.'qhxgp'qpg'cpf 'vj g' uco g'r gtuqp."o cf g'kv'r quukdrg'\q'pcttqy "f qy p'\j g'eqpegr v'qh'\tcpurc\kqp"cpf 'kpetgcug'\j g'tgrc\kxg'y gki j v'qh' f~gr~gpf~gpeg''qp''yj~g''uqwteg''yzv0''Vj~g''dqtf~gtrlkpg''dgw~ggp''qtki~kpcni'cpf~'pqp/qtki~kpcni''yj~wu''dgeco~g''o~wej~''ergctgt.''cpf "tcpurcvkqpu"pq"nqpi gt"r tgvgpf gf "vq"dg"qtki kpcn"y tkkpi u."cu"vj g{ "f kf "f wtkpi "vj g'I gto cp"r gtkqf ="kh"cp{ vj kpi ." k/y cu'pqy "qtki kpcn'vgzvu'y j kej "y gtg'hcti gn{ "dcugf "qp" \tcpurcvkqpcn'o qf gnu0 Kpvgthgtgpeg" kp" y g'\tcpurcvkqp" qh" kpf kxkf wcn'\gzwi'cu'y gmi'cu'kp"\j g"eqo r qukxkqp"qhi'pqp/\tcpurc\gf "qpgu'\j wu'r rc{gf "cp'ko r qt\cpv'tqrg'kp"\j g''xgt{" tgxkxcn'qh'vj g'hcpi wci g0

Cm'y gug''tgpf u'y gtg'hwty gt "tgkphqtegf "d{ "y g'enqug'eqpvcev'y j kej "pqy "f gxgnqr gf "dgw ggp" J gdtgy "cpf " [ kf kuj ."cpqy gt "hcpi wci g'wugf "d{ "Igy u'dw'tgi ctf gf "y tqwi j qw'y g'Gprki j vgpo gpv'cu'eqttwr v'I gto cp."vq'dg" cdcpf qpgf "kp'hcxqwt "qh'J gdtgy "cpf "r wtg'I gto cp0" kf f kuj ."gur gekcm( "kp'kwt'Gcuvgtp'xctkgv( ."y cu'pqy "tcr kf n( " dgeqo kpi "c'hkgtct { "hcpi wci g'kp'kwt'qy p'tki j v'cpf "y cu'cnuq'kpetgcukpi n( "dgkpi "o qf gmgf "qp'yi g'T wwwkcp" gzco r ng0" Hqt'cmpi "r gtkqf ."J gdtgy "cpf "[ kf f kuj "dgj cxgf "cu'kh'yi g{ "y gtg'wy q'eqo r ngo gpvct { "eqo r qpgpwt'qh" yi g''uco g'ewnwtg."c'ecpqpk gf "cpf "c'pqp/ecpqpk gf "u{uvgo ."tgur gevkxgn(0" Ncvgt"qp." [ kf f kuj "vgzwt'dgi cp'vq'dg" vtcpurcvgf "kpvq" J gdtgy ."qhvgp'd{ "yi g'cwyi qtu'yi go ugnxgu."pqv'kp''qtf gt "vq'kpetgcug'yi gkt"tgcf gtuj kr "\*vj g'r qvgpvkcn" tgcf gt "qh'J gdtgy "kp'Gcuvgtp'Gwtqr g'eqwrf "pqto cm{ "tgcf "[ kf f kuj "cp{ y c{+:"dwv'kp'c'f grkdgtcvg'cwgo r v'vq" gpj cpeg''yi gkt"ewnwtcn'r tguvki g0" Vj ku'r tqeguu'cnuq"j grr gf "vq'hkm'o cp{ "ncewpcg'y j kej "y gtg'uvkm'hgnv'kp''yi g" J gdtgy "u{uvgo "cpf 'hwtyi gt 'tgkphqtegf 'kwu'qxgtcm'T wwkklecvkqp. 'hktuv'cpf 'hqtgo quv'kp'yi g''kgtct { "f qo ckp0

### Kategn

Vqy ctf u''y g''ghgy g'phygygpy ''egpwt { .''y ky ''y g''tkug'qh'\ kqpkuo "cpf ''y g''htuv'y cxgu''qh''Lgy kuj ''ko o ki tcwlqp" q''Rcrgurkpg. ''y g''egpytg''qh'J gdtgy ''ewnwtg'uctygf ''q''o qxg''dceni'q''y g''cpekgpv'j qo grcpf 0'Vj g'ko o ki tcpwl'j cf '' dggp''dtqwi j v'wr ''kp''y g''T wulkhlef ''tcf kkqp."cpf ''y g'y tkgtu''cpf ''tcpurcytu''co qpi ''y go ''ecttkgf ''qp''y gkt'' cekxkkgu''kp''y g''pgy ''gpxktqpo gpv0'Eqpugs wgpvn(.''o cp{ ''qh'y g''qrf '' cdkw'y gtg''r gtr gwcvgf ."gur gekcm( "cu'o quv'' qh'y g''tgcf gtuj kr ''y cu'urkni'kp''Gwtqr g0'Kp''y g''f khhewn''{ gctu''qh''Y qtrf ''Y ct''Qpg. ''hkgtct { ''tcpurcytqp''kp''r ctvkewct'' dgeco g''cp''ko r qtvcpv'o gcpu''qh''uwr r qtvkpi ''y g''Lgy kuj ''kpygnki gpvukc. ''cpf ''o cp{ ''grcdqtcvg''r tqlgevu'y gtg''r wv'' hqty ctf ''d{ ''xctkqwu''kpurkwkqpu''hqt''y cv'r wtr qug0'O quv''qh''y gug''r tqlgevu'y gtg''pgxgt''tgcrk gf ''kp''hmm''dw'y gkt'' cekxkkgu''pgxgtyj grguu''rgf ''vq'c''dqqo ''kp''tcpurcytqp''r tqf wevkqp'\*\*Uj cxkv''cpf ''Uj cxkv''3; 99+0 Cv'y g''dgi kppkpi ''qh''y g''y gpykgyj ''egpwt { .''c''ugeqpf ct { "ewnwtcrl'egpytg'y cu''guvcdrkuj gf ''kp''y g''Wpkgf ''Ucvgu''d { ''c'' uko krct'' tqwr ''qh''ko o ki tcpwl'htqo ''Gcuvgtp''Gwtqr g0'Vj g''o ckp''ko r qtvcpeg''qh''y ku''uj qtv'nkxgf ''egpytg''ku''y cv'kv'' uwdugs wgpvn( ''r tqxkf gf ''c'uo cm''pwo dgt''qh''y tkgtu''cpf ''tcpurcvqtu'y j q'y gtg'y gm'xgtugf ''kp''Gpi rkuj ''cpf ''kwu'' rkgtcwtg0'O cp{ ''qh''y go''}

neyt"o qxgf "\q"Rengulpg."d{"y j kej "lo g"ly g"nqecnluegpg"y cu"tgef {"\q"cduqtd"\j go "cu"\j g"repi wei g"qh'ly g"Dtkkuj " o cpf cvg"qxgt "Rengulpg"\si3; 3966: +"j cf "dgeqo g"ewttgpv'lp"\j g"eqwpt {0Gpi nkij "lqqp"dgeco g"\j g"o clp"lqwteg" nepi wei g"lp"tcpunelqp."dw'Gpi nkij "lyzwi'y gtg"ukm'ltcpunevgf "lp"\j g"qnf "heuj kqp."cu"kh'ly g{"y gtg"y tkwgp"kp" Twuklep0'lp"\j g"3; 52u"cpf "3; 62u."c"utwi i ng"lqt"f qo kpellqp"gpuwgf "dgwy ggp"\j g"qnf "Twuklkgf" o qf gni"cpf "uqo g" pgy "qr lqpu"cunqekcygf "y kj "Cpi m/Co gtlecp"r teellegu="kv"y cu"hqocm("ugwgf "lp"hcxqwt"qh"\j g"newgt0 Vq"dg"untg."\j g"turrtgo ce{"qh'ly g"Rengulpkpe"egputg"y cu"pqv"guncdrkuj gf "wpkn'ly g"f guntwellap"dh'Igy kij "ewnutg" "lp"dqy "J gdtgy "cpf" [ kf f kij +"j cf "lcmgp"r neeg"lp"\j g"Uqxkgv\Wpkqp"cpf "lqo g"ukz"o kmlqp"Igy u"j cf "dggp" o wf gtgf "d{"\j g"P c| ku0Vj gug"gxgput"guwngf "lp"J gdtgy "ewnutg"dgeqo kpi "r teellecm("o qpq/vgttkqtlcn'ci clp0' D{"\j ku"unci g."J gdtgy "j cf "f gxgnqr gf "c"pwo dgt"qh'ur qngp"xctlgykgu"qp"ku"y c{"\q"ugmh/wdhlkelgpe{0Dw'y tkwgp"} J gdtgy "eqpyllywgf "\q"tgulnv'\j gug"xctlgykgu'lqt"s wkg"c"y j kg0'Vtcpuncylqp"\qqm'gxgp"npi gt "q"ceegr v'\j g"pgy " xctlgykgu'qh'J gdtgy ."cpf "kvlki'qpn("tgegpvn("\j cv'\j g"tlej "i co wv'qh'hqpi wknke"qr vlqpu'y j kej "gzknv'lp"r teelleg" dgi cp"\q"dg"wgf "lp"J gdtgy "tcpuncylqpu"\Dgp/Uj cj ct"3;; 6+0Vj g"go gti gpeg"qh'vtcpuncylqpn'lpqto u'y j kej "pkqnxg"f tcy kpi "qp"cmixctkgykgu'qh'J gdtgy "j cu"kpetgculpi n("o cf g"kv'r quuldng"q'crr tqzko cyg"q'j g"xgtdcn' lqto wcylqp"qh'lj g'lqyteg"yzv."cpf "\j gtg"lu"gxgp"c'uwducpylcn'uwdewnwtg'pqy "y j kej "r tghgtu'hqtgki pk kpi "\q" f qo guwlecylpi "tcpuncylqpu"\sigg" UVTCVGI KGU'QH'VTCP UNCVQP +0

Y ký "ý g"gpf "qh'ý g"egpwt { "f tcy kpi "kp."\tcpurc\kqp"uggo u'\q'dg"\wpf gti qkpi "c'r tqeguu'qh'ewnwtcn' o cti kpcrk c\kqp<'y j krg"o quv'J gdtgy "\gz vu'ctg"ukm'r tqf wevu'qh'\tcpurc\kqp."\ý gtg'ctg"ergct"uki pu'\ý cv'qtki kpcri eqo r qukklqpu"ctg"dgi kppkpi "\q'dg'r tghgttgf "d{ "\ý g'tgcf kpi "r wdrke0

#### Vtcpurcvqt'\tclpkpi'cpf'\jg'\qticpk\cvkqp'\qh'\jg'rtqhguukqp

 $\label{eq:Kiku'ukm'y} Kiku'ukm'y g'pqto 'hqt'cp'Kutcgnk'tcpuncvqt'pqv'vq'j cxg'j cf 'cp{'ur gekhe'vtckpkpi 'hqt'vj g'lqd.'cpf 'o cp{'uvkm' r tcevkeg''tcpuncvqtu' grkpg0'Vj ku'ku'r ctvkewnctn{'utvg'qh'nkgtct{'utcpuncvqtu' o quv'qh'y j qo 'ctg'pqv'gxgp'' y tkgtu'cp{'o qtg0C'r ngc'hqt'o qtg'r tqhguukqpcnkuo 'j cu'qhxgp'dggp'o cf g.'dw'y kaj qw'o wej 'ghhgev0 Vj g'hktuv'wpkxgtukv{'uq'qhhgt'c'hwm{'hngf i gf 'r tqi tco o g'kp''tcpuncvkqp''cpf 'kpvgtr tgvkpi 'y cu'Dct/Kucp''Wpkxgtukv{'' kp''Tco cvI cp0'Hqt'f gecf gu''qyj gt'kpuvkxwgu''qh'j ki j gt''ngctpkpi 'y gpv'qp''qhhgtkpi 'cv'o quv'c'j cpf hwriqh'eqwtugu'kp'' tcpuncvkqp''y gqt {''cpf lqt''y qtmuj qr u''kp''r tcevkecn'vtcpuncvkqp'y kaj kp''c''xctkgv{''qh'f gr ctvo gpvu''cpf 'kv'ku''qpn{'' tgegpvn{''yj cv'c''eqwr ng''qh'pgy ''r tqi tco o gu''j cxg''dggp''ncwpej gf 0} }$ 

### Vt c p urc skap 'towf kgu'kp 'Kut c gn

Wpwdij g'3; 72u. 'y gtg'y cu'xgt { "ikwrg"y qtnif qpg"lp"tcpurcwqp"uwf lgu'lp"Kutcgn "gzegr v'hqt"uqo g'tgugctej "qp"qnf" tcpurcwqpu"qh'y g"Uetkr wtgu"cpf "qp"o gf kgxcn'tcpurcwqp"r tcewlegu0Wprkng"y gkt "eqwpvgtr ctwi'lp"o quv'Y guvgtp" ewrwtgu. "tcpurcvqtu"cpf "etkweu"f kf "pqv'r tqf weg"o wej "y tkwpi "qp"tcpurcwqp"gky gt. "cpf "xgt { 'hgy "qh'y g'ctwlengu" y cv'f kf "i gv'r wdrkuj gf "j cf "cp { 'tgcn'ko r cev0P qv'c"ukpi ng"dqqm'qp"o qf gtp"tcpurcwqp"y cu'r wdrkuj gf "wpwki'3; 99." gzegr v'hqt"c"eqpekug"o qpqi tcr j "qp"y g"lpvtki wkpi "hki wtg"qh"[ kwj cm'\*Gf wctf +'UCNMRP UQJ P "\*Eqj gp"3; 64+0 Rkqpggtkpi "y gqtgvlecn'tgugctej "y cu'wpf gtvcngp"kp"y g"3; 72u"d { "y g"hkpi wkw'Ej cko "Tcdkp. "dw'ukpeg"tcpurcwqp" lckrgf "vq"ces wktg"cp { "cecf go ke"uvcwu."xgt { "hgy "uej qrctu"hqmy gf "uwko0Vj g"wtpkpi "r qkpv'qeewttgf "kp"y g"3; 92u." y j gp"c'ugtkgu"qh'j ki j "s wcrkv{ "f qevqtcn"

f kuugt vokapu"y gt g"eqo r mygf <"Koo ct "Gxgp/\ qj ct "\*3; 93+"O gpcej go "F ci wi\*3; 93="3; 9: +"cpf "I kf gap"Vqwt { "3; 98="3; 99+0"Vqwt { øu"cr r tacej "j cu"kpur kt gf "c"pwo dgt "qh"f qevat cn"f kuugt vokapu"cpf "O C"vj gugu. "o quvn{ "f guet kr vkx g"uwf kgu"ap"cur gevu"ah"ikvgt ct { "vt cpurc vkap"kpvq" J gdt gy 0"kpvgt guvkpi "y qt mikp"vt cpurc vkap" j gat { "y cu" cnuq"f apg"d { "[ kuj ck"Vqdkp."Uj quj cpc"Dnwo /Mwmc"cpf "Grf c"Y gk o cp. "o quvn{ "kp"Gpi rkuj 0"Wprkmg" y g"ukwc vkap" kp"o cp { "qvj gt "eqwpvt kgu."xgt { "rkwrg"uej qrct n{ "y qt mij cu"eqo g"qw"ah" y g"r tai too o gu"hat "vt ckpkpi "vt cpurc vqt u"cpf" kpvgt r tgvgt u0

Kp''3; 95. "Vgn'Cxkx' Wpkxgtukv{ "guvcdrkuj gf "c'Ej ckt"qh' Vtcpurcvkqp" Vj gqt { "y j gtg't gugctej "cpf "r wdrkecvkqpu" eqpvkpwg" vq''dg" eqqtf kpcvgf = "vj gug' kpenwf g" VTCP UUV" vj g'Kpvgtpcvkqpcn'P gy urgwgt "qh' Vtcpurcvkqp" Uwwf kgu." ukpeg'3; : 9+"cpf " $Vcti\ gv'$ " ukpeg''3; : ; +0Dqvj "ctg'eq/gf kvgf "d { "I kf gqp" Vqwt { "\*Vgn'Cxkx+"cpf "Iqu²" Nco dgtv' \*Ngwxgp." Dgri kwo +0

### Hwt vj gt 't gcf kpi

J cm/kp'3; 93='Uj cxkv'cpf 'Uj cxkv'3; 99='Vqwt{'3; 99.'3; ; 70

I IF GQP 'VQWT[

### Dkqi tcr j kgu

UCNMRP UQJ P.'[ kuj cnl\*Gf wctf +'\*3: 426: 5+0'Ucmkpuqj p'y cu'dqtp'kp'T wuukc''cpf .''chxgt''ur gpf kpi ''uqo g''ko g'' kp''I gto cp{.''o qxgf ''\q'Nqpf qp.''y j gtg''j g''eqpxgtvgf ''\q'Ej tkukcpk\{0J g''y gp''dgeco g''c'r cuvqt''kp''Ueqvrcpf ''cpf '' hkpcm\{ ''ugtxgf ''cu''c'o kuukqpct\{ ''kp''egpvtcn'Gwtqr g.''o ckpn\{ ''Xkgppc0J g''tcpurcvgf ''O knqpøu''Rctcf kug''Nquv'\*3: 93+'' cpf ''Uj cngur gctgøu''Qvj gnq'\*3: 96+''cpf ''Tqo gq''cpf ''Lwkgv'\*3: 9: +0'J ku''eqpvkpgpvcn'dcemi tqwpf .''eqo dkpgf ''y ky '' j ku''o cuvgt\{ ''qh'Gpi nkuj .''o cf g''j ko ''cp''kf gcn'o gf kcvqt''dgw ggp''Gpi nkuj ''nksgtcwtg''cpf ''y g''J gdtgy ''nksgtct\{ ''egpvtg'' qh''y g''ko g0'J qy gxgt.''j ku''o kuukqpct\{ ''cevkxkkgu''r tgxgpvgf ''j ku''vtcpurcvkqpu''htqo ''dgkpi ''hwn\{ ''ceegr vgf 0'J ku'' wphkpkij gf ''tcpurcvkqp''qh''y g''P gy ''Vgurco gpv'y cu'r wdnkuj gf ''r quy wo qwm\{0

UJ NQP UM .'Cxtcj co "\*3; 22695+0Dqtp'kp''y g'Wntckpg''cpf "go ki tcvgf "vq'Rcrgurkpg'kp''3; 430C''r qgv'kp''j ku'' qy p'tki j v.'Uj mpum "y cu''cnaq''qpg''qh''y g''o quv'r tqrkhe "tcpurcvqtu''gxgt'kpvq''J gdtgy 0J g''tcpurcvgf "o ckpn "htqo "Twurkcp''\*kpenwf kpi "o cp{ 'kpf ktgev''tcpurcvkqpu+." [ kf f kuj "cpf "Htgpej 0C''ng{ 'lhi wtg'kp''y g''J gdtgy "O qf gtpkuv' o qxgo gpv." j g''cnaq''kpvtqf wegf "uki pkhecpv'ej cpi gu'kp''tcpurcvkqpcn'pqto u'y j kej "y gtg'r kengf "wr "d{ "c''i tqy kpi "pwo dgt "qh''tcpurcvqtu0J ku''tcpurcvkqpu''kpenwf g''I qi qmxu''Tgxk/qt''\*Vj g'Kpur gevqt''I gpgtcnxi''3; 57+"cpf "Octtkci g" \*3; 67+."Uj qmmj qxxu''Xkti kp'UqkvlWr wvtpgf "\*3; 5768+"cpf "Cpf 'S wkgwl ''Hrqy u''y g'F qp'\*3; 756; +."Rwuj mkpxu" [ gxi gp{ 'Qpgi kp'\*3; 59ht0+."Uj cngur gctgxu''J co rgv'\*3; 68+"cpf "Mpi 'Ngct'\*3; 77+."cpf "F g'Equvgtxu''V{n'' Wrgpur kgi ri\*3; 6; +0

Vj g'VKDDQP KF UOC'hoo kn{"y j kej "r tqf wegf "ugxgtcnii gpgtcvkqpu"qhi" ki j n{ "kphrwgpvkcnio gf kgxcnivtcpurcvqtu" kpvq" J gdtgy O'Htqo "y g'httuvii gpgtcvkqp." Lwf cj 'kdp'Vkddqp'\*eB3426; 2+"j cu"eqo g"vq"dg"tgi ctf gf "kp" Lgy kuj " j kuvqtkqi tcr j { "cu"vj g"+hcvj gt"qhi'cmivtcpurcvqtuxO'Co qpi "j ku"o clqt"vtcpurcvkqpu"ctg' \*\*Bahya\*\* "kdp'Rcs wf cxu"\*F wkqu"qhi' y g"J gctv:" Lwf cj "J crgxkxu"\*Uzlygt" j c/Mw/ctk'cpf "Ucecf kcxu"\*Dgrkghu"cpf "Qr kpkqpuOJ ku"y kmi'vq"j ku"uqp"\*Uj o wgrlkdp"\*Vkddqp'\*eB38263452+"eqpurkwwgu"cp"ko r qtvcpv''y gqtgvkecnif qewo gpv'qp"vtcpurcvkqpO'Vj g"o quv'ko r qtvcpv''y tcpurcvkqp"d{ "Uj o wgrlj ko ugrhi'ku'O cko qpkf guxi'I wlf g"qhi'y g"Rgtrrgzgf O'Vj g"kpvtqf wevkqp"vq"y ku"vtcpurcvkqp"ku" pqv'qpn{ "wpwwcmf "eqo r tgj gpukxg."kv"ku"cnuq"qpg"qh"y g"o quv'ko r qtvcpv'vtgcvkugu"qp"vtcpurcvkqp"kp"y g"O kf f rg" Ci guOQvj gt"y gm/mpqy p"o go dgtu"qh"y g"hco kn{ "kpenwf g"O qugu"kdp"Vkddqp"\*34626: 5+"cpf "Lceqd'dgp'O cej kt" kdp'Vkddqp)\*\*eB458/eB534+0

**VUEJ GTP KI QXUMK'Uj cwi**\*3: 9763; 65+0°C "r j {ukekcp"cpf "J gdtgy "r qgv."Vuej gtpkj qxumk'y cu'dqtp"qp"\y g" dqtf gt"dgwy ggp"\y g"Etko gc"cpf "Wntckpg"cpf "go ki tcvgf "vq"Rcngurkpg"kp"3; 530°J ku"o cuvgt { "qh"c"ncti g"pwo dgt "qh" ncpi wci gu"ugtxgf "cu"c"dcuku"hqt"c"j ki j n{ "xctkgf "cpf "tkej "\tcpurc\kqp"qwr w0°Vj ku"kpenwf gf ."hqt"gzco r ng." J qo gtøu"*Klkcf* "cpf "*Qf {uug{"\*3; 52hh0*+."Nqpi hgmqy øu"*Uqpi "qh'J kcy cy c "\*3; 35+*"cpf "*Gxcpi gnkpg*"\*3; 45+." Cpcetgqpøu"r qgo u"\%3; 42+."Uqr j qenguø'*Qgf krwu"y g"Mkpi* "

# J wpi ctkep'ttef kkqp

Vj g''o ki tcvkqp"qh'vj g''J wpi ctkcp"vtkdgu''dgi cp"kp"vj g''Xqni c/Mco c'tgi kqp"ctqwpf "vj g''ukzvj "egpwt { "CF "cpf" eqpvkpwgf "wpvkn'vj g{ "eqps wgtgf" vj g''dcukp"qh'vj g'Ectr cvj kcp"O qwpvckpu. "y j gtg"vj g{ "ugwrgf "kp"CF": ; 80Vj g" qtki kp"qh'uqo g"qh'vj g'y qtf u'y j kej "dgeco g"cuuko krcvgf "kpvq"vj g"rcpi wci g"i kxgu"cp"kpf kecvkqp"qh'vj g'r gqr rgu" vj g{ "o gv'cpf" r ctvn{ "cduqtdgf" f wtkpi "vj gkt"vtcxgnv0Hqt"gzco r rg."uclv\*ej ggug+"ku"Xqni c/Vwtnkuj "kp"qtki kp." cuulqp{"\*y qo cp+"y cu"dqttqy gf 'htqo "vj g"Kcpkcpu"kp"vj g"P qtvj /Ecwecuwu."cpf " $dct^av$ "\*o qpm+"ku"qtki kpcm{" Twuukcp0

Vj g'J wpi ctkepu'ecm'y gkt'hepi wei g''O ci {ct0K'ku'y g'o quv'ko rqtvepv'hepi wei g''qh'y g''Wi tke''dtepej ''qh'y g''Hlppq/ Wi tke'heo kn{ "qh'hepi wei gu'epf 'ku'ur qngp''d{ ''y g'r gqr ngu'qh'J wpi ct{ ''cu'y gm'cu''d{ ''uqo g'o kpqtkkgu'kp'' pgki j dqwtkpi ''eqwpvtkgu.''o ckpn{ 'Tqo cpke.''y g'hqto gt'E| gej qurqxenke''epf ''y g'hqto gt'[ wi qurexke0

#### Vj g'O lf f rg'Ci gu

UVUgr j gp"K'qt"U v'Knxa p"Kcu"j g'ku'mpqy p'kp"J wpi ct {. 'y cu'\j g'hktuv'mkpi "qh'\j g'O ci {ctu'\si, ; 96325: +0'Kp"qtf gt" q''ucxg"j ku'eqwp\t { 'ltqo "j cxkpi "\q" f gr gpf "qp"\j g"Y guvgtp"r qy gtu'\dagged gto cp"cpf "Tqo cp+"qt 'Gcuvgtp"r qy gtu'\dagged sy g"D {| cp\kpg"Go r ktg+"j g'\qqm'\j g"Ej wtej "cu"j ku'cm("cpf"y cu'etqy pgf "qp"Ej tkn\o cu"F c {. 'kp"\j g" {gct"3222." y kj "c"etqy p"ugp\dagged "Rqr g"U {n\guvgt"KOU\gr j gp\pa\u" tqo q\kqp"qh'\j g"Ec\j qr\e" lc\j qr\e" lc\j q\u'\j kj" ku'eqwp\t { 'ltgf "\q" j ku' ecpqp\k c\kqp"\p"32: 50\Nc\kp. "\j g"hkpi wc"htcpec"qh'\j g"Ej tkn\cp"Eq o wp\k\{."\qt"Tgur\undr\ec 'Ej t\kn\cp\ec g' \under\ge gu'\cp\f" pq\\eq g\u'\ge g'' y g"qhh\ekcn'\cp\i g"hy g"I wpi ct\cp\managed p"q\te\g\undry gt\undrawe gp\u."\kpuetkr\kqp\u."\ej tqp\engu'\cp\f" pq\\egu\eq g''\undrawe gu\undrawe g''\undrawe g\undrawe g''\undrawe gu\undrawe gu\undrawe gu\undrawe gu\undrawe gu\undrawe g\undrawe g\undrawe g\undrawe g''\undrawe g\undrawe g\undrawe g''\undrawe g\undrawe g\

Xctkqwu'htci o gpwi'y gtg"cnuq'hqwpf "qh'f qewo gpwi'qh'gpf qy o gpwi."i khv'f ggf u "cpf "egtwhecvgu="vj gug"y gtg" vtcpurcvgf 'htqo 'Ncvkp"cpf 'I tggm'd{ "wpmpqy p"vtcpurcvqtu0Vj g"dkqi tcr j { "qh'Cngzcpf gt"y g'I tgcv."y tkwgp"kp"y g" vj ktf "egpwxt { "d{ "cp"cwj qt"mpqy p"cu"Rugwf q/Ecmkuyj gpgu"\*dgecwug"j g"y cu"kphrwgpegf "d{ "Ecmkuyj gpgu."e65926549"DE+:"y cu'vtcpurcvgf "htqo "I tggm0Uqo g"hqm/dcmcf u'uj qy "Htgpej "kphrwgpeg0Vj g"vtcpurcvkqp"qh'vj g"I qnf gp" Ngi gpf "d{ "Iceqdwu"f g"Xqtci kpg"\*e634; : +'y cu'y kf gn{ "tgcf "kp"J wpi ct{ "kp"yj g"rcvg"O kf f ng'Ci gu0

#### Dkdrg'st cpurc skqp

Uqo g'tgrki kqwu'vgzwu'vtcpurcvgf 'htqo ''Ncvkp'kpvq''J wpi ctkcp'hqt''y g'dgpghkv'qh'pwpu'y gtg'hqwpf 'kp''y g'hkhvggpyj '' cpf ''ukzvggpyj ''egpwxtkgu0Co qpi ''y gug.''y g'', tf { 'Eqf gz' \*3749+'uvcpf u'qwv'cu'y g'tkej guv'eqmgevkqp''qh'' eqpvgo r qtcpgqwu''J wpi ctkcp'hgi gpf u0

## Vj g'tıkz vggpvj 'cpf 'tıgxgpvggpvj 'egpvwt lgu

Vj g"Mpi f qo "qh"J wpi ct { "tgo chpgf" c"i tgcv'r qy gt. "y kj "ku"qy p"tkej "cpf "tgegr vkxg" ewnwtg. "wpvkily g"gpf "qh'iy g" hkhrggpyj "egpwwt { 0 J cxkpi "eqps wgtgf "Eqpuvcpvkpqr ng"kp"3675. "vj g"Qwqo cpu"kpxcf gf "vj g"Dcmrcp"r gpkpuwrc"cpf "hkpcm(."kp"3748. "vj g{ "f ghgcvgf "vj g"J wpi ctkcpu"cpf "Dqj go kcpu"cv"vj g"Dcwrg"qh"O qj a eu0 J wpi ct{ "y cu"ur rkv"kpvq" vj tgg"ctgcu<br/>"vj g"o clqt. "egpvtcn"r ctv"eco g"wpf gt "Vwtnkuj "twrg. "vj g"y guvgtp"cpf "pqtvj gtp"r ctv"y gtg"twrgf "d{ "vj g" J cdudwti u. "cpf "vj g"gcuvgtp"r ctv"d{ "vj g"r tkpegu"qh"Vtcpu{ nxcpkc0"Vj g"O ci { ct"rcpi wci g"dgeco g"vj g"qpn{ "tgo ckpkpi "dqpf "eqppgevkpi "vj g"O ci { ctu"kp"vj g"vj tgg"ctgcu0"Nkvgtcwtg. "qtki kpcn"cpf "vtcpurcvgf. "hrqwtkuj gf "cpf "y cu"hwt yj gt"urko wrcygf "d{ "vj g"Ecvj qrke/Rtqvguvcpv"f kur wg0"P qp/rkvgtct { "vtcpurcvqpu."o quvn{ "qh"tgrki kqwu"vgz vu." cnq"dgi cp"vq"cr r gct. "dw"y g"j cxg"pq"tgeqtf u"qh"cp{ "r ctvkewrctn{ "qwvvcpf kpi "pqprkvgtct { "vtcpurcvqtu0"Vj ku"hrwtt { "qh"vtcpurcvkqp"y cu"pqv"vj g"tguvnv"qh"pcvkqpcn"r rcppkpi "dw"qh"kpf kxkf wcn"co dkvkqpu"cpf "kpvgtguvu"kp"rkvgtct { ." tgrki kqwu"cpf "r j kquqr j kecn"kunvgu0

Uqo g"qh"yi g"o clqt"y qtmu"ytcpurcygf "f wtkpi "yi ku"r gtkqf "kpenwf g"C guqr øu"Hcdrgu "ytcpurcygf "d{" I a dqt "Rguxk"kp" 3758"cpf "d{" I a ur a t"J gnck"kp"3788="Uqr j qerguø"Grgentc."cf cr vgf "d{"R2 vgt"Dqtpgo ku| c"kp"377: ="Ecuvgngykøu"  $Co\ ct\ km'k$ " "cf cr vgf "d{"Da rkpv"Dcrcuuk"htqo "Kicrkcp"kp"37: : ="cpf "I gqti g"Dwej cpcpøu"Lgrj vg. "cnuq"cf cr vgf "d{" Dcrcuuk"htqo "c"Ncykp"xgtukqp"kp"37: ; 0Cp"qwuvcpf kpi "xgtukqp"qh"O ctykp"NWVJ  $G\Gamma$ øU"\*ugg" I  $G\Gamma$ O CP"  $V\Gamma$ CF KVKQP +"hco qwu"J {o p. "ytcpurcygf "kpyq" J wpi ctkcp"d{"cp"wpnpqy p"Rtqvguvcpv"r qgv."cnuq"cr r gctgf "kp"yi g" ukz vggpyj "egpwxt{0Vj g" $Rucro\ u$ "y gtg"tgpf gtgf "kpvq"xgtug"ytcpurcykqpu"d{"Krxxa p"U|2 ngn("\*376: +"cpf "Cmlgtv" U gpek'O qrpa t"\*3829+"yi g"rcwgt"htqo "yi g"Htgpej "vgzwu"d{"Eri² o gpv'O ctqv"cpf "yi g"Uy kuu"Vj gqf qtg"f g"D3| g0'Qp" yi g"Ecyi qrke"ukf g."Ectf kpcn"R² vgt "Rf \ O f P[" y cu"qpg"qh"yi g"rgcf kpi "tghqto gtu"qh"J wpi ctkcp"uv{Rg0

#### Vj g'Gprki j vgpo gpv

Octke''Vj gtgue'\*39396: 2+'tgki pgf ''cu'Go r tguu'qh'J wpi ct{'\*qt'tevj gt"+Mkpi ''qh'J wpi ct{ø''cu'uj g'y cu'etqy pgf ''ceqtf kpi ''vq'y g'eqpuvkwwkqp+''cpf ''Ctej f wej guu'qh'Cwuntke'\*39626: 2+''cpf ''guvcdnkuj gf ''c'tgi ko gpv'qh'Tq{cn' I wetf u'y j kej ''eqpukungf ''qh''{qwpi ''J wpi ctkep''pqdngo gp0'Vj ku'y cu''cp''ko r qtvepv'r gtkqf ''qh''Gwtq/Co gtkeep'' j kunqt{<''y g''ci g''qh''y g'P qtyj/Co gtkeep'F genetevkqp''qh''Kpf gr gpf gpeg.''y g''ci g''y j kej ''cpvkekr cvgf ''y g''F genetevkqp'' qh'J wo cp''cpf 'Ekxkn'Tki j wu''kp''Htcpeg''cpf ''y j kej ''y kpguugf ''y g''tgr neego gpv'qh''cwj qtketkep''dgrkgh'u''d{''tevkqpen' uekgpvkhke''gps wkt { ''kp''xctkqwu''hkgrf u''qh''npqy ngf i g0

Ugxgtcn'o go dgtu'qh'O ctkc''Vj gtguc¢u'Tq{cn'I wctf 'y gtg'r qgu.'y kj "c'i qqf 'eqo o cpf 'qh'hqtgki p'hcpi wci gu'cpf '' c'hggp''gpyj wukcuo 'hqt''y g'kf gcm'qh'y g'Gprki j vgpo gpv0'Vj g{ ''tkgf ''q'r tqo qvg''y gug'kf gcm'kp''J wpi ct{ ''d{ '' vcpurcvkpi ''Y guvgtp'hkgtcwtg0'Vtcpurcvkqp''y gtghqtg''ces wktgf ''c'pgy ''xqecvkqp'hqt''y g''J wpi ctkcpu.''cpf ''y g'' fkhgtgpv'kf gcu''cpf ''uv{ ngu'qh''y g''tcpurcvgf ''y qtmi'J grr gf ''q''gptkej ''y gkt''qy p''pcvkxg''rksgtcwtg0 kp''y g''J kurqt{ ''qh''J wpi ctkcp''hkgtcwtg.''y g''{ gct''3994'ku''eqpukf gtgf ''y g''dgi kppkpi ''qh'y g''P gy ''Ci g0'Vj ku''ku''y g'' { gct''y j kej ''ucy ''y g''r wdrkecvkqp''qh'I {  $^3$ 4i { ''Dguugp{gkxu''Vtci gf { ''qh'Ci ku ''cf cr vgf 'htqo ''cp''wpnpqy p''Htgpej '' tco c''ceeqtf kpi ''q''y g''r tkpekr ngu'qh'Cnzcpf gt''Rqr gơu'Guuc{ ''qp'Ocp.''y j kej ''Dguugp{gk'j cf ''tgef ''kp''Htgpej 0' Vj ku'y qtm'r nxu''y g''xgtukqp''qh'Igcp/Htcp±qku'O cto qpvgnu''Uqt kgu'y j kej ''cr r gctgf ''d{ ''U' pf qt''D''a t>e | k\\$3997+'' cpf ''xctkqwu''qy gt''y qtmu'\\$'uqo g''qh'y j kej ''y gtg''cnuq''y tkvgp''qt''tcpurcvgf ''d{ ''o go dgtu'qh'y g''Tq{cn'I wctf+'' hqto gf ''y g''eqtg''qh'y j cv'dgeco g''npqy p''cu''y g''Htgpej ''Uej qqn'0\L>| ugh'R² e| grk\\$39726; 4+.''c'Ecrxkpknv''r tkguv.''cnuq'' vtcpurcvgf ''c''xctkgv{ ''qh''cwj qtu''cpf ''y qtmu'htqo ''Htgpej .''kpenxf kpi ''Xqnxcktg'\\$'hqt''gzco r ng'\ cktg''kp''39: 6''cpf'' J gpt kcf g''kp''39: 8+''cpf ''Gf y ctf ''[ qwpi øu''Pk j v'Vj qwi j wl\\$39: 9+0

Cpqyi gt "uej qqn" hqwpf gf "d{"yi g" I guwky'F cxkf" "Dct» vk" U| cd». "eqpegtpgf" kugnh'y kyi "vtcpurcvkpi "Ncvkp" ercunkeu" kpvq" J wpi ctkcp0 U| cd» "vtcpurcvgf" "Xkti knøu" Cgpgkf" "3: 32635+" cpf" htci o gpvu" qh' I qj p" O knqpøu" Rct cf kug' Nquv'htqo "c" Ncvkp" xgtukqp0 Y kyi "U| cd» øu" cpf "y kyi "Dgpgf gm' Xkta i øu" vtcpurcvkqpu" dgi cp" yi g" i mtkqwu" gtc" qh' J qtcegøu" r qgvt {" kp" J wpi ct { ."cpf "kv" y cu" yi gug" vtcpurcvkqpu" y j kej "kpur ktgf" yi g" hco qwu" qf g" y tkvgt" F cpkgn' Dgt | ugp { k\*399863: 58+0" Cp" wpkpvgttwr vgf "hny "qh' vtcpurcvkqpu" qh' J qtceg" hnny gf "cpf" eqpvkpvgf" kpvq" yi g" w gpvkgyi "egpwt { 0 V y gug" vtcpurcvkqpu" ctg" f qewo gpvgf "kp" yi g" cpyi qnqi { "J qtcvkwu" Pquvgt"

\*Qwt''J qtceg+'y j kej ''cr r gctgf 'kp''3; 57. ''gf kwgf ''d{ ''Ko tg''Vtgpeu² p{k'Y cnf cr hgn0'Vj g{ ''ctg''cnuq''f qewo gpwgf 'kp'' Qrgtc''Qopkc''\*Vj g'Eqo r ngwg''Y qtmu''qh'J qtceg+''gf kwgf ''d{ ''I a dqt'F GXGEUGT Klxp''3; 830'Qyj gt''y gm''npqy p'' vtcpurcvqtu''qh''y g''Ncvkp''Uej qqn'lxpenwf g''O km>u'T² xck''cpf ''L>| ugh'Ta lpku0

Cu'hct "cu'I gto cp'ku'eqpegtpgf ."y gm/mpqy p'y qtmu'qh'y cv'gtc."uwej "cu'Cm $\{u'Dnwo\ cwgtøu''Cgkpgkf/vtcxguw\}$ "cpf "Cwi wuv'xqp'Mqv| gdwgøu'r nc $\{u$ ."y gtg"cf cr wgf "tcyi gt"y cp''tcpurcwgf "kpvq"J wpi ctkcp0Hgtgpe'MC\ kP E\ [ "y cu" qpg''qh'y g''o quv'ko r qtvcpv''tcpurcvqtu''qh'I gto cp''rksgtcwstg''f wtkpi "yi cv'r gtkqf 0

#### Vj g'tt cpurc skqp'qh'Uj cmgur gct g

Vj g'i qnf gp'gtc'qh'Uj cngur gctg'lp''J wpi ct { 'dgi cp'y kj ''y g'y qtm'qh'Hgtgpe'MCURP E\ [ ''y j q''tcpurcyf''J co ngv'' htqo ''I gto cp''kp''39; 20'Chygt''Mcukpe| { .''c'hgy ''tcpurcytu'o cf g''uqo g'hggdng''cwgo r wi'cv'tgpf gtkpi ''qy gt''o clqt'' \\ \text{kxrgu.''dw'ks'y cu''U'' pf qt''Rg\%\text{k'k'}3: 4566; +.''O kj a n{ ''X\sqrt{k}\sqrt

## Vt cpurc vkqp'kp'yj g'gki j vggpvj 'cpf 'pkpgvggpvj 'egpvwt kgu

Hqmqy kpi "ij g"gzr wukqp"qh"ij g"Vwtmu."y j kej "uct vgf "kp"ij g"rc vg"ugx gpvggpij "egpwt { ."ij g"J cdudwti "mkpi u"vt kgf " vq"kpeqtr qt cvg"J wpi ct { "kpvq"ij gkt"Go r kt g0 Eqpugs wgpvn{ ."I gto cp"i tcf wcm{ "tgr rc egf "Nc vkp"c u"vj g"uqwt eg" rcpi wci g"kp"kpvgtr t gvkpi "cpf "pqp/rkvgt ct { "vt cpurc vkqp."o quvn{ "qh"qhhke kcn"f qewo gpwu0 Chvgt "egpwt kgu"qh"cm quv" vqvcn"r tgqeewr cvkqp"y kyj "rkvgt ct { "vgz vu." vj g"vt cpurc vkqp"qh"qhhke kcn"f qewo gpwu0 cp"kp"gct pguv"kp" y g"gki j vggpyj " egpwt { ."cpf "vj g"vt cpurc vkqp"qh"vgej pkecn"vgz vu"hqmqy gf "kp"vj g"pkpgvggpyj "egpwt { 0

#### Pqp/nkgtct{'\tcpurc\kqp

Wpvkn'y g"gpf "qh'y g"gki j vggpy "egpwt {."qhhlekcn'cpf "vgej plecn'vgzw'kp" y g"Mkpi f qo "qh'J wpi ct { "y gtg"y tkwgp"kp" Ncvkp. "cu'kpf ggf "y gtg'kp"ugxgtcn'qy gt "eqwpvtkgu"qh'Gwtqr g0'Y j krg"r tqo qvkpi "cpf "hcekrkcvkpi "eqpwcev'y ky " qy gt "eqwpvtkgu. "y ku'ucvg"qh'chhcktu'f grc { gf "y g'f gxgrqr o gpv'qh'pcvkqpcn'ewnwtg0'Qpg"eqpugs wgpeg"qh'y ku'y cu' y cv'pq'hqto cn'kpuvtwevkqp"qh'vtcpurcvqtu'cpf "kpvgtr tgvgtu'y cu'wpf gtvcngp0'Vj g"qpn{ "gzegr vkqp"y cu'c'hgy " y qtmij qr u'hqt "vtcpurcvkqp"cpf "kpvgtr tgvkpi "htqo "cpf "kpvq"J wpi ctkcp"cpf "qyj gt"o kpqtkv{ "rcpi wci gu'qh'y g" eqwpvt {."y j kej "y gtg"qhhgtgf "cv'y g"qhhlegu"qh'y g"egpvtcn'i qxgtpo gpv0

Chrgt 'c'dtlgh'lpvgtxcn'lp' i g'39: 2u. 'y j gp'Mlpi 'Iqugr j 'IKktlgf 'vq'lpvtqf weg'I gto cp'cu' i g'qpn( 'qhhlelcn' repi wei g. 'i g'untwi i rg'hqt'I wpi etlep'dgi cp0'Vj ku'gpf gf 'lp'3: 89'y kj 'I wpi et{ 'i clpkpi 'lpvgtpen'ugn/ i qxgtpo gpv'cu'r ctv'qh' i g'f wen'Cwmtq/J wpi etlep'O qpetej {0Cv' i ku'r qkpv.'I wpi et{ 'idgeco g'c'r nxtkrlpi wen' eqwpxt {0Vq'i wetcpvgg''gs wen'tki j wi'kp''rgi kurcvkqp. 'ef o kpkurtcvkqp''cpf 'i g''geqpqo { 'hqt'ekkl gpu'y j qug'o qyi gt' vqpi wg'y cu'pqv'I wpi etlep. 'i g'i qxgtpo gpv'guvednkuj gf 'i g'Rtko g'O kpkurgtken'Egpvten'Vtepurcvkpi 'Qhhleg''kp'' 3: 8; 0Vj ku'qti cpk cvkqp''urkm'hwpevkqpu'cu'c''dwtgew'qh''tcpurcvkqp''cpf 'cwj gpvlecvkqp''vqf c{0I qy gxgt.'' vtepurcvqtu'cpf 'kpvgtr tgvgtu'f kf 'pqv'dgi kp''vq''qti cpk g''y go ugnxgu'kpvq''r tqhguukqpen'dqf kgu'wpvkn'chvgt''Y qtnf 'Y et'' Vy q0

Cu'hct "cu'\gej plecn'\tcpurc\lqp'\ku'eqpegtpgf."\j g''o qp\j n\ 'r gt\lqf \lecn'\Vwf qo "p\{qu'I \{\tilde{A}\tilde{V}\tilde{G}\tilde{Q}^2p\{\tilde{V}\tilde{L}\tild

j kuvqt {."uqekqrqi {."cpf 'uq'qp0O quv'qh'vj g''ctvkergu'kp''vj ku'lqwtpcn'y gtg''vtcpurcvkqpu."o ckpn{ 'htqo 'Gpi rkuj ." Htgpej 'cpf 'I gto cp0I tcf wcm{."qvj gt''yej pkecn'lqwtpcnı''dgi cp''vq''cr r gct''kp''J wpi ctkcp0'Vj gug''kpenwf g''c''j kuvqt {" lqwtpcn'' $U^a/cf$  qm''\*Egpwtkgu='3: 89/+."cpf 'vj g''s wctvgtn{ "Gvj pqi tcrj kc''\\$3: ; 2/+0'Vj gug''lqwtpcnı''vgpf 'vq''eqpvckp'' o cp{ ''vtcpurcvgf ''ctvkergu0}

#### Hlppq/Witke't grc skqpu'c pf 'vj g'st c purc skqp 'qhhqmmqt ke 'sgz su

Vj g'J wpi ctkep'hepi wei g'f khhgtu'uwduvepvkem ('htqo 'qvj gt'hepi wei gu'kp'vj g'tgi kqp'epf 'y cu'i gpgtem ('eqpukf gtgf'' vq''dg'qh'qduewtg'qtki kp0'C'pwo dgt''qh'uej qretu'vtkgf ''vq''tceg''kv'dcem'vq''c''xctkgv ('qh'qtkgpven'hepi wei gu.''kpenwf kpi '' dkdrkeen'J gdtgy 0'Kp''398; .'L² pqu''Uelpqxkeu.''e'J wpi ctkep''o go dgt''qh''ep''Cwuvtq/J wpi ctkep''i tqwr ''qh''euvtqpqo gtu'' yqtnkpi ''kp''pqtyj gtp''Pqty c{.''dgi ep''vq''uwf {''vj g'hepi wei g''qh''vj g'hqeen'r qr wrevkqp0'Kp''3992.''j g'r wdrkuj gf''e'' dqqm'kp''Nevkp''kp''y j kej ''j g'f go qpuvtevgf''vj ev'J wpi etkep''ku''enqugn ('tgrevgf''vq''Ner r kuj 0'Nkng''Hkppkuj ''epf'' Guvqpkep.''Ner r kuj 'dgrqpi u''vq''y g''Hkppke''dtepej ''qh''y g''Hkppq/Wt tke''heo kn (''qh'hepi wei gu0'Vj ku'f kueqxgt {'' kpur ktgf''uqo g''ewj qtu''vq''y tkg''r qgo u''epf ''pqxgnu''edqw''Hkppkuj /Guvqpkep/J wpi etkep''nkpuj kr 0'Vj ku'y eu'' hqmy gf ''d {''c''hnwtt {''qh''tcpurevkqp''eevkxk/ ''kp''y ku''hkgrf 0

Htqo "y g"o kf f rg"qh"y g"pkpgvggpy "egpwt { "wpvkrit gegpv"vko gu." J wpi ctkcp"rkpi wkuwu" j cxg"dggp"eqmgevkpi "hqmmqtke"vgzwu"qh"y g"uo cml"Hkppq/Wi tke"pcvkqpu"kp" T wuukc"cpf "o cmkpi "xgtdcvko "vtcpurcvkqpu"hqt"rkpi wkuvke"cpf "gyi pqi tcr j ke"cpcn{uku0'Htci o gpvu"qh"*Mcngxcnc*." 'y g"pcvkqpcn'gr ke"qh"y g"Hkppu." y gtg"hktuv"vtcpurcvgf "d { "Kuxa" p" H" dk" p"kp"3: 48="y g"hktuv"eqo r rgvg"vtcpurcvkqp"qh"y g"vgzv." d { "Hgtf kp" pf "Dctpc." cr r gctgf "kp"3: 930"V j g"o quv" r qr wrct "xgtukqp"qh"*Mcngxcnc*." d { "D² nc"Xkn"tt." cr r gctgf "kp"3; 23"cpf "j cu'ukpeg"dggp"tgr wdrkuj gf "ugxgtcn'vko gu0' V j g"Guvqpkcp"gr ke." *Mcngxkr qgi*." 'y cu'vtcpurcvgf" d { "Crcf a t"D" p"kp"3; 330

Vj ku'ur gekcn'kpvgtguv'kp''y g''nkvgtcwtg''qh''y g''Denke''pcvkqpu''uwtxkxgf 'kpvq''y g''y gpvkgyj ''egpwt {0'Vtcpurcvkqpu''qh'c'' ugtkgu''qh''y qtmu''d {'Guvqpkcp''pqxgrkuvu'y gtg''r wdrkuj gf 'kp''y g''3; 52u0'Vj g''o quv''r qr wret 'Hpp''cwyj qtu''kp''J wpi ct {'' vqf c {''ctg'O knrc''Y cnxctk'cpf ''X@p34Nkppc.''cpf ''y g''dguv/npqy p'Guvqpkcp''cwyj qt''ku''Lccp''Mtquu0F wtkpi ''y g''hqwt'' f gecf gu''qh'Eqo o wpkuv'twrg'kp''J wpi ct {.''tgcf gtu''cnuq''dgeco g''ces wckpvgf ''y kyj ''o cp{''qnf gt''cpf ''o qf gtp''cwyj qtu'' qh''y g''xctkqwu''pcvkqpu''qh''y g''hqto gt''Uqxkgv''Wpkqp.''cpf ''o quv''qh''y gug''cwyj qtu''y gtg''tcpurcvgf 'kpvq''J wpi ctkcp'' xkc''Twuukcp0

#### Vj g'dgi kppkpi u'qh'st cpurc skqp'sj gqt {

Vj gqtgvkecn'uvcvgo gpvu'cdqwv'vtcpurcvkqp"dgi cp"vq"crrgct"kp"J wpi ct { "cu"gctn{ "cu"yi g"ugxgpvggpyj "egpwxt { ."y j gp" Ectf kpcn'Rgvgt"Rf \ O f P [ "cf xqecvgf "kf kqo cvke." vcti gv"rcpi wci g/qtkgpvgf "vtcpurcvkqp0Qxgt"c"egpwxt { "rcvgt." cpf" cv"yi g"uco g"vko g"vj cv"Hgtgpe"XGTUGI J [ øu'vtcpurcvkqp"qh"\%c"Oct ugknrckug"crrgctgf "\*39; 6+." cpqvj gt"cfo ktgt"qh" vj g"Htgpej "tgxqnwkqp." La pqu"DCVUf P [ K"cvgo rvgf "vq"qhhgt"c"i gpgtcn'vj gqt { "qh'vtcpurcvkqp"kp"y j kej "j g" eqpegpvtcvgf "qp"vj g"qnf"rctcf qz"qh"-\%gu'Dgngu'Kphf 3 nguøf "ugg"HTGPEJ "VTCFKVKQP+0

Qyj gt 'uej qrctu'cf xqecvgf 'c'xctkgv{ ''qh'r tkpekr rgu0'Vj g'ugpvko gpvcrkuv'L»| ugh'Mf to a p'\*398; 6; 7+"qdlgevgf ''yj cv' vqq''o vej 'y cu'vtcpurcvgf 0'L»| ugh'R² e| grk'\*39726; 4+"tglgevgf ''yj g''eqpegr v'qh'htggf qo ''kp''vtcpurcvkqp."cpf ''I a dqt" F 3/dtgpvgk'\*397: 63: 73+"y cu'o qtg''eqpegtpgf ''y kyj ''j qy ''Uj crngur gctg'y qwrf ''j cxg'y tkwgp''j cf ''j g'y tkwgp''kp'' J wpi ctkcp0

Vqy ctf "y g"o kf/pkpgvggpy "egpwt {."Hgtgpe"Vqrf { "\*3: 27697+."y j q'ku'eqpukf gtgf "y g'hcy gt "qh'J wpi ctkcp" rkstct { "j kuvqt {."f kuvkpi wkuj gf "dgwy ggp "hkf grkv{ "vq"eqpvgpv'cpf "hkf grkv{ "vq"hqto "cpf "f gpkgf "y g"r quukdrg" eqgzkuvgpeg"qh'y g"y q"v{r gu0'M² tqn{ "U a u "\*3: 4; 63; 27+."qp"y g"qy gt"j cpf ."qr r qugf "y ku'xkgy "cpf "uweeggf gf "kp'tcpurcvkpi "i tgcv'gr ke"r qgo u'htqo "ugxgtcn'rcpi wci gu'cpf "kpvtqf wekpi "y go "vq"y g"J wpi ctkcp"tgcf gt0 C"uwo o ct { "qh'y gug'xkgy u'ecp'dg'hqwpf "kp'Tcf » "\*3: 5+0Cpvcn'Tcf » "\*3: 8463; 66+"y cu'c "tcpurcvqt "qh'Kcrkcp" r qgvt { ."y j q"cnuq"y tqvg"c"y gqtgvkecn'y qtm'qp"y g"ctv'qh'vtcpurcvkqp"\*Tcf » "3; 2; +0

## Ht qo 'vj g'plpgvggpvj 'vq'vj g'vy gpvlgvj 'egpvvt {

Vtcpurcvqtu'qh'vj g'hcvg'pkpgvggpvj "cpf "w gpvkgvj "egpwt { "kpvtqf wegf "J wpi ctkcp'tgcf gtu'vq'c'y kf g'tcpi g'qh' hqtgki p'hkvgtcwtgu0P gctn{ "cm'vj g'y qtmu'qh'I qgvj g."Uej kngt."F kengpu. "Dcn ce. "Xgtpg. "F wo cu. "J wi q."\ qnc." Klugp"cpf "Rqg"

cr r gctgf 'lp'' wpi ctkcp0Vj g'Ct cdkcp'Pki j wi'y cu'ttcpurevgf 'ltqo 'Htgpej 0Cm quw'gxgt{ 'f gecf g'ltqo '3: 82" qpy ctf u'y kpguugf ''y g'ttcpurevkqp'qh'cpqy gt'hco qwu'T wuukcp'pqxgrkuv\*Vwti gpgx'lp'yj g'3: 82u. 'Vqnnq{ 'lp'yj g'' 3: 92u. 'F qunq{ gxumk'lp'yj g''3: 2u. 'Ej gnj qx'lp'yj g''3: ; 2u'cpf 'I qtm( 'lp'yj g'lhtuv'f gecf g'qh'yj g''y gpvkgyj 'egpwt{0 Vj tgg'qwuvcpf kpi 'cej kgxgo gpwl'qh'yj ku'r gtlqf 'f gugtxg'ur gekcn'o gpvkqp0M' tqn( 'D² te| { 'dgi cp''q'tcpurcvg'' Rwij mlpøa'l' gxi gpf 'Qpgi kp''ltqo 'Dqf gpuvgf wa'I gto cp''xgtulqp''kp''3: 85. 'dw'yj gp. 'lpur ktgf ''d{ ''y g''cvo qur j gtg'' qh'y g'y qtm'j g''gctpgf ''y g''T wuukcp''rcpi wei g''cpf 'lhpkij gf ''tcpurcvkpi 'kv'htqo ''y g''qtki kpcn'lp''3: 880Xkm qu'' I {\frac{34}{ ''pqv'qpn( ''vcpurcvgf 'Egtxcpvguø'F qp'S wkzqvg'\*3: 9568+'dwv'cnnq''y tqvg''c''uko r nkhgf ''xgtulqp''qh'kv'hqt''{qwpi '' r gqr rg'\*3: 97+0Y ky ''ku'j ki j n( 'ghlgevkxg''tj { y o ''cpf 'f kuvkpevkxg''tj { o g. 'Go kn'f dta p{ku'}E{tcpq. ''dcugf ''qp''c'' xgtug''f tco c''d{ ''Tquvcpf '\*3: ; 8+"j cu''dggp''cu''uweeguulwnllp''ku''qp p''tki j v'cu''ku''Htgpej ''qtki kpcn'0 Rtqo r vgf ''d{ ''y g''ercuulecn'uej qrct''M' tqn( ''Mgt² p{k'\*3: ; 963; 95+''y g''r wdrkij gt''Qhhlekpc''rcwpej gf ''c''ugtkgu''qh'' nkgtct{ ''tcpurcvkqpu''kp''y g''o kf/3; 52u'wpf gt''y g''kxrg''Dhtpi wcn'Ercuuleu'' 'gf kxgf ''d{ ''Mgt² p{k'}0 V'y g''dguv'npy p''r qgv'vtcpurcvqtu''qh'y g''y gpvkgyj ''egpwt{ 'kpenwf gf 'O kj an ''DCDKVU.'F gl uo ''MQU\ VQNf P [ K' cpf ''f tra f 'V V V J .''y j q''dgnqpi gf ''q''y g''i tqwr ''y j kej ''r wdrkij gf ''lp''y g''tgxkgy ''P{wi cv''cpf ''wpf gtvqnn'vq''r tqxkf g'' y g''eqo r rngvg''y qtmu''qh''Uj crngur gctg''p''y wpi ctkcp'\*ivgg''cdqxg+0

Co qpi ''y qug''y j q'r tqf wegf 'r qgwle' tcpurcwlqpu'qh'y qtmu'd { 'xcpi wctf 'cwyj qtu'uwej ''cu'Ico gu'Iq { eg''cpf 'O ctegn' Rtqww'iy g'o quv'qwwcpf kpi 'kpenwf g'Cndgtv'I {gti {ck'cpf 'O ctegm'DGP GF GM'hqt'Htgpej .'Cncf a t'Uej ¾ hdp'' cpf "Vkxcf ct"U kppck'hqt 'Gpi nkuj ."L» | ugh'Vwt»e | k/Vtquvrgt 'hqt 'I gto cp. 'L» | ugh'T² xc{ 'cpf 'O kj a n{ 'Cpf ta u'T»pck' hqt"Kcnkcp. 'Gpf tg'I a ur a t'hqt"Ur cpkuj .'I wi »'I cm² tv'cpf"\ qn² p"Vt»eu² p{k'hqt"Twuukcp. 'L² pqu''Vqo eu² p{k'hqt" Rqrkıj .'J gptkm'J clf w'cpf 'U' pf qt'Mtgw gt'hqt'Uecpf kpcxkcp.''cpf 'I {wrc'I gto cpwu.'Gtxkp'Demc{''cpf 'Tg| u³/4' J qpvk'hqt''Qtkgpvcn'rcpi wci gu0'Uqo g''qh''y gug''vtcpurcvqtu''y qtngf ''enqugn(''y kj ''y g''cwj qtu''y g{ ''vtcpurcvgf .''hqt'' gzco r ng'I gptkm'I clf w'eqttgur qpf gf 'tgi wrctn( 'y ky "Ugno c'Nci gtn²/4h'cpf 'I wi »'I gm² tv'y ky 'I qtm( 0 Uqo gʻqhʻy gʻo quvʻqwuvcpf kpi 'r qgv vtcpurcvqtuʻqhʻy kuʻr gtkqf 'dgeco gʻxkevko uʻqhʻy gʻr qrkkecnʻcpf 'uqekcnʻwto qkn' r qgv'Htcp±qku'Xkmqp. 'uwtxkxgf 'Ickn'cpf 'xctkqwu'r ckphwn'gzr gtkgpegu'dghqtg'go ki tcvkpi '\*hktuv'vq'Htcpeg. 'vj gp'' Pqtyj 'Chtkec.'Gpi ncpf 'cpf 'hkpcm( 'Ecpcf c+'vq' guecr g'htqo 'Pc| k'cpf 'Uvcnkpkuv'vgttqt0Cvknc'L»| ugh'\*3; 27659+." y j q'r wdrkuj gf "cpvj qrqi kgu"qh"Tqo cpkcp. 'E| gej "cpf "Urqxcm"r qgvt { "cv"c" ko g"y j gp"ht kgpf uj kr "dgw ggp" pgki j dqwtu'y cu'r gtugewyf. "dtqng"f qy p"wpf gt" y g'r tguuwt g"qh'r u{ ej qcpcn{ we"gzr gtko gpwcwlqpu"cpf " Eqo o wpkuv'r ctv{ "kpvtki wgu'cpf "gxgpwcm{ "eqo o kwgf 'twkekf g0O km»u'Tcf p»vk'\*3; 2; ó66+. 'tcpurcvqt "qh'Htgpej " r qgwi'cpf "qh'y g"cpy qmi { "Qtrj gwu'p{qo "dcp" "Kp" y g"Hqqwygr u"qh "Qtrj gwu."3; 64+"hgm 'x ke vko "vq" Pc | K'nkmgtu0" Cpvcn'U gtd'\*3; 2; 667+."j kuvqtkcp"qh'nkvgtcwtg."cwj qt."etkke"cpf "\tcpurcvqt."uwhgtgf "\j g'uco g'hcvg0'U gtd"gf kvgf " yj g'dktkpi wcn'cpyj qmi { "U" / 'xgtu' \*C" J wpf tgf 'Rqgo u.'3; 66+."c"eqmgevkqp"qh'yj g'dguv' J wpi ctkcp"tcpurcvkqpu'qh" o qf gtp'r qgvt {0

Nkng"o quv'qvj gt 'hœguu'qh'irkbg'kp'J wpi ct {.''yj g'eqwtug'qh'vtcpurcvkqp'y cu'uj cr gf 'f wtkpi ''yj g'r gtkqf ''3; 67''vq'3; :; "
d{ ''yj g'Cmkgf 'r qy gtuø'f gekukqp'\q'cuuki p'J wpi ct { ''vq''yj g'Uqxkgv'| qpg0Rtgxkqwun( 'r tqj kdkxgf .''y qtmu'd{ 'T wuukcpu''
cpf ''qvj gt'y tkxgtu'qh'vj g'uco g'tgi kqp''dgi cp'\vq''cr r gct'kp'J wpi ctkcp0Vj g'o gvj qf ''qh'vtcpurcvkqp'y cu'kphrwgpegf ''
d{ ''yj g'uwf f gp'f go cpf ''vq''r tqo qvg''vj g''rkxgtcwttg''qh'vj g'Eqo o wpkuv'y qtnf .''kpenwf kpi ''yj g''rkxgtcwtg''qh'rcpi wci gu''
wpmpqy p''vq''cp{qpg'kp'J wpi ct{ ''gzegr v'hqt''c''j cpf hwriqh'rhpi wkuv0Vj g'r qgv.''wplwun( ''ecmgf ''vtcpurcvqt .''tgegkxgf ''
c''r tqug''qt''±cy ø'vtcpurcvkqp''o cf g''d{ ''c''rkpi wkuv0Ulj g''yj gp''j cf ''vq''r wv'kpvq''xgtug''yj ku'tcy ''vtcpurcvkqp''qh''cp''
qtki kpcn'\gzv'y j qug''ewnwtcn'eqpvgzv'ulj g'y cu'qhxgp''wphco krkct''y kyj 0Vj ku'ku''j qy ''yj g''cpyj qmi { ''qh'Cndcpkcp''
r qgwu''Cnd\* p''nh\*n\*/mi\*3; 74+"cpf ''C'o qpi r² 'kt qf cnqo ''nkwnAnt g'\*\*Vj g''Uo cm'O kttqt''qh'O qpi qnkcp''Nkxgtcwttg.''3; 87+"
y gtg''r tqf wegf 0Vj ku''r tcevkeg''dgeco g''y kf gur tgcf ''cpf ''y cu'uqo gvko gu''nqmy gf ''gxgp''kp''yj g''ecug''qh''rcpi wci gu''
npqy p''vq''yj g''tcpurcvqtu0

 $\label{lem:controller} Rqrkskecn'r tguuwtg''cpf ''vj g''i gpgtcn'vqngtcpeg''hqt''r qqt''s wcrks{ ''vtcpurcvkqpu''pqw ksj uvcpf kpi .''vj g''ghhqtv'vq''r tqo qvg'' j ki j ''s wcrks{ ''nksgtct { ''vtcpurcvkqp''eqpvkpwgf ''wpcdcvgf 0 I ^2 | c''}$ 

Mqo qt»e| {."U¹ pf qt"T² mqu"cpf "U¹ pf qt"Y g¾ gu"y gtg"co qpi "ý qug"y j q"tcpurcvgf "qrf gt"y qtmu"qh"rkvgtcwtg." uwej "cu"Uwo gtkcp"n{tkeu"cpf "ý g"*I kri co guj "Gr ke0"*Krvx² p"O²u|² tqu"cpf "I t² ekc"Mgt² p{kc"tcpurcvgf "c"tcpi g"qh" encuukecn'cpf "o qf gtp"Rqrkuj "y qtmu."qh"r tqug"cpf "r qgvt { "tgur gevkxgn{0C"pwo dgt"qh"Uqwj "Co gtkecp"cpf " Ectkddgcp"cwj qtu"y gtg"cnuq "tcpurcvgf "f wtkpi "ý ku"r gtkqf 0Kp"3; 99."\ qn² p"Euwnc"y cu"cy ctf gf "ý g" kpvgtpcvkqpcn'HKV/P cy j qtuv'Rtk g"hqt"j ku"tcpurcvkqpu"htqo "Ugtdkcp."Etqcvkcp."Urqxgpkcp."O cegf qpkcp"cpf " Dwri ctkcp0

Chọt "3; 67."cpf 'r ct wewetn ("f wtkpi "3; 78"cpf "3; 79."c"pwo dgt 'qh'cwj qtu'cpf ''tcpurcvqtu'ngh/J wpi ct {0'Vj ku'y cu'' pqv'ij g'htuv'y cxg"qh'go ki tcvkqp"d {"y tksgtu0'Uqo g'Eqo o wpkn/cwj qtu'cpf ''tcpurcvqtu'j cf 'hrgf ''chrgt ''3; 3; 'lpvq" Cwntkc. 'I gto cp {. 'Htcpeg'cpf 'r ctvkewrctn { ''j g'Uqxkgv'Wpkqp0'Vj g { ''ecttkgf ''qp''tcpurcvkpi ''kp''j gkt ''pgy " gpxktqpo gpvu'dw'tgwtpgf ''vq'J wpi ct { ''chrgt ''j g'Eqo o wpkn/cmg/qxgt ''cpf 'r wdrkuj gf ''j gkt ''tcpurcvkqpu''j gtg0' Vj qug'y j q"go ki tcvgf ''vq''Kutcgn'cpf ''xctkqwu''Y guvgtp''eqwpvtkgu''chrgt "3; 67''tkgf ''vq''r tqo qvg'J wpi ctkcp''hkgtcwtg'' yj gtg''d { ''r wdrkuj kpi ''tcpurcvkqpu''kpvq''J wpi ctkcp0'Vj gug'kpenvf gf ''Vj g'Wpnpqy p'Vtgg'\*3; 97+"c''eqnrgevkqp''qh'' Rqnkuj 'r qgvt { 'y j kej 'y cu'r wdrkuj gf ''kp''J wpi ctkcp''tcpurcvkqp''d { ''I { 3/4i { ''I 3/60 3/4k'kp''Y cuj kpi vqp''kp''3; 9: 0' Tqo cp''Tg| gm'r wdrkuj gf ''j ku''tcpurcvkqpu''qh'y qtmu''d { ''y g''Htgpej ''Ecyj qrke''r j krquqr j gt''Vgkrj ctf ''f g''Ej ctf kp''kp'' Dtc| krif wtkpi ''y g''3; 82u0

Y j gp"\si g"Eqo o wpku\trqnk\kecn'u\uvgo "\kp\"J wpi ct \{ "eqmcr ugf "\kp\"3; : ; \dots; 2."\ku\"f go cpf u'\kp\"\yto u'\qh'\dqqm' r wdrkuj kpi "dgi cp"\q"f kucr r gct0\to y g"qdrki c\qt \{ "\tcpurc\kqp"qh\"Eqo o wpku\tr\kytcwtg"egcugf "cpf "uqo g"cwj qtu" cpf "\tcpurc\qtu'y j q"j cf "go ki tc\yf "\q"\si g"Y gu\try tgwtpgf 0

Kp''3; 88."N¾a' pf "Vctp¾e| K'r wdrkuj gf "Vj g'Vt cpurc vqt ¢u''J cpf dqqm<br/>
Vj gqt{"cpf 'Rt cevkeg"qh'Ur gekcn'Nkvgt c wt g0' Vj ku'ku''c'eqo r gpf kwo "qh'i gpgtcn'npqy ngf i g'cpf 'kphqto cvkqp'hqt'pqprkvgtct{ 'vtcpurc vqtu0C'eqnge vkqp''qh''guuc{u'' d{"4; "ngcf kpi "vtcpurc vqtu." $C''o \tilde{A}hqtf W''u''o c'$ ">Vtcpurc vkqp''Vqf c{+."y cu'r wdrkuj gf 'kp''3; : 30

#### Vt cpurc vqt 'tt ckpkpi

Kp''3; 95."vj g"Vtckpkpi "Egpvtg'hqt"Vtcpurcvqtu'cpf "Kpvgtrtgvgtu'\*VEVK-'y cu'guvcdrkuj gf "cv''y g"Wpkxgtukx{"qh" Dwf cr guv0C"{gct'hcvgt."kp'3; 96."c'pwo dgt''qh''qyi gt''I wpi ctkcp''wpkxgtukxkgu''dgi cp''vq''kpvtqf weg''vtckpkpi "r tqi tco o gu'hqt''vtcpurcvqtu."cpf "vqf c{"vj gug''r tqi tco o gu'ctg''qhhgtgf "d{"c''y kf g'tcpi g''qh'cecf go ke'kpuvkwwkqpu'' kpô co qpi "qvj gt''r rceguô Dwf cr guv."F gdtgegp''cpf 'R² eu0

Vtcpurcvkqp" i gqt { "ku" pqy "vcwi j v"kp" xct kqwu" kpurkwwkqpu. "dqy "htqo "c" hpi wkurke "cpf "c" rksgtct { "r gtur gevkxg0 kp" cf f krkqp" 'q" i g" xct kqwu" wpkxgtukrkgu. "i gug" kpurkwwkqpu kpenwf g" i g" Nksgtct { "Vtcpurcvqtuv" Ugevkqp" qh' i g" Uqekgv { "qh" O qf gtp" Rj krqrqi { "cpf" i g" y g" wpi ct kcp" Cecf go { "qh" Uekgpeguv" Y qtrrkpi "Eqo o kwgg" hqt "Vtcpurcvkqp" Vj gqt { 0 Vj g" httur' kpvgtpcvkqpcn' eqphgtgpeg" qp" vtcpurcvkqp" uwwf kgu" 'q" dg" j grf "kp" J wpi ct { "vqqm' r rceg" kp" P qxgo dgt "3; ; 4" cpf" i g" ugeqpf" kp" Ugr vgo dgt "3; ; 80

Kp"3; ; 2."c"r tqhguukqpcn'\tcpurcvqt"qh'Gpi nkuj "rksgtcwstg."\y g"r nc{y tki j v'f tr a f "I ¾pe| ."y cu'gngevgf "Rtgukf gpv'qh" yi g"Tgr wdnke0

Cu''{ gv.'kpvgtr tgvgtu'j cxg''pq''qti cpk cvkqp''vq''tgr tgugpv''y go 'kp''J wpi ct{0

#### Hwt yj gt 't gcf kpi

I [ " TI [ 'TCF~

# Dkqi tcrj kgu

DCVUf P[K'La pqu'\*398563: 67+0'Rqgv'cpf 'gpyj wukcuv'qh'yj g'Htgpej 'Tgxqnwkqp.'ko rtkuqpgf 'htqo '39; 6'\q''  $39; 9"cu"c"o go dgt "qh"c"Iceqdkp"uqekgv (0"Dcvr" p {k"ku" 'y' qwi j v"vq"dg" 'y' g" 'tcpurcvqt "qh" P cr qrgqpøu"cr r gcr" 'vq" y' g" }$ J wpi ctkcpu'kp'3: 2; '\q'lqkp'j ko 'ci ckpuv'Cwuxtkc0J g'rghv'J wpi ct{'y kj '\j g'Htgpej 'cto {'kp'3: 2; 'cpf 'rkxgf 'kp'' Rctku'wpvkn'3: 37. 'y j gp'j g'y cu'cttguvgf 'd{ 'vj g'qeewr {kpi 'Cwuntkcp'hqtegu'cpf 'vcngp'vq'r tkuqp'kp'Cwuntkc0' Hqmqy kpi "y g'kpvgtxgpvkqp"qh'j ku'y khg. "y g'Cwwtkcp"r qgvguu'I cdtkgrg'Dcwo dgti . "j g'y cu'tgrgcugf "cpf "dcpkuj gf " vq'Nkp| 'y j gtg'j g'ur gpv'y g'tguv'qh'j ku'nkhg0'Dcwr p{k'vtcpurcvgf 'vj g'r qgo u'cwtkdwgf 'vq'Quukcp.'vj g'vj ktf/egpwt{" Quukcpøu'r qgvt { "cpf" r wdrkuj gf "j ku'uq/ecmgf" vtcpurcvkqpu'htqo "vj g'I cgrke "dgvy ggp" 3982 "cpf" 39850 Dcvd p { køu" uwf {"C'hqtf·v" ut »n'\*Cdqw'Vtcpurcvkqp."r wdrkuj gf "kp" yj g"tgxkgy "Oci {ct 'Ovuc' kp"39: 9+"ku"c'f kuewuukqp"qh" egpyten'kuuwgu'kp''ytepunevkqp''y gqt{.'retvkewnetn(''y g'wuwen'retefqz''qh'hekj hwrpguu'xu0'pewterpguu0 **DGP GF GM 'O ctegni**\*3:: 763; 8; +0°C wj qt. "etkke. "rgzkeqi tcr j gt"cpf "j kıvqtkcp"qh'rkgtcwtg0"Y kj "cdqw'422" r wdrkuj gf "xqnwo gu" 'q"j ku" pco g. "o quvn{" 'tcpurc kqpu" htqo "o qf gtp "Gpi rkuj . "Htgpej "cpf "I gto cp" rkvgtcwtg." Dgpgf gmly cu''y g''o quv'r tqrllrle 'tcpurcvqt''lp'' y wpi ct { 'f wtkpi ''y g'3; 42u.'3; 52u'cpf '3; 62u'qh''y ku'egpwt { 0 FGXGEUGTK'I adqt'\*3; 39693+0C''y gmmpqy p'r qgv'cpf ''guuc{kuv'kp''j ku''qy p'tki j v.'r ctvkewrctn('tgpqy pgf 'hqt'' j ku'r qgo ":Fkti g'hqt"c"Dwnø'\*3; 92+."Fgxgeugtk'y cu'cnuq"qpg"qh'yjg"o quv'vcngpvgf"vtcpuncvqtu"qh'r qgvt{"kp" J wpi ct { "f wt kpi "y g'3; 52u"cpf "wr "vq"y g'3; 82u0J g"ku"dguv"mpqy p"hqt" j ku"vtcpurcvkqpu"qh"cpekgpv"I tggm"cpf " Ncvkp'r qgvt { .'kp'r ctvkewrct'j ku'vtcpurcvkqpu'qh'vj g'eqo r rgvg'y qtmu'qh'Ecwmwu'\*3; 5: +'cpf 'J qo gtøu'\Qf {uug{" \*3; 69+"cpf "*Klkcf* "\*3; 74+0F gxgeugt k'cnuq"gf kgf "vj g"eqo r rgvg"y qtmu"qh"J qtceg."vj g"*Qr gt c 'Qo pkc*."kp"3; 830 MC\ IPE\ [.'Hgtgpe'\*397; \u00e93: 53+0Tghqto gt'qh'yi g'J wpi ctkcp'hcpi wci g.'Mc| kpe| {''y cu''cnuq''c''egpvtcn'hki wtg'' qp''y g''pcvkqpcn'hkgtct { "uegpg'hqt''j crh'c''egpwt { 0 J g''dgi cp''j ku''ectggt''kp''39: : ''d { ''\tcpurcvkpi ''y g''kf { mu''qh''y g'' Uy kuu'r qgv'Ucmo qp'I gupgt0D{ "yj g"ko g"j g"y cu'cttguvgf "kp"39; 6"cu'c"o go dgt "qh'c"Iceqdkp"uqekgv{."j g"j cf " cntgcf {"tcpurcvgf"35"rrc{u"cpf"xctkqwu'y qtmu'd{"Nguukpi "cpf"I qgvj g0J ku"o ckp"cej kgxgo gpv."j qy gxgt."y cu" y cv'j g'kpvtqf wegf "Uj cngur gctgøu" y gcvtg'kpvq" y g'J wpi ctkcp" pcvkqpcn'uegpg0 Vj ku'j g'f kf "kp" 39; 2" y kj "cp" kpf ktgev'tcpurckqp'qh'J co ngv'htqo 'I gto cp0

MQU\ VQNf P[KFg|u>"\*3::763;58+0Rqgv."pqxgrkuv."tgxkgy gt"cpf"y gm/mpqy p"tgrtgugpvc\kxg"qh'\yi g" u{o dqrkuv'o qxgo gpv'kp"J wpi ctkcp"r qgvt{0Crctv'htqo "j ku"qy p"xqnwo g"*C"u\ gi ²p{"nkui {gto gmir cpcu\ ck*" \*Nco gpv'qh'\yi g"Rqqt"Nkwrg"Ej krf."3;32+."Mqu\ vqn² p{k'dgi cp"j ku'rksgtct{"ectggt"y kyi "c"eqmgevkqp"qh'xgtug" vtcpurcvkqpu."*O qf gtp"mi/n>mi*\*O qf gtp'Rqgvu."3;36+0Kp"\yi g"r tghceg'\q"\yi ku'eqmgevkqp."j g"f guetkdgf 'rksgtct{" vtcpurcvkqp"cu'cp"cwgo r v'÷q"f cpeg'y kyi "hgwgtuø0Mqu\ vqn² p{k'cnuq"\tcpurcvgf"r rc{u'd{"Uj cngur gctg."Cpvqp" Ej gnj qx"cpf "xctkqwu"qyi gt"y tksgtu0

 $\mathbf{R}f \setminus \mathbf{O}f \mathbf{P}[$  .'Rgvgt '\*379263859+0'Ectf kpcn''r tgcej gt.''cwj qt.''vtcpurcvqt''cpf ''cp''qwuvcpf kpi ''hki wtg''qh''y g'' Eqwpvgt/Tghqto cvkqp''kp''J wpi ct $\{0'\}$ 

J g'\tcpurc\gf 'Vj qo cu'c' Mgo r kuớ  $kc vkq'Ej t ku k' \$  kc \kqp'qh'Ej t ku\t'\ p''38460 \R^a | o ap{'cvgo r vgf '\q'tghqto '' y g'J wpi ctkcp''r tqug'uv{ rg'cpf 'j ku'i wkf kpi ''r tkpekr rg'y cu'\y cv.'\p''c'\tcpurc\kqp.'\y g'y qtf u'\uj qwrf '\hrqy ''cu'' uo qq\y n{'cu'\kh'\y g{ 'y gtg'y tkwgp''d{ ''c''J wpi ctkcp'\kp'\y g'J wpi ctkcp'\repi vci g0}

U\ NN U .'Mit tc'\3; 35692+0Cp''qwwwcpf kpi 'J wpi ctkcp''tcpurcyt''qh''rkgtct { 'r tqug.''uj g'ku''dguv''mpqy p'hqt'' j gt''xgtukqp''qh''Vj g'Ocwgt''cpf''Octi ctkc'\3; 8; +'d { 'O knj ckr'Dwn cmqx.''j gt''tcpurcykqpu''qh''Cpyqp'Ej gnj qxøu'' uj qtv'uvqt kgu'htqo 'Twukcp.''Vj qo cu'O cppøu''pqxgnu'htqo 'I gto cp''cpf ''xctkqwu''y qtmu''d { 'eqpygo r qtct { '' Co gtkecp''cwj qtu0U m u { ''cnq''r wdrkuj gf ''c''pwo dgt''qh''dqqmu''f guetkdkpi ''j gt''r gtuqpcn''gzr gtkgpegu''cu''c'' vtcpurcyqt0

V VJ 'f tr f '\*3:: 863; 4: +0J wpi ctkcp'r qgv0'kp'j ku''vtcpurcvkqp''htqo ''Htgpej ''qh''Ej cpuqp'f ¢cwqo pg''\*Cwwo p'' Uqpi +''d{ ''Rcwn'Xgtrckpg.''j g''cej kgxgf 'r qgvke''hkf grkv{ ''d{ ''o gtgn{ ''tgr tqf wekpi ''y g''o wukecn'ghhgev'qh''y g''y qtf u<

Verlaine:Tóth:Ngu'ucpi mu'npi u" u' 'j Àtlc' uqpi .F gu'xkqmpuIclqpi .''dwuqpiF g'nxcwqo pgC''valqp.Drguugpv'o qp'eò wtU'qpv'o qpqvqpF øwpg'hcpi wgwtDww'nqpqmqpO qpqvqpg0| u'lfal»p0

Kt'j cu''qhvgp''dggp''uwi i guvgf ''vj cv''V» vj øu''vtcpurcvkqp''qh''vj g''+Qf g''vq''vj g''Y guv'Y kpf ø'd{ ''Uj gmg{ ''ku''vj g''hkpguv'r qgo '' gxgt''y tkvgp''kp''J wpi ctkcp0

XGTUGI J [ .'Hgt gpe'\*397963: 44+0'J wpi ctkcp'r qgv.''\tcpurc\upart'cpf 'Ec\upart' qnke'r tkgu\upart'c' htgg'\upart' kpngt.'\upart' g'' u{o r c\upart' k gf 'y k\upart' y' g''J wpi ctkcp''Lceqdkpu\upart'kp''39; 6.''\text{Xgtugi j { "\upart cpurc\upart' gf '\upart' o' \upart' ctugknckug.'\upart' g''Htgpej '\upart' pc\upart' cp\upart' go 'y j kej 'y cu'\upart' cngp'\upart' tqh'Tgr \upart' qh'Tgr \upart' kgtu'cpf '\upart' qr \upart' gr \upart' cu'\upart' g'' g'' tgxqn\upartkqpct { "cp\upart' go \upart' go \upart' g'' y cu'\upart' gr \upart' gc\upart' g'' y cu'\upart' gr \upart' gc\upart' g'' g'' y cu'\upart' gc\upart' g'' y g'' tgxqn\upartkqpct { "cp\upart' go \upart' g'' y g'' tgxqn\upartkqpct { "cp\upart' go \uparty g'' y g'' tgxqn\upartkqpct { "cp\upart' go \upart' g'' y g'' tgxqn\upartkqpct { "cp\upart' go \uparty g'' g'' y g'' tgxqn\upartkqpct { "cp\upart' go \uparty g'' y g'' tgxqn\upartkqpct { "cp\upart' go \uparty g'' y g'' tgxqn\upartkqpct { "cp\uparty go \uparty g'' y g'' tgxqn\upartkqpct { "cp\upart' g'' y g'' tgxqn\upartkqpct { "cp\uparty go \uparty g'' y g'' y g'' tgxqn\upartkqpct { "cp\uparty go \uparty g'' y g'' y

I [ " TI [ 'TCF~

Vj g'hqmqy kpi 'gpvt{'y cu'y tkwgp'd{'Gy cnf 'Qugtu'uj qtvn{'chwgt'vj g'f gcvj 'qh'Ft'Tcf »<

TCF~ .'I {3/4i {"\*3; 346; 6+0/J wpi ctkep" \tepure \te kpygtguvgf "kp"ncpi wci gu"cpf "yj gkt 'nkygtcwtgu0J g"ur qng"J wpi ctkcp"cpf "I gto cp"htqo "ej knfj qqf. "ngctpv"Ncykp" cpf "I tggmˈcvˈuej qqn "cu"y gmˈcu"Htgpej "cpf "Gpi nkuj "htqo "r tkxcvg"wvqtu. 'uwwf kgf "Kcnkcp 'kp 'Rgtwi kc "cpf 'rcvgt" www.j v'j ko ugrh'Rqrkuj "cpf." | wuv'dghqtg" Y qtrf "Y ct" Vy q. 'T wuukcp O'Cnyj qwi j "j ku' gctr (''tckpkpi '\*cpf 'j ku'' f qevqtcvg+"y cu"kp"rcy . "cpf "j ku"gctn( "ectggt"kp"vj g"ekxkr"cpf "f kr mo cvke"ugtxkeg"cpf "kp"vj g"J wpi ctkcp"Cecf go {" qh'Uekgpegu."j g'tgi ctf gf "tcpurcvkqp"cu'j ku''-tgcn'hkgrf "qh'cevkxkx{ ØI g'tgr tgugpvgf "I wpi ctkcp"tcpurcvqtu'cv' gxgt{"eqpi tguu'qh'HKV"htqo "3; 88"vq"3; : 9."y cu"Xkeg/Rtgukf gpv'qh"HKV"htqo "3; 96"vq"3; 99"cpf "Gf kqt/kp/Ej kgh" qh'y g'lqwtpcn'Dcdgn'hqt'36"{ gctu0J ku'r tkpekr cn'eqpvtkdwkqp''vq''vtcpurcvkqp''uwf kgu'y cu'j ku'':Qwrkpg''qh'c'' U{ uvgo cvle "Vtcpurcvqrqi { ø'r wdrkuj gf 'lp'' Dc dgn'lp'3; 96'cpf 'luvdugs wgpvn{ ''tcpurcvgf 'lpvq''o cp{ 'rcpi wci gu'cpf '' r wdrkuj gf 'kp''ugxgtcn'eqwpvtkgu0J ku''dguv/mpqy p''xqnwo g.''vj g''htwkv''qh''uqo g''hkhv{ "{ gctuø'y qtm''ku''*U gt gno gu'' Ul go dgu¶² u*'\*Nqxkpi 'Gpeqwpygtu+.''c'eqmgevkqp''qh'\tcpurcygf 'r qgvt { 'htqo '42'hcpi wci gu0'Vj g'f khhkewnkgu'' eqphtqpvkpi "J wpi ctkcp"r wdrkuj kpi "chvgt" y g"hcm"qh" Eqo o wpkuo "cpf "y g"eqpugs wgpv" nquu "qh" uvcvg" uwdukf kgu" j cxg" uq'hct'r tgxgpvgf "vj g'r wdrkecvkqp"qh'j ku"*Eqphguukqpu'qh'c 'Gwt qr gcp*"cpf "*J kwqt { 'qh'vj g'T gegr vkqp 'qh'J wpi ct kcp''* Nkgtcwtg'\ij tqwi j qwv'\ij g'Y qtrf. "cu'y gm'cu''j ku'pwo gtqwu'r qgo u0I {3\di {\"Tcf > \phiu''j qpqwtu'kpenwf g'\ij g" Peyj j qtuv'Rtk g'hqt'Nkgtet {''Vtepurevkqp'\*3; : 9+.''vj g'HKV'I qrf gp'Rkp''qh'I qpqwt'\*3; ; 4+''epf ''ep'I qpqtet {'' Hgmqy uj kr 'qh''y g'Kpurkwwg''qh''Vtcpurcvkqp''cpf 'Kpvgtr tgvkpi 'kp'I tgcv'Dtksckp'\*3;; 4-10

GY CNF 'QUGTU

## K

# Kegrepf ke'tt cf kkqp

K'kı'pqv'y kij qw'tgcuqp"y cv'Kegrepf 'kı'uqo gıko gul'f guetklgf 'cu'c'repf 'qh'eqpvtcuvu.''dqvj 'pcwtcn'cpf 'uqekcn'' Vj qwi j 'ukwcvgf 'lp'vj g'P qtvj 'C vepvke.'qp'vj g'gf i g'qh'vj g'Ctevke''ekterg.''vj g'kurepf 'kı'y cto gf 'd{ 'vj g'I wth'' Utgco .''vj wu'gplq{kpi 'c'o wej 'o krf gt'enko cvg'vj cp'qpg'y qwrf 'gzr gev'cv'twej 'c'pqtvj gtn( 'revkwf g0'Vj g'O kf / Cvcpvke''tkf i g'twpu'htqo 'pqtvj ''vq'uqwj ''vj tqwi j ''vj g'o kf f rg'qh'Kegrepf ''cpf ''o ctmu'vj g'Iwpewtg'qh'vy q''vgewqpke'' revgu'qh'vj g''gctvj øu'etwn0'Vj ku'tkf i g'ku'i gqnqi kecm( 'wpuvcdrg''cpf ''j cu''dggp'vj g''ukg'qh'htgs wgpv'xqrecpke'' qwdwtuvu.''ecwkpi ''vj g'j ki j guv'f gpukk{ ''qh'vj gto cn'cevkxk{ ''q''dg''hqwpf ''kp''cp{ ''eqwpvt{ ''qh'vj g'y qtrf 0'Dw'f gur kg'' vj gug''htgt { ''httegu''dgpgcvj ''kuu'uwthceg.''vj g''kurcpf ''tgo ckpu''ecr r gf ''d{ ''Gwtqr gøu'ncti guv'i reekgtu0} Nkng''yj g'pcwtcn'gpxktqpo gpv'kp'y j kej ''yj g{ 'hxg.''yj g''Kegrepf ke''r gqr rg''ctg'hwn'qh'eqpvtcuvu0'Kegrepf ''htuv'dgeco g'' kpj cdksgf ''kp''yj g''revg'pkpyj ''egpwt{ .''yj gp''Pqty gi kcp''cpf ''Egnke''ko o ki tcpwi'dgi cp''vq''gzr cpf ''vj gkt'ugwrgo gpwi'' y guvy ctf ''cetquu''vj g''Pqty' 'C vrcpvke'kurcpf u0'Vj g''Kegrepf gtu'hqto gf ''qpg'qh'Gwtqr gøu'ncuv'vtkdcn'uqekykgu.''twrgf ''d{ ''ugxgtcn'f q| gp''i q ct.''qt''nqecn'ej kghckpu.''y kj ''cp''cppwcn'cuugo dn{ ''ecrngf ''yj g''Cnj kpi 0'Vj ku''eqo o qpy gcnj '' rcurgf ''hqt''cro quv'hqwt''egpwtkgu''dghqtg'uwdo kwkpi ''vq''yj g''Pqty gi kcp''Etqy p''kp''34840'Vqi gyj gt''y kyj ''Pqty c{.'' Kegrepf ''rcvgt''eco g'wpf gt''yj g''eqpvtqn'qh''yj g''Fcpkij ''Etqy p''kp''35: 30'Kp''3; 66.''y kyj ''pq''o qtg''yj cp''342.222'' kpj cdkscpw.''Kegrepf ''qpeg''o qtg''dgeco g''cp''kpf gpf gpt'tgrwdn'ke0

Nkxkpi 'kp''y ku''÷o ketquvcvgø''Kegncpf gtu''vqf c{ "ctg''dqvj "hkgtegn{ "kpf gr gpf gpv'cpf "j ki j n{ "f gr gpf gpv'wr qp''y g''tguv'' qh''y g''y qtnf 0Hkuj "cpf "o ctkpg''r tqf wewl'eqo r tkug''cm quv': 2"r gt "egpv'qh'i qqf u''gzr qtvu."cpf "vj g''nko kygf "f qo guvke" tguqwtegu''o gcp''y cv'cm quv'cmi'o cpwhcewtgf "eqpuwo gt''i qqf u."cu''y gm'cu''o cp{ "uvcr ng'hqqf "r tqf wevu."j cxg''vq''dg" ko r qtvgf 0'Cnj qwi j "xgt { "r tqwf "qh''y gkt "pcvkqpcn'ncpi wci g."Kegncpf ke."cpf "f gvgto kpgf "vq''uwr r qtv'kv'ci ckpuv''y g'' qpuncwi j v'qh''kpvgtpcvkqpcn'o cuu''o gf kc."cm quv'cm''Kegncpf gtu''mpqy "cv'ngcuv'qpg''hqtgki p''ncpi wci g'\*wuwcm{ "Gpi nkuj +"cpf "o cp{ "ur gcm''qy gt''Gwtqr gcp''ncpi wci gu''cu''y gm0

Vj g'repi wci g'kugrh'ku'rkxkpi 'r tqqh'qh'y g''ygpgv'y cv'repi wci gu'qp''y g'htkpi g'qh'c'nkpi wkuke''ctgc''wpf gti q'rkwrg'' ej cpi g''y tqwi j ''ko g0'Kegrepf ke''o ckpvckpu''y g'eqo r rgz''cpf 'j ki j n{ 'kphrgevgf 'I gto cpke'i tco o ct''qpeg''eqo o qp'' y tqwi j qw''pqtyj gtp''Gwtqr g0'Vj g''f guki pcvkqp''÷Uci c''Kurepf ø'ku''y gml'f gugtxgf ''vqq<'pqv''qpn{ 'j cu''o wej ''qh'y j cv'y g'' mpqy ''cdqw''y g''nkytct{ ''ttcf kkqp''qh''pqtyj gtp''Gwtqr g'f wtkpi ''y g''gctn{ 'O kf rg'Ci gu''dggp''r tgugtxgf 'kp''Kegrepf ke'' o cpwwetkr vu. ''dw''y gtg''ctg''cnuq''hgy ''eqwpvtkgu''y j gtg''rgctpkpi ''cpf ''y tkkpi ''ctg'j grf 'kp''j ki j gt''guvggo 0'Vj ku''ku''c'' eqwpvt{ ''y j gtg''gxgt{ ''y gpvkgyj ''r gtuqp''j cu'y tkwgp''r qgvt{ .''cro quv''gxgt{ qpg''pgctkpi ''tgvktgo gpv'ci g''j cu'y tkwgp'' j kulj gt''cwqdkqi tcr j { ''cpf ''cduqnwgn{ ''gxgt{ qpg''j cu''cp''qr kpkqp''qp''j qy ''vq''uc{ ''y kpi u''kp''r tqr gt''Kegrepf ke#'Y j kej '' ecp''qhvgp''o cng''hkg''tcyj gt'f khhkewn'hqt''y g''tcpurcvqt0

#### Vt cpurc vkqp'kp'tj g'O kf f rg'Ci gu

Utcpi g''cu''k/'o c{''uggo .''y g''o gf kgxcn'pqtyi gtpgtu'y j q''kpj cdkxgf 'Kegrcpf 'f q'pqv'cr r gct''vq''j cxg''j cf ''o wej ''pggf '' hqt''vtcpurcvqtu''qt''kpvgtr tgvgtu0Kp''ur kxg''qh''y g''hcev'yi cv'yi g{''tqco gf 'htqo ''yi g''Ctevke''vq''yi g''Xcvkecp."cpf ''gxgp'' hwtyi gt."qpn{''qpg''o gf kgxcn'uci c''o cngu'o wej ''o gpvkqp''qh''qtf kpct{''r gqr rg''\*vj cv'ku''r gqr rg''qyi gt''yi cp''yi g''j ki j '' ej wtej ''qhhkekcnı'yi cv'r qr wrcvg''yi g''Dkuj qr uø'Uci cu+'y j q''ur qng''qyi gt."+kpeqo r tgj gpukdrgø'rcpi wci gu0Kp''Kpi xctu'' uci c''xk ll/4rc.''yi g''+Uci c''qh'Kpi xct''yi g''Hct/vtcxgngf ø'y j kej ''tgeqwpw'P qtug''xq{ci gu''qh''

f kueqxgt { "'q'Gcuvgtp''Gwtqr g. "'y g''uvqt { vgmgt 'tghgtu''o qtg''y cp''qpeg''vq''y g''xctkgv{ "qh'hcpi wci gu''ur qmgp0'Qpg''qh'' y g''o ckp''ej ctcevgtu'i qgu''uq'hct''cu''vq''r tgr ctg'hqt''cp''gzr gf kkqp''d { "go dctnkpi "qp''c''eqwtug''qh''uwxf kgu''kp'' xgtpcewrct'hcpi wci gu0'Cu''c''twrg. "j qy gxgt. "gxgt { qpg''uggo u''vq''j cxg''wpf gtuvqqf "gxgt { qpg''gnug'y kyj qw''f khhkewnv{ "kp''y g''o gf kgxcn'P qtyj gtp''y qtnf 0'Gxgp''y qug''y j q''tcxgnrgf "vq'Eqpuvcpvkpqr rg''vq''lqkp''y g''Xctcpi kcp''i wctf "f q'' pqv''uggo "vq''j cxg''j cf 'r tqdrgo u''eqo o wpkecvkpi ''y kyj "qvj gtu="cv''ngcuv. 'kh''y g { "f kf . "'y g { "nghv''wu''pq''tgeqtf ''qh''uwej '' r tqdrgo u'

Vj g'qrf guv'gzkuvkpi "o cpwetkr wi'kpf kecvg''y cv.'d{"y g''w grhy 'egpwt {"cv'y g''rcvguv.'y ku'rkpi wkuvke'r ctcf kug'' j cf "dgeqo g''c''y kpi 'qh''y g''r cuv0'V j g'Ej tkuvkcpk cvkqp"qh''Kegrcpf ''ctqwpf ''y g''{ gct ''3222''dtqwi j v'cdqwv'c''i tgcv'pggf ''vq" vtcpurcvg''cm'uqtw'qh'tgrki kqwu'vgzvu'kpvq''c''rcpi wci g''y cv'y g''pgy ''eqpxgtw''eqwrf ''wpf gtuvcpf 0'Ceeqtf kpi ''vq''y g" \*\*Hktw'I tco o cvkecrl'Vtgcvkug.''cp''Kegrcpf ke''y qtm'qp''i tco o ct'f cvkpi ''dcem'vq''y g''o kf f rg''qh'y g''y grhy ''egpwt {." -\*\*tcpurcvkqpu''qh''j qn{ ''y qtmwo''gzkuvgf ''kp''Kegrcpf ''cv'y g''vko g0'Vq''lwf i g''htqo ''gzkuvkpi ''htci o gpwu''cpf ''y g''gctrkguv'' gzvcpv'y qtmu.''y gug'y qwrf ''j cxg''r tko ctkn{ ''dggp''gzr qukvkqpu''cpf ''qy gt''kpvgtr tgvcvkxg'y tkkpi u.''tcy gt''y cp''cewcn'' vtcpurcvkqpu''kp''y g''o qf gtp''ugpug0'Kv'ku''cnuq''r quukdrg''y cv''ceeqwpwu''qh''y g''nkxgu''qh''uqo g''uckpwu''gzkuvgf ''kp''Kegrcpf ke'' d{ ''33720}

Vj g''qrf guv''Kegrcpf ke''dqqm'qh'j qo krkgu''\*pqy 'r tgugtxgf 'kp''y g'Tq{cn'Nkdtct{'kp''Uqenj qno +'f cvgu'htqo 'ctqwpf'' 3422"cpf "eqpvckpu"c"eqmgevkqp"qh'ugto qpu. "j cm'qh'y j kej "cv'ngcuv'ctg"dcugf "qp"hqtgki p"o qf gnu0'Vj gug"y qtmu" j cxg"ugnfqo "dggp":-xtcpuncvgfø"fktgevn{="vjg{"ctg"oquvn{"tgvgnnkpiu"qt"gxgp"eqodkpcvkqpu"qh"ugxgtcn"yqtmu"kp" qpg0Kpvgtguvkpi n{ "gpqwi j ."qpg"qh"yj g"vgzwu"kp"yj g"Kegncpf ke"dqqm"qh"j qo krkgu"cfftguugu"yj g"rkuvgpgtu"fktgevn{ "cpf" dkf u''y go "o cng'cmqy cpegu'hqt''y g'r tkguw'y j q'j cf 'f khhkewn ('kp''gzr tguukpi ''y go ugnxgu'kp''Kegncpf ke0 Kłku'y qtyj 'r qkpvkpi 'qw'yj cv'yj g'xgtd''cf 'r c.'pqy 'wugf 'vq'o gcp''÷q'vtcpurcvgø'y cu'pqv'wugf 'kp''y ku'ugpug'kp'' o gf kgxcn'\ko gu0'Kl'o gcpv."cu"c"twrg."-xq"qdnki gø'qt"-xq"qdg{ø"y j krg"\j g"xgtd"o quv'eqo o qpn("wugf "hqt"\j g" rtqeguu'qh'\tcpurc\kqp'ycu.'kv'uggou."c 'upAc."yjkej'hkgtcm{"ogcpu"÷\q'\wtpø0kp"yg'rctig"eqtrwu'qh'ytkwgp" Kegropf le "eqngevgf" cpf "gzegtr vgf" qxgt "ugxgtcnif gecf gu'd { "vj g"Wpkxgtukv{ "qhi Kegropf "F levkqpct { "Rtqlgev." gzco r ngu'qh'y g'wug'qh'y g'xgtd"cf"r c'vq"o gcp"-xtcpurcvgø'f q'pqv'cr r gct 'dghqtg'y g'o kf f ng'y ktf 'qh'y g' ukz vggpvj "egpwt { . "y j gp" vj g"hktuv" vtcpurc vkqpu" qh" vj g"P gy "Vguvco gpv" y gtg" vpf gt vcmgp0 Kp"qtf gt"\q"o cng"Ej tkukcp"\gcej kpi u"cu"ceeguukdrg"cu"r quukdrg"\q"\j g"eqo o qpgtu."\j gug"gctn{ "o gf kgxcn" vtcpurcvqtu."cml'qhl'vj go "engtlecm ("vtckpgf."cf qr vgf "c"uko r ng. "kf kqo cvke"uv (ng "qh'r tqug. "qeecukqpcm ("cf qtpgf" y kvj" pcvkxg"r tqxgtdu"cpf "uko krkwf gu"htqo "gxgt {fc{"hkhg0"Ncvkp/hrcxqwtgf"f kevkqp"cpf"u{pvcz."y j kej "hcvgt"eco g"vq" ej ctcevgtk g'o wej 'qh'y g'Qrf 'Kegrcpf ke''vtcpurcvkqp''qh'tgrki kqwu'r tqug. 'ctg'pqv'i gpgtcm{ 'hqwpf 'kp'y g''gctn{ '' j qo krkguOC "pwo dgt "qh"encuukecn"tj gvqtkecn"f gxkegu"uwej "cu"cpvkyj guku. "ej kcuo wu. "cpcr j qtc. "cmkvgtcvkqp"cpf" y qtf" r cktkpi 'y gtg'uqo gwo gu'cf f gf 'vq''grgxcvg''y g''uv( rg''qh''egtvckp''j qo krkgu0

Cpqyi gt 'hqto "qhi'r qr wrct "o gf kgxcri'rksgtcwtg." yi g''rkxgu''qh''uckpw." y cu''cnıq''s wkemi'q''cmg''tqqv'kp''Kegrcpf 0'Qxgt" 322"ceeqwpwi'qh''yi g''rkxgu''qhi'f khhgtgpv'uckpwi'gzkuv'kp''vtcpurcvkqp'kp''o cpwwetkr wi'f cvkpi 'htqo ''yi g''rcvg''wy grhsj " egpwt { "qpy ctf u0'Vj g{ "ctg''f tcy p''r tko ctkn{ ."dw''pqv'gzenxukxgn{ ."htqo "Ncvkp''uqwtegu''uwej "cu''yi g''cr qet { r j cn'' dqqmu''qh''yi g''P gy "Vguvco gpv'cpf ''ngi gpf u''uwej "cu''Lceqdwu''f g''Xqtci kpgøu''*Ngi gpf c''cwt gc*''cpf ''I tgi qt { øu'' F kcrqi wgu0

y g'hkxgu'qh'uchpvu."y g'ej wtej o gp."y j q'r tcevkecm{ 'hqto gf "y g'qpn{ "gf wecvgf "encuu'kp"y g'eqwpvt {. 'uggo "vq"j cxg" y qwi j v'kv'ko r qtvcpv'vq"kpvtqf weg'y go "vq"Ej tknvkcp"tgrki kqwu'cpf "r j knquqr j kecn'y qwi j vOQpg"qh'y g'dguv'ugmkpi " y qtmu'qh'y g'O kf f ng'Ci gu'\*vq"lwf i g'd{ "y g'pwo dgt "qh'vtcpuncvkqpu'cpf "eqr kgu'r tgugtxgf +'y cu'y g'Grwelf ct kwu'' qh'J qpqtkwu'Cwi wuxqf wpgpuku."y j kej "f cvgu'dcem'vq"y g"gctn{ "vy grhy "egpwxt {0'Vtcpuncvgf "kpvq"Qnf "Kegncpf ke"kp" y g'uco g'egpwxt {. "y g'y qtm'vcngu'y g'hqto "qh'c"f gdcvg"qp"y gqmqi { "dgwy ggp"o cuvgt"cpf "r wr kr0'Vj g'f gdcvg"qhhgtu" uko r ng'cpf 'tgcuuxtkpi "cpuy gtu'vq"c"ncti g'pwo dgt"qh'eqo o qp"s wguxkqpu."cpf "y g'cpqp{o qwu'Kegncpf ke" vtcpuncvqt "qh'y g'wy grhy "egpwxt { 'tgpf gtu'vj ku'kp"c"ncpi wci g'y j kej "r tgugtxgu'y g'uko r ng. "wpcuuwo kpi 'hncxqwt"qh" y g'qtki kpcn0

Ugxgtcn'ugewrct"y qtmu'y gtg"cmq"tcpurcvgf "f wtkpi "vj kn'r gtkqf 0'Vj g"J knqt { "qh'vj g"Mpi u'qhlDt kckp."eqo r krgf "d { "I gqhttg { "qh'O qpo qwj "ctqwpf "3359."y cu''tcpurcvgf "ctqwpf "vj g"gpf "qh'vj g"w grhy "egpwt { 0'Ki'ku'vj qwi j v'vq"j cxg" j cf "eqpukf gtcdrg"kphrwgpeg"qp"y g"uci cu'y j kej "f guetkdg"y g"o knukqpct { "cevkxkkgu"qh'vj g"P qty gi kcp"mkpi u="vj gug" uci cu''ctg"co qpi "vj g"o quv'ko r qtvcpv'Kegrcpf ke"hkgtct { "cpf" j knvqtkecn'cej kgxgo gpw0'Kpenxf gf "kp"y g"r tkpekr cn" o cpwuetkr v'qh'vj g"Kegrcpf ke"tcpurcvkqp"qh'I gqhttg { øu"y qtmku''y g"r qgo "O gtmpwuur". "c"tctg"gzco r ng"qh'c"xgtug" tgpf gtkpi "qh'c"r tqug"vgzv."y g"qtki kpcn'dgkpi "I gqhttg { øu"O gtmpøu'Rtqrj ge{ 0'Gxgp"o qtg"uxtknkpi "ku'vj g"hcev'vj cv." kp"y g"Kegrcpf ke"xgtukqp."y g"w q"ugevkqpu'qh'vj g"r qgo "ctg"kp"tgxgtug"qtf gt. "dtkpi kpi "vj g"r qgo "kpvq"enqugt" eqttgur qpf gpeg"y kyj "vj g"cpekgpv'Kegrcpf ke"guej cvqnqi kecn'r qgo "X¾nvur" "qt"Vj g"U dknvu'Rtqrj ge{ ."vq"y j kej "vj g" vtcpurcvkqp"j cu''dggp"eqo r ctgf "cpf" y j kej "kv"f qgu''tgugo drg0'Kv'eqwf "dg"cti wgf "vj cv'vj ku'ku''cp"gctn("I gto cpke" gzco r ng"qh'vj g"tgy qtmkpi "qh'c"uqwteg'\gzv'vq'hkv'c'mpqy p"r cwgtp'kp"vj g"rkgtct { "RQN[ U[ UVGO "qh'vj g"cti gv" ewnwtg0

Vj g'r tqug'\tcpurc\kqp'd{'cddqv'Dtcpf t'L»puuqp'\f 03486+'qh'\j g'r qgo "Cnzcpf t gki'd{'I cn\stwu'f g'Ecu\stractynkqpg" \*e03: 2+'ku'r tqdcdn( ''y g'o quv'r qrkuj gf ''gzco r rg''qh'o gf kgxcn'\tcpurc\kqp'htqo ''y g'I tgeq/Tqo cp'encuukeu'kpvq'' Kegropf keO'Vj g'f cev{nke'j gzco gvgtu'qh'vj g''qtki kpcn'ctg''gzr cpf gf 'kp''vj g'r tqug' \tcpurcvkqp'\q''i kxg''c'urki j vn{ 'o qtg'' f kthwug"pcttcvkxg0O gf kgxcn'vtcpurcvqtu"qdxkqwun("mpgy "vj cv"vj g{ "j cf "vq"r nc { "vq"vj gkt "qy p"cwf kgpegu0Vj g" qtki kpcn'cwj qt. 'I cnygtwu. "gzr gevgf" j ku'tgcf gtu'vq'dg'hoo knkct y kij 'O kf f ng'Gcuvgtp'i gqi tcr j { . "encuukecn" o { yi qmi { "cpf "yi g"uvqt { "qh" Crgzcpf gt "yi g" I tgc v0 Cddqv" Dtcpf t. "j qy gxgt. "hqwpf "kv" pgeguuct { "vq" cf f " gzr rcpcvkqpu'vq'j ku'vtcpurcvkqpu. "qt "gxgp"uj qt vgp"ej cr vgtu'y j kej "tgs vktgf" uwej "ur gekcnkt gf "mpqy ngf i g0J g"wugf" yj g'I tggm'pco gu'qh'yj g'i qf u. 'tcyj gt''yj cp''tcpurcykpi ''yj go . ''cpf ''gzr rckpgf ''yj gkt''tqrgu0'Y j gtg''tj gyqtkecn'' gzerco cykapu'aeewttgf 'kp'y g'atki kpcn'at'y j gtg'I cnygtwyg'ar kpkap'y cu'ergctn{ 'uvcygf.'y g'ytcpurcyat'htgs wgpyn{ " cf f gf "c"eqo o gpv"\q"\j g"ghhgev"\j cv"\j qug"y qtf u"y gtg"pqv"j ku"qy p"dww"\j qug"qh"I cn\gtwu0 Cpqyj gt 'r qr wrct "gpygt vckpo gpy'f wtkpi "yj g'hryg'O kf f ng'Ci gu'kp''Kegnrpf 'y cu'yj g'*uci pcf cpuct*."o gcpkpi " -iqmuqpi uø'qt"-idenef uø0'Vj gug'etg'i gpgtem( 'eqpulf gtgf '\q'j exg'qtki kpevgf 'kp'Htepeg'kp'\yi g'\y grhyi 'epf'' y kt vggpy "egpwtkgu"cpf "vq" j cxg" y gp"ur tgcf "hcktn ('tcr kf n ('v j tqwi j qw 'Gwtqr g0"V j gtg'ku 'tgrkcdrg 'gxkf gpeg" eqphto kpi "vj cv'vj g{ "gzkuvgf "kp" vtcpurcvkqp"kp" vj g"P qtf ke "eqwpvtkgu" gctn( "kp" vj g"hkhvggpvj "egpwxt { ."dww'o quv" uej qrctu'hggn'yi cv'yi g{ "o wuv'j cxg"dggp"mpqy p"o wej "gctnkgt0"Vj g"uv(ng"qh'yi g'dcmcf u'f khhgtu'o ctngf n{ 'htqo " pcvkxg'Kegrcpf ke'r qgvt {<'vj g'y qtf ''qtf gt''ku'pcwtcn'cpf ''vj g'xqecdwrct { ''tcvj gt''nko kxgf 0'Kv'ku'y qtvj ''pqvkpi ''vj cv'' o cp{"uwej "Kegrepf ke"demef u"y gtg"qpn{"r ctvn{"\tepurevgf "htqo" "P qty gi kep"xgtukqpu"epf "y gtg"pqv"gxgp" eqo r ngvgn{ "cf cr vgf "vq"vj g"

Kegrcpf ke 'eqplwi cvkqp''u{uvgo 0'Vj ku 'qhvgp''r tgugpvgf ''c ''f khhkewn''r tqdrgo ''y j gp''tj {o g''cpf ''tj {vj o ''y gtg''vq''dg'' o ckpvckpgf ''y kvj qww'o clqt ''cnvgtcvkqp''vq''vj g''dcmcf u0'V{r kecn'hgcwtgu ''qh'qtki kpcn'Qnf ''Kegrcpf ke ''gr keu. ''tj {o gf '' cpf ''wptj {o gf .''j ctf n{ ''gxgt''qeewt''kp''vj gug''dcmcf u0'Uwej ''hgcwtgu ''kpenwf g''vj g''eqpxqnwgf ''y qtf ''qtf gt''qh''uncnf ke'' r qgvt { .''ku''ngppkpi u''\*lQ0'gzr tguukqpu''y j kej ''y qtm''nkng''tkf f rgu. ''hqt''gzco r rg''÷vj g''j qtug''qh''vj g''y cxgu $\emptyset$ ? ÷uj kr  $\emptyset$ +.'' cpf ''vj g''wug''qh''ctej cke 'r qgvke ''pco gu''hqt''eqo o qp''pqwpu0

Kp "Kegropf ."cu"gnugy j gtg"kp 'Gwtqr g. "\j g"kphnwgpeg"qh"\j g"r tgcej kpi "htkctu"kp"\j g"rcwg"O kf f rg"Ci gu"rgf "\q"\j g" kpet gcugf "r qr wrctk\{"qh"\j g"gzgo r mo OVj ku"y cu"c"uj qtv"\crg"y j kej "y cu"qhwgp"kpugt wgf "kp"c"ugto qp"qt"\czv"hqt" gzr rcpcvqt {"r wrc qugu"qt"cu"cp"gzco r rg"qh"c"ukwe\kqp"qt"o qtcn"i qqf "qt"dcf O'Gzgo r nc" y gtg"wugf "d{"qtkgpvcn"cpf" ercunkecn'y tksgtu"cu"y gm"cu"\j g"gctn\{"hcy gtu"qh"\j g"Ej tkn\kcp"Ej wtej O'Gzco r rgu"qh"\j ku"i gptg"\kpen\st g"\j g" Fkcmqi wgu"qh"\Rqr g"I tgi qt\{"\j g"I tgcv."y j kej "ctg"r tgugt xgf "\kp"cp"\Kegropf ke"o cpwaetkr v\f c\kpi "uj qt v\\ "chgt" 34220\Cpq\j gt "eqmge\kqp"qh"gzgo r nc" y cu"\tcpurc\yf "htqo "Gpi rkuj "\kp"\j g"rc\yf"h\kregp\j "egpwt\{0V\j g"dcuke"\crg" eqwf "dg"f tcy p"htqo "j knqt\{."rgi gpf ."\j g"Dkdrg."\j g"h\xgu"qh"uckpw. "ercunkecn'h\kgtcwtg. "hqmcrgu. "cpf "gxgp"htqo " hcdrgu. "cpko cn'\crgu"cpf "r tqxgtdu0\Qxgt"372"f kh\tgtgp\v\utqtkgu"j cxg"dggp"hqwpf "cpf "gf ksgf "\kp"\Kegropf ke" vcpurc\kqp0\Vj g\{"cr r gct"\q"j cxg"dggp"\j qwi j v's wksg"f kh\tgtgp\v\htqo "\j g"pc\kxg"i gptg"qh" "wt. "c"\uj qtv\\crg"y j kej " hqwugf "qp"nqecn'j gtqgu"cpf "y j kej "y cu"hkto n\{"tqq\yf "\kp"\j g"I gto cpke"y cttkqt"\tcf kkqp0\Vj g"ej ctce\ygtu"\kp"\j g" gzgo r nc"y gtg"htgki pgtuô y kj "qdxkqwu"y gcmpguugu"\j cv'r tqxkf gf "r rgp\\{"qh"qr r qtwpk\\"hqt"tgrki kqwu" o qtcrk\ kpi 0

 $\label{thm:continuous} Vj g''r qr wrctk { ''qh''gzgo r rc''y cpgf ''kp''y g''y cmg''qh''y g'Tghqto cvkqp. ''dw''o cpwuetkr w''eqpvkpwgf ''vq''dg''eqr kgf'' tki j v'wr ''vq''y g''pkpgwggpy ''egpwt { 0}$ 

#### Qhhekcnicpf 'lgi cnit cpurc skap 'kp 'ij g'O lff ng 'Ci gu

Gxgp"cu"y g{"uwdo kwgf "\q"\y g" qty gi kcp"Etqy p"\p"3484."\y g"\express gtu" cf "pq"\pvgp\qp"qh"dqy \kpi "f qy p" o ggm(0"Y ky "pq"\nggv\qh"\u kwgf"\q"\y gkt"r quuguu\qp."\y g{"o cpci gf "\q"\pgi q\kcyg"c"\ugwrgo gpv\y ky "\y g" pq ty gi kcpu" y j kej "y cu"\pwgpf gf "\q"\ugwrgo gpv\y ky "\y gkt"r quuguu\qp."\y ig{"o cpci gf "\q"\pgi q\kcyg"c"\ugwrgo gpv\y ky "\y g" pq ty gi kcpu" y gtg"\ugwrgo gpv\y ky "\y g\genty genty gi kcpu" y gtg"\ugwrgo gpv\y ky "\y g\genty gi kcpu" y gtg"\ugwrgo gpv\y ky i y gi gy gy gy hgy "\underset khtgepegu"\ugwrgo gpv\y qt\ugwrgo gpv\y ky i y j kej "\ugwrgo gpv\ugwrgo gpv\y y j kej "\ugwrgo gpv\ugwrgo gpv\y y j kej "\ugwrgo gyv\y gtg"\ugwrgo gpv\ugwrgo gpv\y y j kej "\ugwrgo gyv\y gtg"\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\y y j kej "\ugwrgo gyv\y g\genty gi gy gtg"\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\y ky j kej "\ugwrgo gyv\y g\genty gi gy gy gtg"\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gy "\ugwrgo gy "\ugwrgo gy y j kej "\ugwrgo gy "\ugwrgo gpv\ugwrgo gy "\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gpv\ugwrgo gy "\ugwrgo gy "\ugwrgo gpv\ugwrgo gy "\ugwrgo gpv\ugwrgo gy "\ugwrgo gp\ugwrgo gy "\ugwrgo gp\ugwrgo gp\ugwrgo gy "\ugwrgo gp\ugwrgo gp\ugwrgo gp\ugwrgo gp\ugwrgo gp\ugwrgo gp\ugwrgo

Vj g'xgtpcewrt'y cu'cr r ctgpvl "wugf "hqt"qhhlekcn'geengulcuskecn'eqttgur qpf gpeg'xgt { "gctnl" qp"lp"lp"Kgrrpf .'lp" y g" hktur'egpwt { "chgt" y g'cf qr vlqp"qh'Ej tknkcpls{0K/ki" gpgtcm{"cuivo gf "y cv'vy q"qhhlekcn'y tkwgp"repi wci gu." Ncvkp"cpf "Kgrrpf ke. "y gtg"tgeqi pk gf "r tceskecm{"htqo "y g'dgi kppkpi "qh'y g'Ej tknkcp"gtc."cpf "y cv'ceeqtf kpi "vq" cp"wy tkwgp"dw'y kf gn{"hqmy gf "kwrg."f qewo gpwi'y gtg"eqo r qugf "cpf "ugpv'kp" y g"repi wci g'y j kej "y g"kpvgpf gf" tgegkxgt "wugf "cpf "wpf gtuvqf "\*Mmwt j kwqt kmihgmulnap"lqt "pqt f kmilo kf grcf gt "lt c "xknlpi gvkf "knt' tglqto c vlapunkf"3; : 4
ct vlapunkf "3; : 4
ct vlapunkf "3; : 4
ct vlapunkf "3; cyg'eqo g'f qy p"vq"wu "kv'cr r gctu" y cv'y g"wg"qh'Ncvkp"hqt"qhhlekcn'y tkwgp" eqo o wplecvkqp"y cu'xgt { "ho kgf 0Qpn|"cp"gzegr vlapcm|" uo cm'pwo dgt"qh'ngwgtu'y tkwgp" Pocvkp"j cxg"dggp" r tgugtxgf "kp"Kgrcpf ke"o cpwetkr w="d{"eqpvtcuv."gz vgpulxg"ej wtej "eqttgur qpf gpeg"kp"Kgrcpf ke"ecp"dg"hqwpf" co qpi "y g"j kurqtkecn'eqmgevkqpu0Cuivo kpi "Ncvkp"y cu'y g"repi wci g'wugf "hqt'ej wtej "eqo o wplecvkqp."y gug" rgwgtu'ctg"hlyngf "cyg"dggp"tcpurcyf "kpvq"Kgrcpf ke."r gtj cr u"vq"o cng"y go "npqy p"vq"c"y kf gt"cwf kgpeg0
Vj g"kphnwgpeg"qh'Ncvkp"f kf "pqv'gpf wtg0Kf'y cu'tgr reegf "kp"reyt "egpwtkgu"d{ "I gto cp"cpf "F cpkij ."y g"rtghgttgf" o gf kwo "qh'y g"Nwj gtcp"Ej wtej "cpf "qhhlekcn'cf o kpkutcvkqp"tgur gevkxgn{0Vj ku'uj khvlphrwgpegf "y g" fgxgrqr o gpv'qh'y tkwgp"Kgrcpf ke."gur gekcm{"kp"qhhlekcn'wug0Y j cv'ku'npqy p"cu'y g"+Ej cpegmgt {ø'uv{rg."y kj "Fcplek} gf"Ncvkpkuo u"cpf "gzvgpukxg"wug"qh"

j {r qvczku.'y cu'y kf gn( ''cf qr vgf =''cu''c'tguwnv.''qtki kpcn'y tkwgp'y qtmu'htqo ''y g''ugxgpvggpyj ''cpf ''gki j vggpyj '' egpwtkgu'tgo ckp''co qpi ''y g''o quv'f khhkewn/'Kegncpf ke''vgzwi'hqt''o qf gtp''tgcf gtu''vq''wpf gtuvcpf 0

## Vj g'Tghqto cvlqp'cpf 'r quv/Tghqto cvlqp<'tj g'ttcpurcvlqp'qh't grki kqvu'tgzvu

 $Vj \; g''r \; gtkqf \; 'hqmqy \; kpi \; ''j \; g''T \; ghqto \; cvkqp''y \; cu''cm \; quv''gzenwukxgn (\; ''f \; gxqvgf \; ''vq''y \; g''vt \; cpurcvkqp''qh''t \; grki \; kqwu''y \; qtmu''kp'' \; dy \; g'''t \; cpurcvkqp''qh''t \; grki \; kqwu''y \; qtmu''kp''' \; g'''t \; g'''$ Kegropf O'Vj g'povkqpon'Nwj gtop'Ej wtej. 'y j kej 'eqpvtqngf 'vj g'r tkpvkpi 'r tguu'kp'vj g'eqwpvt {. 'pggf gf 'o cvgtkon'hqt'' ku'ugtxkegu'kp''y g''xgtpcewrct.'kpenwf kpi 'ugto qpu.'uetkr wtcn'\gzvu.''cpf 'j {o pu0'Vj g'hktuv'Ej wtej ''qtf kpcpegu'htqo ''  $\label{eq:continuity} \textbf{y} \textbf{ g'F cpkuj 'Mtkurkcp'KKK'} 3725\acute{o}7; \textbf{+''cp''ctf gpv'Nwj gtcp.'r tqxkf gf 'hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp''}\\ \textbf{y} \textbf{ g'F cpkuj 'mkpi ''Mtkurkcp''KKK''} 3725\acute{o}7; \textbf{+''cp''ctf gpv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''kp'''}\\ \textbf{y} \textbf{ g''pv'Nwj gtcp.'r tqxkf gf ''hqt''y g'''gpvktg''ej wtej ''ugtxkeg''vq''dg''j gnf ''hp''' g'''y g'''y$ yj g'xgtpcewrct. 'y kj "yj g'gzegr wlqp"qh'c'xgt { "uo cm'pwo dgt "qh'Ncwp"j {o pu'y j kej "y gtg'f getggf "vq"dg"  $ceegr\ wdrg\ 0 \ Hwt\ yi\ gto\ qtg. "yi\ g"r\ wdrkuj\ kpi\ "ghhqtw'qh'\ yi\ g"Ej\ wtej\ "y\ gtg"cko\ gf\ "cv'r\ tgcej\ kpi\ "cpf\ "gpeqwtci\ kpi\ "yi\ g"$ ur tgcf "qh" + tqr gtø'f qevtkpg0Co qpi "qvj gt" vj kpi u. "vj ku" o gcpv" vj cv" pcvkxg" Kegrcpf ke "tgrki kqwu" y qtmu" j cf "vq" dg" r wti gf "qh"cp{"pqp/eqphqto kuv"o cvgtkcn"dghqtg"r wdnkecvkqp."cpf "pwo gtqwu"gf kh{kpi "hqtgki p"y qtmu"y j kej " hqmy gf "yj g"f qevtkpcn'hkpgu"cr r tqxgf "d{ "yj g"Ej wtej "y gtg"\tcpurcvgf "\q"eqo r rgo gpv'yj ku"ghhqtv0Dqyj "yj g" vtcpurcvkqp"cpf "y tkkpi "qh"j {o pu"hqwtkuj gf "vq"hkm"vj g"wti gpv"pggf "hqt"tgrki kqwu"o grqf kgu0 O quv'qh'y g''gxkf gpeg'kpf kecvgu'y cv'kv'ku''wprkngn( ''y cv'y g''gpvktg''Dkdrg'y cu''vtcpurcvgf ''kpvq''Kegrcpf ke''dghqtg''y g'' ukz vggpvj "egpwt {0'Vj gtg"ku"pq"o gpvkqp"qh"xgtpcewrct "dkdrgu"co qpi "vj g"rkuw"qh"dqqmu"qy pgf "d{"o gf kgxcn" rkdtctkgu'kp'Kegrcpf O'Kp''yi qug'eqwpvtkgu'qh'Y guvgtp'Gwtqrg'y j kej ''gzgtekugf'f ktgev'kphrwgpeg''qp''Kegrcpf'f wtkpi'' yj g'mvg''o gf kgxcn'r gtkqf. 'eqo r ngvg''xgtukqpu''qh''yj g''Dkdng''kp''yj g''xgtpcewnct''f q''pqv''cr r gct''wpvkn's wksg''ncvg<'kp'' Htcpeg"cpf "I gto cp{ "y g"hktuv"qpgu"f cvg"htqo "y g"gpf "qh"y g"y ktvggpy "egpwt {="y g"hktuv"eqo r ngvg"Gpi nkuj "Dkdng" crrgctgf 'c'egpwt{ 'ncvgt0

Dkdrg'\tcpurc\kqp'ku'ko rqt\cpv'hqt'rcpi wci g'f gxgrqr o gpv'hqt'pwo gtqwu'tgcuqpu0'Hktuv.'\gzwi'y j kej "ctg'\wugf "d{"c" ncti g'pwo dgt 'qh' y g'r qr wrc wqp 'pcwtcm ('r nc { ''cp' ko r qt vcp v't qng' kp' uvcpf ctf k kpi ''y g' ncpi wci g0'Ugeqpf . ''y g'' we have the pure tyj g''yj qwi j wu''qh''dqyj ''yj g''Qnf ''cpf ''P gy ''Vguvco gpv'kp''f khhgtgpv'ewnwtgu0'Uwf kgu''qh''Kegncpf ke''j cxg''uj qy p''yj ku''vq'' dg"xgt{"o wej "y g"ecug"j gtg<cp"gz vtcqtf kpct{"pwo dgt"qh"y qtf u"gky gt"o cng"y gkt "hktuv"cr r gctcpeg"kp"y tkwgp" Kegropf ke. "qt "vong"qp"pgy "o gopkpi u. "kp"topurc kqpu"qh"vj g"Dkdrg"f cvkpi "dcem'vq"vj g"ukz vggpvj "egpwxt {0 Vj g'Ej wtej 'o ckpvckpgf 'vki j v'eqpvtqrl'qh'r tkpvkpi 'cevkxkkgu'f wtkpi 'vj ku'r gtkqf.'y j kej 'o gcpv'vj cv'ugewrct'y qtmu' y gtg"ugnf qo "kh"cv"cm"r tkpvgf 0J qy gxgt."j cpf y tkwgp"eqr kgu"qh"dqqmu"kpvgpf gf "hqt"vj g"co wugo gpv"qh"vj g" eqo o qp"r gqr ng"cdqwpf gf "f wtkpi "yj g"ukz vggpyj "vq"gki j vggpyj "egpwtkgu0Dqqmu"qh"vj ku"v{ r g. "r ctvkewrctn{ "yj g" qrf guv'co qpi "yi go ."ctg"mpqy p"d{"yi gkt"I gto cp"pco g."XqmudAej gt."yi g{"y gtg"o ckpn{ 'tgvgmkpi u"qh"qrf gt" j kunqtkecn'r qgo u. "eqwt vn{ "tqo cpegu"cpf "hcdrgu0"Vj g"I gto cp"pco g"ku"o kurgcf kpi "cu"kv"qduewtgu"vj g"hcev"vj cv" yj gug"y qtmu"y gtg"qtki kpcm{ 'kpvgpf gf 'hqt"yj g"wrrgt"encuugu="yj g{ "fkf."j qy gxgt."urtgcf "tcrkfn{ 'kpvI gtocp{ 'htqo " y g"gpf "qh'y g'hkhygpy "egpwt { . 'y kj "y g'cf xgpv'qh'y g'r tkpvkpi "r tguu. "cpf "i tcf wcm ("dgeco g"o qtg"cpf "o qtg" eqo o qp01kegrcpf gtu'hktuv'dgeco g'ces wckpvgf 'y kj ''y gug'dqqmu'kp'I gto cp''gf kkqpu'cpf 'F cpkuj ''vtcpurcvkqpu<''  $o\ cp\{''qh''y\ go\ ''j\ cf\ ''dggp''tcpurcygf\ ''kpvq''F\ cpkuj\ ''gctn\{''kp''y\ g''ukz\ vggpyj\ ''egpwt\ \{0C''rcti\ g''pwo\ dgt''uvkm'gz\ kuv''kp''\ g''ukz\ vggpyj\ ''egpwt\ kg''y \ g''ukz\ vggpyj\ ''egpwt\ kuv''kp''\ g''ukz\ vggpyj\ ''egpwt\ kg''y \ g''ukz\ vggpyj\ ''egpwt\ kuv''kp''$ o cpwetkr v'hqto. "cpf "o cp{ "qh' y g'r qwu' y gtg' cf qr vgf "kp' y g'r qr wrct "t \$\phi\$ wt. "qt" tj {o gf "gr keu. "y j kej "hrqwtkuj gf " htqo 'y g'ugxgpyggpy ''q''y g'pkpgyggpy 'egpwt{0

## Nkgtct{'ttcpucvkqp'kp'Kegrcpf

Vj g''rcvg''gki j vggpvj ''cpf ''gctn{ ''pkpgvggpvj ''egpwtkgu''kp''Kegrcpf ''ucy ''c''tgpgy gf ''kpvgtguv''kp''vj g''vtcpurcvkqp''qh''I tggm' cpf ''Tqo cp''ercunkeu0'Uxgkpdl³/tp''GI KNUUQP '\*39; 363: 74+'y cu''vj g''j gcf o cuvgt''qh''vj g''qpn{ ''tgcn'uej qqn'lkp'' Kegrcpf ''cv'vj g''vko g.''y j kej ''y cu''vtcpuhgttgf ''htqo ''vj g''hqto gt''I qxgtpqtøu'tgukf gpeg''cv''Dguucuvc kt''vq''Tg{mlcx¶n0' J g''vtcpurcvgf ''c''pwo dgt''qh''uwej ''y qtmu''kpvq''Kegrcpf ke.''qhvgp''eqpuekqwun{ ''ko kcvkpi ''vj g''uv{ng''qh''ercunkecn''k0g0' o gf kgxcn''Kegrcpf ke0

Qyj gt "tcpurc vqtu" qh" yj ku" gtc "wtpgf" vq" o qf gtp 'Gwtqr gcp 'rcpi wci gu" hqt "yj gkt "uqwteg" vgz w0 Dgpgf km/I t3/pf cn'yj g" Grf gt "398463: 47+'tcpurcvgf 'Rqr g'kpvq' y g'Kegrcpf ke''o gvtg''hqtp{t kurt ='y ku'ku' y g''o gvtg'kp'y j kej ''o cp{"qh" yj g"cpekgpv" Gf f ke"r qgo u"y gtg"y tkwgp0L»p" qtr1 muuqp" 396663: 3; +"hqmqy gf "j ku"ngcf "kp" vtcpurcvkpi "Rqr g." O knap "cpf "Mangruagem" co qpi "qyj gtu 0" Vj gug" y gtg" y gtg" y gtg" ktuv" Kegnopf ke "tcpunc vqtu" y j q" y gtg" pqv'r tko ctka ("engtkeu=" cnj qwi j 'L»p'Rqtrî muqp''cf o kwgf n{ 'uvct vgf ''qwv''cu''c 'o kpkuvgt. 'j g'y cu''f ghtqengf 'hqt''c 'r gtkqf ''cpf ''y cu''qdxkqwun{ " o qtg"kpvgtguvgf "kp"hkvgtcwxtg" yi cp"kp"r tkguvj qqf O'Htqo "yi ku" ko g"qpy ctf u. "o quv" vtcpurcvqtu" y gtg"gf wecvgf "cdtqcf" \*cm quv'cny c{u'cv'y g'Wpkxgtukv{ 'kp'Eqrgpj ci gp+'cpf 'y gtg'j ki j n( 'kphnxgpegf 'd{ 'eqpvgo r qtct{ ''ttgpf u'kp'' Gwtqrgcp'hkgtcwtg0'Vj ku'engctn('rnc{gf'c'tqng'kp'uj crkpi 'vj gkt'xkgy u'qp'tcpunckqp'cu'y gm0'Vj g{'cko gf'vq'' dtkpi 'y g'dguv'cpf 'o quv'gf kh{ kpi 'qh'hqtgki p'hkgtcwtg'\q'Kegrcpf gtu'kp''y gkt'qy p'hcpi wci g0 Vj g'hktuv'r qgvu''qh''yj g'Tqo cpvke''r gtkqf .'Dlctpk'Vj qtctgpugp'\*39: 863: 63+'cpf 'L»pcu'J cmi t\p uuqp'\*3: 29667+.'' vtcpurcvgf "c"pwo dgt "qh'r qgo u'd { "Uej krrgt. 'Qgj rgpuej n® gt "cpf "J gkpg"kp" y g"htgg" uv { rg' \( r \) kecn'qh' y cv'r gt \( q \) 0" Vj g'hqmqy kpi 'i gpgtcvkqp''qh'r qgwi'f kueqxgtgf 'I qgvj g''cpf 'vj g''Gpi nkuj 'Tqo cpvke''r qgwc''D{tqp.''Uj gmg{ ''cpf '' Dwtpu0Co qpi 'vj g'o quv'r tqf wevkxg'\tcpurcvqtu'qh'vj g'pkpgvggpvj 'egpwt{ 'y gtg'Uvgkpi t\psi wt 'VJ QTUVGKP UUQP '' { gctu'j ku'lwpkqt.'y j q'j cf ''qtki kpcm{ ''uckrgf 'hqt'Eqr gpj ci gp''vq''rgctp''eqo o gteg0'Iqej wo u/uqp''gxgpwcm{ " tgwtpgf "\q"Kegrcpf "y j gtg"j g"dgeco g"c"o kpkuyt."\j gp"pgy ur cr gt "gf kqt."cpf "gxgpwcm("y gpv'dcem\q"\j g" o kpkut {OC 'i tgcv'tcxgmgt.'j g'y cu'cnuq'cp'gci gt 'eqttgur qpf gpv'cpf 'qpg'qh'yj g'o quv'r tqf wevkxg'qh'cm'Kegncpf ke'' r qgvu0Kp"cffkkqp"vq"eqorqukpi "r qgvt{"hqt"gxgt{"qeecukqp"cpf"kp"i tgcv's wcpvkv{."j g"y tqvg"c"pwo dgt"qh'r qr wrct" ftco cu'cpf "tcpurcyf "y g'dguv/mpqy p'y qtmu'qh'Uj cmgur gctg0Iqej wo u/uqpøu'tcpurcykqpu'qh'r qgo u'd{ "Rqg." D{tqp. 'Klugp'cpf 'pwo gtqwu'qyj gt''Uecpf kpcxkcp'y tkxgtu'ctg'y tkxgp'kp'c'uy ggr kpi 'cpf 'gpyj wukcuke'uv{rg'yj cv''

gzcnu'ý g'ur ktk."ý qwi j 'k/o c { 'cv'ko gu'nqug'ý g'ngwgt."qh'ý g'qtki kpcn0

Vj g'pwo dgtu'qh'dqyi ''tcpurcvqtu'cpf ''tcpurcvkqpu'j cxg'kpetgcugf 'kp'Kegrcpf 'y kyj ''y g'wr uwti g'kp'r wdrkuj kpi "
cevkxk{ 'f wtkpi ''y ku'egpwt { 0T guvtkevkqpu'qp'ko r qtvu."y j kej ''cr r rkgf ''vq'o quv'eqpuwo gt'i qqf u'wr 'wpvkri'y g'3; 92u'
cpf ''3; : 2u."j cf ''y g'ghhgev'qh'f ktgevkpi ''eqpuwo r vkqp''vq''y qug''ctgcu'qh'kpvgtpcn'r tqf wevkqp''y j gtg''dqyj ''j ki j ''
s wcrkv{ ''cpf ''c'y kf g'tcpi g'qh'ej qkeg''eqwrf ''dg'qhhgtgf ='qpn{ ''c'hgy ''uwej ''ctgcu'y gtg''cxckrcdrg. "cpf ''y g{ ''kpenwf gf ''
r wdrkuj kpi 0'Vj g''tguwnv'y cu''c'j ki j ''f go cpf ''hqt''dqqmu. "cpf ''rcti g'pwo dgtu'qh'r wdrkuj gf 'y qtmu'y gtg''eqpugs wgpvn{ ''
vtcpurcvgf ."gur gelcm{ 'f wtkpi ''y g'f gr tguukqp."r quv/f gr tguukqp ''cpf ''r quvy ct''{ gctu0'\lambda ctgu''qh'y qtmu''r wdrkuj gf ''kp''Kegrcpf ''qxgt''ukz''f gecf gu'kp''y tgg'f khlgtgpv'rkvgtct { 'i gptgu<''r qgvt { .''hkevkqp''cpf ''
vtcpurcvgf ''hkevkqp0

Kp'tgegpv'{ gctu. "cm quv'j cnh'qh'vj g'vkvrgu'qh'vj g'cppwcn'Kegrcpf ke''dqqm'hckt. 'y j kej ''vcngu'r rceg''o quvn( 'f wtkpi 'vj g'' ukz/y ggm'r gtkqf ''qh'vj g''

| 17- 1 111 VX 74 |             | أدحاله الحجيد ماالحجيد | -£ !! !!!Z£   |
|-----------------|-------------|------------------------|---------------|
| Vcdng'4<'Vtcp   | uncwei y qi | mur wanku              | gi ko kegicoi |

| Decade                        | 1900–9 | 1910–19 | 1920–9 | 1930–9 | 1940–9 | 1950–9 |
|-------------------------------|--------|---------|--------|--------|--------|--------|
| qtki kpcn'r qgvt {            | 323    | : 5     | 33:    | 382    | 46;    | 4;:    |
| qtki kpcn'hkevkqp             | 68     | 94      | 324    | 364    | 466    | 49:    |
| vtcpurcvgf 'hkevkqp           | 358    | 342     | 357    | 499    | 982    | 76:    |
| *Uqwteg<'Ra nuuqp''3; 9: 388+ |        |         |        |        |        |        |

Ej tkuvo cu'dqqm/dw{ kpi 'ugcuqp.'j cxg'eqpukuvgf 'qh'\tcpurcvgf 'y qtmu0

C'hcpi wci g'eqo o wpkv{ "qh'qpn{ "472.222"r gqr ng'ku'pcwtcm{ "rko kgf "kp"yj g'co qwpv'qh'qtki kpcn'rkgtcwtg'kv'ecp" r tqf weg0'Y kyj "yj g'tkug'qh'r tqhguukqpcn'yj gcvtg. "yj g'cf xgpv'qh'ugtkcnu'kp"pgy ur cr gtu'cpf "tcf kq"cpf "vgngxkukqp" f tco cvke'r tqf wevkqpu. "yj g'f go cpf "hqt"r qr wrct 'hkevkqp"cpf "f tco cvke'y qtmu'kp'r ctvkewrct "j cu'hct "qw/i tqy p" f qo guvke'r tqf wevkqp. "cpf "vcpurcvkqp"j cu'uwdugs wgpvn{ 'hrqwtkuj gf "kp"yj gug"ctgcu0

#### Vtcpurvkqp'htqo'Kegrcpfke

Vj g"gzknygpeg"qh"cp"gz vgpukxg"cpf "xctkgf"eqtr wu"qh"o gf kgxcn"rkygtcwtg"r tgugtxgf "kp"Kegrcpf ke"o cpwuetkr wu" unko wrc vgf "vj g"tcpurc vlqp"qh"vj gug"y qtmu. "y j kej "dgi cp"kp"vj g"ugxgpvggpyj "egpwt {0C"uo cm"dqqmgv"gpvkngf" Dt gxku"eqo o gpvct kwu"f g"Kurcpf kc"y cu"y tkwpp"d{"vj g"engtke"Ctpi t¶o wt"L»puuqp."mpqy p"cu"÷vj g"ngctpgf ø"kp" 37; 50 Kly cu"kpvgpf gf "vq"tghwg"y kf gur tgcf "nkgu"cpf "o kueqpegr vkqpu"cdqw'Kegrcpf 0"Y kvj "vj g"r cuuci g"qh"vko g." vj g"r qngo keu"qh"L»puuqpøu"y qtm"dgeco g"kttgngxcpv"dw"vj g"dtkgh"r cuuci gu"y j kej "j g"vtcpurc vgf "qt"tgvqnf"htqo " Kegrcpf ke"o gf kgxcn"o cpwuetkr wu"kp"vj ku"y qtm"cpf "j ku"uwdugs wgpv"eqngevkqp. "Et {o qi cgc."uweeggf gf "kp"ctqwukpi " vj g"kpvgtguv"qh"uej qrctu"kp"gzr nqtkpi "vj gug"r tgxkqwun{"wpnpqy p"vtgcuwtgu0

Vj g'hqmqy kpi "egpwtkgu'y kpguugf "cp'kpetgcugf "rgxgri'qh'cevkxk/ "kp"eqmgevkpi ."gf kkpi "cpf "tcpurcvkpi "j gug" o cpw.etkr w0'Vj g'icti guv'eqmgevkqp"y cu'r wv'qi gy gt "kp"Eqr gpj ci gp. "wpf gt "j g'cwur kegu"qh'Kegrcpf gt "f tpk" O ci pÀuuqp "s388563952+0O ci pÀuuqp "ugtxgf "cu'Tq{cn'Ctej kxkvv'kp'Eqr gpj ci gp"cpf "wpf gt vqqni'pwo gtqwu" cuuki po gpwi'hqt "j g'F cpkij "i qxgtpo gpv'kp"Kegrcpf 0J g"tcxgngf "gz vgpukxgn/ "kp"Kegrcpf 'kp"ugctej "qh" o cpw.etkr w1'cpf "o cpci gf "vq"hlpf "cpf "j ktg"Kegrcpf ke"uwf gpwl"qt"i tco o ctkcpu'vq'tgeqtf ."eqr { ."kpf gz "cpf "rtqeguu'y g'o cvgtkcn'kp"xctkqwu'y c{u0Cp"guvko cvgf "y q/y ktf u'qh'y g"o cpw.etkr w1'kp'O ci pÀuuqpøu'eqmgevkqp" y gtg"f guvtq{gf "d{ "hktg'kp'394: ."dwv'y g'Ctpco ci pgcp"Eqmgevkqp"cpf "Kpuvkwwg"j cu'dggp''y g'egpvtg'qh'Kegrcpf ke" o gf kgxcn'uej qrctuj kr "hqt"egpwtkgu0

C'eqpukf gtcdrg'r ctv'qh''y g''cevkxkv{ 'kpxqrxkpi ''y gug''o cpwetkr wi'kpenwf gf ''o cmkpi ''y g''o cvgtkcri'cxckrcdrg''kp'' vtcpurcvkqpu<'hktuv'kp''Ncvkp.''y gp'F cpkij 0'Uxgkpdl¾p'GI KNUUQP ''vtcpurcvgf ''o quv'qh'y g''Uci cu''qh'Mkpi u'cpf ''y g'' gpvktg''eqtr wu''qh'uncrif ke''r qgvt { ''kpvq''Ncvkp="j g''cnuq''eqo r krgf ''c''rgzkeqp''qh'y g''rcpi wci g''qh'y g''uncrif u0'Y ky ''y g'' kug''qh'Tqo cpvkekuo ''kp''Gwtqr g.''dqyi ''uej qrctu''cpf ''r qgvu'hqwpf ''kpur ktcvkqp''kp''y g''Kegrcpf ke''o cvgtkcn''gur gekcm{ ''kp''I gto cp{ ''cpf ''Gpi rcpf 0'Y krikco ''O qttku.''hqt''gzco r rg.''eqo r qugf ''pwo gtqwu''r qgo u''dcugf ''qp''Kegrcpf ke''uci cu'' cpf ''j gtqke''r qgvt {="j g''cnuq''vtcpurcvgf ''o cp{ ''Kegrcpf ke''y qtmu''kpvq''Gpi rkuj 0

Cr ctv'htqo "o gf kgxcn'Kegrepf ke"y qtmu." y g"J {o pu'qh'y g'Reunkqp"d {"y g'r qgv'epf "engtke"J cmi t \b wt "R2 wtuuqp" \*3836696+"ku"r tqdcdn ("y g''qpn ("qnf gt "y qtm'kp" Kegrepf ke "\q" j cxg"dggp"gzvgpukxgn ("\tepurevgf" kpvq"qy gt" repi wei gu0'Y tkwgp" kp"387; 682. "y g" j {o pu'f guetkdg kp"gzegr vkqpcm ("hki wtevkxg"cpf "n {tkecn "cpf" {gv'gcukn ("wpf gtuvqqf" repi wei g." j qy "y g'r qgv'kf gpvkhkgu'y ky "y g'uwhhgtkpi u"qh'l guwu"cpf "qh'o cpnkpf 0F wtkpi "y g"pgzv' egpwt {"cpf" c" j ch "pq" hgy gt "y cp" y tgg" f khhgtgpv'Nevkp" \tepurevkqpu"y gtg"r tkpvgf "qh'y g"r qgo u." kp" hwni'qt kp"r ctv." kp" Eqr gpj ci gp0 Qpg" Ej kpgug. "qpg" J wpi etkep. "cpf" ugxgten Gpi rkuj "\tepurevkqpu"j exg" ulpeg" dggp" r wdrkuj gf 0 Kp" eff kkqp" \q" y g" J {o pu'qh'y g''Reunkqp." qy gt "kpf kxkf wen r qgo u"d {"R2 wtuuqp" j exg"en q"dggp" \tepurevgf" kpq" Fcpkuj 0

Kp'3; 77. 'vj g'pqxgrkuv'J cmf »t''Mkrlcp''Nczpguu'y cu'cy ctf gf 'vj g'P qdgrl'Rtk g'hqt''rksgtcwtg''cpf ''c''pwo dgt''qh'j ku'' y qtmu'j cxg''ukpeg''dggp''tcpurcvgf 'kpvq''qxgt''c''f q| gp''rcpi wci gu. ''gur gekcm{ 'vj qug''qh'pgki j dqwtkpi ''ewnwtgu<'' Uecpf kpcxkcp''rcpi wci gu. ''Gpi rkuj .''I gto cp''cpf ''Htgpej 0'Qvj gt''eqpvgo r qtct { 'y tksgtu'j cxg''dggp''o ckpn{ '' vtcpurcvgf 'kpvq''vj g''Uecpf kpcxkcp''rcpi wci gu''cpf ''Gpi rkuj 0

#### Vj g'Kegncpf ke'xkgy 'qh's wcnkv{'cpf'tw{ng'kp'nkvgtct{'ttcpurcvkqp

Vtcpurcvkqp"cu"kv"y cu"vpf gtvcmgp"f wtkpi "vj g"o gf kgxcn"r gtkqf "ugv"vj g"vqpg"hqt"y j cv"y cu"vq"hqmqy "kp"c"xgt{" f ghkpkkxg"o cppgt0"Kegrcpf ke"vtcpurcvqtu"j cxg"cny c{u"dggp"gzr gevgf "vq"f grkxgt"c"vgzv"y j kej "tgcf u"y gm"kp" Kegrcpf ke0"Ncpi wci g/eqpuekqwu"Kegrcpf gtu"ctg"s wkem"vq"ur qv"cpf "etkkek g"dqttqy kpi u"cpf "wppcwtcn"r j tcukpi "qt" y qtf "qtf gt0C"vtcpurcvkqp"y j kej "uqwpf u"i qqf "kp"Kegrcpf ke"ku"vj wu"qhvgp"eqpukf gtgf "c"vtcpurcvkqp"qh"s wcrkv{0" P gy ur cr gt"tgxkgy u"qh"pgy "vtcpurcvkqpu"kpvq"Kegrcpf ke"\*qp"vj g"hgy "qeecukqpu"y j gp"tgxkgy gtu"f gekf g"vq"

f gxqvg"cp{"ur ceg"vq"f kuewuukpi "cur gevu"qh"vtcpurcvkqp"cu"uwej +"cm quv"vphckrkpi n{"r qkpv"qwv"yj cv"yj g"y qtmu"uqwpf "pcwtcn"cpf "ctg"y tkwgp"kp"i qqf "uv{ ng."qt"ncem"yj gug"s wcnkrkgu0

J qy gxgt."y j krg"j g'o gf kgxcn'tcpurcytu"npgy "j gkt "Ncvkp."cpf "xgt { "ugrf qo "o cf g"o clqt"gttqtu"qt "qo kuukqpu." y g"uco g"ecppqv"dg"uckf "qh"Kegrcpf ke"tcpurcytu"vqf c { 0Qpg"eqwf" "ur gewrcy"j cv"j g"f khhgtgpeg"o c { "rkg"r ctvn{ "kp" y g"hcev"j cv"o gf kgxcn'tcpurcytu"y gtg"uko r n{ "pqv"r ckf" "d{ "ij g"r ci g"cpf" "j cv"hkpcpekcn'eqpukf gtcvkqpu"f kf"pqv" y gtghqtg"kpvgthgtg"y kij "ij gkt"s wguv"hqt"s wcnkv{ 0"Y j cvgxgt"ij g"tgcuqpu. "ij g"hcev"tgo ckpu"ij cv."gxgp"kp"y qtmu"qh" tgeqi pkl gf "rkvgtct{"s wcnkv{ ."ugpvgpegu"qt"gxgp"r ctci tcr j u"ctg"qhvgp"o kuukpi ."o kuvqpf gtuvqqf "qt"o kueqpuvt wgf 0" D{ "cpf" "rcti g."twej "ej cpi gu"cr r gct"vq"dg"wpo qvkxcvgf "cpf" "j g"ukwcvkqp"cr r nkgu"vq"vtcpurcvkqpu"dqij "kpvq"cpf" htqo "Kegrcpf ke0Ugxgtcn'ctvkergu"j cxg"dggp"r wdrkuj gf "d{ "rkvgtct{"uej qrctu"kp"Kegrcpf "kp"tgegpv"{ gctu"r qkpvkpi "qw" y gug"f ghkekgpekgu0Qpg"ecp"qpn{ "ko ci kpg"y g"s wcnkv{ "qh"vtcpurcvkqpu"qh"rguu"tgxgtgf "y qtmu."uwej "cu"r qr wrct"qt" r wrr "hkevkqp."kp"eqo r ctkuqp0

## Vj g'r t gugpv'vlo g

Kp"vqf c {øu"y qtff "qh"o cuu"o gf kc."uo cm"pcvkqpu"ctg"qdxkqwun{"j ki j n{ "f gr gpf gpv"qp"\tcpurcvkqp"hqt"\y gkt "gkt"kgkttg" cu"y gm"cu"y gkt"y qtm0Dgw ggp"82"r gt"egpv"cpf "92"r gt "egpv"qh"\grgxktkqp"dtqcf/ecuvkpi "kp"Kegrcpf "eqpuktvu"qh" uwdvkngf "hqtgki p"o cvgtkcn="r tqi tco o gu"hqt"ej kft tgp"ctg"iko kgf "kp"pwo dgt"dw"ctg"rcti gn{ "f wddgf 0Hqtgki p" pgy u"kgo u"qp"tcf kq"cpf "vgrgxktkqp"cpf "kp"pgy ur cr gtu"ctg"cm quv"cm"\tcpurcvgf "htqo "hqtgki p"uqwtegu."cu"ku"c" reti g"r ctv"qh"yj g"tguv"qh"y g"r tkpvgf "qt"dtqcf ecuv"o cvgtkcn"cpf "cf xgtvktgo gpvu0C"i tgcv"f gcn"qh"\tcpurcvkqp"ku"cnq" ecttkgf "qw"d{ "qt"hqt"ko kgf "pwo dgtu"qh"wugtu"uwej "cu"r qrkxkekcpu"cpf "ur gekcrktrui"kp"xctkqwu"hkgrf u="yj ku"kpenvf gu" qhhkekcn"cpf "rgi cn"f qewo gpvu."eqpvtcevu. "kpurtvevkqpcn"o cvgtkcnu."cpf "uq"qp0I kxgp"yj g"uk g"qh"yj g"r qr wrcvkqp"cpf" yj g"rgxgn"qh"vtcpurcvkqp"cevkxkv{ ."kv"ku"pq"gzci i gtcvkqp"vq"uc{"yj cv"c"o wej "rcti gt"r tqr qtvkqp"qh"yj g"r qr wrcvkqp"ku" qeewr kgf "y kj "vtcpurcvkqp"kp"kgrcpf "yj cp"kp"o quv"qyj gt "eqwpvtkgu"qh"yj g"y qtnf 0

KVku"uwtr tkukpi ."i kxgp"yj gug"hcevu."yj cv"yj gtg"ku"pqv"vqf c{"cpf"pgxgt"j cu"dggp"kp"yj g"r cuv"cp{"r tqi tco o g"qh"

gf wecklap hat "tepure vatu" by "kegrepf." pgksj gt "kp" i g"hato "qh"ere uut qo /deugf "kput we klap" pat "er r t gpkeguj kr "qh" ep { "mapf OC" irey "r euugf "kp"3; 36. "er r etgpwl{"cu'e' t guwn/qh'ij g"ij gp"ewt t gpvleaphrkev'epf "xei wg"eapegt p"ev' kor gpf kpi "j qukhkkgu" by "j g"P qt ij "C vep kle. "r t qx kl gu'hat "#gi em { "er r t qx gf "f qewo gpv'kt epure vatu" ep wt "kpvgtr t gvgtuø" dw'rkwrg "r t qx kukap" y eu "uwdugs wgp vn { "o ef g"hat "ktelphpi "qt "vgunkpi "gksj gt" i t qwr OKp"eewen heev "wp kn" e' hgy "f geef gu"ei q. "ep { apg"er r n { kpi "hat "r gto kuukap" va "wug" j ku'kkrg" y eu "ew j qt k gf "va "f q"ua. "r t qx kf gf "ulj g" eq wf "f go apunt evg" j ex kpi "gksj gt "uwf kgf "hat ki p"iepi wei gu"at "t guld gf "edt qef "hat "e "eapul gt ed arg" ip i y "qh'ko g0' Hat "j g"r euv'y gp v{ "{ getu "qt "uq. "i j g"O kpknt { "qh'I wnkeg" j eu'd ggp" j an kpi "t gi wet "gzeo kpekapu" hat "j qug" er r n { kpi "va "wug" j g"s wenkheekap0V j g"gzeo u"et g"pay "y kf gn { "t gur ge vgf "ep f" eapul f gt gf "e' ugt kqwu" vguv'ah "r t qhguukapen'ed khk { 0V j gt g"ku'pa "r t gr et evat { "eaput ug" qhhgt gf ."ep f" pa "ewgo r v'ku"o ef g" va "t ekp" qt "er r t qx g" t epure vat "y j a "ur ge kenk g" kp"et geu" qj gt "j ep "ig en "t egep v" { getu. "r repu" va q' qhhgt "e' ap y { get" f kr mo e" eaput ug" p" t epure vkap "ey "y kgr er "f pa "exkmij ex g" dggp" wpf gt "f knewunkap. "dw'pa "ht o "eqo o ko gpv'j eu'd ggp" o ef g" { got" und ggp" o ef g" { go

## Hwt yj gt 't gcf kpi

Gkpctuuqp'3; 83="Mwnwt j kuqt kunihgmuknqp'hqt 'pqt f kunio kf f grouf gt 'ht c 'xknkpi gukf '\kn't glqt o c vkqpuukf '3; : 4="Rwnukcpq"cpf" Y qrh'3; ; 5="Uggrqy '3; : ; =\ ven'3; ; 20

MGP GXC'MWP\

## Dkqi tcrj kgu

f UI GKTUUQP.'O ci pwu'\*3; 23677+0'Chygt''uwf {kpi 'Kegropf ke''cv'yi g'Wpkxgtukx{ "qh'Kegropf 'kp'Tg{mlcx¶m" f ui gktuuqp''dgeco g''c''lqwtpcrkuv''cpf ''ktcpurcvqt''cpf ''ku''eqpukf gtgf ''yi g'hqtgo quv''tcpurcvqt''qh'r qgvt { "f wtkpi ''yi cv' r gtkqf 0J g'r wdrkuj gf ''ukz''xqnwo gu''gpvkxrgf ''R ff''h» '\*\*Rqgvt { ''kp''vtcpurcvkqp+''dgwy ggp''3; 4: ''cpf ''3; 630'O quv''qh'' j ku''vtcpurcvkqpu''ctg''qh'y qtmu''d { ''Uecpf kpcxkcp.''gur gekcm{ ''Uy gf kuj ''r qgvu.''cu'y gm''cu''Co gtkecp.''I gto cp''cpf '' Gpi rkuj 'y qtmu'0

GI KNUUQP.'Uxgkpdl¾t p'\*39; 363: 74+0'Gi knuuqp''uwf kgf ''y gqmi { 'kp'Eqr gpj ci gp''dghqtg''dgeqo kpi ''ycej gt''qh'' encuuleu''cpf ''uwdugs wgpvn(''j gcf o cuvgt''qh''y g''Ncvkp''uej qqn'lkp''

 $Tg\{mcxkn0J\ g''tcpurcyf''| qt''cuukuygf''| kp''tcpurcykpi''o\ gf\ kgxcn''kgrcpf\ ke''y\ qtmu''| kpyq''Ncykp.'' kpenxf\ kpi''' Mqpwpi\ cu³/i\ wt'''' Uci\ cu''qh''Mkpi\ u+''cpf''' Upqtt\ c/Gff\ c''''yj\ g''Rtqug''Gf\ c+-''cpf''j\ g''ku''cnuq''yj\ g''cwj\ qt''qh''c''f\ keykqpct\ {''qh''\ uncrf\ ke''r\ qgyt\ {.''Ngzkeqp''r\ qgykewo''cpyks\ wc\ g''nkpi\ wc\ g''ugr\ vgpyt\ kq/pc\ rku0J\ ku''r\ tkpekr\ cn'eqpyt\ kd\ wkqpu''\ q''Kegrcpf\ ke'''\ nkytcwt\ g''y\ gtg''j\ ku''\ tcpurcykqpu''qh''c''pwo\ dgt''qh''ercuukecn''cwj\ qtu''\ kgrcpf\ ke''cpf'''\ kgrcpf\ ke''\ tglgevgf''yj\ g'' Ur\ ng''qh''ercuukecn''\ kg0'o\ gf\ kgxcn''\ Kegrcpf\ ke''cpf'''\ tglgevgf''yj\ g''F\ cpkuj\ ''cpf'''\ gtg'' tcpurcykqpu''y\ gtg'''\ cpf'''\ uncyf''\ tglgevgf''\ g''y\ gtg''\ tgrt\ kgrcpf\ ke''\ kgrcpf\ ke''\ thytgf'''\ tgrcpf\ ke''\ tgrcpf\ ke''\ thytgf'''\ tgrcpf\ ke''\ thytgf'''\ tgrcpf\ ke''\ thytgf'''\ tgrcpf\ ke''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ tgrcpf\ thytgf'''\ thytgf'''\ tgrcpf'''\ thytgf'''\ tgrcpf\ thytgf'''\ tgrcpf'''\ thytgf'''\ thytgf''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf'''\ thytgf''\ thytgf'''\ thytgf'''\ thytgf''\ thytgf''\ thytgf'''\ thytgf'''\ thytgf''\ thyt$ 

VJ QTUVGKP UUQP.'Uvgkpi t the wt "\*3: 5363; 35+0Co qpi "vj g"o quv"r tqf wevkxg"Kegrcpf ke "vtcpurcvqtu"qh"vj g" pkpgvggpyj "egpwt { . "Vj qtuvgkpuuqp"y cu"tghgttgf "vq"d { "vj g"etkkeu"qh"vj g"ko g"cu"c" Mmmmt dt kpi gt 0"J g"uwf kgf " r j knquqr j { "cu"y gmlcu"ercuukecn"cpf "o qf gtp"rcpi wci gu"kp"Eqr gpj ci gp"cpf "y qtngf "vj gtg"hqt"cpqvj gt "vgp" { gctu" cu"c"ht ggrcpeg"r qgv"cpf "vtcpurcvqt0"J ku"vtcpurcvkqpu."y j kej "kpenwf g"Vj g"Ctcdkcp"Pki j wu "Mkpi "Ngct."Tqdkpuqp" Et wuqg"cpf "J (E0Cpf gtugpøu"Hckt { "Vcngu" "ctg"ej ctcevgtk gf"d { "c"hkpg"ercuukecn"Kegrcpf ke"uv { rg. "qhvgp"o qtg"j ku" qy p"vj cp"vj cv"qh"vj g"qtk kpcn"cwj qtøu0"Uwtr tkukpi n { "rkwrg"f khhgtgpeg"ku"hqwpf "dgw ggp."hqt"kpuvcpeg."vj g"hcpvcuke" vcrgu"qh"vj g"Ctcdkcp"Pki j wi"cpf "vj g"ectghwn { "y qtf gf" hcdrgu"qh"Cpf gtugp0

MGP GXC'MWP\

# Kpf kcp'tt cf kskqp

Vj ku 'gpvt { 'ungvej gu 'vj g 'j kuvqt { ''qh 'vt cpurc vkqp 'kp 'vj g 'Kpf kcp 'uvvdeqp vkpgp v 'tcvj gt 'vj cp 'kp 'vj g 'r quv 3; 69 'pc vkqp/ uwcyg'qh'llof kc0Vj g'uwdeqpykpgpy'ku'c'tqwi j n( "f kco qpf/uj cr gf "ctgc"cdqw/3.722"o krgu'htqo "pqtyj "vq"uqwj "cpf " yj g'uco g''gcuv''vq''y guv. "dqwpf gf "d{ ''yj g'J ko crc{cp''o qwpvckpu'kp''yj g''pqtyj "cpf "d{ ''yj g''ugc''vq''yj g''uqwyj 0'Vj g'' ncpi wci gu'ewttgpvn{ 'ur qngp'kp''y ku'ctgc'hcmlkpvq''y q'o ckp'i tqwr u0Cdqwb'92'r gt'egpv'qh'y g'r qr wrcykqp."o ckpn{ " kp"yj g"pqtyj gtp"j cmh"ur gcmlKpf q/Gwtqr gcp"ncpi wci gu"f gtkxgf"f ktgevn{"htqo" "Ucpumtkv."uwej "cu"J kpf k"Rwplcdk" I włetek 'O etevj k 'Dgpi erk 'epf 'P grenło Ukpj engug. 'ur qmgp 'kp 'Utk' Nepme. 'enuq 'dgmpi u' 'vq 'vj ku'i tqwr 0 Cpq vj gt '42" r gt "egpv." o ckpn{ 'kp" y g"uqwj . 'ur gcmlF tcxkf kcp" ncpi wci gu. 'pco gn{ "Vco kn" Vgnwi w. 'Mcppcf c. 'cpf 'O cm{ cnco 0' Vj g'tguv'ur gcm'C wuxtle'hopi wci gu'\*o ckpn{ 'uecwgtgf ''tkdcn'r gqr ngu+.''Vkdgvq/Dwto cp'hopi wci gu'\*kp''yj g'pqtyj/ gcuv+."cpf "Fctfke"hcpi wci gu"\*kp"yj g"pqtyj/y guv+0Wtfw."yj g"o ckp"hcpi wci g"qh"Rchkuvcp."ku"enqugn("tgncvgf"vq" J kpfk'dw'j cu'cfqrvgf'o cp{'Rgtukcp'cpf'Ctcdke'y qtfu'cpf'wugu'vjg'Ctcdke'uetkrv0'Vjg'o ckp'pqp/kpfkigpqwu' ncpi wci g. "Gpi nkuj . "ku" wugf "crqpi ukf g" vj gkt "o qvj gt "vqpi wg" d{ "o quv" gf wecvgf "r gqr ng0 Ugxgtcn'r tqdngo u'ctkug'y j gp''cwgo r wpi "vq'f gcn'y kyj "vj g''gctnkgt"j kuvqt { "qh' vtcpuncwkqp'kp'vj g''uwdeqpwkpgpv0'Vj g'' gxkf gpeg'ku'gz vtgo gn{ 'r cvej { .'r ctvn{ ''dgecwug''qh''c''r tgf qo kpcpvn{ ''qtcn''vtcf kkqp.'r ctvn{ ''dgecwug''qh''y g'' f gunt we klap "qh"kppwo gtcdrg" vgz w "d { "enko c ke "eapf kklapu. "r guw "uwej "cu"y j kwg"cpw. "qt" j qunkrg" j wo cp "ci gpe { 0' Gz vcpv'eqr kgu"qh'vgz vu'ctg"qhvgp"ugxgtcn'egpwtkgu'hcvgt"vj cp"vj g"f cvg"qh'vj gkt"eqo r qukkkqp0'Vj g"hqpi gxkv{"cpf" eqpvkpvkx{"qh'nkpi wkurke"fgxgnqrogpv'kp"yig"ctgc"ogcpu"yicv'kpfkxkfwcn'vgzvu"qhvgp"gzjkdkv'hgcwxtgu"qh'oqtg"yicp" qpg'j kuqtkecn'r gtkqf 0'Vj g'ej tqpqmi { ''qh'\gzw'ku'tctgn( ''gzcev'cpf ''ku'qhvgp''dcugf 'hcti gn( ''qp''kpvgtpcn'gxkf gpeg'' uwej "cu'tghgtgpegu'\q"rtgxkqwu"cwj qtu'cpf 'y qtmu0'Uko krctn(."vj g'i tgcv'i gqi tcrj kecn'gz vgpv'qh'vj g'uwdeqpvkpgpv' qhygp'o cngu'f kuvkpevkqpu'dgwy ggp'hcpi wci g'cpf 'f kcngev'tcyj gt'r tqdngo cvke0'Vj g''gxqnxkpi 'ewnwtcn'j qo qi gpgkv{ " ecwugu'r tqdrgo u'kp'f kukpi wkuj kpi 'dgwy ggp'tgwgrkpi u'cpf 'xctkcpv'tgpf gtkpi u'qh'eqo o qp'uqwteg'o cwgtkcn'' cf cr vcvkqpu'qh'r tgxkqwu'vgz vu. "cpf 'cewcn'vtcpurcvkqpu0Hkpcm{. 'rkwrg'r tgxkqwu'y qtm'j cu'dggp'f qpg'kp'vj g'hkgnf 'qh' vtcpurcvkqp'j kuvqt{'hqt''yj ku'tgi kqp0

## Vj g'cpelgpv'r gt kqf '\*e047226: 22'DE+

Vj g'htuv'pggf 'hqt'kpvgt/rcpi wci g'eqo o wpkecvkqp'kp''y g'uwdeqpvkpgpv'r tqdcdn{ 'ctqug''y tqwi j ''vtcf g0'Vj g''qnf guv' rkpi wkuvke''gxkf gpeg''ku''q''dg'hqwpf 'kp''y g'ej ctcevgtu''kpuetkdgf ''qp''uvgcvkxg''ugcnu'hqwpf 'kp''y g''Kpf wu''xcmg{ 'kp''y g'' pqty /y guv0'Vj gug''ctg''uckf ''vq''f cvg'htqo ''472263722''DE.''dw''wphqtwpcvgn{ ''y g''uetkr v''

j cu'pqv'{ gv'dggp'f gekr j gtgf 0'V j g'tgo ckpu'qh'c' j ctdqwt' j cxg''dggp''wpgct y gf 'kp''y g''ctgc. 'cpf 'Kpf wu'uv{ rg'' ctycheeu' j cxg''dggp''hqwpf 'cu'hct''cy c{ 'cu''O guqr qxo kc0Hqt''uqo g''4222' { gctu'chxgt 'y ku.''wpkri'y g''kpuetkr kqpu''qh'' y g''g r gtqt''Cuqnc''kp''y g''y ktf 'egpwt{ 'DE.''y gtg''ku''pq''o cygtkcn'hkpi wkurke''gxkf gpeg''cv'cm0'V j ku''ku''r tko ctkn{ 'f wg'' y g''y g''Ct{cpu.''dcpf u''qh''pqo cf ke''ecwrg/ j gtf gtu'htqo ''egpytcn'Cukc''y j q''ugwrgf ''kp''y g''Kpf wu''ctgc''kp''y g''rcwgt''r ctv'' qh''y g''ugeqpf ''o kngpkwo ''DE0'V j g{ ''ur qng''Ucpuntkx.''cp''Kpf q/Gwtqr gcp''rcpi wci g.''cpf ''dtqwi j v'y ky ''y go ''c'' y gcnj ''qh''r qgyt{ ''y j kej ''y g{ ''uwdugs wgpyn{ ''eqngevgf ''qi gyj gt''wpf gt''y g''pco g''Tki xgf c''qt''-j { o pu''qh'y kuf qo  $\phi$ =" cpqyj gt''i tqwr ''qh''Ct{ cpu''o qxgf ''kpyq''Rgtukc''cv''ctqwpf ''y g''uco g''y g''y gkt''ucetgf ''dqqm''y g''*Cxguwc*. ''tghrgewi' c''xgt{ ''uko krct''ewnwtg''y cv'qh'y g''*Tki xgf c0* 

Vj g'Ct{cpu'tgi ctf gf "ij go ugnxgu'cu'uwr gtkqt"\q"ij g'kpf ki gpqwu'r gqr ng'cpf "\tkgf "\q"r tgugtxg"j gkt"ewnwtcn'cpf " nkpi wknke"r wtkx{0Qpeg'\ij g{ "j cf "ugwngf "kp"\ij g'uwdeqp\kpgpv."\ij g" $Tki \ xgf \ c$ "y cu'gpf qy gf "y kyj "gzvtgo g'ucpe\kx{" cpf "o {uvke"r qy gt"d{ "j g"r tkguw0Qpn{"Ct{cpu'y gtg"cmqy gf "\q"ngctp"cpf "\wg"\ij g"Tki xgf ke"j {o pu0P q'tghgtgpeg" \q"y tkkpi "ku'hqwpf "hqt'ugxgtcn'j wpf tgf "{gctu."uq'\ij g"hpi wknke"cpf "tgrki kqwu'\tcf kkqp"y cu'gp\ktgn{"qtcn'f gur kg" \ij g"eqp\kpwcn'grcdqtc\kqp"qh'\ij g"qtki kpcn'Tki xgf ke"o c\gta cytkcn0Gxgp"ch\gt "\j g'cf xgpv'qh'y tkkpi ."cpf "\j g" f gxgmr o gpv'qh'xgtpcewrt "rcpi wci gu."uq"ucetgf "y gtg"\ij g"Xgf ke"\gz w"eqpu\kf gtgf "\ij cv'qpn\"eqo o gp\ctkgu" y tkkgp"\p"Ucpunt\kr'ctg'\nqwpf "\wp\ktirv\g'o gf kgxcn'\ko gu."cpf "egt\ckp\n" [pq"\tcpurc\kqpu"\wp\ktirv\g'o gf ktr \rc\g'y grg'\ij g"Xgf ke"\gz w"eqpu\kf gtgf "\ij cv'qpn\"eqo o gp\ctkgu" y tkkgp"\p"Ucpunt\kr'ctg'\nqwpf "\wp\ktirv\g'o gf kgxcn'\ko gu."cpf "egt\ckp\n" [pq"\tcpurc\kqpu"\wp\ktirv\g' guytp"\uej qnctu" i ckpgf "ceeguu'\q'\ij go "\p'\j g'pkpg\ggp\yj "egp\wt{0J qy gxgt."ktqp\ecm\n" [gxgp'\j g'Tki xgf c'f ktr \rc\g' ktr \rc\

## Vj g'r t g/encudech'r gt kqf '\*eû 22'DE/CF '322+

Htqo "cdqw": 22"DE "qpy ctf u"y g"Ct {cpu"dgi cp"\q"ur tgcf "qw"htqo "y g"Kpf wu"tgi kqp. "gcuwy ctf u"kpvq"y g"I cpi gu" xcmg {"cpf "uqwj "\qy ctf u"y g"F geecp. "cpf "y g"Rgtukcp"Cej cgo gpkf "Go r ktg"\qqn"eqpvtqn"qh"y g"Kpf wu0Ct {cpu" cnuq"dgi cp"\q" q"dg {qpf "y gkt "vtkdcn"\yttkqtkgu<"uwf gpvu"cpf "vtcf gtu"vtcxgmgf "\q"Vczkrc"kp"y g"nkpi f qo "qh" I cpf j ctc"kp"y g"pqty /y guv. "uqnf kgtu"o qwpvgf "qp"gngr j cpvu"cr r ctgpvn {"hqwi j v"kp"y g"Cej cgo gpkf "cto {"ci ckpuv" y g"I tggmu0

Cu''y g'Ct {cpu'dgi cp''vq'f kur gtug. 'ugxgtcn'o clqt'f gxgnqr o gpvu'vqqm'r nceg0C''o qtg'uelgpvlhle'cvkwf g''dgeco g'' nkpi wkunke 'uwdlge vu'uwej "cu'gv{oqmi{."ogvtkeu. 'r tquqf{."cpf 'i tcooct0Cv'yig'ucog'vkog. 'yig'Ct{cp'hcpi wcig' uvctvgf "vq'htci o gpv'lpvq'f lengeven'qt'tgi lqpen'hqto u'mpqy p''cu''RtentluvOReplpløu'y gm/mpqy p''i teo o et''lu' tgi ctf gf "d{"uqo g"cu"c"tgur qpug"vq"yi g"Ct{cp"f kcur qtc."cp"cwgo r v"vq"hkz"yi g"hqto "qh"Ucpumtk"dghqtg"kv" f kukpvgi tcvgf "kpvq"o wwcm{ "wpkpvgmki kdrg"f kcrgevu0Vj g"f kukpvgi tcvkqp"r tqeguu'y cu"tgkphqtegf "d{ "vj g"i tgcv" tgrki kqwu'tghqto gtu'qh'yi g'ukzyi 'egpwt { 'DE. 'gur gekcm { 'yi g'Dwf f j c'cpf 'O cj cxktc' hqwpf gt 'qh'Ickpkuo +. 'y j q'' rtqrcicvgf "xgtpcewrct"rcpi wcigu "kp"qtfgt" \q"ocng" \jgkt" \gcej kpiu 'ceeguukdrg" \q" \jg"ocuugu 0 Rcpkpkøu i tcooct" o c{"yi gtghqtg"cnuq"tgrtgugpv"rctv"qh"yi g"qtyi qfqz"tgnki kqwu"dcemcuj "ci ckpuv"yi gug"cpvk/Xgfke"o qxgo gpw0 Mcwkn{c." y g"o kpknygt"qh" y g"hqwtyi "egpwt{"DE"Kpf kcp"go r gtqt"Ecpf tci wr w "O cwt {c." y tqvg"c" \tgc\kng"qp" uvcvgetch/\*qhvgp"eqorctgf 'vq'vjg'yqtm'qh'vjg'ukzvggpvj/egpwt{"Kvcnkcp."Ocejkcxgmk+'yjkej'ikxgu'wu'uqog" kpf kecvkqp"qh'yi g'uvcwu''yi cv'c''tcpurcvqt"o ki j v'j cxg''j cf 'f wtkpi ''yi ku'r gtkqf 0'Cnyi qwi j ''yi g''vgto "-itcpurcvqtø'ku''pqv'' wugf. 'Mcwkn(c'o gpvkqpu'-uetkdguø'vqy ctfu'vj g'gpf'qh'c'nqpi 'nkuv'qh'qeewr cvkqpu'cpf 'ucnctkgu<'vj g'nkpi øu'ej kgh' rtkguv."qvj gt"j ki j "rtkguvu."vj g"rtko g"o kpkuvgt."o krkvct{"eqo o cpf gt."cpf "o go dgtu"qh"vj g"tq{cn'hco kn{ "6: .222" r cpcu+="ej kghu"qh"r qnkeg."j ctgo. "cto qwt{."r tkuqp."tgxgpwg."cpf "vtgcuwt{"\46.222"r cpcu+="hguugt"tq{cnu."yj g"ej kgh" qh'kpf wuxt {."eqwpugmqtu" \*34.222"r cpcu ⊨"i wkrf "o cuvgtu."tgi ko gpvcn'j gcf u."ej ctkq√eqo o cpf gtu."rj {ukekcpu." hptwpg/vgmgtu."dctf u. 'r tqhguuqtu"cpf 'ur kgu'\*7226: .222'r cpcu\="kphcpvt {o gp. 'uetkdgu. 'cpf 'ceeqwpvcpvu'\*722' r cpcu+016p'y g'xgt { 'hcuv'tcpm'ctg'etchwo gp. 'ugtxcpvu. 'o gf kecn'cuukuvcpvu'cpf 'eqy j gtf u'\*y kj 'pqvkqpcn'hki wtgu'hqt" urcxgu."grgr j cpvu."j qtugu."cpf "qzgp+0

Kp" i g"hqwtyi "egpwt { "DE." eqpvcevu" y kyi "i y g"hwdeqpvlogpv'ctg" gzvgtpcm { "cwguvgf <'y g"hpqy "i y cv'Cngzcpf gt" y g" I tgcv'qh'O cegf qp"tgcej gf "i y g"Kpf wu"kp"548" DE "cpf "i y cv'y g"I tggmiej tqpkengt" O gi cuyi gpgu" y cu'yi g" co dcuucf qt "qh" Ugrgwewu. "Cngzcpf gtøu" uweeguuqt. "cv'yi g"O cwt { cp"eqwtvOCo qpi "i y g"gctrkguv'tgeqtf gf " vtcpurcvlqpu" ctg"r tqdcdn { "i y g"pco gu"qh"r reegu"cpf "twrgtuOV j g"ecr kcn'qh"I cpf j ctc'y cu'mpqy p"cu" Vcmij cuj krc" \q" y g"Kpf kcpu"cpf "Vczkrc" \q" y g"I tggmiOV j g"I tggmij knvqtkcp" Rnwctej "wugu" y g"I tggmixgtukqp. "Ucpf tceqwqu" hqt" y g"pco g"qh" y g"Kpf kcp" go r gtqt" Ecpf tci wr wcO

#### Gctn 'Dwffj kuo

Kpf kcp''Dwf f j kuv'uej qrctu'\tcxgrrgf '\q'Ej kpc'\kp'\j g'hktuv'egpwt{'CF'cpf'y gtg''pq'f qwdv'tgur qpukdrg'hqt'uqo g''qh'' y g'gctrkguv'\tcpurc\kqpu'qh'Dwf f j kuv'\yz wi'kpvq'Ej kpgug0Cuj xci j quj cøu'r qgo "Dwf f j cect kvc. '\j g''\textra khg''qh'' Dwf f j cø''tgr tgugpwu'\j g''gctrkguv'\uwtxkxkpi 'Encuukecn'Ucpuntkv'r qgvt{'\\*e0hktuv'egpwt{'CF+:'dwv'\j g''o cpwuetkr wi'qh'' kv'hqwpf 'cv'Vwthcp'\kp'I qdk'ctg''c'Ej kpgug'\tcpurc\kqp''d{''cp''Kpf kcp''uej qrct0

## Vj g'enculecnir gt lqf '\*e\beta2263222+

qh'ngi gpf u.'tgrki kqwu'o cvgtkon'cpf 'r ugwf qj kuvqtkeon'nkpi /rkuvu+'kp'ercuukeon'Ucpumtkv.''y kyj ''yj g'kf go''qh''gpj opekpi ''
vj gkt''uvcwu''yj gtgd{0

Kp''y g'ecug''qh'Lckpkuo ''cpf ''Dwf f j kuo .''ncvgt''vgzwi'y gtg''qhvgp''y tkwgp''kp''Ucpuntkv''dgecwug''d { ''y gp''y g'xgtpcewrct'' repi wei gu'j cf ''gkyj gt''f kxgti gf ''vqq''hct''vq''dg''o wwen { ''kpvgnki kdrg''qt''y gtg''vqq''tgi kqpcm { ''tguxtkevgf 0'Uq. ''kp''y g'' kpvgtguv'qh''y g''tcpuo knukqp''qh''y g''vgcej kpi u.''uej qrctu'tgxgtvgf ''vq''Ucpuntkv0J qy gxgt.''revgt''uvkm''y g''vtgpf ''ku'' tgxgtugf ''qpeg''ci ckp.''cpf ''vtcpurcvkqp''o ckpn { ''r tqeggf gf ''htqo ''Ucpuntkv'kpvq''qy gt ''repi wei gu0'Hqt''gzco r rg.''y g'' Dj cmk'tgrki kqwu''o qxgo gpv''pqv''qpn { ''eqo r qugf ''qtki kpcn'o cvgtkcn'kp''xgtpcewrct''repi wei gu.''dw''cnuq''vtcpurcvgf '' o cp { ''f gxqvkqpcn'r qgo u.''cu'y gm''cu'y g'Gr keu''cpf ''Rwtcpcu.''htqo ''Ucpuntkv'kpvq''nqecn'repi wei gu0'Vj gtg''y gtg''cnuq'' cf cr vcvkqpu''qh''y g'Gr keu''cpf ''Rwtcpcu''kpvq''F tcxkf kcp''repi wei gu0

Qpg"ctgc"qh'rkxgtcwtg"y j kej "uj qy u"uki pkhkecpv"f gxgmr o gpv"kp" yj ku'r gtkqf "ku'f tco c0"Uqo g'uej qrctu'cwtkdwg" y ku'\q'I tggmlkphrwgpeg. "dww'y ku'j cu'pqv'dggp'r tqxgp0Vj g'ko r qtvcpeg'qh'y g'tkug'qh'f tco c'hqt'\tcpurcvkqp'ku'y cv' Ucpumtk/r nc { u'uvct vgf '\q'cmqy 'ej ctce vgt u'y j q'y gt g'pqv'mkpi u'qt 'dt cj o kpu'\*J kpf w'r t kguvu+'\q'ur gcm'kp''Rt cm ku.'' y j kej 'tgr tgugpv'cp'kpvgto gf kcvg'uvci g'dgwy ggp'Encuukecn'Ucpuntk'cpf 'vj g'o qf gtp'Kpf kcp'ncpi wci gu'f gtkxgf " htqo "Ucpuntko" qy gxgt. "c"ej c{c"qt" i nquuø'y cu"uvkn"r tqxkf gf "kp" Ucpuntk'hqt" yj g" Rt cmt k' ur ggej gu kp" yj g"r nc{u0} Cpqvj gt 'hkgtct { 'i gptg'r ct vlewrctn { 'lorqtvcpv'vq'\tcpurcvkqp'j kuvqt { 'lku'vj g'hcdrg0'Vj ku'dgeqo gu'r qr wrct'y kvj 'vj g'' Rcnk'Lcvcncu'cpf "qhygp"kpxqnxgu'vcmkpi "cpko cnu0'Uqo g'uej qnctu'ci ckp"ugg"I tggmkphnygpeg"dgj kpf "vj ku" f gxgmr o gpv."dw/k/ku"o qtg"hkngn("'y cv'uvqt {vgmkpi "ttcf kkqpu"htqo "'y g"O kf f ng"Gcuv''y tqwi j "'vq"Ej kpc"gzej cpi gf " r myu'cpf 'ej ctcevgtu0Qpg'eqmgevkqp'qh'cpko cn'hcdrgu'kp'r ctvkewrct. 'yj g''Rcpecvcpvtc'qt''÷Hkxg''Vtgcvkuguø'j cu'cp'' cuvapkuj kpi "tropurcvkap"j kuvat {0'Kt'y cu'hktuv'tropurcvgf 'htqo "Ucpuntkv'kpva'Rcj roxk'kp'vj g'ukzvj "egpwt {"cv'vj g" qtf gt "qh"Mj wutcw"Cpwuj kty cp. "yj g"Rgtukcp"go r gtqt0"C"U{ tkce "tcpurcvkqp"hqmqy gf "kp"e0792. "cpf "cp"Ctcdke" vtcpurcvkqp'kp''y g'gki j y 'egpwt{0'Vj g'grgxgpy 'egpwt{'ucy 'pgy 'tcpurcvkqpu'kp''U{tkce. 'Ctcdke'\*cu'y g'uvqt{'qh' Mentare 'y e 'F ko pe+: "cpf 'Rgtukep' \*cu' Menta 'F co ep+: "cu' y gm'cu' e 'I tggm'vtepunevkqp' htqo 'vj g'' U{ tkee 'y j kej 'y cu' wugf 'hqt'c'J gdtgy 'xgtukqp0C'Ncvkp'xgtukqp'htqo 'vj ku'r gtkqf 'ku'cnuq'mpqy p.'cpf 'vj g'uvqtkgu'i tcf wcm{ 'ur tgcf'' yj tqwi j qw/Gwtqr g'lkp''cm'lku'o clqt'hcpi wci gu'f wtkpi ''yj g'hkhvggpyj ''cpf ''ukz vggpyj ''egpwtkgu0'Vj g'hktuv'Gpi nkuj '' xgtukqp."d{ "Ukt"Vj qo cu'P qtyj ."crrgctgf "kp"3792"cpf "y cu'ecngf "Vj g"O qt cmlRj krquqrj kg"qllF qpk "chxgt"vj g" pco g"qh"yi g"Kcrkcp"tcpurcvqt0Vj g"hcdrgu"qh"Nc"Hqpvckpg"ctg"gzr rkekrn{ "cempqy rgf i gf "cu"dcugf "qp"yi g"uvqtkgu"qh" Rkr c{."yj g"pco g"d{"y j kej "yj gkt"tgr wygf "Kof kcp"pcttcvqt"Xkf {cr cvk'y cu"mpqy p"kp"Gwtqr g0Vj g"Rcpecwputc"y cu" r tqdcdn{ 'tgur qpukdng'hqt''yj g''uvqtkgu''qh'Tg{pctf''yj g''Hqz.''eqo o qp''vq''o cp{ 'Gwtqr gcp'hqmi'vtcf kxkqpu.''y j kej " y gtg'i kxgp''y gkt'hkpkuj gf 'Gwtqr gcp'hqto ''d{ 'I qgyj g0'Qyj gt''uvqtkgu''qh''Kpf kcp''qtki kp.'kpenwf kpi ''uqo g''qh''y g'' Ukpdcf 'uvqtkgu.''ctg''vq''dg''hqwpf 'kp''yj g''Ctcdkcp''Pki j w0

O gf kecn'yzwi'y gtg''y g''vcti gv'qh'o wej ''tcpurckqp''cekxkv{ "f wtkpi ''y ku'r gtkqf 0'Ucpuntk''ttgckugu'y gtg''tcpurcyf" httuv'kpvq''Rcnk''cpf 'nevgt'kpvq'Dgpi cnk'cpf 'P gr cnk0Qwukf g''kpf kc. "tcpurcvkqpu''ctg''mpqy p'kp''Mqtgcp. "Mj qvcpgug." Vkdgvcp. 'O qpi qnkcp. "Ej kpgug. "cpf ''Ctcdke0'Vj g'O wurko ''Ecnkr j u''cv'Dci j f cf. "vj g''ugcv'qh''y g''Kurco ke''Go r ktg." cnq''uj qy gf 'i tgcv'kpvgtguv'kp''Kpf kcp''uekgpeg0'Vj g''tcpurcvkqp''dwtgcw''ugv''wr ''d{ 'Ecnkr j ''cn'O cpuqwt''\*e0932697+" r tqf wegf ''tcpurcvkqpu''qh''Ucpuntkv''yzwu''qp''cuvtqpqo { ."o gf kekpg''cpf ''o cvj go cvkeu''\*pqvcdn{ ''Ct {cdj cvcøu'hkny / egpwt { ''Ucpuntkv''tgcvkug+."kpvtqf wekpi ''y g''pwo gtcn'u{ uvgo ''qh''Kpf kcp''qtki kp''kpvq''Gwtqr g''cu'y gmi'cu'xctkqwu''qvj gt'' Kpf kcp''cni gdtcke."i gqo gvtkecn''cpf ''cuvtqpqo kecn''eqpegr w0J ctwp/cn'Tcuj kf ''\*9886: 2; +''cpf ''cn'O cøo p'\*\*9: 86 : 55+''eqpvkpwgf ''y g''vtcpurcvkqp''y qtm'kpvq''y g''pkpvj ''egpwt { ."dw'kv''egcugf ''yj gtgchyt''cu''Dci j f cf ''dgi cp''vq''nqug''kw'' r qnkkecn''r qy gt''\*ugg''CTCDKE''VTCF KVKQP +0

#### Uqwy gtp'Kpfkc'cpf''y g'Ftcxkfkcp'hcpi wci gu

Vj g"gctrkguv'rksgtcwtg"qh"vj g"uqwj ."wprkng"vj g" $Tki \ xgf \ c$ . "ku"pqv"r ct vkewrctn{ "tgrki kqwu"kp"eqpvgpv0"Vtcf kkqp"vgru"wu" qh"vj tgg" $ucpi \ co \ u$ . "eqo r gvkkxg"r qgvke"÷cuugo drkguø'cv'O cf wtcl0P q"vgz vu"uwt xkxg"htqo "vj g"htuv."vj g"Vco kri' i tco o ct" $Vqmcrrk\ co$  "ku"uwr qugf n{ "c"r tqf wev'qh"vj g"ugeqpf ."cpf "vj g"gki j v'cpvj qmi kgu"qh"Ucpi co "r qgvt { "\*qxgt"4.222"r qgo u+"ctg"htqo "vj g"vj ktf 0"Vtcf kkqp"cnuq"cwtkdwgu"vj g"kpvtqf wevkqp"qh"Ct { cp"ewnwtg"kpvq"vj g"uqwj "vj g"

 $\label{thm:conditional} Xgf ke''uci g'Ci cuv{c.''encko u''y cv''uqwj gtp''mkpi u''vqqm''r ctv''kp''y g'O cj cdj ctcvc''y ct''cpf ''tghgtu''vq''y go '' r gthqto kpi ''Xgf ke''ucetkhlegu0'Khi'pqyj kpi ''gnug.''y ku''tghrgevu''y g''gzvgpv''qh'Ct{cp''kphrwgpeg''kp''y g''uqwj ''cv''cp''gctn{'' r gtkqf 0'Cv''y g''uco g''vko g.''ctej cgqmi kecn'gxkf gpeg''cv'Ctkmco gf w'pgct''y g''uqwj /'gcuvgtp''ekv{''qh''Rqpf kej gtt{''j cu'' tgxgcrgf ''ugc/vtcf g''y kyj ''y g''Tqo cpu''kp''y g''hktuv''egpwt{''CF0}$ 

Gctn("lpuetkr vkqpu"hqwpf "lp"y ku"ctgc"ctg"kp"\*\*Rtcmtk/"cpf "Ucpumtkv."dw/"Vco kn'uqqp"tgr rcegu"\*\*Rtcmtk/0\*\*Gf wecvkqp" y cu"kpkkcm("f qo kpcvgf "d{"Lckpu"cpf "Dwf f j kwu."dw/"i tcf wcm("y g"J kpf w'ttcf kkqp"qxgtvqqm'y go 0\*Lckp"vgzvu." qtki kpcm("kp"\*\*Ucpumtk/"cpf "\*\*Rtcmtkv."dgi cp"vq"dg"y tkwpp"kp"\*\*Vco kn"cpf "Dwf f j kwo "cpf "J kpf wkwo "eqo r gvgf "hqt" tq{cn'r cvtqpci g0"\*\*Vco kn'hkgtcwtg"pcwtcm("uj qy u"Lckp"kphnvgpegu."cpf "Vco kn'gr ke"r qgo u"uwej "cu" Uncrrcf kmctco "cpf "Ocpko gmcnck" cxg'hgcwtgu"qh'Ucpumtkv'uv(ng0J qy gxgt."Vco kn'tgrki kqwu"r qgvt {"qh''y g" j ki j guv's wcnkv{"y cu"cnq'dgkpi "eqo r qugf 0\*Vj gtg"ctg"tghgtgpegu"vq"cp"gzvgpukxg"gctn("nkgtcwtg"kp"\*\*Mcppcf c"cu" y gm"dw''xgt {"rkwrg" j cu'uwtxkxgf 0

C'tgrki kqwu'o qxgo gpv'mpqy p''cu''Dj cmk'r tqr ci cvgf 'vj g''r gtuqpcn''f gxqvkqpcn'y qtuj kr ''qh'vj g''J kpf w'i qf u''
Xkuj pw''cpf ''Uxc0'Vj ku'i cxg''tkug''vq''o wej ''r qgvke''cevkxkv{ ''kp''y g''ukz yj ''cpf ''ugxgpyj ''egpwtkgu''cpf ''y qp''qxgt''o cp{''qh'vj g''qtf kpct { ''r gqr rg0'Gf wecvkqp''y cu''o ckpn{ ''cv'qtyj qf qz''J kpf w''vgo r rgu''cpf ''kp''Ucpumtkv.''cpf ''o cp{ ''r gqr rg'' y gtg''y gtghqtg''gzenwf gf 0'Vj g{ ''i ckpgf ''qtcn'kputwevkqp''htqo ''vj g''Dj cmk''vej qqnu''kp''Vco krikpuvgcf 0'Cu''y g'' ercuukecn''r gtkqf ''qh''Ucpumtkv''dgi cp''vq''y cpg. ''y qtmu''kp''Ucpumtkv''dgeco g''kpetgcukpi n{ ''f gtkxcvkxg. ''ctvkhlekcn''cpf '' rkhgrguu0'Cv'vj g''vco g''vko g. ''mqecn'ircpi wci gu''dgi cp''vq''hrqwtkuj <'Mco dcpøu''xgtukqp''qh''y g'' $Tco c{cpc''}$ ku''y tkwgp''kp'' j ki j n{ ''xki qtqwu''Vco kr0

Vco kn"Vgnwi w."cpf "Mcppcf c"j cf "ces wkt gf "o wej "xqecdwrct { 'ht qo "Ucpunt kv."dw''y g"eqppgevkqpu'y gt g"dgeqo kpi " mqugt 0 Ucpunt kv'y qtmu. "uwej "cu''y qug"qh"Mcnkf cuc. "cpf "y g"Gr keu. "y gt g"cf cr vgf "vq"Vgnwi w'cpf "o cf g"cxckrcd rg"vq" r qr wrct "cwf kgpegu 0 Mcppcf c"j cf "dggp 'hcxqwt gf "d { "Ickp" r cvt qpci g"kp"O { uqt g. "dw'ci ckp" y g'hktuv'y tkwgp" Mcppcf c "vgz vu"ct g"cf cr vcvkqpu"qh"Ucpunt kv'qt ki kpcnu 0 O ctcyj k\*\*cnyj qwi j "Kpf q/Gwt qr gcp+"f gxgmr gf "uko krct n{<" y t qwi j "r cvt qpci g"ht qo "[ cf cxc"nkpi u." y gp"wugf "vq"t gpf gt"Ucpunt kv'yz vu"uwej "cu"y g"Dj ci cxcf" I kvc"\*c"ncyg" kpvgtr qrcvkqp"kp"y g"O cj cdj ct cvc+:"dw"cnuq"wugf "hqt"t gnki kqwu"r qgo u"kpur ktgf"d { "Dj cmk'vgz vu"kpvt qf wegf "ht qo" y g"uqwyj 0

#### Nc vgt 'Dwffj kuo

Cu'Dwf f j kuo "f gxgmr gf ."uqo g'ugewı'dgi cp''vq'hqmqy ''uko krct''r cyi u''vq''y g''J kpf wu. "kpeqtr qtcvkpi " $[qi\ c'''$ r j {ukecn' gzgtekugu."o gf kcvkqp."cpf ''y g'r j kmquqr j { "qh'ugrh'tgcrk| cvkqp+"cpf "Vcpvtc''\*x kuwcrk| cvkqp''vgej pks wgu'kpxqrx kpi ''c'' r cpyj gqp''qh'keqpke''f gkkgu."u{o dqrke''tkwcnu'kperwf kpi ''ugzwcrl'kpvgteqwtug."cpf ''uq''qp+''kpvq''y gkt''r tcevkegu0'Vj gug'' ugevu."eqrmgevkxgn{ ''yto gf '' $0cj\ c\ cpc''$ qt''÷yj g'P qtyj gtp''uej qqrx''cu''qr r qugf ''vq''y g'o qtg''eqpugtxcvkxg''J  $kpc\ cpc''$ qt''÷Uqwj gtp''uej qqrx''y tqvg''o ckpn{ ''kp''Ucpurntk''tcyj gt''y cp''Rcrh0

Vj g'Wpksgtukk{"qhiP cmpf c'lp''y g'pqty/gcuv'qh'Kpf kc''y cu''r ctvlewetn{"tgpqy pgf 'hqt''tclplpi "tcpumvqtu'ltqo" y g'lqwty "egpwt{"qpy ctf u0Mwo ctclkxc''y gpv'\q'Ej kpc'lp'623"cpf "tcpumvgf "y g"Nhg'qhlPci ctlwpc'\*c'o clqt" Dwf f j knv'r j kquqr j gt+'kpq'Ej kpgug."cpf 'qpg'qh'j ku'r w ku."Hc/j ukgp. 'eco g'\q'Kpf kc''uqqp''chyty ctf u'\*627633+" q'eqmgev'o qtg'\gzw0Ukpci wr wc'\tcpumvgf "59"Ucpumtk'y qtmu'kpq'Ej kpgug0Cpqvj gt'\tcpumvqt."Rctco ctvj c." y gpv'\q'Ej kpc''lp''y g'Hknj 'egpwt{"cpf "tcpumvgf "y g''Nhg'qhlXcuwdcpf j w'\*cp"gctnlgt 'cwj qtk\{"qp''[ qi c'cv' P cmpf c+0'Vj g'Ej kpgug'Dwf f j knv'r ki tło u'J uwcp''Vucpi 'ecp 'KVukpi 'eco g'\q'Kpf kc'kp''y g'ugxgpy 'egpwt{"cpf "uwf kgf "cv'P cmpf c0J uwcp''Vucpi 'ku'uckf '\q'j cxg'\tcpumvgf 'qxgt''y kv\{"o clqt'Dwf f j knv'xqnwo gu."cpf 'KVukpi " uqmlugxgtcn'j wpf tgf 'ygzw'dcem'\q'Ej kpc0Fj cto c'F gxc'\*, 8263222+'ku'etgf kgf 'y kj '\tcpumvkpi '33: 'Dwf f j knv' yzw'kpq'Ej kpgug0Utqo g': .222'Kpf kcp'\gzw."o cp{ 'lp'\tcpumvkqp."ctg''r tgugtxgf 'lp''y g'Uwpi /r cq''eqmge\kqp=" yi g{ 'tgmz\g' \q'Dwf f j kwo ."J kpf wko ."cuvtqpqo { ."o cyi go cvkeu "cpf "o gf kekpg0Co qpi 'yi g''gctnlguv'r tkpvgf ''dqmm' kp''Ej kpc''ctg''dqmm'kp''Ucpumtk'r tkpvgf ''tqo 'y qqf gp''dqmm."c''yej pls wg''r tqdcdn( ''cmpp''htqo ''Vklgv0) Vklgvcp''ewmwtg'y cu''qven( 'qtcn'wpkn'yi g''cttkxcn'qh'Dwf f j kwo 0'Vj g''cr j cdgv'y cu'\pkkcm( 'etgcygf ''uqrgn( 'hqt''y g'' r wtrqug''qh'tgegkxkpi ''Dwf f j knv'\gzw''kp''Ucpumtk0'Vj g''P cmpf c'uej qrctu'Ct { c'F gxc. ''Ukredj cf tc. ''cpf 'F j cto cr cm'' y gpv'\q''Vklgv."off ''y gk''y qtmu'y gtg'\tcpumcygf ''kpq''Vklgvcp0'Ucpvctcmij kc''cpf ''Rcf o cuco dj cxc'y gtg'' gur gekcm( ''cekxg'\p')y g''

vtcpuo kuukqp"qh"Dwf f j kuo "kp"\'j g"gki j y "egpwt {0Ch\text"c"r gt\kqf "qh"r gtugew\kqp"\kp"\'j g"\text{gp\yi "egp\text{."\'y g"Dgpi cnk" C\\text{kuc"F kr cpn\text{cr}"C"Ut\kpcpc"tgu\text{gu\text{q} f j kuo "kp"V\kdg\text{V}'\ j g"eqqr gtc\\text{kqp"dg\text{gy ggp"K\text{f kcp."V\kdg\text{cp\text{cp\text{gu\text{gu\text{g}}" cyt"c\text{vk}"c"Ucp\text{umt\text{k}\text{V\kdg\text{cp\text{cyt}} f ke\kqpct {"qh"D\text{f j ku\text{v}'\text{yej p\text{ker'\text{g}} to u" y j \text{kej "f c\text{gu\text{"ht\text{q}} o "\'y g"p\text{p\text{y}} "egp\text{\text{4}}} "egp\text{\text{4}}" \]

Nqpi "chygt "Dwf f j kuo "y gpv'\q"E j kpc. "kv'r cuugf "\q"I cr cp 'kp" y g'hqto "qh'\ gp0'Kp" y g'wtdwrgpv'\ko gu'htqo "y g" grgxgpyj "egpwt { "qpy ctf u. "Dwf f j kuv'o qpmu'\qqm'U cpumtkv'o cpwuetkr w'\q"P gr cn "Vkdgv."qt "E j kpc. "cpf "o cp $\{$  "qh" y qug'\yz w'\pqy "uwtxkxg" qpn $\{$  "kp" y gkt "\tcpurc\yf "xgtukqpu $\{$ 0

## Vj g'b gf lgxcnir gt lqf '\*e\b22263972+

Dci j f cf øu'f gerlpg'htqo ''y g''ypy ''egpwt { ''qpy ctf u'cmqy gf ''y g''Vwtnke''twgtu'qh'Chi j cpkncp''q''i tqy ''kp''ugrh/ eqphkf gpeg."cpf ''y g{ ''dgi cp''q'o qwpv'tckf u'lpvq''pqtyi gtp''Kpf kc0O cj o wf ''qh'I j c| pk'o cf g'39''uwej ''tckf u'lpv'y g'' pqtyi /y guv''dgw ggp''3223''cpf ''3249. ''f guvtq { kpi ''r cncegu. ''yo r ngu. ''cpf ''hkdtctkgu0'Kp''y g''y grhyj ''egpwt { .'' O qj co o gf ''qh'I j qt''cppgzgf 'I j c| pk'cpf ''kuu'r quuguukqpu''kp''Kpf kc. ''cpf ''j ku''i gpgtcnu''go wrcyf ''O cj o wf ''d { '' f guvtq { kpi ''dwkrf kpi u. 'ko ci gu. ''cpf ''yz wi'cu''hct ''cu''Dgpi cn0'I qy gxgt. 'O qj co o gf øu''uweeguuqtu''uwdugs wgpvn{ '' dgeco g''Kpf kcpk gf .''ugwrgf ''kp'F gnj k''tgukurgf ''y g'O qpi qn'kpxcf gtu'kp''y g''pqtyj /y guv.''gz vgpf gf ''y gkt''uy c { ''kpvq'' y g''F geecp''cpf ''Uqwj ''Kpf kc. ''cpf ''guvcdrkuj gf ''cp''Kurco ke''Uwncpcvg''y j kej ''rcuvgf ''kp''r ctv'wpvkn'y g''cttkxcn'qh''y g'' O qi j wnu0

Ucpumtki'eqo r gvgf "vq"c"egt vckp"gz vgpv'y kij "Rgtukcp"cv'eqwt v'f wt kpi "vj ku'r gt kqf ."dw'dgeco g'kpet gculpi n{" tgf wpf cpv'gnugy j gtg"cu'vj g"xgtpcewrct "rcpi wci gu'hrqwt kuj gf 0'Uqo g'O wurko "r qgw'dgi cp"vq"y t kg"kp"J kpf k0'Vj g" kpet gculpi "f qo kpcpeg"qh'Rgtukcp"kp"dwukpguu"cpf "rkvgtcwt g"kt qpkecm{"i cxg"tgi kqpcn'vqpi wgu'c"i tgcv'dqquv0'Kp" f wg"eqwtug."j qy gxgt."gxgp"vj g"F grj k'Uwrvcpcvg"dgi cp"vq"uj qy "kpvgt guv'kp"vj g"kpf ki gpqwu"ewrwt g0'Kp"3579."chvgt" c"xkukv'vq"c"rkdtct { "kp"Mcpi tc."Uwrvcp"Hktw| "Uj cj "qtf gtgf"vj g"vtcpurcvkqp"qh"Ucpuntkv'o cpwuet kr wu"qp"J kpf wkwo "kpvq"Rgtukcp"cpf "Ctcdke0

Kp'35; : ."Vco gtrcpg'f gurtq{gf 'y g'y cpkpi 'Uwncpcvg'cpf 'nghv'ku'vgttkqtkgu'kp''y g'j cpf u'qh'nqecn'O wurko 'twrgtuO' Vj g'Nqf k'Chi j cpu'dtkghn{ 'tgdwknv'y g'eqtg'kp''y g'hkhvggpy 'egpwrt{."dww'Dgpi cn'tgo ckpgf 'qwrukf g''y gkt'eqpvrqn" y g'Tclr wu'f kur wgf ''y g'y gurgtp''ctgcu'y ky ''y g'mkpi f qo ''qh'I wlctcv.''cpf ''y g''dtgcmcy c{'O wurko 'Dcj o cpk' nkpi u'twrgf 'kp''y g'F geecp.'y ky ''y g''J kpf w'Xklc{cpci ct'mkpi f qo ''vq''y g''GcurO

O gcpy j krg'lp''y g''uqwj .''cu''Kmco ''cpf ''qyi gt'tgrki kqpu''uwej ''cu''Dj cmk''cpf ''Vcpvtc''uvctvgf ''q''gtqf g''qtyi qf qz''
J kpf wkno .''uej qrctu''uwej ''cu''Ucpmctc.''Tco cpwlc''cpf 'O cf j xc''vtkgf ''q''kpeqtr qtcvg''uqo g''qh'y g''pgy ''kf gcu''kpvq''
y g''vtcf kklqpcn'J kpf w'htco gy qtm'OQpg''r ctvkewrctn( ''uvtqpi ''ewn'y cu''y g''Xktcuj ckxcu''qt''Nkpi c{cwO'Vj g''o ckp''
gzr qpgpv.''Dcucxc.''y cu''qtki kpcm( ''c'Lckp''dw'y cu'r tqdcdn( ''kphrwgpegf ''d{ ''Dwf f j kno ''cpf ''Kmco ''cu''y gm'cu''y g''
Dj cmk''ewnuOJ ku''vgcej kpi u.''wuwcm( ''ecmgf ''uko r n( ''y g''Dcucxc.''gzkuv'kp''qpg''hqto ''kp''Rcmwtknc''Uqo cøu''Vgnwi w''
Dcucxc''\*33; 7+O'Kp''y g''hqwtvggpyj ''egpwt { .''y ku''y qtm'y cu''cf cr vgf ''kpvq''Mcppcf c''d{ ''Uwo cvkdj ko c''qt''
Dj ko cecpf tc''McxkO

Rwt cpcu'\* cpekgpv'unqtkguø+'y gtg''eqo r qugf 'kp'Mcppcf c'd{ "Xkıj pw'y qtuj kr r gtu'cu'y gm'cu'd{ 'hqmqy gtu'qh'' Dcucxc. 'cpf ''y g''Ucpumtk''Dj ci cxcw 'Rwt cpc 'y cu''tcpurcyf 'kpq'Mcppcf c'lp''y g''ukzygpyj ''egpwt{0'Upeg''y gp." o quv'qh''y g''qy gt''o clqt''Rwt cpcu''j cxg''dggp''tcpurcyf 'kpq''Mcppcf c'J curko cmøa''Cf k'Rwt cpc 'ku'c'Ickp''yzv'lp'' Mcppcf c'r tqug. 'dw''gcej ''qh''ku''ugevkqpu''dgi kpu''y kj ''c'Ucpumtk'xgtug'kf gpvkecn'y kj ''y g''qr gpkpi ''xgtugu'qh'' Ikpcugpcøa''Ucpumtk'xgtukqp0'Vj g''Vco ki'Rwt cpcu''ctg''qhxgp''hct''o qtg''eqo r rgz ''cpf ''uqr j kurkecyf ''y cp''y gkt'' Ucpumtk''eqwpygtr ctvu0'Vj g''Dci cxcf co .''c''Vco ki'xgtukqp''qh''y g''Dj ci cxcvc''Rwt cpc.''y cu''tcpurcyf 'kpvq''Htgpej '' cv''cp''gctn{ 'f cyg0'Vgmi w'xgtukqpu''qh'y g''Rwt cpcu''f cyg''dcemi'vq''y g''y ktygpyj ''egpwt{0'J qy gxgt.'Ucpumtk'' tgwkpgf ''ku''r rceg''cv''tq{cn'eqwtw''cpf ''co qpi ''qty qf qz''J kpf w'tej qrctu0'O clqt''eqo o gpvctkgu'y gtg'y tkwgp<''qp'' y g''Fj cto cwcwt cu'\*J kpf w'Ncy +''d{ ''J go cf tk'kp''y g''y ktygpyj ''egpwt{0'Cnj qwi j ''xgt{"emug''q''y g''pqty'y gtp'' xgtukqpu+''cpf ''qp''y g''Xgf cu''d{ ''Uc{cpc''kp''y g''hqwtygpyj ''egpwt{0'Cnj qwi j ''tgi kqpcn''rcji wci gu'y gtg''f kxgti kpi '' cpf ''hrwtkij kpi .''y g''r qr wrckqp''qh''y g''uxdeqpvkpgpv'y cu''dgi kppkpi ''q''uj ctg''c''eqpukf gtcdrg''f gi tgg''qh''ewnwtcn'' j qo qi gpgkv{0

Kp'3559. 'vj g'o clqt'uqwj gtp'mkpi f qo ''qh''Xklc {cpci ctc''y cu'hqwpf gf . ''cpf ''tcr kf n{ ''f qo kpcvgf ''vj g''uqwj 0'Kb'uj qqm'' qhh''dqvj ''vj g'F gnj k''

Uwncpu'cpf "ý g'O wurko "Dcj o cpk'nkpi u'qh' y g'F geecp."cpf "tgurqtgf "J kpf wkw 0I tcf wcm{."ý g'egprtg'qh" tgrki kqwu'cerkxk/{ "o qxgf "htqo "ý g"Vco kri'rcpf u'vq'O {uqtg'cpf 'O cj ctcuj vtcO'Vj g"Dj ci cxcf "I krc"y cu'tgpf gtgf "kp'O ctcyj k'd{ "Ipcpcf gxc"\*34; 3+"cpf "j g'y cu'hqmqy gf "kp" y g'hqwt vggpy "egpwt {"d{ "P co cf gxc."y j qug'y qtmu" f gpqwpeg'kf qrly qtuj kr 0'Vj g"Xklc {cpci ctc"nkpi u'j cf "cf qr vgf "c" rq wrct "O ctcyj k'f gk/{0'Ucpuntk/y qtmu." gur gekcm{"y g'Gr keu'cpf "Rwt cpcu" eqpvkpwgf "vq"dg"cf cr vgf "kpvq"Vco kn"Vgnxi w."Mcppcf c."cpf "O ctcyj k"dw" Dj cmk'vgz w'y gtg'uvgcf kn{"r tqf wegf "cu'y gm0'Rgtukcp"cpf "Ctcdke"j cf "dggp"kpvtqf wegf "d{"y g'O wurko "Dcj o cpk" nkpi u'kp'y g'pqty gtp"F geecp0O crc{croo."qtki kpcm{"c'y guvgtp"f kcngev'qh"Vco kn"uvctvgf "vq"gplq{"cp" kpt gr gpf gpv'uvcwu'cu'O credct "dgeco g'nguu'c'r ctv'qh'y g"Vco kri'nkpi f qo u."cpf "o qtg'kphrwgpegf "d{"kwu'hqtgki p" ugwrgtu."gur gekcm{"y g'Ctcdu0}

O gcpy j krg. "J kpf w'Dj cmk'unkm'hrqwtkuj gf ."pqy "r tqr ci cvgf "d{" 'yj g"r qr wrct "f gxqvkqpcn'r qgv'Ej ckcp{c" kp" Dgpi cn "cpf "d{" 'yj g"O ctcyj k'uckpvu0 wtw'P cpcm'\*368; 6375; +'kpeqtr qtcvgf "Dj cmk'kpvq"c"pgy "tgrki kqp. "Uknj kuo 0' Qtyj qf qz "Kurco "y kyj f tgy "kpvq"cp"kpvgmgewcn² rkvg. "dww'yj g"Uwhku'uj ctgf "yj g"r qr wrct "uvci g"y kyj "Dj cmk0 Rgtukcp" uvkm'f qo kpcvgf "yj g"eqwtvu0

#### Vj g'O qi j wdGo rkt g

repi wei g'qh'y g'pqty .'epf 'J kpf k0

Kp"3726."Dcdwt."c"f guegpf cpv'qh"Vco gtrcpg"y j qug"ercko u"vq"mkpuj kr "y kyj "'y g"O qpi qn'I gpi j ku"Mj cp"ctg"y g" dcuku'hqt''y g''vgto "Oqi j wn''guvcdrkuj gf''j ko ugrh'kp''Chi j cpkuvcp''cpf. "chvgt''c'hgy 'kpkvkcn'tckf u. "eqps wgtgf''F grj k'kp'' 37480J ku'o go qktu'y gtg'rcvgt''tcpurcvgf''htqo ''Vwtnk'kpvq''Rgtukcp''cpf''vj gp''kpvq''Gpi rkuj 0'Dcdwtøu'uqp''J wo c{wp'' eqps wgtgf "I wlctcv0J ku'uqp'Cmdct"gz vgpf gf "vj g"go r ktg. "go r m{ kpi "o ckpn{ "pqp/kpf kcp'uvchh'kp'j ku" cf o kpkntcvkqp0J g'f gxgnqr gf "cp"geegpvtke"tgrki kqwu'u{uvgo ."gpi ci kpi "J kpf wu."Ickpu."Rqtwi wgug"Ej tknkcpu." cpf '\ qtqcuxtlcpu'cu'cf xkugtu."cpf 'etwij gf 'c'tgxqnv'd{ "qtyj qf qz 'O wurko u0Rgtulc'j cf 'd{ 'pqy 'htggf 'kugrh'htqo " yj g'O qpi qnu0Rtg/Kurco ke''Rgtukcp''ewnwtg''y cu''o qtg''ceegr vcdrg''\q''J kpf wu''yj cp''Kurco .''yj g''pqp/qtyj qf qz''Rgtukcp''  $\label{thm:continuity:continuit$ Tgrki kqp"y cu"c"o clqt"ur wt"vq"\tcpurc\kqp0Fctc"Uj wnqj ."uqp"qh"Uj cj "Icj cp."j gctf "qh"yj g"Wrcpkuj cf u"\revg" Xgf ke "cpf" gctn("J kpf w'r j krquqr j kecn'\gz vu+'kp" Mcuj o kt 'kp" 3862. "cpf" j cf "cdqw' 72" qh' y go "\tcpurc vgf 'htqo" Ucpumtki'kpvq''Rgtukcp''d{''38790'Vj gug'y gtg'hcvgt''vtcpuncvgf 'kpvq''Ncvkp''d{''Cps wgvkn'F wr gttqp''cpf''r wdrkuj gf''kp'' Rctku'kp''3: 240'Vj g'vj gqmi kcp''UJ CJ ''Y CNKCNNCJ 'F KI NCY K\*3925684+'vqqm'vj g'tgxqnwkqpct{'uvgr 'qh' vtcpurcvkpi ''y g''S wat p'kpvq''Rgtukcp0'Uekgpeg''cnuq'i cxg''tkug''vq''vtcpurcvkqp''cevkxkvkgu<''Ucy ck'Ick''Ukpi j ''qh'Ickr wt.'' o cyj go cykekcp. "cuvtapao gt. "cpf "dwkrf gt "qh'ugxgtcn'adugtxcyatkgu. "j cf "uqo g"encuukecn'I tggmlygzyu"ap" o cyj go cykeu' kpenyf kpi 'Gwerkf +'ytcpurcygf 'kpyq' Ucpuntky.''cu'y gm'cu'o qtg'tgegpy' Gwtqr gcp'y qtmu'qp'' vtki qpqo gvt { "cpf "rqi ctkj o u "cpf 'Ctcdke '\gzvu'qp "cuvtqpqo {0 F wtkpi ''y g'F grj k'Uwrcpcvg'cpf ''y g'O qi j wrlr gtkqf. ''J kpf w'pqdrgu'cpf ''o kpkrvgtu'wrgf ''Rgtukcp'cv'eqwtv.''cpf '' o cp{"I kpf wu"y tqvg"dqqmu"kp"Rgtukcp0O wurko "uej qrctu"\tcpurcvgf" "Ucpurtkv"vgzvu"kpvq"Rgtukcp0'Ucpurtkv"Rwtcpcu" j cxg"dggp"f kueqxgtgf "kp"Rgtukcp"tcpurcvkqpu. "qpg"xgtukqp"qh"vj g"Dj ci cxcvc"Rvtcpc"tgr wxgf n{ "tcpurcvgf"cv" Cmdctøu'gzrtguu'eqo o cpf 0'Rgtukcp''cnuq'i cxg'tkug''\q''Wtfw'y j kej 'kphnwgpegf 'dqvj 'J kpf wuvcpk''y g''xgtpcewrct''

## Vj g'Gwt qr gcp'r gt kqf '\*e1897263; 69+

Vj g'Gwtqr gcpu'j cf "i tcf wcm{ "dgi wp"vq"xkg"y kj "y g'Ctcdu'hqt"vtcf g"f qo kpcpeg"d{ "y g"y kt vggpy "egpwt{0' O cteq"Rqnq"xkukygf "y g"uqwj gtp"Rcpf {cp"nkpi f qo u."P keqnq"Eqpvk"Cy cpcukwu"P knkkp."cpf "F wctvg"Dctdquc" vcxgngf "qxgtrcpf "vq"Cukc."cpf "Xcueq"f c"I co c"qr gpgf "y g"ugc"tqwg"kp"36; : 0Kp"cf f kkqp"vq"y gug"vtcf gtu." Ecyj qnke"o knukqpctkgu'cttkxgf ."gur gekcm{ "y g"Rqt wi wgug."y j q"uqqp"vtcpurcvgf "y g"P gy "Vguvco gpv"kpvq"Rgtukcp0 Kp"3822."y g"Dtkkuj "Gcuv"Kpf kc"Eqo r cp{"y cu"kpeqtr qtcvgf ô guugpvkcm{ "vq"vtcf g"kp"Gcuv"Kpf kcp"ur keguô dw"kv" uqqp"eco g"vq"gzgtekug"eqpukf gtcdrg"r qnkkecn'r qy gt "kp"Kpf kc"cu"c"y j qrg0"Vj g"pggf "hqt"vtcpurcvkqpu"qh"Kpf kcp" vgzwi'y cu"tgeqi pk gf "gctn{ "qp"d{ "Eqo r cp{"cf o kpkurtcvqtu0O wurko "rcy "j cf"cntgcf {"dggp"uwo o ctk gf"kp"c" f ki guv'cv'y g"qtf gt"qh'y g"O qi j wi'go r gtqt"Cwtcpi | gd"\*387; 63929+"cpf "y cu'wpkxgtucm{ "cempqy rgf i gf"d{ "Kpf kcp"eqwtw0J kpf w'rcy ."cnj qwi j "o wej "qnf gt."j cf "pgxgt"dggp"u{ uvgo cvkecm{ "eqf khkgf 0"Y cttgp"

J cukpi u "j g'Gcul'Kpf kc'Eqo r cp{øu'I qxgtpqt/I gpgtcn'qh'Dgpi cn'i cy gtgf "qi gy gt'32"go kpgpv'I kpf w'r wpf ku" cpf "eqo o kuukqpgf "j go "q'r tgr ctg"c'f ki gul'qh'I kpf w'rcy "hqt"j g'eqwtw0'Vj ku'j cf 'hktul'q'dg'tcpurcyf 'htqo " Ucpuntkl'kpvq'Rgtukcp"cpf 'yj gp'htqo "Rgtukcp"kpvq'Gpi rkuj ."dgecwug'pq'Gpi rkuj 'r gtuqp'cu"{ gv'mpgy "Ucpuntkl0 Kpf kcp"uej qrctu'y gtg'kpkkcm{ "tgnwevcpv'vq"ycej "Ucpuntkl'vq"j g'Gwtqr gcpu0'Ukt "Y knkco "IQP GU."c'Iwf i g'qh'yj g" Uwr tgo g'Eqwtv'kp'Ecrewwc."gxgpwcm{ "o cpci gf "vq'hkpf "c'pqp/Dtcj o kp"o gf kecn'r tcevkkqpgt"y j q"ci tggf "vq" ycej "j ko ."dw'qpn{ "wpf gt"yj g'o quv'uvtkpi gpv'eqpf kkqpu0'Iqpguøu"tcpurcvkqp"kp"39: ; "qh'yj g'ercuukecn'Ucpuntk'' r re{"Ucmpvcnc"d{ "Mcnkf cuc"y cu'cmo quv'ko o gf kcyn{ "tcpurcvgf "kpvq"I gto cp. "Htgpej ."F cpkuj ."cpf "Kcrkcp0' I qgyj g'y cu'gzvtgo gn{ "ko r tguugf "d{ "yj g'r re{ ."cpf "yj g'r tqmi wg'qh'j ku'Hcvuv'ku'y kf gn{ "eqpukf gtgf "vq'dg" o qf gngf "qp"yj cv'qh''Ucpuntk'cpf "r re{ gf "c" r tqo kpgpv'r ctv'kp"Ucpuntk'uwf kgu0

Chrgt "y g"kpkkcn'gpyj wukcuo "qh'I curkpi u 'Iqpgu'cpf "qy gtu. "Kpf kcp"ewnwtg"kp"i gpgtcn'cpf "Ucpuntk/y qtmu'kp" r ctrkewrct "y gtg"kpetgcukpi n( "uwdlgevgf "vq"pgi crkxg"lwf i o gpw"d{ "Gpi rkuj /ur gcngtu. "y j q"eqo r ctgf "y go "y kj " Xkevqtkcp"Gpi rkuj "o qf gnuô tcyj gt "y cp"ercurkecn'I tggm'qt "Ncvkp"o qf gnu. "y j kej "y qwrf "j cxg"dggp"c"o qtg" crrtqrtkcvg"dcuku'hqt"eqo r ctkuqpô cpf "ki pqtgf "Ucpuntk/r qgvkecn'twgu'cpf "y g"qr kpkqpu"qh'pcvkxg"etkkeu0'Vj g" hqy "qh'vtcpurcvkqp"dgi cp"vq"o qxg"kp"y g"qr qukxg"f ktgevkqp"\*htqo "Gwtqr gcp"kpvq"Kpf kcp"rcpi wci gu+0'Kqrcvgf" cwgo r wi'j cf "dggp"o cf g"vq"tgpf gt "Ej tkurkcp"ygcej kpi u'kpvq"Kpf kcp"rcpi wci gu'f wtkpi "y g"gki j vggpyj "egpwt {0' Hkpcm( ."kp"39; 4."c"Dcr vkur'd{ "y g"pco g"qh"Y knkco "ECTG[ "ugwrgf "kp"F cpkuj "Ugtco r qtg"cpf "rcwpej gf "c"rcti g/ uecrg"rtcpurcvkqp"qh"y g"I qur gnu"kpvq"Kpf kcp"rcpi wci gu. "wukpi "y g"htur/r tkxcvg"r tguu'kp"Kpf kc0Kp"3: 35. "y g"Dtkkuj "qr gpgf "Kpf kc"vq"o kuukqpctkgu."cpf "y gkt"pwo dgtu"tcr kf n( "kpetgcugf 0

Kokkem (."vj g"Geuv"Kof ke"Eqo r ep { "j ef 'hqmqy gf "vj g"O qi j wn'r ewgtp"qh'r evtqpei g"vq"Kof kep"ngetpkpi ."vj qwi j "qp" c"o wej "o qtg"o qf guv'ngxgn0I curkpi u'ugv'wr "c"Eqmgi g"qh'Ctcdke"cpf "Rgtukcp"uwf kgu"cv'Ecnewwc."cpf "Iqpcyj cp" F wpecp'c''Ucpuntk/Eqngi g'cv'Dgpctgu0'Kp''3: 35. 'vj g'Ej ctvgt'Cev'i tcpvgf 'Ç32.222'cppwcm( 'vq''-yj g'tgxkxcn'cpf'' ko r taxgo gpv'qh'nksgtcwtg"cpf "vj g"gpeawtci go gpv'qh'vj g'ngctpgf "P cvkxgu'qh'lkpf kc"cpf 'hqt"vj g'lkpvtaf wevkqp"cpf " rtqo qvkqp"qh"c"mpqy ngf i g"qh"yi g"uekgpegu"co qpi "yi g"kpj cdkxcpvu"qh"yi g"Dtkxkuj "Vgttkxqtkgu"kp"Kpf kcø" "Ur gct" 3; 92-348-10°C v'hkt uv. 'wpf gt 'vj g'kphrwgpeg'qh'Dtkkuj ''qtkgpvcrkuvu. 'vj ku'ngf 'vq''vj g'r tkpvkpi ''qh'ercuukeu'cpf 'vj g'' vtcpurcvkqp"qh"o qf gtp"y qtmu"kpvq"Ucpuntkv0J qy gxgt."kp"3: 57"vj g"I qxgtpqt/I gpgtcn"Dgpvkpem'kuuwgf "c" tguqnwkqp"f genctkpi "'y cv''y g'hwpf u'uj qwrf "'y gtgchygt"dg''wugf "'\q''korctv'':mpqy ngfi g''qh''Gpi nkuj ''nkygtcwtg''cpf" uekspeg''y tqwi j ''y g''o gf kwo ''qh''y g''Gpi nkuj 'hcpi wci go''\*kdkf 0£349+0Gpi nkuj ''dgeco g''y g''qhhkekcn'uvcvg''ncpi wci g'' kpurgef "qh'Rgtukep="kp" yi g"nqy gt" eqwt vu. "Rgtukep" y cu't gr neegf "d { "yi g"nqeen'nepi wei gu. "y j qug" f gxgnqr o gpv'y cu" dtqcf gpgf "d{" 'y g'pggf u'qh'cf o kpkwtcvkxg" cpf "rgi cn'r tqug." tcy gt "y cp" f gxqvkqpcn'r qgvt {0O gcpy j krg. "Kpf kcpu" dgi cp"vq"tgcnk g"vj g"cf xcpvci gu"qh"Gpi nkuj "hqt"ectggt"cf xcpego gpv0Vj g"J kpf w"eqmgi g."y j gtg"Gpi nkuj " ncpi wci g'cpf 'hkgtcwtg'y gtg'\cwi j v.'y cu'hqwpf gf 'kp'Dgpi cn'kp'3: 380'Vj g'Dtkkuj 'hqwpf gf 'vj tgg'Gpi nkuj /uv{ng'' wpkxgtukkgu'dgwy ggp'3: 6: "cpf '3: 78"cpf 'f gxgmr gf 'c'i tcpv'u{ uvgo 'vq"gpcdrg' Kpf kcpu'vq"qr gp'r tkxcvg"eqrrgi gu" y g'pggf u'qh'O wurko u'kp'F gnj k0

Vj g"cf xgpv'qh'vj g"r tkpvkpi "r tguu'j cf "kpkkcm{ "gpcdrgf "r tqug"vtcpurcvkqpu"qh'vj g"Dkdrg"vq"dg"o cf g"cxckredrg"kp"vj g" xgtpcewrctu0'Xctkqwu"o kuukqpct { "uqekgvkgu"cnnq"r wdrkuj gf "vtcpurcvkqpu"qh'ecvgej kuo u"cpf "qvj gt "vgz vu0'Dw'vj g" r tguugu"cnnq"ugtxgf "vq"gpeqwtci g"qvj gt "r tqug"y tkkpi "kp"vj g"mqecn'ncpi wci guz'uqekcn'tghqto gtu'r wdrkuj gf "vtcevu" qp"y qo gpøu"gf wecvkqp."ej knf "o cttkci g."y kf qy "tgo cttkci g."cpf "ecuvg0Tco "O qj cp"TQ[ "r tkpvgf "vj g"hktuv"kpf kcp" pgy ur cr gt "cpf "c"dkrkpi wcn'Gpi rkuj /Dgpi crk'o ci c| kpg0'Kpf kcp"tgrki kqpu"cnnq"tgi ckpgf "eqphkf gpeg."cpf" Tco cntkuj pc"\*c"uweeguuqt "vq"vj g"Dj cmk'vtcf kkqp+"kpur ktgf "j ku"f kuekr rg"Xkxgnrcpcpf c"vq"hqwpf "vj g"Tco cntkuj pc" O kuukqp."y j kej "dgi cp"vq"r rc{"cp"ko r qtvcpv'r ctv'kp"r wdrkuj kpi "J kpf w'vgzvu"kp"Ucpuntkx."y kyj "Gpi rkuj "i mquugu." cpf "f kuvtkdwkpi "vj go "kp"Kpf kc"cpf "cdtqcf ."gur gekcm{ "kp"vj g"Wpkxgf "Uccvgu0'Rwtcpcu"cpf "Wrcpkuj cf u"y gtg"cnuq" vtcpurcyf ."hqt"gzco r rg"d{ "F wti cr tcucf "kpvq"J kpf k0'Xgtukqpu"qh"

Ucpumtki'cpf 'Rgtukcp' 'crgu'dgi cp' 'vq' 'crrgct' kp' 'rqecn' rcpi wci gu. 'hqt' 'gzcorrg' 'yj qug' 'qh' Tclc' 'Dj ql. 'Tclc' 'Dktdcn' Cmdct.' cpf 'J cmko' 'Vck' kp' J kpf k0

Gwtqr gcp"cecf go keu"o gcpy j krg"ur qpuqtgf "y g"guwcdrkuj o gpv"qh"rgctpgf "uqekgvkgu. "uwej "cu"y g"Tq{cn'Cukcvke" Uqekgv{."y g"Rcrk"Vgzv"Uqekgv{."cpf "uq"qp."cpf "eqpvkpwgf "y g"r tqf wevkqp"qh"vtcpurcvkqpu"qh"Ucpuntki"cpf "Rcrk" wzvu0F kevkqpctkgu"cpf "i tco o ctu"y gtg"eqo r krgf ."ugtxkpi "y g"pggf u"qh"dqy "qtkgpvcrkuv"uej qrctu"cpf "Ej tkuvkcp" o kuukqpctkgu0Vj g"Kpf gr gpf gpeg"o qxgo gpv"cnuq"gpeqwtci gf "eqpukf gtcdrg"rkpi wkuvke"cevkxkv{ "kp"rqecn'rcpi wci gu" cpf "kp"Gpi rkuj ."cu"y gm"cu"kp"vtcpurcvkqp"dgw ggp"y go 0Tcdkpf tcpcyj "VCI QTG"vtcpurcvgf "j ku"qy p"y qtm"htqo "Dgpi crk"kpvq"Gpi rkuj ."cpf "y cu"cy ctf gf "y g"P qdgn"Rtk g"hqt"Nkvgtcwtg"kp"3; 350

## Vj g'b qf gt p'r gt kqf '\*3; 69'kq'kj g'r t gugpv+

I qpf cøu'32/xqnwo g"*J kwqt { "qhllfof kcp"Nwgt cwnt g*"\*3; 97/+"eqpvckpu"lppwo gtcdrg"tghgtgpegu'\q"\tcpurc\kqpu" dgw ggp"lpf kcp"repi wci gu'cpf "dgw ggp"y go "cpf 'Gpi nkuj 0'Y qtmu'\tcpurc\g" lpenwf g"Xgf ke'\gzvu."\y g"J kpf w" Gr keu."*Rwt cpc u*"cpf "*Wr cpkuj cf u*."cpf "encunkecn'Ucpuntk'f too c="Gpi nkuj "r qgvt { "d { "Mgcvu"cpf "Vgpp { uqp=" Uj cmgur gctgøu"r re { u'cpf "r qgo u="Dgpi cnk'r re { u.'r qgvt { ."cpf "pqxgn="J kpf k'cpf "Wtf w'hkevkqp="yj g"I qur gnu"cpf " qyj gt "Ej tkurkcp"\gzvu="Co gtkecp"rksgtcwtg."gur gekcm("uj qtv'uvqtkgu"cpf "f too c="Gwtqr gcp"rksgtcwtg<"Egtxcpvgu." Vqnrq { ."Klugpô o quvn{ "xkc"Gpi nkuj "tcpurc\kqpu0

J kpf k "Wtf w'cpf "o qtg'tgegpvn("Rwplcdk"ctg"dgeqo kpi "korqtvcpv'kpvgto gf kctkgu'kp'yi g'vtcpurcvkqp'r tqeguu."dqyi "htqo "Gpi rkuj "cpf "qvj gt'Gwtqr gcp"rcpi wci gu'cpf 'htqo "vj g'rguu'y kf gur tgcf "rqecn'rcpi wci gu0'Vj g'f gct yj "qh" ej krf tgpøu'rkvgtcwtg'kp'Kpf kcp'rcpi wci gu'ku'urqy n("dgi kppkpi "vq'tgegkxg'cwgpvkqp0

Rqrkkecn'cpf "cf o kpkıntcıkxg"pggf u'ctg"gzgt\kpi "\j gkt"qy p'r tguuwtgu0Hqt"gzco r ng"c'ur gekcn\k gf "r tqug'j cf "\q''dg" etgevgf 'hqt'\tcpurc\kpi "\j g'\kpf kcp''Eqpu\kw\kqp'\kpu''\Mcuj o ktk''cpf '\j g'\qhh\ken'Tgxkgy 'Eqo o kwgg'\ucf n\left\ "pq\vgf "\j g'r qxgt\left\ "\q' qxgt\left\ "\q' qxgt\left\ "\q' qxgt\ "\q' qx

Vj g'qwr w'qh'Kof kcp'r wdrkij kpi 'j qwugu'xctkgu'htqo ''y g'Gr keu'cpf ''qy gt'r qr wct'y qtmu'vtcpurcvgf ''d { ''y g'' Dj ctcvk{c''Xkf {c''Dj cxcp'\*Kof kcp'Koukwwg'qh'Ewnwtg+'hqt''y g'i gpgtcrl'Kof kcp'Gpi rkuj /tgcf kpi ''r wdrke.''q''y g''pgy '' gf kkqpu''qh'qrf ''vtcpurcvkqpu'r wdrkuj gf ''d { ''Ickeq'Dqqmu'\*hqt''gzco r rg''Ukt''Gf y kp'Ctpqrf øu'vtcpurcvkqp''qh''y g'' Dj ci cxcf ''I kc+''cpf ''y g'Kof kcp''Wpkxgtukv{ ''ugtkgu''qh'Ucpurntkv'Ercurkeu'y ky ''f gvckrgf ''r gf ci qi ke''eqo o gpvctkgu.'' r wdrkuj gf ''d { ''Dcpctukf cuu0T grki kqwu'r wdrkuj gtu'rkng''y g'Tco cmtkuj pc'O kuukqp''cpf ''y g'Cf xckc''Cuj tco c''j cxg'' r wdrkuj gf ''j ki j n{ ''rkvgtcrl'i rquugu''qh''y g''Wrcpkuj cf u''cpf ''uvcpf ctf ''Ucpurntkv''eqo r gpf kc''qh''y g''Kof kcp'' r j kquqr j kecn'u {uvgo u0}

#### Vj g'tuwf { 'qh'st cpurc skqp 'cpf 'tj g'qt i cpk| cskqp 'qh'sj g'r t qhguukqp

Qpg"o ki j v'ko ci kpg"yi cv."y kyi "kuu"o wnkr nlekv{ "qh'ircpi wci gu"cpf "mpi "ttcf kkqp"qh'ttcpurcvkqp."Kpf kc"y qwrf "dg"c" yi tkxkpi "egpvtg"hqt"yi g"yi gqt { "cpf "r tcevkeg"qh'itcpurcvkqp"kp"yi g"o qf gtp"gtc0J qy gxgt."cu"O qj cpv{ "\*3; ; 6< +" gzr nckpu."÷yi g"ukwcvkqp"ku"lwuv'yi g"tgxgtug0'Vtcpurcvkqp"cpf "Vtcpurcvkqp"Uwf kgu"j kyi gtvq"j cxg"tgo ckpgf "c" o cti kpcnkugf "chłck¢0'Cnyi qwi j "yi g"i gpgtcn'ukwcvkqp"ku"cu"O qj cpv{ "f guetkdgu"kv."yi gtg"ctg"uqo g"tgcuqpu"hqt" ej ggt0'Vj g"Uej qqn'hqt"Vtcpurcvkqp"Uwf kgu"cv'yi g"Wpkxgtukv{ "qh'J { f gtcdcf "pqy "j cu"c"ttckpkpi "r tqi tco o g"hqt" vtcpurcvqtu."cpf "yi g"Egpvtcn'lypukwwg"qh'lopi nkuj "cpf "Hqtgki p"Ncpi wci gu"kp"J { f gtcdcf "cppqwpegf"yi cv'kv'y cu" ugwkpi "wr "c"Egpvtg"hqt"Vtcpurcvkqp"cpf "Kpvgtr tgvcvkqp"kp"3; ; 60'C "Egpvtg"hqt"Nkgtct { "Vtcpurcvkqp"y cu"ugv'wr "kp" P gy "F gnj k"y kyj "cp"cecf go ke"eco r wu"kp"I qc."kp"3; ; 50

Cpwxcf."c"Iqwtpcn'r wdrkuj gf "kp"P gy "F gnj k"ku"f gf kecvgf "vq"vj g"uwwf { "qh'vtcpurcvkqp0 Vj g"Kpf kcp"Uekgpvkhke"Vtcpurcvqtu"Cuuqekcvkqp."dcugf "kp"P gy "F gnj k"ku"c"o go dgt"qh"HKV."vj g"Kpvgtpcvkqpcn" Hgf gtcvkqp"qh"Vtcpurcvqtu0Vj g"Ucj kx{c"Cnrcf go k"cnuq"kp"F gnj k"j cu"r wdrkuj gf "c"f ktgevqt { "qh'vtcpurcvqtu0

## Hwt yj gt 't gcf kpi

F cui wr vc'3; : 5="F ko qem'3; 96="F wf rg{"cpf "Ncpi '3; 8; ="I qpf c'3; 97="J wo r j tg{u'3; 73="Iguwf cucp'3; 83="O wnj gtlgg" 3; : 3="P ktcplcpc'3; ; 40

TCOGUJ 'MTKUJ PCOWTVJ [

## Dkqi tcrj kgu

ECTG[.'Y knkco '\*398363: 56+0Dqtp'kp'Pqtyi corvqpuj ktg.'Gpi ncpf.'Ectg{ 'wtpgf 'Dcrvkuv'kp'39: 5'cpf 'ugtxgf " hqt"ugxgtcn"{gctu"cu"c"r cuvqt."kp"cf f kkqp"vq"vgcej kpi "kp"vj g"nqecn'uej qqn'cpf "r tcevkukpi "j ku'uj qgo cmkpi "vtcf g0" O qxkpi "vq"Ngkeguvgt kp"39: ; ."j g"r wdrkuj gf "c"r co r j rgv'qp" y g"gxcpi grlecn'qdrki cvkqpu'qh'Ej tkuvkcpu'y j kej "rgf"  $j \; ko \; . ''y \; ky \; ''qy \; gtu. ''vq'hqwpf \; ''y \; g''Gpi \; rkuj \; ''Dcr \; vkuv'O \; kuukqpct \\ \{ \; ''Uqekgv \\ \{ 0J \; g''j \; ko \; ugrh'dgeco \; g''qpg''qh''y \; g''Uqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ \emptyset U \; g'' \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ Wu'O \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ Wu'O \; kuv'O \; kuv'O \; kuukqpct \} \\ [ Wqekgv \\ \{ Wu'O \; kuv'O \; kuv$ hktuv'o kuukqpctkgu. "i qkpi "\q'Ecrewwc'kp'39; 5. "y j gtg'j g'dgi cp'j ku'hktuv'Dkdrg'\tcpurc\kqp0Hqtegf "\q''rgcxg'Dtkkuj " lwtkuf kevkqp."j g"o qxgf "vq"vj g"pgctd{"Fcpkuj "eqnqp{"qh"Htgfgtkmupci ct"kp"3: 220 kp"3: 23."j g"y cu"crrqkpvgf "vq" vgcej 'Dgpi crk' 'Ucpumtkv.''cpf 'O ctcyj k'cv' Hqtv' Y kmkco 'Eqmgi g0I g'\tcpumcvgf '\'y g' Dkdrg' kpvq' Dgpi crk' 'Qtk{ c." Octový k"J kpf k"Cuuco gug. "cpf "Ucpuntko J g"cnuq" tcpurcvgf "r ctvu" qh'kv" kpvq" 4; "qvj gt" rcpi wci gu" cpf "f korgewo Kp" cf f kkqp. "j g'eqeqo r krgf "f kevkqpctkgu"qh"Dgpi crk "Ucpuntkx "cpf "O ctcyj k "cpf "eq/vtcpurcvgf "yj tgg"xqnvo gu"qh"yj g" J kpf w'gr ke' $Tcoc\{cpcO$ Ectg $\{$ 'ku'cnuq''etgf kugf 'y kuj ''guvcdrkuj kpi ''c'r tkpvkpi ''r tguu''cv''Ugtcor qtg.''wti kpi ''y g'' i qxgtpo gpv'\q'gpf 'kphcp\lekf g'cpf ''uwwgg. 'cpf 'gpeqwtci kpi '\j g'\wug'qh'Kof kcpu'cu'o kuukqpctkgu0 LQPGU'Ut'Y knkco "\*39686; 6+0"Dqtp"qh"Y gnuj "r ctgpvu. "Ut"Y knkco "Iqpgu'uvwf kgf "cv"J cttqy "cpf "Qzhqtf" \*398668: +"cpf 'hgctpgf 'Ncvkp.'I tggm'J gdtgy.'Ctcdke cpf 'Rgtukcp0D{ "j ku'f gcvj."j g'j cf 'hgctpgf '4: 'hcpi wci gu." kpenwf kpi 'Ej kpgug0Chvgt'ugxgtcn'{ gctu'kp''\tcpurc\kqp''cpf 'cecf go ke''y qtm'hkpcpekcn'pgeguukv{ 'hgf 'j ko ''vq''y g'' uwf { "qh'ncy ."cpf "j g'y cu'ecngf "vq'vj g'dct "kp'39960J g'cnq'eqpvkpwgf "j ku'qtkgpvcn'uwf kgu "cpf 'y tqvg'j ku'Rgtukcp" I too o ct'kp'39930kp'39: 4.'j g'\tcpurc\gf '\ugxgp'r tg/K\urco ke''qf gu.''Ο wφcmcsccν.'htqo 'Ctcdke0J g''y cu''npki j \ugr ''  $$kp'39: 5''cpf''ugpv''q''Ecnewwc''cu''lwfig''qh''yg''uwrtgog''eqwtv0''kp''39: 6.''jg''hqwpfgf''yg''Cukcvke''Uqekgv{''qh''Dgpicn''}$ vq"gpeqwtci g"Qtkgpvcn'uwwf kgu0J g"ngctpgf "Ucpumtk/kp"qtf gt"vq"r tgr ctg"c"f ki guv'qh'J kpf w'cpf "O wurko "ncy ." y j kej 'y cu'pgxgt'eqo r ngvgf 0'J qy gxgt.'j g'r wdrkuj gf 'j ku'*Kpurkwvgu'qh'J kpf w'Ncy* 'kp'39; 6.'cpf 'y g' Owj co o cf cp'Ncy "qh'Koj gt kvcpeg"kp"39; 40Kp"39: 8. "j ku'r tgukf gpvkcn'ur ggej "vq"vj g"Cukcvke"Uqekgv( "eqpvckpgf "j ku" ur gewrc klapu''qp''y g''eqo o qp''cpeguxt { "qh''Ucpunt k''cpf 'I tggm''qpg''qh'y g''gct nkguv'cpf 'o quv'kphrwgp kcn'\gz w''qp'' eqo r ctcvkxg'hkpi wkuvkeu0

MWT CO CLEX C"\*CF '5666635+0C 'uwf gpv'qh'I kpc{cpc'Dwf f j kuo 'cv'Mcuj i ct'kp'E j kpc.'Mwtco clkxc'y cu'' qtf clpgf 'cu'c'o qpm'cv'y g'ci g'qh'420I g'revgt 'eqpxgtvgf 'vq'O c j c{cpc'Dwf f j kuo .'ko r tguugf 'vj g'ko r gtkcn'hco kn{" y ky 'j ku''ngctpkpi 'cpf 'y cu''gpvtwuvgf 'y ky 'j gcf kpi 'c'hco qwu'ue j qqn'qh'vtcpurcvqtu0'Y gm'mpqy p'hqt'j ku'' gpe{emr gf ke'mpqy ngf i g'qh'I kpf w'cpf 'Dwf f j kuv'r j kmquqr j { 'kp'r ctvkewct.'j g'vtcpurcvgf 'vj g'Nklg'qh'Pci ctlwpc'' \*y g'Dwf f j kuv'r j kmquqr j gt+'co qpi 'qvj gt'vgzvu.''cpf 'y cu'ncti gn{ 'tgur qpukdng'hqt'vj g'r tqr ci cvkqp'qh'Dwf f j kuv'' kf gcu'kp'E j kpc0

TQ[.'Tco 'O qj cp"\*399463: 55+0Dqtp"kp"c"Dgpi cn'cntgcf {"wpf gt"Dtkkuj "twng."Tco "O qj cp"Tq{"eco g'qh'c" r tqur gtqwu'Dtcj o kp'hco kn{0J ku'\texgnu'qwukf g'Dgpi cn'gpeqwtci gf "j ko "\q"ngctp"Ucpuntkv."Rgtukep."cpf "Ctcdke." vq"y j kej "j g'ncwgt"cf f gf "J gdtgy ."I tggm"cpf "Gpi nkuj 0Dgpi cnk'cpf "J kpf k'y gtg"j ku'pcvkxg"ncpi wci gu0J ku" tgrki kqwu'uwxf kgu'ngf "j ko "\q"etkkek g"J kpf w'ugevctkcpkuo "cpf "uwr gtuvkkqp."wti kpi "c"tgwtp"\q"c"o qpqvj gkuo "dcugf "qp"\y g'\Xgf cu''cpf "\Wr cpkuj cf u "y j kej "j g'\tepuncvgf "htqo "Ucpuntkv'kpq"J kpf k'Dgpi cnk "cpf "Gpi nkuj 0Vj g" vtepuncvkqpu"cpi gtgf "\y g"qtyi qf qz"\tef kkqp."dw'ngf "\q"j ko "dgkpi "gngevgf "\q"j qpqtct {"

o go dgtuj kr "qh'y g"Uqek v "Cukcyks wg"kp"3: 460J g"cnuq"r wdrkuj gf "uqo g"y qtmu"qp"y g"ygcej kpi u"qh'Ej tkuv0Cu" hqwpf gt "cpf "gf kqt"qh"y q"qh"kpf kcøu"gctrkguv"pgy ur cr gtu. "j g"wti gf "y g"i qxgtpo gpv"vq"dcp"uwwgg. "y j kej "kv"f kf "kp" 3: 4; 0Kp"3: 44. "j g"hqwpf gf "y g"Cpi m/J kpf w"Uej qqrl'cpf "kp"3: 48"y g"Xgf cpvc"Eqrigi g. "dwd"qr r qugf "cwgo r wu"vq" gphqteg"y g"Ucpuntkv"ytcf kwqp. "r tghgttkpi "vq"gur qwug"c"o qtg"Y guvgtp"ewttkewnwo 0

UJ CJ 'Y CNKCNNCJ 'F kJ NCY K\*3925684-0'Y cnk'Cmcj "enclo gf "f guegpv'htqo "Wo ct'kdp"cn'Mj cwcd." y g" ugeqpf "ecrkr j "qh'Kmco 0J kn'cpeguatu'j cf "go ki tcvgf "vq"y g"uo cm'vqy p"qh'Tqj vcm'pgct'F gnj k'kp"Kpf kc"kp"y g" y kvggpyj "egpwx { ."r quukln( "dgecwug"qh'c'O qpi qn'kpxcukqp0O go dgtu"qh'j ku'hco kn( "j cf "ugtxgf "cu"rey "qh'kegtu" kp"y g"F gnj k'Uvncpcyg." cpf "uqo g"j cf "dgeqo g"uqnf kgtu"wpf gt "y g"O wi j cn'go r gtqtu." dw'j ku'hcy gt "tghwugf "vq" ugtxg"y g"go r gtqt" Cwtcpi | gd"kp"cp { "ecr cekn(0J ku'hcy gt"hkygf" cpf" y qtngf "kp"F gnj k"y j gtg"j g"hqwpf gf" c" ugo kpct { ."cpf "Y cnk'Cmcj "vqqm'qxgt"yj g"cf o kpkntc-kqp"cv'yj g"ci g"qh'370J g"tgegkxgf "c'uqwpf "gf wec-kqp." eqxgtkpi "Ctcdke"u{ pvcz. "Knrco ke"hcy ."nqi ke."tj gvqtke." o gf kekpg."cpf "o {uvke "hkytcwtg0Ci ckpuv'j ku'hco kn(vu" y knj gu."Y cnk'Cmcj "o cf g"yj g"f cpi gtqwu'r kii tko ci g"vq"y g"J qn( "Ekkgu'qh'O geec"cpf "O gf kpc"dgw ggp"3952"cpf "3954."y j gtg"j g'tgegkxgf "vgcej kpi u"cpf "kpuntwe-kqp"y j kej "qr gpgf "j ku"g{ gu'vq"y g"f kxgtukn( "qh'Knrco ke"qr kpkqpu0' F wtkpi "j ku'uc ("kp"y g"J qn( "Ekkgu."j g"tcpurc-vgf "c"Rgtukcp"vgzv\*:Tghwc-kqp"qh'yj g"U kxkguv+"kpq"Ctcdke0J ku" cppqcvgf "Rgtukcp"xgtukqp"qh'yj g"S wtw p"y cu"dgi wp"dghqtg"3952"cpf "y cu"pqv'eqo r ngvgf "wykn'395: 0J g"ncyt" eqo r krgf "c"ugv'qh'hputwe-kqpu"kp"Rgtukcp"hqt"uej qnctu"cwgo r kpi "vq"vtcpurc-vg"y g"S wtw p0J g"cnnq"tcpurc-vgf "cp" Ctcdke"i tco o ct"kpq"Rgtukcp"xgtug"\*e0897364+"hqt"y g"dgpghky'qh'qpg"qh'j ku"uqpu0Wpkn'tgegpvn(."j ku" eqpvtkdwkqp"vq"Knrco ke"y qwi j vj cf "dggp"wpf gtguwo cvgf "d{"dqyi "Y gurgtp"cpf "Knrco ke"uej qnctu."y j q"vgpf gf "vq" rc{"hct"o qtg"cwgpkqp"vq" ki'r qnkkecn'xkgy u0

VCI QTG.'Tcdlpf tcpcyj '\*3: 8363; 63+0'Uqp''qh'F gxgpf tcpcyj ''Vci qtg.''J kpf w'r j krquqr j gt''cpf ''tgrki kqwu'' tghqto gt. "Tcdkpf tcpcyj "uvctvgf "y tkkpi "r qgo u"cv"cp"gctn( "ci g"cpf "r tqf wegf "dqqmu"qh"uqpi u"kp"yj g"3: : 2u0J ku" hktuv'ko r qt vcpv'dqqm'qh'r qgo u." O cpcuk" cr r gctgf "kp"3:; 20 KV kpenwf gf "xgtug" hqto u'pgy "vq" Dgpi crk' hqt" gzco r ng. "vj g"qf g+"cu"y gm"cu"uqekcn"cpf "r qnkkecn"r qgo u0J g"r wdnkuj gf "ugxgtcn"eqmgekqpu"qh"r qgvt { "dgw ggp" 3:; 5"cpf '3; 23<"Upct 'Vctk" qrf gp"Dqcv="Ektc=Eckcrk" Ncvg" Jctxguv="Mcrcpc" Ftgcou+="Mucpknc="cpf" Pckdgf {c'\*\*Ucetkhleg+0J g'cnuq'y tqvg''wy q'n{tkecn'r nc{u\"Ej ktcpi cf c'cpf 'OcnlpkORgtuqpcn'dgtgcxgo gpvu" dgw ggp"3; 24"cpf "3; 29" y ku'y khg. "c"uqp. "cpf" cwi j vgt +"uvkhrgf" y ku'rkvgtct { "qwr w'hqt" pgctn{ "c"f gecf g. "dw'j g" go gti gf "tkwo rj cpvn{ "y kj "rtqdcdn{ "j ku"o quv"gpf wtkpi "y qtm" / kvcplcnk" "Uqpi "Qthgtkpi +: "kp" 3; 320" Vj g" Gpi nkuj " xgtukqp. "rtgrctgf"d{"jko."yqp"jko"yjg"Pqdgn'Rtk|g"hqt"Nkgtcwtg"kp"3;350Jg"ycu'mpkijvgf"kp"3;37"dw" uwttgpf gtgf 'j ku'mpki j vj qqf 'kp'3; 3; 'kp'r tqvguv'cv'vj g'Co tkuct'O cuucetg'\*y j gtg'j wpf tgf u'qh'Kpf kcp'' pcvkqpcrkuvu'y gtg'mkmgf 'd{ ''tqqr u'wpf gt''Dtkkuj 'eqpvtqm+0J ku'r tqf wevkxkv{ 'eqpvkpwgf .''y kij ''43'eqmgevkqpu'f wtkpi '' yj g'hkpen'47"{getu'qh'j ku'hkbg0O cp{''qh'j ku'y qtmu'j exg''dggp''\tepurevgf 'kpvq''Gpi nkuj .''d{''j ko ugrh'epf ''qvj gtu'\\*hqt'' f kuewuukqpu'qh'j ku'qy p''tcpurc'kqpu'qh'j ku'y qtm'ugg'O wnj gtlgg'3; : 3''cpf 'Ugpi wr vc'3; ; 2+0'J ku'pqxgnu'pgxgt'' cej kgxgf 'vj g'uco g'hco g. 'vj g'dguv'mpqy p'dgkpi "I qtc'\*3; 29632+. 'vtcpurcvgf 'kpvq'Gpi rkuj 'kp'3; 460J g'y cu'cnuq'c'' eqo r qugt. "ugvkpi "o cp{"qh'j ku'r qgo u'vq"o wuke. "cpf "c"r ckpvgt "qh'vcrgpv0Kp"3; 23. "j g'hqwpf gf "c"uej qqrl'cv" Ucpulplungucp. "y j gtg"j ku"hoj gt"j cf "kpkukcygf" cp"gf weculqp" egpytg" kp"3: 85. "cpf" cnuq" kpcwi wtcygf "y g"Xkuxc/ Dj ctcvk'Wpkxgtukv{ "vj gtg"kp"3; 430J ku'uqpi ":Qwt"i qnf gp"Dgpi cnø'j cu'dgeqo g'vj g'pcvkqpcn'cpvj go "qh" Depi nef guj 0

Y crkCmcj 'F kj ncy kOUgg''UJ CJ "Y CNKCNNCJ 'F kJ NCY KO

TCOGUI 'MTKU PCOWTVJ [

## Kerkep'tt cf krkqp

Cu'c'hcpi wci g'f ktgevn( 'f gxgmr gf 'htqo 'Ncvkp.'Kcnkcp'j cu'j cf 'vq'uvtkxg'hqt'o cp{ 'egpwtkgu'kp''

qtf gt "\q"ces wktg"cp"cwqpqo qwu'uvcwu0'Vj g"r tqeguu'qh'kf gp\khec\kqp."ecttkgf "qwi'kp"r ctcmgn'y kyj "qvj gt" Gwtqr gcp"rcpi wci gu. "\qqm'lugxgtcn'egpwtkgu0'Vj g"i gqi tcr j kecn'hgcwtgu'cpf "\j g"r qnkkecn'xkekuukwf gu'qh'\j g" eqwpvt { "hquvgtgf "c"htci o gpvc\kqp"qh'tgi kqpcn'f kcngevu'y kyj "f kurkpevkxg"r j qpgvke"cpf "ngzkecn'vtckuu'i tqy kpi "qwv' htqo "c"eqo o qp"tqqv."uq/ecngf "Xwri ct"Ncvkp0'K'y cu"pqv'wpvkn'y g"ukzvggpyj "egpwt { "vj cv'cp"kf gpvkhcdng"Kcnkcp" rcpi wci g'hkpcm{ "go gti gf "cpf "y cu"ucpevkqpgf "cu"cp"qhhkekn'ceegr vgf "uvcpf ctf 0

## Vt cpurc vlqp'lpvq'tj g'xgt pcewrct '\*vgpvj 'tq'lllvggpvj 'egpvwt lgu+

Vj g"gctrlguv"y tkwgp"f qewo gpv"lp"cp"Kcrlcp"xgtpcewrct"lu"lp"hcev"c"vtcpurcvlqp"htqo "vj g"Ncvlp"o qf gri'qh"uy qtp" f gr qukkqp"tgs wktgf "d{ "vj g"Nqpi qdctf "dwtgcwetce{ "hqt"guvcvg"qy pgtuj kr "tgeqtf u<c "lwf i g"qh"Ecr wc. "kp"CF"; 82." y tqyg'f qy p'y g'hqto wrc'kp'y qtf u'qy gt'y cp'y qug'qh'uvcpf ctf 'Ncvkp'hqt'y g'dgpghky'qh'y kypguugu'y cv'gxkf gpvn(" eqwrf "pq"mpi gt"wpf gtuvcpf "kv0"Vj ku"v{r g"qh"vtcpurcvkqp"eqpvkpwgf "hqt"c"mpi "vko g"cpf "uvqr r gf "qpn{"y j gp" cf o kpkuvtcvkxg"r tcevkegu"j cf "dggp"eqo r ngvgn{"vcngp"qxgt"d{"vj g"tkukpi "o kf f ng"encuu0F c{/vq/f c{"ngi cn'cevkxkkgu" rtguwo cdn{ 'tgs wktgf 'c'o cuukxg''wug''qh'kpvgtrtgvkpi 'kp''qtfgt''vq''eqpxg{ ''vq''yjg''rgqrng''yjg''eqorngz''eqpvgpv''qh'' rcy u'y tkwgp'kp''Ncvkp''cpf ''qhwgp''crtgcf { ''tcpurcvgf 'kpvq''vj cv'hcpi wci g'htqo ''uvcwwgu''qtki kpcm( ''y tkwgp''kp''vj g'' o wnkwf g'qh'ncpi wci gu'wugf 'd{ 'eqps wgtkpi 'cto kgu'cpf 'hqtgki p'twrgtu0'Vj g'hktuv'u{ uvgo cvke 'tgeqwtug'vq'y tkwgp'' vtcpurckqpu'kp''y g'xgtpcewrct''crrgctgf'kp'hcev'\qy ctfu''y g'o kffrg''qh''y g''y ktvggpy 'egpwt{'kp''y g'Ncy''Uej qqnu'' kp'Dqmi pc"cpf "Hmqtgpeg." y j gtg"k y cu'hgn y cv'y g"crrnkeckqp"qh Encuakecn Tj gvqtkeu 'vq"c" xgtpcewrct "eqpvgzv" tgs wktgf "c"emug"r cwgtpkpi "qh'yj g'uv{ng"qp"Ncvkp"o qf gnu'\*O ci i kpk'3; 74+0'Vj wu'EKEGTQøU'y qtmu'\*ugg'<u>NCVKP"</u> VTCF KVKQP + 'y gtg'co qpi 'vj g'gctnkguv'gzco r ngu'qh'Encuukecn'Ncvkp'vgzvu'vtcpuncvgf 'kpvq'tgi kqpcn'f kcngevu'y kyj " yj g"qdxkqwu"kpvgpv"qh"tckukpi "yj g"s wcrkv{ "qh"yj g"xgtpcewrct"yj tqwi j "c"mkpf "qh"o kttqt"ghhgev0"Vj ku"j cdkv"dgeco g" xgt { "r qr wrct "cpf "i gpgtcvgf "pwo gtqwu'\tcpurcvkqpu'qh'tj gvqtkeu'cpf 'r j krquqr j { "\gz vu0 Cv'vj g'uco g'vko g."cp"cpcmqi qwu'r tqeguu'vqqm'r nceg"qp"c"o qtg'r qr wrct "rgxgn'y kyj "vtcpu'ncvkqpu'htqo "Htgpej "kpvq" pqtyj gtp'Kcrkcp'f kcrgevu'qh'gpvgtvckpo gpv'rkvgtcwtg'uwej "cu'yj g'Ctyj wtkcp'rgi gpf u'cpf 'qyj gt'pcttcvkxg'uqwtegu0' Y j gtgcu'kp''y g'hktuv'kpuvcpeg''y g'pco gu'qh''y g''tcpurcvqtu''y gtg''qhvgp''tgeqtf gf ''dgecwug''y g''tcpurcvqtu'' eqpegtpgf "y gtg"o clqt "vgcej gtu"qh"Ncy "cpf "Tj gvqtkeu" \*Dtwpgwq "Ncvkpk "DCTVQNQOGQ" FC" UCP" EQPEQTF IQ. "Dqpq"I ko dqpk "Nqvctkq"F keeqpq+" 'y g'\tcpure\qtu'qh'\y g'o qtg"r qr wct 'nkpf 'qh'nk\gtcwtg" tgo ckp'wpmpqy p0J gtg. "cwgpvkqp'hqewugf "qp" y g'y qtm" y j krg' y g'vtcpurcvqt "tgo ckpgf "kp" y g'vj cf qy u. "c" ukwckqp'y cv'ncuvgf 'y gm'kpvq'y g'ukzvggpy 'egpwt {0 Y g'pq\leg'cniq'\'y cv'co qpi '\'y g'rgctpgf '\tcpurc\qtu'y qtm\leftpi '\'kp'\'y g'\wp\kxgtuk\legu'\'y gtg'\y cu'c'i tgcv'cy ctgpguu'\qh' yj g'yj gqtgykecn'r tqdngo u'eqppgeygf 'y kyj "\tcpurcykqp0'Hqt"kpuvcpeg. "Dctyqmo gq'f c"Ucp'Eqpeqtf kq"\348463569+"  $kp''j \; ku'' \textit{Co o c gust co gpvk'f gi nk''} \textit{Cpvkej k'} * \textit{Vgcej kpi u''qh''y g''} \textit{C pekgpvu+''rkuvu''} 34''ko \; r \; qt \; \textit{vcpv''gzco r rgu''ht qo ''encuukecn''}$ tgrki kqwu"cwwj qtu"kp"qtf gt"\q"tgkphqteg"j ku"\gpgv"vj cv":kp"rkuvgpkpi "cpf "kp"tgcf kpi "y g"uj cm"cwgpf "o qtg"vq"vj g" o gcpkpi "y cp'\q"y g'y qtf uø'\*Ncr week'3; : 5⊲6637="\tcpurc\gf +0"Vj ku'\tcf kkqp"y tkxgf "y tqwi j qw'y g'hqwt\ggpy " cpf 'hkhvggpvj "egpwtkgu"cpf "eqpvtkdwgf 'vq"y kf gpkpi "vj g'ur gevtwo "qh'encuukecn'vgzvu'vtcpuncvgf "\*dgukf gu'vj g" rjkquqrjkecn"jkuqtkecn"lwtkfkecn'cpf"tjgvqtkecn'yqtmu."vjgtg"ycu"kp"vjku"rgtkqf"c"fghkpkxg"gorjcuku"qp" tgrki kqwu''tcpurcvkqpu+0'Vj g's wcrkx{ "qh''yi g''y qtm'r tqf wegf."j qy gxgt."f gvgtkqtcvgf ''uvgcf kn{ ''dgecwug''ncvgt'' vtcpurcvqtu"qhvgp"r nci kctk| gf "qt"\co r gtgf "y kij "gctnkgt"tgpf kvkqpu."vj wu"dtgcmkpi "vj g"uv{ nkuvke"vvpkv{ "qh"vj g"y qtmu0" C'pqvcdrg''gzegr vkqp''ku'c'ugtkgu''qh''tcpurcvkqpu''qh''y g''Dkdrg''kp''egpvtcn''Kcrkcp''xgtpcewrct''o cf g''d{ ''cpqp{o qwu'' o qpmu'co qpi 'y j qo 'y cu'Htc'F qo gpkeq'Ecxcrec'\*349263564+0'Uwej 'ku'y g's wcrkx{ ''qh'y gkt 'hqwt yggpy /egpwt { "

wzwi'j cv'y j gp"P keeqrl/4O crgto k'y cu'gf kkpi "j g'hktuv'r tlpvgf "Dkdrg'kp"Kcrkcp'kp"3693."j g'eqrrgevgf "cpf 'tghgttgf" vq"j gug'vgzwu."gxgp"j qwi j "j g{ "y gtg"crtgcf { "o qtg"j cp"c"egpwt { "qrf 0} Ctqwpf "33; 2."Tcko dcwi'f g"Xcs wgktcu."c"Rtqxgp±cri'vtqwdcf qt."y tqvg"c"r qgo "kp"y j kej "c"I gpqgug'rcf { "cpuy gtu" kp"j gt "qy p"xgtpcewrct"vq"j g"r rgcu"qh"j gt "Rtqxgp±cri'uvkvqt0"Vj ku"o c{ "dg"eqpukf gtgf "j g'hktuv'qeewttgpeg"qh'cp" Kcrkcp"f kcrgev'kp"r qgvt { 0"Vtcpurcvkqp"r rc { gf "c"etwekcri'tqrg"kp"guvcdrkuj kpi "c"r qgvkecri'vtcf kkqp"kp"

ugxgtcni'r ctwi'qhi'Kcn(Olceqr q'f c'Ngpvkpk'\*htuv'j cni'qhi'y g''y ktvggpyi ''egpwt {+'ku'co qpi ''y g''gctnkgwi'tgeqtf gf '' Kcnkcp''\*o qtg''r tgekugn( ''Ukekrcp+''r qgwi'cpf ''qpg''qhi'j ku'hktuv'eqo r qukkqpu''\*:O cf qppc''f kt ''xk'xqi nkqø+'ku'c'' vtcpurcvkqp'htqo ''Hqns wgv'f g''O ctugknc.''hqwpf kpi ''c''vtcf kkqp''y cv'uvqqf ''hkto ''hqt''qxgt''c''egpwt {0} F cpvg''Cnki j kgtk'\*348763543+.''hqnnqy kpi ''y g''ceegr vgf ''o gf kgxcn'pqvkqp.''uvtqpi n( ''cuugtvgf ''y g''ko r quukdknk\{ ''qh'' r qgvkecn'vtcpurcvkqpOJ ku''Eqpxkxkq''\*35266: +'eqpvckpu''y g''htuv''Kcnkcp''tghgtgpeg''vq''y g''y gqt { ''qhi'vtcpurcvkqp<'' +'Cp{ yi kpi ''j cto qpk| gf ''y tqwi j ''y g''dqpf ''qh''y g''O wugu''ecppqv'dg''vtcpuo wgf 'htqo ''kvu'kf kqo ''kpvq''cpqyi gt'' y kyi qww''nqukpi ''cm'kwu''uy ggvpguu'cpf ''j cto qp{ ø\*vtcpurcvgf +OF gur kg''y g''ecvgi qtkecn'vqpg''qh''y ku''uvcvgo gpv.'' F cpvg''j ko ugnh'qhvgp''vtkgf ''j ku''j cpf ''cv'yi g''cmgi gf n( ''ko r quukdng'\cunn'qh'\vtcpurcvkpi ''Ncvkp''qt''Rtqxgp±cn'r qgwi'kpvq'' y g''Hnqtgpvkpg''f kcngev'hqt''kpenwukqp''kp''j ku'y qtmuO'Vj g''uco g''r tcevkeg'y cu''hqmyy gf ''d{ ''Dqeeceekq''cpf ''Rgvtctej 0

## J wo cpkno 'cpf 'tj g'Tgpckncpeg'\*362263772+

Vj g'j wi g'pwo dgt ''qh''\tcpurc\kqpu''r tqf wegf 'kp''\j g'xgtpcewrt''r cxgf ''\j g'\y c{ 'hqt'\j cv\'tgf kueqxgt { ''qh'\j g''ercuukeu'' mpqy p''cu''J wo cpkuo 0F wtkpi ''\j g''ugeqpf ''j crh''qh'\j g''hqwt\ggp\j ''egpwt { ''cpf ''\j g'\y j qrg''qh'\j g''hkhrggp\j .'' pwo gtqwu''I tggml'cpf ''Nc\kp''cwj qtu'\y gtg''wpgct\j gf ''htqo ''\j g''ctej kxgu'\y j gtg''\j g{ ''j cf ''rc\p''dwt\kgf .''\kp''o cp { ''ecugu''hqt''egpwt\kgu.''wpf gt''rc\gtu''qh''f wu\0

F wtkpi ''y ku''r gtkqf .''y j kej ''cnuq''y kapguugf ''c'j wi g'kpvgtguv'kp''y g''uvwf { ''qh'I tggm''cwkwf gu''vqy ctf u''ercuukecn'' y qtmu'y gtg''cnuq''ej cpi kpi 0'F wtkpi ''y g'O kf f rg''Ci gu.''y g''uqrg''eqpegtp''j cf ''dggp''vq''r cuu''qp''vgz vu.''eqr { kpi '' cetkkecm{ .''qeecukqpcm{ ''cf f kpi ''vq'qt''tgo qxkpi ''htqo ''y g''qtki kpcn'y ky qwv'j gukxcvkqp0P qy .''j qy gxgt.''y g'' go r j cuku'y cu''qp''tguvqtkpi ''y g''qtki kpcn'vq'ku''cpekgpv'r wtkv{ .''tgo qxkpi ''y g''egpwtkgu''qh''f ww0Cp''kpetgcug''kp'' vtcpurcvkqp''qwr ww.''y kyj ''pgy ''r tkpekr rgu''cpf ''i qcnu.''go gti gf ''pcwtcm{ ''cnqpi ukf g''y ku''pgy ''r j knqni kecn'eqpegtp.'' y g''cr r gctcpeg''qh''r tkpvkpi '\*\*e6692+.''y j kej ''kpetgcugf ''y g''eqpuwo gt''o ctngv''dqyi ''kp''ukt g''cpf ''tcpi g.''dgkpi ''etwekcn'' vq''uwej ''f gxgnqr o gpw0

Cm quy'cm'ij g''tcpurc'kqpu''ecttkgf ''qw'f wkpi ''y ku''r gtkqf ''y gtg''tqo ''I tggmlcpf ''Ncvkp''cpf .''ukpeg''Ncvkp''y cu'ukm' eqpukf gtgf ''y g''rcpi wci g.''y g''dwm'qh''y g'y qtm'r tqf wegf ''y cu''ttqo ''I tggmlkpvq''Ncvkp.''vq''dg''tgcf 'o ckpn{ ''d{ "uej qnctu'y ky ''ho kgf ''r tqhkekgpe{ ''hp'I tggmlKy' cu''qpn{ 'nevgt ''y cv''tcpurc'vqp''y cu''tgcf kn{ ''ecttkgf ''qw'htqo ''I tggml' kpvq''y g''Kcrkcp''xgtpcewrct. ''qhxgp'y ky ''tghgtgpeg''vq''y g''Ncvkp''xgtukqpu0Cm'uqtw'qh'vgzw'y gtg''tcpurc'vgf ''dqqm'' qp''y kurqt{.''r j knquqr j { ''cpf ''tgrki kqp.''vqi gyj gt''y ky ''r qgxt{.''y gtg''y g'o quv'htgs wgpv.''cnij qwi j ''y gtg''y gtg''cnq'' y qtmu''qp''o gf kekpg.''ci tkewnwtg.''cutqmi { .''o ctvkcrl'ctwl'cpf ''o cyi go cvkeu'\*Rckqpk'3989='Hgf gtkek'3: 4: .''3: 82+0 Cnij qwi j ''kv'y cu''Xgpkeg.''y kj ''kwl'vtcf kkqpcrl'ewnwtcrl'qr gppguu''cpf ''eqpxgpkgpv'i gqi tcr j kecrl'nqecvkqp.''y cv'' rtcevkecm{ ''f qo kpcvgf ''y g''r tkpvkpi ''kpf wux{ ''\*cpf ''y gtghtg'vtcpurcvkqp+''y g''repi wci g''kpvq'y j kej ''cm quv'cm'' y qtmu'y gtg''tcpurcvgf ''y cu''y g''Vwecp''xgtpcewrt.''qt''qd'g'o qtg''r tgekug.''y g''xgtpcewrt''qh'Hnqtgpeg.''y g''etcf ng'' qh''J wo cpkuo 0'Vj gtg.''c''rcti g'' tqwr ''qh''rc{ ''kpvgmgewcm''y ky ''J wo cpkuv'kf gcnu'y j q'y gtg''cdrg''vq''wpf gtucpf ''Ncvkp''cpf ''\*qhxgp+'I tggmlj cf ''i cyi gtgf ''ctqwpf ''ko r qtvcpv'hki wtgu'uwej ''cu''Eqnweekq''Ucnwck''Ngqpctf q''DTWP K'' Rqi i kq''Dtceekqrlpk''O ctukrkq''HKE kP Q''cpf ''I kqxcppk'Rkeq''f gmc''O ktcpf qrc0'Vj gtghqtg''kv'ku''j ctf n{ ''uwtr tkukpi ''y cv'' o quv'tcpurcvqtu'y gtg''Hnqtgpvkpg0

Nqqnlpi ''y tqwi j ''y g'uwtxkxlpi 'pco gu. ''qpg'tgcrl\t gu''y cv''y g''tcpurcvqtu''qh''y g''do g'y gtg''pqv'cny c\tu'hco qwu''qt'' go kpgpv'hki wtgu0lkpf ggf. ''y gtg'ku'htgs wgpvn\tangle 'pq'kphqto cvkqp''cdqww''y go ''y j cwqgxgt0lP qpg''y g''nguu. 'kv'y cu''y gkt'' cpqp\to qwu'y qtm''vqi gyi gt''y kyi ''y g''uvtqpi ''nkgtct\tangle ''\text{tcf kkqp''y j kej ''Hrqtgpeg''j cf ''ces wktgf ''f wtkpi ''y g''y q'' r tgxkqwu''egpwtkgu. ''y cv''ngf ''vq''y g''f gxgmqr o gpv''qh''y g''Hrqtgpvkpg''xgtpcewrct''cu''y g''dcuku''qh''y g''Kcrlcp''pcvkqpcn'' repi wci g''qh''Klcn\tangle ''y j gtg''y g\tangle ''y gtg''y g\tangle ''y gtg''y g'''y g''y gtg''y g\tangle ''y gtg''y g\tangle ''y gtg''y gtg''y g\tangle ''y ku''r qkpv''qp. ''r gqr ng''uvctvgf ''vq''cmm'qh'c''eqo o qp''ncpi wci g''qh''Klcn\tangle .''cpf ''qh''Klcn\tangle p.''y j gtg''y g\tangle ''y j cf''r tgxkqwun\tangle ''ur qngp''qh''Vwuecp''cpf ''Hrqtgpvkpg''xgtpcewrctu0

Vj g'tcpurcvqtu'qh'tgrki kqwu'vgzw'y gtg'i gpgtcm{ 'o qpmu'cpf 'r tkguwu.'y j gtgcu'y qtmu'qp'uekgpeg'cpf 'r j krquqr j { "\*gzenwf kpi "vj gqrqi {."qh'eqwtug+'y gtg''vcpurcvgf "d{ 'rc{ 'r gqr rg0'Vj g'dcuke'r wtr qug'kp''crn'pqp/rkvgtct{ 'vcpurcvkqp'' htqo "vj g'ercuukecn'rcpi wci gu'kpvq'vj g'xgtpcewrct'y cu'vq'r tqr ci cvg'vj g'tgrki kqwu'o guuci g'qt'f kuugo kpcvg'kf gcu'qh'' r wdrke''wughwpguu'co qpi 'kpetgcukpi n{ 'rcti gt'i tqwr u'qh''

r gqr rg0'Vj ku'ku'gzgo r rkhlgf 'kp''y g''kxrg'r ci g''qh''y g''hktuv'y qtm'qp''o cyj go cvkeu''tcpurcvgf 'kp''Kcn{ ''d{ ''y g''y gm' mpqy p''o cyj go cvkelcp'P keeqrl/4'Vctvci rkc''\*crkcu'P keeqrl/4'Hqpvcpc.''36; ; 63779+<":\*xtcpurcvgf 'hqt''eqo o qp'' eqpxgplgpeg''cpf 'wughwpguu0'Ki'ku''uq''ergct''y cv''gxgt { ''cxgtci g.''wpkphqto gf ''cpf ''kpgzr gtv'o kpf ''y km'dg''cdrg''q'' wpf gtuvcpf 'kw'\*Vctvci rkc''3787="\tcpurcvgf +0'Vj ku''cvkwf g''y cu''xgt { ''y kf gur tgcf.''cpf ''y g'hkpf ''uko krct'uvcvgo gpvu'' kp''O cguvtq''Rlgvtq'O ctlpq''f c''Hqrki pqøu''r tghceg''vq''j ku''vcpurcvkqp'\*\*374: +''qh''y g''y qtm'd{ ''+Rcmcf kwu.''y qtyj { ''cpf '' cpelgpv'y tkgt''qp''ci tkewnwtg.''vcpurcvgf 'kpvq''y g''xgtpcewrct.''uq''y cv'y qug'y j q''f qpøv''mpqy ''Ncvkp''o c{ ''dgpghkv.'' gplq{ ''cpf '' ckp''wughwrllphqto cvkqp''htqo ''j ku'y qtmø'\*\tcpurcvgf +0

Ki'y cu'c'uqo gy j cv'f khhgtgpv'o cwgt'y j gtg'hkgtct { "tcpurckqpu'y gtg"eqpegtpgf 0'Vj g"o gp"qh'hgwgtu'cv'eqwtv'\*g0 0' O cwgq'O ctkc'Dqlctf q+'y gtg"qhygp"eqo o kuukqpgf "\q'\tcpurcvg'hkgtct { "y qtmu"d { "r cvtqpu'wphco khct'y ky "y g" encuukecn'hcpi wci gu0Kp"y g"ecug"qh'y qtmu'hqt"y g"y gcvtg."\tcpurcvkqp"o gcpv'r gthqto cpeg'\*cdqxg"cm'kh'pqv' gzenwukxgn{ ."cv'eqwtv+0Kp"cf f kkqp."\y gtg"y cu'c'j wi g"co qwpv'qh'\tcpurcvkqp"qh'dcmcf u'cpf "Htgpej "gr ke'r qgvt { ." o ckpn{ "hqt"r qr wrct "wug."\y qwi j "\y ku'y cu'o cti kpcn'cu'c'tguwnv'qh'\y g"hcti g"co qwpv'qh'j qo g/r tqf wegf "y qtmu'qh'c" uko krct "pcwtg0

Vj ku'y cu'c'f {pco ke'r gtkqf 'cnuq'hqt'\tcpurc\kqp''y gqt{0Kp'j ku'dtkgh'\tgc\kug'\kg'\kg'\kg'\kg\kq\kqp''t gevc."e\lad642+" y g'y gm'mpqy p''J wo cpkuv'Ngqpctf q'DTWP K`ugv'qwv'y g'twrgu'c''i qqf '\tcpurc\qt''uj qwf '\hqmqy 0Cmj qwi j " Dtwpkøu'f kuewunkqp'f gcm'y ky '\tcpurc\qpu'htqo ''I tggmkpq'Nc\kp.'kv'y cu'tgrgxcpv'cmq'\q''y g'xgtpcewrt'cpf " i tgcwf 'kphrwgpegf 'uwdugs wgpv'i gpgtc\kqpu'qh'\tcpurc\qtu\lovVj g'o ckp''y twuv'qh'j ku''y guku'y cu''y cv'yi g''qtki kpcn' y qtm'o ww'dg''r tqr gtnf ''wpf gtuqqf 0Vj g'\tcpurc\qt''j cf '\q''j cxg''r gthgev'mpqy rgf i g'qh''dqy ''yi g'uqwteg'rcpi wci g'' cpf ''yi g''\cti gv'rcpi wci g."pqv'qpnf ''cu'tgi ctf u'\yi gkt 'u{pvcz''cpf 'rgzku."dwv'cmq'\yi gkt 'tj gvqtkecn'r cwgtpu0Kpf ggf .'\yi g'' cwyi qtøu'cewcn'uv{ rg'y cu'\q'dg'tgr tqf wegf .'\qi gyi gt'y kyi '\yi g'tj {\yi o ''qh'\yi g''ugpvgpeg'\\*Hqrgpc<'3; 9513; ; 3+0Vj ku'' kpytguv'kp''\tcpurc\kqp''cpf ''yi g'\yi gqtg\kecn'kunwgu'kv'tckugf ''dgeco g''cp''kpetgcukpi nf 'ko r qtvcpv'\qr ke'kp''Tgpckuncpeg'' y tkkpi u.'y j kej ''rgf ''q''i tgcvgt''uqr j kukec\kqp''cnq''kp''tcpurc\kqp''etk\kekuo 0

#### New Tgpckurpeg'epf 'det qs wg'\*377263872+

Getn("J wo cpkuo ."f kukpevn("Nevkpqr j krg"kp"pcwtg."i cxg"y c{"gxgpwcm("vq"y j cv"eqwrf"dg"ecmgf "xwri ct" J wo cpkuo 0'Vj g"f ki pkx{"qh'vj g"xwri ct"vqpi wg"y cu"cm quv"wpkxgtucm("tgeqi pk gf "d{"vj g"Kerkep"kpvgmgewcnu"cpf" uekgpvkuvu"qh'vj g"vko g."vj cpmu"cnuq"vq"vj g"kphrwgpeg"qh'Dgo dqøu"y qtm\\*\*Rt qug"f gnc "xqni ct "hpi wc."3747+0\Nevkp." j qy gxgt."y cu"pqv"f kuectf gf "d{"vj g"Tqo cp"Ej wtej ."y j kej "kpf kecvgf "c"eqpugtxcvkxg"cvkwf g"kp"c"ej cpi kpi "y qtrf 0'Vj g"qweqo g"qh'vj g"Eqwpekri'qh"Vtgpv\\*3767685+."y j qug"kphrwgpeg"y cu'hgnv'hqt"o cp{"f gecf gu"kp"Kcn{." y cu"c"hkgteg"f gvgto kpcvkqp"vq"f ghgpf "Ej wtej "kf gqmi {."vj g"J qn("Kps wkukkqp"r tqxkf kpi "vj g"o gcpu"d{"y j kej "vj g" Ej wtej "y cu"cdrg"vq"eqpvtqn'vj g"ur tgcf "qh'kf gcu0

F wtkpi ''y ku''ko g. ''r tkpvkpi 'hrqwtkuj gf <'d{ "3772."pq"o clqt"vqy p'kp"Kcn{ 'y cu'y ky qw'ku'r tkpvgtu0Rtkqt''vq" r wdrkecvkqp. ''j qy gxgt. "gxgt { "dqqrriy cu'uwdlgev'vq"cr r tqxcri'd{ "y g"tgrki kqwu"cwy qtkvkgu0Ktleqpukf gtgf "wpuvkvcdrg" hqt"r wdrkecvkqp. 'kv'y cu'r rcegf 'qp"c'rkuv'rpqy p"cu'vj g":Kpf gz "qh'dcppgf 'dqqruv0Qh'eqwtug. ''y ku'tguvtkevgf ''s wkvg" eqpukf gtcdn{ ''y g''tcpurcvkqp"y qtrri'qh'vj g''vo g. ''r ctvkewrctn{ ''kp"vj qug''tgi kqpu''qh'Kvcn{ ''y j gtg''vj g''r qrkvkecn'' kphrwgpeg''qh'vj g'Ej wtej ''y cu'uvtqpi gt0

Vj g'ikxgu'qh'r gqr rg'uwej "cu'Dtwpq."I crkrgk'cpf "Vcuuq'\gurkh{"\q'c'uki pkhlecpv'gz vgpv'yj g'f kuugpv."f khhlewnkgu'cpf "htwutckqpu'gzr gtkgpegf "d{ "kpvgngewcni'y j q'y kuj gf "vq'cuugtv'yj gkt "qy p''xkgy u'cpf "yj kpnhpi "kp''c''y qtrf "twrgf "d{" yj g''ergti {0'Vj g''tcpurcvqtu."yj qug''y qtriff kf "pqv'tgs wktg''uwej "kpf gr gpf gpv''yj qwi j v."vgpf gf "vq''dg"gkyj gt"o gp"qh" rgwgtu''cv'eqwtv."r tqvgevgf "d{ "dgpgxqrgpv'r cvtqpu."qt"tgrki kqwu''uej qrctu0'Ki'ku''pqvgy qtyj {."j qy gxgt."yj cv'o cp{" kpvgngewcn."qh'yj g''r gtkqf "dgeco g''ergti {o gp''yj go ugrxgu''kp''qtf gt''vq''hwtyj gt''yj gkt''rkxgtct{"ectggtu0} O quv'qh'yj g''tcpurcvkqpu''f qpg''f wtkpi "yj ku''r gtkqf "y gtg''rkxgtct{."gur gekcm{"r qgvt{."cpf "tgrki kqwu0'Kpf ggf."dgecwug" qh'yj g''hrqwtkij kpi "rqecn'r tqf wevkqp''kp''Kcrkcp''cpf "Ncvkp''cpf "yj g''uvtkev'eqpvtqn'gzgtekugf "d{"yj g'Eqwtv'qh" Kps wkukkqp."vtcpurcvkqp"qh'uekgpvkhle''vgzwi'y cu'o kpko cn0'Vj gtg'y cu."j qy gxgt."c''pgy "i gptg'kp''tcpurcvkqp." pco gn{."tcxgn'ikxgtcwtg."y j kej "uctvgf "y kyj "yj g'r wdrkecvkqp''\*dgwy ggp''3772''cpf"

37; 2+"qh" Pcxki c/kqpk'g"xkci i k"c"hcti g"eqmgevkqp"qh"r cr gtu"d{"Ur cpkuj "cpf" Rqtwi wgug"\tcxgmgtu."\tcpurcvgf"d{" I kqxcppk'Dcwkuvc"Tco wukq"qh"\Vtgxkuq"\36: 763779+0O cp{"encuukecn"cwj qtu"y gtg"cnuq"\tcpurcvgf="qpg"qh"\j g" o quv"r tqnkhe"\tcpurcvqtu"qh"y qtmu"hqt"\j g"\j gcvtg"f wtkpi "\j g"r gtkqf"y cu"Nqf qxkeq"F qneg."htqo "Xgpkeg"\372: 68: +0

C''pgy 'hgcwtg''qh''tcpurcvlqp''y cu''y g'eqpulf gtcdrg''ctvluvle''ghlqtv'lpxqrxgf 0'lp''qtf gt''vq'tghlpg''y glt''rlxgtct { ''unkmu.'' vtcpurcvqtu''htgs wgpvn{ ''eqo r gvgf ''ci clopuv''y g''qtki kpcn''y j lej ''pcwtcm{ ''o gcpv'o qxkpi ''cy c{ ''htqo ''y g''o qf gri'qh'' vtcpurcvlqp''hqmqy gf ''d{ ''y g''J wo cpkuv''r j krqmi kuwi'qh''y g''gctrlgt''r gtlqf 0'Vj gtg''y gtg''gzr gt ko gpvcn''ctvluvle'' vtcpurcvlqpu''lp''wptj {o gf ''j gpf gecu{mcdrgu.''lp''vgt| c''tko c.''lp''qevcxg.''gve0''hktuv'hqmqy lpi ''Rgvtctej cp''uv{nkuvle'' o qf gni''cpf ''rcvgt''dctqs wg''cpf ''o cppgtkuv'qpgu0

Dgw ggp"3785"cpf "3788."Xki knøu"*Cgpgkf* "y cu'\tcpurc\gr "d{"\j g'hco qwu'o cp"qh'ngwgtu'Cppkdcn'Ectq"\si3729\delta8+." dgeqo kpi "y j cv'o c{"\dg"eqpukf gtgf "\j g'hktuv'i tgcv'y qtm'qh'\tcpurc\qp"r tqf wegf "kp"Kcn{0K/ku'\ukm'\ukm'\ukm'\ukm'\kgf "cv' uej qqn'\qf c{"cpf 'ku'\kp"o cp{"y c{u'cp"\wptk\cmgf "encuke0Ectq\varenty"Gpgkf g."y j kng"gzegmgpv'htqo "c'r qg\ke" ucpf r qkpv.'ku. "kng"cm'\j g'y qtmu'\qh'\ku'\ko g. 'hct 'tgo qxgf 'htqo '\j g'\qtki kpcn'\Vj g'\xkgy u'\qh'\tcpurc\qt\r qg\u'\ukmj " cu''Ectq."hqt"y j qo "\tcpurc\qp"o gcpv'\j g'etgc\qp"qh'c'\qzv'y kj "\j g'\uco g'\xcn\wg"cu'\j g'\qtki kpcn'\j q\wi j "f kn\cpv' htqo '\kv."dgeco g'\j g'\pqto '\hqt"r qg\ke"\tcpurc\qp"\wp\kn'Tqo cp\ke\ko ="\j gug'\xkgy u''ctg'\ukm'j gnf '\qf c{"d{"uqo g" r tce\kkqpgtu0}

Qpg'y qtm'y j kej "uvcpf u"qw'cu"c"encuuke"qh'pqp/rksgtct { "vtcpuncvkqp"ku"Vcekwuø'*Cppcrgu*. "vtcpuncvgf "d { 'vj g" Hnqtgpvkpg'uej qnct"Dgtpctf q'Fcxcp| cvk'\\$374; 63828\\$0

## Ht qo 'dct qs wg'\q'\tj g'Ci g'\qh'Gpr\li j \text{ wpo gpv'\si3872\'63: 22+

Vj gtg'y gtg'tgrcvkxgn( 'hgy 'o clqt 'kppqxcvkqpu'f wtkpi ''y g'ugeqpf 'j crh'qh'y g'ugxgpvggpy 'egpwt { 0'Ncvkp'tgo ckpgf "hqt'c'mpi ''ko g''y g''qpn( ''qhhkekcn'rcpi wci g''qh'uekgpvkhe. ''geqpqo ke''cpf 'r qnkkecn'eqo o wpkecvkqp0'Ukpeg''cm' hqtgki p'uekgpvknu''cpf ''uej qrctu''eqwrf ''y tkg' Ncvkp. ''uqo gvko gu''vcpurcvkpi ''kpvq''qt''htqo ''y gkt'hktuv'rcpi wci g. ''cpf '' ukpeg''Kcnkcp''uej qrctu''cnnq''npgy ''Ncvkp''y gm''vcpurcvkqp''kpvq''Kcnkcp''y cu''tcyj gt''r qkpvrguu0

Kp''y g''rcwgt''j crh'qh'y g''gki j vggpy ''egpwt {."j qy gxgt. 'kpvgtguv'kp''Htgpej ''dgi cp''vq''cnng''qxgt''htqo ''Ncvkp0'Dgw ggp'' 3872''cpf ''3: 22. ''Htgpej ''ewnwtg. ''pqv''cnqi gyj gt''ki pqtgf ''kp''Kcn( ''f wtkpi ''y g''r tgxkqwu''egpwtkgu. ''ur tgcf ''y tqwi j qw'' y g''pqtyj gtp''cpf ''egpvtcn'tgi kqpu''qh'Kcn( .''cu'kv'f kf ''cm'qxgt''y g''tguv'qh'Gwtqr g0'Rtkqt''vq''3922. ''vcpurcvkqpu''htqo '' Htgpej ''j cf ''dggp''tctg. ''f qpg''o ckpn( ''d ''kuqrcvgf ''co cvgwtu'qr gtcvkpi ''kp''uo cm'ewnwtcn'egpvtgu0'Chvgt''y ku'r qkpv.'' j qy gxgt. ''y gtg'y cu''c''xgtkcdrg''qwdwtuv'qh'vtcpurcvkqpu''htqo ''Htgpej 0

Vj g'tcpurckqpu'qh'tj g'i tgcv'ugxgpvggpyj /egpwt { "eqo gf kgu'cpf "tci gf kgu'kpkkcvgf "y j cv'y cu'vq'dgeqo g'cp" qxgty j gro kpi "kphrwgpeg'qh'Htgpej "ewnwtg'kp'Kcn{0O qn&tg."Tcekpg'cpf 'Eqtpgkng'\*wy q'qh'y j qug'y qtmu'j cf "crtgcf { "dggp"tcpurcvgf "kp"3869"cpf "3873+"y gtg"o gtgn{"yi g'dguv/mpqy p"pco gu'co qpi "yi g'j wi g'cto { "qh" r rc { y tki j wi'y j qug'y qtm'kpxcf gf "gki j vggpyj /egpwt { "Kcn{0Vj gug'tcpurcvkqpu'\*qhvgp'f qpg'qpn{"c'hgy "{gctu" chvgt "yi gkt "qtki kpcn'uvci kpi "kp"Htcpeg+"y gtg'uqo gvko gu'kpceewtcvg."eqpegtpgf "cu'yi g{ "y gtg'y kyi "eqpvgpv'cpf" r gthqto cdkrk{0Uqo gvko gu'yi g{ "gpvckrgf 'CF CRVCVKQP ."y kyi "c'xctkgv{ "qh'cf f kxkqpu'cpf "ewu0Chvgt"3979." Kcncp'\cuvgu'wpf gty gpv'c'r tqhqwpf "ej cpi g."cpf "kpvgtguv'kp'Htgpej "eqo ke'yi gcvtg'hcf gf 0

Cv'y g'uco g'uco g'uko g." g'Htgpej "pqxgnij cf "ucmpp"tqqv'kp"hgt ukng"i tqwpf 0'V j g'dguv'mxgf "cwyi qt"y cu"H\* pgmp<chugt" 3924" yi gtg"y gtg"f q| gpu"qh"tgr tkpvu"qh"*Ng"cxxgpwt g"f k"Vgngo ceq"hli nkqnq"f øWnkuug0*"Q yi gt"hcxqwt kugu"kpenwf gf "Ctpcwf."Rt² xquv."Tkeeqdqpk"Nguci g."O cto qpvgn "Tqwuugcw."Nc"Rrceg."Hnqtkcp"cpf "Xqncktg0"V j gug"Htgpej "cwyi qtu. "qhvgp" yi go ugnxgu" ucpurcytu"htqo "Gpi nkuj. "r tqxkf gf"cp"ko r qt ucpv"hlpm"dgw ggp" uchchep"cpf "cpi mr j qpg" ewnwtg0"Nc"Rrceg."hqt"gzco r ng." y cu"tgur qpuklng"hqt"dt kpi kpi "Hkgrf kpi øu"Vqo "Lqpgu"cpf" Lqugr j "Cpf t gy u"vq" Kcn{." y j kng"Rt² xquv"dtqwi j v"Tkej ctf uqpøu"hco qwu"gr knqrct {"pqxgnu."Rco grc." Erct knuc"cpf" Ukt "Vj qo cu"I tcpf kuqp0

F wtkpi "y g'hcwgt" chi'qh'y g'gki j wggpy "egpwt { ."Htgpej "ewnwtg" y cu'ur tgcf 'hwty gt "d { "'y g'\tcpurc\kqp"qh'y qtmu" qp"r j krquqr j { ."uelgpeg."geqpqo keu'cpf "r qrkkeu."hqwt "ctgcu'y j kej "y gtg"qh'eqwtug"kpugr ctcdrg"kp"y g'y tkkpi u'qh" y g'Htgpej "r j krquqr j guOV j g"o cp { "\tcpurc\kqpu"wpf gt\cmgp."hktuv'htqo "Xqnxcktgøu'y qtmu"cpf 'hcwgt'htqo "\y qug"qh" F kf gtqv'cpf "F øCrgo dgtv."

j cf "c"r tqhqwpf "ghhgev"qp"ncvg"gki j vggpvj/egpwxt { "Khcn(."uki pkhkecpvn("dtqcfgpkpi" vj g"eqwpvt { øu"ewnwxtcn'j qtk; qpu0 Vj g"tcpurcyt kp"Kcn pqy 'j cf 'rkwrg'kp'eqo o qp'y kj 'y g'uej qrct/ergti {o cp'hki wtg'qh'y g'r tgxkqwu'gtc. 'cv'rgcuv' cu'hct "cu'\tcpurc\kqp"htqo "Htgpej "y cu'eqpegtpgf 0'Cu'Hgttctk'r qkpvu'qwv. "y kij "tghgtgpeg"\q'\tcpurc\kqp"qh'Htgpej " tci ke 'vj gctg.':Gxgt {qpg'tcpurcvgf <tgpqy pgf 'cwj qtu'cpf 'wpmpqy p'f krgvcpvgu='y tkvgtu'qh'tci gf {. ''qh'eqo gf {" cpf "qh"qrgtc"hdtgwqu='n{ the 'r qgvu. 'f kf cevke 'r qgvu'cpf 'f kcngev'r qgvu='r tkpvgtu'cpf 'lqwtpcnkuvu='wpkxgtukv{ " rtqhguuqtu. "ugo kpct { "vgcej gtu"cpf "uej qqnvgcej gtu="y qo gp="pqdngu"cpf "fkr nqo cvu="yj gqmqi kcpu="rkdtctkcpu="ekxkri" ugtxcpvu="cfxgpwtgtu="gxgp"fqevqtu"cpf"uqrfkgtu0Cpf"yjku"hkuv"kpenvfgu"qpn{"yjg"tcpurcvqtu"yjqug"yqtm"ycu" r tkpvgf O'Ka'o cpwwetkr w'cpf 'dkdrkqi tcr j kecn'tghgtgpegu'y gtg'cnuq'vcngp'kpvq'ceeqwpv.'qvj gt'pco gu'y qwrf 'dg'' cffgf."uwej "cu'yj cv'qh'yj g'kphco qwu'Ecucpqxcø"\*Hgttctk'3; 47<zxk/zxkk="tcpurcvgf+0 Vj tqwi j qwi'vj ku'r gtkqf. ''vtcpurcvkqpu''qh'I tggmlcpf "Ncvkp"y qtmu''eqpvkpwgf 'wpkpvgttwr vgf. ''kpetgcukpi ''chwgt''38; 2." yj g"{gct'kp'y j kej 'Ctecf kc.''yj g'Tqo cp'Cecf go {"qh'Ngwgtu."y cu'hqwpf gf 0'Vj g'Cecf go {.''y j gtg''yj g'o clqt" Kichcp'hkgtct{'hki wtgu'qh'yj g''ko g'i cyj gtgf. "gzgtekugf "eqpulf gtcdng'kphnwgpeg'qxgt'hkgtct{'r tqf wevkqp'' yj tqwi j qw''yj g''gki j vggpyj "egpwt {0'Vj g''o quv'ko r qtvcpv''tcpurcvkqpu''qh''ercuukecn'r qgvt { ''y gtg''yj g''gctn( ''Kkcnkcp'' xgtukqpu''qh'Nvetgvkvu'\*393: +.'Ecwmvu'\*3962+.''Rtqrgtvkvu'\*3964+''cpf'''Vkdwmvu'\*3982+0'Korqtvcpv'rtqug'' vtcpurcvkqpu'kpenwf gf "Uvcvkwu'\*3953+. "Rj cgf twu'\*3957+"cpf "Vgt wurkcpwu'\*3978+. "y j krg' 'tcpurcvkqpu'hqt' 'y g' y gcvtg' kpenwf gf "c"pwo dgt "qh"y qtmu"d { "Uqr j qengu. 'Gwtkr kf gu"cpf "Rncwww0"K ku"y qt yj "pq kpi "'yj cv'yj g" tcpunc vqt u"qh" encualecn'y qtmuô i gpgtcm( 'hoo qwu'o gp"qh'ngwgtu'cpf 'cecf go { 'o go dgtu. 'wprkng' y qug'y qtmkpi 'htqo 'Htgpej ." vgpf gf "vq"j cxg"uko krct"dcemi tqwpf u0"kpf ggf. "vj gkt"vcuvgu"cpf "co dkxkqpu"tghrgevgf "vj g"kf gcn"qh"vj g"ukz vggpvj / egpwt { "tgrki kqwu"kpvgmgewcn0P qpg"vj g"nguu."vj gkt "cwkwf g"vqy ctf u"vj g"uqwteg"vgzv"f khhgtgf "uqo gy j cv"htqo "vj cv" qh'gctrkgt''tcpurcvqtu0Ceeqtfkpi ''vq''Hgttctk''÷Vj g''wprko kvgf 'htggf qo ''qh''yj g''ugxgpvggpvj /egpwt{''tcpurcvqtu'y cu'' etkkek gf. "r ctvkewrctn ("Cppkdcn Ectq"hqt" j ku hoo qwu 'vtcpurcvkqp"qh Vj g'Cgpgk OT gur gev'hqt 'vj g'uqwteg' vgzv' dgi cp"vq"dgeqo g"vj g"pqto ."xgtug"vtcpurcvkqp"dgkpi "r tghgttgf "qxgt"r tqug"vtcpurcvkqp0"Htqo "3947"qp"gur gekcm{." rksgtct { "\tcpurc\kqp"o qxgf "emugt"\q"\j g"\qtki kpcn\forall \"Hgttctk'3; 47<\"zkk=\tcpurc\gf+0 Vj g"tcpukkqp"\qy ctf u"c"o qtg"o qf gtp"crrtqcej "\q"tcpurckqp"cpf "tcpurckqp"\j gqt { "ku"y gmltgrtgugpvgf "d { " O grej kqttg"EGUCTQVVK"395263: 2: +."y j q"r tqf wegf "w q"xgtukqpu"qh"J qo gtøu"*Kkcf*."qpg"kp"xgtug"cpf "qpg"kp" y tqvg"c"nqpi "guuc { "vq"lwuvkh { "j ku"ej qkeg"cpf "cpqvj gt"qpg"vq"i q"y kvj "j ku"vtcpurcvkqpu"qh"F go quvj gpguø'y qtmu. "kp" y j kej 'j g'go r j cukt gf ''y g'\gpukqp'ko r nkgf 'kp'\tcpurc\kqp'y qtm'cpf ''y g'etkkecn'cpf ''ct\kurke'\uqr j kurkec\kqp''cpf '' ci krkx{ "tgs wktgf "qh'c" 'tcpurc vqt 'kp" qtf gt 'vq" ±tgur gev'vj g"I gpkwu'qh'j ku'rcpi wci g'cpf 'rgv'kv'y crm 'cu'kv'y gtg. 'pko dn{ " cpf 'htwkhwm( ''qp'c'i gqo gvtle'hkpg''dtlf i kpi ''w q''enkhuø'\*Eguctqwk'3: 29<384='tcpurcvgf+0

#### Ht qo 'T qo cpvlekuo 'vq'pgqr qukvkxkuo '\*3: 2263; 22+

Vj g''tgpf u''qh''y g''gki j vggpyi ''egpwt{ ''y gtg'tgkphqtegf ''f wtkpi ''y g'hqmqy kpi ''r gtkqf 0'Hktuv.''Ncvkp''y cu''tgr megf ''d{ '' o qf gtp''ncpi wci gu.''kp''uq'hct''cu''uekgpvkmu.''r j knquqr j gtu''cpf ''geqpqo kmu''dgi cp''y tkkpi ''kp''y gkt''qy p''ncpi wci g.'' ngcxkpi ''\q''Ncvkp''y g''tqng''qh''qhhkekch'ncpi wci g''qh''y g''Tqo cp''Ej wtej 0'Ugeqpf.''Kcnkcp''ewnwtg''y cu''gzr cpf kpi ''kp'' dtgcf yi ''cpf ''ueqr g.''y qwi j ''\q''f khhgtgpv'f gi tggu''kp''f khhgtgpv'r ctw''qh''Kcn(0'Vj ktf.''ewnwtg''y cu''pq''nqpi gt''y g'' r tkxkrgi g''qh''y g''hgy .''dw''ceeguukdng''\q''o cp{.''c''uqekcn'tcyi gt''y cp''kpf kxkf wcn'r j gpqo gpqp.

Vj gug''ej cpi gu''cnnq''j cf ''c''r tqhqwpf ''kphnwgpeg''qp''tcpurcvkqp.''y j kej ''y cu''pqy ''dgkpi ''wpf gtvcngp''htqo ''c''pwo dgt'' qh''o qf gtp''ncpi wci gu''y j kej ''j cf ''r tgxkqwm( ''dggp''cmo quv''eqo r ngvgn( ''ki pqtgf ''qt''gnug''o gf kcvgf ''y tqwi j ''Htgpej 0' Y j cv'ku''o qtg''ko r qtvcpv.''c''j wi g''pwo dgt''qh''tcpurcvkqpu''f gcnkpi ''y kyj ''j kwqt{.''i gqi tcr j {.''uekgpeg.''r j knqur j {'' cpf ''geqpqo keu''cttkxgf ''qp''y g''uegpg.''y j kej ''wpvkri'y gp''j cf ''dggp''f qo kpcvgf ''gzenwukxgn( ''d{ ''nkgtct { ''tcpurcvkqpu''O o wej ''j cu''dggp''y tkwgp''cdqww'y g''ctvkerg''d{ ''O cf co g''f g''Ucµn'r wdrkuj gf ''kp''*Dkdnkqvgec ''Kcnkcpc* ''kp''Lcpwct {''3: 38'' wpf gt''y g''kkrg''-Uwnc''o cpkgtc''g''nwwkrkw''f gng''vtcf w| kqplø'\*\Qp''y g''

o cppgt "cpf "wughwpguu"qh" tcpurc klqpu+0 kp" y ku "ct klerg. "y j kej "r tckugf "Xkpegp| q"O qp kløu "tcpurc klqp"qh" y g" kløcf" cpf "vj g"gzr tguukxgpguu"qh"vj g"Kichcp"ncpi wci g. "uj g"wti gf "Kichcpu"vq"wpf gt vcng"vj g"vtcpuncvkqp"qh"v qtmu"qh" o qf gtp'Gwtqr gcp'rkwgtcwtg0Gxgt {f c{"repi wei g."uj g"ereko gf .'y cu'het 'uwr gtkqt'\q"uj cv'rgctpgf 'htqo "dqqmr=" qr gpkpi "wr "vq"pgy "ncpi wci gu"o gcpv"gptkej kpi "vj g"gzkuvkpi "xqecdwrct {0 kp"O cf co g"f g"Uvcµnøu"xkgy ."ko kvcvkqp" qh''y g'encuukeu'uj qwrf 'pqv'dg'uwduvkwwgf 'y ky 'ko kcvkqpu'qh'eqpvgo r qtct { 'y qtmk'eqpvcev'dgvy ggp'rkvgtcwtgu'' cpf "ewnwtgu"y cu'wughwn'cdqxg"cmhqt"dtqcf gpkpi "o kpf u"cpf "f gxgmr kpi "mpqy ngf i g0"Vj g"ct kleng"cnuq"etkklekt gf " yj g'Kkcnkcp''ewnwtg''qh''yj g''vko g''cu''dgkpi ''vqvcm(''f gxqkf'''qh''o qf gtpkv{.'f qo kpcvgf''cu''kv''y cu''d{''qduvkpcvg''pquvcni keu'' qt"d{"o gp"qh"hgwgtu"y j q"ectgf "qpn{ 'hqt"y g"uqwpf u"qh"y qtf u"cpf "pqv"y g"kf gcu"y g{ "eqpvckpgf 0 Vj g'tgcevkqp''vq''vj ku''ctvkeng. 'r ctvkewrctn{ ''vq'kxu''etkvkekuo ''qh''Kxcn{ øu''o gp''qh''ngwgtu. ''o gtgn{ ''ugtxgf ''vq''hktg''vj g''ci g/ qrf "f gdcvg"qp"yi g"uwr gtkqtkx{ "qh'yi g"encuukeu"qxgt"o qf gtp"y tkkpi . "ko kxcvkqp"qxgt"qtki kpcrkx{ ."hcdqt 'hko cg"qxgt" ct kurke"i gpkwu. "c"f gdcvg"y j kej "j grif "Kcrkcp"kpvgrrgewcnuø'cwgpvkqp. "ht wkrguun(. "hqt"f gecf gu"vq"eqo g0O cf co g"f g" Ucumu'ct vkeng'f kf 'pqv'uki pkhkecpvn{ "chhgev'yi g's wcpvkx{ "qh'vtcpurcvkqp"qwr wv'\*eqo r ctg. 'hqt "gzco r ng. 'yi g'r qgvt { " eqmgevkqp" Rctpcuq" Utcpkgtq" qh'39; 9"cpf 'vj cv'qh'3: 6: <pkpg/vgpvj u'qh'vj g'vqvcn'pwo dgt 'qh'r ci gu'vtcpurcvgf 'ctg'' uwkmif gf kecvgf "vq"I tggm" Ncvkp"cpf "I gdtgy +0"Vj g"uwdugs wgpv"kpetgcug" y cu"f wg"vq" y g"r tqhqwpf "ej cpi gu" y cv"j cf" wngp 'r reeg 'f wtkpi 'vj g'r tgxkqwu'r gtkqf. 'pco gn{. 'vj g'i tqy vj 'kp'tgcf gtuj kr 'cpf 'vj g'kpetgcukpi 'ko r qt wpeg 'qh' Gwtqr gcp"pcvkqpcn'rcpi wci gu'kp"cm'ctgcu"qh'rkhg0

Uqo g'qtki kpcnlkf gcu'cdqwi'stcpurckqp'kp'iy ku'r gtkqf "\*twppkpi "ci ckpuv'iy g'i tckp'qh'O cf co g'f g'Uscµntu'cti wo gpv+"
y gtg'gzr tguugf "d{ "I kceqo q'Ngqr ctf k\*39; : 63: 59+" y g'i tgcv'n{ tkecn'r qgv'htqo "TgecpcvlOKp" j ku'pqvgdqqmu"

\*\ kdcrf qpg. "y tkwgp"dgwy ggp"3: 39"cpf "3: 54." dw'r wdrkuj gf "qpn{ "kp"3: ; : +" y gtg'ctg"o cp{ "kpvgtguvkpi "
qdugtxcvkqpu'f gtkxgf 'htqo "j ku'gzr gtkgpeg'cu'c'hcurkf kqwu'cpf "grgi cpv'vtcpurcvqt. "gur gekcm{ 'htqo "I tggnO'
Ngqr ctf k'f kf "pqv'dgrkgxg"cp{ y kpi "i qqf "eqwf "eqo g'htqo "y g'vtcpurcvkqp"qh'o qf gtp" y tksgtu. "eqpxkpegf "cu'j g"
y cu'y cv'rguuqpu'kp'uv{ rg'eqwf "qpn{ "eqo g'htqo "c'r curkqpcvg'uwf { "qh'ercurke"rksgtcwtgO'J ku'y qwi j w'qp'y g"
pgeguuctkn{ "ctvkhlekcn's wcrkv{ "qh'vtcpurcvgf "rcpi wci g'cpf "y g'f khlekwn'dcrcpeg'y g'vtcpurcvqt"o wuv'urtkng"dgwy ggp"
y g'pggf u'qh'y g'qtki kpcn'vgzv'cpf "y qug'qh'y g'vcti gv'rcpi wci g." vqi gy gt"y ky "j ku'eqpegr v'qh'ko kcvkqp." eqpvkpwg"
q'ctqwug'kpvgtguv'gxgp'vqf c{0J g'urtguugf "y g'ko r qtvcpeg'qh'y g''cguy gyke''s wcrkv{ "qh'vtcpurcvkqpu. "kpukuvkpi "y cv'
y g'y qtm'qh'c''r qgv'ecp''dg"vtcpurcvgf "qpn{ "d{ "cpqy gt"r qgvO'V g g'o ckp''cum'qh'cp{ "i qqf "vtcpurcvkqp"y cu'vq"+cf f''
dgcwv{ø'cpf "ko r tqxg'y g''gzr tguukxg''r qy gtu'qh'y g''cti gv'rcpi wci gO

Vj gtg'y cu'cp'wpr tgegf gpwgf 'kpetgcug'kp'\tcpurc\kqp'htqo 'Gpi nkuj 'kp'pkpgvggpyj /egpwxt { 'Kcn{0'Cnyj qwi j 'f wtkpi '' y g'r tgxkqwu'egpwxt { 'Kcn{0'Cnyj qwi j 'f wtkpi '' y qtmu'j cf ''ugpwyf gtwngp''uq g'kpvytguv'kp''cpi mr j qpg'y qtmu.''y g'uwwf { ''cpf ''tcpurc\kqp''qh''y qug'' y qtmu'j cf ''dggp''wpf gtwngp''uq { ''kuqrcvgf ''r tcevkkqpgtu'qt''hco qwu'o gp''qh''ngwytu.''uqo g''qh'y j qo ''y qtngf ''cv'y g'' Gpi nkuj ''eqwt\0'Vj g''o quv'ko r qtwpv'pco gu'kpenwf gf 'O ci cnqwk'Tqnk''Dctgwk'cpf ''Rcr k0'Vj g''hktwv'\tcpurc\kqp''qh'' Uj cngur gctg.''f cvkpi ''htqo ''3978.''y cu'ecttkgf ''qw''d { ''F qo gpkeq''Xcngpvkpk''r tqhguuqt''qh'Geengukcuvke''J kuvqt { ''cv' y g''Wpkxgtuk\{ ''qh'Ukgpc0'Kv'y cu''pqv'wpvkn'y g''hqmqy kpi ''egpwxt { .''j qy gxgt.''y cv'y gug''qeecukqpcn'cwgo r wi'd { ''c'' j cpf hwn'qh'o gp''qh''ngwytu'y gtg''tgr ncegf ''d { ''y kf gur tgcf ''kpvytguv'kp''y g''cpi mr j qpg''y qtnf 0

Vj g'r qgo u'qh'Quukcp'y gtg'j wi gn{ 'iweeguuhwilap'Kcn{.''cu'y gtg'y qug'qh'D{tqp0I kwrkq'Ectecpq'\si3: 346: 6+.''r qgv' cpf 'r cvtkqv.'y cu'y g'htuv'cpf 'r gtj cr u'y g'i tgcvguv'vtcpurcvqt'qh'Uj cmgur gctg'lap'j ku'egpwxt{'\si7 wtcpvk'3; 9; +0 Vj g''gctn{''cpf 'iweeguuhwi'vtcpurcvkqpu'd{'F qo gpkeq'Egwk'\si39: 263: 34+'qh'uqo g''qh'P kmqrck'Mctco | kpøu'r qgvt{''cpf 'r tqug.''vqi gyi gt'y kyj ''y g''Uci i kq'f k'r qgukg't wuug''eqp'f wg''qf k'vgf guec''g'kpi rgug'\si3: 38+'d{''y g'I gpqgug'' pqdrgo cp'I ktqrco q''Qtvk'\si398; 63: 67+'uki pcrngf ''y g''uctv'qh'f ktgev'vtcpurcvkqp'htqo 'Twuukcp.''y kyj qw'Htgpej ''cu'' c''o gf kcvkpi 'rcpi wci g0'Hqt''o qtg''y cp''j crh'c''egpwxt{.''j qy gxgt.''y gug''r kqpggtu'y gtg''y g''qpn{''qpgu'y qtrnkpi 'kp'' y ku'ctgc0

Y j krg'\tcpurc\kqpu'htqo ''Htgpej 'eqp\kp\wgf''\j tqwi j qw\'\j g''p\kpg\wggp\j ''egp\wt\{''\xgt\{''o wej ''cu''dghqtg.'\j gtg'\y cu'' eqp\lkf gtcdn\{''nguu'\tcpurc\kqp''htqo ''gk\j gt''I gto cp''qt''Urcp\kij 0Pqpg'\j g''nguu.''c'729/rci g'\xqn\wo g''qh'\j g''*Rctpcuq'' Utcp\kgtq*''qh'3: 6: ''f gcnu'\y kj ''\tcpurc\kqp''htqo ''Urcp\kij 0

Vj tgg"i tgcv'vtcpurcvkqpu'qh'vj g"vko g"f gugtxg"c'ur gekcn'o gpvkqp<'Kr qnkq'Rkpf go qpvgøu'vtcpurcvkqp"qh'Vj g"  $Qf \{uug \}$ "3: 27634+."Xkpegp| q'O qpvkøu'vtcpurcvkqp"qh'Vj g'Kkcf"\*eqo r ngvgf "kp"3: 33+."cpf "Wi q'Hqueqnøu" vtcpurcvkqp"qh'Ncwtgpeg'Uvgtpgøu'C'Ugpvko  $gpvcn'Lqwtpg \}$ "3: 26628."dwv'tgy qtngf "cpf "r wdnkuj gf "kp"3: 35+0Cm' vj tgg"ctg'uvkn'tgcf "cpf "uwf kgf "kp"Kcn \"vqf c  $\{0\}$ 

Cp'kpygtgukpi 's wettgrictqug'dgwy ggp'O qpvk'cpf 'Hqueqrq'wr qp''y g'r wdrkeckqp'qh'O qpvkøu'tcpurckqp'qh''*ly g''*\*\*Klef O'Kp'c'xgpgo qwu'gr ki too .'Hqueqrq'ceewugf 'O qpvk'\*y j q'j cf 'tghgttgf 'vq'qy gt'Kcrkcp'cpf 'Ncvkp'tcpurckqpu' hqt''j ku''qy p''xgtukqp+"qh''dgkpi ''c''-i tgcv'tcpurcvqt''qh''y g''tcpurcvqtu'qh''J qo gtøO'Hqueqrqøu'ceewucvkqp'y cu''

f ktgevgf ''cv'c'ncti g'i tqwr ''qh''tcpurcvqtu'xgtukhgtu'y j q. 'hqrrqy kpi ''y g'y kf g/ur tgcf 'uvcpeg''qh''y g''gctrkgt'r gtkqf .''

y gtg'nguu'eqpegtpgf ''y kj ''y g''qtki kpcri'y cp''y kj ''y g''tcpurcvgf ''r tqf wev.''y ku''dgkpi ''eqpf kkqpgf ''d { ''y g''tki qtqwu''

pqto u''qh''tcf kkqpcri'o gvtgO'Hqueqrq''j ko ugrh 'y j q''npgy 'I tggni'r gthgevr(.''cwgo r wgf ''c''tcpurcvkqp''qh''Vj g''Kdlef .''

dww.''chygt''tcpurcvkpi ''dqqmu''qpg''cpf ''y tgg.''y cu'wpcdrg''vq''eqo r rgvg''j ku''cunt0

Cu'hct 'cu'pqp/rksgtct { ''tcpurc'kqp'ku'eqpegtpgf . ''y g'egpwt { ''dgi cp'y ky ''c'uwf f gp'kpetgcug'kp''y g''tcpurc'kqp''qh'' uekgp\khe''\sz vu.''pqy 'htqo ''Gpi rkuj ''cu'y gm'cu'htqo ''Htgpej 0Cu''y g'f gecf gu'r cuugf .''y g'y qtm'qh'I gto cp'' r qukkkkuv'uekgp\kuvu''dgi cp''\q''dg''\tcpurc\yf ''o qtg''tgi wrctn{ . ''tghrge\kpi ''y g''j gi go qp{ ''kp''tgugctej ''cpf ''cr r rkec\kqpu'' y g{ ''y gtg''ces wkt\pi 0'D{ ''y g''gpf ''qh''y g''egpwt{ . ''y g'y qtmu''qh'I gto cp''uej qrctu.''gxgp''kp''y g''j wo cpkurke''hkgrf '' \*gur gekcm{ ''kp''Rj krqrqi { ''cpf ''Nkpi wkurkeu.''y g''uq''ecrngf ''P gqi tco o ct\kcpu+''j cf ''qeewr kgf ''y g''egprtg''qh''y g'' kpygtpc\kqpcn'ewrwtcn'uegpg''cpf ''dgi wp''\q''urko wrcy''c''i tgcv'xqnwo g''qh''tcpurc\kqp0C''uko krct''r cwgtp''go gti gu'hqt'' qy gt''dtcpej gu''qh''npqy rgf i g''\*r qrkxkeu.''j kurqt { .''r j krquqr j { .''r u{ej qrqi { +:'y ky ''Gpi rkuj ''cpf ''gur gekcm{ ''I gto cp'' ces wkt\pi ''cp''gxgt''i tqy kpi ''ko r qtvcpeg0

## Vj g'ty gpvlgvj 'egpvvt {

Vj g"tcpukkqp"dgw ggp"\j g"pkpg\ggp\j "cpf"\w gp\kg\j "egp\wt\kgu'ku'o ctmgf"d\"\j g"i tcf \wcn'i tqy \j "qh'r \wdrkij kpi "
j qwugu'htqo "o gtg'r tlp\wtu'qt "dqqm\wqtgu'\q'\co k\("gp\wtr t\kugu'\cpf "\j gp"\q'\cti gt"\cpf "o qtg'eqo r ngz 'kpf \wxt\cn' i
tqwru0'Vj ku'j cu'kphn\wgpegf "\j g"s \wcp\w\{"cpf "\j g"s \wcn\w{\quad "qh'tcpurc\wqp"qwr w\0'Cu'\j g'tgcf kpi "r \wdrke"cpf "\j g"
r \wdrkij kpi "o ctngv\y gtg'tcr kf n\{"i tqy kpi "cmpi "r ctcngn'htpgu."\j g'hki \wtg'\qh'\j g'\tcpurc\vqt"cnq'\wpf ggr "
ej cpi gu\c\tqo "\j g'\kuqrc\vgf "\p\vgnge\wcn'\y j q"r tqr qugf "c"\tcpurc\vqp"r tqlgev'\qw'\qh'\c"f ggr "r gtuqpcn'\p\vgtguv'\p"\j g"
httgki p"\yz\v."\y g'i tcf \wcm\{"ugg"\j g"o gti gpeg"qh'c"r tqhguukqpcn'hki \wtg"qh'c"\tcpurc\vqt"eqo o \ku\kqpgf "d\{"c"
r \wdrkij kpi "j qwug"\cpf "qh\xgp"r gthqto \kpi "j ku'j gt"\cun'\wpf gt"\xgt\{"\wphcxq\wtcdrg"\eqp kkqpu\0'Qpg'tgo ctmcdrg"
gzegr \kqp"\ku'\j g"tqrg'r rc\{gf "d\{"y tk\xgtu'nkrg'Eguctg''Rcxgug. 'Grkq"Xk\xqt\pk\cpf "Gwi gpkq'O qp\crg'\py g''\cg''
3; 52u'cpf "gctn\{"3; 62u='uwej "y tk\xgtu''ce\xxgn\{"tgn\pf rgf "kp\xgtug'\pf gecug'\qh''kcxgug''cpf "Xk\xqt\pk\"\tcpurc\x\pf "y c\"'\y c\"
\q h'r tqr qu\pi "c"\wxxsqt\pk\"\q "h'\tcpurc\x\pf "qh\x\pr\pf "g'\y g''\cv\g"
\q i'tqr qu\pi "c"\wxxsqt\pk\"\q "h'\tcpurc\x\pf "g'\y g''\y g''

Vj g'f gre{'kp''y g'f gxgrqr o gpv'qh'\tcpure\kqp'\uwf kgu'kp''Kcn{'ku'r tqdcdn{'f wg'\q''y g'pgi c\kxg'c\kw\f g'qh'' kphwgp\kcn'y kpngtu'nkng''Dgpgf gwq''Etqeg'\ddots: 8863; 74+'y j q.'hqmqy kpi 'F cpvg.'f kuo kuugf '\tcpure\kqp''cu'c'' mi kecm{'ko r quukdng'\cum\\ugg''Etqeg'\dots; 24+0Cp''cpcmi qwu'c\kw\f g.''cnj qwi j 'y kj ''c'hgy 'f khngtgpegu'qh'' go r j cuku.'y cu''cf qr vgf ''d{ 'I kqxcppk'I gp\krg'\ddots; 42+''cpf ''y g''pgqkf gcrku\ke''uej qqn'qh''y qwi j v'j g''tgr tgugp\vgf 0'D{ '' eqp\tcuv.''Cp\qpkq'I tco uek\ddots; 363; 59+'kp\xguvgf '\tcpure\kqp'y ky ''c''o qtg''r quk\kxg''cpf ''pgeguuct{'tqng.'' go r j cuk\ kpi ''ku''cdkrk\{ ''\q''dtkf i g'\y j g'i cr u''dgw ggp''f khngtgp\v''rcpi wci gu.''eqppge\kpi ''eqpegr wu''qp''c''uwr gt/ uvt\wewtcn''j ku\qtkecm{''cpf ''ewm\cm{'f gvgto kpgf ''rgxgn'\ddotsgp''I tco uek'\ddots; 6913; 97+0'G\cxgp''y qwi j ''j ku''y gqtg\kecn'' eqpukf gtc\kqpu''qp''y g''uwdlge\v'\dotsmale'\cmpi ''y kj ''y g'\tcpure\kqpu'' g''f kf''y j krg''kp''lckn+'y gtg''eqph\kpgf '\q''j ku''pqvgdqqmu'' cpf ''y gtg''pqv''cxckredrg'\q''y g''r wdrke''wp\krio wej ''rcvgt.''I tco uek\du''r quk\kqp''uj qy u''cp''ce\kxg''kp\ygtgu\dqqmu'' cpf ''y gtg''pqv''cxckredrg'\q''y g''r wdrke''wp\krio wej ''rcvgt.''I tco uek\du''r quk\kqp''uj qy u''cp''ce\kxg''kp\ygtgu\dqqmu'' qp''y g''r ctv'qh'O ctzkw'kp\ygngewcni0

Vj g'o quv'kpvgtguvkpi 'Krcrkcp'eqpvtkdwkqpu'vq'vtcpurcvkqp'uwf kgu'eqo g'htqo 'r j krqrqi kuw'cpf 'rkpi wkuw'uwej 'cu' Dgpxgpwq''Vgttcekpk'\*3:: 863; 8: +'cpf 'I kcphtcpeq'Hqrgpc'\*3; 426; 6+0'Vj gkt'dcrcpegf 'cpf 'y gm'kphqto gf '' ceeqwpv'qh'vtcpurcvkqp'ku'i tqwpf gf ''qp'c''

f {pco ke"xkukqp"qh"yi g"r j gpqo gpqp."tcyj gt"yi cp"qp"c"uvcvke"eqpvtcr qukkqp"qh"r tkpekr rgu"cu"kp"yj g"ecug"qh"pgq/kf gcrkur"yi kprngtu<br/>
"gzr rqtkpi "yi g"kf gcrl'ur ceg"dgwy ggp"yi g"hqto crl'cpf "ewnwtcrl'eqpvgz w"qh"yi g"f khhgtgpv"rcpi wci gu."<br/>
yi g{"go r j cukt g"yi g"vgpukqp"yi cv"uwurckpu"yi g"y qtm"qh"yi g"tcpurcvqt"cpf "yi g"cf f gf "xcrwg"f gtkxgf "htqo "yi g"<br/>
f kthkewnkgu"gpeqwpvgtgf 0"kp"tgegpv"{ gctu"yi gtg"j cu"dggp"c"tgpgy gf "kpvgtguv"kp"vtcpurcvkqp"uwvf kgu"cpf "vtcpurcvkqp"<br/>
yi gqt { ."cpf "yi gtg"ctg"pqy "ugxgtcrl'ugtkqwu"uej qrctu"kp"Kcrkcp"wpkxgtukkgu"cpcn{ukpi "xctkqwu"cur gew"qh"<br/>
vtcpurcvkqp."dww"pq"r ctvkewrctn{"qtki kpcrl'hki wtg"j cu"{gv"go gti gf 0

Ki ki kpygt guvkpi "vq"qqni'cv'y g"s wcp wcdxg"vt gpf u'kp" y g"qwr wi'qh'r wdrkuj gf "vtcpurcvkqpu'lkp"Kcn( "lp"t gegpv'{ gctu'l Kp"3; : 4. "qwi'qh'c"vqvcn'42.782"dqqmu'r wdrkuj gf "lp"Kcn( "4407"r gt "egpv'y gtg"vtcpurcvkqpu'lKp"3; ; 3. "y g"r gtegpvci g" kpet gcugf "vq"4808"r gt "egpv'qh'c"xqnwo g"qh'dqqmu'y cv'ku'w keg"cu'rcti g"%62.364+0Kp"3; 94. "670, "r gt "egpv'qh" vtcpurcvgf "r ci gu'y gtg"htqo "Gpi rkuj ."4506"r gt "egpv'htqo "Htgpej "cpf "3509"r gt "egpv'htqo "I gto cp0Ugxgpvggp" {gctu"rcvgt."lp"3; : ; . "y g"r gtegpvci g"qh'r ci gu"vtcpurcvgf "htqo "Gpi rkuj "j cf "tgcej gf "7606."y j gtgcu"Htgpej "ftqr r gf "vq"3908"r gt "egpv'cpf "I gto cp"tgo ckpgf "uvcdrg"cv'3506"r gt "egpv'lkp"y g"uco g"{gct."r ci gu"vtcpurcvgf "htqo "Urcykuj "co qwpvgf "vq"409"r gt "egpv."htqo "Urcxqpke"rcpi wci gu"405"r gt "egpv."htqo "ercuulecn'rcpi wci gu"\Ncvkp"cpf "cpekppv'I tggn#509"r gt "egpv."cpf "htqo "cm'qyj gt "rcpi wci gu"605"r gt "egpv."

 $D\{ \text{"cpf "icti g."o quv'r wdrkuj gf "ktcpurcvkqpu"ctg"qh'rkvgtcwtg" \%50} \text{ "r gt"egpv'qh'ktcpurcvgf "r ci gu"kp"3; } 94 = \%60 \text{ "r gt"egpv'kp"3; } : ; + \text{"hqmqy gf "d} \text{"j knqt} \text{"\secondsymbol{"}} 3404 \text{"r gt"egpv'kp"3; } 94. \text{"dw'qpn} \text{": } 07 \text{"r gt"egpv'kp"3; } : ; + \text{"r j knquqr j} \text{"cpf "r u} \text{ ej qnqi } \text{"\secondsymbol{"}}, 07 \text{"r gt"egpv'kp"3; } 94 \text{"cpf ": } 06 \text{"r gt"egpv'kp"3; } : ; + \text{"tgrki kqp" "kucdng"cv'70} \text{"r gt"egpv+="r qrkkecrluekgpeg" cpf "geqpqo keu"r gcngf "vq'708 "r gt"egpv'kp"3; } 94 \text{"dw'd} \text{"d} \text{"3; } : ; \text{"j cf "hcngp"vq"407"r gt"egpv-="yj g"uj ctg"qh'o gf kekpg."d} \text{"eqpvtcuv."tqug"htqo "c"o gtg"408"r gt"egpv'vq"805"r gt"egpv0}$ 

#### Vj g'f wddkpi 'kpf wut {

Kp'Kcn{."cm quv'cm'hqtgki p'hkm u'ctg'f wddgf 0J knqtkecm{"y ku'j cu'w q'eqpeqo kcpv'ecwugu<dghqtg"Y qtnf "Y ct" Vy q."kv'y cu'hgnv'y cv'y g'wug'qh'UWDVKVNRP I 'y qwnf "gzenwf g'c'tcy gt "ncti g'ugevlqp"qh'y g'r qr wct'cwnf kgpeg''cu' knkgtce{"tcvgu'y gtg'urkm'hcktn{"j ki j 0O qtgqxgt."yi g'Hcuekuv'tgi ko g'y cu'chtckf "qh''+eqpvco kpcvlpi ø'yi g'r wtkv{"qh" yi g'pcvlqpcn'lkf kqo "d{"gzr qukpi "cwnf kgpegu'vq"o cuukxg"f qugu'qh'hqtgki p'ncpi wci gu0Cv'yi g''gpf "qh'yi g'y ct."yi g" ugeqpf "o qvlxcvlqp"cm'dw'f kucr r gctgf. "dw'yi g'hktuv'y cu'tgvclpgf "guugpvlcm{"dgecwug'J qm{y qqf "gzgewkxgu'f kf" pqv'y cpv'qduvcengu'vq'yi g''pgy "o ctngv'yi cv'y cu'qr gpkpi "chygt'O wuuqnkpkøu'kuqncvlqpkuo 0Vj gkt'r qy gthwn'nqdd{" gxgp"o cpci gf "vq"j cxg"c'encwug'cf f gf "vq"yi g'r gceg''tgcv{"uki pgf 'y kyi "yi g'Cnkgu'lp''3; 6567"o cnkpi 'F WDDRP I " gzr nkekn{"o cpf cvqt{0}

Vj ku'ukwevkqp'j cu'ngf ''q''y g'f gxgmr o gpv'qh'c'uvtqpi ''cpf 'y gm'qti cpk gf 'f wddkpi 'kpf wwt {.'y ky ''ur gekenk gf '' vtcpurevqtu.''cf cr vgtu''cpf ''cevqtu0'Vj g''o cuukxg''wug''qh''Co gtkecp''vgnghkro u'kp''y g''dwti gqpkpi ''vgngxkukqp''kpf wwt { '' j cu'tgegpvn( ''tguwngf ''kp''my gt''uvcpf ctf u.''gur gekem( ''cv'y g''vtcpurevkqp''gpf ''qh''y g''r tqeguu="cf cr vgtu''cpf ''cevqtu'' detgn( ''o cpci g''vq''uwtxkxg''y g''muu''qh''pwcpegu''cpf ''y g''ugpug''qh''wpgcug''i kxgp''uqo gvko gu''d { ''cu{ pej tqpqwu''qt'' hcwn/ ''f wddkpi .''cpf ''gzeguukxg''uko r nkhecvkqpu''cpf ''tgen'j qy ngtu'qhxgp''pqvkegedn( ''o ct''y g''s wenkv{ ''qh''y g'' vtcpurevgf ''f kemi wg0'Vj gtg''ku''c'i tqy kpi ''ugevkqp''qh''f gf kecvgf ''hkro ''i qgtu''y cv'y qwrf ''r tghgt''gplq { kpi ''hqtgki p'' hkro u'kp''y g''qtki kpcn'hqto .''y ky ''y g'' gr' 'qh''uwdvkxrgu.''dw''y g''o ctngv'ukwcvkqp''uggo u'vq'kpf kecvg''y cv'c''tcf kecn'' ej cpi g''kp''y ku''hkgrf ''ku'tcyi gt''wprkngn( .''cv'rgcuv'kp''y g''pgct''hwwtg0

#### Vj g'rt qhguukqpc nloc vwu'qh'ij g'it cp urc vqt

Y j gpgxgt "Kcrkcp" tcpurcytu" o ggv. "y g"eqo r rekpv" cdqw" y gkt "r tqhguukqpcri'r hg" ku"xkt wcm{ "wpcpko qwu0°Cpf" y g{" fq"pqv" tghgt "vq" gzegr vkqpcn" xqecvkqpcn" o | ctf u"rkng" y g"qpg" uwhhgtgf" c'hgy "{gctu" ci q"d{"Gwqtg" Ecrtkqn." y g" vcpurcyt" qh" Ucro cp" Twuj f kgøu" Ucropke "Xgtugu" y j q"nwenkn{"uwtxkxgf" uwddkpi "d{"c"hwpf co gpwchuv" yttqtkuv0" Vj g{"tghgt" vq" y g"ny "guvggo "kp" y j kej "y gkt" y qtm" ku" j gr" ny "gctpkpi u"kv" {kgrf u." vq" y g"uj qtv" vko g" y g{" ctg" cmqy gf" vq" eqo r rgvg" r tqlgewu." vq" y g"ncem" qh" c"uvgcf {"hmy "qh" lqdu." cpf" y g"ncem" qh" eqpvtqn" y g" hpkuj gf" r tqf wev0 Gxgp" y qwi j "y qtm kpi "eqpf kkqpu" j cxg" i gpgtcm{"ko r tqxgf" fwtkpi "y g"ncuv" eqwr rg" qh" f gecf gu." y g"dcuke" r tqdrgo "qh" c"xgt {"wpdcrcpegf" tgrcvkqpuj kr" dgwy ggp" vtcpurcytu" cpf" r wdrkuj gtu" urkm" gzkuv0 Vj g"o clqt" hcevqt" ucr r kpi "y g"tcpurcytuo" dcti clpkpi" r qy gt" ku" qh" eqwtug" y g"gzkurgpeg" qh"

c'xkt wcm{ 'ko o gpug't gugt xg'r qqn'qh'y qwrf/dg'\tcpurcvqtu'htqo 'y j kej '\j g'r wdrkuj gtu'ecp'f tcy '\j g'pgzv' ecpf kf cvg'hqt"c'lqdô uj qwrf "qpg'tghwug'vj gkt"eqpf kkqpu. 'tgi ctf rguu'qh'gzr gtkgpeg"cpf "vgej pkecn'qt'rkvgtct { " ur gekenkt cykap0'Vj gtg'ku'pa''pggf ''va''go rj cukt g''yj cy''yj g''o ckp''xkeyko ''ah''yj ku''u{ uvgo .''dgukt gu''yj g''r tahguukapen'' vtcpurcvqt. "ku" y g"qxgtcm's wcrkv{ "qh" o quv" y qtm "cuuki pgf "cu"kv"ku" qp" y g"uj ggt "dcuku" qh" ucxkpi "equv0 Hqt"f gecf gu"pqy ."vj g"vy q"o ckp"tcpurcvqtuø'vpkqpu"\*CKVK"Cuuqekc| kqpg"Kicrkcpc"Vtcf wwqtk"g"Kpvgtr tgvk"cpf" UKVN. "Ukpf cecvq" Kichcpq" Vtcf wwqtk Ngwgtctk+ j cxg'dggp" vt { kpi "vq" ko r tqxg" vj g"uvcwu 'qh' vj g'r tqhguukqp. "dw" y ky "xgt{"o qf guv't guwnu. "i kxgp" y g"gz vtgo g"htci o gpvc vkqp"cpf "kuqnc vkqp"qh" vtcpunc vqt u"cu"c"i tqwr "\*qwv"qh"uqo g" 32.222"r gqr ng"f guetkdgf "cu"tcpurcvqtu"cpf "kpvgtr tgvgtu"kp"vj g"3; : 3"egpuwu. "qpn("c"hnwewcvkpi "o kpqtkv{"cewcm(" gctp'y gkt'hkxkpi 'cu'hwm' ko g'r tqhguukqpcnu.'cpf 'o quv'qh'y go 'y qtm'htggrcpeg+0'Vj g'kuuwgu'tckugf 'd{ 'y g'f gdcvg'' uwko wrcygf "d{" 'y g" Wpkqpu" ctg" urqy n{ "dgkpi" wpf gtuvqqf "d{" y g"i gpgtcn'r wdrke" cpf "\*uvkrn'o qtg" urqy n{ +'y g" kpurkwakqpen'epf "rgi kurcykxg"dqf kgu0'Uqo g"qh"yj g"dguv'epf "o quv'ugpukxkxg"r wdrkuj kpi "j qwugu'uggo "pqy "vq"dg" kpygtguvgf "kp"tgcej kpi "c"o qtg"cf xcpegf "cpf" "j qr ghwn( +"dcrcpegf" ci tggo gpv"kp" qtf gt" \q"dtgcm'\y g" hqy "equvlnqy" s wcrkv{ "e{erg"qp"c"o qtg"eqpukuvgpv"dcuku0Vj gtg"ctg"o cp{"j {r qyj gugu'wpf gt"f kuewuukqp"\*co qpi "y j kej "y g" kpurkwakqp"qh'c"Pcvkqpcn'Tgikunt { "qh'\tcpurcvqtu'cpf"kpvgtrtgvgtu'uggou'vq"dg'vjg"qpg"oqtg"qhvgp"ogpvkqpgf+"dwv" yj g''qpn{ 'tgcn'r gtur gevkxg''qh''c''uj qt√vgto 'kortqxgogpv''qh''yj g''ukwcvkqp''r tqdcdn{ 'nkgu'kp''yj g''÷j ctoqpk| cvkqpø''qh'' twigu'tgi wickpi 'tcpurckqp'tki j wi'co qpi 'o go dgtu'qh'y g'Gwtqr gcp'Wpkqp0

#### Vt cpurc vqt 'tt ckpkpi

Qh'f ktgev'tgrgxcpeg''vq''vj g''s wguvkqp''qh''uvcwu''ku''vj g''r tqdrgo ''qh''vtckpkpi ''pgy ''vtcpurcvqtu''vq''r tqf weg''{qwpi ''r tqhguukqpcnu.''kp''qtf gt''vq''cxqkf ''vj g''go gti gpeg''qh''gzr mkvcvkxg''o ctmgvu.''gur gekcm{ ''kp''yj g''hkgrf ''qh''rkvgtct { ''vtcpurcvkqp0'Vgej pkecn''vtcpurcvqtu''cpf ''kpvgtr tgvgtu''j cxg''gplq{ gf ''c''dgvgt''guvcdrkuj gf .''kh''tgegpv.''vtcf kkqp''qh''vtckpkpi ''uej qqnv.''vj g''Uevqrg''Uvr gtkqtk''vtcf wvqtk''g''kpvgtr tgvk''y j kej ''ctg''pqv.''j qy gxgt.''eqpukf gtgf ''cecf go ke'' kpvkwvkqpu0

Vj g"qpn("Wpkxgtuk/ "lp"Kcn("\q"qlhgt"c"hwnif gi tgg"lp"\tcpurc\lqp"ku"Vtlguvg."gxgp"\j qwi j "eqwtugu"lp"\tcpurc\lqp" ctg"pqy "dglpi "qlhgtgf "lp"ugxgtcn'qy gt "wpkxgtukkgu."wuwcm("cu"c"ur gelcn\t c\lqp"y ky lp"c"f gi tgg"lp"o qf gtp" mpi wei gu0Cu'hct"cu'hkgtct { "\tcpurc\lqp"ku'eqpegtpgf."qpn("c"hgy "\wpkxgtukkgu"j cxg"\cmpp"r ct\lcn'llpkkc\lxgu"\q" hkm'y g"\tclpkpi "i cr "lp"\y ku'ko r qt\lcpv'hkgrf 0I tcf wcwg"cpf "r quv'i tcf wcwg"eqwtugu"lp"hkgtct { "\tcpurc\lqp"j cxg"\dggp" qlhgtgf "lp"\ugxgtcn'\wpkxgtukkgu"lp"tgegpv" { gctu'\wordday Tqo g\undot\undo

## Hwt yj gt 't gcf kpi

 $\label{eq:cwkf} \textit{Cwkf} \textit{ gn'eqpxgi pq''-\textit{Hp'f klguc'f gk'\t curqec vqt kf k'r ct qng.'Gf kqt k'g''\t cf wwqt k'c''eqpht qpvq$/3;; 5='Dgtpcueqpg'3;; 6='Ectkpk' 3:; 6='F wtcpvk'3; 9; ='Hgttctk'3; 47='Hqngpc'3; 95 B;; 3='Ncr week'3;: 5='O chlgk'3942='Ucpvcpi gnq'cpf''Xkpvk'3;: 3='Vgttcekpk'3;: 5='\ co dqp''3; 840$ 

TIEECTF Q'F WTCP VK

#### Dkqi tcrj kgu

DCTVQNQO GQ'F C'UCP 'EQPEQTF KQ'\*348463569+0'Uej qrct." 'gcej gt"cpf "o qtcrkuv="dqtp"kp"Rkuc0J g" y tqvg" 'tgcvkugu" 'qp"gyi keu. "o gvcr j {ukeu. "rqi ke. "i tco o ct"cpf" r tquqf {0 Qpn("w q"qh"j ku"y qtmu"ctg"kp"y g" xgtpcewrct "cpf" 'y g{"ctg"dqyi "\tcpurcvkqpu<'htqo "Ucmwukwu"cpf" htqo "F qewo gpvc 'Cpvks wqt wo . "cp"cpyi qrqi {"j g" eqo r krgf" ej qqukpi "o qtcrlo czko u. "y ctpkpi u"cpf" twrgu" qh"eqttgev'rkx kpi 0 Ki'ku "kp"hcev "kp"y ku"y qtm "\tcpurcvgf" cu" Co o cgunt co gpvk" gi rk"Cpvkej k" y cv'y g"hkpf" j ku"guuc {"qp"\tcpurcvkqp0 Kp"y g"pkpyi "qh"y g"62" r ctw "kp"y j kej "y g" vgzv'ku "f kxkf gf . "wpf gt"y g"hwtyi "j gcf kpi ."y j kej "dgctu"y g"kxrg" F k'ewtctg" r kA"f graq" pvgpf ko gpvq" ej g"f grag" r ctqrgo" Qp"ectkpi "o qtg"cdqw'o gcpkpi "y cp"cdqw'y qtf u+: "j g"eqragevgf" swqvcvkqpu" cdqw'vtcpurc"

vkqp"yj cv"tghrgevgf "cnuq"j ku"qy p"yj qwi j vu"qp"yj g"uwdlgev0

DTWP K'Ngqpctf q'\*359263666+0J wo cpkn/cpf "r qnkkekp="dqtp"kp"Ctg| | q0J g"y qtmgf "cu'Cr qurqne"Ugetgvt {" kp"Tqo g"cpf "cu'Ej cpegmqt "kp"y g"Hiqtgpvkpg"Tgr wdnke0Dt wpk'vtcpurcvgf "F go qury gpgu. "Zgpqr j qp. "Rnwctej ." Rrcvq"cpf "Ctknvqvg"Intqo "I tggmilpvq "Ncvkp0J g"f ghgpf gf "vj g"wug"qh'xgtpcewrt "Kcncp"kp"j ku"f kcmi wgu"Cf" Rgvtwo "J kntwo "cpf" y tqvg"vy q"ko r qtvcpv'dkqi tcr j kgu"qh"F cpvg"cpf "Rgvtctej 0J ku"xgtpcewret" y qtmu"kpenwf g" ur ggej gu"cpf "o kpqt"guuc{u0Cu"c"j knvqtkcp."dgukf g"tgy qtmkpi u"kp"Ncvkp"qh"I tggmiej tqpkengu."j g"y tqvg"Tgtwo " uwq"vgo rqtg"i gunctwo "Eqo o gpvctkc" \*366263+"cpf "J knvqtkctwo "hrqt gpvkpk"r qrwk'hdtk"ZKK\*\*363765; +0 EGUCTQVVK'O gnej kqttg" \*395263: 2: +0\*Dqtp"kp"Rcf wc. "Eguctqvk"cwi j v'kp"ku"ugo kpct {"cpf" "wwqtgf" "ugxgtcn" pqdngo gp"htqo "yj g"dguv'hco khgu"kp"Xgpkeg0Hiqo "398: "qpy ctf u"j g"y cu"c"r tqhguuqt"qh"I tggmicpf "J gdtgy" Nksgtcwtg"cv'yj g"Wpkxgtukv{"qh"Rcf wc0Hcuekpcvgf"d{"vj g"Htgpej "Gpe{emr gf knvu."j g"y tqvg"r qnkkecni'r co r j ngw"kp" hcxqwt"qh"y g"Tgxqnwklqp0Y j gp"P cr qngqp"cttkxgf"kp"Xgpkeg"Eguctqvk"eqo r qugf "c"dcmgv."Rtqpgc."kp"j ku" j qpqwt0J ku"o quv'ko r qtvcpv'y qtm'ku"eqpukf gtgf "yj g"ttcpurcvkqp"qh"Quukcpøu"Uqpi uOJ ku"Uci i kq"ummc"Hrquqhkc" fgng"Nkpi wg"\*39: 7+."kp"y j kej "j g"encko gf "yj g"tki j v'hqt"y tksgtu"q"dwkrf "wr "yj gkt"qy p"xqecdwrct {."ku"cnnq" eqpukf gtgf "xgt {"ko r qtvcpv0

TIEECTF Q'F WTCP VK

# L

# Lerepgug'ttef kkqp

Vj g'Icr cpgug'rcpi wci g.'y j kej 'ku'ur qmgp'd { ''qxgt'347''o kmkqp'r gqr ng'kp''y g'Icr cpgug''ctej kr grci q''vq''y g''gcuv''qh'' Ej kpc''cpf ''Mqtgc.'j cu''cp''chhkpkx{ ''y ky 'Cnxcke''rcpi wci gu.''dw'kxu''qtki kpu''ctg''o wej ''f gdcvgf 0'Cnyi qwi j '' u { pvcevkecm{ ''uqo gy j cv'uko krct''vq''Mqtgcp.''kv'ku''s wkxg''wptgrcvgf ''vq'Ej kpgug0

Icr cp'j cu'dggp''cp''go r ktg''ukpeg''cdqwk'CF ''422. "cpf ''Icr cpgug''go r gtqtu'y gtg'tgi ctf gf ''cu'f kxkpg''wpvkri'3; 680' J qy gxgt. 'htqo ''33: 8''wpvkri'3: 89''tgcri'r qy gt''y cu''kp''y g''j cpf u''qh''y g''o krkct { ''uj qi wpu. ''y g''j gcf u''qh''y tgg'' hco krkgu'\*O kpco qvq. ''Cuj knci c''cpf ''Vqmwi cy c+'y j q'y gtg''uweeguukxgn{ ''kp''cewcri'eqpvtqri'qh''y g''eqwpvt { .'' cnj qwi j ''y g''go r gtqtu''tgvckpgf ''hqto cri'uqxgtgki pv{0

Icr cpœu'r tqzko kx{ "'q'Cukc"cpf "f kuvcpeg'htqo "Y guvgtp"eqwpvtkgu"j cxg"eqo dkpgf "y kyj "j kuvqtkecn'hcevqtu"vq"uj cr g" dqyj "'y g"r tcevkeg"qh"cpf "cvkwxf gu"vqy ctf u"vtcpurcvkpi "cpf "kpvgtr tgvkpi "kp"y g"ctgc0"Vj tqwi j qwv'o wej "qh"Icr cpœu" j kuvqt { "'y g"o qvkxcvkqp"dgj kpf "vtcpurcvkqp"cpf "kpvgtr tgvkpi "j cu"dggp"y g"pggf "hqt"kphqto cvkqp. "y kyj "kpvgtguv"kp" hqtgki p"ekxkrk cvkqp"hqt"kuu"qy p"ucmg"dgkpi "qh"ugeqpf ct { "ko r qtvcpeg0"[ gv"y g"qweqo g"j cu"dggp"vq"kpvtqf weg" pgy "kf gcu. "rkvgtct { "hqto u."gzr tguukqpu"cpf "i tco o cvkecn'uvtwewtgu. "y gtgd{ "j cxkpi "cp"gpqto qwu"ko r cev'qp"dqyj " y g"ewnwtg"cpf "hcpi wci g"qh"y g"ctgc0

# Ej kpgug/Lerepgug' interpure vkqpøkp'rt go qf gt p'vko gu

Eqpvcev'dgwy ggp'Icr cp'cpf 'Ej kpc'f cwu'dcem'cv'ngcuv'cu'hct 'cu''y g'hktuv't geqtf gf ''qhhkekcn'eqpvcewi'kp''CF '790'Kp'' y g''y ktf ''cpf 'hqwty ''egpwxtkgu.''Mqtgcp'uetkdgu'kpvtqf wegf ''y g'Ej kpgug'uetkr v''q'Icr cp.''y j kej ''ncengf ''c'uetkr v''qh'' ku''qy p. ''cpf ''d{ ''y g''ukz y ''qt''ugxgpyj ''egpwxtkgu''y ku'y cu''y kf gn{ ''wugf ''co qpi uv'y g''² rkxg0'Uqo gxko gu''y g''uqwpf u''qh'' y g''Ej kpgug''ej ctcevgtu''y gtg''wugf ''r j qpgxkecm{ ''vq''y tkxg'Icr cpgug''y qtf u. ''cpf ''uqo gxko gu''y g''o gcpkpi u''y gtg'' dqttqy gf ''kpuvgcf 0'Cnyj qwi j ''y q''kpf ki gpqwu''r j qpgxke''uetkr w''y gtg'f gxgnqr gf ''d{ ''y g''gki j y ''egpwxt { .''gpcdrkpi '' Icr cpgug''yq''dg''y tkxyp''y ky qw't geqwtug''yq''Ej kpgug''ej ctcevgtu.''y g'ncwgt''j cxg''tgo ckpgf ''kp''wug''q''y g''r tgugpv'' f c{ ''dgecwug''qh''y gkt''eqpekugpguu.''hqto crkx{ ''cpf ''i tgcvgt''r tguxki g'\*\*Vy kpg''3; ; 3-57+0

Ej kpc'j cf "c'i tgcv'ko r cev'qp''Icr cpøu'kpygngewen'tgrki kqwu''cpf "ewnwtcnihkg'kp''y g''3.522"{gctu''dgwy ggp''y g'' cf qr kqp'qh''y g''y tkkpi "u{uvgo "cpf "y g'qr gpkpi "wr "qh'Icr cp''q''y g''Y guv'kp'3: 760'Wpqhhlekcni'ewnwtcnicpf " eqo o gtekcni'eqpvcewu."cu'y gmi'cu'f kr mo cwle'o kuukqpu''y cv'kpenwf gf "o qpmu."uej qrctu''cpf "uwwf gpwu."r tqf wegf "cp" gzej cpi g''qh'lkf gcu''y cv'tguwngf "kp''o cp{ "ej cpi gu''q'Icr cpgug''kpurkwwkqpu''cpf "uqekgv{0'Uwej "eqpvcewi'pcwtcm{" tgs wktgf "eqpukf gtcdrg''rcpi wci g'o gf kcwlqp0'Tcvj gt''y cp''tcpurcwkpi "kp''y g''eqpxgpwkqpcni'o cppgt."j qy gxgt."d{"'y g'' pkpy "egpwt{"y g'Icr cpgug''y cf ''f gxkugf "cp''kpi gpkqwu''cppqwcwkqp''u{uvgo "ecngf "mco dwp''mmpf qmw' "kpygtr tgxkxg" tgcf kpi "qh'Ej kpgug+"y j kej "gpcdrgf "y go "vq'tgcf "Ej kpgug''yzxu''y ky qw''tcpurcwkqp0'Ur gekcni'o ctmu'y gtg''r rcegf " cmpi ukf g''y g''ej ctcevgtu''qh'Ej kpgug''yzxu''q'kpf kecwj' qy "y g{ "ecp"dg'tgcf "kp''ceeqtf cpeg'y ky "Icr cpgug'y qtf" qtf gt."cpf "c''u{uvgo "qh'i tco o cwlecnlipf kecvqtu'y cu''wugf "vq''uj qy "kphrgewqpu0'Vj ku''f ktgevn( "eqpxgtygf "y g'' Ej kpgug''yzxu''kpvq''wpf gtuvcpf cdrg. "cmlgkv'tcvj gt''wppcwtcn'Icr cpgug''y cv'tgwkpgf "c''urtqpi "Ej kpgug''hrcxqwt0 Vj wu''tki j v'wr "vq''y g''pkpgyggpyj "egpwt{"y gtg''gzkurgf "y q''o gf kwo u'qh''tgcf kpi "cpf 'y tkkpi "kp'Icr cp<'Ej kpgug." wugf "o ckpn( ''hqt''uej qrctn( "y qtmu."cpf 'Icr cpgug." wugf "ej kghn( ''hqt''ksgtcwtg0'Kpgxkcdn( ."j qy gxgt."'y gtg'y cu''c'' egtvckp''co qwpv'qh'lpygtr rc{"dgw ggp''y g''y q''

tcf kkqpu."tguwnkpi "kp"c'hqto "qh":Lcr cpk gf ø'Ej kpgug"cu'y gm'cu'y g"ukpkek cvkqp"qh'Icr cpgug0 Kp"3833. 'yj g"uj qi wp"Vqnwi cy c"Kg{cuw'gpeqwtci gf "Ej kpgug"o gtej cpwu'vq"tcf g"kp"P ci cucnk'kp"uqwj /y guvgtp" Icr cp. 'rgcf kpi "vq"c'f go cpf 'hqt"kpvgtr tgvgtu'qh"Vcpi "Ej kpgug"cpf "cp"kphnwz "qh'Ej kpgug"dqqnu0Ki'y cu'cnq"cdqwi' yi ku'vko g'vj cv'vj g"htuv'vtwg"vtcpurcvkqpu'htqo "ercuukecn'cpf "eqnqs wkcn'Ej kpgug"y gtg"r tqf wegf ."r ctvkewrctn{" eqnqs wkcn'hkevkqp'htqo "yi g"O kpi "f {pcuv{ "\$358: 6e08866+0"Y j gtgcu'uwej "y tkvgtu'cu'Cuck'T { k\*A38; 3+'qhvgp" hqmy gf "yj g"qtki kpcn'vgzv'nkpg"d{ "nkpg"\*Mggpg"3; : 9 < 78 + "Qi {w'Uqtck\*38886394: +"y j qug"cr r tqcej "vq" vtcpurcvkqp"ku'qwnkpgf "kp"j ku'kpvtqf wevkqp"vq"f cmudwp'ugpvgk\*C"I wkf g'vq"Vtcpurcvkqp."3933+"r tqf wegf "htgg" vtcpurcvkqpu'kp"eqmqs wkcn'Icr cpgug'\*Mcvq"3; : f 5c<85+0"Vj g"397: "vtcpurcvkqp"d{ "Qnclko c"Mcp| cp"\*38966394: +"qh' yi g"Ej kpgug'tqo cpeg"Uj wkj w'/j wcp"\*Cm'O gp"ctg"Dtqyi gtu+"cnq"j cf "c"i tgcv'ghtgev'qp"yi g"r qr wrct'hkevkqp"qh'yi g" rcy"Cfq q'r gtkqf "\*382263: 8: +0

# Rt g/o qf gt p'eqpvcewi'y kvj 'vj g'Y guv

Vj g'ugeqpf 'y cxg'qh'hqtgki p'hcpi wci gu'tgcej gf 'vj g'uj qtgu'qh'Lcr cp'y kyj 'vj g'cttkxcn'qh'vj g'Rqtwi wgug'kp'vj g'' ukz vggpvj ''cpf 'vj g'F wej 'kp'vj g'gctn( 'ugxgpvggpvj ''egpwt {0'Vj g'r tcevkeg'qh'*mco dwp'mwpf qmw*'o gcpv'vj cv'vj gtg'' y cu''crtgcf { ''c'r tgegf gpv'hqt'cf cr vkpi 'Lcr cpgug''vq'vj g'hqtgki p'hcpi wci g.'tcvj gt'vj cp'tgs wktkpi 'vj g'pgy eqo gt'vq'' eqphqto 'vq'pcwtcn'Lcr cpgug''wuci g0

## Rqt vwi wgug

 $\label{thm:comparison} Vj g'f guktg'vq'r t gcej 'Ej tkukcpk{} \^o eqo dkpgf 'y ky ''y g'pggf 'hqt''tcf g\^o ngf ''y g'Rqtwi wgug''vq''tcxgn'y g'y qtnf .'' cpf 'kp'3765'c'Rqtwi wgug''uj kr y t gen'idtqwi j v'Icr cp'kpvq''eqpvcev'y ky ''y g''Y guv'hqt''y g''httuv'ko g0Cpqy gt'' Rqtwi wgug''uj kr ''xkuksgf 'Icr cp''kp'3768''cpf ''ecttkgf ''Cplkt .''c'hwi kkxg''uco wtck''dcem'vq''O cnceec.''y j gtg''j g'y cu'' kpvtqf wegf ''vq''Htcpeku'Zcxkgt''qh''y g''pgy n{ ''hqwpf gf ''Uqekgv{ ''qh'Iguwu0Zcxkgt''y cu''kpur ktgf ''d{ ''Cplkt øu''ceeqwpw'' qh'Icr cp''vq''eqo o gpeg''o kuukqpct{ ''cevkxkkgu''y gtg0Cplkt .''y j q''eqwnf ''cntgcf { ''ur gcm'idtqngp''Rqtwi wgug''cpf'' y j q''j cf ''dgeqo g''y g''httuv'Icr cpgug''Ej tkukcp.''y cu''ugpv'vq''y g''Eqnngi g''qh''Uv''Rcwn'kp'I qc.''Kpf kc.''vq''uwxf { ''Ej tkukcpkv{ ''cpf ''Rqtwi wgug0'Vj gtg.''j g''tcpu''ncvgf ''Ej tkukcp''o cvgtkcnu''uwej ''cu''y g''ecvgej kuo ''kpvq'Icr cpgug'' *Uej wtj co o gt''3; : 4493+0$ 

Zcxkgt"cttkxgf "kp"Mci quj ko c"kp"376; ."ceeqo r cpkgf "d{"Cplkt" "cu"j ku'kpvgtr tgvgt"cpf "tcpurevqt0I tcf wcm{."j g" r tkguvu"o cuvgtgf "Lcr cpgug"cpf ."y kj "vj g"j grr "qh'eqpxgt w."vtcpurevgf "xctkqwu"Ej tknkcp"y qtmu'kpvq"Lcr cpgug0' Vj ku'r tgugpvgf "c"o clqt"r tqdrgo "kp"vgto u'qh'hkpf kpi "y qtf u'vq"gzr tguu"pgy "eqpegr w'uwej "cu"H qf \( \text{in} \) "-j gcxgp\( \text{o} \) cpf "jef "vq'kpgxkcdrg"f kuetgr cpekgu"kp"o gcpkpi 0Qpg"kpvgtr tgvgt "y qtvj { "qh'r ctvkewret"pqvg" y cu'vj g"Rqtwi wgug"o kuukqpct{ "Lq-q"Tqf tki wgu"\*e\( \text{in} \) 78363855+."y j q"cttkxgf "kp"Lcr cp"kp"37990Chxgt"uwf { kpi " Lcr cpgug." Tqf tki wgu"cevgf "cu'vj g"o kuukqp\( \text{in} \) "ipvgtr tgvgt."cpf "kpvgtr tgvgf "cv'vcmm"y kj "vj g"uj qi wp" J kf g{ quj k'kp"37; 30J g"cmq"eqo r krgf "vj g"Ctvg"f c"Npi qc"f g"Kcrco."c"i tco o ct"qh'Lcr cpgug"kp"y j kej "j g" f kuewuugf "Ej kpgug"r qgvt { "vtcpurevgf"kpvq"Lcr cpgug"cpf "vj g"f khhewn{ "qh'vtcpurevkpi "Rqtwi wgug"kpvq"Lcr cpgug." cpf "tgeqo o gpf gf "vtcpurevkpi "yj g"ugpug"tcvj gt"vj cp"i kxkpi "c"hkgtcnltgpf kkqp"\( \text{Eq qr gt"} \); 9640
C"r ctvkcnlvtcpurevkqp"qh'C guqr \( \text{au} \) "Hcdrgu"y cu'r tqf wegf "kp'tqo cpkl gf "uetkr vlxp"37; 5"cpf "y cu'r tqdcdn{ "vj g"hktuv' vtcpurevkqp"qh'C guqr \( \text{au} \) "tqugn{ vk kpi "o cvgtkcn0Vj ku'y cu's wkg"htgg"cpf "eqmqs wkcn"cpf" uwduvkwyf "vj g"pgctguvllcr cpgug"gs wkxcrgpvu"hqt "wpico krct "Gwtqr gcp"qdlgew0Rctvkcn'vtcpurevkqpu"qh'Ko kcvlq" Ej tknk'e"37; 8+"cpf "Nwku'f g"I tcpcf c\( \text{au} \) "wc "f q"Rgecf qt"\( \text{\*37}; ; +"cnnq"cr r gctgf ."dw'vj gtg'y cu'rkwrg"cwgo r v'vq" vtcpurevg"Rqt wi wgug"y qtmi'qvj gt"y cp"Ej tknkcp"rksgtcwtg0

D{"385; "'y g"Vqmwi cy c"uj qi wpcvg" j cf "kuuwgf "c"ugtkgu"qh"ugenwukqp"qtf gtu"emukpi "'y g"eqwpvt { "qhh"htqo " f guvcdkrk kpi ø'qwukf g"kphrwgpegu0'Vtcf gtu"cpf "o kuukqpctkgu"y gtg"dcppgf ."cu"y cu"Ej tkuvkcpkv{ "kuugh0'Qpn( "'y g" F wej ."y j q" j cf "cttkxgf "kp"382; "cpf "dggp"qtf gtgf "'vq"tgukf g"kp"y g"vqy p"qh"J ktcf q"kp"M{ wuj w."y gtg"cmqy gf "'vq" uvc { "dgecwug" y g{ "o cf g"pq"cwgo r v"cv"r tqugn( vk kpi 0'V j g"Ej kpgug" y gtg"tguvtkevgf "'vq"P ci cucnk "cpf "'y g"Mqtgcpu" r gto kwgf "'vq"tcf g"qpn( "kp"Vuwuj ko c0'V j ku"o qxg"dtqwi j v"y g"crtgcf { "o kpko cn"vtcpurcvkqp"qh"Y guvgtp"rkvgtcwtg" vq"c"xktwcn" j cn0

## Fwwj

Uqo g'o gtej cpvu. 'qhhkekcnu'cpf 'uco wtck'eqwrf 'ur gcm'hqtgki p'ncpi wci gu. 'dw'y j gp''y g'F wej "

y gtg''qtf gtgf 'kp''3863''q''o qxg''q'F glko c."cp"ct\khkekcn'kurcpf 'kp'P ci cucnk '\tcpurc\kpi "cpf 'kp\gtr tg\kpi "dgeco g" yi g'\uqpg''r tqx\kpeg''qh'i qxgtpo gp\'qhhkekcn'\uppqy p'cu''Qtcpfc''u lk'\F wej 'kp\gtr tg\gtu+'yj q'cnuq''ce\gf 'cu'' ewu\qo u''qhhkekcn\0'Vj g''r quk\kqp''qh'\u lk'y cu''c'j gtgf kct { ''qpg."cnj qwi j ''qh\gp''k\'y cu''\pj gt\k\gf ''d { ''cf qr \qsf ''uqpu\0' Vj qwi j ''r ckf ''y gm''j g''u lk'f kf ''pq\'cny c { u''j cxg''c'i qqf ''tgr wc\kqp."uqo g\ko gu''u\qcn\pi 'hqt\si p' i qqf u." uqo g\ko gu''dg\pi ''etk\ke\k gf ''hqt''\yi g\k' r qqt''h\pi w\kn\ke''cd\kk\kgu."cpf ''uqo g\ko gu''gxgp''dg\pi ''cttgu\qf ''hqt'' o kn\tcpurc\kqpu\0'D\{ '\yi g''rc\g''g\ki j \qgp\yi ''egp\wt \{.''j qy \gxgt.''\yi gtg''y cu''c''hc\kt\n\ ''i qqf ''u\uqo ''qh'\tc\p\p\pi ''\w lk0'\yi g\{ eqo o gp\egf ''u\wf \{\kpi ''F \wej ''c\v'cdq\w'\yi g''ci g''qh'\32''cpf ''j cf '\q''r cuu''cp''gzco \kpc\kqp''\q''s \wc\h\\ ''cu'\tc\p\gg''\w lk'' htqo 'y j gtg'\yi g\{ ''o q\gf ''\w ''\yi g''\w lk'' \kg\text{by} \ki g\text{by} \ki''\tc\p\gg''\w lk'' \kg\text{by} \kg\t

Vj gtg"y gtg"wwcm{ "cdqwi72" w lk"cv"cp{ "qpg" wo g."cpf "gxgt { "{gct" w q"ugpkqt" w lk"ceeqo r cpkgf "vj g"j gcf "qh" vj g" F wej "ugwrgo gpv" vq" vj g"ecr kcn" Gf q"vq" o ggv" vj g"uj qi wp"cpf "r tgugpv"c" tgr qtv" qp" qxgtugcu"chhcktu" vtcpurc vgf "d{ "vj g" w lk0" vj g{ "y qwrf "kpvgtr tgv"cv" cmu" y ky "vj g"uj qi wp"cpf "y ky "kpvgmgewcnu" vj ktuv{ "hqt" mpqy ngf i g"cdqw" vj g" qwukf g"y qtrf. "cpf "vj ku" r tcevkeg" ur tgcf ":F wej "ngctpkpi ø" vq" vj g"ecr kcn" 0

Vj g''y zw''tcpurcyf ''d { ''y g''w lk'y gtg''qxgt/y j gro kpi n { ''qh''c''pqp/rkxgtct { ''pcwtg0Cr ctv'htqo ''tcf g/tgrcyf '' f qewo gpvu.''y g'hktw'y qtmu''tcpurcyf ''y gtg''o gf kecn'y zw0'Vj g'F wej ''xgtukqp''qh''c''Ncvkp''cpcvqo kecn'y qtm'y cu'' tcpurcyf ''d { ''O qvqnk'T { k'\*384: 6; 9+'kp''38: 4. ''cnj qwi j ''y ku'ku''rguu'y gm'npqy p''y cp''y g''rcvgt''tcpurcykqp''qh'' cpqy gt''cpcvqo kecn'y qtm''*Mckck'Uj kpuj q.* ''r wdrkuj gf ''kp''39960O cp{ ''w lk'dgeco g''uq'y gm'xgtugf ''kp''y g'hkgrf '' y cv''y g{ ''uy kej gf ''q''hwm'yko g''o gf kecn'ectggtu0O gf kecn'yzvu'y gtg'hqmyy gf ''d { ''y qtmu'kp''y g''pcwtcn'uekgpegu'' cpf ''o krkct { ''uekgpeg.''y kj ''tcpurcykqp''kp''y g'hkgrf ''qh'j wo cpkkgu''eqo kpi ''rcv0'Vj g''tcpurcykqpu'y gtg''wpf gtwcngp'' kpyq''ercuukecn'Ej kpgug0'Vj g''w lk'htgs wgpvn { ''j cf ''y eqkp''gs wkxcrgpwu''y gzr tguu''pgy ''eqpegr vu ''cpf ''c''eqo o qp'' o gyi qf ''qh'f qkpi ''y ku'y cu''y 'wug''gzkuxkpi ''Ej kpgug'y qtf u'y j gtg''r quukdrg0

Vj g'o qtg'uej qmtn( "qh'y g'u lk'r mc{gf "cp'ko r qtvcpv'tqng'kp''ycej kpi "F wej "cpf 'kpvtqf wekpi "Y guvgtp" mpqy ngf i g'cpf "ewnwtg0O QVQMK[ quj kpci c'\*39576; 6+'tcpurcvgf "cuvtqpqo kecn'y qtmu''cpf 'kpvtqf wegf " Eqr gtpkecp''y gqt { 'kpvq'Icr cp0'Vq''c''tcpurcvkqp''j g'wpf gtvqqm'kp''39; 4''j g''cf f gf ''c''ugeqpf ''xqnwo g."Y ci g't gki qp." gzr nckpkpi 'j ku'o gyj qf 'qh''tcpurcvkqp."cpf ''y ku'y cu'r tqdcdn( "vj g''htuv'eqj gtgpv'guuc { ''qp''tcpurcvkqp''o gyj qf u'kp'' Icr cp''\*Uwi ko qvq''3; ; 2<354+0'K''eqo r ctgu'F wej ''cpf 'Icr cpgug''uvtwewtgu''cpf ''f knewnugu'\tcpurcvkqp''r tqdngo u." y g''tcpuetkr vkqp''qh'hqtgki p'y qtf u'cpf ''f khlgtgpv'cr r tqcej gu'vq''tcpurcvkqp0'Dw'r gtj cr u'vj g''o quv'qwuvcpf kpi " u lk''dqvj ''nkpi wkuvkecm{ ''cpf ''uej qncuvkecm{ .''y cu''UJ K, WMKVcf cq'\*398263: 28+''y j q'y tqvg''pkpg''dqqmu''qp''y g'' F wej ''rcpi wci g.''r ctvu''qh'y j kej ''qwej ''qp''tcpurcvkqp''knuwgu.''cpf ''y j q''ku'y kf gn{ ''tgi ctf gf ''cu''y g''ncyj gt''qh''r j {ukeu'' kp''Icr cn0}

Kp"3: 2: "vj g"i khngf "{qwpi "trckpgg" w lk"DCDC" Ucl t "ugwngf "kp" Gf q"cv" vj g" uj qi wpcvgou" qtf gtu. "ukpeg" vj gtg" pq" uej qntu" vj gtg" yj q" eqwnf "cf gs wcvgn ("tgcf "qt" trcpurcvg" Fwej 0" Vj gtg" Dcdc" trcpurcvgf "o cp {"Fwej "i tco o ctu" cpf "vcwi j v" Fwej "vq" Lcr cpgug" uej qntu 0" J g" y cu" cnuq" kp" ej cti g" qh" trcpurcvkpi "vj g" Fwej "xgtukqp" qh" c" Htgpej " gpe {emr gf kc. "wpf gt" vj g" kwrg" M ugk" Uj ko rgp0" Vj ku" trcpurcvkqp. "yj kej "eqo o gpegf "kp" 3: 33. "eqpukuvgf "qh" 92" hcuekengu" cpf "ku" tqdcdn ("vj g" trti guv' pcvkqpcn' vtcpurcvkqp" tqlgev'gxgt" wpf gtvcmpp "kp" Lcr cp. "cnvj qwi j "kv" y cu" pgxgt" eqo r ngvgf 0" Kv" cf qr vgf "cp" ceeguukdng" uv ng" cpf "Dcdc" uqo gvko gu" cf f gf "gzr ncpcvqt {"eqo o gpvu. "cu" f kf" o cp {"u lk" qh" yj g" ko g" qw" qh" c" dgrkgh" y cv" Lcr cpgug" tgcf gtu" ncengf "uwhhkekgpv' hco knctkv {"y ky "yj g" Y guv0" Vj ku" r tqlgev'y cu" wpf gt vcmpp" cv'c" pcvkqpcn' dwt gcw' ugv' wr "d {"vj g" qxgtpo gpv' kp" y cv' {gct "hqt" yj g" vtcpurcvkqp" qh" -dctdctkcp" dqqmnx0" Vj ku" vtcpurcvkqp" dwt gcw. "yj kej "wpf gty gpv' ugxgtcn' pco g" ej cpi gu. "y cu" c" hqtgt wppgt "qh" y crugpy' Wpkxgtukv ("qh" Vqm q0)

Vj g''u lk'cnq''eqo r krgf 'f kevkqpctkgu. 'qhgp''qp''qg'' g''dcuku''qh''gzkukqpi 'f kevkqpctkgu''kp''qqg gt''rcpi wci gu. 'cpf 'qg g'' j grgf 'kp''qg g''eqo r krgkqp''qh''c'F wej /Lcr cpgug'f kevkqpct { "d { "J gpf tkm'F qghh" j gcf "qh''qg g'F glko c''ugwrgo gpv0' Vj g''F qght'J ct wo c. 'qg g''rcti guv'f kevkqpct { "r tqf wegf 'f wtkpi 'qg g'Gf q'r gtkqf .'qg cu''ucq qg r gygf 'qg''c 'F wej qg http:// c''egpwt { "chqg cu''uctqg 0'Dcugf 'qp''c'F wej qg http:// c''pgy 'uvqg''qh''tcpurcvkqp0

#### Qyj gt 'hepi wei gu

Vj g''uj qi wpcvg''j cf 'i tcf wcm{ 'dgeqo g''cy ctg''qh''yj g'pggf ''vq''ngctp''ncpi wci gu''qyj gt''yj cp'F wej 0'

Kp"3: 2: "cp"kpekf gpv'kpxqrxkpi "ý g"Dtkkuj "uj kr "*Rj c guqp*"r tqo r vgf "ý g"uj qi wpcvg"vq"qtf gt "ý g"u *lk*"vq"uwf {" Gpi rkuj ."y j kej "ý g{ 'kpkkcm( "rgctpv'htqo "ý g"F wej 0Kpetgcukpi "eqpvcew"y kej "Twuukc"j ki j rki j vgf "ý g"pggf "vq" rgctp"Twuukcp."cpf "ugxgtcn"u *lk*"y gtg"dcugf "kp"O cuwo cg"kp"pqtyj gtp"J qmmckf q0Dcdc"cnuq"uwxf kgf "Twuukcp"cpf" kp"3: 42. "y j gp"uo cmr qz "y cu"c"ugxgtg"r tqdrgo "kp"Icr cp."j g"tcpurcvgf "c"Twuukcp"dqqm'qp"Igppgtkcp"xceekpcvkqp0' Dcdc"gctpgf "c"tgr wcvkqp"cu"ij g"htuv'Twuukcp"rkpi wkuv"kp"Icr cp"cpf "y cu"ij g"htuv'tcpurcvqt "vq"kpvtqf weg"Twuukcp" rksgtcwtg"vq"ij g"ctgc0Ukpeg"o cp{ "Twuukcp"f qewo gpvu"qh'ij g"vko g"y gtg"y tkvspp"kp"Htgpej ."kp"3: 2: "ý g" cwij qtkkgu"qtf gtgf "j g"u *lk*"vq"rgctp"Htgpej "htqo "F qghf0Rtqdcdn("cv'pq"qy gt "vko g"kp"Icr cpgug"j knvqt {"j cxg" repi wci g"cpf "pcvkqpcn'chhcktu"dggp"cu"kpyty kpgf "cu"y g{"y gtg"kp"y g"gctn("pkpgvggpy "egpwt {"\*Uwi ko qvq" 3; ; 2
4+0Vj g"go r j cuku"kp"tcpurcvkqp"y cu"qxgty j gro kpi n("qp"y qtmu"y cv'y qwrf "j grr "Icr cp"rgctp"htqo "y g" Y guv"cpf "y gtg"y cu"urkm'rkwrg"hkgtct {"tcpurcvkqp"dgkpi "wpf gtvcngp0

Kp"3: 75"Eqo o qf qtg"O cwj gy "Rgtt {"cttkxgf" 'q"r gtuwcf g"Icr cp"\q"uxctv"f kr mo cvke"cpf "eqo o gtekcn"tgrevkqpu" y kij "'y g"Wpkxgf "UvcvguO'Vj ku"rgf "'q"y g"Mcpci cy c"Vtgcv{ "qp"53"O ctej "3: 76="y gtg"y cu"c"f kuetgr cpe { "dgw ggp" y g"Icr cpgug" \tcpurc \tcpurc \tcpurc \tqp" \tep" y g"Gpi nkuj ."F wej "cpf "Ej kpgug" \txgtukqpu." \tuq" \tep g"Icr cpgug" \txgtukqpu." \tuq" \tep g"Icr cpgug" \txgtukqpu." \tuq" \tep g"Icr cpgug" \txgtukqpu." \tep g"Icr cpgug" \txygtukqpu." \tep g"Icr cpgug" \txygtukqpu." \tep g"Icr cpgug" \txygtukqpu." \tep g"Icr cpgug" \txygty g"Icr cpgug" \txygty g"Icr cpgug" \txygty g" \tep kukqpct { ."cpf" y g"F wej /ur gcmkpi "Co gtkecp" f kr mo cv'Cpvqp" Rqtvo cpo Qp" \ty g"Icr cpgug" \txygty g" P cmcj co c'O cplkt "\delta 3: 496; : +" c" \tiy f \txygty tgengf "hkuj gto cp" y j q" j cf "dggp" r kengf "wr "d { "y g"Co gtkecpu" cpf "ur gpv'ugxgtcn" { gctu" kp' y g"Wpkxgf" Uvcygu." y cu'wugf "cu'c'dgj kpf / y g/uegpgu'\tcpurcvqt." y j krg" y g"kpygtr tg\kpi "y cu'f qpg" d { "y g" u lk" J qtk" Vcwwpquwng" cpf "J cwj kuwnq" Vqmwi wo qo'l\p' y g"ugeqpf "tqwpf "qh'\cmu" \quad \text{"y i g" u lk" O qt\k' co c'Gkpquwng0}

Y j gp"y g"hktuv'Co gtkecp"eqpuwrlkp"Lcr cp"o gv'y ky "y g"Lcr cpgug"qhhkekcnu."j ku'Gpi nkuj "y cu'kpvgtr tgvgf "kpvq" F wej "d{"c"F wej /ur gcmkpi "Co gtkecp"cpf "vj gp"tgm{gf "kpvq"Lcr cpgug0Cpqvj gt"r tqo kpgpv'kpvgtr tgvgt"cv'vj g" vko g"y cu'vj g"Gpi nkuj o cp"Ukt "Gtpguv'Ucvqy ."y j q"j cf "uwwf kgf "Lcr cpgug."vj gtgd{"grko kpcvkpi "vj g"pggf "vq"wug" F wej "cu'vj g"eqo o qp"o gf kwo 0'Vj wu'vj g"gpf "qh"Lcr cpøu"kuqrcvkqp"cnuq"ur gmgf "vj g"gpf "qh"vj g"w lkøu"o qpqr qn{" qp"kpvgtr tgvkpi "cpf" "tcpurcvkpi 0

# O glikkRgt lqf '\*3: 8: 63; 34+

Cpqi gt"o clqt"ej cpi g"vqqnir reeg"y kj "ij g"O gklk"T guvqtcvkqp"qh"3: 8: ."y j kej "ucy "ij g"gpf "qh"ij g"uj qi wpcvg"cpf "
yi g"tguvqtcvkqp"qh"ij g"go r gtqt "vq"r qy gt."cpf "wuj gtgf "Icr cp"kpvq"ij g"o qf gtp"ci g0"Vj g"qr gpkpi "wr "qh"Icr cp"
o gcpv"ij cv"o qtg"Icr cpgug"y gtg"cdrg"vq"uwwf {"hqtgki p"repi wei gu"kp"Icr cp"qt"vtcxgricdtqcf ."uq"ij cv"ij gtg"y cu"c"
i tqy kpi "uwr r n( "qh"r gqr rg"ecr cdrg"qh"cevkpi "cu"kpvgtr tgvgtu"vq"o ggv"Icr cpøu"f kr mo cvke. "eqo o gteken"cpf "ewnwten"
pggf u"f wtkpi "ij kui"r gtkqf 0"Vj g"qr gpkpi "qh"ij g"eqwpvt {"cnnq"rgf" "q"c"hrqqf "qh"lo r qtvgf "Gpi rkuj ."Htgpej ."T wulkcp"
cpf "I gto cp"y qtmu"kp"cp"cwgo r v"vq"rgctp"htqo "ij g"Y guv."cpf "ij g"cko "qh"o cp {"vtcpurcvkqpu"kp"ij g"hktuv"f geef g"qh"
ij g"O gklk"r gtkqf "y cu"gf wecvkqpcn"tcvj gt "ij cp"cgunj gvke0"Vj g"tcpurcvkqpu"d {"ij g"tgpqy pgf "gf wecvqt "Hwmvl cy c"
[ wnkej k\*3: 5763; 23+"y j q"cevgf "cu"cp"kpvgtr tgvgt"qp"yj g"hktuv"i qxgtpo gpv"o kuukqpu"vq"yj g"Wpkkgf "Uvcvgu"cpf"
Gwtqr g."y gtg"r ctvkewrctn( "ko r qtvcpv"dgecwug"yj g{"kpvtqf wegf "ij g"ij qwi j v"cpf "kpurkwwkqpu"qh"yj g"Y guv."eqkpgf"
o cp{"y qtf u"vq"gzr tguu"hqtgki p"eqpegr wu"cpf "rckf" "yj g"i tqwpf y qtmihqt"yj g"tcpukkkqp"htqo "yj g"f khtkewn/Ej kpgug"
uv{rg"vq"c"o qtg"ceeguukdrg"xgtpcewrt"uv{rg"\*i qui kcng"3; 7; +0

Cniq"qh"r ct wewict "kphrwgpeg"kp"gprki j wplpi "tgcf gtu"qp"o qf gtp"xcnwgu"cpf "uqekcn"tgrckqpu"y cu"y g"3: 9263" vtcpurckqp"d{ "P cnico wtc"Mgkw"3: 546; 3+"qh"*Ugrh/J grr* "d{ "Uco wgn"Uo krgu0P cnico wtc"o cf g"i tgcv"ghhqtw"\q" o cnig"y gug"uvqtkgu"qh"uweeguu"y tqwi j "j ctf"y qtm"tgcf cdrg. "cf f kpi "pqvgu"vq"gzr rckp"wphco krkct"qdlgewi"cpf" ewivqo u0J g"qo kwgf "qt"uko r rkhkgf"r ctwi"y cv"j g"y qwi j v"y gtg"qh"pq"kpvgtguv"vq"Lcr cpgug"tgcf gtu"qt"y qwrf "j kpf gt" y gkt "wpf gtuvcpf kpi ."cpf "tgo qxgf "egtvckp"tghgtgpegu"vq"Ej tkinkcpkv{."y j kej "eqpvkpwgf"vq"dg"dcppgf "wpvkr"3: 940' Vj g"xgt { "kxrg." "Ucknqriw Thuij k"J gp" "Uweeguu"Uvqtkgu"qh"y g"Y guv+."y cu"cko gf "cv"cwtcevkpi "tgcf gtu."cpf"y ku" vgpf gpe { "vq"uwdurkwwg"go qvkxg. "g{ gecvej kpi "kxrgu"ku"gxkf gpv"kp"o cp { "vtcpurcvkqpu"qh"y g"vko g0P cnico wtc"vtkgf" vq"tgr tqf weg"y g"

y qtf "qtf gt. "r wpewcwqp. "r tqpqwpu"cpf "tgrcwxg"r tqpqwpu"qh'yi g"qtki kpcn"cpf "yi ku'j grr gf "etgcvg"c"pgy "uv(rg"qh" vtcpurcvkqp0'Qvj gt'ko rqtvcpv'pqp/hkevkqp''\tcpurcvkqpu'kpenvf gf 'P cnro vtcøu'\tcpurcvkqp''qh'Iqj p''Uwctv'O kmøu''Qp'' Nkdgt v/ 'kp'3: 93"cpf 'cp'3: : 4"\tcpurc\kqp'd{ 'P cmcg'Ej o kp'\\*3: 6963; 23+"qh'Tqwuugcwøu"\Uqekcn'Eqpvt cevO'Uwej " y qtmu'eqpvckpgf 'o cp{ 'wphco krkct'eqpegr vu.'cpf 'O gklk'vtcpurcvqtu'hqmqy gf 'vj gkt'Gf q'r tgf geguuqtu'kp'wukpi " yj gkt 'mpqy ngf i g''qh''Ej kpgug''vq''eqkp''pgy ''vgto u''qt''vq''wug''gzkuvkpi ''vgto u''kp''c''pgy ''ugpugO'Kpgxkcdn(.''j qy gxgt.'' yj ku't guwngf 'kp'uqo g'f kuvqt vkqpu'cpf 'c'egt vckp'f gi t gg'qh'kpeqo r t gj gpukdkrkv{0 Tghrgevkpi "vj ku'vko g'qh'uqekcn'cpf "r qrkskecn'wr j gcxcn "vj g'3: 996: 8"r gt kqf "ucy "pwo gt qwu'vt cpurcvkqpu "qh'r qrkskecn" pqxgn="o cp{"qh"yi gug"\tcpurc\kqpu"\qqm"i tgcv"nkdgt\kgu"y kj "yj g"qtki kpcn"y qtm"cpf "hqewugf "qp"ku"eqpvgpv"tcyj gt" yj cp"qp"eqpxg{kpi 'ku'nkgtct{ 'hrcxqwt0'Dwry gt"N{ wqpøu'Gtpguv'O cnt cxgt u "y j kej "cr r gctgf 'kp'3: 9; 'wpf gt"yj g" vksrg'\( 'U \to py c'\C'\C'\Ur t\kpi / \to g'\Vcrg'\qh'\Drquuqo u'\cpf 'Y \text{krrqy u+: 'y cu'\tcpurc\vgf 'd{ 'Qf c'\P ky c+'\Lxp\pke j kt " \*3: 7363; 3; +. "y j q"cf f gf "gzr rcpcvqt { "pqvgu"cpf "qo kwgf "r cuuci gu"y j kej "j g"eqpukf gtgf "qh"hkwrg"kpvgtguv"vq"j ku" tgcf gtu0Cnq'pqvcdrg'y gtg'c'ugxgtgn('cdtkfi gf'xgtukqp'qh'Fkutcgrkøu'Eqpkpi ud{'\*Uj wpø vgp="Vj g'Ej ktrkpi 'qh' Ur tkpi "Y ctdrgtu=3::6+"cpf 'vj g'3::7'\tcpurc\kqp'qh'Dwny gt'N{ wqpøu'Tkgp/k''yj g'Ncuv'qh'vj g'Tqo cp'Vtkdwpgu'd{" Vuwdqwej k'Uj { '\*3: 7; 63; 57+0'Vj gug'y qtmu'kpur ktgf 'Lcr cpgug'y tkxgtu'\q'r tqf weg'\j gkt 'hktuv'r qrkkecn'pqxgnx0 Vj g'O gkk'Rgtkqf "cnuq"y kapguugf "vj g"cf xgpv'qh'c"i qnf gp"ci g"qh'nksgtct { "vtcpuncvkqp."cnuj qwi j "kp"vj g"hktuv'f gecf g" yj g'ej qkeg'qh'y qtmu'tcpurcvgf 'y cu'uqo gy j cv'kpf kuetko kpcvg0'Vj g'hktuv'tcpurcvkqp'qh'c''Y guvgtp'hkvgtct{ 'y qtm' j cf "dggp"o cf g"dcemlkp" vj g"Gf q"Rgtkqf" 3: 72+"htqo "c"F wej "tgpf kkqp"qh" Tqdkpuqp" Etwuqgøu" Tgeqtf" qh" Y cpf gt kpi u "cnj qwi j "cpq j gt "xgtukqp"cr r gctgf "kp"3: 79"dghqtg" y ku"y cu'r wdrkuj gf 0[ gv'pgkj gt" j cf "o wej " ko r cev. "wprkng" nevgt "dguv/ugngt" vtcpuncvkqpu "uwej" cu 'vj g"3: 9: "vtcpuncvkqp" d{ "Mcy cuj ko c"Ej pquwng" \*3: 756 3; 5: +"qh"Lwrgu"Xgtpgøu"Ctqwpf "\ij g"Y qtrf"\p"G\i j \forall "Fc{uOVj g"gctn("\tcpurc\gf"\pqxgnu"qh\gp"eqpu\ku\gf"\qh" cdtkf i gf "qt"r ct vkcn" \tcpurc vkqpu" y j kej "hqmqy gf "\y g"r mq\"qh" \y g"qtki kpcn" dw'y gtg" \x gt { "tqwi j 0 P gxgt y grguu." \y g { " qr gpgf 'wr 'pgy 'xkucu'hqt'Lcr cpgug'nkgtcwtg. 'y j kej 'cv'y g'vko g'qh'y g'O gklk'T guvqtcvkqp 'ncengf 'xkcrkv{ 0Gctn{ "  $O\ gklk'ktcpurckqpu''y\ gtg'tgpf\ gtgf\ 'kpvq''Ej\ kpgug.''dgecwug''ercuukecn'Lcr\ cpgug''y\ qwrf\ ''j\ cxg''gxqngf\ ''cuuqekckqpu''$ tgi ctf gf "cu'lpcrrtqrtkcvg'hqt'hqtgki p"y qtmu. "cpf "c"y tkwgp"uv{ ng"ecrcdng"qh"tghngevkpi "vj g"xgtpcewnct "ncpi wci g" ncpi wci g. "j gnr kpi "\q"dt gcmlf qy p"\j g"\tcf kkqpcnlEj kpgug/dcugf "uv{ ng0"Vj wu'\j g'O gklk'r gt kqf "y kxpguugf "c"hwukpi " qh'Icr cpgug. 'Ej kpgug'cpf 'Y guvgtp'uv{ rgu'vq'hqto 'c'pgy 'uv{ rg0 Rqgvt { "y cu'cniq" i tgcvn( "chhgevgf "d { "vtcpurcvkqp0" Vtcf kskqpcn'r qgvt { "eqpukuvgf "qh" y cmc "cpf "j ckmw." y j kej "j cf " uvtkev'eqpxgpvkqpu'eqpegtpkpi 'vj g'pwo dgt 'qh'u{ mcdrgu'wugf . 'cpf 'mpi gt 'htgg'xgtug'f kf 'pqv'gzkm0'Vtcpurcvkqpu'qh' Gwtqr gcp'r qgvt { "cf qr vgf 'pgy 'hqto u'cpf 'vgej pls wguô hqt 'kpuvcpeg." vy q'qh'vj g'36' vtcpurcvgf 'r qgo u'kp" Uj kpvckuj kuj "\*Ugrgevkqp"qh'Rqgvt { 'kp" vj g"P gy "Uv(rg."3: : 4+"o cf g"cp"cwgo r v'cv't j { o kpi ."y j kej "f kf "pqv'gzkuv'kp" vtcf kkqpcn'r qgvt {0'Chvgt 'cdqwv'y q'f gecf gu'qh'gzr gtko gpvcvkqp'kv'y cu'eqpenwf gf 'vj cv'tj {o kpi 'f qgu'pqv'j cxg''  $cp\{''r\ ct\ v''ey'' \ Lcr\ cpgug''' \ Qkncy\ c''3;\ ;\ 6425+0Cnj\ qwi\ j\ ''y\ g''Uj\ kpvc\ kvj\ kvj\ ''y\ cu''etk klek gf\ ''hqt''kvu''ncem'qh''$ r qgvkekv{."kv"o ctmgf "vj g"uvctvkpi "r qkpv"qh"o qf go "I.cr cpgug"r qgvt { "d { "j gm kpi "vq"etgcvg"c"pgy "hqto 0 Chygt '3:: 7 'tcpurcvkqpu'dgeco g'o qtg'rkvgtcri'y cp'kp''y g'gctn{ "{ gctu'qh'gzeguukxgn{ 'htgg''tcpurcvkqp0'kp''y j cv''y cu'' c'tcf kecn'r tappawpego gpv'cv'y g'vko g. 'y g'r tghceg'va'y g'vtcpurcvkap 'qh'Dwny gt'N { wap øu'*Mgpgno 'Ej knkpi n* { '' \*Mgkuj kf cp. '3:: 7+"uvcvgf "vj cv'o gtgn( "eqpxg{kpi "vj g'r myv'y kyj qwv'r c{kpi "cwgpvkqp"vq"vj g"uv{ng"twpu"eqwpvgt"vq" yj g"ctv"qh"nksgtct { "tcpurcvkqp0"Vj g"tcpurcvkqp"\*vj gtg"ku"uqo g"f gdcvg"qxgt"y j q"cewcm( "tcpurcvgf "vj ku"y qtm+" cwgo r vgf 'vq'eqpxg{ 'vj g'hrcxqwt'qh'vj g'qtki kpcn'd{ 'tgrtqf wekpi 'cu'rkvgtcm{ 'cu'r quukdrg'kvu'kf kqo cvke''gzrtguukqpu'' cpf "r gtuqpcn'r tqpqwpu." y j kej "tcf kkqpcm("y gtg"pqv'wugf "kp" Lcr cpgug0 Rtgekugn("dgecwug"pq"cwgo r v'y cu'o cf g" vq'cej kgxg'pcwtcrpguu'qh'gzrtguukqp'qt'vq'cxqkf'wphco krkct'hki wtgu'qh'urggej.''vj ku'vtcpurcvkqp'uj crgf'pqv'qpn{" nevgt "vtcpurevkqpu"dwv"cniq"Icr cpgug"uv{ ng"kp"i gpgtcn0C "rkvgtcn"cr r tqcej "y cu"cniq"cf qr vgf "d{ "Hwcdcvgk"Uj ko gk" \*3:8663;2; +:"cp"qwuvcpfkpi "\tcpurcvqt"qh"Twukcp"rkxgtcwtg0Jku"uwrgtd"\tcpurcvkqp"qh"Vwtigpgxøu"÷Vjg"

Tgpf g| xqwuø'\*htqo "C"Urqt wo cpøu'Ungvej gut-'y cu'r wdrkuj gf "cu''Ckdknk'kp'3: :: 0J g''tkgf '\q''tgr tqf weg'\j g'' qtki kpcn'cu''gzcevn{ "cu'r quukdrg. "gxgp''f qy p''\q''j g''pwo dgt "qh'y qtf u'cpf "\j g''r wpewc\qp. "dw'j ku''wug''qh'' eqmqs wkcn'rcpi wci g''qr gpgf ''pgy ''cxgpwgu''qh'rksgtct { "gzr tguukqp"cpf "j g''tckugf ''\j g''\cum'qh''tcpurc\qp''\q''\j g''rgxgn'' qh''cp''ct\v0

I tef wem(."\j gtg"go gti gf "cp"\p\vgtguv\\p"\nqtgki p"hqtgki p"hkgtewtg"\nt"\ku"qy p"ucng"cpf "cu"c"tghrge\kqp"qh"\j g"hggrkpi u"qh" Gwtqr gcpu0Y guvgtp"r m{u."r ct\kewetn\"Uj cngur gctg\tau"\y qtmu."dtqwi j v'j qo g"\j g"hkgtet{"r qvgp\kcn'qhl"f tco c0' Nkgtet{"r gtqf kecmi'kpvtqf wegf "Gwtqr gcp"hkgtewtg"\p"\tcpurc\kqp."cpf "\tcpurc\kqp."cpf "ktgtewtg"\y cu"\tgi ctf gf "cu" dg\pi "qp"cp"gs wcnlnqv\pi "y kj "qtki kpcn'y qtmu0O cp{"\tcpurc\kqp."cpf "\tcpurc\kqp" kgtu"\j go ugnxgu0Y tkgt/\tcpurc\kqp" uvej "cu"H vcdcvgk'Uj ko gk"\vuvdqwej k'Uj { ."O QTK' i ck\\$3: 8463; 44+"cpf "WGF C"Dkp"\\$3: 9663; 38+"\wtpgf" utcpurc\kqp"\pvq"cp"ct\kur\ke"\nqto "cb gf "cv\tgr tqf welpi "\j g"hrexqwt"qh"Y guvgtp"hkgtet{"y qtmu0Vj gkt"uvtwi i ng"y kj " y g"r tqdngo "qh'ungy kpi "dgw ggp"\j g"uqwteg"cpf "\cti gv\\gz w'uj qqm\tcf kkqpcn'Icr cpgug"hkgtewtg"cpf "\q" pgy "hqto u'qhl'hkgtet{"gzr tguukqp0Vj kn'o gcpv."j qy gxgt."o qxkpi "hwy gt"cy c{"htqo "\j g"Icr cpgug"repi wei g"cpf" rkgtet{"\tcf kkqpu0\f\p"cp"3::9"guwc{"gp\kngf"\dg qp\cm\pq mnnqttqg\p\sy J kp\u"qp"Vtcpurc\kpi +O qtkc"Uj kngp" \\$3: 836; 9+\"\j g"tgpqy pgf "\tcpurc\qt"qh'o cp{"qh'Xke\qt" J wi q\pu"pqxgnu."f knewungf "j qy "hct"\tcpurc\qtu'uj qwf "i q" kp"cunko krc\pi "\j g"qtki kpcn'y qtml\p\qt"tgcf cdng"Icr cpgug0J g"cf xqec\gf "hkgten'\tcpurc\qt"up "\j g"Gpi rkuj "xgtukqp"qh'Iwgu" Xgtpg\pa" ("\phr\py pgp."3::8+\py cu") ki j n\ng0J ki'tg\tcpurc\qp"htqo "\j g"Gpi rkuj "xgtukqp"qh'Iwgu" Xgtpg\pa" ("\phr\py pgp."3::8+\py cu") ki j n\ng0J ki'tg\tcpurc\qp"htqo "\j g"Gpi rkuj "xgtukqp"qh'Iwgu" Xgtpg\pa" ("\phr\py pgp."3::8+\py cu") ki j n\ng0J ki'tg\tcpurc\qp"htqo "\j g"Gpi rkuj "xgtukqp"qh'Iwgu"

Vj g"{gct'3::; 'ucy ''y g'r wdrkecvkqp"qh'\*Qo qmci g*'\*Xguxki gu+"cp"cpyi qmi {"qh'I gto cp"r qgxt {"tcpurcvgf "d{"y g" y tkgt"O qtk" i ck'cpf 'uqo g'eqmgci wgu0Cmj qwi j ''y ku'wugf ''o cp{"tcf kkqpcn'grgi cpv'y qtf u'cpf 'kf gcu."kx'o qxgf " dg{qpf "tcf kkqpcn'hkgtcwxtg"d{"wukpi "c"y kf g"tcpi g"qh'\tcpurcvkqp"o gyi qf u."htqo ''o gtgn{ "eqpxg{kpi ''y g'ugpug'\q" vt {kpi "'q'eqpxg{"y g'ugpug'cpf ''y g'pwo dgt"qh'u{mcdrgu'r gt"hkpg."qt"y g"tj {o kpi ."qt"y g'y qtf kpi "\*Mco gk" 3; ; 6-64+0'Kd'y cu'uweeguuhwn'cu'r qgxt {."dqyi "kp'hqto "cpf 'kp"eqpegr v."cpf 'y cu'c'uqwteg'qh'kpur ktcxkqp'hqt"y g" Lcr cpgug'Tqo cpxke"o qxgo gpv."lwuv'cu'y g"3: ; 6"tcpurcxkqp"qh'\ qrcøu"\textit{pcc}"d{"P ci ck'Mch "\*3: 9; 63; 7; +" ur wttgf ''y g"P cwtcrkuv'o qxgo gpv'kp'Lcr cp0

Dkdrg"tcpurckqp"j cu'dggp"qpg"qh"y g"ng{"tcpurckqp"gpygtrtkugu"kp"Icr cp"gxgt"ukpeg"Z cxkgtøu"cttkxcn"y ky "fkhtgtgpv"xgtukqpu"qh"r ctwi'qh"y g"Dkdrg"dgkpi "tcpurcygf"d{"dqy "Rtqygucpw"cpf"Ecyj qrkeu0"Vj g"tcpurcytu"y gtg" i gpgtcm{"Co gtkecp"o kuukqpctkgu. "wwcm{"y qtmkpi "cu'c"eqo o kwgg"ckf gf "d{"Icr cpgug"tcpurcytu0D{"3:::"yj g" lktwi'tcpurckqp"qh"y g"Dkdrg"y cu'eqo r ngvg. "dw'yj g"P gy "Vguxco gpv'y cu'tgr neegf "kp"3; 39"d{"c"xgtukqp"y j kej " dgeco g"uvcpf ctf "wpkrlc"eqnqs wkcn!Dkdrg"y cu'r wdrkuj gf "kp"3; 77. "hqmqy gf "d{"c"pgy "lqkpv'RtqyguvcpvEcyj qrke" vtcpurckqp"kp"3;:90[ gv'kv'ku'yj g"O gklk'xgtukqp"qh"3:::"y j kej "j cu'y qp"yj g"o quv'r tckug"hqt "kwi'rksgtct{"o gtko0 Cpqyi gt"O gklk'o cuxgtr kgeg"y cu"\*Uqmnf "iyi klkp."O qtk" i ckøu'tgytcpurckqp"htqo "yj g"I gto cp"qh'I cpu'Ej tkukcp" Cpf gtugpøu'\*Wortqxwcvqt gpO'Rwdrkuj gf "ugtkcm{"dgyy ggp"3:;4"cpf"3;23. "kv'ku'eqpukf gtgf"c"ercuuke"qh'o qf gtp" Icr cpgug"hsgtcwtg"cpf "dgwgt"yj cp"yj g"qtki kpcn0" i ck'f kf "pqv'vtcpurcyg"f ktgew(."hqewlpi "lpuxgcf "qp"eqpxg{kpi" yj g'o gcpkpi "ceewtcygn{"cpf "kp"i qqf"Icr cpgugOCnq"pqvgy qtyj {"ku'\*Mckej qp"\*\*Uqwpf "qh'yj g"Vkf g+."y j kej "y cu" vtcpurcyf"d{"Wgf c"Dkp"cpf "cr r gctgf "kp"3;270Wgf cøu"vtcpurcykqpu'qh'Htgpej ."Gpi rkuj "cpf"I gto cp"r qgvt{"j cxg" dggp"ceercko gf "cu"o cuxgt/r kgegu."kpur ktpi "c"i gpgtcvkqp"qh'r qgw0'Vj g"cpyi qnqi {"ku'hwri'qh'ercuukcn'gzr tguukqpu." dw'yj g"tcpurcytqvwgf "kwgf "wywwcn'tj {y o u'uweeguulnwn{0Vj ku'tghrgewi'j ku'xkgy "yj cv'rksgtcn'vtcpurcykqp'ku'pqv'' pgeguuctko["hckyj hwn'vtcpurcykqp0

Kp''3; 35''y g''tcpurcyt''qh''Cty' wt''U{o qpuø''*Vj g''U*{o dqrkw'O qxgo gpv'lp''Nkyt cwt g.''Ky cpq''J o gk'\*3: 9563; 42+" tkgf ''vq''tcpurcyg''gcej ''rkpg''ugr ctcvgn{ ''cpf ''tgvckp''y g''qtf gt''qh''y g''nkpgu0J g''wugf ''pqp/Icr cpgug''ut wewt gu''cpf " gxgp''tkgf ''vq''tgr tqf weg''y g''qtki kpcn'r wpewcvkqp0J ku'r tghceg''uvcvgu''y cv'c''pgy ''nkpf ''qh'y qtf ''qtf gt''ku''pgeguuct { " vq''gzr tguu''pgy ''y c{u''qh''y kpnkpi 0'Vj g''tguwnu''y qtngf ''tgcuqpcdn{ ''y gm'cu'r qgvt { .''cpf ''y g''Icr cpgug''ku''pqv'' r ctvkewrctn{ ''wppcwtcn'\*Mcy co wtc'3; : 3<: +0'Vj g''o quv'qwuvcpf kpi ''tcpurcvgf ''cpyj qmi { ''qh''y g''Vckuj ''r gtkqf '' \*3; 34648+.''j qy gxgt.'y cu''J qtki wej k'F cki cmwou''*I gmnc''pq''kej ki wp*'\*C''O qqprki j v'I cyj gtkpi ."

3; 47±0J qtki wej k'wugf "eqnqs wkcn'hopi wci g'\q"gzrtguu'\j g'ko ci gu'kp'\j g''qtki kpcn'r qgo u. 'to\j gt'\j cp'hqtekpi " yi go '\q'hkv'\j g'\tcf kkqpcn'Icr cpgug'o qwrf 0

# Vj g'ko r cev'qh'vj g'y ct'{ gctu

D{ "y g"3; 42u."pgctn( "cm'qh'y g"o clqt "rksgtct { "y qtmu'qh'y g"y qtnf "j cf "dggp"\tcpurc\gf "kp\q"Icr cpgug."cpf " ko r qtvcpv'y qtmu'y gtg''dgkpi ''tcpurcvgf 'kp''y g''uco g''{ gct''y g''qtki kpcn'y qtm'cr r gctgf 0Vj tgg''uvtcpf u''qh'' vtcpurcvkqp"dgi cp"vq"vcng"uj cr g"htqo "cdqwv"yi g"3; 42u0"Vj g"htuv"eqpukuvgf "qh"uqekcrkuv"cpf "Eqo o wpkuv"rkvgtct {" y qtmu0Icr cpgug"O ctzkuvu"tcpurcvgf "ttgcvkugu"d{"O ctz."Gpi gnu"cpf "Ngpkp."cpf "yj gug"y qtmu"kphrvvgpegf "yj g" rtqrgvctkcp'rkvgtcwtg'o qxgo gpv0Vj g'ugeqpf'uvtcpf'eqxgtgf'uvttgcrkuv'cpf'uvtgco/qh/eqpuekqwupguu'y qtmu." y j krg''y g''y ktf 'eqpukurgf ''qh''Co gtkecp''rksgtct{''y qtmu'\*\*Vcngf c'3; : 5∢69+0J qy gxgt.''y g'tkug''qh'o krksctkuo ''ngf ''vq'' egpuqtuj kr "qh'uqekcrkuv'cpf "Eqo o wpkuv'\tcpurcvkqpuô cpf "vj g"r wdrkecvkqp"qh'dguv'ugmgt "\tcpurcvkqpu'qh'c" dkqi tcr j { "qh'O wuuqnkpk'kp'3; 4: "cpf "cp"gzr wti cvgf "xgtukqp"qh'J kvrgtøu" O gkp'Mcorh'kp'3; 62ê eqo dkpgf "y kj " yj g"gxgpwi'ngcf kpi "wr "vq"Y qtrf "Y ct"Vy q"o gcpv'yj cv'Co gtkecp"nksgtcwtg"f gerkpgf "kp"r qr wrctkx{0 Ej kpgug'r qgvt { "eqpvkpwgf" 'vq"dg" \tcpurcvgf." y kj "Ucv" Jctwq" \cdot3; 86+"dgkpi" \j g"r kqpggt" kp" y ku" hkgrf O'Ucv." y j q'kp'3; 49'\tcpurcvgf "Uj clkpuj". "cp"cpvj qrqi { "qh"6: "r qgo u"d { "hgo crg"Ej kpgug"r qgvu. "y cu"f kuucvkuhkgf "y ksj " yj g"tcfkkqpcn"crrtqcej "qh"tgcfkpi "Ejkpgug"rqgtt{"kp"Icrcpgug0Kpurgcf"j g"tcpurcvgf"etgcvkxgn(."ecrwtkpi "yjg" hrcxqwt "qh" y g"qtki kpcn"r qgo u. "c"o gyi qf "y j kej "uwdugs wgpvn{"dgeco g"r qr wrct "co qpi uv"vtcpurcvqtu0Gxgp"uq." Ucv "eqpvlpwgf" "vq" wug" vj g"hkzgf" hqto "qh" xgtug. "y j gtgcu" J kpcww" M pquwngøu "\*3:; 263; 93+"eqnqs wkcn xgtukqpu" tgpf gtgf "Ej kpgug"r qgvt { "kpvq"o qf gtp"r qgvt { .'hqevukpi "qp"vj g"eqpvgpv'y kyj qwv'dgkpi "eqpuvtckpgf "d { 'vj g'hqto " cpf 'hkzgf 'tj { yj o '\*Mclko c'3; ; 6+0

Icr cpøu'f głgcv'lp''Y qtrf "Y ct"Vy q'dtqwi j v'y g'Cmlgf 'Qeewr cwlqp'hqtegu'\q'ku'uj qtgu.'y ky "c'eqpeqo kcpv'pggf "hqt'lpvgtr tgvgtu'cpf 'vtcpurcvqtu0I gpgtcn'F qwi rcu'O ceCtyj wtøu'ej kgh'lpvgtr tgvgt'y cu'Eqrqpgn'Ulf pg{ 'O cuj dkt." cpf 'O cwwk'Cmltc'ugtxgf 'cu'lpvgtr tgvgt'cv'uqo g'qh'yj g'o ggwpi u'dgwy ggp'yj g'Go r gtqt'cpf 'O ceCtyj wt "cpf 'cv'yj g'' Go r gtqtøu'o ggwpi u'y kyj 'ur gekcn'Co gtlecp'gpxq{ 'Iqj p'Hquvgt'F wmgu'cpf 'O ceCtyj wtøu'uweeguuqt.'I gpgtcn' O cwj gy 'Tlfi y c{0Cv'yj g''Vqm(q''Vtlcn'qh'y ct''etko kpcnu.''qxgt'72.222'r ci gu'qh'vtcpurcwlqp'y qtm'y cu'lpxqnxgf ." y kyj ''c'Ncpi wci g'Ctdlxtcvlqp'Dqctf 'tgur qpukdrg'hqt'twrlpi ''qp'yj qtp{ 'vtcpurcwlqp'r tqdrgo u0Kp'yj g'o kpqt'vtlcnu' uqo g'Icr cpgug'kpvgtr tgvgtu'y gtg'hqwpf 'i wkm{ 'qh'y ct''etko gu'\*Tqrcpf '3; : 4+0

Vj g'gpf 'qh'y g'y ct'wıj gtgf 'kp'c'pgy 'ci g'qh'ytcpurcykqp'wpr tgegf gpygf 'ukpeg'y g'O gklk'T guyqtcykqp.'y ky "

Ler epgug'tgef gtu'nggp'yq'tgef 'y qtmu'y ev'eqwf 'pqy'dg'r wdrkıj gf 'f wtkpi 'y g'y ct0'Vj g''s wepyk\ "qh'ytcpurcykqpu."

j qy gxgt.'y cu'pqy'cny c\u00ed u'o evej gf 'd\u00ed 'y gkt''s werk\u00ed .''epf 'y g''ej qkeg''qh'y qtmu'y eu'eqpytqnrgf 'd\u00ed 'y g''Qeewr cykqp''

cwij qtkykgu0'Dqqmu'y ev'etkkek gf 'y g''Wpkgf ''Uvcygu''qt''r tekugf 'y g''o krket \u00ed 'y gtg''uwr r tguugf .''y j krg''ytcpurcykqpu''

qh'er r tqxgf 'y qtmu'y gtg''qhygp''i kxgp''hpepeken'uwr r qtv'\u00ed Uev '3; : 9+0F wtkpi 'y g'y et.''y g'Ier epgug''ewj qtkygu''

j ef ''deppgf ''4.342'hqtgki p''dqqmu''epf ''r gtkqf keen.''o ep\u00ed "qh'y j kej ''tgr qtygf ''qp''Ej kpgug''tgukurepeg''yq'y g''

Ler epgug0'Dguv'ugnkpi ''ytepurcykqpu''kpenxf gf ''Vgp''[ getu'kp''Ler ep''d\u00ed ''e'hqto gt''Co gtkeep''eo deuwef qt''yq''Ler ep.''

I gqti g''Qty gmxu''Cpko en'Heto .''epf ''Vj g'Fket\u00ed ''qh'Cppg''Htepn0

Kp''3; 82" y g''tcpurc vqt 'Kv ''Ugk'cpf ''y g''r wdrkuj gt ''qh'F (J 0)Ncy tgpegøu''Ncf { 'Ej cwgt ng{φu'Nqxgt ''y gtg''ej cti gf ''hqt'' tcpurc vkpi .''r wdrkuj kpi ''cpf ''f kuxtkdwkpi ''y ku''y qtm''y j kej ''y cu''cmgi gf ''vq''eqpvckp''qduegpg''r cuuci gu0'C ''uko kret'' ukwc vkqp''qeewttgf ''y kyj ''y g''O cts wku'f g''Ucf gøu''Lwkgwg0'Vj g''3; 82u''cnuq''ucy ''y g''tcpurc vkqp''qh''wtdcp''Co gtkecp'' Lgy kuj ''rksgtcwtg''cpf ''drcem'rksgtcwtg.''cnj qwi j ''kpvgtguv'kp''tcpurc vf ''rksgtcwtg''y cpgf ''uqo gy j cv.''vq''dg''tgr reegf '' vq''c''rcti g''gz vgpv'kp''y g''3; 92u''d { ''tcpurc vkqpu''qh''-j qy / vqø''dqqmu''cpf ''pqp/hke vkqp''y qtmu''cdqwv''Co gtkecp'' o cpci go gpv'o gyj qf u''qt ''cdqww''Lcr cp''cpf ''kwu'tkug''cu''c''rgcf kpi ''geqpqo { ''\*Y kmkpuqp''3; ; 2+0Ugxgtcn''-eqo r ngvg'' y qtmuø''tcpurc vkqpu.''cu''y gm'cu''tcpurc vkqpu''kp''y g''hkgnf ''qh''r qr wrct ''gpvgt vckpo gpv''uwej ''cu''y g''J c { c/mcy c'' o { uvgt { ''cpf ''uekgpeg''hke vkqp''ugtkgu.''cnuq''dgi cp''vq''cr r gct0}

P qy cf c{u'dguv'ugngt'hkwu'lp'Icr cp''cm quv''cny c{u'lpenwf g''uqo g''tcpurcvkqpu.''cpf ''tcpurcvgf ''dqqmu''\*o quvn{" htqo ''Gpi rkuj .''Htgpej ''qt''I gto cp+''ceeqwpv'hqt''o qtg''y cp''32''r gt''egpv'qh''cm'dqqmu''r wdrkuj gf ''gcej ''{{gct0'Qyj gt'' i gptgu''lp''y j lej ''tcpurcvkqp''j cu''r rc{gf ''c''o clqt''tqrg''lpenwf g''hkro ''f wddlpi ''cpf ''uwdvkvrlpi .''y g''tcpurcvkqp''qh'' n{tleu''cpf ''ej krf tgpøu''dqqmu.''cpf ''y gtg''ku''i tgcv'f go cpf ''hqt''yej plecn''tcpurcvkqpu0

#### Vj gqt{'cpf'tgugctej

Vj gtg'ku'c'hcti g''dqf { "qh'Icr cpgug''y tkkpi "qp''tcpurckqp."dw'Icr cpgug''y tkgtu''ctg'hcti gn{ 'wpces wckpvgf 'y ky "Y guvgtp''y tkkpi "qp''tcpurckqp''cpf 'kpvgtr tgvkpi ''y gqt { 0'Vj ku'o c { ."j qy gxgt."j cxg''cmqy gf ''y gkt'kf gcu''q''f gxgmr "cmpi 'kpf gr gpf gpv''ej cppgnu0'Cny qwi j 'Icr cpgug'y tkxgtu''j cxg''pqv'f gxgmr gf ''c'hwn{ /hrgf i gf ''y gqt { ''qh'' vcpurcvkqp."r tghgttkpi ''f kuewuukqpu''qh''ur gekhke''y qtmu''cpf 'r tqdrgo u''vq''cduvtcev''y gqtk kpi .''y gtg''ctg''ugxgtcn'' f krvkpev''vcpurcvkqp''vtcf krkqpu''kp''Icr cp.''rcti gn{ ''f khhgtgpvkcvgf ''d { ''y gkt''r qukkqp''qp''y g''kuuwg''qh''y j gy gt''qt''pqv'' vcpurcvkqpu''uj qwrf ''cevkxgn{ ''vcpuhqto 'Icr cpgug''rcpi wci g''cpf ''uv{ rg0}

Pqi co k'Vq{qkej kt '\*3::563;72+"cf xqecygf "c"-o qpqej tqo cykeø'cr r tqcej "y j gtgd{"pq"r ctykewrct "cwgo r v'ku" o cf g"vq"tgr tqf weg"vj g"vqpg"cpf "uv{ ng"qh"vj g"qtki kpcn0J g"uwi i guvgf "vj cv"vtcpuncvkqpu"uj qwrf "uqwpf "hqtgki p"uq"cu" vy kpytqf weg htguj "gzrtguukqpu"cpf hqto u'kpyq" y g'ncpi wci g0P qi co k'cnuq go rj cukt gf 'y g'ko rqt wpeg qh' ej qqukpi 'y j cv'vq''tcpurcvg''dcugf ''qp''y j gvj gt''qt''pqv'kv'y qwrf ''eqpvtkdwg''vq''Lcr cpgug''ewnwtgô c''tgewttkpi ''vj go g'' y ky "o cp{ "Icr cpgug"y tkgtu"qp"\tcpurc\kqp0Qyj gt"cf xqecvgu"qh":hqtgki pk kpi ø'\tcpurc\kqpu"\u00e4ugg"\u00e4UTCVGI KGU" <u>QH'VTCP UNCVKQP</u> +'kpenxf g'Knwc'Ej m '\*3: : 463; 58+'kp'j ku''{qwj .''Mqo k{c''Vq{qvcnc'\*3: : 663; 88+'cpf'' Mey co qtk'[ quj k '\*3; 24/+0'Vj gug'cti wo gpw'ctg'deugf 'qp''y g'kf ge''y ev'nepi wei g'ku'eqpvkpwem{ 'gxqrxkpi 'epf'' yj cv'yj g'kpkkcm("cy my ctf "uv(ng"qh'uwej "tcpuncvkqpu"etgcvgu"c"pgy "v(rg"qh'ncpi wci gô uwej "gzrtguukqpu"cpf" uv{ rg'o c{ 'kpkkcm( 'uj qem'dw'kh'yj g{ 'j cxg'rkvgtct { 'o gtk/'yj g{ 'y km'gxgpwcm( 'dg'cf qr vgf 0 Kpgxkcdn(.'j qy gxgt.''tcpurc√kqpu''y cv'y gtg"≟rckj hwnø'\q''y g''qtki kpcn'kp''cp''cwgo r v'\q''etgcvg''c''pgy ''uv{ng''o gv'y ky " tgukuvcpeg'htqo "r gqr ng"y j q"tgi ctf gf "vj ku"cr r tqcej "cu"f gvtko gpvcn"vq"vj g"Icr cpgug"ncpi wci g0"Uwej "y tkxgt/ vtcpurcvqtu'cu''Wej kf c'Tqcp'\*3: 8: 63; 4; +: "Vuwdqwej k'Uj { .'I cugi cy c'Hwcdcvgk'cpf 'O QTK' i ck'cf xqecvgf " tgy tkkpi 'hqtgki p'y qtmu'kpvq'pcwtcn'Icr cpgug0'Vj g'y tkxgt''Vcpk| cmk'Lvxpøkej kt '\*3:: 863; 87+'y cu'eqpegtpgf 'vj cv' yj g'kpvtwukqp"qh"Y guvgtp"y tkklpi "y qwrf "rgcf "vq"yj g"f go kug"qh"vtwn( "Icr cpgug"y tkklpi 0J g"etkklek gf "-vtcpurcvkqp/ uv{ rgø'lcr cpgug'kp'j ku'*Dwpuj 'Vqmwj qp*'\*3; 82+ô cnyj qwi j 'j ku'qy p'y tkkpi 'y cu'j gcxkn{ 'kphnwgpegf 'd{ 'Gpi nkuj .'' ercko kpi ''y cv'\tcpurc\kqpu'kp'Icr cp''ctg'f khhewn'\q''wpf gtuvcpf 'wprguu'qpg'ku''crtgcf { 'hco krkct'y kj 'hqtgki p'' nepi wei gu0'Vj g'P qdgn'r tk g/y kppkpi 'ewj qt'Mey edeve'[ cuwpetk'\*3: ; ; 63; 94+'tgi etf gf '\tepurevkqpu'eu'yj g' gpgo { "qh" + wtg" hkgtcwtgø'cpf "dgrkgxgf" y cv' y g{ "eqpurkwyg" c' y tgcv' y 'Icr cpøu 'ewnwtcri kf gpvkv{0 [gv. "crtgcf { "d { " ctqwpf "3; 57" \* wtgo "Icr cpgug" j cf 'hcti gn ("f kucr r gctgf ."cpf 'vj gtg" j cf "go gti gf "c"pgy "y tkwgp 'hcpi wci g"y j kej " cduqtdgf 'y g'kphrwgpeg'qh'Y guvgtp'rcpi wci gu'tcy gt'y gnO

Vqf c{"ȳ g'iksgtcn'cr r tqcej 'uggo u'vq'dg'ȳ g'o qtg'r qr wæt'hqto 'kp'Icr cp."cpf 'htgg''tcpuævkqp'ku'i gpgtcm{" eqpukf gtgf 'kp'c'tcyj gt'pgi cvkxg'iki j v0J qy gxgt."wprkmg'ȳ g'-pgq/rksgtcnkuo ø'qh'uwej ''tcpuævqtu''cu'P qi co k'' y j kej ''cko gf ''cv''gptkej kpi ''ȳ g'Icr cpgug'hqt ''-ikf grkx{ ø'vq'ȳ g''qtki kpcn'ku''dcugf ''uko r n{ ''qp'ȳ g''dgrkgh'ȳ cv'rksgtcn'' vcpuævkqp''gs wcvgu'y kȳ 'hckȳ hxn'vtcpuævkqp0Vȳ gtg'ku''cnq''eqpukf gtcdrg''vqrgtcpeg''qh'rksgtcn'vtcpuævkqp''qp''ȳ g'' rctv'qh'tgcf gtu."y j q''j cxg''nqpi ''dggp''ceewuvqo gf ''vq''c'hqto ''qh'Icr cpgug'y j kej ''ku''j gcxkn{ ''kphrwgpegf ''d{ ''Ej kpgug." cpf ''y j q''gzr gev''vtcpuævkqpu''vq''dg''wpkf kqo cvke0C''hxty gt'hcevqt''ku'ȳ g''r tcevkeg''kp'Icr cpgug'uej qqnu'qh'wukpi '' rksgtcn'vtcpuævkqp''cu''c'o gcpu''qh'hgctpkpi ''Gpi rkuj ''i tco o ct."c''j cdkx'y j kej ''ku''ecttkgf ''ȳ tqwi j ''kpvq''ȳ g'' rtqhguukqpcn'hkhg''qh''vtcpuævqtu0

Dqqmi'qp''tcpurcvlqp''lp''Icr cp'hcmllpvq''y q''dtqcf 'ecvgi qtkgu<'cecf go ke''y qtmi''y cv'cf qr v'cp''cr r tqcej ''dcugf ''qp'' eqo r ctcvkxg''rksgtcwtg. ''cp ''o qtg''r qr wrct''y qtmi''uwej ''cu''-j qy /vqø''dqqmi''cpf ''gzco kpcvkqpu''qh'o kintcpurcvlqpu0' O cp{ ''y qtmi''j cxg''untqpi ''uqekqrlpi wkinke''qxgtvqpgu. ''hqewikpi ''qp''ewnwtcri'f khlgtgpegu''dgwy ggp''Icr cp''cpf ''y g'' Y guv''cu''o cpkhguv'kp''rcpi wci g0'Nkpi wkinke''uej qrctu''kp''Icr cp''j cxg''r ckf ''uecpv'cwgpvlqp''vq''tcpurcvlqp. ''cpf'' tcpurcvlqp''y gqt { ''ku''pqv'tgi ctf gf ''cu''c''f kuekr rkpg''kp''ku''qy p''tki j v0

Qp"\j g"lp\vgtrtg\lpi "\uld g."\j g"3; ; 2u"j cxg"\y kpguugf "\j g"lktuv\\gp\c\kxg"\dw'rtqo kulpi "tgugctej "lp\vq"lp\vgtrtg\lpi "lp" Icrcp. "rct\lewctn\"\j g"eqi pk\kxg"cur ge\ulo c'hqe\ul'y j lej "ku"lp"\uj ctr "eqp\tcuv\\q'\j g"rtqf \we\qtkgp\vgf "crrtqcej "qh"Icrcpgug"\y tk\lpi "qp"\tcpurc\lqp0\"\y j ku"tgugctej "ku"dg\lpi "eqpf \we\vgf "d\{ "o go dgtu"qh"\y g"f\vgtrtg\lpi "Tgugctej "Cuuqekc\lqp"qh"Icrcp."\y j lej "y cu"hq\wpf gf "\lp"3; ; 2."cpf "d\{ "uqo g"tgugctej gtu"cv'\y g"P c\lqpcn'Icrcpgug"\ncpi \wc g" Tgugctej "I\p\uk\wxg0"

Vj g'hcev'vj cv'Lcr cpgug'ku'c'pqp/Gwtqr gcp'hcpi wci g'wugf 'kp'c'pqp/Y guvgtp'ewnwtg'o gcpu'vj cv'vj gtg'ku'r qvgpvkcn' hqt'c'uki pkhecpv'eqpvtkdwkqp'vq'vtcpurcvkqp''cpf 'kpvgtr tgvkpi 'uvwf kgu'd{ "Lcr cpgug'r tcevkkqpgtu'cpf 'uej qrctu'htqo " c'uqo gy j cv'f khhgtgpv'r gtur gevkxg. 'r gtj cr u'r tqxkf kpi 'pgy 'kpuki j w'kpvq'uqo g'r gtgppkcn'kuuwgu'qh'vtcpurcvkqp'' uvwf kgu0

### Qti cpk/cvkqp'qh'\j g'rtqhguukqp

Vtcpurcvkqp'lkp'Icr cp'j cu'dgeqo g'lkpetgculpi n{ "r tqhguukqpcnk| gf "lkp"tgegpv"{ gctu. "y kij "ugxgtcn'vtcpurcvqtuø" qti cpk| cvkqpu. "vtclpkpi "kpurkwwkqpu"cpf "lqwtpcni"cko gf "cv'cur ktkpi "vtcpurcvqtu"cpf "lkpvgtr tgvgtu0'Vj g'Icr cp" Uqekgv{ "qh"Vtcpurcvqtu"y cu'hqwpf gf "lkp"3; 56"cpf "eqo r tkugu"o quvn{ "rkvgtct { "cpf "cecf go ke"vtcpurcvqtu0'Vj g"Icr cp" Vtcpurcvkqp "Uuqekcvkqp. "kpeqtr qtcvgf "lxp"3; : 8. "eqpukvu"qh"dqyj "eqtr qtcvg"cpf "lxpf kxkf wcn'o go dgtu. "cu'f qgu'yj g" Icr cp" Vtcpurcvkqp "Hgf gtcvkqp. "hqto gf "lxp"3; : 30"Vj g'P cvkqpcn"Vtcpurcvkqp "Kpurkvwg"qh"Uekgpeg"cpf "Vgej pqmi { ." y j kej "y cu'hqwpf gf "kp"3; 88."j cf "cdqwv'35.222"o go dgtu"kp"3; ; 7. "cf o kwgf "qp"yj g"dcuku"qh'uweeguu"kp"yj g" Nkegpugf "Vgej pkecn"Vtcpurcvqtuø'S wcnkhecvkqp"vguv0'Vj g"Icr cpgug"ctg"co qpi uv'yj g'y qtnf øu'ngcf gtu'lxp" f gxgqqr kpi "o cej kpg'vtcpurcvkqp0

Vy q"gxgpvu" yi cv"u{o dqrk gf "yi g":eqo kpi "qh"ci gø"qh"kpvgtrtgvkpi "kp"Lcrcp" y gtg"kpvgtrtgvkpi "f wtkpi "yi g"3; 86" Vqm(q"Qn(o r keu"cpf "yi g"uko wncpgqvu"kpvgtrtgvkpi "qp"vgngxkukqp"f wtkpi "yi g"ncpf kpi "qp"yi g"o qqp"d{"Co gtkecp" cuvtqpcwu0"kpvgtrtgvkpi "kp"Lcrcp"vqfc{"ku"c"j ki j n{"ur gekcrk gf "r tqhguukqp." y kij "ur gekcrkuv"kpvgtrtgvgtu"kp"yi g" y j qrg"ur gevt wo "qh"kpvgtrtgvkpi "vcumu. "htqo "vqwt"i wkfg"kpvgtrtgvkpi "vq"rkckuqp"kpvgtrtgvkpi ."dtqcfecuv"kpvgtrtgvkpi "cpf"eqphgtgpeg"kpvgtrtgvkpi 0

# Hwt vj gt 't gcf lpi

Dgmmw'3; ; 6="I qqf o cp'3; 89="Mco gk'3; ; 6="Mcv '3; 9; ."3; : 5c."3; : 5d="Mcy co wtc"3; : 3."Mggpg'3; : 9="Tqrcpf '3; : 4=" Uwi ko qq'3; ; 2="Vcngf c'3; : 5="[ cpcdw'3; : 5="[ quj kcng'3; 7; 0

O CUCQO KIMQPFQ'CPF'LWF[ "Y CMCDC[ CUJ K

## Dkqi tcrj kgu

DCDC'Ucl t "\*39: 963: 44+0 Kp"3: 2: .'y j krg"urkm'c" { qwpi "trckpgg." Dcdc"dgeco g"tj g"hktuv" F wej "trcpurcyt 1 kpygtr tgygt" kp" Lcr cp" 'vq" dg" dcugf "kp" tj g"ecr kcn' Gf q" \*r tgugpv f c { "Vqm (q+"tcyj gt" tj cp" kp" P ci cucn k0 Qpg" qh" tj g" o quv" i khygf "hkpi wkuxu" qh" tj g" wko g." ur gcmkpi "dqtj "F wej "cpf" Twuukcp." j g" y cu" tj g"ng { "hki wtg" kp" Gf q" kp" tcpurcykpi " uekgpykhke" y qtmu. "kpygtr tgykpi "kp" f kr mo cyke" pgi qykcykqpu" cpf "ygcej kpi "hqtgki p" ncpi wci gu0 Dcdc" y cu" kp" ej cti g" qh" tj g"

pgy n{/guvcdrkuj gf 'pcvkqpcrlkpuvkvvvkqp'hqt'\tcpurcvkqp''cpf 'r rc{gf 'c'rgcf kpi 'tqrg'kp'\tcpurcvkpi 'vj g'*M ugk'uj ko r gp*'' \*P gy 'Xqnvo gu'hqt''yj g'Rvvdrke''Y grlctg+'gpe{enqr gf kc0

OQTKQi ck\*3: 8463; 44±i gpgtcm("npqy p"cu"Qi cl0P qxgrkuv."etkke"cpf "r tkpekr cn'tcpurcyqt"qh"Qo qmci g"

\*Xgurki gu."3: : ; +"cp"cpyi qmqi {"qh"o qurn("I gto cp"r qgvt {."tgi ctf gf "cu"yi g"o ckp"kpur ktcvkqp"hqt"yi g"Lcr cpgug"

Tqo cpvke"o qxgo gpv0Qi ck'y cu"cmq"yi g"hktur'vq"kpvtqf weg"yi g"Ko r tguukqpkuru"vq"Icr cp"yi tqwi j "ttcpurcvkqp0J ku"

vtcpurcvkqp"qh"J cpu"Ej tkurkcp"Cpf gtugpøu"Ko r t qxkuc vqt gp. "r wdrkuj gf "ugtkcm("dgwy ggp"3: ; 4"cpf "3; 23"wpf gt"yi g"

vkxrg"Uqmn( "tij klkp."ku"tgi ctf gf "cu"gxgp"dgwgt"yi cp"yi g"qtki kpcn0Qi ck"hqewugf "qp"eqpxg{kpi "yi g"o gcpkpi "

ceewtcvgn("kp"i qqf "Icr cpgug."cpf "cf f gf "y qtf u"cpf "tgo qxgf "ugevkqpu"qh"yi g"qtki kpcn'vq"kpetgcug"yi g"ko r cev'qt"

cei kgxg"c"eqpekug'uv{ng0}

O QVQMKI quj kpci c'\*39576; 6+0°Cf qr vgf 'kpvq'c'hco kn{ ''qhi'vtcpurcvqtu'kp'P ci cucnk 'O qvqnk'[ quj kpci c'ku'' hco qwu'hqt'j ku'vtcpurcvkqpu''qh'F wej 'y qtmu''qp''cuvtqpqo { .'y j kej 'kpvtqf wegf ''y g'Eqr gtpkecp''y gqt { 'kpvq'Icr cp0' Kp'Y ci g't gki qp'\*Gzr rcpcvqt { ''P qvgu''qp''Vtcpurcvkqp+''c''eqo o gpvct { ''cr r gpf gf ''vq''qpg''qh'j ku'vtcpurcvkqpu.''j g'' f kuewuugf ''vtcpurcvkqp''r tqdrgo u''cpf ''o gyj qf qrqi { .''r tqf wekpi 'y j cv'y cu'r tqdcdn{ ''Icr cpøu'hktuv''eqj gtgpv''guuc { ''qp'' vtcpurcvkqp''o gyj qf u0}

UJ K WMKVcf cq'\*icvgt'PCMCPQ'T{ j q='398263: 28+0Uj k wnk'Vcf cq'y cu'cf qr vgf 'kpvq''y g'hco qwu'Uj k wnk' hco kn{ "qh'F wej "tcpurcvqtu'kp'Icr cp"cpf "dgeco g'pqv'qpn{ "cp"qwuvcpf kpi "tcpurcvqt"qh'pqp/hkevkqp'y qtmu." yi gtgd{ "kpvtqf wekpi "Y guvgtp'mpqy ngf i g'vq'Icr cp."dw'cnuq''c'ngcf kpi "uej qnct0U g'y cu'y g'htuv'Icr cpgug" vtcpurcvqt "vq"u{ uvgo cvkecm{ "cpcn{ ug''y g'F wej "ncpi wci g."cpf "qpg"qh'j ku'pkpg"dqqmu''qp'F wej 'htpi wkuvkeu'eqxgtu" vtcpurcvkqp0U g'i cxg''wr "vtcpurcvkpi 'hqt'j gcnyi "tgcuqpu."j qy gxgt."cpf "ej cpi gf "j ku'pco g'vq'P cncpq'T{ j q0'K'' y cu''qpn{ "r quvj wo qwun{ ."cu''c'tguwnv'qh'uwr r ngo gpvct{ "gzr ncpcvkqpu''cf f gf "d{ "j ku'uwnf gpvu."yi cv'j ku'y qtnieco g'vq'' dg'wpf gtuvqqf "d{ "uej qnctu'qh'vj g'vko g0

WGF C'Dlp'\*3: 9663; 38+0Wgf c'Dkp.'y j q'r wdrkuj gf 'j ku'hktuv'tcpurcvkqpu'cv'y g''ci g''qh''gki j vggp.'ku''dguv'mpqy p'' hqt''kpvtqf wekpi ''Htgpej ''U{o dqrkuv'r qgvt { ''q'Icr cp''kp''j ku''*Mckej qp*''\*Vj g''Uqwpf ''qh''y g''Vkf g.'3; 27+0J ku'' vcpurcvkqpu''ctg'hct'htqo ''dgkpi ''rkvgtcn''dwv''j ku''tghkpgf ''ercunkecriIcr cpgug''uweeguuhwn{ ''gxqngf ''y g''o qqf ''qh''y g'' qtki kpcri'r qgo u0'Cny qwi j ''j g''cnuq''vcpurcvgf ''Gpi rkuj ''cpf 'I gto cp''r qgvt { .''kv'y cu''j ku''vcpurcvkqpu''qh''Htgpej '' U{o dqrkuv'r qgvt { ''y cv'j cf ''y g''o quv'ko r cev'qp'Icr cpgug''r qgvu''cpf ''vcpurcvqtu''qh'r qgvt { 0

OCUCQOKMQPFQ'CPF'LWF[ 'Y CMCDC[ CUJ K

# N

# Newp'tt cf kskqp

Ncvlp'ku''y g''rcpi wci g''qh''cpekgpv'Tqo g''cpf ''y g''cpeguvqt''qh'o qf gtp'Tqo cpeg''rcpi wci gu''uwej ''cu''Ur cpkuj ''cpf ''
Htgpej 0'Vj tqwi j qw''y g'O kf f rg'Ci gu. 'kv''ugtxgf ''cu''y g''rcpi wci g''qh''uekgpeg. ''r j krquqr j { .''y gqrqi { ''cpf ''qy gt'' ctgcu''qh''npqy rgf i g0'Wpvkrlhcktn{ ''tgegpv''vko gu. ''mpqy rgf i g''qh'Ncvlp''y cu''eqpukf gtgf ''c'r tgtgs wkukg''vq''cp{ ''rkdgtcrl' gf wecvlqp. ''cpf ''f gur kg''y g''cro quv''gzenwukxg''wug''qh''xgtpcewrct''rcpi wci gu''kp''kuu''tghqto gf ''rkwti kgu. ''Ncvlp''ku''urkrrl' y g''qhhkekcrl'rcpi wci g''qh''y g''Tqo cp''Ecyj qrke''Ej wtej 0'Cu''Ncvlp''tgo ckpgf ''y g''f qo kpcpv''ewnwtcrl'rcpi wci g''qh'' Y guvgtp''Gwtqr g''wpvkrl'y g''gpf ''qh''y g''gki j vggpy ''egpwt{ .''vtcpurcvlqp''kpvq''Ncvlp''j cu''r rc{gf ''c''uki pkhkecpv'tqrg''kp'' uj cr kpi ''Gwtqr gcp''ewnwtg0

## Tqo g'\*vj ktf 'egpwt{ 'DE'vq'hkvj 'egpwt{ 'CF+

F wtkpi ''y g''y ktf 'egpwt { ''DE. 'Tqo cp''uqrf kgtu''y j q''y gtg''tgr cvtkcvgf ''chvgt''i cttkuqp''f w{ 'kp''y g''I tggm'Gcuv'y gtg''

#### Encurrent Tqo g

eqo kpi "dcem'vq" Tqo g"y kyj "c" vcuvg" hqt" I tggm'co wugo gpwu. "r ctvkewnctn ("vj gcvtg 0 Gpvgtr tkukpi "y tkvgtu" cf f tguug f" yj ku'pggf 'd{ 'wukpi 'htgg'\tcpurc\kqp''cpf 'cf cr vc\kqp'htqo 'I tggm'uqwtegu0'Vj g'hktuv'qh'\yj gug'\tcpurc\qtu'y cu'' NKXKWU'CP FTQP KEWU'\*e04: 76426'DE+'y ksj 'c'Ncvkp''xgtukqp''qh''y g''Qf {uug{ '\*472''DE+'cpf 'c''pwo dgt''qh''r rc{u'' eqo o kuukqpgf 'hqt''y g'Tqo cp'I co gu'qh'462'DE0I pcgwu'Pcgxkwu'\*e0492óe03; ; 'DE+''vtcpurcvgf 'ugxgtcn'I tggm' r m {u'cdqwi'y g''Vtqlcp''Y ct. 'r wdnek kpi ''y g'ngi gpf ''y cvi'y g'Tqo cpu'y gtg'f guegpf gf 'htqo 'y g''Vtqlcpu'y j q'hngf " y ky 'Cgpgcu0'Vj g'hcy gt 'qh'Ncylp'nkygtcwrtg. 'S wybwu'Gppkwu'\*45; 638; 'DE+.''y qwi j 'o quv'hco qwu'hqt'j ku' Cppcrgu. "cnuq" tcpurcvgf 'hqt" y g" y gcvtg0" Y j gtg" Nkxkvu' j cf "y qtngf "qp" eqo o kuukqp. "Gppkvu' y qtngf "wpf gt" y g" r cvtqpci g"qh"Uekr kq"Cht kecpwu" y g"Grf gt." y j q"j cf "eqps wgtgf" Ect y ci g. "cpf" O ctewu Ecvq. "mpqy p"cu" y g" Egpuqtø0'Vj g''tcf kkqp''qh''tcpurckqp''htqo 'I tggm'yj gcvtg''y cu''eqpvkpwgf ''d{ ''Gppkwuøu'pgrj gy .''Rcewxkwu'\*\*e04426 352"DE+"y j q"r rc{gf "c"ngcf kpi "tqng"kp"wtpkpi "Ncvkp"kpvq"c"nkvgtct{"ncpi wci g."cpf "d{"Ecgekrkwu"Ucvkwu" \*f 088: " DE+"tgi ctf gf "cu"yj g"i tgcvguv"eqo ke "y tkvgt "qh"j ku "vko g"\*Y knkco u"3; 8: 58568+0 Cný qwi j "ý g"o clqtk{ "qh'gctn{ 'y qtm'j cu'dggp 'nquv.'y g'f q'j cxg'c 'eqpulf gtcdng'dqf { "qh'r nc { u'htqo "ý g''y q''o quv'' hoo qwu''qh''y gug''gctn{ 'f too cykuxu.''Rrcwxxu''\*f 08: 6''DE+''cpf 'Rwdrkxu''Vgtgpykxu''Chgt.''npqy p''cu''Vgtgpeg''\*A3; 26A 37; "DE+0Rrcwwu"cpf "Vgtgpeg"ctg"r tqdcdn( "vj g"y qtnf øu hktuv eqo o gtekcn'n kytct ( 'tcpurc vqtu 0 Vgtgpeg øu" r tqf wevkqpu'y gtg'dcugf ''qp''y g'I tggm'r nc{u''qh''O gpcpf gt''cpf ''Cr qmqf qtwu''qh''Ect{uwu0J g''y cu''c''uqo gy j cv'' eqo r qukpi "c"\gzv"j g"qhvgp"eqo dkpgf "\tcpurcvgf"r cuuci gu"htqo "ugxgtcn"I tggm'qtki kpcnu0Cm'qh'vj gug"Tqo cpu" cf cr vgf 'htggn( 'hqt'c'Tqo cp''cwf kgpeg''qh''eqctugt''vcuvgu''vj cp''vj g''qtki kpcn'I tggm'cwf kgpegu0 Kp"yj g"egpwt { "hqmqy kpi "Vgtgpeg."yj g"I tggmu'kpvtqf wegf "tj gvqtke"vq"Tqo g."cpf "vtcpurcvkqp"y cu'pqy "vcngp"vq"dg" c'dtcpej 'qh'tj gvqtke0'Vj gtg'ku'pq'tgeqtf 'qh'vtcpurcvkqp'htqo 'qvj gt'hcpi wci gu0'Vj g'i tgcvguv'ci g'qh'Tqo cp'rkvgtct{" vtcpurcvkqp"dgi cp'y kj "c''tcpurcvkqp"qh'J qo gt"d{ "vj g"qvj gty kug"qduewtg'y tkgt. "O cvkvu'\*cdqw'322"DE+"cpf" mungf "wpnkhing g"o kf f ng "qhing g"hktun egpwat { "CF 0"Vj ku"ci g"ugn g"ntcf kakqp"y j kej "mungf "y gmikpnq" i g"ny gpnkgyj " egpwt { "qh" \tgc\kpi "\tcpurc\kqp"cu"c" hkgtct { "crrtgp\keguj kr0 Coqpi" \jg" i tgc\v" pcogu"cuuqekc\gf" \ykj "fgxgrqrkpi" c'\twn{ 'Tqo cp'hkgtcwtg'ctg'\j g'r qgwl'Ecwmwu'\. 9679'DE+'cpf 'J qtceg'\. 876: 'DE+'cpf '\j g'uvcvguo cp'cpf 'Iwtkuv' EÆGTQ'\*328665'DE+0

Kp"vgto u'qh'qtf kpct { 'Tqo cpu'y j q'uqwi j v'vq'ko r tqxg'vj go ugnxgu'd { ''tcpuncvkqp.''vj g'etwz ''qh'vj g'o cwgt'y cu'vj g'' tj gvqtkecn'eqpegr v'qh'tkxcnt { ''vj tqwi j ''etgcvkxg''ko kvcvkqp.''y j kej ''Ekegtq''f ghkpgf ''cu''vj g''ko kvcvkqp''qh''qwuvcpf kpi '' xktwgu"\*Vwwewrcp'Fkwrwxckqpw'KX039+0Kp"Fg'qrvkoq'i gpgtg'qtcwo"\*Vj g'Dguv'Mkpf ''qh'Qtcvqt+''x036.'Ekegtq" o cmgu'vy q'o clqt"r qkpvu<'y cv'y qtf/hqt/y qtf '\tcpurcvkqp'ku'pqv'uvkxcdrg="cpf" y cv'\tcpurcvqtu'uj qwrf 'uggm'kp''y gkt" qy p'hcpi wci g'gzr tguukqpu'yj cv'tgr tqf weg'cu'o wej ''cu'r quukdrg'yj g''eqi gpe{ ''qh'yj g''qtki kpcn'\*ugg'<u>'HTGG'</u>' VTCP UNCVKQP = "NKVGTCN" VTCP UNCVKQP + 0 J ku'ugpukkkx kv{ "vq"y qtf u"o cf g"j ko "cp"gzegmgpv'vgto kpqmi kuv." cpf "j ku'y qtm'r tgr ctgf "vj g'i tqwpf "hqt"o quv'o qf gtp"r j knquqr j kecn'vgto kpqnqi {0'Ekegtq'ku'ko r qtvcpv'hqt"c''x gtug'' vtcpurcvkqp"qh"Ctcwu." Rj cgpqo gpc. "hqt"o wej "tj gvqtkecn" vtcpurcvkqp" y j kej "j cu" pqv" uwtxkxgf. "cpf "hqt" j ku" vtcpurcvkqpu''qh'T tggm'r j krquqr j { 'kpvq''Ncvkp0'V j gtg''ctg'f kuewuukqpu''qh'y j g'r tqdrgo u'etgcvgf ''d{ 'T tggm'vgto u'kp'' Ekegtqøu'r j krquqr j kecn'y tkokpi u. 'y g'o quv'ko r qt vcpv'dgkpi 'y g'f kuewuukqpu'qh'Gr kewtgcpkuo 'kp'y g'F g'hpkdwu'' dqpqtwo "gv"o crqtwo "\*Vj g"Gpf u"qh"I qqf "cpf "Gxkn+"KKkx @5όx @70Qh"gs wcn'ko r qt vcpeg"vq"vj g"f gxgrqr o gpv'qh"  $\label{thm:controller} $$ tcpurc wap'ku' J \ qtceg.' y \ j \ qug' f \ kue wuukqp''qh''nkygtct { 'ko \ kxc wap''kp'' y \ g'' Ct u' Rqg wec''* Vj \ g'' Ct v''qh'' Rqg wt { +'j \ cu''j \ cf''cp''' } $$$ kphrwgpeg'qp''tcpurcvkqp''qw''qh''cm'r tqr qtvkqp''vq''j ku''kpvgpv0'Vj g''ttcf kxkqpcn'yj go g''qh''ttcpurcvqt''cu''tkxcn'vq''yj g'' cwj qt 'ku'f knewnigf 'cv'rgpi yj 'kp''Gr knvrg''X KKOkz ''qh''Rrkp{ ''yj g'[ qwpi gt '\*CF '836334+''cpf ''Kpukwwgu''qh'Qt c vqt { ''Z0x'' d{"S wkpvkrkep"\*CF"e6576322+0"Vj g"guugpvkeri'r qkpv'o cf g"kp"dqyj "ku'vj cv'qpg'o wuv'ko ksevg'vj g"ewoj qtøu'xktwegu'dwv" urknitgvckp''qpgøu''qy p''kpf kxkf werkv{ ''kp''\tepurevkqp0

Ftcy kpi "qp" y g''crgpv'cv'j ku'f kur quen "y g'Go r gtqt'Cwi wuwu'\*85"DEóCF "36+"ugv'wr "c''tcpurcvkqp"qhhkeg''cu'r ctv' qh''y g''ko r gtken'j qwugj qrf "vq''cuukuv'kp''ef o kpkwytkpi "y g'Go r ktg0'Cu''nqpi "cu'y g'Tqo cp'Go r ktg"gzkwyf ." tcpurcvkqp" tgo ckpgf "ko r qtvcpv."cmj qwi j "chwyt "y g''y ktf "egpwt{"mpqy ngf i g''qh'I tggmi'dgeco g''nguu''eqo o qp''kp" y g''Y guv0'Vj gtg'ku''pq''tgeqtf "qh''tcpurcvkqp''htqo "nepi wei gu''qy gt''y cp'I tggm0'Cu''y g''ygcej kpi "qh''o gf kekpg" f gxgmqr gf "cv'Tqo g."cp''kpetgcukpi "co qwpv'qh'o gf kecn'cpf "r j cto ceqnqi kecn''tcpurcvkqp''dgi cp''vq''cr r gct." r ctvkewretn{"chwyt "y g''hqwtyj "egpwt{0Go r gtqt'Cwi wuwuø'tcpurcvkqp"qhhkeg''kp''y g''ko r gtken'j qwugj qrf "uggo u''vq" j cxg''j cf "qhhuj qqvu'kp''y g''Gcuygtp''r tqxkpegu0'O quv'qh''y ku''tcpurcvkqp''y cu''f qpg''d{"I tggmu'y j q''j cf "eqo g''vq" Tqo g''cu'urcxgu0

Vj g'Tqo cp'\tcfkkqp'qh'\tcpurc\kqp'j cf 'c'hcu\kpi 'ghhgev'qp'\yi g'\tcpurc\kqp'\yi gqtkgu'qh'\yi g'pgzv'3.722''{{gctu0}}

#### Vj g'Ej tkukepu

Cm quv'htqo 'kwu'dgi kppkpi u. 'Ej tkukcpk\{ ''ur tgcf 'htqo ''y g'I tggm'cpf 'I gdtgy ''y qtnf 'kpvq''y g'tguv'qh''y g'Tqo cp'' Go r ktg0'Hqto cn'\tcpurc\kqp''dgi kpu'y ky ''y g'Dkdrg0'Vj g'hktuv'Nc\kp''xgtukqpu. ''eqnge\kxgn\{ ''npqy p''cu''y g''Xgwu'' Nc\kpc. ''f cvg''htqo ''y g'ugeqpf ''egpwt\{ 0'Vj gtg'ku''eqpukf gtcdrg''eqpvtqxgtu\{ ''qxgt''y j gyi gt''y g''gctnkguv''Ej tkukcp'' rkwti kgu''kp''repi wci gu''qy gt''y cp''I tggm'y gtg'\tcpurc\kqpu''qh'I tggm'qtki kpcnu0'K'y qwrf ''uggo ''htqo ''y g''gxkf gpeg'' y cv''y gug''gctn\{ ''hkwti kuwi'y qtngf ''kp'o wej ''y g''uco g''y c\{ ''cu''y g''r tg/encuukecn'\Nc\kp''f tco c\kuvu. ''d\{ ''htgg'' cf cr vc\kqp''qh'uwej ''ecpqpkecn'\gz\wi'cu''gzkngf ''kp'I tggm0

Ej tknkepu'qh'f khqtgpv'ewnwtcn'vtcf kkqpu'uqqp'f gxgqr gf "f khqtgpv'urcpw."pqv'pgeguuctkn" j' gvgtqf qz."qp''y g" fqi o c'j cpf gf "f qy p0'Vj ku'f go cpf gf "vtcpurcvkqp."dqy "y tkwgp"cpf "qtcn0Co qpi "y g'xgt { 'hktw'qh'y gug'' vtcpurcvkqpu'y cu'y g''bo r qtvcpv'o { uvkecn'vtcev."U gr j gtf "qh'U gto cu."vtcpurcvgf "f wtkpi "y g'ugeqpf "egpwt { 'htqo " I tggmlkpvq'Ncvkp0'Ki'ku'hqmqy gf "d { "c''uvtgco "qh'dkqi tcr j kgu'qh'uckpvu"cpf "qy gt "f qevtlpcn'y qtm'kpenwf kpi "Ncvkp" xgtukqpu"qh'y g''gctn( "Etggf u."ko r qtvcpv'pqv'qpn( "cu''r tc { gtu'dww'cnuq"cu''uvcyo gpwu"qh'dgnkgh0'Vj gtg''uggo u'vq''dg" xgt { "hkwg''tqo "rcpi wci gu''qy gt "y cp''I tggm0'Vj g"gzvtgo g''tkgtcnkn{ "qh'y gug''gctn( "Ncvkp"f qewo gpwu"ecttkgu''qxgt" htqo "y g''Igy kuj "kf gcu''qp''y g''etgcvkxg''r qy gt "qh'y g''Y qtf "\*NO 0Mgm(."3; 9; &; +0Dw'kv'y qwf "dg''c'o knvcng''vq" rw'y ku'f qy p''eqo r ngvgn( "vq''kpvgngewcn'vtcf kkqp<'o cp{ "qh'y gug''gctn( "vtcpurcvqtu'y gtg''wpgf wecvgf 0'Y j gp''y g{ "hqwf "vtcpurcvkqp"pgeguuct { ."y g{ "y qtngf "ceeqtf kpi "vq''y g''ukntif qo kpcpv'cuuwo r vkqp''y cv'y qtf "gs wcnu''y kpi g''go cpekr cvkqp"qh'Ej tknkcpkx{ "wpf gt "Eqpuvcpvkpg'kp''534"cmqy gf "Ej tknkcp''ewnwtg''q''o cwtg0'Eqpugs wgpvn{ ." kv''ces wttgf "c''uej qrctn( "vtcf kkqp"dcugf "qp''Ercuulecn'gf wecvkqp"u{uvgo u."y ky j''y g''tguwnv'y cv'y g'' g'Ej tknkcp''Ncvkp" Y guv''eqpvkpwgf "y g''r ci cp''tcf kkqp"dh''gctpkpi "htqo "y g''I tggm0'Vj g''pwo dgt''qh''lwtkf kecn'f qewo gpwi"

 $cpf "I tggm" qevt kpcn" kgz vu" vtcpurc vgf "kpvq" Ncvkp" kpet gcugf ." cpf "vj gug" y gtg" qhvgp" cpqp {o qwu0" Vj g"rcvg" hqwtyj "egpwt {"cpf" vj g"gctn {"hkhyj" ctg" kp" o cp {"y c {u" Tqo gøu" ugeqpf" encuukecn" gtkqf ." egpvtgf" qp" Tqo g"cpf" Pqtyj "Chtkec0 Ki" uggo u"hcktn {"egtvckp" vj cv" vj g"Kor gtkcn" Vtcpurc vkqp" Qhhkeg "hqwpf gf" d{"Gor gtqt" Cwi wuwu" y cu"uvkni kp" qr gtcvkqp." cpf" uqo gvj kpi "uko krct" y cu"vcmkpi "vj cr g"kp" vj g"Rcr cn" cf o kpkuvt vkqp0 Htqo "vj g" gctn {"hqwtyj" egpwt { ." c"xgt {"umknrgf" dcpf" qh" vtcpurc vqtu" y cu" egpvt gf" qp" Tqo g" cpf" ku" uej qqnu0 Vj g {"y gtg" rj knquqr j gtu" cpf" vj gqmi kcpu" y j q" vqqm" vtcpurc vkqp" htqo "vj j cv" y cu" i qkpi "qp" kp" I tggm" cu" yggguuct {"vq" vj gkt" gpvgtr tkug0 Coqpi" vj g" oquv" kor qtvcpv" qh" vj gug" ctg" vj g" rj knquqr j gt" Octkwu" Xkevqt kpwu" *e04976584+." Tvkkpwu" *A5626638+6 cp" gpvj wukcuv" hqt" Qtki gp. "vj q" cf" c" hcoqwu" s wcttgn" y kyj "Lgtqog." vj g" rj knquqr j gt" Octkwu" Ogtecvqt" *e0622672+." cpf" c" hcti g" pwo dgt" qh" cpqp { oqwu" ej wtej ogp0} \]$ 

Tqo cp"\tcpurc\tqp"eqo gu"\q"cp"gpf "cpf "o gf kgxcn'\tcpurc\tqp"dgi kpu'y kj "O cprkwu'Cpkekwu'Ugxgtkpwu"

DQGVJ kWU\\*CF "6: 26746+0J g"ku'o quv'hco qwu'hqt"j ku"F g"eqpuqrc\tqpg"rj kquqrj kcg. "y j kej "j cf "c"r tqhqwpf "
kphrwgpeg"qp"\j g"O kf f rg"Ci gu0Dqgj kwu'ku'cv'qpeg"rcuv'qh'\j g"ercuulecn'Tqo cpu'cpf "hktuv'qh'\j g"O gf kgxcnt0J g"
rkxgf "f wtkpi "c"r gtkqf "xgt { "o wej "ikng"qwt"qy p. "kp"y j kej "\j g'uqekcn'uj cr g'qh'\j g'y qtrf "y cu'ej cpi kpi "hcuv'cpf "
r qrkkecn "kpvgngewcn'cpf "tgrki kqwu'pqto u'y gtg"dgkpi "\tcpuhqto gf 0J g"kpvgpf gf "\q"rgcxg"Nc\kp"xgtukqpu'qh'o quv'
qh'\j g"i tgcv'r j kquqr j gtu. "uq"\j cv'y j gp"\j g"y qtrf "eco g"\q"ku"ugpugu. "ekxkrk cvkqp"eqwrf "dg"tgdwkn0Dqgy kwu"ku"
pqvcdrg"hqt"j ku'wpeqo r tqo kukpi "gur qwxcn'qh'nkygtcrkx (0Vj qwi j "j ku'urcpf "qy gu'o wej "\q"tgtqo gou'kf gcnu'qh'\twj "
kp"\tcpurc\tqp."j g"j ctmu'dceni\q"\j g"o gf kecn'\tcpurc\tqpurc\tqh'\j g"\ko g"qh'Ekegtq0Vj gkt "hkgtcrkx { "j cf "dggp"
eqpf go pgf "d { "Ekegtq"cpf "j ku'nkpf ."dwv'y gkt 'tj gvqtkecn'\tckpkpi "j cf "o cf g"\j go "cy ctg"\y cv'f khhgtgpv'\tqr keu"
f go cpf gf "f khhgtgpv'uv\ rgu."cpf "\j cv'\y ku'\tr kngf "qxgt'\kpvq'\tcpurc\tqpurc\tqp"\\*Ej cf y ken'3; : 3\345663+0

# Vj g'O lf f rg'Ci gu'\*hlhvj 'vq'hlhvggpvj 'egpwt lgu+

#### Rt kpekr ngu'qh'Nc vkp 'tt c p unc vkqp

Kp"r tcevkeg. "Igtqo gou"o gyi qf "qh"vtcpurcvkpi "yi g"Dkdrg"r tqxgf "o qtg"kphrwgpvkcn"yi cp"yi g"o gyi qf u"j g"wugf ."cpf" cf xqecvgf ."kp"qyi gt"v{r gu"qh"vtcpurcvkqp0Vqi gyi gt"y kyi "Dqgyi kwu."j g"ugv"yi g"vqpg"hqt "vtcpurcvkqp"kpvq"Ncvkp0' Nkwgtct { "vtcpurcvkqp"y kyi "kwu"tj gvqtkecn"r qgvke"ko r gtcvkxgu"j cf "f kucr r gctgf ."cpf "vtcpurcvkqp"y cu"pqy "kp"yi g" j cpf u"qh"r j kmuqr j gtu"cpf "yi gqmi kcpu0Cpf "cu"uekgpvkhke"ncpi wci g"ngpf u"kwugh"pcwtcm( "vq"Rncvqpkuv"kf gcnu."yi g" i qcn"uqqp"dgeco g"vtwyi "kp"Ugpgecou"ugpug<"eqphqto kx{"dgwy ggp"ncpi wci g."eqpegr v"cpf "yi kpi 0Nkwgtcn"vtcpurcvkqp" y cu"i gpgtcm{ "uggp"cu"yi g"y c{"vq"vtwyi ."yi qwi j "yi gtg"y gtg"c"hgy "r tqvguvu"htqo "yi qug"vtckpgf "kp"cpekgpv"tj gvqtke." hqt"gzco r ng"Rqr g"I tgi qt{"yi g"I tgcv0

Cu''y g''Y guvgtp''Tqo cp''Go r ktg''etwo dngf. ''y g''ugpug''qh''wti gpe $\{$ ''kp''y g''y qtm'qh''Dqgyi kwu''eqpvkpwgf ''vq''i tqy 0' Ecuukqf qtwu''\*\*A6:  $26A772 \pm$  'c'Tqo cp''ugpcvqt. ''hqwpf gf ''y g''Xkxctkwo .''c''o qpcuvgt $\{$ ''ur gekcrk kpi ''kp''r j knquqr j kecn'' cpf ''

```
yj garqi kecn'tcpurctkap'htqo 'I tggn0J g'kpvgpf gf 'tq'ectt{ "ap'Dagyj kwwø'y atm'cu'hct'cu'kv'y cu'r quukdrg0'Vj g'o ckp''
r gewrlctk/{ "qh' yi g"y qtm'f qpg' kp' yi g"Xkxctkwo "y cu'kwu'cpqp { o k/{0 Vj g'dguv'npqy p'qh' yi g'pco gf '\tcpurcvqtu'qh'
yj g'r gtkqf 'ku'F kqp{ukwu'Gzki wwu'¾f 0778+.'y j q'y cu'qp''yj g'htkpi gu'qh''yj g'Xkxctkwo ''cpf 'y j q''ur gekcnkt gf 'kp''
eqpvgorqtct{"vjgqmqi{"*Dgtuejkp"3;:: <96hh0+0"Vjg"oquv'rtguukpi"vcum'qh'Ncvkp"vtcpuncvqtu'tgockpgf"vjcv'qh"
mggr kpi "kp"\qwej "y kj "j g"I tggmlGcuv."y j kej ."cu"{gv."j cf "pqv'uwhhgtgf "y g'uqekcn'eqmcr ug'qh'y g"Y guv0'Vj g"
ncpi wci g'qh'yi g'Ej wtej 'Eqwpekru'y cu'uwrl tggnx'yi g'xctkqwu'eqngewlqpu'qh'Eqwpekrlo kpwgu'r tqxkf g'c'tgeqtf "
qh'y g'tcpurckqp'y qtm'y cv'ngr v'y g'Y guvgtp'Ej wtej 'kp'eqpvcev'y ky 'y g'Gcuv0
C'I tggm'o qpcuvgt { 'y j qug'\cum'y cu'\q'nkckug''y ky 'Eqpuvcp\kpqr ng'ku'cwguvgf 'kp'Tqo g'kp'CF '86; 0'P qvcdrg''
vtcpurcvqtu'lpenwf g'Rqr g'\ cej ctkcu'*963674+."y j q'\tcpurcvgf 'I tgi qt{'\j g'I tgcv'lpvq'I tggm'cpf 'Iqj p'Ueqwu'
Gtki gpc'*e0 326e0 99+'y j qug''Rgt kr j {ukqp''y cu'cv'y g'egpvtg''qh''y g'Rugwf q/Fkqp{ukcp''tcf kkqp'kp''y g''Y guv0'
Wpwłij g'pkpy 'egpwt { .'Tcxgppc'cpf 'P cr ngu'y gtg'egpvtgu'qh'I tggmluwf kgu'y kj 'y gm/mpqy p'uej qqnu'qh'
vtcpurcvkqp0Tcxgppc"y cu'r ctvkewrctn( "cevkxg"kp"nkwti kecn'y qtm0Cpf "wpvkn'y g'y ktvggpy "egpwt{."y g'I tggm'
eqo o wpkx{ "qhi"Ukekn( "y gtg"cevkxg"kp"cf o kpkurtcvkxg"cpf "tgrki kqwu"vtcpurcvkqp="Ukekn( "y cu'uvkmi'rcti gn( "c"I tggmi'
eqo o wpkx{"twrgf"d{"ur gcngtu"qh"Ncxkp"*Y gkuu'3; 72+0Dgecwug"vj gtg"y cu"c"I tggm'r tgugpeg"kp"gxgt{"r ctv"qh"vj g"
pqtyj "eqcuv'qh'yj g'O gf ksgttcpgcp." y g'hkpf "tcpurcvkqp" kp"Ur ckp. "hqt" gzco r rg" yj g"Xkxg' Rcvt wo 'i tcgeqt wo"
tcpurcygf "d{"Rcuej cukwu"kp"792"cpf "Fg"qt ww"gv"qdkw/Rcvt wo "tcpurcygf"d{"Kukf qtg"qh"Ugxkrrg."dqyj "htqo "Itggm"
qtki kpcnu0O gtqxkpi kcp"cpf "Ectqrkpi kcp"I cwrlj cf "c'hwpf "qh"gzr gtvkug"kp"I tggm"vqq. "pgeguuct { "hqt"o ckpvckpkpi "
emug'f kr mo cvke 'tgrcvkqpu'dgwy ggp 'Htcpeg'cpf 'vj g'Gcuv.'kpenwf kpi 'o cttkci g'crnkcpegu0
Qpg"qh"yi g"o quv"ko r qt vcpv'hki wtgu"kp"yi g"pkpyi "egpwt { "y cu"yi g"r cr cn'hkdtctkcp. "Cpcuvcukwu "Dkdrkqyi gectkwu "*A
: 226A 9; +0J ku'o clqt'tcpurcvkqpu'tgxqrxg'ctqwpf 'vj g'eqwpekru'qh'vj g'pkpyj 'egpwt{'cpf 'vj g'kpetgcukpi 'vgpukqpu'
dgwy ggp 'Gcuv'cpf "Y guv'J g'cnuq'f lif 'luqo g''tcpurcvlqp "qh''vj gqrqi {0J g'y cu''npqy p''cu''c 'lunkrrgf ''tcpurcvqt. "dwv'j ku''
y qtmlf qgu'\gpf "\qy ctf u'nkgtcnk\{.''y kj qw\'j qy gxgt "f qkpi "xkqngpeg"\q' Nc\kp"uv\{ ng0I g'ku'cnuq''pqvgf "hqt"c''pwo dgt"
qh'ngwgtu'qp''tcpurcvkqp''r tcevkeg'**Mgm('3; 97+0'Vtcpurcvkqp''qh'T tggm'eqpekrkct'f qewo gpvu''gpf u''cdqw''y g''
hknegopij "egpwt { "y kij "y g"hkpcn"j ctf gpkpi "qh"r qukklqp."y j gp"y guv"y kij f tgy "ku"o qpcuvgtkgu"htqo "
Eqpuvcpvkpqr rg0'Vj g'hcuv'qh'vj ku'uvtgco ''qh'vtcpurcvqtu'y cu'Ectf kpcn'Dguuctkqp'*3625694+.''c'f grgi cvg''qh'vj g''
I tggm'Ej wtej 'y j q'ej cpi gf 'lukf gu'cpf 'hkpcm{ 'lugwrgf 'lkp''Xgpkeg'kp''yj g''gctn{ 'lhkhrggpyj 'legpwt{0'Vj gtg'y cu'cnuq''
uqo g'ewgo r v'ev'stepuneskqp'htqo "xgtpeewnet"nepi wei gu'kpvq''Neskp'f wtkpi ''vj ev'r gtkqf 0'Vj g''Uenke'Ney. 'hqt''
kpuvcpeg. "dgi cp"cu"c"I gto cp"vgzv"kp"yj g"pkpyj "egpwt{."cpf"y cu"yj gp"vtcpurcvgf "kpvq"Ncvkp0KV wpf gty gpv"c"
pwo dgt "qh"tgvtcpurcvkqpu"dcem"cpf "hqtvj "chvgt"vj cv0
D{"yj g"gki j vj "egpwxt{."vj g"O wurko u"j cf "etgcvgf" c"dtkrrkcpv"ekxkrkt cvkqp"y kxj "c"pwo dgt"qh"uej qqnu"cpf" tgugctej "
egpvtgu'cv'Dci j f cf. 'Dcutc.''Vqrgf q. 'Ugxkrrg'cpf 'Ukekn(0'Vj tqwi j 'eqpvcev'y ky 'vj g'I tggm'y qtrf. 'vj g{ 'kpuvkvwgf ''
cp'korqtvcpv'rtqitcoog'qh'vtcpurcvkqp'htqo'Itggm'rjkmquqrj{'cpf'rj{ukecn'uekgpeg'kpvq'Ctcdke'*ugg'<u>CTCDKE''</u>
VTCF KVKQP +0'Vj gug''tcpurcvkqpu''y gtg''vj gp'eqo o gpvgf ''qp''d { "c''rcti g''pwo dgt''qh''uej qrctu'kpenwf kpi ''Cxgttqgu."
Cxkegppc. 'Cri c | crk'cpf 'Crhctcdk0'Dgi kppkpi 'kp''y g''grgxgpyj ''egpwt{."rj krquqrj gtu''cpf ''uekgpvkuvu'htqo ''y g''
Y guv'y qtmgf "cpf "uwwf kgf "kp" yi g'O wurko "Gcuv'cpf "eco g"dcem'y kyj "Ncvkp" tcpurcvkqpu "qh" y g'Ctcdke "xgtukqpu "qh"
I tggmˈrj kmuqrj gtu. "cpf "qhˈCtcdke eqo o gpvctkgu qp 'y go 0'Vj g 'Ctcdu. "cv'y ku'r qkpv. "y gtg mpqy p r tko ctkn hqt"
cf xcpegf "o gf kekpg0"Vj g"uwduvcpvkcn"vtcpurcvkqp"o qxgo gpv"htqo "Ctcdke"kpvq"Ncvkp"y cu"kpkxkcvgf "d{"Eqpuvcpvkpg"
yj g'Chtkecp.'y j q.'ncvg'kp''yj g''gngxgpyj ''egpwt{.''ugwrgf 'kp''yj g''o qpcuvgt{''cv'O qpvg'Ecuukpq''chvgt''uwf{kpi 'kp''
P\ qt\ y'\ 'Chtlec0\ J\ g''ur\ gelecn''y\ g''o\ gf\ lecn''y\ qtmu''qh''I\ cngp0\ Eqpuvcp\ lepg''y\ cu'hqmqy\ gf\ ''d\{\ ''Dkuj\ qr\ ''Crhcpwu''qh''\ lepuvcp\ lepuvc
```

Ucngtpq."y j q"gzvgpf gf 'vj g'hkgrf 'vq'R{ vj ci qtcu."Rrcvq."Ctkuvqvrg"cpf 'J kr r qetcvgu0F wtkpi 'vj g'vy grhvj "egpwxt{." o quv'uekgpvkhle"cpf"rjkquqrjkecn'tcpurcvkqp'htqo"Ctcdke"kpvq"Ncvkp"ycu"fqpg"kp"Urckp"cpf"uqwjgtp"Htcpeg0" Vj gtg"ctqug"c"i gpgtcn'r cwgtp"qh'eqqr gtcwlqp"qt"gxgp"eqmcdqtcwlqp"dgwy ggp"Ej tkuwlcp"cpf "Ctcd0"Vj ku"y cu"cv'y g" tqqv'qh''y g'hqto cwqp'qh''y g''Uej qqn'qh''Vqngf q. 'uwr r qugf n{ 'hqwpf gf ''d{ ''Ctej dkuj qr 'TC[OQPF''\*3347674+0' Vj g'dguv/mpqy p''tcpurcvqtu'qh''y ku'i tqwr 'y qtngf 'wpf gt'Tc{o qpf øu'uweeguuqt. 'Ctej dkuj qr 'Iqj p.'hqt'gzco r ng''

Fqo kpkewu'I wpf kucnxk 'Iqj p''qh''Ugxkrig.'I GTCTF ''QH'ETGO QP C'\*\*eØ3366: 9+.''Rgvgt''qh''Vqrgf q.''cri'qh''y j qo " vtcpurcvgf ''Ctkurqvig''cpf ''y g''Ctcd''eqo o gpvcvqtu.''Cxgttqgu''cpf ''Cxkegppc''\*ugg''<u>URCP KU ''VTCF KVQP</u>+0'Vj gtg" y gtg''o cp{ ''vtcpurcvqtu''y qtmkpi ''qwukf g''Vqrgf q.''hqt''gzco r rg''J GTO CP P ''QH'ECTKP VJ KC.''Rrcvq''qh''Vkxqrk'' Cf grctf ''qh''Dcvj .''cpf ''O kej cgrl'Ueqv='yj g''rcwgt''y cu''y qtmkpi ''cu''rcvg''cu''34390'C''eqwr rg''qh''Ncvkp''xgtukqpu''qh''y g'' S wøt p'y gtg''cnuq''r tgr ctgf ''f wtkpi ''yj ku'r gtkqf 0

Ctknqvg"cpf "qvj gt"I tggmir j knquqr j gtu'y gtg"kpvtqf wegf "kpvq"vj g"wpkxgtukkgu"qh'vj g"y grhvj "cpf "vj ktvggpvj " egpwtkgu"vj tqwi j "Ncvkp"xgtukqpu"qh'vj g"Ctcdke"vtcpurcvkqpu0Iqwtf ckp"\*3: 65+'i kxgu"c"hwriikuv0Kpgxkxcdn{."vj g" kpewtukqp"qh'Ctknqvg"kp"Ctcd"f tguu"ecwugf "kpvgpug"f kus wkgv"kp"qtvj qf qz "ektergu."cpf "Ctknqvg"y cu"dcppgf "kp" ugxgtcn'o clqt"r reegu"cu"c" ci cp"kphrwgpeg0Ctknqvgrkcpu"tgr rkgf "d{"vtcpurcvkpi "f ktgevn{"htqo "vj g"I tggmivgzvu0' Vj g"i tgcvguv'qh'vj g"vy grhvj /egpwxt{"vtcpurcvqtu"htqo "vj g"I tggmiy cu"Lco gu"qh"Xgpkeg"\*n03347672+0J g"y cu" tgur qpukdrg"hqt"eqo r rgvkpi "vj g"Ncvkp"xgtukqp"qh"Ctknqvgxu"Qti cpqp."vj g"Rj {ukeu."O gvcr j {ukeu."F g"Cpko c."cpf" Rctxc"Pcwtcrkc0"Vj g"qpn{"Ncvkp"xgtukqpu"qh"Rrcvq"eco g"htqo "J gptkewu"Ctknvkr r wu."y j qug"O gpq"cpf "Rj cgf q" cr r gctgf "kp"yj g"hcy"3372u0

Vy q"pqtyi gtpgtu"uvcpf "qww"cu"ko r qtvcpv"vtcpurcvqtu"qh"yi ku"r gtlqf 0Tqdgtv"I tquugvguvg. "dkuj qr "qh"Nkpeqnp"cpf "r tqdcdn{ 'hktuv"ej cpegmqt "qh"Qzhqtf ."vtcpurcvgf "yi g"Pkeqo cej gcp"Gvj keu"\*A3468+"cpf "yi g"F g"Ecgnq0"J g"cnuq" vtcpurcvgf "c"pwo dgt "qh"I tggm"eqo o gpvctkgu"qp"Ctkuvqvg. "r ctvkewrctn{ "yi qug"qh"Uko r nkekwu0Gxgp"o qtg" ko r qtvcpv"y cu"yi g"Hngo kuj "F qo kpkecp. "Y KNNKCO "QH"O QGTDGMG"\*A34376: 8+."y j q"tgxkugf "c"pwo dgt"qh"yi g"npqy p"vtcpurcvkqpu"qh"Ctkuvqvg"cpf "cf f gf "vq"yi g"Ncvkp"ecpqp"yi g"Rqnkkeu"cpf "yi g"Rqqkeu0Co qpi "yi g"I tggm"eqo o gpvctkgu"qh"Ctkuvqvg. "j g"vtcpurcvgf "Cngzcpf gt "qp"yi g"O gvqqtqnqi {"cpf "yi g"F g"ugpuw."Co o qpkwu"qp"yi g"F g"kpvgtrt gvcvkqpg. "Uko r nkekwu"qp"yi g"Ecvgi qtkgu"cpf "yi g"F g"Ecgnq. "cpf "Vj go kurkwu"qp"yi g"F g"Cpko c0"Kp"yi g"F qo kpkecp"uej qqnu"qh"r j knquqr j {"cpf "yi gqnqi {."yi g"O qgtdgng"xgtukqpu"tgr rcegf "o quv"qyi gtu"\*F oCnxgtp{"3;:4+0

## Vj g'Tgpckucpeg'\*hqwt vggpvj '\d'thz vggpvj 'egpvwt lgu+

Kp"\tcpurc\lqp"cu"\lpp"q\j\ gt"\o\ cwgtu'\tgrc\lpp\left' \q"\end{align} \q"\q"\end{align} \q"\q"\grc\lpp\left' \q"\grc\lpp\left' \q\grc\lpp\left' \q\grc\lpp

Hqt"dgkpi "c"r qgv."ij qw'o ckuv'hgki pg."etgcvg."P qv'ectg."cu'ij qw'y qwrf uv'hckij hwn{ "tcpurcvg."Vq"tgpf gt" y qtf 'hqt"y qtf 0

Kp'r tkpekr ng. 'rksgtcrks{ 'j gtg'r tgensf gu'hkf grks{ < hp'J qtcegøu'qtki kpcn'y g'f kuskpeskqp'ku'pqv'cu'engct'ew0 J wo cpkuv'tcpurcskqp''dgi kpu'kp''y g'i tgcv'o gtecpskrg''uvcvgu''qh'hqwtvggpyj /egpwt { 'Kcn{ .'kp'r ctskewrct''Hnqtgpeg'' cpf ''Xgpleg0'Htqo ''y g''dgi kppkpi ''qh'y g'hqwtvggpyj ''egpwt { .''y gug''ekskgu''y gneqo gf ''I tggm'uej qnctu'hnggkpi ''y g'' Vwtnkuj ''cf xcpeg'kpvq''y g''D{| cpskpg'Go r ktg0'Vj g{ ''gpeqwtci gf ''y go ''vq''ugv''wr ''uej qqnu''cpf ''dwkns'c''encuulecn'' ewnsttg''ctqwpf ''y go 0'Hqt''y g''tcpurcvqt. ''r cvtqpci g'y cu''guugpskcn''dgecwug'ks'o cf g'r quukdrg''y g''dwknf kpi ''qh'i tgcv'' nkdtctkgu''cpf ''y g''hkpcpekpi ''qh'uej qnctn{ ''ugctej gu''qh'o gf kgxcn'nkdtctkgu''hqt''encuulecn'o cpwuetkr vu. ''dqyj ''Ncskp''cpf '' I tggn0

Qpg'qh'y g'o quv'ko r qtvcpv'uej qqnu'y cu''y cv'hqwpf gf ''d { ''O cpwgn'Ej t {uqnqtcu'\*357263637+kp'Hnqtgpeg0'} Dgecwug'uwej 'uej qqnu'y gtg'guugpvkcm( 'r j knquqr j { 'uej qqnu'y ky ''j ki j 'tgur gev'hqt't j gvqtke. 'vj g''tcpurcvqtu'' eqo kpi 'htqo ''y go ''y gtg'dcukecm( 'r j knquqr j gtu0'Vj g'httuv'J wo cpknv'xgtukqp''qh'Ctkuvqvg''y cu''d { ''Ngqpctf q'' Dtwpk'Ctgvkpq'\*358; 63666+.'y j qug'3645'xgtukqp''y cu'r tghcegf ''d { ''c'r wi pcekqwu'wr f cvkpi ''qh'Ekegtqøu'' vcpurcvkqp''r tkpekr rgu'\*Mgm( ''3; 9; < 5+0'Ki'y cu'hktuv'r tkpvgf ''kp''36; : 0J g''cnuq''vcpurcvgf ''uqo g''Rrcvq.''y g''j krvqt { ''qh'' Zgpqr j qp. ''cpf ''y g''ugto qpu''qh'Dcukn'y g''I tgcv0'Kp''y g''3682u.'O ctuknkq''HKE KP Q'\*36556; ; +'o cf g'y j cv'y cu''vq'' tgo ckp''y g''dcuke''J wo cpknv'Ncvkp''xgtukqp''qh'Rrcvq0'K'y cu'hktuv'r tkpvgf ''kp''36: 40'Qvj gt''vcpurcvqtu''qh'Rrcvq''cpf '' Ctknvqvg''kpenwf gf ''I gqti kq''Xcmc'\*36526; ; +''Vj gqf qtg'I c| c'\*362269: +''cpf ''Cpi gnq''Rqrk kcpq'\*36766; 6+0' Vtcpurcvqtu''qh''r j knquqr j { ''cnnq'\tcpurcvgf ''o gf kekpg''cpf ''uekgpeg. ''qhvgp''r tkpvkpi ''Ncvkp''cpf ''I tggm'qp'hcekpi '' rci gu0'Dqvj ''I cngp''cpf ''J krrqetcvgu''y gtg''tcpurcvgf ''d { ''P keqm''f c'Tgi i kq'\*34: 263572+0'Cu''y g''J wo cpkuv'' o qxgo gpv''

ur tgcf "qwwlf g'Kcn{."uq'f lf ''tcpurc lqp'htqo 'I tggn0Qpg"qh''y g'dguv'mpqy p''tcpurc lqh''y ku''gctn{ 'r gtlqf 'y cu'' y g'Gpi rkuj o cp''Vj qo cu''Nlpcetg''\*368263746+.'y j q''ur gelicnl gf 'lp'I crgp"cpf 'r tgr ctgf ''y g''i tqwpf 'hqt"o gf lecn' tclplpi ''lp'Gpi rcpf 0

Vgej plecn'cpf "rkvgtct { ''tcpurcvqtu'y gtg'qhvgp''y g'uco g'r gqr ng. "cu'uv{ rkuvle ''tckpkpi 'f kf ''pqv'r tkxkngi g''qpg''i gptg'' qxgt "cpqyi gt0Cu'y gm'cu'y g'r j knquqr j kecn'cpf 'tgrki kqwu'vgzwu'o gpvkqpgf "cdqxg. "Ngqpctf q'Dtwpk'Ctgvkpq. 'hqt" gzco r ng. "cnuq''tcpurcvgf ''J qo gt''kpvq''Ncvkp0Co qpi ''y ku'hktuv'y cxg''qh'J wo cpkuwu'y gtg''Nqtgp| q''XCNNC'' \*e08627673+''I gqti kwu''Vtcr g| wpvkwu'\*35; 763694+"cpf ''Rqrk kcpq. "cm'qh'y j qo ''tcpurcvgf ''j kuvqt { . ''rkvgtcwtg''cpf '' y g''I tggm'Hcyj gtu0

I too o ct"cpf "rksgtct{"yi gqt{"y gtg"qh"kpvgpug"kpvgtguvØNqpi kpvuv"Qp"yi g"Undrko g"y cu"htgs wgpvn{"tcpurcvgf" \*Y gkpdgti "3; 72="Equvc"3; : 7+0"kV"ku"guugpvkcri\q"tgo go dgt"yi cv."cv"hktuv."Ncvkp"tcpurcvkqp"y cu"go dgf f gf "kp"yi g" O kf f rg"Ci gu0D{"yi g"3742u"yi g"uvcpf ctf "qh"Ncvkp"j cf "dgeqo g"rguu"tgo kpkuegpv"qh"yi g"rcvg"o gf kgxcri'uv{ rg"hqwpf" kp"r gqr rg"rkmg"Nkpcetg"qt"Vj qo cu"O qtg"\*369: 63756+0O quv"qh"yi g"i tgcv"xgtpcewrct "tcpurcvqtu."rkmg" vkgppg" F qrgv"\*372; 668+"cpf "O grcpej yi qp"\*36; 963782+."r tqf wegf "Ekegtqpkcp"Ncvkp"xgtukqpu"qh"I tggm"y qtmu0" Rwdrkuj gtu."rkmg"Htqdgp"qh"Cpw gtr "cpf" yi g"Guvkgppg"hco kn{"qh"Rctku."hqwtkuj gf "cu"gf kqtu."cpf "gxgp"f kf"uqo g" vtcpurcvkqp"qh"yi gkt"qy p0

Cv'c'\lo g'y j gp"o quv'r qgwly gtg"rqgwg"wt kwus wg"hpi wcg"\frac{\pi}{2} r qgwl'qh'dqyj "hcpi wci gu\(\phi\)+ "tcpurc\lqp"dgw ggp"\j g" xgtpcewrtu"cpf "\nc\lpp"dgeco g'xgt { "eqo o qp0\ki'dgi cp"\lpp"\j g"\lo g"\lpp"\lpp" ko g"\qh"\htcpegueq"\Rg\tctej "\frac{\pi}{3}526\dego\frac{\pi}{2}\text{\pi} ko ugrh" dq\j "\tcpurc\lqp" cpf "\tcpurc\lqp" kcn\{ "y cu"\j g"\egp\tg"\qh"\G\tqp" exp\tg\tg" exp\tg"\qh"\tcpurc\lqp" exo g"\cdq\w' r tg\le \{ "ecu\tcm} \" cu"\c' eqo r n\to gp\t'r c\lf "\d \{ "qpg"\y t\text\"\q" cpq\j gt\\ngqpctf q"\ngqpctf q"\ng\text\"\tq\text\"\tq\text\"\text\"\tq\t

Kp'Gpi repf.'Detyj qrqo gy "Engtng'\*A37596382; +'\tepure\yf 'Eeu\ki r\tepure\yf 'Eeu\ki r\tepup\gu\langle kepq'\tepq'\tepup\langle kepq'\tepup\langle kepq'\tepup\la

#### Vj g'Dkdıg

Qh'o qtg'lo o gf kcvg'lpvgtguv.''dgecwug''qh'kuu'r qngo kecn'xcnwg. "y cu''Dkdng''tcpuncvkqp0'Vj g''J wo cpkuru'f kf "j cxg'' eqpukf gtcdng''s wcm u''cdqww''j g''S wcnkv{ "qh'y g''Ncvkp''kp''y g''Xwni cvg''cpf ''y gtg'y gtg'y gm/hqwpf gf ''f qwdwu''cdqww'' y g''I tggml\gz v0'Gtcuo wu'\*\*e0868863758+"r wdnkuj gf ''c''I tggml\gz v'qh'y g''P gy ''Vguvco gpv'y kyj ''j ku''qy p''Ncvkp'' xgtukqp''kp''373; 0'Vj gtg'hqmqy gf ''c''Ncvkp''xgtukqp''d{ "Ucpvk'Rci pkpk'\*374: +'y j kej ''tgo ckpgf ''uwwf kqwun{ ''pgwxtcn'' cpf ''nksgtcn'U ku''Qnf ''Vguvco gpv'y cu''f qpg'htqo ''y g''J gdtgy .''pqv'yj g''I tggm0'Vj g''pgzv'Ncvkp''xgtukqp''qh'yj g''Dkdng.'' d{ ''Ugdcuvkcp''O \( \tilde{A}\)puvgt ''qh''Dcung''\*3757+. ''y cu''kp''dgwgt''Ncvkp<'j g''vqqn'yj g''Qnf ''Vguvco gpv'htqo ''

y g'I gdtgy "cpf "tgr tlpvgf "y g'Gtcuo wu'P gy "Vguvco gpv0Vj gug'nkgtcn'dkdngu'nquv'i tqwpf "dghqtg'y g'\ wtlej "dkdng" qh'3765."c"us wctgn{ "Rtqvguvcpv'xgtulqp"gf kvgf "d{ "Ngq"Lwf 0Kp"3773"cpqy gt "Tghqto gt."Ugdcuvlcp"Ecuvgndq." r tqf wegf "c'dkdng"kp"cm quv'enculecn'Ncvkp0Vj g'o quv'ko r qtvcpv'qh'y g'Ncvkp'dkdngu'y cu'd{ "Vj gqf qtg"f g'D³ | g." uweeguuqt "vq"Ecnxlp0Vj qwi j "c"dkdng"qh'ko o gpug'uej qnctuj kr. "kv'uqqp"ces wktgf "c"tgr wcvkqp"hqt"wy knvkpi "y g" dkdnlecn'vgzv'vq'y g'f kevcygu'qh'Ecnxlpkuo 0Vj g'ncuv'qh'y g'Tghqto cvkqp"Ncvkp'dkdngu'y cu'y cv'qh'Vtgo gnkwu'cpf" Lwpkwu'\*3793+0Co qpi "Ncvkp"xgtukqpu'qh'o kpqt'kpvgtguv'ku'y g'P gy "Vguvco gpv'kp"xgtug'd{ "Iqj p'Dtkf i gu."Dkuj qr "qh'Qzhqtf"\*3842+0

# Vj g'Ci g'qh'Tgcuqp'\*382263972+

Kp'i gpgtcn'J wo cpkuv'pqto u'qh'\tcpurc\kqp'tgo ckpgf 'kp'xqi wg."cpf '\tcpurc\kqp'\kp\q'\Nc\kp'y cu'\ur ctgf '\y g'' gzeguugu'qh'\y g'htgg'\tcpurc\kqpu'ewttgpv'\kp'Htcpeg'cpf 'Gpi rcpf 0'Vj ku'r gtkqf 'ku'cnıq'pq\cdrg'\hqt'\y g''cr r gctcpeg'' qh'dkrlpi wcn'Nc\kp'f ke\kqpct\kgu0'Kp'Gpi rcpf ."qpg'qh'\y g''o quv'gz\vgpukxg'y cu''d { 'Cf co 'Nkwrg\qp."y j kej 'kpenwf gf '' cp'Gpi rkuj /Nc\kp''uge\kqp0'Uko krct'f ke\kqpct\kgu'eco g''qw'\kp''qy gt''Gwtqr gcp''eqwp\tkgu0'Vj gtg''y gtg''cnıq''c''ugt\kgu'' qh'xgtug'f ke\kqpct\kgu.'hqmqy kpi 'kp'\y g'\tcf kkqp''qh'\y g'J wo cpkuv'u\{ rku\ke'j cpf dqqmu''qt''Grgi cp\kcg0'Vj g{ '' ewro kpc\gf ''kp''Htcp±qku'P qµr\u''I tcf wu''cf ''Rctpcuwo '\*\3977+0

#### Vgej plechtt cpurc skap

Vq'c'ncti g'gzvgpv.'vj g'cpekgpv'I tggmiy tkgtu'y gtg'uwkmitgngxcpv0Gwerkføu'I gqo gvt{'y cu'tcpurcvgf 'ugxgtcn' who gu<br/>kp''Gpi mpf 'kp''3872'd{ 'Kucce'Dcttqy .'Rtqhguuqt'qh'I tggmicpf 'vj gp'O cvj go cvkeu'cv'Eco dtkf i g."cpf 'kp'' 3925'd{ 'F cxkf 'I tgi qt{.'c'o go dgt'qh'P gy vqpøu'ekteng0Iqj p'Y cmku.'c'o go dgt'qh'vj g'Tq{cn'Uqekgv{.'vtcpurcvgf '' Ctej ko gf gu'kp''38980'Vj gtg'y gtg'o cp{ 'xgtukqpu'qh'I kr r qetcvgu.'o quv'qh'vj go ''cpqp{o qwu0'Vj g'dguv'mpqy p'' y cu'o cf g'kp''3939'd{ 'Iqj p'Htgkpf .'c'Tq{cn'r j {ukekcp.'r mckpn{ 'hqt'vj g'kpuntwevkqp'qh'o gf kecn'uwf gpw0} Cu'cp'ko r qtvcpv'egpvtg'qh'r wdnecvkqp.'htgg'qh'egpuqtuj kr .'Co uvgtf co 'j cf 'ku'qy p''i tqwr 'qh'lqddkpi ''tcpurcvqtu0' Vj gug'y gtg'pqv'dqwpf ''d{ ''cp{ ''ncy ''qh'eqr {tki j v.'cpf ''tcpurcvgf ''cm'vj g'ncyguv'y qtm'kp'cm'f kuekr nkpgu0I gpgxc'' uggo u'vq'j cxg'j cf ''c'uko krct'i tqwr ''qh'uekgpvkhke'\tcpurcvqtu.''cpf ''vj gtg'y cu'cny c{u'vj g'wpgo r m{gf 'wpkxgtukv{'' i tcf wcvg'y kmpi ''vq'htggrcpeg'cpqp{o qwun{0Dw'vj g'o quv'ko r qtvcpv'vtcpurcvkqpu'eco g'htqo ''r tcevkkqpgtu'y j q'' ucy ''vtcpurcvkqp''cu'r ctv'qh'vj gkt'lqd'qh'r wdnekt kpi ''vj g'ncvguv'vj gqtkgu'cpf ''tgugctej 0Htcpu'xcp'Uej qqvgp.''y j q'' vtcpurcvgf 'F guectvguø'I ^2qo ²vtkg.''ku'c'i qqf ''gzco r ng0

Cu'xgtpcewrct 'rcpi wci gu'dgi cp''vq'eqo r gvg'y kij 'Ncvkp.''vtcpurcvkqp'kpvq'Ncvkp''vqqn'iqp''c'tcyj gt'f gur gtcvg'' ko r qtvcpeg0'Vj gtg'ku'c'y j qng'tcpi g'qh'kppqxcvkxg'y qtmu'kp''cnej go { .'hqt''gzco r ng''y g'y qtmu'qh'y g'o { yi kecn' -Dcukn'Xcngpvkpgø''y cv'dgi cp''nklg'kp''c''xgtpcewrct''cpf''i ckpgf ''cp''kpvgtpcvkqpcn'tgr wcvkqp''kp''Ncvkp0'Rctvkpi vqp'' \*3; 83+'i kxgu''nknu''qh'uki pkhecpv'vtcpurcvkqpu0'Uekgpvknu''dgi cp'y tkkpi 'kp''y gkt''qy p''ncpi wci gu'kp''y g''ugxgpvggpyj '' egpwt { .'y kyi ''eqpugs wgpv'f khhewnkgu''nqt''kpvgtpcvkqpcn'f knvtkdwkqp0J gpt { ''Qnf gpdqwti .''y g''Ugetgvct { ''qh''y g'' Tq{cn'Uqekgv{ .''guvcdnkuj gf ''c''ewnqo ''qh'vtcpurcvkpi ''cml'nqtgki p''eqttgur qpf gpeg'kpvq'Ncvkp'hqt''r wdnecvkqp'kp''y g'' Rj knquqrj kecn'Vtcpucevkqp.''cpf ''ngr v'c''y cvej kpi ''dtkgh'qxgt''y g''uvcpf ctf ''qh'Ncvkp'kp'Eqpvkpgpvcn'vtcpurcvkqpu''qh'' y qtmlhtqo ''y g'Tq{cn'Uqekgv{0

Rktckpi "y cu"c"r tqdrgo 0Vq"qxgteqo g"kx."F guectvgu"j cf "qpg"qh"j ku"htkgpf u."vj g"F we"f g"Nw{pgu."ktcpurcvg"j ku" Htgpej "y qtmu"hqt"kpvgtpcvkqpcrif kuxkdwkqp0J ku"Gpi rkuj "eqpvgo r qtct { ."Tqdgtv"Dq{rg."chvgt"dgkpi "ktcpurcvgf" y kvj qwv"j ku"r gto kuukqp"d{ "ktcpurcvqtu"y qtmkpi "hqt"f g"Vqwtpgu"qh"I gpgxc."cttcpi gf "vq"dg"r wdrkuj gf " uko wncpgqwun{ "kp"Gpi rkuj "cpf "Ncvkp"yi tqwi j "Qzhqtf"r tguugu0J ku"gzco r rg"y cu"hqmqy gf "d{ "vj g"r j krquqr j gt" Vj qo cu"J qddgu"cpf "rcvgt"d{ "Kucce"P gy vqp."qp"vj g"tctg"qeecukqpu"y j gp"P gy vqp"r wdrkuj gf "kp"Gpi rkuj 0Cm"qh" vj gug"cwyj qtu"ngr v"xgt{ "tutkev"eqpvtqn"qxgt"vj gkt"tcpurcvqtu0P gy vqpøu"tcpurcvqt"y cu"c"r wr kn"Uco wgn"Erctng." y j q"ku"cnuq"pqvcdrg"hqt"cp"ko r qtvcpv"Ncvkp"xgtukqp"qh"Tqj cwmøu"Nc"r j { uko wg"\*38; 9+."y j kej "dgeco g"vj g" r tguetkdgf "vgzv"hqt"r j { ukeu"cv"Eco dtkf i g0

Chygt '3922. 'uekgpvkhle' 'tcpurcvkqp' kpvq' Ncvkp' dgeco g'ur qtcfke 0°C v'vko gu. 'kv'y cu' pgeguuct { . ''cpf' 'Nggwy gpj qgmyu'' F wej ''dqqmu''qp''y g'o ketqueqr g'y gtg' 'tcpurcvgf' 'hqt''y g'kpvgtpcvkqpcn'o ctmgv'cu'y gtg''dqqmu''qp''fkgv'd { ''y g'' Ueqvkuj ''r j { ukekcp' I gqti g'Ej g{pg0 Vtcpurcvkqp''qh''uekgpvkhle''o cvgtkcn' kpvq' Ncvkp''egcugf''cdqw'39720

#### Tgrki kqwu'tt cpurc vkqp

Y j cv'tgrki kqwu''\tcpurc\kqp''\j gtg''y cu''f wtkpi ''\j cv'r gtkqf ''\gpf gf ''\q''tgo ckp''\gej pkecn'\V\twg.''\j gtg''y gtg''\xgtukqpu''qh'' yi g''Cpi rkecp''Dqqm'qh'Eqo o qp''Rtc{gt''cpf ''qh''\j g''Nwj gtcp''Ugtxkeg."cpf ''Nc\kp''xgtukqpu''qh''xgtpcewrct''ur ktkwcn'' y tkkpi ''hqwpf ''\j gkt''y c{ ''kp\q''\j g''Ec\j qrke''dtgxkctkgu\0'Dw''o qtg''\{r kecn'qh'\j g''r gtkqf ''y cu'\j g''ko o gpug''Qrf '' Vguvco gpv'y kij ''c''Nc\kp''\tcpurc\kqp''hcekpi ''\j g''J gdtgy ''\gzv'd{ ''Ej ctrgu''J qwdki cpv'\*38: 8639: 5+. ''Htcpegøu''hkpguv'' J gdtckuv'\*3975+0'Vj ku''ku''c''uwf { ''ckf ''hqt''\j g''Qrf ''Vguvco gpv'eqpvckpkpi ''eqo o gpvct { .''\tcpurc\kqp''cpf ''c'' lwvkhlec\kqp''qh''J qwdki cpv\øu'o g\j qf u\0

#### Nkgtct{'\tcpurc\kqp

Vj g'dwm'qh'\tcpurc\kqp'kp\q'Nc\kp'y cu'kp''xgtug'hqmqy kpi 'untkevn{ "encuukecn'pqto u."cpf 'uqo g'xgt { 'hkpg'y qtm'y cu' ecttkgf 'qw0'Vj gtg'y gtg'hgy 'Nc\kpkuu'qh'cp{ 'pqvg'y j q'ur gekcnk gf 'kp''\tcpurc\kqp."cpf 'o quv'tgeqi pk gf 'r qgvu' vtkgf '\j gkt'j cpf 'cv'Nc\kp''xgtug0

Htcpeg'ku'tgrcvkxgn{"v{rkecn'qh'vjg'Eqpvkpgpvcn'rcvvgtp0"Vtckpkpi"kp''Ncvkp'eqorqukxkqp''cpf''vtcpurcvkqp''ycu'kp''jg'' j cpf u''qh''y g''Qtcvqtkcpu.''y g''Lguwku''cpf ''y g''wpkxgtukkgu0'C''hcxqwtkg''cwy qt''y cu''Nc''Hqpvckpg.''y j qug''*Hcdrgu*'' y gtg'\tcpurcvgf 'kp'hwn'd{ 'vj g'Qtcvqtkcpu.'Oqf guvg'Xkpqv'\*389463953+.'Rkgttg''Vkuuctf '\*3888639; 2+'cpf 'Lgcp/ Der vkurg'I ktewf "\*3924698+0"Vkuuetf "epf "Xkpqv"enuq "tepunevgf "O enj gtdgøu"Qf g"qp "Nqwku "Z KKøu "ukgi g"qh "Nc" Tqej gmg'\*Ncmgo cpf '3: :: +0Dgwy ggp'388; "cpf '3922' yi gtg' y cu'c'uvgcf { 'uvtgco ''qh' Ncvkp' xgtukqpu''qh' Pkej qrcu'' Dąkręcw/F gur tgcwzøu'ucktgu'cpf 'rgwgtu0P qwdrg'co qpi 'vj g'qvj gty kug'qduewtg'dwpej ''qh''vtcpurcvqtu'ctg'Ej ctrgu'' TQNNRP "388363963+"cpf 'O kej gn'I qf gcw"387863958+."y j q"j cf "dqvj "dggp"tgevqtu"qh"vj g"Uqtdqppg0"  $H^2$  pgrqpøu' $V^2$   $\ell^2$  o  $\ell^2$  o  $\ell^2$  vu'tcpurcygf 'ugxgtcn' vlo gu'llovq' Ncvlp' rcyg'llov' j g'ugxgpyggpyj 'egpwt { .''y g'o quv'lco qwu' xgtukqp''dgkpi ''y cv'qh'Gvkgppg''Xkgrl\*39596: 9+0Cpqyi gt''xgtukqp''y qtyi ''o gpvkqpkpi ''ku''y cv'd{ ''Iqugr j /Encwf g'' F guvqwej gu'\*3986='ugg'Xkuuce'3: 84+0'Vj g'tkug''qh'r j krqrqi {"cu'c'f kuekr rkpg'kp'I gto cp{"y cu'tghrgevgf "d{"c'ur cvg" qh'qtki kpcn'eqo r qukkkqp. 'y kj "c'hgy 'n{tkeu'd{ 'uwej "cu'I qgyj g'dgkpi "\tcpurcvgf 'kpvq''Ncvkp0 Vj g'\cum'qh'cuuguukpi ''vj g''gzvgpv''qh'\tcpurcvkqp''kpvq''Ncvkp''kp'Gpi rcpf ''ku''eqo r rkecvgf ''d{ ''vj g''ko o gpug''Ncvkp'' rtqf wevkqp"qh"tgeqi pk gf "rqgvu"nkng"Cdtcj co "Eqy ng{0Vj gtg"ctg"o cp{"rcuuci gu"vtcpuncvgf "htqo "Gpi nkuj "qt" qy gt 'hcpi wci gu'kp''y gug''Ncvkp''r qgo u0Cpf tgy 'O ctxgm'cnuq''vtcpuncvgf 'o wej ''qh'j ku''qy p''Gpi nkuj ''y qtm'kpvq'' Ncvkp0Cu'vtcpurcvkqp'y cu'ceeqtf gf 'o qtg'tgur gev'vj gp'vj cp'kv'ku'pqy .''vtcpurcvgf 'r kgegu'cr r gct'kp'vj g'eqmgevgf '' y qtmı'qh'tgeqi pk gf 'Ncvkp'r qgvu'rkng'y g'Ueqv'Iqj p'Nggej .'y j q'rkxgf 'kp''y g'hktuv'j crh'qh'y g'ugxgpvggpy 'egpwt {0 Vj g'o clqt'r qgv'tcpurcvgf 'f wtkpi ''y cv'r gtkqf ''y cu'Iqj p'O knqp0C'egtvckp''Y knkco 'J qi i 'ttcpurcvgf 'c'rcti g'' rtqrqtvkqp"qh"O knqpøu"o clqt"rqgvt { 'kpvq"Ncvkp"kp'yi g'3892u"cpf '38: 2u0"Vj ku"kpenvf gf "Rctcf kug"Nquv. 'Eqo wu." N/elf cu0Qyj gt "tcpurcyqtu"qh"O krxqp "kpenxf gf "Vj qo cu"Rqy gtô c"o cyj go cykeu"f qp"cy"Vtkpkx{ "Eqrigi g"kp" Eco dtkf i g="c"\tcpurcvqt"npqy p"qpn{"cu"LEO="cpf"c"Ot"DqrfOIqj p"Ft{f gpøu"Crgzcpf gtøu'Hgcw'y cu"\tcpurcvgf" d{"I gqti g"Dcm{"kp"3975"cpf"j ku"Cducrqo"cpf"Cej kqrj grly cu"vtcpurcvgf"d{"I gqti g"Cwgtdwt{."hcvgt"Dkuj qr"qh" Tqej guvgt. "cpf "Htcpeku" J kemo cp "kp "38: 4. "cpf "d { "Y kmkco" Eqy ctf. "c "uqo gy j cv "pqvqtkqwu" r j { ukekcp. "kp "39450" F wtkpi 'vj g'gki j vggpvj 'egpwt {.'Crgzcpf gt'Rqr g'y cu'y kf gn{ 'vtcpurcvgf .'j ku'Guuc { ''qp'O cp''cpf ''Guuc { ''qp'' Et kıkekuo "crrgctkpi "kp"ugxgtcn'xgtukqpu0Co qpi "yjg"\tcpurcvqtu'qh'yjcv'rgtkqf "ctg"yjg'rqgv'Ejtkuvqrjgt"Uoctv." y j q'\tcpurcvgf "Qf g'hqt 'O wuke 'qp 'U/E gekkc øu'F c { 'kp'3965."cpf "Wij gt 'I cj ci cp."c"encuukekuv'y j q'y gpv'kpvq" eqlplpi "\*log0'ecurlpi "eqwpvgthgk/eqlpu"qh'wpegtvclp"y gli j v+"chrgt"tcpurcvlpi "y g"Guuc{"qp"Etklekuo "lp"3969."cpf Co qpi 'eqpvkpgpvcn'vtcpurcvqtu'ku'vj g'F wej 'ercuukekuv.'I qvrkgd'Co /Gpf g.'y j q'vtcpurcvgf 'vj g'Guuc{'qp'OcpO' O knap 'tgo ckpgf 'r qr wrct 'y gm'kpvq 'vj g'gki j vggpvj "egpwt { "cpf 'y cu''tcpurcvgf 'kp'3963'd { 'Lqugr j ''Vtcr r . 'y j q'' j cf "o cf g'j ku"pco g'kp" tcpurc kqpu" htqo "encuukecn" repi wci gu. "cpf "d { "Y kmkco "F qduqp. "y j qug" Rctcf kug" Nquv" eco g''qw''lkp''39720

### 3972'tq'tj g'r t gugpv

Rctcf qzkecm(."cu'Ncvkp"egcugf "vq"dg"cp"kpvgtpcvkqpcn'rcpi wci g"cpf "dgeco g"c"rgctpgf "tgetgcvkqp."ercuukekuvu" eco g"vq"rpqy "o qtg"cdqwv"Tqo cp"eqo r qukxkqp"vgej pks wgu0"Vj wu."cu'kp"ercuukecn'vko gu."vtcpurcvkqp"kpvq"Ncvkp" y cu"

i qxgtpgf "o qtg"d{"cpekgpv"tj gvqtkecn"r tcevkeg" yi cp"d{"eqpvgo r qtct{"vtcpurcvkqp" yi gqt{0}} Dgecwug" Ncvkp" tgo ckpu"c y qtnkpi "rcpi wci g"hqt" yi g"Tqo cp"Ecyj qrke" Ej wtej ."vtcpurcvkqp" ku"c 'hcev'qh" cf o kpkurtcvkqp. "r ctvkewrctn{"kp" yi g"f c{/vq/f c{"twppkpi"qh" fr mqo ce{."cpf" yi g"Ej wtej "cv" rcti g0" Vj gtg" ku"cnuq" uqo g"vtcpurcvkqp" fqpg" hqt" rkwti kecn'r wtr qugu. "r ctvkewrctn{"kp" yi g"eqo r krcvkqp" cpf" tgxkukqp" qh" yi g"Tqo cp" Dtgxkct{."cu" y gm"cu" uqo g"vtcpurcvkqp" qh" yi g"Dkdrg" kpvq" Ncvkp. "o quv" qh" kv" wpqhhkekcn 0"C" uj qtv rkxgf" xgtukqp" qh" yi g"Rucnyt" x3; 67+" y cu" gxgp" wugf" kp" yi g"Dtgxkct{"hqt" cdqw" 47" {gctu0}

#### Nwgt c wwt g

Dtcf pgt "\$3; 62+"i ksgu'c'hcktn( "eqo r ngvg'hkuv'qh'cpyi qmi kgu'qh'Ncvkp'r qgvt { 'ltqo ''Gpi rkuj 'lqwtegu.'y kij qw'' u{ uvgo cvkecm( "pqvkpi 'y j kej "cpyi qmi kgu'r wdrkuj gf "d{ "vj g"Gpi rkuj "Rwdrke"Uej qqni"\*r ctvkewrctn( "Gvqp"cpf " Y guvo kpungt+"Qzhqtf "cpf "Eco dtlf i g"cf o k/vtcpuncvkqpu0Vtcpuncvkqpu" tcf wcm( "f kur nceg"qtki kpcn'y qtmlkp" y g" Owic g'Gvqpkgpugu'\*3977."39; 7+"cpf "vj g"Nimmi" y gwo qpcungt kgpugu'\*3: 85689+0Hqo "vj g"wpksgtukkgu."vj g" Cpvj qrqi kc "qzqpkgpuku'\*3: 68+."eqpvckpgf "c"xgt { "ncti g"r tqr qtvkqp"qh'vtcpuncvkqpu."vj g"ncuv'pkpgvggpy /egpwt { "gf kkqp"\*3: ; ; +"y cu'cm quv'gpvktgn( "vtcpuncvkqpu0Ku'Eco dtkf i g"eqwpvgtr ctv."Ct wpf kpgu'Eco k\*3: 63+"eqpvknkpi "gpvktgn( "qh'vtcpuncvkqpu."y gpv'vj tqwi j "ukz "gf kkqpu"kp"47"{ gctu0Vj g"r tghcegu"qh'vj gug"cpvj qmi kgu'ctg'ko r qtvcpv' uvcyo gpvu"qh'r tkpekr ng0O quv'encuukeknu"qh'cp{ "ko r qtvcpeg"ecp"dg"hqwpf "co qpi "vj g"vtcpuncvqtu'r wdrkuj gf 0' Rgtj cr u'vj g'i tgcvguv'qh'pkpgvggpy /egpwt { "Gpi rkuj "vtcpuncvqtu'lpvq"Ncvkp"y cu'I gqti g"N{ wgnqp."Hqwty "Dctqp" qh'Htcpung{ "\*3: 39698+."mpqy p"hqt"vtcpuncvkqpu'eqxgtkpi "o quv'Gpi rkuj "r qgwlqh'vj g"kgxgpvggpy "cpf "gki j vggpy" egpwtkgu0Vj g"Htgpej "Ncvkplxuvø'hcuekpcvkqp"y kij "Dqkrgcw'ncuvgf "wpvkriy gmlkpvq"y g"pkpgvggpy "egpwt{ "y kij " xgtukqpu'qh'vj g"Ctv'rq² vks wg"dgkpi "r wdrkuj gf "kp"3: 42"d{ "IQCOEj co dqppgv'cpf "kp"3: 44"d{ "IQOexcn"cpf" xgtukqpu'qh'Ng'Nwt kp"kp"3: 68"d{ "F crkf qw'cpf "kp"3: 46"d{ "Nexcn"0

Kp"y g"w gpwkyj "egpwwt {."trcpurcwlqp"kpvq"Ncwkp"j cu'dgeqo g"o qtg"cpf "o qtg"qh"c"rgctpgf "i co g."v{r khlgf "d{"y g" Nkdgt "s wkpwwi"Qf ct wo "S 0"J qt cuk"Hirceek\*\*J qtceg."Qf gu"X+"trcpurcwgf "d{"C0GU qf rg{."Tqpcrf "Mpqz."Twf {ctf" Mkr rkpi "cpf "qvj gtu"kp"3; 420"Vj ku"ku"c"eqnrgewlqp"qh"Ncwkp"xgtukqpu"qh"r qgo u"d{"Mkr rkpi ."y ky "c"r tghceg" ucwktk kpi "vj g"ercuwlecrir tqhguulqp0Qvj gt "pqvgy qtvj {"trcpurcwlqpu"qh"vj ku"v{r g"ctg"Crgzcpf gt"Ngpctf øu"Y kppkg" kng"Rwi\*htqo "vj g"Gpi rkuj "qtki kpcri'd{"C0C00 kpg."trcpurcwgf"3; 83+"Ecttwj gtuø"Crkekc"kp"Vgtt c"O kt cdkk" "trcpurcwgf"3; 89+"cpf "F qo wu"kp"Cpi wrq"Rwki\*htqo "vj g"Gpi rkuj "qtki kpcri'd{"Ngy ku"Ecttqm+"cpf "NU 0"Mgm{øu" Rt qtuwu"Vcrksgt"\*htqo "vj g"Gpi rkuj "qtki kpcri'd{"Mkr rkpi ."trcpurcwgf"3; : 7+0Qp"vj g"eqpvkpgpv."Cwi wurg"J cwt {øu" gzegngpv"Ncwkp"xgtukqp"qh"Uv'Gz wr²t{øu"Ng"Rgskv'Rt kpeg"cr r gctgf "kp"3; 830Dw"kp"I gto cp{."cu"kp"Dtksckp."vj g" rtghgtgpeg"ku"hq"xgtug"vtcpurcwlqp."wwcm{"uj qtv'n{tkeu0Vj gug"hqnqy "vj g"i tgcv'r j krqmi lecri'vtcf kwqp"qh"I gto cp" wpkxgtukkgu. "hkngtgf" "vj tqwi j "vj g"Tqo cpvke"o qxgo gpv'qh"vj g"rcvg"gki j vggpvj "cpf "gctn{"pkpgvggpvj "egpwtkgu0" Qpg"ko r qtvcpv'f gxgrqr o gpv'kp"vj g"gctn{"vy gpvkyj "egpwtk "ku"vj g"tkug"qh"eqo r qukkqp"enwdu."vj gtg"c"r cuuci g"ku" rtqr qugf "hqt"c"o ggvkpi ."cpf "vj g"o go dgtu"i cvj gt"vq"f kwewu"vj gkt"xgtukqpu0

Vj g'tgvtgpej o gpv'qh'encunkecn'uwf kgu'chvgt "Y qtrf "Y ct "Vy q''qeecukqpgf "xctkqwu''o gcuwtgu0'Vj g''o quv'ko r qtvcpv' y cu''y g'hqwpf kpi "qh'r gtkqf kecnu'uwej "cu"*Ncvkpkcu'*kp'Tqo g."*Xkvc'Ncvkpc* "kp'Cxki pqp."cpf "*J gt o gu'Co gt kecpwu*'kp" F cpdwt { ."vj g''Wpksgf "Uvcvgu."cm'qh'y j kej "eqpvckp'\tcpurcvkqpu0'Cpvqpkq'Dceek''qpg''qh'y g''dguv'Ncvkpkuvu'kp" y g" Xcvkecp."y qtngf "qp"eqkpkpi "Ncvkp"y qtf u'hqt" y gpvkgy /egpwt { "kppqxcvkqpu="j ku'f kevkqpct { "eco g''qw'kp''3; 850' Hqt''y g''o qo gpv."vtcpurcvkqp"kpvq''Ncvkp'tgo ckpu''y g''r tqr gtv( "qh'y g''gpy wukcuke''Ncvkpkuv."dw''cpy qmi kgu'y j kej "eqpvckp"Ncvkp'vtcpurcvkqpu''eqpvkpvg''q''dg''r wdrkuj gf 0

### Hwt yj gt 't gcf kpi

 $F \not o C n x g t p \{ "3; : 4 = "D t u e j k p "3; : : = "D k p u "3; ; 2 = "D t c f p g t "3; 62 = "E c o d t k f i g "J k u u e f \{ "q h ' j g "D k d r g "3; 83 = "E j c f y k e n "3; : 3 = "L u v f c k p "3; 65 = "Mgm (." L P 0 G 0 3; 97 = "Mgm (." N O 0 3; 9; = "Q z h q t f "E r c u u k e c n T k e v k q p c t { "3; 92 = "X k u u c e "3; 84 = "Y c t f o c p " 3; 98 = "Y g k u u "3; 72 = "Y k n k c o u "3; 8: 0$ 

NQWKU'I (MGNN)

#### Dkqi tcrj kgu

DQGVJ KWU.'O cprkwi'Cplekwi'Ugxgt lpwi'\*\*e06: 26746+'eco g'htqo 'c'ugpcvqtkcrihco kn{ "

y cv'j cf "dgeqo g'Ej tknkcp"s wksg"gctn{0Hqmqy kpi "c'f knkpi wkuj gf "r wdrke"ectggt "wpf gt "y g'Quwtqi qyj ke"go r gtqt" Vj gqf qtke. "Dqgyj kwu"y cu"ko r tknqpgf "qp" two r gf/wr "ej cti gu"cpf "f kgf "wpf gt "vqtwstg"kp"7460 Vj g"kpvgmgewcn' enko cvg"qh" y g'O kf f ng "Ci gu"ecp"dg"uckf "vq"j cxg"dggp"dqtp"qh" ku"Ncvkp" tcpuncvkqp"qh"Ctknvqvrg. "dgi wp"gctn{"kp" j ku"ectggt0 J ku"y gm/mpqy p" tcpuncvkqpu"kpenwf g"o quv"qh"Ctknvqvrgøu" Qt i cpqp. "Rqtr j {t {øu" Kuci qi g. "cpf" y g" I gqo gvtkc. "c" tcvj gt"htgg" tcpuncvkqp"qh" Gwenkf øu "Grgo gpvu0

EKEGTQ.'O ctewi'Vwnkwi'\*328ó65"DE+'y cu'dqtp'cv'Ctr kpwo '\q'\yi g'uqwyi /gcuv'qh'Tqo g0J g'y cu'mpqy p'cu' qpg'qh'Tqo gou'hkpguv'ncy {gtu."cpf 'tqug'\q'\yi g'r quv'qh'eqpuwridw'y cu'o wtf gtgf 'kp'65'DE'qp'\yi g'qtf gtu'qh'\yi g'' Hktuv'Vtkwo xktcvg''\*\yi g'r qrkkecn'cmkcpeg'qh'Ecguct. 'Etcuuwu'cpf 'Rqo r g{+0Ekegtq'ku'qpg'qh'\yi g'hgy 'Tqo cp'' cwyi qtu'y j qug'y qtm'ku'cmo quv'gp\ktgn{ 'r tgugtxgf 0Cnyi qwi j 'qpn{ 'c'hgy 'qh'j ku'\tcpurc\kqpu'htqo 'I tggn'tgo ckp." j ku'f kuewuukqp'qh'\tcpurc\kqp'kp'F g'hkpkdwu'j qpqt wo 'gv'O cnqt wo ''cpf 'kp'\yi g'F g'qr vko q'i gpgt g'qt cvqt wo ''j cf ''c'' hqto c\kxg'kphnwgpeg'qp'\tcpurc\kqp''r tce\keg'hqt'\yi g''pgzv'4222''{gctu0}

EQTP CTKWU.'Lqcppgu='Lqj cpp'J ci gpdw'\*372267: +0'Eqtpctkwu'uwwf kgf 'I tggm'cpf 'Ncvkp''wpf gt'O qugmcpwu'' cpf ''s wcrkhkgf ''kp''o gf kekpg''cv'Y kwgpdgti ''kp''37450J g''ur gpv''y g''pgzv'hgy "{ gctu'nqecvkpi ''cpekgpv'o gf kecn'dqqmuO' Eqtpctkwu''dgeco g'Rtqhguuqt''qh'O gf kekpg''cv'O ctdct { ''cpf ''y gp''cv'Lgpc.''dw''j g''ku''dguv'npqy p''cu''y g''tcpurcvqt''qh'' J kr r qetcvgu''cpf 'I crgpO

HKE KP Q.'O ct ukdq'\*36556; ; +'y cu'dqtp'pgct'Hrqtgpeg'cpf 'dgeco g'rgcf gt'qh'y g'Rrcvqpkw'Cecf go { 'kp'' Hrqtgpeg0J g'y cu'qtf ckpgf 'r tkgw'kp'36450'Hkekpq'cvvgo r vgf 'vq'j cto qpk g'I tggm'r j krquqr j { 'cpf 'Ej tkwkcpkv{'' cpf 'vtcpurcvgf 'J gukqf .''Rrcvq .''Rrqvkpvu .''Rqtr j { t { .''Rtqenvu .''cpf 'Rugwf q/F kqp { ukvu0 }

NKKWU'CPFTQPKEWU'\*A4: 76426"DE+"c"I tggmlhtqo "Vctgpwo 'kp''y g''uqwj "qh''Kcn{.'y cu''dtqwi j v''q"Tqo g" cu''c''urcxg''kp''494"DE0'Y j gp''j g''y cu'htggf 'htqo ''urcxgt{.'j g''ugv''wr ''cu''c''ycej gt0'Kp''cdqw''472"DE''j g''o cf g''c" Ncvkp''xgtukqp''qh''J qo gtøu''Qf {uug{.'y j kej ''y cu''urkm''dgkpi ''wugf ''cu''c''yzvdqqm''c''eqwr ng''qh''egpwtkgu''ncvgt0'Hqt''y g'' Tqo cp''I co gu''qh''462''DE.''egrgdtcvkpi ''y g''gpf ''qh''y g''y ct''y kyj ''Ectyj ci g.''j g''eqo r qugf ''y g''hktuv''Ncvkp''eqo gf {'' cpf ''tci gf {''d{ ''hkhkpi ''j ku''o cvgtkcn'htqo 'hco qwu''I tggmlf tco cu0

TQNNP.'Ej ct ngu'\*388363963+'y cu'mpqy p'r tko ctkn{ "cu'cp"gf kqt"qh'encuukecn'\gz vu. "kp"r ct vkewrct "S wkp vkrkcp0' J g'y cu'cr r qkpvgf "Ej ckt "qh'Tj gvqtke "cv'yj g'Eqmgi g'f w'Rnguuku'kp"38: 5"

cpf 'kp'38: 9'\qqm\wr '\j g'Ej ckt'\qh\Tj g\qtke''cv\'\j g'Eqmgi g'\tq{cn\f g'Htcpeg0Tqmkp'\s wkemn('\dgeco g'\mpqy p'\cu'\c'' uwr r qt\vgt'\qh\'\j g'\Lcpugpku\u0\Vj g'\Lguwku'\dmengf 'j ku'\cr r qkp\vo gpv\'\q'\j g'\Uqtdqppg'\wp\kn\39370\J g'\y cu'\cr r qkp\vgf'' tge\vqt'\kp'\39420\J ku'\o quv\\\co qwu'\y qtm\ku'\ $Vtck^2$ '\f gu''\ wf gu. 'r wdrkuj gf '\kp'\3948. '\cpf 'j g'\y cu'\mpqy p'\\qt'\j ku'\Nc\\\p'\\ \tcpurc\\qquu'\qh'\eqp\vgo r qtct { 'r qg\u0\0}

XCNNC.'Nqt gp| q'\*eB627679+'y cu'dqtp'cv'Rkcegp| c0C''y cpf gtkpi 'uej qrct'y j q'hkpcm{ 'ugwrgf 'f qy p''cu''Rcr cn' ugetgvct { .''ecpqp''qh''y g''Ncvgtcp'Dcukrkec.''cpf 'r tqhguuqt''cv'y g''Wpkxgtukx{ "qh'Tqo g."j g''vcpurcvgf ''c''y kf g'tcpi g''qh'' I tggm'cwy qtu'kpvq''Ncvkp''cpf 'y tqvg''c''pwo dgt''qh'ko r qtvcpv'dkdrkecn'eqo o gpvctkgu0J g''ku'r ctvkewrctn{ 'ko r qtvcpv' hqt''j ku'tgugctej ''kpvq''Ncvkp''uv{ rg0}

Y KNNKCO 'QHO QGTDGMG'\*\*e\(\mathcal{B}\)4376''e\(\mathcal{B}\)4: 8+'y cu''dqtp''cv''O qgtdgng. 'kp''r tgugpv\fc\{ ''Dgni kwo 0'J g''lqkpgf'' y g''F qo kpkecpu''cpf ''ur gpv''uqo g''eqpukf gtcdng''ko g''kp''I tggeg\(0\)Cv''y g''tgs wguv''qh''\(0\)y qo cu''Cs wkpcu. ''J g''\tcpurc\(v\)g'' y g''\tcpurc\(v\)g''\(\mathcal{B}\)y qtmu''qh''Ctku\(\mathcal{B}\)tuqo g gwc\(\mathcal{B}\)tu''\(\mathcal{B}\)y q''\(\mathcal{B}\)y qtmu''qh''Ctku\(\mathcal{B}\)y q'''\(\mathcal{B}\) y g''\(\mathcal{B}\)y q'''\(\mathcal{B}\) g''\(\mathcal{B}\) g'''\(\mathcal{B}\) g'''\(\mathcal{B}\)

NQWKU'I (MGNN[

# Ncwp'Co gt kecp'tt cf kwpp

Nkng''Ncvkp''Co gtkec''kugrh ''y g''j knqt { "qh''vtcpurcvkqp''kp''y g''uwdeqpvkpgpv'ku''dqy ''wpkhqto ''cpf ''f kxgtug0'Vj ku''ku''c'' tghrgevkqp''qh''y g''dcuke''ewnwtcn'wpkx{ ''y j kej ''i tgy ''qww'qh''y cv'r ctcf qzkecn'o gti kpi ''qh'y g''J kur cpke'y kyj ''y g'' kpf ki gpqwu0'Kpf ggf .''y g''o quv''tgr tgugpvcvkxg''hki wtg''kp''Ncvkp''Co gtkecp''vtcpurcvkqp.''O cnkpcnk''Vgp²r cn''ku''c'' xgtkxcdng''u{o dqn'qh'y ku''ewnwtcn'o kz0'Dgwgt''npqy p''cu''O CNKP EJ G.''y ku''eqpvtqxgtukcn'C| vge''y qo cp''y cu'' co qpi ''y g''hktuv'kpvgtr tgvgtu''qp''y g''Co gtkecp''eqpvkpgpv''vq''eqpvtkdwg''vq''y g''r tqeguu''y tqwi j ''y j kej ''y g''r gqr ngu'' qh'y g''uq/ecngf 'P gy ''Y qtnf ''gptkej gf ''y g''npqy ngf i g''cpf ''kf gcu''qh'y g''Qnf 0

# F keqxgt { 'cpf 'eqps wguv'\*36; 463755+

Y j gp'Eqnwo dwu'hktuv'ugv'hqqv'kp'Co gtkec'j g'y cu'hcegf 'y ky "cdqw'3.222'ncpi wci gu'htqo "ctqwpf '355'ncpi wci g" hco krkgu0'Vj g'o ckp'qpgu'y gtg'C| vge'\*y ky "qxgt''42'f kcngew+'kp''O gzkeq''cpf 'P qtyj "cpf 'Egpvtcn'Co gtkec='O c{c/S wkej g'cpf 'P cj wcvikp'O gzkeq''cpf 'Egpvtcn'Co gtkec='Ej kdej c''qp''y g'Eqnqo dkcp''r ncvgcw='Ectkd'kp''y g'Cpvkngu'' cpf 'Xgpg| wgnc='Vwrk/I wctcpk'kp''Rctci wc{.''Wtwi wc{"cpf 'pqtyj gtp'Cti gpvkpc='C{o ctc''cpf 'S wgej wc''kp'' Gewcf qt.''Rgtw'cpf 'Dqrkxkc='cpf 'Ctcwecp'kp'Ej krg0F gurkg''y g'ncen'qh'j kuqtkecn'gxkf gpeg.''y gtg'ecp''dg''pq'' f qwdv''y cv'uwduvcpvkcn'eqpvcev'dgw ggp''y g'xctkqwu'vtkdgu'vqqm'r nceg.'y j kej 'kp'wtp'ko r rkgu''y g''gzknvgpeg''qh'' kovgtr tgvgtu0

Kpvgtr tgvgtu'y gtg'y kf gn{ 'wugf 'htqo 'vj g'xgt { 'dgi kppkpi 'qh'vj g'Eqps wguv.'ukpeg'vj g'Ur cpkuj 'cwj qtkxkgu'cpf 'vj g' P cvkxg'Co gtkecpu'j cf 'pq'wpf gtuvcpf kpi 'qh'gcej 'qvj gtøu'rcpi wci gu0Kpf ktgev'gxkf gpeg'ecp'dg'hqwpf 'kp'vj g'rcti g' pwo dgt'qh'vgto u'd{ 'vj j kej 'kpvgtr tgvgtu'y gtg'mpqy p.'uwej 'cu'rgpi wcu.'ngpi wctcegu.'hctcwvgu.'vtwlwo cpgu'cpf '' \*pp'vj g'ecug'qh'Pcj wcvr+"pci wcvrcvqu0

Qh'eqwtug''y g''Ur cpkıj "o qpctej u''vqqmli tgcv'r ckpu''vq''gpeqwtci g''y gkt''pgy ''uwdlgewi''vq''hgctp''y g''Gwtqr gcp'' repi wci g. 'kuuwkpi ''c''urtgco ''qh''gf kewi''vq''y g''ghlgev''y cv'y g''P cvkxg''Co gtkecpu''uj qwf ''dg''cwi j v''vq''tgcf ''cpf ''y tkg'' kp''Ur cpkuj 0'C ''3772''ncy .''hqt''gzco r ng. ''qtf gtgf ''ugzvqpu''vq''vgcej ''y g''ncpi wci g''vq''pcvkxg''ej knf tgp0'J qy gxgt. ''uwej '' eqo o cpf u'hgml'qp''f gch''gctu.''dqvj ''f wtkpi ''y ku''cpf ''ncvgt''r gtkqf u.''dgecwug''y g''gxcpi gnk cvkqp''r tqeguu'y cu''ecttkgf '' qwv''kp''y g''kpf ki gpqwu''ncpi wci gu0'Vj g''ukwcvkqp''tgo ckpgf ''wpej cpi gf ''gxgp''y j gp''c''3992''tq{cn''gf kev.''kuuwgf '' ci ckpuv''y g''y kuj gu''qh''y g''o kuukqpctkgu.''qwrcy gf ''y g''P cvkxg''Co gtkecp''ncpi wci gu0

Vj wu'kp'r tcevkeg''y g'kpf ki gpqwu'rcpi wci gu'eqpvkpwgf 'vq''dg''y g'xgj keng'hqt 'gxcpi grk cvkqp''cpf 'qtcn'eqpvcev."
y j krg''Ur cpkuj '\*qt''Ncvkp+'y cu'kpxctkcdn( 'wugf 'hqt'y tkwgp''f qewo gpw0'Vj g''qnf guv'vtcpurcvkqpu'r tkpvgf ''qp''y g''
Co gtkecp''eqpvkpgpv'ctgô pqv'uwtr tkukpi n(ô tgrki kqwu'y qtmu<'kp'O gzkeq."Dt gxg''{ ''o "u'gplwpf kquc''f qevt kpc''
et kurkcpc ''gp''rgpi wc''o gzkecpc''{''}

ecusgncpcø"cpf "kp"Nko c."c"uko krct"f qevtkpcn'\gzv'kp"Ur cpkuj ."S wgej wc"cpf "C {o ctc0

#### Vj g'hpvgtrtgvgtu

Ki'y cu'crrtgekckqp"qh'ij g'lko rqtvcpv'tqrg"lpvgtrtgvkpi "y qwf"r rc{"lp"ij g'Eqps wguv'ij cv'rgf "Eqnwo dwu'vq"vcng" wy q"kpvgtrtgvgtu"qp"j ku'hktuv'xq{ci g<Tqftki q"fg"Igtg| "j cf "ur gpv'uqo g"vko g"lp"I wkpgc."y j krg"Nvku"fg"Vqttgu" uwr rqugf n{ "ur qng"J gdtgy ."Ej crf gcp"cpf "Ctcdke0Vj g{ "y gtg"qdxkqwun{ "wpcdrg"vq"wug"ij gkt"hqtgki p"rcpi wci gu" qp"ij g'Co gtkecp"eqpvkpgpv0Vj ku'lpkkcn'gzr gtkgpeg"o cfg'ij g"eqmpk gtu"cy ctg"qh'ij g"pggf "vq"tckp"kpvgtrtgvgtu." cpf "Eqnwo dwu"vqqm'32"pcvkxgu'dcem'vq"Gwtqrg"rtgekugn{ "uq"ij cv'ij g{ "eqwrf"ces wktg"npqy rgf i g"qh'ij g"Ur cpkuj "rcpi wci g"cpf "ewnwtg."c"rqrke{"j g"o ckpvckpgf"ij tqwi j qw'hwwtg"xq{ci gu0Qp"j ku'tgwtp"vq"Co gtkec."Eqnwo dwu" y cu'ceeqo rcpkgf"d{ "w q"kpvgtrtgvgtu."Cmpuq"fg"Eaegtgu"cpf "c"{qwpi "dq{ "htqo "I wcpcj cpk'\*ij g"Dcj co cu+" y j q"y cu'i kxgp"ij g"pco g"Fkgi q"Eqn»p0

Uwdugs wgpvigzr gf kkqpu'hqmy gf "iy g'uco g'r cwgtp0lfp"36; ; "Cmpuq"f g"Qlgf c."Lwcp"f g'rc"Equc"cpf 'Co gtki q"
Xgur weekq"vqqmecr vkxgu"vq"ugtxg"cu"ngpi wcu"\*iksgtcm(."::qpi wguø+0Qlgf c'cewcm("o cttleff"j ku"pcvkxg"kpvgtr tgvgt"
cpf "i wlf g."Kicdgn0lfp"373: "Lwcp"I tklcmlc"vqqmivy q"pcvkxgu"vq"[ wecv² p"cu"lpvgtr tgvgtu."Lwlcpkmq"cpf "O grej qtglq."
y j q"j cf "dggp"ecr wtgf "iy g'r tgxkqwu"{gct"d{"Ecr vckp"Htcpekueq"J gtp² pf g| "f g"E>tf qdc0O grej qtglq"cnuq"
ceeqo r cplsf "Eqtv² u"qp"j ku"hktuv'xkukv"vq"[ wecvcp."cmpi "y kj "cpqi gt"pcvkxg"ecrmf "Htcpekueq0P cvkxgu"y gtg"
ecr wtgf "cmpi "iy g"Xgpg| wgrcp"eqcuv'd{"Cf o ktcn"Xkegpvg"[ a° g| "Rkp| »p"cpf "cmgp"vq"Ucpvq"F qo kpi q"hqt"
ugtxkeg"cu"kpvgtr tgvgtu"qp"hwwtg"gzr gf kklqpu0Vj wu"iy g"htuv"i gpgtcvkqp"qh"Ncvkp"Co gtlecp"kpvgtr tgvgtu"y gtg"
o ckpn("pcvkxgu"y j q"y gtg"ecr wtgf "cpf" "iy gp"vcwi j v'Ur cpkuj 0J qy gxgt."o gpvkqp"uj qwf "cnuq"dg"o cf g"qh"yi qug"
Ur cplctf u"y j q"cttlkxgf "qp"yi g"gctn("xq{ci gu"cpf "hqt"xctlqwu"tgcuqpu"gpf gf "wr "hxklpi "co qpi "iy g"kpf ki gpqwu"
vtklgu0Ugxgtcn'qh"yi gug"gxgpwcm("cevgf "cu'kpvgtr tgvgtu."uqo g"chvgt"dgkpi "tgecr wtgf "cpf "r tguugf "kpvq"ugtxkeg."
qyi gtu"tgvpkkpi "xqnwpvctln("y kj "iy g"eqps wguv"i tqwr 0"Y j gyi gt"P cvkxg"Co gtlecp"qt"Ur cpkuj ."yi gug"r kqpggtkpi "kpvgtr tgvgtu"r rc{gf" "cp"ko r qtvcpv'r ctv'kp"yi g"kpkkcn'gpeqwpvgt"dgyy ggp"yi g"yy q"ewnwtgu0

#### Egpvt c nCo gt kec 'cpf 'vj g'Cpvkngu

Kl'ku'tgcuqpcdrg''vq''cuuwo g''yi cv'kpvgtr tgvgtu'y gtg''cu'ko r qtvcpv''vq''Eqtv² u''cu''yi g'y cttkqtu'htqo "Vrczecre''cpf ''yi g'' qyi gt "crrlegu'y j q''gxgpwcm( "gpcdrgf "ji ko ''vq''eqps wgt 'O gzkeq0'DgtpcriF \( \bar{q} \) | "f g''Ecuvkrm' "Tqugpdrcv'3; ; 2\Theta: 6; +" o gpvkqpu''yi cv''Eqtv² u''go r rq { gf ''cu''o cp{ ''cu''yi tgg''kpvgtr tgvgtu''cv'qpg''klo g<'j g'y qwrf ''ur gcrrikp''Ur cpkuj ''vq'' Ci wkrct.''y j q'y qwrf ''yi gp''tcpurcvg''kpvq''O c{c''hqt''yi g''[ wecvge''pcvkxgu='O CNKP EJ G''y qwrf ''kpvgtr tgv'htqo ''O c{c'' kpvq''P cj wcvrlhqt''yi g''O gzkecp''tkdgu=''cpf ''Qtvgi wkxc.''c''O gzkecp''dq{.''y qwrf ''ej gerriy j gyj gt''O crkpej gøu'y qtf u'' eqttgur qpf gf ''vq''y j cv''Eqtv² u''qtki kpcm( ''uckf 0

Ci wkrct "y j qug"hwn'pco g"y cu'Lgt»pko q"f g'Ci wkrct + 'y cu'c "Ur cpkuj "engti {o cp "y j q"uwt xkxgf "Lwcp"f g" Xcnf kxkcøu"uj kr y tgengf "gzr gf kkqp"kp"3733"cpf "y cu'wcngp"ecr wxg"qp 'y g'kurcpf "qh"Eq| wo gn 'y j gtg"j g"hxgf "y kyj "y g"O c {cu'hqt "gki j v"{gctu'dghqtg"dgkpi 'htggf "d{"Eqt v"u="htqo "y gtg"j g"ceeqo r cpkgf "Eqt v"u"cu'j ku'ngpi wc" y tqwi j qw'y g"O gzkecp"eqps wguv'eco r cki p0

O CNIP EJ G'\*cmq'mpqy p'cu'O cnkpv| kp'cpf 'F q° c'O ctkpc+'y cu'dqtp'kp'c'xkmei g'pgct'Eqcv| ceqcrequ0Cu'c'i ktn' uj g'y cu'uqnf ''q'urexg'\tef gtu'cpf 'gpf gf 'wr 'kp''Vcdcueq.'y j gtg'uj g'hqto gf 'r ctv'qh'c'i tqwr ''qh'42'y qo gp'i kxgp'' cy c{ ''q'Eqtv² u'kp'373; 0Qpg'f c{.'y j gp'Ci wkret'y cu'wpcdng'\q'wpf gtuvcpf ''y g'hcpi wci g'qh'uqo g'O gzkecp'' pc\kxgu.''O cnkpej g'uvct\yf ''q'eqpxgtug'y kyj ''y go .'cpf ''dgwy ggp''y go ''y g{ ''o cpci gf ''q'guvcdnkuj ''eqo o wpkec\kqp'' y kyj ''y g'pc\kxgu.''O cnkpej g'\tetrurc\kpi ''htqo ''P cj wcvl'\q'O c{c'cpf ''Ci wkret 'htqo ''O c{c''\q'Ur cpkuj 0'Vj ku'' rtqo r \yf ''Eqtv² u'\q'r tqo kug'O cnkpej g'j gt'htggf qo 'kp'tgwtp'hqt''j gt''ce\kpi ''cu''j ku'kpvgtr tgygt''cpf ''ugetgvct {0Uj g'' dgeco g'o wej ''o qtg''y cp''y kuô j ku''eqo r cpkqp.''cf xkugt.''ugetgv'ci gpv.''cpf ''y g''o qyj gt''qh''j ku''ej knf 0 O gzkeq.''Ucpvq'F qo kpi q''cpf ''Ewdc''y gtg''y g''egpvtgu''qh'i tcxk\{''hqt''\y g''Eqps wguv0'Htqo ''y gug''r quk\kqpu'' pwo gtqwu''gzr gf kkqpu''ugv''qhh''\q''y g''uqwj ''cpf ''y g''pqty 0Guvgdcp'O ct\xp.''y g''kpvgtr tgygt''hqt''Co dtqukq''Cnhkpi gt.'' y j q'y cu''y g''Ucpvq'F qo kpi q''ci gpv'hqt''y g''Y gnugt''dcpngtu'htqo ''I gto cp{.''y cu''ugpv'\q''Eqtq''\kp''Xgpg| wgrc+'' y kyj ''42''o gp''kp''374; 0Ixcp''Qt\k'. ''c''Ugxknkcp'y j q'y cu''ecr wtgf ''d{ ''y g''eceks wg''J ktt\y ki wc'\xqt''Wekxc+''cv'y g''ci g'' qh''gki j yggp''cpf ''ur gpv'o qtg''y cp''ygp''{gctu'y kyj ''y g''pcvkxgu.''

dgeco g'J gtpå p'f g'Uqvqøu'kpvgtrtgvgt'kp''y g'Hnqtkf c''cpf ''Vgzcu''eco r cki pu''wr ''vq''37640'Guvgxcpekq.''y g'hktuv'' mpqy p''dncem'kpvgtrtgvgt'kp''y g''Urcpkuj /urgcnkpi ''y qtnf.''uckngf 'htqo ''Ewdc'hqt''Hnqtkf c''kp''3749''y kyj ''Rå phknq''f g'' Pctxå g| 0

## Rgtw'cpf 'tj g'tgw'qh'Uqwyj 'Co gtkec

Kp'eqorctkuqp'y kyj "yjg'Ogzkecp'ecorcki pu. 'kpvgtrtgvgtu'f kf'pqv'ocng'uwej "c'fggr'kortguukqp'qp''yjg'Rgtwxkcp" eqps wgw0'Vj g{ 'f kf .'j qy gxgt.'r rc{ 'c'xkxcnltqrg'kp''yj g'pgi qvkcvkqpu'dgw ggp''yj g'Kpec'Cvcj wcrr c'cpf 'j ku'' eqwpugmqtu'qp''y g''qpg''J cpf .''cpf ''y g''Ur cpkctf u'Htcpekueq''Rkt cttq.''J gtpap'f g''Uqvq.''F kgi q'f g''Cro ci tq''cpf '' eqo r cp{"qp"yj g"qyj gt."pgi qykcykqpu"y j kej "rgf" yq"yj g"Eclco ctec"co dwuj "kp"3754"cpf" yj g"gzgewkqp"qh"yj g"Kpec" ej kgh'c" {gct 'myst0Coqpi 'vj g'kpystr tgystu'cdqw'y j qo 'eqpetgys'kphqtocvkqp 'gzkwu. 'r tkf g'qh'r meg'i qgu'vq" Hgrkr kmq'\*qt'Hgrkr g+'cpf 'O ctvkpgmq.''y q"{qwpi 'pcvkxgu'y j q'ceeqo r cpkgf 'Rkt cttq'cpf 'Cro ci tq'qp''y gkt" xctkqwu'gzr gf kkqpu'\q'Rgtw0'Dqtp'qp'\j g'kurcpf 'qh'Rwpa.'Hgrkr kmq'rgctpv'S wgej wc'kp'VAo dg| 'htqo 'pcvkxgu'y j q' ur qng'k/cu'c'ugeqpf 'hcpi wci g. 'r kengf 'wr 'Ur cpkuj 'htqo 'rkuvgpkpi 'vq'uqnf kgtu. 'cpf 'y cu'vj gp'vcngpô cnqpi 'y kyj " O ctykpgmqô vq'Rcpco c'd { 'Rk cttq0'Cm'j kuvqtkcpu'ci tgg''y cv''y g'kpvgtr tgvkpi 'r tqxkf gf 'd { 'Hgrkr kmq''qh''y g'' eqpf kkqpu'f go cpf gf 'qh'C vcj wcrr c'\*tgeqi pkkqp'qh'vj g'Ej wtej .''vj g'Rqr g'cpf 'vj g'Ur cpkuj 'o qpctej u+'y cu'hct" htqo 'hckij hwnk'kpf ggf ."vj g"o guuci g"y cu'f grkdgtcvgn( "tgpf gtgf "kp"c"o cppgt "qhhgpukxg"vq"vj g"Kpec"mkpi "dgecwug" Hgrkr kmq''dgmpi gf ''vq''c''tkxcn''vtkdg''cpf ''y cu'j cxkpi ''cp''chhckt''y kj ''qpg''qh''C vcj wcrr cøu''eqpewdkpgu0  $Cpqvj \ gt "eqmwthwn" ej \ ctcevgt "y \ cu"c" Ur \ cpkvj \ "uqnf \ kgt" ecmgf "Dcttkgpvqu." c"tqi \ wg"cpf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ go \ pgf \ "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ pgf \ "c" vj \ kgh" y \ j \ q"y \ cu"eqpf \ q' \ pgf \ q' \$ d{'Rk| cttq''vq''dg''y j krrgf''cpf''j cxg''j ku''gctu''ew''qhh0Fkuhki wtgf.''j g'hngf''uqwyj y ctfu''vq''pqtvj gtp''Ej kng.''y j kej " y cu''y gp''r ctv'qh''y g'Ew| eq''go r ktg. "y j gtg'j g'hkxgf ''y kj ''y g'pcvkxgu0F kgi q'f g'Cno ci tqøu''gzr gf kkqp''hqwpf 'j ko " vtcpulqto gf 'kpvq'c'dgctf gf 'pcvkxg'cpf 'wugf 'j ko 'cu'cp'kpvgtr tgvgt'cpf 'kpvgto gf kct{0 Gs wcm( 'lpvgtguvkpi 'y cu'Htcpekueq'f gn'Rwgtvq. 'mpqy p''cu'Rcs wkmq. 'vj g'hktuv'y j kxg'kpvgtr tgvgt'kp'vj g'Tkxgt'Rncvg'' pcvkxgu'dghqtg'dgkpi 'eqo o kuukqpgf 'cu'c'i wkf g'cpf 'kpvgtrtgvgt'hqt''Ugdcuvkcp'Ecdqvq0'Kp''3748'j g'hgm'qwv'y kj " I qp| cm'P A° g| 'f g'Dcmlqc'cpf.'d{ 'y c{ 'qh'tgxgpi g.'\qi gyj gt'y kyj '\yi g'pc\kxgu'r tgr ctgf 'cp''co dwuj 'kp'y j kej " ugxgtcn'Ur cpkctf u'y gtg'nkngf 0

Co qpi 'Rqtwi wgug'lpvgtrtgvgtu'yj g'o quv'hco qwu'hki wtg'lku'yj g'cfxgpwtgt'I qp| cm|'f g'Cequvc.''dqtp'lp''Rqtwi cn' lp''36; 20J g'r ctvlekr cvgf 'htqo ''yj g'dgi lpplpi 'lp''yj g'f kueqxgt { "cpf 'eqps wguv'qh'yj g'Tkxgt'Rrcvg''ctgc''cpf ''cevgf ''cu'' lpvgtrtgvgt'hqt'Crxct'P w^g g| 'Ecdg| c'f g'Xcec''cpf ''Rgftq'f g'O gpfq| c0

P qv'c'i tgcv'f gcn'ku'mpqy p''cdqwv'qyi gt'kpvgtr tgvgtu'kp''yi g''uqwyi gtp''r ctv'qh''yi g''uwdeqpvkpgpv'f wtkpi ''yi ku''r gtkqf ." dw''Ctpcwf "\*3; 72+'o gpvkqpu''Cpvqpkq''Vqo a u.''Gptks wg''O qpvgu.''O gnej qt''Tco ¶tgl "cpf ''Igt»pko q'Tqo gtq''cu'' kpvgtr tgvgtu'y j q'y gtg''cevkxg'kp''yi g''tgi kqpu''ctqwpf ''y j cv''ctg''pqy ''Dwgpqu''Cktgu.''O qpvgxkf gq''cpf ''Cuwpek»p0

# Vj g'eqmpk: n'r gt kqf '\*ukz vggpvj 'kq'gki j vggpvj 'egpwt kgu+

Qpeg'\j g'\xctkqwu'P c\kxg'Co gtkecp'nkpi f qo u'j cf ''dggp''eqps wgtgf.''qpg'qh'\j g''o ckp''qduxcergu'\q''gxcpi grk c\kqp'' y cu'\j g'f kxgtuk\{ "qh'ircpi wci gu'\kp''Nc\kp''Co gtkec0Ecyj qrke''ergti {o gp''dgeco g''cy ctg''qh''y g''pggf ''hqt''c''hkpi wc'' htcpec'\y j kej ''eqwrf 'hwpe\kqp''cu''cp''kpvgto gf kct { "dgw ggp''Ur cpkij ''cpf ''y g''o wxkwf g''qh''pc\kxg''rcpi wci gu0'D{ "y c{ "qh''uqnwkqp."o kuukqpetkgu''dgi cp'\q''r tqr ci cvg''y g''wug''qh''-i gpgtcn''rcpi wci gu0\cketa ("37: 6'P cj wcvn'y cu''ur qngp'' htqo ''\ cecvgecu''\q''P kectci wc=''d{ ''y g''gpf ''qh''y g''ukzvggpy ''egpwt { "S wgej wc''ur tgcf ''htqo ''Rgtw'f qy p''\q''pqty' / y guv'Cti gp\kpc''cpf ''htqo ''uqwj gtp''Eqmo dkc''cetquu''\q''Gewcf qt''cpf ''y g''Wr r gt'Co c| qp='Ej kdej c''\qt''O w{uec+'' y cu''go r nq {gf ''y tqwi j qwv'y g''Eqmo dkcp''r revgcw=''cpf ''I wctcpk'eqwrf ''dg''j gctf ''kp''Rctci wc { .''y g''Tkq''Rrcvg'' guwct { ''cpf ''c''rcti g''r ctv'qh'Dtc| kr0'Rctcf qzkecm{ .''wpf gt''y g''Ur cpkctf u'P cj wcvrl'cpf ''S wgej wc''eqxgtgf ''c'' tgcvgt'' gzr cpug''qh'\gttkqt { ''y cp''y g{ ''j cf ''cv'y g''r gcm'qh''y gkt ''qy p''tgur ge\kxg''go r ktgu0} J qy gxgt.''ngcxkpi ''cukf g''y g''pgeguukkgu''qh''f ckn{ ''eqo o wpkeckqp.''kv'o ww''dg''r qkpvgf ''qwv'y cv'tki j v'wr ''q''y g''gpf '' qh'y g''eqmpkcn'r gtkqf ''y g''pckxg''rcpi wci gu'y gtg''pgi ngevgf ''d{ ''y g''Ur cpkuj ''cwy qtkkgu.''cp''cwkwf g'y j kej ''

tguwngf 'kp''y g''nquu'qh''\gz vu''cpf '\tcpurc\kqpu''qh'ko o gpug''

xcnwg."pqv'vq"o gpvkqp"hpi wkuke"uwf kgu"ecttkgf "qw'd{"\*co qpi "qvj gtu+"Iguwkv."Htcpekuecp"cpf "J kgtqp{o ksg" o kuukqpctkgu0'kp"hcev."ukpeg"kv'y cu"kpeqpegkxcdrg"vj cv'vj g"ucetco gpvu"qh"vj g"Ecvj qrke"Ej wtej "dg"cf o kpkuvgtgf" y ksj qwv'c"o kpko wo "qh"wpf gtuvcpf kpi "qh"vj g"dcuke"ctvkergu"qh"hcksj "qp"vj g"r ctv'qh"vj g"eqpxgtv."cpf "ukpeg"kv'y cu" gs wcm{"wpceegr vcdrg"vj cv'eqphguukqp"\*hqt"gzco r rg+"dg"wpf gtvcngp"vj tqwi j "kpvgtr tgvgtu."r tkguvu"f gf kecvgf" vj go ugnxgu"vq"c"f ggr "uwf {"qh"vj g"nqecn'ncpi wci gu"cpf "gxgp"y tqvg"i tco o ctu"cpf "f kevkqpctkgu"cu"y gm"cu" vtcpurcvkpi "ugxgtcn'tgrki kqwu"vgzvu."uwej "cu"dtgxkctkgu."o kuucnu."f gxqvkqpcn'o cvgtkcn"ej cpvu"cpf "j {o pu0'Vj gug" f qewo gpvu"rcvgt "hgmikpvq"f kuwug."cf f kpi "vq"vj g"nqpi "rkuv'qh"uej qrctn{"y qtmu"qp"vj g"P cvkxg"Co gtkecp"rcpi wci gu" vj cv'y gtg"r tqf wegf "f wtkpi "vj ku"r gtkqf "cpf" vj gp"nquv"vq"r quvgtkx{0}

#### Kpvgtrtgvgtu'cpf'\tcpurcvqtu

Uko kretn(.''Eqdett wxkeuøu''*Rt ko gt 'F keekqpet kq'f g'nc 'Ngpi we* ''\*3833+''qhhgtu''c'hektn( ''f gvekrgf ô kh'uqo gy j ev'' kf genkurkeô f gh'kpkkqp''qh''y g'kpvgtr tgvgt.''gzr gevkpi ''pqv''qpn( ''ceewtee{ ''dwv''enuq''+Ej tkurkepkv{ ''cpf ''i qqf pguuø0

#### Vt cpur skqpu

Ceeqtf kpi "\q"Ngcn\\3; 9; \(\frac{3}{3};\) + "kp"\y g"eqnqpkcn"r gkqf"\(\frac{4}{3};\) great gr

Uwej "tcpurcvkqpu." vqi gvj gt"y kyj "vj g"tgrcvkxgn( "htgg"ektewrcvkqp"qh"cm"v{ r gu"qh"dqqmu." eqpvtkdwgf "vq"y g" guvcdrkuj o gpv"qh"Ur cpkuj "cu"vj g"htpi wc"htcpec"kp"Ncvkp"Co gtkec0J qy gxgt." dqqmu"vgpf gf "vq"ngcf "tcvj gt" gr j go gtcn"nkxgu"kp"eqmpkcn"Co gtkec0Vj gtg"y gtg"ugxgtcn"hcevqtu"vj cv"y qtnngf "ci ckpuv"vj g"r tqf wevkqp"cpf" r wdrkecvkqp"\*cpf "vj gtghqtg"vj g"tcpurcvkqp+"qh"nkxgtct { "y qtmu." uwej "cu"vj g"y ctu"qh"lkpf gr gpf gpeg. "vj g"gzqf wu"qh" gpvktg"hco krkgu"\*dqvj "Ur cpkuj "cpf "pcvkxg+"cpf "vj g"f guvt wevkqp"qh"nkdtctkgu. "eqpxgpvu"cpf "r wdrke"dvkrf kpi u0' Kpf ggf." kv"uj qwrf "eqo g"cu"pq"uwtr tkug"vj cv"dqqmu"y gtg"f khhkevnv"vq"r tgugtxg"kp"vj g"eqrqpkcn"r gtkqf "kp"vj g"P gy "Y qtrf"ukpeg"tgrcvkxgn("hgy "f qewo gpvu"uwtxkxgf"vj ku"gr qej "kp"Ur ckp"kugrh0

Vj g'f kucr r gctcpeg''qh''uq''o cp{ ''xcnwcdrg'\gzwi'cr r gctu'cv'hktuv'uki j v'\q''dg''c''r ctcf qz.''i kxgp''yj cv'r tkpvkpi ''r tguugu'' y gtg''kpuvcrngf ''gctn{ ''qp''kp''O gzkeq''\*3757+''cpf ''Nko c'\*37: 5+''cpf ''yj cv'wpkxgtukkgu''y gtg''uqqp''hqwpf gf ''kp''Ucpvq'' F qo kpi q'\*375: +'O gzkeq''\*3775+''Nko c'\*3777+''Dqi qvc'\*37: 2+''cpf ''S wkxq'\*37: 8+0'Dw''yj g'f gvgto kpcvkqp''qh'yj g'' cwj qtkkgu''vq''eqpvtqn'yj g'y tkwgp''y qtf ''cv''vko gu''tgcej gf ''hgxgt''r kxej .''

cu'y j gp''y g'Hktuv'Eqwpekri'qh'O gzkeq''qtf gtgf ''y g'eqphkuecvkqp''qh'cm'dqqmu''qh''ugto qpu''kp''pcvkxg''ncpi wci gu''qp'' y g''i tqwpf u''y cv'y g{ 'eqpvckpgf ''vcpurcvkqp''gttqtu.''qt''y j gp''i tco o ctu''cpf 'f kevkqpctkgu''y gtg''kpenwf gf ''kp''y g'' rkuvu''qh''r tqj kdkxgf ''vgzvuO

Cv'y g'uqwj gtp'vkr ''qh'y g'eqpvkpgpv'y g'Lguwku'ecttkgf ''qwv'kpvgpug'kpvgmgewcn'cevkxkv{ ''kp'y j kej ''vtcpurcvkqp'' cny c{u'r rc{gf 'c'r tg/go kpgpv'tqrg0'Vy q'y qtmu.'ROP kgtgo dgti øu'F k/gt gpekc 'gpvt g'hq'/yo r qt cn/{ 'hq''gvgt pq''cpf 'RO' Tkxcf gpgktcøu" Hnqu" Ucperqtwo. "y gtg" tcpurcygf "kpyq" I wctcpk" cpf "r tkpygf "kp" Rctci wc {0 Dwy j gp" y g" Iguwku" y gtg"gzr gmgf. "pqyj kpi "tgo ckpgf "qh"yj g"r tkpvkpi "r tguugu"pqt "qh"yj g"y qtmu"yj go ugnxgu0 Ocp{"qyj gt 'xcnvcdrg' \tcpurc \tqpu' y gtg" ocf g"qh' Gwtqr gcp" y qtmi. "dw'r gtj cr u 'gxgp" o qtg' \text{kor qt vcp v'y gtg' y g"} vtcpurcvkqpu"qh"vgzvu"htqo "vj g"f kucr r gctkpi "P cvkxg"Co gtkecp"ewnwtgu0Hqt"gzco r ng. "Lwcp"Dcf kcpq"htqo " Zgej ko kreg 'tcpurcygf 'kpyg' Ncykp'c'dggmigh' pcykxg'j gtdcn'o gf kekpgu. "Nkdgmwu'f g'o gf kekpcnkdwu'kpf gt wo 'j gtdku." y j kej 'j cf 'dggp'y tkwgp'kp'P cj wcvrld{ "c'pcvkxg'ecmgf 'O ctvkp'f g'rc'Etw| 'kp'37740Ctqwpf '3752'Htc'Dgtpctf kpq" f g'Ucj ci Ap'r tqf wegf ."kp"P cj wcvn'cpf "Ur cpkuj ."vj g"Nkdt qu'f g"nqu'Eqnqs wkqu"qt "Rn" vkecu."y j kej "f gcnv'y kyj "c" ugtkgu"qh"tgrki kqwu"f kuewuukqpu"dgwy ggp"Htcpekuecp"o qpmu"cpf "C| vge"uci gu0"Vj g"uco g"cwj qt"rgf "c"vgco "vj cv" y tqvg. 'kp'P cj wcvn''y g'J kwqt kc'f g'hcu'Equcu'f g'Pwgxc'Gwrc°c. 'y j kej 'y cu'dcugf 'qp''y g'ceeqwpvu'qh'y g'qrf " r gqr ng'lp''Vncvgnqneq''cpf 'y j kej ''Ucj ci Ap''j ko ugrh''vj gp''vtcpuncvgf 'kpvq''Ur cpkuj ô c'y qtm'vj cv'vqqm'c''vqvcn'qh'62'' {gctu'vq'eqormgvg'cpf'tcp'kpvq'34'xqnwogu0C'ukokrct'vtcpurcvkqp'd{''Htc'Fkgiq'fg'Fwtap."} kwqtkc'fg'rcu'Kpfkcu''  $fg'Pwgxc'Gurc^oc''$  | 'Kurcu'f g'Vkgttc'Hkto g. 'y cu'nksgtcm ('ecttkgf'qwv'htqo' 'y g'Tco fg | 'Eqf gz0'Uwej' 'tcpurcwqpu'' rtqxkf g'Co gtkecpkuvu'y kij "o cvgtkcn'cu'xcnwcdng'cu'vj g'Tqugwc'uvqpg'dgecwug'vj g{ 'hcekrkvcvg'vj g'tgeqpuvtwevkqp'' qh'cp'cm quv'eqo r ngvgn{ 'qdnkvgtcvgf 'r cuv0 Vj gtg"ctg"pq"tgeqtf u"qh"cp{"tcpurcvkqpu"ecttkgf "qwv"dgwy ggp"P cvkxg"Co gtkecp"rcpi wci gu"f wtkpi "vj ku"r gtkqf 0

# Kpf gr gpf gpeg'cpf 'chwgt '\*3: 2263; 72+

Vj g'pkpgvggpyj "cpf 'hktuv'j cnh'qh'yj g'vy gpvkgyj "egpwtkgu'y cu'c'r tqf ki kqwu'r gtkqf 'hqt'kpvgmgewcn'cevkxkv{" yj tqwi j qwi'Ncvkp'Co gtkec0Cv'hktuv."j cxkpi "uj cngp"qhh'yj g'uj cemgu'qh'yj g'Ur cpkuj "eqnqpkuvu."pkpgvggpyj /egpwt{" y tkgtu'cpf "ct kuwi'y gtg"ugctej kpi "hqt"c"pgy "kf gpkk/{ "cpf "vgpf gf "vq"mqmlvq"\*pqp/J kur cpke+"Gwtqr g"cpf "P qt yi " Co gtkec'hqt'o qf gnu'vq'ko kxcvg0'Vj g'r qrkkecn'cpf 'kpvgmgewcn'ngcf gtu'qh'vj g'go gti kpi 'pcvkqpu'qp'vj g' uwdeqpvkpgpv'i gpgtcm("j cf "vj g"qrrqtwpkv{"vq"vtcxgn'cdtqcf "kp"vj gkt"hqto cvkxg"{ gctu'cpf 'y gtg"ceewuvqo gf "vq" uj ctkpi "vj gkt "kf gcu "y kj "vj gkt "eqwpvgtr ct vu "htqo "qvj gt "ewnwt gu "cpf "hcpi wci gu01 kxgp"vj ku "eqpvgz v "qh "ewnwt cn" kpygtej cpi g. "ky"ku 'pqy'uwtr tkukpi "yj cy'tcpurcykqp"y cu 'xkt wwcm{ "c"pgeguuky{ "kp"r quy/kpf gr gpf gpeg"Ncykp"Co gtkecp" uqekgv{."c"hcev'dqtpg"qw'd{"yjg"xqnwog"qh'\tcpurc\kqpu"cpf"yjg"uvcwu"ces wktgf"d{"uqog"\tcpurc\qtu0 Y kj 'uqo g'pqvcdrg'gzegr vkqpu. 'tcpurcvkqpu'f wtkpi 'vj ku'r gtkqf 'tghrgev'o qtg'vj g'i gpkwu'qh'vj g'qtki kpcn'y tkgt" y cp'y g'etgc\kxkv{ "qh'y g''\tcpurc\qt="kp"qy gt"y qtf u'\y g{ "\gpf gf "\q"cf j gtg'enqugn\{ "\q'\y g'\uqwteg"\gz\v0\Vj g" rtgf qo kpcpv'yi go gu'qh'yi g'\tcpurcvgf '\gz w'ctg'tgrcvgf '\q'rqrkvkeu. ''gf wecvkqp. ''yi gcvtg''cpf ''rkvgtct{ ''o cwgtu.'' yj qwi j "tgrki kqwu"cpf "o krksct { "vqr keu"cnuq"hgcwxtg"vq"uqo g"gzvgpv0"Vtcpurcvkqp"cevkxkv{ "y cu"i tgcvn{ "uvko wrcvgf"d{ " yj g"guvcdrkuj o gpv"qh"pgy ur cr gtu. "rkvgtct { "lqwtpcnu."r wdrkuj kpi "j qwugu"cpf "wpkxgtukkgu0"Htgpej "y cu"yj g"o quv" eqo o qpn{"tcpurcvgf "hcpi wci g"cv"vj g"dgi kppkpi "qh"vj g"pkpgvggpvj "egpwt { . 'y kj "Gpi rkuj "i ckpkpi "kp"ko r qt vcpeg" ncvgt "qp0"Kcncp"cpf "I gto cp"cnuq"tgegkxgf "cwgpvkqp."dwv'hgy gt"vtcpuncvkqpu'y gtg"ecttkgf "qwv'htqo "Ncvkp"cpf" I tggm\vgzvu0

Y j krg''y g''cdqxg/o gpvkqpgf 'ej ctcevgtkuvkeu''ctg''vq''uqo g''gzvgpv''uj ctgf 'd{ ''cm'y g''eqwpvtkgu''kp''y g''tgi kqp.''y g''twg'' hrcxqwt''qh''y g''r gtkqf ''ecp''qpn( ''dg''hwm( ''crrtgekcvgf ''d{ ''nqqmkpi ''cv''uqo g''ur gekhke''ecugu''kp''o qtg''f gvckr0

\*c+"Kp"Cti gpvkpc."xctkqwu"rkvgtct{"cpf"ftcoc"uqekgvkgu."uwej "cu"yjg"Uqekgfcf"fgn"Dwgp"I wuvq"fgn"Vgcvtq"
\*hqwpfgf"kp"3: 39+."vtcpurcvgf"cpf"rgthqtogf"Gwtqrgcp"yqtmu0"Vyq"qh"yjg"tgrwdrkeøu"rtgukfgpwu"vqqm"
ogcuwtgu"yjkej"jcf"c"fktgev"korcev"qp"vtcpurcvkqp"cevkxkv{<kp"yjg"gctn{"rctv"qh"yjg"pkpgvggpyj"egpwut{"Oqtgpq"qtfgtgf"uejqqnu"vq"vgcej"cp"gzrwticvgf"xgtukqp"qh"Tqwuugcwøu"Uqekcn/Eqpvtcev"\*ykyj"yjg"tgrkikqwu"rqkpv"qh"xkgy"grkokpcvgf+="cpf"

revgt"qp"Ucto kgpvq"ko r qtvgf "P qtvj "Co gtkecp"vgcej gt"vtckpgtu."cmpi "y kij "c"r cemci g"qh"f kf cevke"o cvgtkcnu0' Cu"kp"qvj gt"eqwpvtkgu"qp"vj g"uwdeqpvkpgpv."vj g"tglgevkqp"qh"gxgt { vj kpi "Ur cpkuj "ngf "vq"kpet gcugf "kpvgt guv"kp" qvj gt "ewnwt gu."vj j kej "kp"wtp"uvko wrevgf "vtcpurcvkqp0"kp"cf f kkkqp."vj g"y cxgu"qh"ko o ki tcpvu"cttkxkpi "qp" Cti gpvkpg"uj qtgu"vgpf gf "vq"r tqo qvg"ewnwt cn"kpvgtej cpi g"cpf ."eqpugs wgpvn{ ."vtcpurcvkqp"cevkxkkgu0"Vj g" o clqt"hki wtgu"kp"vtcpurcvkqp"kp"Cti gpvkpc"f wtkpi "vj ku"r gtkqf "kpenwf g"Dctvqmo 2"O kxtg."Ngqr qnf q"Nwi qpgu." O cpwgnT cnxgu. "Tkectf q"Tqlcu"cpf "Iqti g"Nwku"Dqti gu0O kxtg"cpf "Dqti gu"ctg"cnuq"ko r qtvcpv"hqt"vj gkt" vj gqtgvkecn"t ghrgevkqpu"qp"vtcpurcvkqp0

\*d+"Yo"Ej krg." 'y g"j kurqt {"qh''tcpurc'kqp"i qgu"j cpf "kp"j cpf "y kj "'y cv'qh'r wdrkuj kpi 0'Vj g"hktur'pgy ur cr gt "\q"dg" hqwpf gf "kp" y g"eqwpvt { ."Nc"Cwt qt c"f g"Ej krg"\*3: 34+."f kuugo kpcvgf "'y g"kf gcu"qh'Tqwuugcw'cpf "qy gt "hqtgki p" r j krquqr j gtu0I qxgtpo gpv'cevkqp." uwej "cu"y g"etgcvkqp"qh'y g"Wpkxgtukx{"qh'Ej krg"kp"3: 64. "y cu"cnuq"etwekcri" kp" y g"r tqo qvkqp"qh''tcpurcvkqp0'Kt'y cu''s wkxg"eqo o qp" y cv'\gz vu"f guvkpgf "hqt"r gf ci qi kecn'vug"y qwrf "dg" cf cr vgf "\q" y g"Ej krgcp"eqpvgzv'tcy gt" y cp"tcpurcvgf "rksgtcm{0'Kp" y g"hktuv'j cm'qh'y ku"r gtkqf "Htgpej "y cu" y g" uqwteg"repi wci g"qh'y g"xcuv'o clqtkx{"qh'\gz vu"tcpurcvgf ."r ct vn{"dgecwug"qh'y g"gpqto qwu"kphrwgpeg"qh" cwj qtu"rkng"Xqncktg. "Tqwuugcw."F kf gtqv'cpf "Cddqv'Tc{pcn'qp" y g"r tqeguugu"qh"go cpekr cvkqp"cpf "hqto cvkqp" qh'y g"pgy "pcvkqp0'Vj g"r tkpekr cn'hki wtgu"kp" y g"hkgrf "qh'vtcpurcvkqp"kp"Ej krg"kpenxf g"Xcrgpv¶p"Ngvgrkgt"cpf "Iqti g"Nci cttki wg."cu'y gm'cu'Cpf t² u'DGNNQ'y j q." y qwi j "Xgpg| wgrcp."ecttkgf "qw'o quv'qh'j ku'kpvgrngewcn' cevkxkx{"kp"Ej krg0'Ur gekcn'o gpvkqp"uj qwrf "cnuq"dg"o cf g"qh'Rcdm'P gtwf c'hqt"j ku'vtcpurcvkqp"qh'rksgtct {" y qtmu."kpenxf kpi "j ku'yzegrngpv'xgtukqp"qh'Tqo gq"cpf "Lwxkgv0

\*e+"Kp"Ewdc."y ku'gr qej "tgcm("uvctwi'cv'y g"gpf "qh'y g"gki j vggpyj "egpwt{"y kyj "y g"etgcvkqp"qh'y g"Rcrgn'

Rgtkof keq"f g"Nc" J cdcpc. "kp"y j kej "c"tcpurcvkqp"qh'Rqr g"cr r gctgf 0Vj ku'y cu'hqmqy gf "d{"c"uvkpi "qh"

vcpurcvkqpu"qh'y g"ngcf kpi "y qtmu"qh'y g"eqpvgo r qtct{"r j knquqr j kecn'cpf "iksgtct{"uej qqnu."vcpurcvkqpu"y j kej "

uqqp"dgi cp"vq"ces wktg"c"ir gekcn'Ewdcp"hrexqwt0Vj g"nkuv'qhl'f kuvkpi wkuj gf "Ewdcp"tcpurcvqtu"ku"j gcf gf "d{"

Iqu² "O ct"p" J gtgf kc"{" J gtgf kc."y j q"y cu"dqtp"kp"O gzkeq"kp"3: 25"cpf "y j q"vcpurcvgf "Ukt"Y cnngt"Ucqw."

Vj qo cu"O qqtg."O ctkg"Cpf t² "Ej² pkgt."Xkvqtkq"Crhkgtk "Igcp/Htcp±qku"F weku."Xqncktg."Tqej "cpf "V{ vgt."

cny c{u"gpj cpekpi "y g"qtki kpcn'vgzv'y kyj "j ku"qy p"etgcvkxkv{0Kp"c"uko krct"xgkp. "I gtvwf ku'I qo g| "F g"

Cxgmcpgf c"\*3: 36695+"vtcpurcvgf "y g"y qtmu"qh"Xkevqt"J wi q. "Nqtf "D{tqp. "Nco ctvkpg"cpf "Cwi wunq"f g"Nko c"

kpq"Ur cpkij ."Qyj gt "pqvcdng"hgo cng"vtcpurcvqtu"kp"pkpgvggpy /egpwt {"Ewdc"kpenwf g"Cwtghc"Ecuvkmq"F g"

I qp| cng| "cpf"O gtegf gu'O cvo qtqu."y j qug"vtcpurcvkqpu"kpenwf gf "D{tqp."Ej²pkgt."O qqtg."I qgyj g"cpf"

Uej kngt0Kp"y g"hkgrf u"qh"gf wecvkqp"cpf "uekgpeg."y g"o clqt"hki wtgu'y gtg"y g"dtqyj gtu'Cpvqpkq"cpf "Gwugdlq"

I wksgtcu"Hqpv."Guvgdcp"Dqttgtq"Gej gxcttkc"cpf "Iqu² "F griRgtqlq"\*y j q"y cu"y g"htuv'vq"vtcpurcvg"Mcpv'cpf"

Hkuej gt"f ktgevn( "Itqo "I gto cp"vq"Ur cpkij +0Hkpcm(."y) cv'o clqt"hki wtg"kp"wpkxgtucn'ngwgtu."Iqu² "O ctvk\*3: 756

; 7+"y cu"cnq"c"pqvg qtyj {"vtcpurcvqt0

\*f+"Kp" Xgpg/wgrc." 'y g"uco g"r cwgtpu" ecp" 'dg"f gygevgf <'y g"r tgf qo kpcpeg" qh"r kygtct { "tcpurckqp." 'y g" ko r qtvcpeg" qh"r j kquqr j kecn" yz wi" tgrcyf "vq" y g"go cpekr cwqp"r tqeguu. "y g"eqppgewqp" 'dgwy ggp" 'tcpurcwqp" cpf "y g"r gf ci qi kecn" ycun" qhi"y g"go gti kpi "wpkxgtukkgu." cpf "y g"etgevkxg" htggf qo "qh" y g"tcpurcwqt0" y g"dguv" tgr tgugpvcvkxg" qh" cm" y gug" 'tckuu'y cu" wpf qwd yef n{"y g"y tkgt." gf wecvqt" cpf "f kr mo cv." Cpf t² u"DGNNQ." y j qug" r qgvt { "tcpurcwqpu" j cxg" tgegkxgf "wpkxgtucn" ceercko "hqt" y gkt" dgcww{ "cpf" qtki kpcnk{ 0Dgmq" \tcpurcwqf" "
\*co qpi "qy gtu+" Hmqtkcp." D{tqp. "Rrcwwu. "Xkevqt" J wi q." F wo cu. "Dq{ctf q"cpf" "Xkti kn="j ku" \tcpurcwqp" qh" J wi qøu" "Nc" r tk² t g" r qwt" 'qwu" f gugtxgu" ur gekcn" o gpwqp0" y j g"r qgv" Lwcp" Cpvqpkq" Rgtg| "Dqpcnf g" \si 3: 686; 4+" y cu" \tgur qpuklng" hqt" r qr wctk kpi "J gkpg" cpf" "Rqg" kp" Ncwp" Co gtkec="j ku" Ur cpkij "\tcpurcwqf" hJ gkpgøu" F cu" Dwej "f gt" Nkgf gt" j cu" { gv" q" dg" uwtr cuugf 0 Hkpcm{ ."Nkucpf tq" Crxctcf q" \si 3: 7: 63; 4; +"\tcpurcwgf" "y g" ej tqpkengu" qh" P kej qrcu" Hgf gto cp"

cpf ô o quử ko r qt vcp vn (ô Cngz cpf gt "x qp" J wo dqnf vợu "X kc lg" c "hc u" t gi kqp gu "gs wkp qeekc ngu" f gn P wg x q " Eqp vkp gp vg 0

## Vj g'r t gugpv'f c{

Ncvkp'Co gtkec'eqpurkwwgu'c'rcti g."gzr cpf kpi 'o ctmgv'hqt''y g'\tcpurcvqt0Cr ctv'htqo ''y g'i tqy kpi 'pwo dgt''qh'' r wdrkuj kpi 'j qwugu'hqt''rksgtct { "cpf "qvj gt''mkpf u'qh'y qtmu."hwwtg'f go cpf 'hqt'\tcpurcvkqpu''ku'i wctcpvggf ''d { ''vj g'' xqnwo g''qh'eqo o gteken'kpf wuxtken'cpf ''vgej pqmi keen'gzej cpi g'tgs wktgf ''d { ''c'eqo o wpkv{ "qh'hknggp''eqwpvtkgu'' cpf ''622''o knkqp''r gqr ng0

Kp'xctkqwu'eqwpvtkgu''y gtg''gzkuwi'y g'hki wtg''qh''y g'r wdnke''vtcpuncvqt."crrqkpvgf ''qt''cwyi qtk' gf ''d{''y g''uvcvg'hqt'' ngi cn''cewl0'Dg{qpf ''y ku."j qy gxgt. ''y g''r tqhguukqp''ncemu''qhhkekcn'uvcwu''y tqwi j qw''y g''uwdeqpvkpgpv."c''ukwcvkqp'' y j kej ''j cu'i kxgp''tkug''vq''cp''kpvgpug''uvtwi i ng''hqt''tgeqi pkxkqp''d{''Ncvkp''Co gtkecp''vtcpuncvqtu''cpf ''kpvgtrtgvgtu0'Vj ku'' uvtwi i ng''j cu''dqtpg'htwkv'kp''y g''etgcvkqp''qh''cuuqekcvkqpu''kp''r tcevkecm{''cm'y g''eqwpvtkgu''qh''y g''tgi kqp''qxgt''y g''ncuv'' 42''{gctu0'Wphqtwpcvgn{''y gug''cuuqekcvkqpu''y kgrf ''nkwrg''r qy gt="kpf ggf.''y gtg''ku''c''vgpf gpe{''vqy ctf u''r tqrkhgtcvkqp'' tcy gt''y cp''wpkx{0'Hqt''gzco r ng. ''kp''Xgpg| wgnc''y gtg''ctg''cu''o cp{''cu''hqwt''f khhgtgpv''cuuqekcvkqpu0

#### Vtckpkpi 'egpvtgu

Cnj qwi j "kv"j cu'dggp"uwi i guvgf "vj cv'c'vtcpurcvkqp"uej qqn'gzkuvgf "kp"O gzkeq"cu"gctn{ "cu"vj g"ukzvggpvj "egpwt { ."vj g" hktuv"wpkxgtukx{ "r tqi tco o g"cko gf "cv"hqto kpi "vtcpurcvqtu"y cu"etgcvgf "kp"Cti gpvkpc"kp"3; 670°Vj ku"y cu"hqmqy gf "d{ "uko krct"r tqi tco o gu"kp"Wtwi wc{ "\*3; 76+."O gzkeq"\*3; 88+"cpf "Ewdc"\*3; 8: +0°Vj gp"kp"yj g"3; 92u"yj g"hktuv" vtcpurcvkqp"egpvtgu"y kyj kp"wpkxgtukx{ "hcewnkgu"kp"Ncvkp"Co gtkec"y gtg"hqwpf gf <'yj g"F gr ctwo gpv"qh"Vtcpurcvkqp"cv" yj g"Rqpvkhkekc"Wpkxgtukf cf "Ecw>nkec"f g"Ej krg"kp"3; 93."cpf "vj g"Uej qqn'qh'O qf gtp"Ncpi wci gu"cv'vj g"Wpkxgtukf cf "Egpvtcn'f g"Xgpg| wgrc"kp"3; 960°Ukpeg'vj gp."ugxgtcn'wpkxgtukkgu"qp"vj g"uwdeqpvkpgpv"j cxg"ugv'wr "vtcpurcvkqp" uej qqnu"qt"f gr ctwo gpvu."o quv"qh"vj go "qhhgtkpi "f gi tggu"kp"vtcpurcvkqp"\*dwv"tctgn{ "kpvgtr tgvkpi +"chvgt"hqwt"qt"hkxg" {gctu"ah"uwf {0}

Qp"\j gug"f gi tgg"eqwtugu"Gpi rkij "ku"\j g"rcpi wci g"kp"\j g"i tgc\guv\f go cpf ."hqmqy gf "d{"Htgpej "cpf "I gto cp."y kij "
Kcrkcp"cpf "T wukcp"uqo g"f kucepeg"dgj kpf 0Rqt wi wgug"ku"cnuq"pqy "eqo kpi "kp\q"ku"qy p"kp"\j g"Ur cpkij /ur gcrkpi "
r ct u"qh"\j g"uwdeqp\kpgpv\0"\J g"r q\gp\kcrieqo dkpc\kqpu"qh"rcpi wci gu"f khtgt "htqo "qpg"kpu\kwkqp"\q"cpq\j gt."dw"
pqpg"qhtgtu"cu"y kf g"c"tcpi g"qh"r quukdkrkkgu"cu"\j g"Uej qqr\qh"\0 qf gtp"Ncpi wci gu"cv'\j g"Wpkxgtukf cf "Egp\tcrif g"
Xgpg| wgrc."y j gtg"\y q"hqtgki p"rcpi wci gu"\p"\p"cf f kkqp"\q"Ur cpkij +"ctg"ugnge\ygf "htqo "co qpi "Gpi rkuj ."Htgpej ."
I gto cp."Kcrkcp."T wukcp"cpf "Rqt wi wgug."rgcf kpi "\q"c"h\xg/{ gct"f gi tgg"kp"dq\j "\tcpurc\kqp"cpf "kp\ytr tg\kpi 0
Cnj qwi j "pqv'ur gekhlecm\"f gf kec\ygf "\q"\tckpkpi ."\j g"Ugtxkekq"Klgtqco gt\ecpq"f g"Kphqto cek\p"gp"Vtcf week\p"
\*UKW+"etgcyf "d\"WP GUE Q"kp"3; : 8."f gugtxgu"ur gekcn'o gp\kqp"hqt"ku"ghhqt wi'kp"\j g"eqnge\kqp"cpf"
f kuugo kpc\kqp"qh"kphqto c\kqp"tgrc\ygf "\q"\tcpurc\kqp"\j tqwi j qwi'\j g"uwdeqp\kpgp\0
Cpq\j gt"uki pkhlecp\"f gxgqr o gp\"j cu'dggp"\j g"kpetgcug."ukpeg"\j g"3; : 2u."kp"\j g"pwo dgt"qh'pc\kqpcn'cpf"

Cpqyi gt 'uki pkhkecpv'f gxgmr o gpv'j cu'dggp'yi g'kpetgcug. 'ukpeg'yi g'3; : 2u. 'kp'yi g'pwo dgt 'qh'pcvkqpcn'cpf 'kpvgtpcvkqpcn'gxgpvu'\*eqpi tguugu. 'u{o r qukc'cpf 'eqwtugu+'f gcnkpi 'y kyi 'vtcpurcvkqp'cpf 'vgto kpqmi {0'Uwej 'gxgpvu' ctg'wuwcm{ 'qti cpk| gf ''d{ 'yi g'wpkxgtukxkgu'cpf 'qhwgp'eqwpv'qp'yi g'r ctvkekr cvkqp'qh'kpvgtpcvkqpcm{ 'tgeqi pk| gf '' ur gekcnkwu'kp'yi g'hkgnf 'qh'vtcpurcvkqp'yi gqt {0

#### Tgugctej 'cpf'rwdnecvkqpu

r tqeguu'\*ugg'T cti cvci rk'cpf 'T wkz''3; ; 4+0°C v'yi g'tkum'qh'qxgt/i gpgtcnkl kpi ."cm'yi gug'y tkgtu'uggo "vq"go r j cukl g" o ckpn("yi g"etgcvkxg"htggf qo "qh'yi g"tcpurcvqt."r ctvkewrctn("y kyi "tghgtgpeg"vq"nkgtct{ "vtcpurcvqpu0 Vj gtg"ctg"pqy "s wksg"c'hgy "lqwtpcmi"f gf kecvgf "y j qm("qt"r ctvn("vq"vtcpurcvkqp"o cwgtu'kp"Ncvkp'Co gtkec0°Vj gug" r wdnkecvkqpu"ctg"wuwcm("r tqf wegf "d{"yi g"wpkxgtukkgu."cu'ku'yi g"ecug"qh"Vcmgt "f g"Ngvt cu'\*Rqpvkhkekc"Wpkxgtukf cf "Ecw\*nkec"f g"Ej krg+."Pwengq'\*Wpkxgtukf cf "Egpvtcnif g"Xgpg| wgrc+."Rwgpvg'\*Wpkxgtukf cf "Hgo kpkpc"f gn'Uci tcf q" Eqtc| »p"kp"Nko c+."Ewcf gtpqu'\*Wpkxgtukf cf "f g'Rwgtvq'Tkeq+"cpf "KUKVøu"Dqngv¶p"kplqto cvkxq"kp"O gzkeq0°Vj g" UKKV"f knvtkdwgu"Kplqto cekqpgu'UKKV"yi tgg"vko gu"c"{gct0°Kp"cf f kkqp.."Ncvkp"Co gtkecp"ur gekcnkuvi'ctg"pqy "eqpvtkdwkpi "o qtg"tgi wrctn("vq"kpvgtpcvkqpcnir wdnkecvkqpu."hqt"gzco r rg"vq"yi g"lqwtpcni/O gw:"\*ugg"gur gekcm("xqn0' 57\*5+"3; ; 2<"Vtcpurcvkqp"kp"yi g"Ur cpkuj "cpf "Rqt wii wgug"y qt rf +0O quv'vtcpurcvqtuø'cuuqekcvkqpu"cmq'kuuwg" tgi wrct "dwngvkpu0

## Hwt vj gt 't gcf kpi

Ctgpekdkc''3; ; 5="Ctpcwf''3; 72="Dqy gp''3; ; 6="Ecdtgtc''3; ; 5="f g''nc'Ewguvc''3; ; 4="F grkurg''cpf ''Y qqf uy qtvj ''3; ; 7="Hquuc'' 3; ; 4="I cti cvci rk'3; ; 4="I cti cvci rk'3; ; 4="T qugpdncv'3; ; 2="Ucpvq{q''3; : 9="UkW''3; ; 5="Uqncpq''3; 97="Xgi c'' 3; ; 60

I GQTI GU'NDCUVKP

Vtcpurcvgf 'htqo 'Urcpkij 'd{ 'Octm'I tgi uqp

# Dkqi tcrj kgu

**DGNNQ.'Cpf t<sup>2</sup>u'**\*39: 363: 87-0'Dqtp'kp'Ectcecu.'Xgpg| wgrc='r qgv'cpf 'uej qrct='uwwf kgf 'r j krquqr j {.'rcy 'cpf ''

 $o\ gf\ kelpg0Dgmq''ecttlgf\ ''qwv''j\ ku''hktuv''tcpurcvkqp''cv''y\ g''ci\ g''qh''37<''y\ g''hkhyj\ ''dqqm''qh''yj\ g''Cgpgkf\ 0''Cv'42.''j\ g''y\ cu''$ crtgcf { "y kf gn{ "cf o ktgf 'hqt" j ku'r qgvke "eqo r qukvkqpu." y j gvj gt" j ku'qy p"qt" ko kvcvgf O'Dgmq" f kf "pqv'dgnkgxg" kp" vtcpurcvkpi 'kp'c'ugtxkrg'o cppgt=j g'y cpvgf 'r qgvt { 'vq'nkxg'kp''Ur cpkuj 'cpf 'kp'c''Ncvkp'Co gtkecp'vtqr kecn' gpxktqpo gpv0J g"yj gtghqtg"ko kcvgf "pwo gtqwu"r qgo u"qh"Xkevqt"J wi q. "co qpi "qvj gtu. "vcnkpi "i tgcv"hkdgtvkgu"kp" yj g'r tqeguu0Kp"3: 32"Dgmq"y cu'ugpv"vq"Nqpf qp"d{"yj g"Xgpg| wgnc"Tgxqnwkqpct{"Lwpvc"qp"c"r qnkkecn'o kuukqp" y ký 'j ku'htkgpf "cpf 'r wr kn'Uko qp "Dqn¶xct0"J g'uvc{gf '3; "{gctu'kp "Nqpf qp. "y j gtg'j g'r wdnkuj gf 'r qgo u. "ctvkengu" cpf "tcpurckqpu0kp"3: 4; "j g"o qxgf "vq"Ucpvkci q."y j gtg"j g"y qtngf 'hqt 'vj g"Ej krgcp"O kpkuxt { "qh"Hqtgki p"Chhcktu0" J g'hqwpf gf 'vj g'Wpkxgtukv{ ''qh'Ej krg. ''qh'y j kej ''j g''y cu'tgevqt ''wpvkn'j ku'f gcyj 0 Dgmq'ku'tgi ctf gf 'cu'qpg'qh'yi g'o quv'r tqo kpgpv'hki wtgu'qh'Ncvkp'Co gtkecp'Iwtkur twf gpeg. 'gf wecvkqp'cpf' rksgtcwtg0J g'ku'dguv'tgo go dgtgf ''cu''y g''cwj qt''qh''y g''I tco "wec'f g'nc'ngpi wc''ecwgncpc''\*3: 69+"cpf ''qh''r qgo u'' uwej "cu" *Umccu"co gt kecpcu*" cpf "r qgvkecn" ko kscvkqpu" uwej "cu" Xkevqt" J wi qøu" *Nc "r t k³ t g"r qwt "vqwu0* J ku" vtcpuncvkqpu" lp'i gpgtcn'\*qh'Dgtpk'D{tqp.'Nqeng.'Xqnxktg.'Dq{ctfq'cpf'F wo cu.'co qpi 'qyi gtu+'ctg'qwuvcpf lpi 0 O CNIP EJ G'\*O cripcrik Vgp² r cn='cniq' inpqy p'cu'O cripv| lp'cpf 'F q° c'O ct lpc+'\*e\( B723\) 6e\( B772+0 \) Y gm' mpqy p'C| vge "tcpurcvqt"qh'I gtp° p'Eqtv² u. "qpg"qh'vj g''rgcf gtu''qh'vj g''Ur cpkuj 'Eqps wguv'qh''Ncvkp'Co gtkec0' O crkpej g'y cu'qpg'qh'42"{qwpi 'y qo gp'y j q'y gtg'i kxgp'\q'Eqtv²u'qp''j ku'cttkxcrlkp'y j cv'ku'pqy 'mpqy p''cu' O gzkeq0'Uj g's wkemn("r tqxgf"j gtugnh'kpf kur gpucdng'kp'c'xctkgv("qh'y c{u<uj g'kpvgtr tgvgf 'hqt'Eqtv²u. "cevgf "cu" kphyto cpv'\*y ctpkpi "j ko "qh'co dwuj gu'd{" 'y g'hqecn'vtkdgu+."dgeco g'j ku'o kuvtguu'cpf "dqtg'j ko "c'ej krf 0'KV'ku" y kf gn("yj qwi j v."y j gvj gt "eqttgevn("qt "pqv."vj cv"y kvj qwv"j gt "ckf." Eqtv² u"o c{"pqv"j cxg"dggp"cdng"vq"ceeqo r nkuj " j ku"o kuukqp"qh"eqps wgtkpi "O gzkeq0"Vq"vj ku"f c{."vj g"vgto "o crkpej kux"ku"wugf "kp"O gzkeq"vq"f gpqvg"uqo gqpg"y j q" ugmı'qw'qt'qyj gty kug'dgvtc{u'c'ecwug0

I GQTI GU'NODCUVRP

# R

# Rgtulep'ttef kklqp

Vj g''Rgtukep''repi wei g''ur qngp''vqf c{ 'kp''Ktep. 'Chi j epkuvep''epf 'r etw''qh''Egpyten'Cuke''ku'e''o go dgt''qh''yj g''Kpf q/ Ct {cp'dtcpej 'qh'vj g'Kpf q/Gwtqr gcp'hco kn{ 'qh'hcpi wci gu. 'cpf 'c'f ktgev'f guegpf cpv'qh'qrf 'cpf 'o kf f rg'Rgtukcp0' Hqt "qxgt"c"o kngppkwo "vj ku'ncpi wci g"j cu'dggp"vj g"r tko ct { "o gcpu"qh"f ckn( "f kueqwtug"cu'y gm"cu'vj g"ncpi wci g"qh" uekgpeg. "ctv'cpf 'rkvgtcwtg"qp" y g"Kcpkcp"r rcvgcw0Dghqtg" eqrqpkcn'twrg. "kv'y cu'cnuq' y g'hcpi wci g'qh'uvcvgetchv." lwtkur twf gpeg'cpf "ewnwtg'kp" y g'Kpf kcp" uwdeqp kpgp v0C v'f kthgtgp v'vko gu'kp" y g'r cuv'kv'j cu'dggp 'y g'rcpi wci g'qh" nkgtcwtg'kp'r ctvu'qh'y g'Ecwecuwu'cpf "cv'y g'Qwqo cp'eqwtw0Vqf c{."cm'Ktcpkcpu'cpf "Vclkmı."cpf "c'o clqtkv{ "qh" Chi j cpu. 'wug'ko'kp''y g'y cng'qh''y g'Kcpkcp''tgxqnwkqp''qh'3; 9; . ''y g'ekxkn'y ct'kp'Chi j cpkucp. 'cpf ''y g'eqncr ug''qh' yj g''Uqxkgv''Wpkqp.''kv'ku''cnuq''go gti kpi ''cu''yj g''ncpi wci g''qh''c''ncti gô cpf ''i tqy kpi ô f kcur qtc''eqo o wpkv{0 Vtcpurcvkqp'kpvq'Rgtukcp'j cu'c'nqpi 'cpf 'gxgpvhwn'j kuvqt {="kv'j cu'r rc{gf 'cp'ko r qtvcpv'r ctv'kp'vj g'gxqnwkqp'qh' Ktcpkcp'cpf 'Ktcpcvg'ekxkrk cvkqpu'vj tqwi j qwvy guvgtp'Cukc'cpf 'dg{qpf 0'Kphqto cvkqp'qp'vtcpurcvkqp'cevkxkv{" dghqtg''y g''cfxgpv'qh'Kurco 'kp''y g''ugxgpy 'egpwt{''ku'uecpv0Kp''o gfkgxcn'Rgtukc.''y g'kpvgtcevkqp''dgwy ggp'Ctcdke'' cpf 'Rgtukcp''y cu''y g'r tkpekr cn'cpf 'f gygto kpkpi 'hgcwtg'qh'y g'cevkxkv{ O'Hqmqy kpi ''y g'O qpi qn'cpf "Vctyct" kpxcukqpu'qh'vj g'vj ktvggpvj 'vq'vj g'hkhvggpvj 'egpwtkgu. 'pgy 'r cwgtpu'qh'kpvgtcevkqp'go gti gf 'dgwy ggp'Rgtukcp''qp'' yj g''qpg''j cpf ''cpf ''c''pwo dgt ''qh''Kpf kcp''cpf ''Vwtnke' hcpi wci gu''qp''yj g''qyj gt. ''o cnkpi ''yj ku''j kuvqt { ''gxgp''o qtg'' eqo r ngz "cpf "o wnkhctkqwu0'Ukpeg" y g"o kf f ng"qh" y g"pkpgvggpyj "egpwt { ." tcpuncvkqp" htqo "Gwtqr gcp" ncpi wci gu" j cu'dggp'cp'kpvgi ten'r ctv'qh'xctkqwu'o qf gtpk cvkqp'r tqlgewu."dqyj 'kp'Kcp'cpf 'kp'yj g'Rgtukcp/ur genkpi 'ctgeu' qwulf g'k0

# Cpelgpv'Rgtulcp'Gorltg

Vq"y g"dguv"qh"qwt "mpqy ngf i g."Qnf "Rgtukep"y cu"dtqwi j v"kpvq"y g"Kcpkep"r newcw"kp"y g"ugeqpf "o kngppkwo "DE" d{ "y exg"chwgt"y exg"qh"kpxcf kpi "vtkdgu"htqo "y g"Gwtcukep"uwgr r gu. "Kp"vko g. "kv"dgeco g"y g"nepi wei g"qh"y g" Cej co gpkepu"\*77; 6552"DE+."c"f {peuv{ "qh"mkpi u"y j q"guwednkuj gf "y g"neti guw."o quv"r qy gthwn"go r ktg"kp"y g" epekgpv"y qtnf 0J qy gxgt. "Qnf "Rgtukep"tgo ckpgf "guugpvkem{ "y g"nepi wei g"qh"Rgtuku."y g"uqwj "egpvtentgi kqp"qh" r tgugpvf c{ "Kep."pqy "mpqy p"eu"Hetu0Ku"nkytewtg"ku"y qwi j v"vq"j exg"dggp"vtepuo kwgf "qtem{ ."cu"y g"j exg"pq" y tkwgp"tgeqtf u0"Y g"f q"j exg"Vj g"Cxguwe."e"tgnki kqwu"dqqm"y tkwgp"kp"y j ev"uej qnetu"j exg"vgto gf "Cxguwep."e" nepi wei g"enqugn{ "tgnevgf "vq"Qnf "Rgtukep0Gxgp"y qwi j "kv"y cu"eqo o kwgf "vq"y tkkpi "kp"y g"hqwty "egpwt{ "CF ."y g" Cxguwe" eqpvekpu"uqo g"\ qtqeuvtkep"j {o pu"y qwi j v"vq"dg"kp"qnf gt"Kepkep"nepi wei gu0

Kp''wo g. ''Qrf ''Rgtukcp''i cxg''y c{ ''vq''qvj gt''rcpi wci gu. 'kpenwf kpi ''Rctvj kcp''cpf ''O gf kcp0J qy gxgt. ''Cxguvcp''tgo ckpgf '' y g''o ckp''rcpi wci g''qh'\ qtqcuvtkcp''tgrki kqp''cpf ''ewnwtg''y tqwi j qw''y g''egpwvtkgu''y cv'ugr ctcvg''y g''Cej co gpkcpu'' htqo ''vj g''Ucucpkcpu0'Vj g''Cej co gpkcp''go r ktg''y cu''o wnkrkpi wcn ''cpf ''o cp{ ''qh'ku''f qewo gpvu''y gtg''y tkwgp''pqv'' qpn{ ''kp''y g''xctkqwu''rcpi wci gu''qh''y g''go r ktg. ''dw''kp''Dcd{ rqpkcp''cpf ''Grco kg''cu''y gm0'Ukm''qwt ''kphqto cvkqp'' cdqw''ur gekhle ''vtcpurcvkqp''cevkxkkgu''co qpi ''y gug''rcpi wci gu''ku''vqq''ungvej { ''vq''cmqy ''cp{ ''kp/f gr vj ''f kuewuukqp''qh'' vtgpf u''cpf ''r cwgtpu0

Y ký "ý g"guvcdrkuj o gpv'qh'ý g"Ucucpkep'f {pcuv{ "kp'Rgtuke"\*CF "4466874+"cpf "ý g'tkug"qh'O kf f rg'Rgtukep."cnuq" npqy p"cu"Rcj rexk 'y g"dgi kp"vq"i ckp"uwhhekgpv'kphqto cvkqp"cdqw'kpvgtewnwtcn'gzej cpi g"vq"chhqtf "uwduvcpvkxg" f kuewuukqpu0'Y g"j cxg'O kf f rg'Rgtukep"tcpurcvkqpu"qh'r ctvu"qh'ý g"Cxguvc."cmlgkv'kp"rksgtcn'tgpf kkqpu'y j kej "cv" vko gu"o cng'ý g"o gcpkpi "

wpergct0Vqy ctf u'ij g''gpf ''qh''y g''Ucucpkcp''r gtkqf .''y g''pwo dgt ''qh''uwej ''tcpurcvkqpu''kpetgcugf ''eqpukf gtcdn{ .'' r gtj cr u''cu''c''y c{ ''qh''eqo dcwkpi ''y g''tkug''qh'j gtgvke''ygpf gpekgu''y ky kp'\ qtqcuvtkcpkuo 0O cp{ ''uwtxkxkpi '' vtcpurcvkqpu''htqo ''Cxguvcp''kpvq'O kf f rg''Rgtukcp''ctg''tgrki kqwu''kp''pcwtg''cpf ''eqpvckp''c''j gcx{ ''f qug''qh''Ugo kke'' j gvgtqi tco u0'Uqo g''eqpvckp''vtcpurcvkqpu''htqo ''y g''*Cxguvc*''cpf ''qvj gt''dqqmu.''gkj gt''kp''cp''Cxguvcp''crr j cdgv''mpqy p'' vq''wu''cu''Rc| cpf .''qt''kp''y g''Ctcdke''uetkr v'cf qr vgf ''kp''rcvgt''egpwtkgu0

Y g"cnuq"mpqy "vj cv'vj g"Ucucpkep"nkpi u"gpeqwtci gf "vtcpurcvkqpu"htqo "I tggmlcpf "Ncvkp0O wej "j kuvqtkecn" mpqy ngf i g. "nquv'vq"vj g"Rgtukepu"cu"c"tguwnv'qh'vj g"ej cqu"vj cv'hqmqy gf "Cngzcpf gtøu"eqps wguv'kp"552"DE."y cu" tgi ckpgf "kp"vj ku'y c{0Vj g"Ucucpkep"o qpetej "Uj cr wt "Keqo o kuukqpgf "o cp{"vtcpurcvkqpu"htqo "I tggmlcpf "kpf kep" y qtmu"vq"dg"kpeqtr qtcvgf "kpvq"eqmgevkqpu"qh'tgrki kqwu"vgzwu."cpf "Uj cr wt "Kkrckf "encko "vq"r ctwu"qh'vj g"Tqo cp" Go r ktg"qp"vj g"dcuku"qh'f guetkr vkqpu"r tqxkf gf "d{"I tggmlj kuvqtkcpu0

O qtg'ko rqtvcpvn{.'vj g'y kf g'ewttgpe{'qh'I tggmirj kmquqrj {'cpf 'uekgpegu'lp'Kcp'Iwuv'dghqtg'vj g'cf xgpv'qh'Kurco " o c{'dg'cwtkdwgf 'r tkpekr cm( 'vq'vtcpurcvkqpu'y j kej "j cxg'pqy 'dggp'ncti gn( 'nquvOGctn( 'kp'vj g'ukz yj 'egpwt{'CF." Mkpi 'Mj qutqy 'vj g'Hktuv.'mpqy p''cu'Cpwuj ktxcp'\*\*:-yj g'ko o qtvcn'uqwrø+.'f getggf 'vj g''guvcdrkuj o gpv'qh''c''enkpke''cpf " o gf kecn'uej qqn'lkp''yj g''qy p''qh'I qpf kuj cr wtO'Vj gtg.'I tggmicpf "U{tkcp''r j kmquqr j gtu''cpf 'r j {ukekcpu'y qtmgf 'ukf g'' d{ 'ukf g'y kij ''yj gkt'Kcpkcp''eqmgci wguO'Vj g''nkpi ''cnuq''eqo o kuukqpgf ''c''vtcpurcvkqp''kpvq''Rcj rcxk'qh''Vj g'' Rcpej cvcpvtc.''cp''Kpf kcp''eqmgevkqp''qh'uvqtkgu'y j kej ''r tqxkf gf ''vj g''dcuku'hqt''pwo gtqwu'y qtmu''kp'vj g''Rgtukcp'' rkytcwtg''qh'vj g''Kurco ke''gtc0

Uwdugs wgpvn{."ij ku'y qtmihqto gf "ij g'dcuku'qh'o cp{"pcttcvkxgu'lp"o gf kgxcn'Gwtqr g'cu'y gm"r quukdn{"ij tqwi j "
ncvgt "tcpuncvkqpu'qt"cdtkf i gf "xgtukqpu'lp"U{tkce0Ctcdke"gpe{emqr gf kcu'cpf "ej tqpkengu'nkuv'ij g'pco gu'qh'ugxgtcn'
uki pkhlecpv'uqwtegu'qh'j kuvqtkecn'kphqto cvkqp"qp"ij g'Ucucpkcpu"cpf "kpeqtr qtcvg"ij g'lphqto cvkqp"ij g{ "eqpvckpgf 0'
Ceeqtf kpi "vq"ij gug."gctn{ "kp"ij g'ugxgpvj "egpwt{"CF"o cp{"hco qwu'kpf kcp"nkvgtct{"y qtmu'j cf "cnuq"dggp"
vcpuncvgf "kpvq"0 kf ng"Rgtukcp0kp"cf f kkqp"vq"ij g"cdqxg/o gpvkqpgf "Rcpej cvcpvtc."y j kej "y cu'ncvgt"o qf khkqf"
cpf "gzr cpf gf "kpvq"Mcrkvgj "xc"F go pgj."ij gug'lpenwf gf "w q"qh'ij g'Ukpdcf "dqqmu."co qpi "o cp{"qvj gt"vcrgu0

### O gf lgxcnlRgt ulc

Kp''y g''ugeqpf 'j crh'qh''y g''ugxgpyj ''egpwt { .''Kuro ''dgi cp''vq''ur tgcf ''qxgt''y g''Ktcpkcp''r ncygcw'i tcf wcm( ''dww'ungcf kn( 0' Vj ku''o ctmi'c' wpks wg''wtpkpi ''r qkpv'kp''y g''nkg''qh''y g''Ktcpkcpu. ''pqv''qpn( ''tgrki kqwm( .''dww'ewnwtcm( ''cpf '' rkpi wkurkecm( ''cu''y gm0'Vj g''Rgtukcp''rcpi wci g''eqpurkwwgu''y g''o quv''eqpetgyg''rhpm'dgwy ggp''Kuro ke''cpf ''r tg/Kuro ke'' Ktcpkcp''ewnwtgu0'Kl'ku''twg''y cv''y g''cdcpf qpkpi ''qh''y g''Rcj ncxk'uetkr vô kp''hcxqwt''qh''y g''Ctcdke''uetkr vô tguwngf ''kp'' uki pkhlecpv'rhpi wkurke''ej cpi gu0'Ukhm''y g''pgy ''uetkr v'y cu''nct''uko r ngt''cpf ''o qtg''cf xcpegf 0'Kp''cf f kkqp.''y j gtg''y g'' Ctcdke''uetkr v''ncengf ''guugprkcm( ''Rgtukcp''eqpuqpcpvu''y gug''y gtg''cf f gf ''vq''kv0'Kp''uj qtv.''y g''cf qr kkqp''qh''y g''Ctcdke'' uetkr v'hqt''Rgtukcp''f kf ''pqv'i kxg''tkug''vq''twr wtgu''cu''uki pkhlecpv'cu''egtvckp''o qf gtpkuv'tghqto gtu''j cxg''cuuwo gf ''kv''f kf 0 Kp''y g''y q''egpwtkgu''y cv'hqmqy gf .''c''uweeguukqp''qh''ewnwtgf ''Rgtukcpu''ur gctj gcf gf ''c''tcpurcvkqp''ghhqtv'cko gf ''cv'' r tgugtxkpi ''r tg/Kurco ke''Kcpkcp''yzzw0'Vj g{ ''tcpurcvgf ''y g''o quv'uki pkhlecpv'O kf f ng''Rgtukcp''f qewo gpwô nkgtct { .'' tgrki kqwu''qt''qyj gty kugô kpvq''Ctcdke.''j qr kpi ''vq''r tgugtxg''y g''qnf ''eqpvgpv'kp''y g''qpn( ''i ctd''rkngn( ''q''uwtxkxg0''

Tq| xgj "qt"Tw| dgj ."dgwgt"mpqy p"d{"j ku'O wurko "pco g"eCdf qm j "GDP "CN/O QS CHHC" "gzgewgf "cdqw" 97; +:"tcpurcvgf "Vj g"Rcpej cwpvtc"cpf "Mj qw{pco cm"\*c"eqmgevkqp"qh"o {vj kecn'ngi gpf u'qh'Rgtukcp"mkpi u'cpf "j gtqgu+"kpvq"Ctcdke0"Kp"cm'nkngrkj qqf ."j g"ku"cnuq"tgur qpukdng"hqt"vj g"vtcpurcvkqp"kpvq"Ctcdke"qh"ceeqwpvu"qh"vj g"ukz vj /egpwxt{"tghqto kuv'r tqr j gv'O c| f cm"cpf "vj cv'qh'j ku"hqmqy gtu0

Uwej "\gz vu. "nc vgt "\tcpunc vgf 'ht qo 'Ctcdke "dcemikp vq 'P gy 'Rgtukcp."hqto gf "vj g'dcuku 'hqt "o wej ''qhi'qwt 'kphqto cvkqp" cdqwi'r tg/Kurco ke 'Ktcpkcp'ewnwtg. "r ct vkewrctn( 'kwu'vgz wcn'vtcf kkqp0'Co qpi ''vj g''gz vcpv'Rgtukcp''vgz vu. 'vj g'' grgx gp vj /egp wt { "Uk uc v/P o gj "\Dqqmi'qp''Uc vgetchv+"cpf "vj g''vy grhvj /egp wt { "HctuP o gj "\Dqqmi'cdqwv'Hctu+." i kxg''c 'ergct 'ko r tguukqp''qh''dgkpi 'tgpf kkqpu''qh''gctrkgt ''y qtmu'kp''Rgtukcp''qt 'Ctcdke0'Vj qug''gctrkguv'\vgz vu. ''pqy " reti gn( ''nquv.''y gtg''y go ugrx gu''r tqdcdn( ''vtcpunc vkqpu''htqo ''O kf f rg''Rgtukcp0'Vj wu''y tqwi j qw''y g''gki j vj ''cpf ''pkpyi " egp wt kgu.''y j kej ''y cu''y g''

r gtkqf "qh'Ctcd"f qo kpcvkqp"qxgt"ewnwtcn'cpf "r qrkkecn'nkhg"qp" yi g"Ktcpkcp"r ncvgcw." vtcpuncvkqp"cevkxkkgu" y gtg" o qvkxcvgf "d{"yi g"f guktg"vq"r tgugtxg"cp"cpekgpv'ekxkrk| cvkqp="yi gug"cevkxkkgu" o c{"dg"etgf kvgf "hqt"y j cv'kpuki j vu" y g"j cxg"i ckpgf "kpvq"r tg/Kunco ke"Ktcpkcp"ewnwtg0

Rgtukcp. "ur qmgp" 'yi tqwi j qww' 'yi g"Ktcpkcp" r ncwgcw'hqt "qxgt" c"o kmgppkwo. "j cu'wpf gti qpg'hgy "ej cpi gu. "tgo ckpkpi "guugpwkcm ("cv' yi g'uco g'uvci g"qh'o qtr j qmi kecn'gxqnwkqp0" Vj g''r tqzko kx ("qh'pgki j dqwt kpi "ncpi wci gu'y j kej "dgmpi "vq" khhgtgpv'hkpi wkurke 'hco khkgu' yi g'urtqpi gt'kphnwgpeg'qh'Ctcdke "qp" Y guvgtp "Ktcp. "cpf "W dgm'cpf "qyi gt" Vwt nke 'ncpi wci gu'qp 'Gcuvgtp 'Ktcp+. "yi g''r wuj "cpf 'r wm'qh'pcykqpcnkuo. "cpf 'yi g'72/ {gct "gzr gt ko gpv'y kyj "yi g" E {tkmke "cnr j cdgv'kp "Uqxkgv' Vclkmkurcp "x3; 626; 2+" j cxg" j cf 'rkwng "ghhgev'qp" yi g'urt wewt cn'ykgu''co qpi 'kwu'xct kgykgu' Ugo cpykecm (. "qh'eqwt ug. 'kwu'f khhgt gpv'xct kgykgu't ghrgev'eqo r necvgf 'r t qeguugu "qh'nkpi wkurke "cduqtr ykqp" cpf " cr r tqr tkcykqp0" qy gxgt. "pqpg" j cu'dggp 'uwduvcpykcn'gpqwi j "yq"etgcvg" c"pgy "ncpi wci g0

Cp{'f knewnikqp'qh'vj g''tcpurc'kqp''tcf kkqp'kp'vj ku'rcpi wci g'o wuv'dgi kp'y ky ''y g''xgt { "eqo r rgz"cpf "o wnktcegvef " tgrckqpuj kr "dgw ggp'Ctcdke"cpf 'Rgtukcp'kp'vj g'gki j vj "cpf 'pkpvj "egpwtkgu0Klo wuv'rcng'pqvg'qh'wy q'r ctcngrl' vtgpf u0Vj g'hkuv."crtgcf { "o gpvkqpgf ."eqpukrvgf "qh'c'ugtkgu'qh'vtcpurcvkqpu'o cf g'htqo "gzvcpv'vzzwi'kpvq'Ctcdke." rcvgt 'vtcpurcvgf 'dcenikpvq'Rgtukcp0Vj g'ugeqpf 'cevkxkv{ ."wpf gtvcngp'd{ "Rgtukcp'eqpxgtwi'vq'Kurco ."vqqmivj g'uj cr g'' r tko ctkv( "qh'eqo o gpvctkgu'qp'vj g'j qn{ "S WTø P 0Cu'vj g'y qtf 'qh'I qf ."vj g'S wtø p'y cu'eqpukr gtgf " wpvtcpurcvdrg0Rgtukcp/ur gcmkpi 'O wurko u'vj gtghqtg'r tqf wegf 'ko r qtvcpv'vgzvu'vq'r tqr ci cvg'I qf øu'o guuci g'vq'' dgrkgxgtu'vj j q'f kf 'pqv'wpf gtuvcpf 'Ctcdke0'Y j krg'vgej pkecm( "eqpegkxgf 'cu'eqo o gpvctkgu.'uwej "vgzwi'pqpg'vj g'' rguu'eqpvckpgf 'o wej 'y qtf /hqt/y qtf 'vtcpurcvkqp0O wurko "eqo o gpvcvqtu'd { "cpf 'rcti g''ngr v'vj g''ugpvgpeg'uvtwewtg'' cpf 'u{ pvcz 'qh'S wtø pke 'xgtugu'lpvcev.'uwr r rgo gpvkpi 'vj go 'y ky "gzvgpukxg'eqo o gpvctkgu0O qtg'qhvgp'vj cp''pqv'' uwej 'vtcpurcvkqpu'r tqf wegf ''cp''ghtgev'qh''guvtcpi go gpv'lp''Rgtukcp''tgcf gtu.'uki pcnkpi 'vj g''crkgp''ej ctcevgt''qh'vj g'' rcpi wci g'kp'y j kej 'I qf 'j cf 'tgxgcrgf 'j ku'o guuci g0

Kp"cffkkqp"vq"yi g"hktuv"gzco r ngu"qh"c"dwffkpi "r qgvke"vtcfkkqp."yi g"gctnkguv"gzvcpv"fqewo gpwu"kp"Rgtukcp"kpenwfg" c"pwo dgt"qh"vtcpuncvkqpu0Co qpi "yi gug"y g"ecp"eqwpv."kpvgtguvkpi n{.''wy q"ko r qtvcpv"fqewo gpwu"kp"uetkr vu"qyi gt" yi cp"yi g"o qfkhkgf"Ctcdke"uetkr v'wugf "hqt"y tkkpi "Rgtukcp<"c"eqo o gpvct{"qp"G| gej kgn"kp"yi g"J gdtgy "uetkr v'cpf"c" vtcpuncvkqp"qh"yi g"Rucmo u"kp"yi g"U{tkcp"uetkr v0Dgukf gu"yi gug."yi g"o quv"uki pkhkecpv"gctn{"gzco r ngu"qh"pqp/tgnki kqwu"vtcpuncvkqp"kpvq"Rgtukcp"y gtg"vtcpuncvkqpu"qh"Ctcdke"y qtmv0Hqt"kpuvcpeg."yi g"kphnwgpvkcn"J qf wf"cn/

"\*Htqpvkgtu'qh'vj g''Y qtrf + "cp"gzvtgo gn{ 'ko rqtvcpv'gctn{ 'Rgtukcp''dqqni'qh'wpmpqy p''cwj qtuj kr. 'ku'c" vtcpurcvkqp"qh'r ctvu'qh''Vcdctkøu''J kwqt{0'Cu'rj krqmi kecn'f qewo gpvu. 'uwej 'y qtmu'ugv'vj g''uvcpf ctf 'qh'' cf o kuukdkrkv{ ''qh''Ctcdke''ngzkeqp''kpvq''Rgtukcp0'Cu''vtcpurcvkqpu. ''y g{ ''rtqxkf gf ''c'o qf gn'qh'rtqug'y tkkpi ''kp''Rgtukcp'' y j kej ''tgo ckpgf ''qr gtcvkxg''hqt''o cp{ ''egpwvtkgu0

Kp''y g''y grhy ''q''y grhy 'egpwtkgu. 'tcpurckqp'kpvq'Rgtukcp'i cy gtgf ''tgo gpf qwu'o qo gpwo .'o cnkpi 'cxckrcdrg''vq'' Rgtukcp''tgcf gtu''cp'ko r tguukxg''cttc{ ''qh''mpqy ngf i g'kp'hkgrf u''cu'f kxgtug''cu'o gf kekpg. ''cuvtqpqo { .'i gqi tcr j { .'' j kuvqt{ ''cpf ''r j knquqr j { 0'V j g''erko cvg''qh''tgrki kqwu''vqngtcpeg''cpf ''kpvgngewcn'f gdcvg''guvcdrkuj gf ''kp''Dci j f cf ''d{ '' uqo g'Cddcukf ''ecrkr j u'r tqxkf gf ''c'o qf grlhqt ''nqecn'twgtu'kp''f kthgtgpv'r ctwl'qh''ktcp. 'r ctvkewrctn( ''kp''y g''pqtyi / gcuvgtp''tgi kqpu''qh''Mj qt u p''cpf ''Vtcpuqzkcpc0'Wpf gt''eqwtvn( 'r cvtqpci g.'y qtmu''qtki kpcvkpi ''kp''I tggml'cpf ''Ncvkp.'' U{ tkce''cpf ''Ctco cke. ''gxgp''Ej kpgug''cpf ''Ucpumtkv.''dgi cp''vq''cr r gct''kp''Rgtukcp. ''qhvgp''y tqwi j ''r tgxkqwu'' vtcpurcvkqpu''kp''Ctcdke0

Kp''cm'y gug''cevkxkdgu. "y g''crrtqcej "vq''tcpurcvlqp'y cu''guugpvlcm{ "wkrkctkcp''cpf ''rtci o cvle'lp''pcwtg0' Vtcpurcvqtu''y qwi j v'kv'pgeguuct{.'ko rqtvcpv'qt''wughwri'vq''tcpurcvg''egtvckp''y qtmu. "cpf "y g{ "f kf "uq''ghhlekgpvn{ "cpf "y ky qw''o wej ''rtgvgpulqp0'V{r kecm{.''vgzwi'y gtg''uwdlgevgf "vq''c''xctkgv{ "qh''ej cpi gu='y g{ "y gtg''uko rnkhlef ." cppqvcvgf ."cdtkf i gf ."kmwntcvgf "y ky "r kewtgu''cpf "f kci tco u. "co gpf gf "y tqwi j "ugs wgnu. "qt "qy gty kug''cnwgtgf "vq'' uwkv'y g''ur gekhle "pggf u''qh''y g''r cvtqp''cpf "y g''pgy ''tgcf gtuj kr 0'Vtcpurcvqtu''qh''ugewrct "vgzwi'i cxg''o qtg''r tkqtkv{ "vq'' y g''i tco o cvlecn'hgcwtgu''qh'Rgtukcp''y cp''j cf "y g''tcpurcvqtu''qh''y g''S wtø p''cpf "qy gt "Kurco ke "vgzw0'Cu''c ''tguwn." y q''tcyj gt "f kej qvqo qwu''crrtqcej gu''vq''tcpurcvlqp''i ckpgf "ewttgpe{."qpg''eqpulf gtgf "crrtqrtkcvg''vq''tgnki kqwu''cpf "r j kquqrj ke''f kueqwtug. "y g''qy gt."htggt "crrtqcej ."y qwi j v'uwkvcdrg''hqt "uekgpvlhke''tcpurcvlqp0

Vj ku''cr r tqcej "'q''tcpurc'kqp" o cf g''c'i tgcv'f gcn'qh'uekgp\khe''npqy ngf i g''cxckrcdng''q''o gf kgxcn'Rgtukc0Rgtj cr u'' y g''dguv'gzco r ng''ku''F pguj p o gj /{ g''-Cn  $\emptyset$ /k "cp"gpe {empr gf ke"y qtm'dgi wp"d{ "'y g''hco qwu''r j {ukekcp''Cxkegppc" cpf "eqo r ngvgf "d{ "j ku'uwf gpv'Lw| lcpl0Ki/ku''c''eqo r gpf kwo "qh'f kuekr nkpgu." o qtg''j gcxkn{ "kangf "vqy ctf u'y g'' uekgpegu''y cp''vqy ctf u'nkytcwtg''cpf "y g''ctw0Kp''c''o qtg''qt''nguu''u{uvgo cvke''y c{.''kv''cff tguugu''gxgt { 'ko ci kpcdng'' ur j gtg''qh'j wo cp''cevkxk{ .''htqo "cuvtqpqo { "cpf "kw''xctkqwu''qhhuj qqw''vq''r j knquqr j {.''y gqmi {.''gy keu''cpf " o {uvkekuo .''cu'y gm''cu'kphqto cvkqp''cdqw''y g''r tqr gtvkgu''qh'j wo cp''cpf "cpko cn'dqf kgu. "r ncpvu''cpf "o kpgtcnu." r qkuqpu''cpf "cpvkf qvgu." cpf "pwo gtqwu''f kxkpcvkqpu''cpf "ewtkqukxkgu0J knqtkecm{ ."F pguj p o gj /{ g''-Cn  $\emptyset$ K'ku''y g'' httu''qh'o cp{ "gpe { enqr gf ke "Rgtukcp''y qtmu''y j kej "cwgo r v''q'u{ py guk g''gzknkpi "npqy ngf i g."dqy "ur gewrxxg'' cpf "wkrkxctkcp0Y ky qwv'c''tcpurcvkqp''tcf kkqp'htgg'htqo "y g''eqpuvtckpvu''qh''cwtkdwkqp''cpf "r tqr tkgv{ .''uwej "y qtmu'' o c{"pqv'j cxg''dggp''r quukdng0

Cu'gnigy j gtg'lip''y g'O wirko 'y qtrf .''lip''o gf lgxcriRgtulc''Ctcdle'y cu''y g''hpi wc'htcpec0Cm quv'cri'Rgtulcp''y tkgtu'' cpf 'uej qrctu'y gtg''dkrlpi wcn''cpf ''cp''gz vtcqtf lpct { 'pwo dgt''qh''uelgpvluru''cpf ''r j krquqr j gtu''eqpvlpwgf ''vq''y tkg'' gpvltgn( ''qt''r tko ctkn( 'lip'Ctcdle0'lip''cf f kkqp''vq''y g''j krvqtlcp''Vcdctk'cpf ''r j {uelcp''cpf ''r j krquqr j gt''Cxlegppc.'' y tgg''qh''y g''i tgcvguv'Kurco le''y gqrqi lcpuô y g''Uj krkg''O qj co o cf ''Vwuk'\*f \( \B 298 \dagge \dagge \dagge \upgar \dagge \dagge

Vj ku'hnwkf kv{ "gpcdrgf" o gf kgxcri'Rgtukcp"uekgpvkrwi'cpf "r j krquqr j gtu'vq'dg'qtki kpcri'cwj qtu'cpf "tcpurcvqtu'cv'y g" uco g'vko g0'Vj g''cdugpeg'qh'r tqr tkgvqt { "eqpegtpu'kp" o gf kgxcri'vko gu'hwtyi gt "wpf gto kpgu'o qf gtp/f c { "ghlqt vu'vq" f kuvkpi wkij "y tkvkpi 'htqo "vtcpurcvkqp0'Cewi'qh'dqttqy kpi .'CF CRVCVKQP "cpf "cr r tqr tkcvkqp"y gtg''wpf gt vcngp'kp" y c { u'vj cv'vtcpuegpf "o qf gtp"ercuukhecvkqpu0'Vj g''eqtr wu'qh'r j krquqr j kecri'cpf "uekgpvkhke"y qtmu'kp"Rgtukcp'ku" tgr ngvg'y kyj "dkrkpi wcn'vgzwi'qt" j { dtkf u "cu'y grni'cu'vj qug'kp"y j kej "vgzv'cpf "eqo o gpvct { "ctg'kp" w q'f khhgtgpv' rcpi wci gu0'Vj gtg''ctg''cnrq''pwo gtqwu'vgzwi'qh'cp'kpf gvgto kpcvg''ej ctcevgt="vj gug"o c { "qt"o c { "pqv'dg''eqpukf gtgf" qtki kpcn'y qtmu'y kyj "rcvgt''eqo o gpvctkgu''qt''cppqvcvgf "vtcpurcvkqpu0'Y kyj kp"y g'vgto u'qh'o gf kgxcn'Rgtukc."uwej "y qtmu'o wuv'dg''cuuwo gf "vq"j cxg''qtki kpcvgf "kp''Ctcdke'wprguu''r tqxgp"qvj gty kug0'Vj g{ "y qwrf 'uwdugs wgpvn{ "dg" vtcpurcvgf 'htqo 'Rgtukcp'kpvq''Vwtnkuj ."Wtf w'qt" J kpf k0

Rgtj cr u'c''tgpf "eqwf "dg"o gpvkqpgf "j gtg<dghqtg''y g'O qpi qn'lpxcukqpu'qh''y g''y kt vggpy "egpwt { .''Rgtukcp''y cu'' r tko ctkn( "vj g''ncpi wci g''qh''nkgtcwtg''cpf 'Ctcdke''o ckpn( "vj g''ncpi wci g''qh''uekgpvkhle''gps wkt { "kp''y guvgtp'Cukc0' O gf kgxcn'Rgtukcpu."i gpgtcm( 'y tkkpi 'kp''Ctcdke."o c { "dg"tgi ctf gf "cu''y g''ewuvqf kcpu''cpf "uweeguuqtu''qh''y tgg''r tg/ Kurco ke''vtcf kkqpu''kp''uekgpvkhle''y tkkpi <cpekgpv'Ktcpkcp."J gngpkuvke'I tggm''cpf "Kpf kcp0'Vj g{ 'htgs wgpvn( "vcpurcvgf "uekgpvkhle''y qtmu'htqo 'Ctcdke."cf f kpi 'vj gkt''qy p''qdugtxcvkqpu''vq''y go 0'Vj wu'P cukt''cn/F kp''Vwuk'\*f 0' 3496+''vtcpurcvgf "vj g''I tggm''dcuke''o cpwcnu''qh''o cyj go cvkeu''cpf "i gqo gvt { .''kpenwf kpi 'Gwenkf øu''Gngo gpw''cpf "Vj gqf qukwuø''Ur j gt kec''kpvq''Ctcdke."cpf "vj g''cuvtqmi kecn'Iwf i go gpvu''qh''Rvqrgo { 'htqo 'Ctcdke'kpvq''Rgtukcp0'Kp'' gcej "

ecug."j g"cf f gf "j ku"qy p"eqo o gpwi'vq"j ku"vtcpurcvkqpu0J g"cnxq"y tqvg"Rgtukcp"vtgcvkugu"qp"ctkxj o gvke"dcugf "qp" Kpf kcp"y qtmu"vvpmpqy p"vq"vw0

Vj ku'o cngu'c'ugeqpf ''stgpf ''xkukdng<'kp''o gf kgxcn'\ko gu. ''Rgtukcp''y cu''y g'ugeqpf ''o quv'ko r qtvcpv'ncpi wci g''qh''y g''
O wurko ''y qtrf .''c''r qukkqp''y j kej ''ky'j cu''r tgugtxgf ''gxgt''ukpeg0'Ki'ku''y g''o ckp''ncpi wci g''y tqwi j ''y j kej ''Kurco ke''
uekgpegu''j cxg''o cf g''y gkt''y c{ ''vq''Gcuvgtp''O wurko ''ncpf u.''r ct wewnctn{ ''kp''y g''r gtkqf ''y cv'hqmqy gf ''y g'O qpi qn''
kpxcukqp0'Cv'y cv'\ko g.''o cp{ ''uekgp\khke''y qtmu''dgi cp''vq''dg''y tkwgp''qtki kpcm{ ''kp''Rgtukcp''cpf ''y gtg''ncygt''tcpuncygf ''
kpvq''Ctcdke0'Y g''ecp''nkuv'kp''y ku''ecvgi qt{ ''y g''cuvtqpqo kecn'y qtmu''dcugf ''qp''f ktgev''qdugtxcvkqp''cpf ''tgeqtf gf ''qp''
qtf gtu''htqo ''J wn i w'kp''y ktvggpy /'egpwtt{ ''C| gtdcklcp.''qt''wpf gt''y g''wwgnci g''qh''Qnqi j /dc{i .''y g''uej qnctn{ ''twngt''
qh''Uco ctnrcpf ''kp''y g''hknggpy ''egpwtt{ 0'Vj g''ko r qtvcpeg''qh''y ku''tgpf ''kp''y g''gxqnwkqp''qh''tcpuncvkqp''cevkxkv{ ''qp''
y g''Kpf kcp''uwdeqpvkpgpv''ecppqv''dg''qxgtgo r j cukt gf 0

## Vj g'r quv/O qpi qrigt c

D{"y g"y ktygpy "egpwt {."Rgtukcp"y cu'dgeqo kpi "y gm'guvcdrkij gf "kp"Kpf kc"cu'y g"repi wci g"qh'tgrki kqwu."rksgtct {" cpf "rgi cn'rgctpkpi "cpf "eqo o wplecvkqp0C"pwo dgt "qh'ko r qtvcpv'vtcpurcvkqpu'dgi cp"vq"dg"o cf g"htqo "Ucpuntk" cpf "qvj gt "Kpf kcp"repi wci gu'kpvq"Rgtukcp0Egpwtkgu"qh"Dtkktj "eqrqpkcn'twg"kp"Kpf kc"cpf "y g"cuegpf cpe { "qh" o qf gtpkto "cpf "pcvkqpcnkuv'kf gqrqi kgu'kp"Kcp"cpf "gnugy j gtg"kp"y g"Rgtukcp/ur gcmkpi "y qtrf "j cxg"qduewtgf "y g" ko r qtvcpeg"qh'y gug"y qtmu0Ukm "uqo g"qh"y g"o qtg"ko r qtvcpv'vtcpurcvkqpu'qh'y ku'mkpf "ctg"mpqy p"vq"wu0Vj g { "kpenxf g"+Cdf qr/+C| k| "P wtk/F gj rcxkxiu"hqwtygpy /egpwt { "vtcpurcvkqp"qh'cp"cuvtqpqo kecn'y qtmid { "Xctcj tc" O gj gtc" "f 07: 9+"c"37: 9"vtcpurcvkqp"qh"\/\wvxcvk" "c"vtgcvkug"qp"ctky o gvke"cpf "i gqo gvt { "d { "y g" y grhy /egpwt { "Kpf kcp"uekgpvkuv'Dj currcte+"cpf "c"vtgcvkug"qp"cni gdtc."gpvkxpf "Xhc/I cpkc."y j kej "y cu'vtcpurcvgf "kp"38560' Ueqtgu'qh"guu'ko r qtvcpv'vtcpurcvkqpu'o c { "cnq"dg"o gpvkqpgf ."y g"dguv'mpqy p"dgkpi "P clo "cn/F kp"Mcmwtcxkxu" Tgucngj "f ct "Lcdt "xc"O qs dgngj "\*Vtgcvkug"qp"Cni gdtc"cpf "T gekr tqekv { ."3: 36+0 Cp"Kpf kcp"j wd"qh'vtcpurcvkqp"cevkxkv { "ecp"dg"hqwpf"cv'y g"eqwtv'qh'Go r gtqt 'Cmlct"y g"I tgcv'kp"y g"rcwgt"r ctv'qh" y g"ukzvgpyj "egpwt { 0Kp"37: 4. "Cmlctxu"o kpkvyt" Vqf ct 'O cn'kuwygf "c" getgg"o cmkpi "Rgtukcp"y g"qhhkekn"

cp kpr kcp'j wa qn vcpurcvap cevaky "ecp ag nawpr cvy g eqwtvan Go r gtqt Cmact y g 1 tgcvkp y g newgt r ctvan y g "ukz vggpy "egpwt {0 kp '37: 4. 'Cmactøu'o kpkuyt "Vaf ct 'O cn'kuuwgf 'c'f getgg'o cnkpi 'Rgtukcp''y g'qhhkekcn' i qxgtpo gpv'ncpi wci g'qh'y g'O qi j wn'go r ktg0 Cu'c'tguwn. 'Rgtukcp''eco g'vq'f qo kpcvg''y g'Kpf kcp''uwdeqpvkpgpv'cm' y g'y c{ ''vq'Dgpi cn''cpf 'c'i tgcv'xctkgv{ ''qh'y qtmu''qh'Ucpumtk/hkygtcwtg'y gtg''tcpurcvgf 'kpvq''ko0 Ej kgh'co qpi 'y gug'' y gtg''Cdf qn'S f gt 'Dcf øwpkøu''tcpurcvkqpu''qh'y g'O cj cdj ct cvc''cpf 'y g'Tco c{cpc''kp'y g'37; 2u0 kp''vko g." ugxgtcn'uki pkhkecpv'tcpurcvkqpu'y gtg''cnuq'o cf g'htqo 'Gpi nkuj ."o cnkpi 'Rgtukcp''y g'i cvgy c{ ''vq''Gwtqr gcp'' uekgpegu''cu'y gm0

Hqt"c"pwo dgt"qh"tgcuqpu. "Rgtulcp"ewnwtcn"egpvtgu"qwulf g"Kcp"dgeco g"gxgp"o qtg"lo rqtvcpv'dgwy ggp"y g"
ukz vggpyj "cpf" plypgvggpyj "egpwrtkgu0Vj g"qhthekcvkpi "qh"UJ kokuo "kp"Kcp"kp"y g"ukz vggpyj "egpwrt { "vj khygf "y g"
go rj cuku"kp"vtcpurcvkqp"dcem"vq"tgrki kqwu"vgzwu."r ctvkewrctn" [ "yj qug"qh"yj g"rtqrj gvke"vtcf kkkqp"cpf "yj g"hc { kpi u"qh"
yj g"Ko co u."eqnrgevkxgn("mpqy p"cu"J cf kyj 0'Kp"r ctvkewrct."Pcj l"cnDcn i j gj."c"eqo r krevkqp"qh"crj qtkuo u"cpf"
y kug"hc { kpi u"cwtkdwxgf "vq"Ko co "eCnk'Cdp"CdwV rgd. "eqwulop"cpf "uqp/kp/rcy "vq"yj g"rtqrj gv'cpf "yj g"httuv"Ko co "
qh"yj g"UJ koksgu. "go gti gf "cu"cp"go dqf ko gpv"qh"yj g"k gcn"qh"gnqs wgpeg0Vj g"hc { kpi u"eqpvckp"c"xctkgv{"qh"
tj gvqtkecnif gxkegu"xgt { "f kthlewnv"q"o ckpvckp"hy"vtcpurcvkqp0'Kp"yj g"gzr cpf kpi "pgwy qtm"qh"UJ koksg"hgo kpctkgu"cv"
S qo ."Kurcj cp"cpf "qyj gt"wdcp"egpvtgu"qh"Kcp. "tcpurcvkqp0'Kp"yj g"gzr cpf kpi "pgwy qtm"qh"UJ koksg"hgo kpctkgu"cv"
S qo ."Kurcj cp"cpf "qyj gt"wd oo ks"qh"hkgtct { "cej kgxgo gpv"dw"cu"c"i tgcv"hytkeg"vq"yj g"eqo o wpks{0
Kp"Kpf kc."yj g"crrtqcej "vq"vtcpurcvkqp"y cu"o ctngf n("f khtgtgpv"htqo "yj cv'yj j kej "rtgxckrgf" "kp"gtukc0'Kpf kc"y cu"hct"
o qtg"c"o wnkrhpi wcn"gpxktqpo gpv"yj cp"y cu"Rgtukc."cpf "yj ku"hcev'y cu"tghrgevgf "kp"crrtqcej gu"q"vtcpurcvkqp"cu"
y gm0Y qtf u"y gtg"kpvgtej cpi gf "o qtg"ttggn("dgwy ggp"Rgtukcp"cpf"qyj gt"rcpi wci gu. "cpf"c"f gi tgg"qh"vqrtcpege"
go gti gf "vqy ctf" o kzgf "wci gu0Vyj ku"kp"wtp"i cxg"tkug"vq"c"f kxgti gpeg"dgwy ggp"yj g"Rgtukcp"qh"Kcp"rtqr gt"cpf"
yj cv"qh"Kpf kc"cpf "Egpvtcn"Cukc0'Hxtyj gto qtg. "tcpurcvkqpu"y gtg"pqy "o cf g"kpvq"Rgtukcp"pqv"uq"o wej "htqo "Ctcdke"
dw"htqo "Kpf kc"cpf" "Vvtmke"repi wci gu. "cu"y gm"cu"Opi rkuj "cpf"T wunkcp0

Gxgpwcm(.'xctkqwu'j kuvqtkecn'f gxgmqr o gpvu'eqpvtkdwgf "vq'f kxkukqpu'co qpi "vj g''ur gcmgtu''qh'Rgtukcp0'Qpg'' r tkpekr cn't gcuqp.''vj g''tkug''qh''Uj køkuo ''kp''Ktcp.''j cu''cntgcf { "dggp"

o gpvkqpgf 0Dtkkuj "eqnqpkcnkuo "kp"Kpf kc"cpf "Twuukcp"kpewtukqpu"kpvq"Egpvtcn"Cukc"y gtg"pq"nguu"ko rqtvcpv0Kp" 3: 54. "y g"Dtkkuj "kpkkcvgf "y g"rtqeguu"y cv"tguwngf "kp"y g"xktwcn"qdnkgtcvkqp"qh"Rgtukcp"htqo "y g"Kpf kcp" uwdeqpvkpgpv0Uko krctn{."y ky "y g"hcm"qh"Egpvtcn"Cukc"vq"Twuukc"kp"y g"ncwgt"rctv"qh"y g"pkpgvggpy "egpwt{." cm quv"cm"vtcpurcvkqp"cevkxkv{ "kp"Rgtukcp/ur gcmkpi "Egpvtcn"Cukc"y cu"tgcnki pgf "y ky "Ej ci j cvc{ "\*rcvgt"W dgm+" cpf "Twuukcp"rcpi wci gu0

Cm'ý ku'chłgevgf "tcpurcvkqp"cevkxkvkgu'kp'Rgtukcp."ugtkqwun{"wpf gto kpkpi "ý g'kpvgtpcvkqpcn'ej ctcevgt"qh'ý g" repi wci g0'Vj g'r tqdrgo "y cu'eqo r qwpf gf "kp"o qf gtp"vko gu'd{"ugxgtcn'hcevqtu."co qpi "ý go "ý g'tgcnki po gpv'qh" Egpvtcn'Cukcp"Rgtukcp."tgpco gf "Vclknk'd{"ý g'Uqxkgv'Wpkqp."y ky "W dgm'cpf "Twurkcp"repi wci gu."cu'y gm'cu'ý g" go gti gpeg"qh'c'hcpi wci g'tghqto "o qxgo gpv'kp'Kcp"y j kej "r ckf "pq"cwgpvkqp"vq"ý g'eqpugs wgpegu"qh'ku" r tqpqwpego gpvu"cpf "cevkqpu"hqt"y g'hcpi wci g'cu'c'y j qrg0'Vj g'tguwrv'j cu'dggp"c'etkuku'qh'o wwcn'kpvgnki kdktkv{" y j kej "o cngu'ý g'ko r tguukxg'xqnwo g'qh'vtcpurcvkqpu'kpvq'ý g'o qf gtp'Rgtukcp"qh'Kcp"qh'hkvrg'wug'qwukf g'Kcpøu" dqtf gtu0Eqwr rgf "y kyj "ý g'hcev'ý cv'kp"ý g'rcuv'egpwt{"qt"uq"pq'ko r qtvcpv'vtcpurcvkqp"o qxgo gpv'j cu'vcmgp'uj cr g'kp'Chi j cpkurcp"qt'kp'Rgtukcp/ur genkpi 'Egpvtcn'Cukc."ý g'hcvg"qh'Rgtukcp"cu'cp'kpvgtpcvkqpcn'hcpi wci g'ecp'dg'uckf" vq'urcpf "cv'c'etkkecn'lwpewtg'cv'ý g'gpf "qh'ý g'y gpvkgý "egpwt{0

# Vj g'o qf gtp'r gt kqf 'kp'Kcp

C''pwo dgt "qh'f gxgrqr o gpwl'tguwngf "kp"c'tgpckucpeg"qh'\tcpurc\kqp"ce\kxk\{ "kp"Kcp"kp"\yi g''rcwgt "r ctv'qh'\yi g" pkpgwggpyi "egpwt { 0'Ch\gt"c''egpwt { "cpf "c''j chl'qh'r qrk\kecn'kpu\cdkrk\{ .'\yi g''S clct "f { pcu\{ "\y' y j kej "t\wrgf "39; 76 3; 47+"j cf "tgwtpgf "c'ugo drcpeg"qh'\ucdkrk\{ "\q''Kcp\cp\"uqe\kg\{ "gctn\{ "kp"\yi g''egpwt { 0'O qtg"qt "rguu'tgi wrct "ewn\wtcn" eqp\cev\y kij "G\wtqr g''j cf "dgi wp"y kij "yi g''f gur c\wej "qh'\ucdkr\cp\cp\"u\wf gp\u'\q' G\wtqr g."cf f kpi "\q'\yi g''r tguu\xpi "pggf "hqt" kp\yt/i qxgtpo gp\cn'eqp\cev\0'Nkij qi tcr j "r t\xp\xpi i"j cf "hq\wpf "k\u'\y c\{ "\q''Rgtu\xc."dt\xpi kpi "\p''\xu\"y cng"\yi g" dgi kpp\xpi "qh'\yi g''Rgtu\xcp"r tguu'cpf "c''hrgf i r\xpi "dqqn'\xpf w\wt\{ 0'Cm'\yi ku''rgf "\q''i tgc\yt''hco kr\xt\x\\ "y kyi "G\wtqr gcp" rcpi wci gu''cpf "c''tguwti gpeg"qh'\tcp\wc\xp\yt\q0''ce\xx\x\\ 0

Vj g'pgy "tcpurckqp"o qxgo gpv'y cu'r tqr gmgf "r tko ctknf" "d{" 'yj g''r gtegkxgf "pggf "'q' i ckp"ceeguu''q' Gwtqr gcp" uekgpegu''cpf "vgej pqmi {0Cpzkqwu''q'o qf gtpkl g''yj g''Kcpkcp"cto {"cpf "dwtgcwetce{."yj g''S clct"uvcyg''nqmy gf "yj g'' fgur cvej kpi "qh'i tqwr u'qh'uwaf gpw''d{"yj g''guvcdrkuj o gpv'qh'c''r qn{ vgej pke "Eqmgi g."o qf gmgf "chwgt" Gwtqr gcp" kpukkwkqpu''qh'j ki j gt "gf weckqp0Guvcdrkuj gf "kp"Vgj tcp"kp"3: 74"cpf "mpqy p"cu'F ct"cn'Hqp p"\*J qwug"qh" Vgej pks wgu+; "yj ku'kpurkwkqp"r nc {gf "c'etwekcn'r ctv'kp"o qf gtpkl kpi "Kcp0Gwtqr gcp"vgeej gtu'y gtg'j ktgf "vq"vgeej "c" xctkgv{"qh'iwdlgevu."qhvgp"y kyj "Kcpkcpu"cu'yj gkt"cunkuvcpwt"cpf "kpvgtr tgvgtu0V'yj g{"cnuq"r tgr ctgf "c'pwo dgt"qh" vgz vdqqmu'kp"xctkqwu'uekgpegu'y j kej "y gtg'dcugf "ncti gn{"qp"Gwtqr gcp"uekgpvkhke"y qtmu0V'y wu. "vtcpuncvkqp"cpf" kpvgtr tgvkpi "dgi cp"vq"r nc {"c'etwekcn'r ctv'kp"yj g"gxqnwkqp"qh'r gf ci qi kecn'r tqeguugu'kp"o qf gtp"Kcp0
O cp{"gctn("Kcpkcp"vtcpuncvqtu'qh'Gwtqr gcp"y qtmu'y gtg'i tcf wcvgu'qh'F ct"cn'Hqp p0Ej kgh'co qpi "yj go "y cu"
O qj co o cf/J cucp"Mj p."dgwgt "mpqy p"cu'Gevgo f"cn'Ucncpgj ."yj g"ncuv'kkrg'yj g"eqwtv'dguvqy gf "qp"j ko 0Htqo "
3: 93"vq"3: ; 8"Gevgo f "cn'Ucncpgj "j gcf gf "c'pgy "i qxgtpo gpv'qhhkeg"ecmgf "F ct"cn'Vctlqo gj "\*J qwug"qh'
Vtcpuncvkqp+: "f guki pgf "vq"eqqtf kpcvg"i qxgtpo gpv'ur qpuqtgf "vcpuncvkqp"cpf "kpvgtr tgvkpi "cevkxkkgu0Vyj g"qhhkeg"
y cu"ej cti gf "y kyj "uvr gtxkukpi "cm'uvcy/ur qpuqtgf "vcpuncvkqp"cevkxkkkgu0Wpf gt "Gevgo f"cn'Ucncpgj øu'wwgnei g."
o cp{"uki pkhkecpv'Gwtqr gcp"y qtmu'y gtg"o cf g"cxckredng"vq"Kcpkcpu."qhvgp"htqo "Htgpej "cpf "htgs wgpvn("kp"o qtg" qt"nguu'htgg"xgtukqpu'y j kej "cr r tqcej gf "cf cr vcvkqp0

Uqqp. "\tcpurc\kqp"ce\kx\k\{"y cu"f ktge\gf "\qy ctf u"f kuekr rkpgu'uwej "cu"j ku\qt { ."r qrk\keu"cpf "rk\gtc\wtg"cpf "dgeco g" cp"\kp\gi tcri'r ct\'qh'xctkq\wu"o qf gtp\\ c\kqp"r tqlge\w0\K'y cu"cm qu\'cny c\{u'\wpf gt\cngp"\q"o cng"\kcp\cpu"eqpuekq\wu" qh"\yi gkt"qy p"dceny ctf pguu. "\kp"\ur k\g"qh"c"i nqt\kq\wu"r cu\0\G\wtqr gcp"qt\kgp\crk\wu"j cf "dggp"\uw\f\ \kpi "Rgt\ukcp" rk\gt\cwtg"cpf "Kcp\kcp"j ku\qt\{"y k\yi "kp\ytg\uv'cpf "gp\yi \wkcuo "\qt"q\xgt"c"egp\wt\{ ."cpf "\yi g"T\qo cp\ke\u"j cf "i \qt\k\yf\gf" Rgt\ukcp"e\wn\wtg"cpf "e\kx\kr\\ c\kqp."r ct\ke\wr\ctn\{"qh\"r tg/\kmco \ke"\ko gu\0\Kcp\kcp\u"j cf "\q"dg"o cf g"cy ctg"qh'\yi g\ug" y qtm\"\kh\"\yi g\{"y gtg"\q"\ut\kx\g'\q'\tgi c\kp"\yi g"i \qt\{"qh\"\yi g\kt"cp\kgp\v'\e\wn\wtg0}

Vj g''pgy "tcpurctkqp"o qxgo gpv'y cu'cv'ngcuv'cu'uki pkhkecpv'kp"tgto u'qh'ku'ewnwtcn'ko r cev'cu'kv'y cu'qh'tj g'' mpqy rgf i g'kv'tcpuo kwgf "qt"

i gpgtcvgf 0°Co qpi "vj g"o kz"qh'y qtmu'vtcpurcvgf 'kpvq'Rgtukcp'kp"vj g'hcuv'f gecf gu'qh'vj g'pkpgvggpvj "egpwt{."qpg" ecp"pco g'Xqncktgøu'j kuvqtkecn'pcttcvkxgu'qp'Cngzcpf gt"vj g'I tgcv."Rgvgt"vj g'I tgcv."cpf 'Ej ctngu'Z KK'O qn&tgøu" Ng'O kucpvj tqrg'cpf "Ng'O²f gekp"o cni t² 'hwk" Iqj p'O cneqno øu'J kuvqt{"qh'Rgtukc."cu'y gm'cu'y qtmu'd{ ''uqo g'qh'' vj g''dguv/mpqy p'Gwtqr gcp"cwj qtu'qh'vj g'Vko g. 'kpenwf kpi 'F wo cu'vj g'Gnf gt. 'H² pgnqp. 'Ng''Uci g. 'Dgtpctf kp'f g'' Uckpv Rkgttg. 'Lwgu'Xgtpg''cpf 'F cpkgn'F ghqg0'Vj g'cxckrcdkrkv{ ''qh'uwej ''y qtmu'dgi cp''vq''chhgev'cm'cur gewu'qh'' Kcpkcp''ewnwtg. 'htqo ''y tkkpi ''uv{ng'vq''y g''r qukkkqp''qh'y qo gp'kp''uqekgv{0

Htqo "vj g"r gtur gevkxg"qh"qxgt"c"egpwt { "hcyc"plopsyggpvj /egpwt { "vtcpurcvlqpu"lpvq"Rgtulcp"cr r gct"rlmg"c"ewtlqmu" o kz "qh"lf gqmi { "cpf "hcycu{."qh"hkevlqp"cpf "j kuvqt { 0J qy gxgt."lh"y g"dgi kp"vq"vj kpm"qh"vj g"r j gpqo gpqp"kp"vgto u" qh"Kcpøu"pggf "hqt"tguvtwewtlpi "cpf "tghqto ."y g"o c{ "dg"kp"c"dgwgt"r qukvlqp"vq"i cwi g"vj g"r ctv'uwej "y qtmu"j cxg" r nc { gf "j kuvqt kecm( 0"Vj g{ "o cf g"Kcpkcpu"uqtgn( "cy ctg"qh"vj gkt"dcemy ctf pguu. "uwdo kwgf "vj g"ewnwt gøu" cuuwo r vlqpu"cpf "ecvgi qt kgu"vq"wpr t gegf gpvgf "uetwkp{."cpf "kpvgpukllgf"pcvlqpcn"f guktg"hqt"cnki po gpv"y kij "vj g" Y guv0"Vj wu"Rgtulcp"vtcpuncvkqpu"qh"vj g"plopsyggpvj "egpwxt { "o c{ "dg"uckf" "q"j cxg"r nc{ gf "c"wpks wg"cpf "uki pklkecpv" r ctv"kp"Kcpøu"f tkxg"vqy ctf "o qf gtpk| cvkqp0

Ko''ygto u'qhl'cgunj gske''s wcrks{."qpg'y qtmiurcpf u'qwi'htqo "co qpi "cmi'yj g'pkpgvggpyj /egpwt{"vtcpurcvkqpu<0 kt "

J cdkd'GUHCJ P KoU'tcpurcvkqp"qh'Lco gu'O qtkgtøu''Vj g'Cf xgpwt gu'qh'U clk'Dcdc "qhlGulcj cp0'Y tkwgp"kp"3: 46."

O qtkgtøu'dqqmiy cu'dkwgtn{"etkkecniqh'Kcpkcp'uqekgv{"cpf"j cu'pgxgt"dggp"s wksg'ceegr vgf "d{"Kcpkcpu'cu'yj g"

tgcrkuvke''y qtmikv'ku0Gulcj pkøu''3: 94"tcpurcvkqp'htqo "Htgpej "ku'wpks wg'kp"o cp{"tgur gew0'Kv'cwgo r wu'vq"

kpf ki gpk g''yj g'y qtmi'yj tqwi j "c'xctkgv{"qhl'vgej pks wgu<eqmqs wkcrkuo ."vj g'wug'qh'c'hcktn{"j gcx{"f qug'qh'Rgtulcp"

r tqxgtdu. "cpf "kpvgtur gtulpi "yj g'y qtmiy kj "Rgtulcp"xgtug"cpf "j wo qwt0'Vj g'uvtcvgi {"y cu'uq"uweeguuhwn'yj cv'kv"

uqqp"i cxg"tkug'vq"c''yj gqt{"yj cv'O qtkgtøu'y qtmio c{"j cxg"dggp"dcugf "qp"c"Rgtulcp"qtki kpcn'y j kej "y cu'pqy "dgkpi "

qhhgtgf "cu'c''tcpurcvkqp0'Cu'mpi "cu'kv'r tqxkf gf "yj g'Kcpkcpu'y kj "uqo g'uqrceg'kp"yj kpmkpi "yj cv'yj g'etkkekuo "o c{"

j cxg"dggp'tgi kuvgtgf "d{"cp"Kcpkcp."yj g'yj gqt{"j grf "uqo g'uy c{0O qtg'tgegpvn{."kv'j cu'dggp'f kuetgf kgf 'hcktn{"

tqwpf n{0}

D{"y g"gpf"qh"y g"egpwt {."tcpurcvkqp" j cf "o cf g"c"eqpukf gtcdrg"r qt kqp"qh"Gwtqr gcp"uekgpegu"cpf "ct vu"cxckrcdrg" vq"Kcpkcpu."cpf "hkgtct { "vtcpurcvkqp"qh"Gwtqr gcp"y qtmu" j cf "hgf "vq"pgy "o qxgo gpw"cko gf "cv"o qf gtpk kpi " Rgtukcp"hkgtcwtg0V j wu. "Kcp"gpvgtgf "y g"vy gpvkgy "egpwt { "y ky "cp"kpucvkcdrg"cr r gvkg"hqt "vtcpurcvkqp"dtqwi j v" cdqw"d { "c"f ggr "y ktuv"hqt"tguvt wewtkpi "kuu"ucvg. "uqekgv { "cpf "ewnwtg"cmpi "Gwtqr gcp"hkgu0Vtcpurcvgf "ceeqwpw" qh"y g"Htgpej "tgxqnwkqp"r rc { gf "c"uki pkhkecpv"r ctv"kp"f tkxkpi "hqty" yi g"eqpuvkwwkqpcn"o qxgo gpv"\*3; 27633+"cpf" yi g"Rgtukcp"vtcpurcvkqp"qh"y g"Dgni kcp"eqpuvkwwkqp"qh"3: 53"ugtxgf "cu"c"f tchv"f qewo gpv"hqt"y g"Kcpkcp" Eqpuvkwwkqp"tcvkhkgf "kp"3; 280V) tqwi j qwv"y g"r cuv"; 2"{ gctu. "xctkqwu"vtcpurcvgf "vgzwu"qh"Gwtqr gcp"cpf "Co gtkecp" qtki kpô htqo "y g"ncy u"qh"pcwtg"cpf "twrgu"qh"gvks wgwg"vq"ngi cn'eqf gu. "r qrkxkecn'f qewo gpvu"cpf "dwtgcwetcvke" tgi wrcvkqpuô j cxg"r gthqto gf "uko krct"hwpevkqpu"kp"Kcp0

Kp''dtqcf gt'\gto u.''\tcpurc\kqp''j cu''dggp''cv'\yi g''dcug''qh''c''i tgcv'o cp{'rj krquqr j kecn'cpf ''uekgp\khle''gps wkt\kgu.'' ewnwtcn'ur gewrc\kqpu.''uqekcn'ce\kx\kkgu''cpf ''r qrk\kecn'ci gpf cu''\kp''Kcp''\yi tqwi j qw'\yi g''\y gp\kgy ''egpwt{0'K''j cu'' dggp''yi g''ej kgh'o gcpu''qh'kp\tqf wekpi ''Kcpkcpu'\q''pgy ''kf gcu.''uej qqnu''qh'\yi qwi j v'cpf ''rk\gtct{''\tgpf u0'K''j cu''dggp'' eqpukf gtgf ''c''pgeguuct{''eqo r qpgp\v'qh'\yi g''f tkxg'\qy ctf u'o qf gtpk\{.''pq''nguu'\uq''\kp'\yi g''Kurco ke''tgr wdr\ke'\yi cp''\kp'' yi g''o qpctej kecn'uvc\g'y j kej ''r tgegf gf 'k\0'Cu''c''tguwn\v''\k''j cu''dggp''r wtuwgf ''y kyi ''cp''gp\yi wukcuo ''cpf ''f g\gto kpc\kqp'' wpr ctcngrgf ''kp'\yi g''j ku\qt { ''qh'\yi g''Rgtu\kcp''rcpi wci g0'Vqf c{.''cm quv''cm'\ko r qt\cpv\y'y qtmu'\qh'\Y gu\gtr\gtu\kcp'' kgtu\kcp'' rkturo ''Ctku\qvg''cpf ''Rrc\q'\q''gzco r ngu''qh'\yi g''rc\gu\v'\tgpf u'\kp''Co gt\kcp''qt''Htgpej ''h\e\kqp.''ctg''cxckrcdng'\kp''Rgtu\kcp'' vtcpurc\kqp0

Cv'y g'uco g'vo g.'vtcpurcvqp'j cu'cv'vo gu'dggp'xkgy gf 'cu'cp'gcu{ 'tqcf 'vq'hco g.'kh'pqv'vq'hqtwpg.'r ctvkewrtn{ 'kp'' y g'uqekcn'uekgpegu'cpf 'rkvgtcwtg0'Y j krg'kv'j cu'cwtcevgf 'o wej 'vcrgpv.'kv'j cu'cv'vo gu'j cf 'c'pgi cvkxg'ko r cev'qp'' y g'gxqnwkqp'qh'ewnwtg0'Kv'j cu'egtvckpn{ 'vj y ctvgf 'ghhqtwi'vq'gzr rqtg'r quukdkrkvkgu'qh'r qrkvkecn'uqekcn'qt'ewnwtcn' f gxgmr o gpv'y j kej 'f q'pqv'hkv'kpvq'Y guvgtp'r cvvgtpu0'Dg'vj cv'cu'kv'o c{.'vj g'ko r qtvcpeg'qh'vtcpurcvkqp'cu'c'' ewnwtcn'cevkxkv{ 'j cu'gpeqwtci gf 'cm quv'cm'pqvcdrg'kpvgngewcnu'qh'eqpvgo r qtct { 'Kcp'vq'vt { 'vj gkt'j cpf 'cv'k0' Tctgn{ 'j cxg'vj gug'kpvgngewcnu'ur gekcrk gf 'kp''

hkgnf u'uwej "cu'nksgtcwstg"qt" yi g'uqekcn'uekgpegu0 Kpuvgcf." yi g'ko r wnug'vq'vtcpuncvg'uggo u'vq'hqmqy "yi g'ugctej 'hqt" tgngxcpeg"qt" yi g'r gtegkxgf "pggf" vq"dwwtguu'qt "lwuvkh{ "qpgøu'qy p'r qukvkqp." r qrkvkecm{." r j krquqr j kecm{"qt" cguyi gvkecm{0

Ukm'c'f kukpekqp'ecp'dg'o cf g'dgw ggp'gctrkgt'ktcpurckqp'cekxkkgu'cpf'y qug'r tgxckrkpi 'ukpeg'Y qtrf'Y ct''
Vy q0'Kp'y g'gctrkgt'r gtkqf .''ktcpurckqp'y cu'eqpukf gtgf'y g'dguv'y c{''vq'kphqto 'Ktcpkcpu'cdqw'y g'Y guv0'
V{r kecm{.''ktcpurcvqtu'eqpegkxgf'qh'ktcpurcvkqp'cu'c'xgj kerg''vq'ur ggf'wr 'Ktcp¢u'f tkxg''vqy ctf'o qf gtpk|cvkqp0'
Y j gyj gt'rkxgtct{.'r j krquqr j kecn'qt''j kuvqtkecn'y g{''gpxkukqpgf''ktcpurcvkqp''cu''c'xgj kerg''hqt''uqekcn'qt''ewnwtcn''
ej cpi g0'Kp''y gkt''j cpf u.''ktcpurcvkqp''y cu''wugf''r tko ctkn{''cu''c''o gcpu''qh''gf wecvkqp.''cpf''c''vqqn'hqt''pcvkqp/dwkrf kpi ''
cpf ''ewnwtcn'kpygi tcvkqp0

Cm quv'cm'y g'o clqt "tcpurc $\psi$ tu'qh'y g'' $\psi$ to gô [ wuqh' $\psi$ c'' $\psi$ GU O 'CNO QNM 'O qj co o cf/eCrk'Hqtws k''+Cdd u'' Gsd n'Cuj k pk "Uc $\psi$ f' P chkuk 'co qpi 'o cp{"qy gtuô y gtg"eqpegtpgf "guugp $\psi$ cm("y kj "ugtxkpi "y g''Kcpkcp"ewnwtg" y tqwi j "kp $\psi$ q wekpi 'Gwtqr gcp"ewnwtcn'cej kgxgo gp $\psi$ u''q''Kcpkcp"tgcf gtu $\psi$ Cm quv'cm'hqtwo u''hqt 'f kuugo kpc $\psi$ pi "kf gcuô y g''dqqm'kpf wux { .''rkgtct { ''cpf 'r qrkkecn'r gtkqf kecnu. ''cu'y gm'cu'y g''kpurkwwkqpu''qh'j ki j gt ''gf wec $\psi$ q ''cv'c'' re $\psi$ t''vci gô kpenwf gf ''tcpurc $\psi$ qp/tgre $\psi$ gf ''ce $\psi$ kxkk $\psi$ u''cu'r ct $\psi$ qh'y gkt 'ci gpf c'hqt'ceewnwtc $\psi$ pi ''gprki j  $\psi$ gpkpi "rkgtc $\psi$ g''Kcpkcp $\psi$ U'Vq''i kxg''qpn( ''qpg''gzco r ng. 'Kcpkcp''lqwtpcnuô  $\psi$ gf ''. 'Gto ci j p. 'Xch .''cpf '' {cpf gj}.''co qpi ''pwo gtqwu''qy gtuô tgrkgf ''qp''tcpurc $\psi$ qp''q''kphqto ''Kcpkcpu''cdqw''y g''j knyt { .''r qrkxkeu''cpf '' ewttgp $\psi$ c'hlcktu''qh''Gwtqr gcp''pc $\psi$ qpu.''y ky ''y g''gzr tguu''f guktg''\q''r tqr ci c $\psi$ g''y go ''cu''o qf gnu''hqt''Kcpkcpu''q''hqnqy 0' K $\psi$ f''f qkpi ''uq.''y g{ ''j gr gf ''q''dtkpi ''cdqw''c''pgy ''y tkkpi ''uy ng.''pgy ''o gcpu''cpf ''o gy qf u''qh''eqo o wpkec $\psi$ qp.''cpf '' gxgpwcm{ ''c''pgy ''kkgtct { ''tcf kkqp0}

Hqmqy kpi "Y qtnf "Y ct"Vy q. "Gpi nkuj "i tcf wcm{ 'tgr ncegf "Htgpej "cu" y g"o ckp" Gwtqr gcp "ncpi wci g' vcwi j v'cv "Kcpøu" ugeqpfct{"uejqqnu"cpf"wpkxgtukxkgu."cu"ygm"cu"yg"rtkpekrcn"ogfkwo"hqt"vtcpuncvkqp0Cv"yg"ucog"vkog."yjtqwij" c"tcpurcvkqp"ghtqtv'ur gctj gcf gf "d{"vj g'r tq/Uqxkgv"Vwf gj "Rctv{"qh"Kcp. "O ctzkuv"kf gcu. "r ctvkewrctn{ "kp"vj gkt" Uvcnkpkuv'kpvgtr tgvcvkqpu. 'dgi cp'vq'i ckp'ewttgpe { 'kp'Kcp0'Uqqp. 'vj g'Co gtkecpu.'j cxkpi 'y tgpej gf 'eqpvtqn'qh'Kcp'' htqo "vjg"Dtkkuj."gpvgtgf"vjg"uegpg"cu"ygm0D{"vjg"3;82u"vtcpuncvkqp"cevkxkv{"jcf"gpvgtgf"c"pgy"rjcug"cu" eqo r gwlpi "r qrkwlecn'hqtegu"cf xcpegf "vj gkt"ugr ctcvg"ci gpf cu. "kp"r ctv"vj tqwi j "vtcpurcwlqp0 Kp''3; 75."Vj g'Kpukwwg'hqt"Vtcpurckqp''cpf 'Rwdrleckqp''qh'Dqqmu'\*Dqpi j/g''Vctlqo gj 'xc'P cuj t/g'Mgv d+'y cu'' hqwpf gf 'kp''Vgj tcp''qp''yj g'kpkkcvkxg''qh'c''{qwpi "Y guvgtp/gf wecvgf 'Ktcpkcp''uej qrct''pco gf 'Gj ucp'[ ctuj cvgt0' Wpf gt 'vj g'cwur kegu'qh'vj g'tq{cn'eqwtv.'vj g'kpuvkwwg'ur gctj gcf gf 'c'\tcpurcvkqp'ghqtv'y j kej 'tguwnxgf 'kp'ugxgtcn' ugtkgu"qh"dqqmu. "kpenwf kpi "yj g"hqtgki p"rksgtcwtg"ugtkgu. "yj g"ej krf tgp"cpf "{qwpi "cf wmu'ugtkgu. "yj g"Ktcpqnqi {" ugtkgu. "cpf "vj g"Rgtukcp" vgz vu 'ugtkgu O'C nvj qwi j "vj g"kpuvkwwg" gzr cpf gf "vj g' ueqr g"qh' vtcpurc vkqp/dcugf "r wdrkec vkqp" uwduvcpvkcm{."ku'j kuvqtke"uki pkhkecpeg"nkgu'r tko ctkn{"kp"vj g"uvcpf ctf u'kv"guvcdnkuj gf "vq"gpuvtg"cwvj gpvkekv{." ceewtce { "cpf "gf kqtkcn'uwr gtxkukqp0'KV'cnuq"r tqxkf gf "c"o qf gn'hqt"qyj gt 'uko krct 'xgpwtgu. "o quv'pqvcdn{ 'yj g" Htcpmkp'Kpukwwg'qh'Kcp."cp'Co gtkecp'r wdrkuj kpi 'gpvgtr tkug'hqwpf gf 'kp'3; 760'Uwej 'qti cpkt cvkqpu'cnuq'vtkgf 'vq' r gtuwcf g'y g'Kcpkcp'i qxgtpo gpv'yq'dgeqo g'c'uki pcyqt { 'vq'y g'I gpgxc'Eqr { tki j v'Eqpxgpykqp.''yq'ugv'eqr { tki j v' tgs wktgo gpwi'hqt"\tcpurcvkqpu."cpf"\q"ugv'uvcpf ctf u"hqt"gf kkpi "\tcpurcvgf"\gz vu0"Vj gug"ghhqtvu'y gtg"qpn("r ctvkcm(" uweeguuhwn "cu" Kicp "ucy "pq"dgpghk/"kp"lqkpkpi "vjg"kpvgtpcvkqpcn'eqr {tkij v'eqpxgpvkqp0

O gcpy j krg. "tcpurckqp"j cf "tgo ckpgf "c"egptcneqo r qpgpv'qh'tj g"rcpi wci g"rgctpkpi "r tqeguu."r ct kewrctn "cv" wpkxgtukv "rgxgn0J qy gxgt. "tj g"cevkxkv "y cu'r wtuwgf "kp"hcktn "tcf kkqpcn'y c { u'y j kej "y gtg"pqv'cny c { u'eqpf wekxg" wq"tckpkpi "eqo r gvgpv."r tqhguukqpcn'tcpurcvqtu'cpf "kpvgtr tgvgtu0Vj g"o ckp"cevkxkv "eqpukuvgf "qh'cewcn' tcpurcvkqpu."y kij "rkwrg"f kuewuukqp"qh'tj g"tj gqtgvkecn'wpf gtr kppkpi u"qt"tj g"r tkpekr rgu"i qxgtpkpi "tj g"r tqeguu"qh" vgzv'r tqf wevkqp0"V{r kecm ("uwwf gpw"y qwrf "qhhgt"tj gkt"qy p"tcpurcvkqpu."f kuewuukqpu"y qwrf "gpuwg."cpf "c"vgzv' y qwrf "dg"uwi i guvgf "cu"tj g"dguv'r quukdrg"tgpf kkqp"qh'c"i kxgp"qtki kpcn0

Vj tqwi j "vj g"3; 92u. "ghhqtvu"y gtg"wpf gtvcmgp"cv"Vgj tcp"Wpkxgtukv{. "vj g"Eqmgi g"qh"Vtcpurcvkqp"cpf "gnugy j gtg. "vq" kpvtqf weg"c"pgy "crrtqcej "vq"vgcej kpi "hkgtct{"vtcpurcvkqp"htqo "Gpi nkuj "kpvq"Rgtukcp"cpf "xkeg"xgtuc0"Vgcej kpi "y cu"dcugf "guugpvkcm{"qp"gzco kpkpi "gzkuvkpi "vtcpurcvkqpu"cpf "f kuewuukpi "vj gkt"tgrcvkxg"o gtkvu"

cpf 'uj qtveqo kpi u0'K'cnıq'cko gf 'vq'kpuvkric'ugpug'qh'vj g'eqo rctcvkxg'i tco o ctu'qh'vj g'hcpi wci gu'cpf 'vgzvu' kpxqrxgf 0'Gzvgpukxg'f kuewuukqpu'qh'vj g'uv{ rg. "f kevkqp''cpf 'eqpvgzv'qh'gcej 'vgzv'tgr rcegf 'vj g'tgs wktgo gpv'qh'vgzv' rtqf wevkqp0'Ko rqtvcpv'cu'kv'ku. 'vtcpurcvkqp'rgf ci qi { 'j cu'pgxgt'dggp''uwvf kgf 'kp''Ktcp''cu'c'et wekcn'eqo rqpgpv'qh'' vtcpurcvkqp''cevkxkv{0

Cv'r tgugpv. 'vtcpurcvkqp''r gf ci qi { "cu'y gm'cu'y g"r tcevkecn'cevkxkv{ "qh''vtcpurcvkqp'cpf "kpvgtr tgvkpi "ctg'f khrwug." y ky "pq''ur gekhke "kpurkwvkqp''ugvkpi "y g''ci gpf c''qt''i wkf kpi "vtcpurcvkqp/dcugf "cevkxkvkgu0Kp''3; ; 2."c''r tqhguukqpcn' lqwtpcn'ecmgf "Oqvctlgo" "v'y g"Vtcpurcvqt+''dgi cp''vq''dg''r wdrkuj gf "cv'Hgtf qy uk'Wpkxgtukv{ "kp'Ocuj j cf 0'Vj ku" eqpurkwvgf "y g'hktuv'cvgo r v'cv'urko wrcvkpi "y g''cecf go ke''f kueqwtug''qp''vtcpurcvkqp0Kp'hkxg''{ gctu''qh'ktgi wrct'' r wdrkecvkqp. "y g''lqwtpcn'j cu''qhhgtgf "c''ugtkgu''qh''y gqtgvkecn'qdugtxcvkqpu''cpf "r tcevkecn'i wkf grkpgu''hqt''y qwrf/dg'' vtcpurcvqtu0KV'cnq''hgcwtgu''qeecukqpcn'kpvgtxkgy u'y ky "r tqhguukqpcn'vtcpurcvqtu''cpf "gf kxgf "vgz w''f guki pgf "vq'' i wkf g''dgi kppgtu0Ku''guuc{u''tcpi g''htqo "f kuewuukqpu''qh''eqo r wxgtk gf "cpf "o cej kpg''vtcpurcvkqp''vq''y g''gf kxkpi "qh'' vtcpurcvgf "vgz vu."gve0

Vtcpurcvkqp"cevkxkv{ "eqpvkpwgu"vq"hqto "cp"kpvgi tcn"r ctv"qh"cm"cecf go ke"uwf kgu"cpf "r tqhguukqpcn"y qtm"kpxqnxkpi "hqtgki p"ncpi wci gu"kp"Kcp0'Kv"cnıq"hgcwtgu"r tqo kpgpvn{ "cu"c"o gcpu"qh"uqekcn "ewnwtcn"cpf "rkvgtct { "eqo o wpkecvkqp"dgw ggp"Kcp"cpf "vj g"tguv"qh"vj g"y qtnf."o qtg"uq"kp"vj g"nki j v"qh"tgegpv"tguvtkevkqpu"qp"vtcf g"cpf "vtcxgn0'Kv"o c{"crrgct"y cpvkpi "kp"i qxgtpkpi "r tkpekrngu"cpf "kpurkwwkqpcn"uwr r qtv"dwv"kv"ku"uvkm"c"nkxgn{ "ewnwtcn" cevkxkv{"cpf "rkngn{ "vq"tgo ckp"uq"hqt"vj g"hqtguggcdng"hwwtg0

### Hwt vj gt 't gcf kpi

CJ O CF 'MCTKO KJ CMMCM

## Dkqi tcrj kgu

GDP 'CN/O QS CHHC'e.'eCdf qm j '\*f 0CF '97; +."cniq"npqy p"cu"Tq| xgj "qt"Tw| dgj ="uqp"qh"F f w{gj 0C"o quv" tgo ctmcdrg"\tcpurcvqt"qh"O kf f rg"Rgtukcp"\gzw"\pvq"Ctcdke.'Gdp"cn/O qs chhce"y cu"cniq"c"j kurqtkcp"qh"rcpi wci gu" y j qug"uwtxg{u"qh"y g"Kcpkcp"rcpi wci gu"qh"j ku"\ko g."y j kej "uwtxkxgf "kp"Ctcdke."eqpurkwwg"qwt"uqrg"uqwteg"qh" mpqy rgf i g"qp"y g"\qr ke0'Ki'ku"qy kpi "\q"j ku"y qtm"hqt"gzco r rg."y cv'y g"mpqy "y cv'c"egpwt{"chxgt"Kurco ."Rcj rcxk" y cu"uwkm'y g"rcpi wci g"ur qngp"kp"O gf kc"cpf "C| gtdcklcp."y j krg"Hctuk'y cu'ur qngp"kp"Hctu."cpf "F ctk'kp"y g"gcuvgtp" r ctw"qh"y g"Rgtukcp"go r ktg0

Gdp"cn/O qs chrce"y cu"y g"r tkpekr cnihki wtg"co qpi "c"i tqwr "qh"Ktcpkcp"\ qtqcuvtkcpu"qt "O cpkej gcpu"cpf "qyi gt" f wcrkuvu. "htgg"y kpmgtu. "cpf "uwr r qtvgtu"qh"xctkqwu"dgrkghu "wpksgf "kp"y gkt "j quvkrkv{ "vq"y g"qhhkekcniuvcvg"f qevtkpg0' Eqmgevkxgn{ ."vj g{ "y gtg"mpqy p"cu"y g"/ cpf ks u0"Vj g"ur ktkv"qh"htggf qo "vj cv"tgki pgf "co qpi "vj g"i tqwr "eqpvtkdwgf" vq"c"tcpurcvkqp"o qxgo gpv"o qvkxcvgf ."kp"cm"rkmgrkj qqf ."d{ "vj g"f guktg"vq"ucxg"y g"o quv"ko r qtvcpv"Rgtukcp"vgzvu"qh" r tg/Kurco ke"vko gu0

Vj g''tcpurc\kqpu''cwtkdwgf ''vq''Gdp''cn'O qs chhce''ctg''o cp{."cm quv'cm'htqo ''O kf f rg''Rgtukcp'kpvq''Ctcdke0' Wphqtwpcvgn{ ''vj g{ ''j cxg''cm'dggp''nquv0'Vj g''o quv'ko r qtvcpv'ku''j ku'\tcpurc\kqp''qh'\vj g'hco qwu''*Mj qv {/p o cm*''c'' xcuv'y qtm'qp''yj g''j kuvqt{ ''qh''Ktcp''htqo ''o { yj kecn'\ko gu'\vq''yj g''f gcyj ''qh''Mj qutqy ''KKl\p'84: 0J ku'\tcpurc\kqp.'' vtcpurc\kqp.'' vtcpurc\vgf ''dcem'kpvq''Rgtukcp''cm quv'422''{ gctu''rcvgt.''r quukdn{ ''d{ ''c''hgy ''uvxtxkxkpi '\ qtqcuvt\cpu.''hqto gf ''vj g''dcuku'' hqt''yj g''Rgtukcp''r qgv''Cdqns ugo ''Hgtf qy ukøu'' $Uj \ j \ p \ o \ gj$  '\\*Dqqn''qh''yj g''Mkpi u+0

Cm quv'cm'qh'Gdp''cn'Oqschceøu'qyjgt''\tcpurc\kqpu''jcxg''jcf''ukokrct'hcvgu0Jku''\tcpurc\kqp''qh''

y g'' $Rcpej\ cvcpvt\ c$ ''cpf ''cpqy gt ''eqngevkqp''qh''kpf kcp'hcdngu. ''npqy p''cu'' $Dkf\ r\ k$ ''hqto gf ''y g''dcuku'hqt'' $Mcnlngj\ ''xc''$   $Fgo\ pgj\ OJ$  ku''tcpurcvkqp''qh''\  $\{gp/p\ o\ cm''^*Dqqm''qh'Ewuvqo\ u+'kpvq''Ctcdke''cpf ''j ku''kpvgtr tgvcvkqp''qh''\ <math>l/p\ o\ cm''$  ''Dqqm''qh''y g''Etqy p+.''y j kej ''eqpukuvgf ''qh''vtgcvkugu''qp''tq {cn'f qewo\ gpvu. ''qtf kpcpegu''cpf ''gf kevu. ''j cxg''dqyj ''i kxgp'' tkug'\ q''rcvgt''vgzvu''y cv'kphqto ''wu''cdqwv'r tg/Kurco ke''Kcpkcp''ekxkrk cvkqp''cpf ''ewnwtgOCo\ qpi ''Gdp''cn'O\ qs\ ch''cegu'' vtcpurcvkqpu. ''Vj\ g''Ngwyt''qh'y g''O\ ci\ kcp''Rt\ kguv'Vcpuct''\q''y g''Mkpi\ ''qh'Vcdct\ guvcp''f\ gugtxgu''c''ur\ gekcn'o\ gpvkqpOKV'ku''\ qwt''ej\ kgh''uqwteg''qh'kphqto\ cvkqp''qp''y g''nkpf\ u''qh''eqwpugn'i\ kxgp''d\{'\\ qtqcuvtkcp''uci\ gu''vq''y\ g''twrgtu''qh'y\ gkt''vb\ gO'\ Kqpkecm\ .''uwej\ ''tcpurcvkqpu.''y\ j\ krg''wpf\ gtvcngp''kp''y\ g''ur\ kt\k''qh''Kcpkcp''pcvkqpcn''r\ tkf\ g.''o\ c\{''j\ cxg''gpcdngf\ ''y\ g''\ Ctcd''qxgtmqtf\ u''q''o\ cuvgt''y\ g''ctv'qh'uvcvgetchxO

Gdp"cn/O qs chce"y cu"gz gewgf "kp"CF '97; "qt '982."r quukdn( "hqt "j ku"j gt gwecn'dgn kghu0

GUHCJ PKOkt 'J cdkd'\*3: 566; 9±0C 'pkpgvggpyj /egpwt{ "Kcpkcp''r qgv'dguv'mpqy p'hqt''j ku''tcpurcvkqp''kpvq" Rgtukcp''qh'Lco gu'O qtkgtøu'3: 46 'pqxgn'qh'nklg'kp'S clct 'Kcp0Gulcj pk'y cu''dqtp''kp''c 'xkmci g''pgct 'Gulcj p''cpf " uwxf kgf 'Kurco ke''vj gqmi { "cpf ''Rgtukcp''nkgtcwtg''kp''Gulcj p''cpf ''Vgj tcp0Kp''j ku''{qwj .''j g''cnq''ur gpv'hqwt''{gctu''kp'' Dci j f cf .'tgwtpkpi "vq''Vgj tcp''uqo g''ko g''kp''vj g''gctn{ '3: 82u0J gtg.''j g'y cu''ceewugf ''qh'cvj gkuo .'r quukdn{ 'hqt'' j cxkpi ''ucvktk gf ''c'S clct''r tkpeg''kp''c''r qgo 0J g''hrgf ''vq''Kuvcpdwn'kp'3: 8: .'y j gtg''j g''lqkpgf ''ugxgtcn'qvj gt''Kcpkcp'' kpvgmgewcnu''cpf ''uqekcn'tghqto gtu0J g''nkxgf ''vj gtg''cpf ''gctpgf ''c''hxkpi ''cu''c''vgcej gt''qh''Rgtukcp''cpf ''Ctcdke''wpvkn' 3: ; 50Vj gp. ''dgecwug''qh''j ku''r qqt''j gcnyj ''j g''vtcxgmgf ''vq''yj g''o kpgtcn'y cvgtu''kp''Dtwuukc.''kp''yj g''Ecwecuwu.''y j gtg''j g'' f kgf ''kp''3: ; 90

Gultej pk'ku''wpks wg''co qpi ''gctn( ''Ktcpkcp''kpvgmgewcni'kp'j cxkpi ''o cf g'j ku'tgr wcvkqp''uqngn( ''y tqwi j ''c''ukpi ng'' y qtm'qh''tcpurcvkqp0'Vj g''tgcuqpu''hqt''y ku''ctg''pqv'hct''vq''uggn0'Kp''vtcpurcvkpi ''Vj g''Cf xgpwt gu''qh'J clk'Dcdc. ''j g''j cf '' ko dwgf ''y g''y qtm'y ky j' ku''qy p''qr kpkqpu''cpf ''dkcugu''kp''tgrki kqwu. ''uqekcn'cpf ''r qrkxkecn'o cwgtu0'Vj g''Rgtukcp''y qtm'y wu'hkv'xgt { ''y gm'y ky kp''y g''go gti kpi ''ci gpf c''qh''Ktcpkcp''o qf gt/pk cvkqp0'Y j cv'cf f gf ''vq''y g''dqqmøu''cr r gen ''cpf '' j cu''gpuwtgf ''kwu''uweeguu''gxgt''ukpeg. ''ku''Gultej pkøu''cr r tqcej ''vq''vtcpurcvkqp''cpf ''j ku''uv( ng''qh'y tkxkpi 0'J g''j cf '' cr r tqr tkcvgf ''O qtkgtøu''y qtm'kp''c''y c { ''y j kej ''ugv''y g''qpg''hqt''i gpgtcvkqpu''qh''vtcpurcvqtu''vq''hqmqy .''cpf ''j ku''uko r ng.'' gngi cpv''r tqug''kpvtqf wegf ''Ktcpkcpu''q''c''xgj keng''y gm'uwkxgf ''vq''tgcrkxvke''pcttcvkqp0

Guhcj pkøu'eqpvgo r qtctkgu'j cxg'tghgttgf 'vq'j ko ''cu''cp''gzvtgo gn{ "gtwf kg'uej qnct''cpf ''c'tguqnwg''cf xqecvg''qh'' nkdgtcn'cpf 'f go qetcvke''kf gcu0'Vj gug''kf gcu''o c{ ''y gm'j cxg''o qvkxcvgf ''j ko ''kp''j ku''r qgvt { ''cu''y gm'cu''kp''y g''y qtm'' y j kej ''j cu''ugewtgf ''j ku'hco g0J ku'y qtmu''qp''y g''i tco o ct''qh''Rgtukcp''o c{ ''j cxg''dggp''cp''qhhuj qqv''qh''j ku''vgcej kpi '' ectggt. ''dw''j ku''3: 8; ''vtcpuncvkqp''qh''O qnk''tgøu''Ng''O kucpvj tqrg''y cu''f qwdvrguu''wpf gtvcngp''y kyj ''c''xkgy ''vq''o cmkpi '' uqekcn'etkvkekuo ''r ctv'qh''Ktcpkcp''rkvgtct { ''f kueqwtug0'Guhcj pkøu''crrtqcej ''vq''vtcpuncvkqp''ku''pq''f khhgtgpv'j gtg''htqo '' j ku''3: 94''vtcpuncvkqp''qh''J clk'Dcdc0'Kp''j ku''r qgvke''F kxcp. ''vqq. ''j g'tgr gcvgf n{ ''nco gpvu''y g''dcemy ctf ''uvcvg''qh''chhcktu'' kp''j ku''j qo gncpf 0

GeVGU O'CN/O QNM'[ wuqh'\*3: 9663; 5: #0Kcpkcp'lqwtpcrknv'cpf "cf xqecvg"qh'y qo gpøu'tki j vu. "r quukdn{ "vj g" o quv'ko r qtvcpv'hki wtg'kp''Rgtukcp''tcpurcvkqp''j kuvqt{ "kp''y g''htuv'r ctv'qh''y g''y gpvkgy "egpwt{0Kp'o cp{"y c{u."}}} Gevgu o "v{r khkgu'Kcpkcp''tcpurcvqtu'qh''y g"gctn{ "wy gpvkgy "egpwt{0I g"tgegkxgf "j ku'vtcf kklqpcn'gf wecvkqp''kp" Kurco keu. "Ctcdke"cpf "Rgtukcp''hkytcwtg'kp''j ku'dktyi r nceg''Vcdtk|. "cpf "j cf "y tkwgp''y q''eqo o gpvctkgu''qp''y g'' o gf kgxcn'Kurco ke''nkytcwtg''qh'o qtcnkc''d{ "vj g''wtp''qh''y g''egpwt{0I g"j cf "cnuq"j grr gf "vq''guvcdnkuj "c''o qf gtp" r tkpvkpi "r tguu''kp''Vcdtk| 0'Vj gtg''j g''r wdrkuj gf "j ku''dqqm'qp''yj g''tki j wu''qh''y qo gp. "gpvkxrgf "Vctdkcv/g'Pgux p'' \*Y qo gpøu''Wr dtkpi kpi +:"kp''hcev'c''vtcpurcvkqp''htqo "Ctcdke0'Vj ku''y cu''yj g''htuv''r wdrkecvkqp''qp''yj g''uvdlgev'kp''Kcp." cpf "ku''i gpgtcm{ "xkgy gf "cu''j cxkpi "c''eqpukf gtcdrg'ko r cev'qp''Ktcpkcp''uqekgv{0'D{ "3; 32. "y j gp''j g''dgi cp'' r wdrkuj kpi "yj g''o qpyj n{ "lqwtpcn'Dcj t. "Gevgu o "y cu''r tqhkekgpv'kp''Htgpej "cu''y gm'cu''Rgtukcp. "Ctcdke''cpf" Vwtnkuj 0

Kp" i g"r ci gu"qh" Dcj t"Gevgu o "qhhgtgf" dtkmkcpv" itcpurc kqpu"qh" Gwtqr gcp"r qgvt { "cpf" r tqug. "r tko ctkn{ "htqo" Htgpej 0Vj gug" kpenvf gf "hcdrgu" htqo "Nc" Hqpvckpg. "r qgo u"d { "Xkevqt" J wi q. "Ngto qpvqxøu" F go qp. "r cuuci gu" htqo" Uj crngur gctgøu" J gpt { "KX." Uej krigtøu" cpf" Vqnuq { øu" dkqi tcr j kgu. "cu" y gm" cu" ugrgevgf" guuc { u"

qh'y g'Co gtkecp'lqwtpcnkuv'Ctyi wt'Dtkudcpg'cpf 'qyi gtu0Uqo g'qh'yi gug'\tcpurc\kqpu'y gtg'\rcvgt'eqo r ngvgf 'cpf' r wdrkuj gf 'kp''dqqmhqto .''cu'y gtg'\ugxgtcn'Tqo cp\ke''ceeqwpwu'qh'yi g'nkhg''qh'P cr qngqp.''cv'yi g'\ko g'c'hcxqwtkg'' Gwtqr gcp''j gtq'y kyi 'Kcpkcpu0Kp''o cp{ "ecugu'y g'f q'pqv'npqy 'hqt'egtvckp''y j gyi gt''j ku'\tcpurc\kqpu''y gtg'f qpg'' f ktgevn{ 'htqo ''yi g''qtki kpcn'Htgpej '\cdot'cpf''kp''c'hgy ''ecugu'Gpi nkuj + ''qt'htqo ''r tgxkqwu'\tcpurc\kqpu''kpvq''V\wtnkuj ''qt'' Ctcdke0'Vj ku'ku''egtvckpn{ ''yi g''ecug'y kyi ''uqo g''qh'Gevgu o øu'o quv'ko r qtvcpv'\tcpurc\kqpu.''uwej ''cu''j ku'\tcpurc\kqpu'' htqo ''Uj cngur gctg''qt''yi g''hktuv'xqnwo g''qh'U wi qøu''Ngu'O ku² tcdngu0

Vj g'urci i gtkpi 'f kxgtukv{ ''qh'Gevgu o øu'\tcpurcvkqpu'\gurkhkgu'cu'o wej '\q'vj g''pggf 'hqt''nkvgtct { ''o qf gnu'\q''dg'' go wrcvgf ''cu'\q''vj g''gergevke''pcwtg''qh'\tcpurcvkqp''cevkxkv{ ''kp''o qf gtp''Kcp0'K'cnuq''r qkpwu'\q''vj g''hcev'vj cv'' vj tqwi j qw''vj g''y gpvkgvj ''egpwt { ''tcpurcvkqp''tgo ckpu'c'o clqt''o gcpu''qh''eqo o wpkecvkqpô cguvj gvke. ''j kurqtkecn'' cpf ''uqekqr qrkskecrô kp''eqpvgo r qtct { ''Kcpkcp''ewnwtg0

VWUK'P cult 'cr/F kp'\*3422696+0'C''r tqrlhke''y tlwgt''cpf "\tcpurcvqt.''ej lghn{ ''qh'I tggm'luelgpvlhke''y qtmu.''r ctvlewrctn{ " kp"o cyj go cykeu"cpf "i gqo gyt {0Gwerkf øu"*Gngo gpyu*"cpf "Vj gqf qukwuø"*Urj gt kec* "ctg"co qpi "yj g"o quy"ko r qtycpy" uekgpvkhle'y qtmu'j g''vtcpurcvgf 'kpvq'Ctcdke.'y j krg''y g''cuvtqmi kecn'l wf i go gpvu''qh'Rvqrgo { 'ku'j ku'r tkpekr cn' vtcpurcvkqp'kpvq'Rgtukcp0Jg'cffgf'jku'qyp'eqoogpvu'vq'cm'vjgug'yqtmu0Ocp{'qh'Vvukøu'Ctcdke'vtcpurcvkqpu' y gtg'hcvgt'gkij gt''tcpurcvgf'kpvq'Rgtukcp''qt'hqto gf''vj g''dcuku'hqt'hcvgt''y qtmu'kp''vj cv'hcpi wci g0 Vwuk'y cu'c 'Uj køkg' yj gqmi kcp''cpf ''cp''kphrwgpvkcn'y tksgt''kp''j ku''qy p''tki j v0J ku''*Cmj n s/g'P ugt k*'\*P cugtkcp''Gyj keu+'' ku'cp'kortguukxg'eqorkrevkqp'cpf'fgoqpuvtcvkqp'qh'Itggmlhkygtcwxtg''qp''gyjkeu0Jku'eqoogpvct{''qp''Cxkegppcøu''  $\textit{Guj} \quad t \quad \textit{v'} \texttt{`Cmwukqpu+:'c'uvqt} \{ \textit{`'qh'I tggm'qtki kp.'hqto gf''y g''dcuku'hqt''L o køu''o } \{ \textit{y kecn'cmgi qt} \{ \textit{`'Ucn o p''xc''Cdu n'' le ch'' le ch$ \*Ucnco cp"cpf "Cducn+0"I ku"qyj gt"y tkklpi u"kpenwf g"\tgc\kugu"kp"\j gqmi {."o {uvkekuo ."cpf "mqi ke0 Vwuk'y cu'cnuq'c'uvcvguo cp0Cp'Kuo økrk'd{''dkt vj ''cpf ''wr dt kpi kpi .'j g'o c{''j cxg'j cf ''rkpmu''y kvj ''vj g'Cuucuukpu.''c'' ugetgy'qti cpk cykqp"qh'\gttqtkuxu"cko gf "cy'ucdqvci kpi "\j g'tkug"qh'\j g''Ucnlws "Vwtmu'\q'r qy gt0'Y j gp"\j g''Ka'Mj cp" go r gtqt 'J wn i w'kpxcf gf 'Kcp. "Vwuk'gpvgtgf 'j ku'ugtxkeg. 'r quukdn{ 'vq'ucxg'kppqegpv'rkxgu'kp'vj g'wtdwrgpv'vko gu' yj cv'hqmqy gf 0J g'ugtxgf "cu"ej kgh"o kpkrvgt "cpf "eqwpugmqt "vq"J wn i w'cpf "gpeqwtci gf "j ko "vq"dwkrf "cp" qdugtxcvqt { 'kp''yi g''vqy p''qh''O ct i j gj 'kp''pqtyj /y guvgtp''Kcp0'Vj g''cuvtqpqo kecn'vcdrgu''yi cv''dgct''j ku''pco g.''cpf'' y gtg"o cf g'hco qwu'kp'Gwtqr g'vj tqwi j "cp"gctn( "\tcpurc\kqp"d { 'Qzhqtf 'r tqhguuqt 'Iqj p'I tgcxgu. 'y gtg'hcvgt" cppqvcvgf "cpf "gzr cpf gf "ugxgtcn'vko gu0'Vj g{ "y gtg"cnuq"vtcpurcvgf "kpvq"Ctcdke0

CJ O CF "MCTKO KJ CMMCM

## Rqrkij 'tt cf kkqp

Rqnkij "kı"c"Y guv'Unxqpke "repi wei g. "emqugn( "tgrevgf "\q"E| gej "cpf "Unqxem"cpf "wnko cvgn( "\teegcdng"\q"cp"cpekgpv' repi wei g"mpqy p"cu"Rtqvqurex0Vj g"f kergewi'y cv'i cxg'tkug"\q"o qf gtp"Rqnkij "ecppqv'dg"ceewtcvgn( "f guetklgf ."cu" pq"y tkwgp"tgeqtf u"gzkuv'r tkqt "\q"y g"y grhyj "egpwt{0Vj g"getnkguv'gzvcpv'y qtm'y tkwgp"kp"Rqnkij "ku"y g"tgrki kqwu" j {o p"Dqi wt qf / kec "\*=iy g/qpg/y cv'i cxg/dkty / vq/I qf ø+: "y j kej "f cvgu"dcem'vq" y g"grgxgpy "egpwt{0Dw'y j kg" o quv'o gf kgxcn'j {o pu"ctg"ttcpurevkqpu"htqo "Ncvkp. "pq"uqwteg"\gzv'j cu"dggp"hqwpf "hqt"Dqi wt qf / kec 0' Kpvgtguvkpi n( ."j qy gxgt." y g"kwg"qh"yi g"j {o p"ku"kwgnh"c"vtcpurevkqp"qh"yi g"Qrf "Ej wtej "Urcxqpke"dqi qt qf kec ." y j kej "kp"wtp"ku"c"vtcpurevkqp"qh"yi g"I tggmlVj gqvqmqu." o gcpkpi "-I qf /dgctkpi ø0Vj wu."kp"c"ugpug"Dqi wt qf / kec " o c{"dg"eqpukf gtgf" y g"hktuv'tgeqtf gf "vtcpurevkqp"kpvq"Rqnkuj 0
Ej tknkcpkk("o cf g"ku'y c{"vq"Rqrepf "xkc"Dqj go kc0Kp"y g"pkpy "egpwt{"CF ."y g"I tggmlo kuukqpct{"Uv'E[ TKN" "ugg"DWNI CTKCP"VTCF KNQP +"kpxgpvgf" y g"Et{tknke"crrj cdgv'cpf ."y kyj "j ku"dtqy gt"Uv'O GVJ QF KWU." kpvtqf wegf "uqo g"Urcxqpke"tgrki kqwu"xqecdwrt{"kpvq"y g"rcpi wci g0Uv'O gyj qf kwu"rcyg"vtcpurevgf "y g"Dkdrg"kpvq" Urcxqpke0O cp{"E| gej "cpf "Urcxke "tgrki kqwu"ygto u"y gtg"eqpugs wgpvn("cf qr vgf "kp"ej wtej "ugtxkegu."dw"Ncvkp" tgo ckpgf "y g"dhkekcn'rcpi wci g"qh"y g"Ecyj qrke"Ej wtej "kp"Rqncpf 0F wtkpi "y g"O kf f ng"Ci gu. 'ky'y cu'y g"qpn("

rcpi wci g'wugf 'kp'uej qqnı.'cpf 'yj g'qpn( 'qhhkekcn'rcpi wci g'qh'rksgtcwtg0O cp{ 'cwj qtu'

eqpvkpwgf 'vq'y tkwg'kp'Ncvkp'y gm'kpvq'vj g'gki j vggpvj 'egpwt { .''dw'c'hgy 'dgi cp'vq'y tkwg'kp'Rqnkuj 'f wtkpi 'vj g'' Tgpckuucpeg0

Kp"y g"ukz vggpyj "egpwt {."Ncvkp"y cu'wugf "d{"dqvj "ej wtej "cpf "uvcvg"cu'cp"ghhgevkxg"o gcpu"qh'eqo o wpkecvkqp"y kij " y j cv"j cf "d{"vj gp"dgeqo g"c"j ki j n{"j gvgtqi gpgqwu'r qr wrcvkqp0"Nkj wcpkcp"cpf "T wj gpkcp"y gtg"ur qngp"kp"t wtcn" ctgcu"kp"vj g"gcuvgtp"cpf "uqwj gtp"r ctvu"qh"vj g"eqwpvt{="I gto cp"ugwrgo gpvu"kp"vj g"y guv"gpeqwtci gf "vj g" r tgf qo kpcpeg"qh"I gto cp"kp"vj ku"ctgc="cpf" "vj gtg"y gtg"rcti g"Igy kuj "eqo o wpkxkgu"kp"o quv"ekxkgu0"Rqrcpf"j cf " dgeqo g"c"o wnkrkpi wcn"cpf "o wnkewnwtcn"uvcvg0

C'xctlgv['qh'repi wci gu'y gtg'cnuq'ur qngp'cv'j g'tq{cnleqwtvlvj g'eqwtv'qh'y g'Kcrlcp/dqtp'S wggp'Dqpc'Uqt| c' \*36; 663779+'wugf 'Kcrlcp.'c'hcpi wci g'y j lej 'y cu'hco kkct'\q'y g'Rqrkuj 'uqekch² rkg'y j q'j cf 'uwwf kgf 'kp'Rcf wc0' Mkpi '\ {i o wpv'Kkk\*378863854+'dgmpi gf '\q'y g'Uy gf kuj 'J qwug'qh'Xcuc.'cpf 'j ku'eqwtv'eqpugs wgpwt 'ur qng'' I gto cp0'Kp'y g'ugxgpvggpy 'egpwt {.'Htgpej 'guvcdrkuj gf 'kugrh'cu'y g'ncpi wci g'qh'f kr mo ce {'cpf 'uqqp'dgeco g'' y g'qhhlekchlrcpi wci g'qh'y g'Htcpeqr j kg'eqwtv'qh'Mlpi 'Iqj p'Uqdkgunk\*384; 6; 8+0'Vj g'uxdugs wgpvtkug'qh'y g'' Uczqp'J qwug'qh'Y gwkp'\qy ctf u'y g'gpf 'qh'y g'ugxgpvggpy 'egpwt {'dtqwi j v'\q'Rqncpf 'c'ncti g'pwo dgt'qh'' Uczqpu.'y j kg''y g'grgevkqp'qh'y g'ncuv'Rqrkuj 'nhpi .'Ucpku&y /Cwi wuv'Rqpkc\qy unk\*39546; 7+.'tguwngf 'kp'c'' o cuukxg'kphwz'qh'T wuukcpu<'y g'nhpi 'y cu'c'hcxqwtkg'qh'Go r tguu'Ecyj gtkpg'y g'I tgcv'cpf 'cf qr wgf 'c'r qrke {'qh'' eqo r nyg'uwdo kuukqp'\q'y g'T wuukcpu0'Gxgt {'i tqwr 'kpvtqf wegf ''{gv'cpqy gt'hcpi wci g'cpf 'ewnwtg'kpvq'Rqncpf 0 Hqtgki p'hpytxgpykqp'ewo kpcyf ''hp'y g'r ctvkkqpkpi ''qh'Rqncpf ''d {'T wuukc.'C wutkc'cpf 'Rtwuukc'kp''39; 70Rqncpf '' egcugf '\q'gzkuv'cu'c'pcvkqpcn'uxcyc'cpf 'Ncvkp'y cu'pq'nqpi gt''y g'hhlekcn'ncpi wci g'qh'y ku'ctgc0'Vj g'r ctvkkqpkpi '' r qy gtu'vtlgf ''q'ko r qug'y gk'qy p'ncpi wci gu.'I gto cp'cpf 'T wuukcp.''qp'y g'r gqr ng'qh'Rqncpf 0'Rqnkuj '' eqpugs wgpvu( ''dgeco g'y g'ncpi wci g'uh'htggf qo .'c'u{o dqn'qh'pcvkqpcn'htgpvky ''cyf ''kpvgi tkv{0'Kiy cu'vq'dg'' ej gtkij gf ''ci ckp''cu'y g''u{o dqn'qh'tgukuvcpeg''cm quv'y q''egpwtkgu'ncygt.''f wtkpi ''y g'I gto cp''qeewr cvkqp''qh'3; 5; 6 670

Vj g'lpuvcdktk{ "qh'htqp\lgtu'cpf "\j g'hcti guecng'hqtegf 'tgmec\lqp"qh'\j g'r qr wc\lqp"ch\gt"Y qtnf "Y ct"Vy q'tguwn\gf" kp"\j g'guvcdnkuj o gpv'qh'cp"gi pke'uvcy.'y kj "c'hgy 'uo cm'o kpqtkkgu'\f gto cp'kp'\j g'y guv.'\Nkj wcpkcp'kp'\j g'gcuv." cpf "Wntckpkcp'kp'\j g'uqwj +0Vqf c{.'Rqnkuj 'ku'r tce\lecm{'y g'qpn{'mcpi wci g'ur qngp'kp'\j g'eqwp\t{0Kp'' kp'\t g''pgy "kp'\t g''pgy "kp'\t g''pggf "\q'tgn{"qp'\tcpurc\lqp'\t g''pgy "kp'\t g''pgy "Rqnkuj 'uvc\g''ku''cu'\t gc\lqp'\t g''pgy "cu'\ky'\t g''pgy "cu'\ky'\t g''pgy "cu'\ky'\t g''r cu\0

## Nepi wei gu'epf 'tgzw'lp'tt epurc lqp

### Vj g'O lff ıg'Ci gu

Nkwg"gxkf gpeg"tgo ckpu"qh"vtcpurcvkqpcn"cpf "qvj gt"cevkxkkgu"kp"vj g"gctn{ "O kf f rg"Ci gu."dw"vj g"f qo kpcvkqp"qh" Ncvkp"ewnwtg"ku"y gm"f qewo gpvgf 0'C nvj qwi j "vj g{"ctg"pqv"vtcpurcvkqpu"cu"uwej ."vj g"gctnkguv"y qtmu"\*j kuvqtkecn" ej tqpkergu"y tkwgp"kp"Ncvkp+"uj qy "vj g"uvtqpi "kphrwgpeg"qh"vj g"Qrf "Htgpej "gr ke"r qgvt { "npqy p"cu"ej cpuqpu"f g" i guvg0"Vj g"hktuv"npqy p"vtcpurcvkqpu"ctg"Ruc Gyt / "nqt kc unk" "Uv"Hrqtkcpøu"Rucngt+"c"hqwt vggpvj /egpwst { "eqngevkqp" qh"r ucmo u"vtcpurcvgf "htqo "Ncvkp."cpf "c"pwo dgt "qh"gz vtcewi"htqo "vj g"Dkdrg0"Kp"vj g"hkrvggpvj "egpwst { ."kv"y cu" o ckpn{ "tgrki kqwu"j {o pu"vj cv"y gtg"vtcpurcvgf ."o quvn{ "htqo "Ncvkp."dw"uqo g"vtcpurcvkqpu"y gtg"cnuq"f qpg"htqo " E| gej "cpf "I gto cp0"D{ "eqpvgo r qtct { "uvcpf ctf u."vj gug"vtcpurcvkqpu"ctg"gz vtgo gn{ "htgg"cpf "o ki j v"vj gtghqtg"dg" eqpukf gtgf "cf cr vcvkqpu0

Vj gtg'ku'pqv'o wej ''vq''uc{ "cdqww'kpvgtrtgvkpi "f wtkpi "y ku'r gtkqf."dw''w q'j kuvqtkecn'hcevu'ctg'y qtyj "o gpvkqpkpi 0'Kp" 34: 7. "c'u{ pqf "qh'Rqnkuj "dkuj qr u'f getggf ''y cv'cm'o cuvgtu''cr r qkpvgf "vq''gcej "kp"ej wtej "uej qqnu'j cf "vq''mpqy " Rqnkuj "y gm'gpqwi j "vq''dg"cdng"vq'':gzr nlecvg''Ncvkp''cwyj qtu''vq''y g''dq{u'kp''y g''Rqnkuj "hcpi wci gø'\*Uv r kg "cpf" Y kmq "3; : 5"\*K-< ='vtcpurcvgf +0'Nguu''y cp'c'egpwt{"hcvgt."kp"3585."c"o ggvkpi "y cu'j gnf "kp''Mtcmqy "cpf "cwgpf gf" d{"ugxgtcn'o qpctej u'qh'o gf kgxcn'Gwtqr g0'Vj g'i wguv'qh'j qpqwt "y cu'y g''Mkpi "qh'E{r twu. "Rkgttg'f g''Nwuki pcp." y j q'y cu'xkukkpi "y g'eqwt w'qh'Gwtqr g'kp''y g'j qr g'qh'hkpf kpi "uwr r qtv'hqt''c'etwucf g='j g'engctn("pggf gf" kpvgtr tgvgtu'vq''eqo o wpkecvg'y kyj "y g''mkpi u'cpf "f wngu'y j q''i cyj gtgf "cv'y g''Rqnkuj "tq{cn'eqwtv0}

#### Vj g'Tgpckucpeg<hkhyggpyj '\q'thzvggpyj 'egpwtkgu

Vj g'f gxgmqr o gpv'qh''y g'Rqnkuj ''J wo cpkuv''tcf kkqp''dgi cp''kp''y g''ncyg'hkhvggpyj ''egpwt{."

dwi'ku't gcn'et cf rg'y cu'y g'equo qr qrkxcp'eqwt v'qh'Mkpi '\ {i o wpv'K\*36896376: +'cpf 'j ku'Kkcrkcp'S wggp.'Dqpc'' Uhqt| c'\*36; 663779+0'Vj g'eqwt v'cwt cevgf ''ct vkuvu'cpf ''uekgp vkuvu.''o cp{ "qh'y go ''Kkcrkcp.'y j qug'kp vgt guv'kp'y g'' cpekgp vy qtrf ''cpf ''eqp vgo r qtct { ''Kcrl( ''ugv'y g'uvci g''hqt'y g''cttkxcrl'qh'y g'Tgpckuucpeg0'Cny qwi j ''uqo g''{qwpi '' Rqrkuj ''pqd rgo gp''ej qug''q''uwf { ''cv'y g''r tqvguvcpv'wpkxgtukkgu''qh''Y kwgpdgti .'\ wtkej ''qt''Dcurg.''y g'o clqtkx{ ''y gpv'' vq''Rcf wc''cpf ''Dqrqi pc=''y g{ ''dtqwi j v'dcendo cpwuetkr vu''d { ''Kcrkcp''y tkgtu''y j kej ''wuj gtgf ''kp''c''pgy ''kpvgrrgewcrl' erko cvg0

I tqy kpi 'kpvgtguv'kp''cpvks wkv{ "gpeqwtci gf 'Rqrkuj "cwj qtu''vq''nqqm'vq''y g''rkvgtcwtg''qh''y g''cpekgpv'y qtrf 'hqt" kpur ktcvkqp0'Uko krctn{ .''y g''f gxgmr o gpv'qh'I wo cpkuv'y qwi j v'ngf ''vq''y g''tgxkxcn'qh'y qtmu''d{ ''y g''i tgcv'r qrkxkecn' y tkvgtu''qh'y g''encuukecn'gtc0'Vj g''cf cr vcvkqp''qh'hqtgki p''vgzwi'hqt''c''y kf gt''tgcf kpi ''r wdrke''dgeco g''cp''guvcdrkuj gf '' hgcwtg''qh'y cv'r gtkqf 0'Kp''cf f kxkqp''vq''Ncvkp''cpf ''Kcrkcp.''I tggm'dgeco g''cp''ko r qtvcpv''uqwteg''ncpi wci g'hqt'' vtcpurcvkqp0

Co qpi "vj g"gctrkgt"cwgo r w"cv"pqp/rkxgtct { "\tcpurcvkqp"y cu"c"tgpf gtkpi "qh"uqo g"rgwgtu"d { "Vj gqr j krcewu" Uko qncvc. "wpf gt vcngp" cu'cp "gz gtekug" d{ "P keqncwu'Eqr gtpkewu'kp '372; 0'Dw'k'y cu'pqv'wpvkn'y g''dgi kppkpi "qh'y g" hqmqy kpi "egpwt { "vj cv'i gpwkpgn( "r tqhguukqpcn'\tcpurcvkqpu'hktuv'cr r gctgf 0'Uqo g. "nkmg'Rnwctej øu''Vt gcvkugu." y gtg" cpqp{o qwu0'Qyi gtu'y gtg'f qpg'd{'hco qwu'r j kqnqi kuvu'y j q'eqo dkpgf 'c'r tqhqwpf 'kpvgtguv'kp''y g'tgrgxcpv' ncpi wci gu'y kij 'uej qnctn( "gzr gtvkug'kp" yj g'uqwteg" o cygtkcn0'Qpg" qh'yj g'o quv'r tqo kpgpv'ytcpuncyqtu'qh'yj g'yko g'' y cu'Ugdcurkep'RGVT [E[.'c'rj {ukekep.'r qgv'epf 'rj krquqrj gt.'dguv'mpqy p'cu'c'tcpurevqt'epf 'eqo o gpvevqt'qh' Ctkurqvrg0J ku'eqpvgo r qtct{"U {o qp"Dktrqy unk"3796ó3848+."r tqhguuqt"qh'r j {ukeu'cpf "o gf kekpg"cv'vj g'hco qwu" Cecf go { "qh" \ co q \ "cpf "c" r tqo \lambda gpv" r j \lambda qqq \ kuv. "\tcpurcvgf "F g" eqnqecvkqpg" xgt dqt wo "d{ "F \lambda qp { ukwu 'qh" } J crkectpcuuwu'cpf 'r wdrkuj gf 'y j cv'y cu'r tqdcdn( ''y j g''gctrkguv'dkrkpi wcri'gf krkqp''qh''cp{ ''ygzv0  $Y\ j\ krg'kp''yj\ g'O\ kf\ f\ rg'Ci\ gu''yz\ w'y\ gtg''cxckredrg''o\ ckpn(''kp''yj\ g'hqto\ ''qh'o\ cpwwetkr\ w.''yj\ g'Tgpckuucpeg''ucy\ ''yj\ g''$ tgxqnwkqpct{"fgxgrqrogpv'qh'rtkpvkpi"\gejpkswgu0Ugxgtcrlrtkpvkpi"jqwugu'ygtg"ugv'wr'kp'\yjg'3792u'\q''ecvgt'hqt" y ku'pgy "o ctngv0'Vj g"o gf kgxcn'tcf kkqp"r gtukuygf "kp"yj g'r tkpvkpi "qh'ej tqpkergu'qh'yj g'rkxgu'qh'uckpw'cpf" o ctv{tu. 'r tc{gt/dqqmu'cpf 'uko krct 'vgzvu0'Dw'vj g'f gxgrqr o gpv'qh'r tkpvkpi 'vgej pks wgu'cnuq'ckf gf 'vj g'ektewrcvkqp'' qh'\gz w'y j kej 'o ctmgf '\j g'cttkxcn'qh'c'pgy 'gr qej 0'Kp'3757. 'O ctekp'Dkgnunk'\*e086; 763797+'r wdrkuj gf '' {y q v' '' htq/qh>y "\*Vj g"Nkxgu"qh"Rj ktquqr j gtu+0"Vj ku"y cu"c"\tcpurc\kqp"qh"c"E| gej "xgtukqp"qh"Y cn\gt"Dwtrgwu\øu"F g"xk\wc "g\v" o qt kdwu'rj krquqrj qt wo 'gv'r qgwt wo ."c"eqo r gpf kwo "qh'mpqy ngf i g"cdqw'y g"cpekgpv'y qtnf 0'Kv'y cu't grt kpygf " ugxgtcn'\do gu'\do gu'\ pwo dgt 'qh' y g'xgtpcewrct 'rcpi wci gu'qh' Rqrcpf 0

Gci gt "vq"ecvgt "hqt"c"i tqy kpi "tgcf gtuj kr. "Tgpckuucpeg"gf kqtu"ucy "cp"qrrqtwpkx{ "vq"gzrcpf "vj g"dqqm"o ctngv"d{" gpeqwtci kpi "cpf "uwr r qt kpi "tcpurcvqtu." y j qo "y j g{ "tgetwkxgf "o ckpn{ "htqo "y j g'cecf go ke "eqo o wpkx{ "cv" Mtcm>y 0'Ugxgtcn'ueqtgu'qh'tqo cpegu'y gtg'r wdrkuj gf. "cu'y gm'cu'o cp{ "eqmgevkqpu'qh'pqxgmcu0'Vj g's wcrkv{ "qh" yj g"tcpurcvkqpu'y cu"qhvgp"xgt{"j ki j ."y kyj "o cp{"tcpurcvqtu"f go qpuvtcvkpi "i tgcv"unkm"cpf "kpxgpvkxgpguu0Uqo g" dqqmı"crrgctgf "kp"ugxgtcn"gf kkqpu="c"hgy "y gtg"uvkn"dgkpi "tgrtkpvgf"cu"hcvg"cu"yi g"gki j vggpyi "egpwt{0"Uqo g" wkurgu'eqwrf "gxgp"dg"dqwi j v'cv'eqwpvt { 'hcktu'cv'vj g'dgi kppkpi "qh'vj ku'egpwt { 0Ej kxcrtke'tqo cpegu'y gtg's wkwg" r qr wrct="co qpi "yj g"dguv/mpqy p"y cu" J kwqt kc "q"Hqt wpcekg" "C" J kwqt { "qh"Hqt wpcv. "3792+: "vtcpurcvgf" cpqp{o qwun('htqo 'I gto cp0J qy gxgt.'kv'y cu'vj g'hqmncng'v(r g'qh'tqo cpeg'vj cv'uwtxkxgf 'r ctvkewnctn('y gm0'Vj g' gctrkguv'tgeqtf gf 'tgrtgugpvcvkxg''qh''yi ku'i gptg''y cu'' {y qv'Cguqrc''Ht{i c'\*Vj g'Nkhg''qh'Cguqr''qh'Htki kc+." r wdrkuj gf 'kp'3744''d { 'Dkgtpcv'qh'Nwdrkp'\*eB6876eB74; +0Vj ku'y cu'cp''cf cr vcvkqp''qh'c''Ncvkp''vtcpurcvkqp''qh'c'' I tggm'uvqt{"cdqw'c"engxgt"uncxg"yjq"qwykwgf"jku"ocuvgt."pqy"ugv'kp"vjg"Rqnkuj"eqpvgzv0Vjg"ucog"rtqvciqpkuv" crrgctu'lp''y q''o qtg''cf crvcvkqpu'y j kej ''eqwpv''co qpi ''y g'hkpguv''vtcpurcvkqp''cej kgxgo gpwu''qh''y g''vko g<''y g''r qgo '' Tq/o qy {.'m»tg"o kc€nt»n'Ucnqo qp' "madry"/ "Octej q€go "i twd{o "c" lurtq p{o "\*Eqpxgtucvkqpu"dgw ggp'Mpi " Uqmo qp''y g''Y kug''cpf ''y g'hcv''cpf ''ngy f''O ctej qnv.''3743+''vtcpurcvgf ''d { ''Icp''qh''Mqu| { e| mk'''f cvg''wpmpqy p+.''cpf '' yj g"cpqp{o qwu"*Uqy k t | c€mt qvqej y kpf 'k" o kgu| p{* "\*Vj g"Y kw{ "cpf "Hwpp{"Uqy k t | c€*e®*752+0Vj g"rcwgt"y cu" yj g'hktuv'Rqrkuj "tcpurcvkqp"qh'yj g'cf xgpwtgu"qh'Vkm'Gwrgpur kgi gn "c"ej ctcevgt 'htqo 'hqmn/vcrg'v{rg'I gto cp" tqo cpegu'qh'y g'Okffng'Ci gu0

Vj gug"iy tgg"itcpurckqpu'kmwntcvg"y j cv'y cu''q'dgeqo g"iy g"i gpgtcnir tcekeg"qhi'y g"iko g<iy cv'qhi'cr r tqr tkckpi "qtki kpcniy qtmu0Vj g"kf gc"qhi'eqr {tki j v'y cu''gpwktgn("crkgp"vq"Tgpckucpeg"cwj qtu."y j q"ttgcvgf"'y g"y qtmu'qh" hqtgki p"eqmgci wgu''cu''eqo o qp"r tqr gtv(0Vj ku''cr r tqcej "y cu''cf xqecvgf "gzr rkekn("d{"iy g"hktuv'Rqrkuj "y gqtkuv'qh" tcpurcvkqp."/ wmcu| "I ~ TP KEMKOI »tpkenkau'r rgc"hqt"y g"wug"qhi'ntgg"r ctcr j tcug"y cu''vq"dgeqo g"iy g"i wkf kpi "r tkpekr rg"hqt"Rqrkuj "tcpurcvqtu"qxgt" y g"pgzv'iy q"egpwktgu!\*\*\ kqo gmi3; 95+0Kpf ggf ."kv'y cu''hwnn("cempqy rgf i gf" kp"iy g"I qrf gp"Ci g"qhi'y g"Rqrkuj "Tgpckucpeg0Ugxgtcniy qtmu"d{"O knqrell"Tg!\*372768; +"mpqy p"cu''y g"±rcy gt" qh'Rqrkuj "rksgtcwtga"f tcy "j gcxkn("qp"hqtgk p"uqwtegu."co qpi "y go "Rcrki gpkwu."c"Nwj gtcp"cwj qt"d{"y g'pco g" qh'Vj qo cu'P cqi gqti ."cpf "y g"F wej "J wo cpkuv'cpf "y tksgt"Eqtpgrkwu'Etqewu0Vj g"uco g"r tkpekr rg"ku''cf qr vgf "kp" y g"y qtmi'qhi'y g"i tgevguv'r qgv'qh'y g"Rqrkuj "Tgpckucpeg."Lcp"Mqej cpqy umk\*37526: 6+0Gf wecvgf "cv'y g" Wpkxgtukv("qh'Rcf wc."y gm'\tcxgnrgf ."cpf "hmn("eqpxgtucpv'y kj "Ncvkp"cpf "I tggm'Mqej cpqy umk'dqttqy gf "ltggm(" ltqo "xctkqwu''hqtgki p"uqwtegu0J ku'hco qwu''Rkg pk\*Uqpi u."r wdrkuj gf "kp"37: 8+"eqpukuvu'o qun("qh'cf cr wxkqpu'qh" J qtceg0J ku'i tgevguv'cej lgxgo gpv'kp"y g'hkgrf "qh'\tcpurcvkqp"kn"RucGgt/"F cy lf »y "\*F cxkf øu'Rucngt."379; +0Vj ku'' ku'c''r qgxle"cf cr wxkqp"qh'iy g"Rucro u"qh'F cxkf ."dw'dcugf "qp"xctkqwu''uqwteg"\gzvux"cr ctv'htqo "y g"Xwri cvg."
Mqej cpqy umk'wgf "y g'J gdtgy "qtki kpcn'cpf ."cu'c'uqwteg"qh'kpur ktcvkqp."Ncvkp'r qgo u'd{"y g"Ucqwkuj "J wo cpknv' I gqti g"Dwej cpcp0

Vj g''hktuv''tcpurcvkqpu''qh''f tco c''cr r gctgf ''ctqwpf ''vj g''gpf ''qh''vj g''ukz vggpvj ''egpwt {0I ~ TP KEMK'r tqf wegf ''cp'' cf cr vcvkqp''qh''Ugpgecøu''Vtqcu''kp''37; .''kp''37; 4''cp''cf cr vcvkqp''qh''Rrewwuø''Vtkpwo wu''y cu'uj qy p''cv'yj g''eqwtv'qh''c'' Rqrkuj ''pqdrgo cp.''cpf ''kp''3838''Lcp''Cpf t| gl''O qtu| v{p'\*38436; 4+''r wdrkuj gf ''j ku''vtcpurcvkqp''qh''Eqtpgkrrgøu''Vtg'' Ekf O'Cu''hct''cu''r qgvt { ''ku''eqpegtpgf .''htgg''xgtug''y cu''hktuv'kpvtqf wegf ''kpvq''Rqrkuj ''kp''38; ; ''d { ''Mt| {u| vqh''P kgo kt {e| .'' c''o kpqt''r qgv.''kp''c''vtcpurcvkqp''qh''Nc''Hqpvckpgøu''VtcdrguO

Vj g'y qtmu'qh'Rqnkuj "cwwj qtu'y j q'y tqvg'l $\phi$ "Ncv $\phi$ 'y gtg'htgs wgpvn{"tcpurcvgf 'l $\phi$ vq'xgtpcewrct "rcpi wci gu'f wtl $\phi$ i "  $\phi$ i ku'r gtl $\phi$ f ." $\phi$ i qwi j 'uqo g'y gtg'pqv'vtcpurcvgf 'l $\phi$ vq'Rqnkuj 'w $\phi$ vkn'y g'y gpv $\phi$ y 'egpwst {00 cp{"vgzw'd{"Rqnkuj" cwj qtu'y gtg'r tl $\phi$ vg "Rqnkuj "Rqnkuj "  $\phi$ vy gryl $\phi$ vy gtg'r tl $\phi$ vg "qtvly gtg'r tl $\phi$ vg "qtvly gtg'r tl $\phi$ vg "qtvly gypvg "gypvg "gypvg "gypvg p'gzco r rg'ku' $\phi$ "  $\phi$ vy  $\phi$ vy

#### Vj g'Dkdıg

Tgpckucpeg''tcpurc'kqpu'qh''y g'Dkdrg'f gugtxg'c'ugrctcvg'ej cr vgt''kp''y g''j knqt{ "qh''tcpurc'kqp''p''Rqrcpf 0O qtg" vtcpurc'kqpu'qh''y g''Uetkr wtgu'y gtg''r tqf wegf "kp''y kn''r gtkqf "y cp''kp''cp{ "qy' gt."cpf "y kn'hnwtt { "qh''cevkxk{" eqkpekf gf "y ky "y g'' gxgqr kpi "tqrg'qh''tcpurc'kqp''cu''c''r qy gthwr'vqqn'hqt''r tqo qvkpi "y g''Rqrkuj "rcpi wci g0 Vj g''gctrkguv'Dkdrg''tcpurc'kqp."r tkpvgf "kp''Rtci wg''cpf "Xkpkwr'\*3739647+."y cu''cp''qrf/Dgqqtwunkcp''xgtukqp" rtqf wegf "d{ "Htcpekul gmi'Umqt {pc."c'o gf kecrif qevqt'cv'y g"Wpkxgtukk{ "qh''Mtcnqy 0'Hkgtegn{"cwcengf "d{ "dqy' " Qty qf qz''cpf "Rtqvguvcpv'ej wtej gu''qp''ceeqwpv'qh'j kn''tcpurc'kqp." Umqt {pc'' j cf "vq''cr r gcn'vq''y g"mkpi "hqt" rtqvgevkqp0J kn''tcpurc'ydp''o ctm''y g''dgi kppkpi "qh'c''npi "f gdcvg''qp''j qy "'y g''Dkdrg''ty qwrf "dg''tcpurcygf 0'Cv'y cv'' vko g. "y g'f gdcvg''tgxqrxgf "ctqwpf "vy q''o ckp''kunwgu0'Vj g''htuv'y cu'f ktgewl "eqppgevgf "y ky "y g'f gxgqr o gpv."dtkgh" cu'ky'y cu."qh''y g''Rqrkuj "Tghqto cvkqp0'O cmkpi "'y g''Dkdrg''cxckrcdrg''kp''y g''xgtpcewrt''y cu''uggp''cu'c''f ktgev'' eqpvtkdwkqp''q'f kuugo kpcvkpi "'y g''k gcu''qh'y g''Tghqto cvkqp."cpf "y cu''y gtghqtg''xgj go gpvn{"qr r qugf "d{ "f ghgpf cpw''qh''y g''Ecy qrke''Ej wtej 0'Vj g''ugeqpf "kunwg''eqpegtpgf "cp''cti wo gpv'y j kej "kn'qh''egpvtcriho r qtvcpeg''kp'' o quv''tcpurcvkqp''y gqtkgu."pco gn{"y g''r r qukkqp''dgw ggp''y qtf "cpf "ugpug."y g''ny tgo ce{"qh''y g''hkgtcri'qxgt''y g'' rksgtct{."qt''xkeg''xgtuc0Cu''kp''q gt''Ej tkurkcp''eqwpvtkgu."gctn{"vtcpurcvqtu'qh''y g''Dkdrg''cf j gtgf "vq''y g''hqto gt'' uvcvgi {."qh'xy g''aqu''qh''tgef cdkrkv{0}

Cv'ngcuv'ukz 'eqo r ngvg'\tcpurcvkqpu'qh'\j g'Dkdng'\y gtg''o cf g''cv'\j g'\ko g<'\j g'Ecyj qrke''xgtukqp''d{ 'Lcp'Ngqr qrkxc'' \*3783+.'\j g'Ecnxkpkuv'Dkdng'\\*3785+.'\j g'Cpvktkpkctkcp'Dkdng'\tcpurcvgf ''d{ ''U| {o qp'Dwf p{ '\*3794+.'\j g'Qt j qf qz'' Dkdng'\y j kej ''y cu'\tcpurcvgf 'kpvq'Qrf 'Ej wtej ''Urcxqpke''\\*37: ; +.'\j g''pgy 'Ecyj qrke''Dkdng''d{ ''\j g''Iguvkv'Icmvd'' Y wlgm'\\*37; 5+.''cpf '\j g''Rtqvguvcpv'Dkdng''npqy p''cu''Vj g''Dkdng''qh'I f c um'\tcpurcvgf ''d{ 'F cpkgrl'O kmq€lgy unk'' \*3854+0'

Vj qwi j "dcugf "guugpvkcm ("qp" vj g"Xwni cvg. "o quv'ncvgt "vtcpuncvkqpu" o cf g"uqo g" tghgtgpeg" vq" vj g"I tggm" cpf " J gdtgy "qtki kpcnu" \*Hitcpmqy umk" 3; 97+0

Eqpvtqxgtulgu'qxgt''y g''tcpurcvkqp''qh''y g''Dkdrg''i cxg''tkug''vq''y g''gctrkguv''Rqrkuj 'hqto ''qh''tcpurcvkqp''uwwf kgu''cu'' etkkekuo 'f ktgevgf ''cv''y g''tgrtgugpvcvkxgu''qh''tkxcrif gpqo kpcvkqpu''i tcf wcm( 'f gxgmr gf 'kpvq''y gqtgvkecri'\tgcvkugu0

#### Vj g'Gpıki j vgpo gpv≺lıgxgpvggpvj 'lq'gki j vggpvj 'legpwt kgu

Kp"y g"ugxgpvggpy "egpwt { ."y g"y qtm'qh'Rkqvt "Mqej cpqy unk" \$378863842+"f gugtxgu"ur gekcn'o gpvkqp0' Mqej cpqy unk"cf cr vgf "hqt"y g"Rqrkuj "tgcf gt" y q"o cuvgtr kgegu"qh" Kcrkcp"r quv Tgpckuucpeg "rkvgtcwtg <"Vcuuqøu" Lgt wucrgo "F grkxgt gf" "cpf "Ctkquvqøu" Qt rcpf q"Hwtkquq0" Vj g"hqto gt"dgeco g"gzvtgo gn{"r qr wrct="kv"y cu"hktuv" r tkpvgf "kp" Mtcmqy "kp"383: ."cpf "y g"rcuv"tgr tkpv"cr r gctgf "kp"3; 8: 0

Kp"f kr mo ce{."eqpvcev'y kyj "vj g"Y guv'y cu"gcu{ "vq"o ckpvckp."cv'ngcuv'hqt "vj g"uqekcn'² nkvg"x gtugf "kp"Ncvkp."Htgpej ." Kcrlcp"qt"I gto cp0'D{ "eqpvtcuv."kpvgtr tgvkpi "ugtxkegu'y gtg"tgs wktgf "vq"o ckpvckp"eqo o wpkecvkqp"y kyj "vj g"Gcuv0' Kp"vtcpucevkqpu"kpxqnxkpi "Twuukcpu"cpf "Vctvctu."hqt"kpuvcpeg."gcej "r ctv{ "wugf "vj gkt"qy p"pcvkxg"vqpi wg."cpf "hqto cn'f qewo gpvu"y gtg"kuuwgf "kp"vj g"wy q"ncpi wci gu0'Vj g"ncpi wci gu"cf qr vgf "kp"f gcnkpi "y kyj "vj g"Vwtmu" f gr gpf gf "qp"vj g"gzr gtvkug"qh"vj qug"kpvgtr tgvgtu"y j q"j cr r gpgf "vq"dg"cxckrcdng"cv'vj g"vko g"\*qhvgp"Rqnkuj "gz/ecr vkxgu+0Vj g"hktuv's wcrkhkgf "kpvgtr tgvgt"qp"tgeqtf "y cu"r tqdcdn{"vj g"ugetgvct{"qh"Mkpi "\ {i o wpv'Cwi wuv'rkx' \*3742694 $\pm$ j g"y cu"i kxgp"c"tq{cn'i tcpv'vq"uwxf {"kp"Kuvcpdwn0}

 $Y\ j\ gtgcu''kp''yj\ g''ugxgpvggpyj\ ''egpwt\{''tcpurcvkpi\ ''y\ cu''eqpukf\ gtgf\ ''cm\ quv''yj\ g''f\ ww\\ ''qh'c''y\ tkxgt''*eh0''Dcregt|\ cp''$ 3; 99-666+. 'y kj ''y g'f {pcoke 'f gxgrqr o gpv'qh'Rqrkuj 'rksgtcwtg'f wtkpi ''y g'Gprki j vgpogpv'tcpurcvkqpu'kpvq'' Rqrkuj "eco g"vq"dg"uggp"o quvn{ "cu"uqwtegu"qh"lxpur ktcvkqp"hqt"qtki kpcn"y qtmu0Crctv"htqo "vjg"cwyj qtu"qh"vjg"  $cpekgpv'y\ qtrf.''y\ j\ q'tgo\ ckpgf\ 'xgt\{'r\ qr\ wrct.''kv'y\ cu'tgr\ tgugpvcvkxgu''qh'Htgpej\ 'Ercuukekuo\ 'y\ j\ q''qeewr\ kgf\ 'c''$ rtqo kpgpv'r qukkqp"qp"\tcpurc\kqp"hkmu0'Vj g"o ckp'rtkpekrrgu"guvcdrkuj gf 'f wtkpi "vj g"Tgpckuucpeg"wpf gtrc{ 'vj g"  $r\,qg \hbox{\it keu'} \hbox{\it qh'tcpurc'kqp''kp''yj}\,\,g''g \hbox{\it ki}\,\,j\,\,vggp \hbox{\it yj}\,\,''egpwt\,\{<'\hskip-3pt htgg''cf\,\,cr\,\,vc'\hskip-3pt kqpu''gz\,\,kuvgf\,\,''cu''\hskip-3pt vgz\,\,w''\hskip-3pt kp''\hskip-3pt vj\,\,g \hbox{\it kt}\,\,'\hskip-3pt y\,\,p''t\,\hbox{\it ki}\,\,j\,\,v.''\hskip-3pt vgwt\,\{<'\hskip-3pt htgg''cf\,\,cr\,\,vc'\hskip-3pt kqpu''gz\,\,kuvgf\,\,''cu''\hskip-3pt vgz\,\,w''\hskip-3pt kp''\hskip-3pt vj\,\,g \hbox{\it kt}\,\,'\hskip-3pt y\,\,p''t\,\hbox{\it ki}\,\,j\,\,v.''\hskip-3pt vgwt\,\{<'\hskip-3pt htgg''cf\,\,cr\,\,vc'\hskip-3pt vkqpu''gz\,\,kuvgf\,\,''cu''\hskip-3pt vgz\,\,w''\hskip-3pt kp''\hskip-3pt vj\,\,g \hbox{\it kt}\,\,'\hskip-3pt vj\,\,g \hbox{\it kt}\,\,'\hskip-3pt vj\,\,g \hskip-3pt vkqv\,\,m'\,\,''$ kpf gr gpf gpv'qh'vj g''qtki kpcnu0'Vj g''∹dgcwkhkecvkqpø'qh''qtki kpcn'y qtmu'y cu'eqpukf gtgf ''c''o gtkv.''f tcuvke''ej cpi gu'vq'' yj g'dcuke"i gptg'qh'yj g'qtki kpcn'\*cu'kp"tcpuncukpi 'r qgvt { 'kpvq'r tqug+'y gtg'o cf g''cu'c'o cwgt''qh'eqwtug.''cpf " kpf ktgev'tcpurcvkqp." vj cv'ku'tcpurcvkqp" dcugf "qp" qvj gt" tcpurcvkqpu. "y cu'vj g"pqto 0" Vj g"go kpgpv'Rqrkuj "tcpurcvqt" qh'y g''ko g. "Htcpeku gm'Mucy gt { "Fo qej qy umk'\*398463: 2: +: '\tcpurcvgf 'vj g'r qgo u'qh'Gf y ctf '[ qwpi 'htqo " Htgpej "xgtukqpu."cpf "vj g"hktuv"Rqrkuj "uvci kpi "qh" / co rgv" y cu'dcugf "qp"c" \tcpurcvkqp"qh"c" I gto cp"xgtukqp0 Ico gu" O cer j gtuqpøu'y qtmu'qh'Quukcp'y gtg'hktuv'tcpurcvgf 'htqo ''Htgpej 'kp''39; 4''d{ ''vj g'i tgcvguv'Rqrkuj 'r qgv'qh'vj g'' vko g. "Ki pce{ "Mtcukenk'\*395763: 23+0'kp" vj g"ecug" qh' vj g'encuukeu. "j qy gxgt. "pq" o gf kcvkqp' y cu'pggf gf < Fo qej qy unk'wugf "vj g"qtki kpcnu'hqt"j ku'tcpurcvkqpu'qh'J qo gt"cpf "J qtceg."cu'f kf "Mtcukenk'hqt"j ku'tgpf gtkpi u'qh" Rnwctej "cpf" J gukqf 0F o qej qy unkøu ej kgh cej kgxgo gpv y cu cp cf cr vckqp qh P keqrcu Dqkrgcwøu NøCt v'r q² vks wg" \*39: : +"qpg"qh"yj g"o quv"ko r qtvcpv"yj gqtgvkecn"y qtmu"qh"yj g"vko g0

Vj g'i gpgtcn'i kutgi ctf 'hqt''y g'kpvgi tkv{ "qh'cp"qtki kpcn'y qtm'ku'dguv'uggp'kp'f tco c0'Gctn{ 'Rqnkuj 'r nc{y tki j wu'' dqttqy gf "qtki kpcn'r nqwi'cpf "wugf "y go "cu'c'mkpf "qh'dcuke"ecpxcu'qp'y j kej "mqecn'r kewtgu'eqwrf "dg'r ckpvgf 0'Vj g" hktuv'cwgo r v'cv'ko r qukpi "uqo g'tguvtckpv'qp"y ku'eqo o qp'r tcevkeg'eco g'htqo "c'uekgpvkuv'cpf 'r wdnkekuv."Uvcpku€y "Uvcul ke"\*397763: 48+"y j q'uwi i guvgf "qti cpk kpi "vtcpurcvkqp"eqpvguvu'hqt"s wcnkv{ "cuuguuo gpv0'Uvcul ke"j ko ugnh" y cu'o ckpn{ 'kpvgtguvgf 'kp'y g'vtcpurcvkqp"qh'uej qnctn{ "vtgcvkugu."dwv'j ku'cevkxkkgu'kphnwgpegf "vtcpurcvkqp"kp'i gpgtcn' cpf "uki pcmef "vi g''opf "ah'vi g''or qei "ah'mu'damu'kokkf

cpf "uki pcmgf" 'y g"gpf "qh''y g"gr qej "qh'ngu'dgmgu'hphf 3 ngu0

Vj g"pqxgn"c"i gptg"y j kej "guvcdrkuj gf "kugrh'lp"Rqncpf "kp" y g"gctn( "pkpgvggpyj "egpwt { ."y cu'i tgcvn( "kphrwgpegf" d{ "gctnkgt" gxgmr o gpvu" lp"Gwtqr gcp" rkvgtcwt g0 Qpg" qh''y g"o quv'hphrwgpvkcn'y qtmu" lp" y ku'hkgrf "y cu'T qwuugcwxu" \\c" \\Pqwxgmg" J^2m\_1ug. "uqo g"gzvtcewi" qh'y j kej "cr r gctgf" lp" c"xgt { "i qqf ."cppqvcvgf" dw'cpqp { o qwu'vtcpurcvkqp" lp" 3: 450 Vqo cu| "Mclgvcp" Y i kgturnk \$39786: 6+"vtcpurcvgf" Xqncktgxu" \\cf ki "\*r wdrkuj gf" lp" 3: 33+"cpf" \\O qpvgus wkgwxu'' \\Ngwt gu''r gt ucpgu0 \\Wprkng" y g"ugpvko gpvcn'pqxgn" y g"i qy ke" pqxgn'f kf" pqv'hlpf" o cp { "hqmqy gtu'lp" Rqncpf 0 Vj g"dguv'qh''y g'hgy "tgr tgugpvcvkxgu" qh''y g"i gptg'ku" cv'y g"uco g"vko g"cp" gzco r ng" qh''cp" wpwuwcn' vtcpurcvkqp"

#### Vj g'pkpgvggpvj 'cpf'gctn('vy gpvkgvj 'egpwtkgu

 $F wt kpi "y g"hktuv" j ch'iqh' y g"pkpgvggpy "egpwt { "y g"y qtm'qh' y g"vtcpurcvqt" f kf "pqv' kp" i gpgtcn' o gtk' o wej "tgur gev="y ku' y cu'c "eqpugs wgpeg" qh'idqy "y g"wpqty qf qz" r tkpekr ngu'y j kej "uggo gf "vq" i wkf g"vtcpurcvkqp" cevkxkskgu" cv' y g" vko g"cpf "y g"umq r kpguu" qh' o cuu" r tqf wevkqp0 Vj g"kphrwz" qh'idcf n{ "vtcpurcvgf ." ugeqpf / tcvg" Htgpej "pqxgnu" y j kej "ej ctcevgt k gf "y cv'r gt kqf "ku" qpn{ "eqo r ctcdng" vq" y g"r tgugpv f c { "kphrwz" qh' ej gcr "Dt kskuj "cpf "Co gt kecp" tqo cpvke" hkevkqp0 Kp" y ku" eqpvgz v." uqo g" qh' y g"dguv' Rqrkuj "r qgvu" cpf "y tksgtu" y j q"cnuq" y qt mgf "cu" vtcpurcvqtu' hqwpf "kv" gz vtgo gn{ "f khhkevm' vq" gz r nckp" vq" y gkt "eqpvgo r qtct kgu" y cv' vtcpurcvkqp" y cu" cu' o wej "qh' cp" ctv' cu" qt ki kpcn' rksgtcwtg0$ 

Vj g'Tqo cpvke''qr r qukkqp''ci ckpuv'ercunkekno 'o gcpv'c''ej cpi g''qh'i gptgu''cpf 'rcpi wci gu'ej qugp'hqt'vtcpurcvqp0'

Qpg''qh''y g''o quv'qtki kpcn'r qgwi'cpf 'cv'y g''uco g''do g''dgwv'tcpurcvqtu''qh''y g''do g.''E {r tkcp''Mco kn'P qty kf '\*3: 436 : 5+. "tcpurcvgf 'I qtceg." I qo gt. 'F cpvg. "Dwqpctqvk' 'D² tcpi gt 'cpf ''Uj cngur gctg' kpvq' Rqnkuj 0'Uj cngur gctg.''y j qug'' ræ{u'pcwtcm{ 'cwtcevgf 'ctvknvi'qh''y g'Tqo cpvke''gtc.''tgcej gf 'Rqnkuj 'cwf kgpegu'o ckpn{ 'xkc''Htgpej 'cf cr vcvkqpu''qt'' I gto cp''tcpurcvkqpu0'Rqgo u'd{ 'I qgy g'cpf ''Uej kngt''y gtg''tcpurcvgf 'htqo 'I gto cp.''cpf ''uqo g''pqxgnu''d{ ''Y cngt'' Ueqw'y gtg''tcpurcvgf 'kxk''I gto cp0'Vj g'hggnkpi ''qh'pqucni kc'hqt''y g'I qnf gp''Ci g. ''gpeqwtci gf ''d{ ''y g''i gpgtcn'' ukwcvkqp''kp''Rqncpf ''\*r ctvkkqpgf ''d{ ''Twnkc.' 'Cwntkc''cpf ''Rtwnkc''kp''39; 7+. ''r tqxkf gf ''y g''o r gwwl'hqt ''tcpurcvkpi '' Rqnkuj ''Tgpcknucpeg''r qgvt { 'y tkwgp'kp''Ncvkp0'Kpetgcugf ''eqpvcev'y ky ''Twnkc''tguwngf ''kp''y g''go gti gpeg''qh'Twnkcp'' cu''cp''ko r qtvcpv'uqwteg''cpf ''cti gv'icpi wci g''kp''tcpurcvkqp0'Vj g'y qtmn''qh''y g''i tgcvguv'Rqnkuj ''Tqo cpvke''r qgv.'' Cf co 'O kenkgy ke| '\*39; : 63: 77+ 'y gtg''tcpurcvgf ''kpvq'Twnkcp.''cpf 'O kenkgy ke| ''j ko ugnh''tcpurcvgf ''kpvq''Rqnkuj '' ugxgtcn''r qgo u''d{ ''j kn'Twnkcp''trkpf .''Crgmncpf t''Rwuj nkp0

Hqmqy kpi "\j g"hckmtg"qh"\j g"Lcpwct {"Wr tkukpi "ci ckpun"\j g"T wuukcpu"\p"3: 85. "iksgtcwttg"dgi cp"\q"tghrgev"cp" qxgtcm"uj khn"htqo "tqo cpvke "hcpvcu{ "\q"r quksk knn"tcvkqpcnkuo 0"Vj g"wr tkukpi "cpf "\j g"gpunkpi "gxgpwi"j cf "ej cpi gf " dqvj "\j g"uqekcn"cpf "geqpqo ke"ukwcvkqp"qh"Rqmcpf "cu"c"uki pkhecpv"pwo dgt"qh"kpvgmgewcmu"cpf "uqo g"o go dgtu"qh" vj g"y gcnyj {"² nkvg"y gtg"gkyj gt "ugpv"kpvq"gzkrg"qt "rghn"\j g"eqwpvt {"qh"\j gkt"qy p"ceeqtf 0"Vj g"egpvtcn"\j go g"qh"o qun" nkvgtct {"y qtmu"\sqrt ky j"\j g"pqxgn"cu"\j g"o ckp"i gptg+"pqy "dgeco g"\j g"r ngc"qh"c"uncvgnguu"pcvkqp"hqt"kui"tki j v"vq"gzknx0" Vj g"o knukqp"qh"vtcpurcvqtu."y j q"pq"nqpi gt"j cf "\q"dg"etgcvkxg"cwyj qtu"kp"\j gkt"qy p"tki j v."y cu"engct<"\q"gptkej "\j g" nkvgtct {"ecpqp"cxckrcdng"\q"\j g"Rqnkuj "tgcf gt0Cu"cny c {u."\j g"ej qkegu"tghrgevgf "\j g"cuvgu"cpf "pggf u"qh"\j g"ko g<" \qmc."Dcn ce. "F kf gtqv."I kf g."Uvgpf j cn"Xqncktg"\ntu\*thevkqp=\D{tqp."F cpvg."Xgtnckpg."Uy kpdwtpg"cpf "Tko dcwf" "r qvt{+\lored Ccvgytnhemicpf "Klugp"\sf tco c+\lored Dgti uqp"cpf "Mkytngi cctf"\sf j knqur j {+\lored I gqti gu"Dtcpf gu"\setkkekuo \ne" cpf "T wuukcp"\j gqtknvi'kp"i gpgtcn'kp"\j g"hynf "qh'nkvgtct {"uwxf kgu0Vj g"hktuv'vtcpurcvkqpu"qh"Co gtkecp"r qgvt {." kpenxf kpi "Y j ko cp"cpf "Rqg."y gtg"f qpg"d {"\ gpqp"Rt| guo {enk\sqrt 3: 8363; 66+."c"tgr tgugpvc\kxg"qh"Rqnkuj "Oqf gtpkuo "npqy p"cu":O ktkco \phi0

Vj g'o quv'r tqo kpgpv'\tcpurc\qt"qh'\j g'\ko g'\y cu'\wpf qwd\ygf n\{ "Vcf gwu\ " grg unk 'mpqy p''cu'\;Dq\{\phi'\si}: 9663; 63\;0'\C'r j \{uke\kcp''d\{ 'r tqhguu\kqp''cpf ''c'i tgcv''cf o ktgt''cpf ''eqppqkuugwt''qh'\;Htgpej ''rk\ygtcw\tg.''j g''r \wdrk\uj gf ''334''\\\tcpurc\ygf ''xqn\wo gu\0'Cr ctv'\htqo ''\yj g''i tgcv'\;Htgpej ''

pqxgrkuvu'qh'j ku'vko g.'j g'vtcpurcvgf 'O qrketg.'Rcuecn'Tcdgrcku.'Tqwuugcw.'Xkmqp.'cpf 'Xqnxcktg0' grg unk'y cu' mkngf "d{"yj g"Pc| ku"kp"3; 63. "ngcxkpi "wpeqo r ngvgf "j ku"vtcpuncvkqp"qh"Rtqwuv0"KV"ku 'ncti gn{ 'f wg'vq'j ku 'ghqtwu'yj cv' hqtgki p'rksgtcwtg''qeewr kgu''ku''r tgugpv'r tgurki kqwu''r qukskqp''kp''yi g'rksgtct { "ecpqp''qh''Rqrcpf 0'Gs wcm( 'ko r qtvcpv'' ctg'y g'tcpurcvkqpu'qh'y g'Twukcp'Tqo cpvke'r qgvu'\*uwej "cu'Rwuj mkp"cpf "Ngto qpvqx+"cpf "U{o dqrkuvu'\*uwej "cu" Dem qpv. "Drqm"cpf "Dtkwqx+"d{ "qpg"qh"vj g"i tgcvguv"Rqrkuj "r qgvu"qh"vj g"r gtkqf . "Lwkcp"Vwy ko "\*3:; 663; 75+0" Vwy ko øu'y gm/mpqy p''guuc { "Vtcf wwqtg/ vtcf kqtgø 'r wdrkuj gf 'kp'3; 72. "ecuvki cvgf 'kpeqo r gvgpv' vtcpurcvqtu'cpf " r whoty ctf "c"r tqr quen'hqt"qti cpk kpi "tgi wrct"f kr nqo c"eqwtugu"hqt"tcpurc qtu0"Vwy ko "uwi i guvgf "vj cv" ecpf kf cvgu'uj qwrf 'r cuu'c'ugtkgu'qh'gzco kpcvkqpu'qp'rcpi wci g. 'uv{ rkuvkeu'cpf 'ewnwtg='qpn{ 'vj qug'y j q'' uweeguuhwm ("eqo r ngvgf" 'y g"eqwtug" y qwrf 'y gp"dg"cmqy gf "vq"r wdrkuj "y gkt" y qtm0 Kp" i g"hktuv" gecf gu"qh" i g" w gpvkgvj "egpwt { "Rqrkuj "dgeco g"c"uqwteg" ncpi wci g"hqt" tcpurcvkqp0 Rqrkuj "pqxgrkuvu" qh'y g''ko g'eqpvtkdwgf ''uki pkhecpvn{ ''vq''y g''y qtnf ''nkytct { "ecpqp0'S wq''xcf ku." y j kej "gctpgf ''I gpt { m'Ukgpmkgy ke| " \*3: 6863; 38+'yi g'P qdgn'Rtk g'kp'3; 27.'y cu'\tcpurcvgf 'kpvq''o cp{ 'rcpi wci gu='kv'tgo ckpgf 'qp' yi g'rkuv'qh'Htgpej "  $dguv'ugmgtu''wpvkn's wkwg''tgegpvn(0C''o qfgtp''Co gtkecp''vtcpuncvkqp''qh''Ukgpmkgy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wwy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wwy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | \not o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vj tgg/xqnwo g''j kuvqtkecn'uci c''' vgwlyddigaethau wy ke | o u'' vgwlyddigaethau wy ke | o$ cdqwlugxgpvggpyj/egpwt{"Rqrcpf"\*Qi pkgo 'k'o kge/go. 'Rqvqr. 'Rcp'Y q€qf{lqy unk "vtcpurcvgf"d{"UMvpke| cmlcu" Y kj "Hktg"cpf "Uy qtf. "Vj g"F gnvi g. "Hktg"kp" vj g"Ugrrg+"crrgctgf "kp" vj g"Wpkgf "Uvcvgu"kp"3; 3; 642."cpf " ko o gf kcvgn("i ckpgf "eqpukf gtcdrg"r qr wrctkv(0D("3; 38."vj g"pwo dgt"qhi'vtcpurcvkqpu"qhi'pqxgnu"d("Ukgpmkgy ke| øu" eqpvgo rqtct { .'Grk c'Qt | gu | mqy c'\*3: 6363; 32+.'j cf 'gzeggf gf '422'kp'T wukc'cmpg0'Xctkqwu'pqxgnu'd { 'cpqvj gt'' Rqrkıj "P qdgrl'r tk g"y kppgt."Y €f {u€y 'Tg{o qpv'\*3: 89ó3; 47+."y gtg'\tcpurc\gf 'kp\q'\ugxgtcrl\rcpi wci gu0

### Vj g'rtgugpv'tho g

Cu'lp'gctrlgt'r gtlqf u."y g'ej qleg'qh'\gz wi'cpf 'icpi wci gu'lqt'\tcpurc\qp''lp''eqp\go r qtct { 'Rqrcpf 'j cu'dggp'' eqpf kklqpgf 'd { ''y g'r qrkkecn'ukwc\qp0Vj g'tgxkxcn'qh'ewnwtcn'iklg''chgt "Y qtrf "Y ct "Vy q'wpf gt "T wurkcp'' f qo kpcpeg'tguwngf 'lp''r tkqtkkl kpi "y g'tcpurc\qp''cpf 'tgr tkp\pi "qh'y qtru''y j kej "y gtg'uggp''\q'dg''\r qrkkecm\{" eqttge\pi0Kp''3; 78. 'icdqwt'tkq\wi'\p''y g''ek\{"qh''Rq| pc "y gtg'twy rguun\{" uwr r tguugf .''tguwnkpi 'lp''y g'f gc\y 'qh'uqo g'' 75''r gqr rg0Kp''y g'y cng''qh'y gug'gxgpw."c''r gtkqf 'qh'r qrkkecn'\right y o ø'dgi cp. "y j kej "u\o wrc\yf ''cp''kphnwz''qh'y qtmu'' d\{''uwej ''y tk\gtu''cu''Uct\yg. 'Uckp\sqrv2t\{"cpf 'Eco wu0Rqrkuj ''\tcpurc\qpu''qh'Hcwmpgt."U\gkpdgeni'cpf " J go kpi y c\{"j cf 'c'i tgc\s'\o r ce\s''qp''Rqrkuj ''tgef gtu."y j q''cnq''uj qy gf 'c'i tqy kpi ''kp\gtguy'lp''dqy ''ercuulecn''cpf " o qf gtp''f tco c. 'lpen\text{kpi 'Uj cngur gctg. 'O qrk' tg. ''Nqr g'f g'Xgi c. ''Ecrf gt\syp. 'I qrf qpk'I qgy g. ''Uej kngt. 'I gqti g'' Dgtpctf ''Uj cy .''Dtgej v.''Kqpgueq.''Dgengw.''F \tilde{A}tgpo cw.''cpf 'I gpg\s\0Kp''3; 8; .'O cekgl''U\fqo e| \{punk'\si3; 42/+" r wdrkuj gf ''j ku'\tcpurc\qp''qh'Ico gu''Lq\{eg\su''Wn\ungu.''y j kej ''uqqp''dgeco g'c'o clqt''ewnwtcn'gxgp\0Ugxgtcn' r wdrkuj kpi ''j qwugu''rcwpej gf ''y go c\ke''ugtkgu''qh'\tcpurc\qpu.''hqt''gzco r rg''qp''o qf gtp''pqxgnu.''Uecpf kpcxkcp'' cwj qtu.'y tkgtu'qh'\Nc\kp'Co gtkec.''cpf ''eqp\go r qtct\{ 'Ecyj qrke'y tkgtu'O

Cpqyi gt 'uki pkhecpv'uj khv'eco g'chygt 'yj g'r qrkkecri'wr j gcxcri'qh'3; : ; 0'Vj g'cdqrkuj o gpv'qh'uvcyg'egpuqtuj kr 'cpf " yj g'cr r gctcpeg'qh'r tkxcyg'r wdrkuj kpi "j qwugu'uqqp''dtqwi j v'cdqww'cp''cxcrepej g''qh''tcpurcygf ''dqqmu0'Vj g''dqqo " r tqxgf ''vq''dg''c''o kzgf ''drguukpi 0'Kp''cf f kklqp''vq''kpygtpcykqpcri'dguv'ugngtu. ''c''rcti g''pwo dgt''qh''uwduvcpf ctf ''dqqmu'' dgi cp''vq''cr r gct''kp''gs wcm{ ''uwduvcpf ctf ''Rqrkuj ''tcpurcykqpu. ''cpf ''yj g{ ''y gtg''qhygp''r tqo qygf ''cu''j ki j n{ '' tgr tgugpycykxg''qh'yj g''nqpi ''hqtdkf f gp''ewnwtg''qh'yj g''Y guv0

Kp''y g'j wo cpkkgu. ''tcpurckqp''j cu'qhvgp''r tqxgf ''vq'dg''y g'o quv'ghhgevkxg'o gcpu'cxckrcdrg'hqt'hkrrkpi ''y g'i cr u'nghv'' d{ "62"{gctu'qh'Eqo o wpkuv'twrg0'Gzco r rgu'kpenxf g''y q''tgegpv'vtcpurcvkqpu'kpvq'Rqrkuj ="qpg''qh'c'eqo r tgj gpukxg'' j kuvqt { "qh'Rqrcpf ''y tkwgp''d{ "c''Dtkkuj ''j kuvqtkcp'\* I qf øu'Rrc{i tqwpf ''d{ ''P qto cp''F cxkgu.''3; : 3="Rqrkuj ''gf kxkqp'' 3; ; 2.''3; ; 3+.''cpf ''y g''qy gt''qh''Vj g''J kuvqt { "qh'Rqrkuj ''Nkytcwtg''d{ ''E| gu€y ''O k€qu| .'\*3; 8; ="Rqrkuj ''gf kxkqp''3; ; 5+0' O k€qu| .''c''y tkygt. ''r qgv''cpf ''P qdgrl'Rtk g''y kppgt. ''ku''c''Rqrkuj ''² o ki t² ''y j q''qtki kpcm{ ''y tqvg''y g''dqqrrlhqt''j ku'' Co gtkecp''uwxf gpvu0

Vqfc{.'\*Cogtkecp+'Gpinkuj 'ku'd{'hct''yj g''o quv'korqtvcpv'uqwteg'hcpiwcig'kp'hkvgtct{''cu'y gm'cu'pqp/nkvgtct{'' vtcpurcvkqp0'Vj g''pwodgt''qh'rtqhguukqpcn'\tcpurcvqtu''cpf 'kpvgtrtgvgtu.''yjq''qhvgp''urgekcnk|g'kp''vgtou''qh'' vtcpurcvkpi ''c''ukping''

cwi qt"qt"\tcpurc\kpi "y kj kp"c"ukpi rg"hkgrf "qh'mpqy rgf i g."eqp\kpwgu"\q"i tqy "\q"o ggv'\j g"f go cpf u"qh"cp" gzr cpf kpi "dqqm'o ctmgv'cpf "c"htgg"o ctmgv'geqpqo {0

Vj g''kuv'qh''Rqnkuj ''y tkıgtu'y j qug''y qtmı''j cxg''dggp''\tcpurc\gf 'kp\q''q\j gt''rcpi wci gu''j cu''cnıq''i tqy p''eqpukf gtcdn{0' Tgcf gtu'kp''Gwtqr g''pqy ''j cxg''ceeguu'\q''y qtmı''d{ "eqp\go r qtct{ "Rqnkuj "r qg\u''uwej "cu''J gtdgtv''cpf "U| {o dqtunc." f tco c\u''uwej "cu''O tq gm''cpf "T» gy ke| ."cpf "pqxgnk\u''uwej "cu''Cpf t| glgy unk''cpf ''Mqpy kenk0'kp''\j g''cecf go ke'' hkgnf ."y qtmı''d{ "Rqnkuj "uej qnctu''j cxg''cnıq''dgi wp''\q''cr r gct''kp''\tcpurc\u'qp0\u' tqy kpi ''kp\u'gtguv'kp''Rqncpf ''cu''r ctv''qh'' y g''pgy ''wpkgf ''Gwtqr g''j cu''u\u'o wn\u'y g''r tqf we\u'qp''qh''q\j gt''\{r gu''qh''r wdr\u'ec\u'qpu. ''uwej ''cu''o wn\u'y wcn' o cp\u'cnı. ''qwt\u'n' wf gdqqmı. ''cpf ''j kn\u'y tkecn'u\u\uxxg{u''kp''c''xctkg\u'\u'p''c''xctkg\u'\u'ph''rcpi wci gu0

### Vj gqt lgu'cpf 'b qf gnu

Vj g"getrhguv'tgeqtf gf "cwgo r v'd{"c"Rqrkıj "wej qret"vq"hqto wevg"c"yj gqt{"qh'vtcpurcvkqp"f cvgu'dcem'vq"y g"3662u0' kp"cp"hpvtqf wevkqp"vq"c"vtgcvkug"qp"ur gmkpi ."cp"cpqp{0 qwu'y tkgt "uwi i guwi'yj cv"÷y g"o c{"vtcpurcvg"yj g"uco g" gzr tguukqp"cu'o gcpkpi "qpg"yj kpi "qt"cpqyj gt."f gr gpf kpi "qp"yj g"eqpvgz w\*\*vtcpurcvgf "htqo "c"s wqwg"kp"Dcregt| cp" 3; 99-4; +0Vj g"Rqrkuj "xgtd"h6wo ce/{ "ku'co dki wqwx'kv'ecp"o gcp"÷gzr rlecvgø'qt"÷xtcpurcvg0Vyj ku'f wcn' kpvgtr tgvcvkqp"r ctvr{"gzr rckpu'y g"y q"eqphrlevkpi "r tkpekr rgu"qh'vtcpurcvkqp"kp"yj g"Rqrkuj "vtcf kkqp."pco gn{"yj g" r tkpekr rg"qh"÷cr r tqr tkcvkpi "hqtgki p"kf gcu'cpf "ko ci gu."uq"yj cv'c"hqtgki p"y qtm'ku'vcknqtgf "chvgt"qwt"qy p" r cwgtpuø\*Dcregt| cp"3; 99-44="vtcpurcvgf +"xgtuwu'yj g"r quwrcvg"yj cv'c"hqtgki p"vgzv'o wuv'pqv'dg"untkr r gf "qh"÷yj g" hgcwtgu'yj tqwi j "y j kej "kv'ecp"dg"tgeqi pkl gf "cu'dgkpi "hqtgki pø\*Dcregt| cp"3; 99-44="vtcpurcvgf +0Vj g"r tkpekr rg"qh" cf cr vcvkqp."qt":Rqrqpk| cvkqpa"f qo kpcvgf "vtcpurcvkqp"r tcevkeg"o ckpn{"f wtkpi "yj g"Tgpckuucpeg"cpf"yj g" Gprki j wpo gpv."dw'kv'eqpvkpwgf "vq"hgcwtg"kp"O qf gtpkuv'f kur wgu'dgwy ggp"yj qug'y j q"y cpvgf "vq"r tgugtxg"yj g" qtki kpcn'nqecn'eqnwt "kp"yj gkt "vtcpurcvkqpu'qh'hqtgki p"r qgvt {"cpf "yj qug'y j q"ycpvgf "vq"r tgugtxg"yj g" qdg"tycyv'b g"hqtgki p"vgzv'bi qwrf "dg"f qo guvkecvgf "\*ugg"UVTCVGI KGU'QH"VTCP UNCVKQP +0J qy gxgt."yj g"o qtg"uckgpvkhkecm{"qtkgpvgf" rj kunqf "kp"c" j kunqi kecn'cpf kqt "etkskecn'cr r tqcej "vq"tcpurcvkqp"y j kej "f gxgrqr gf "qxgt"yj g"r cuv'hgy "f gecf gu'j cu'tguwngf "kp"c" j kuj j gt'tyk kpcn'y gt'hy g"qtki kpcn'y gt'hy g"tucpurcvkqp"ku'py "wpf gtuvqqf "vq"o gcp" r tgugtxkpi "yj g"qtki kpcn'ygzv'tcyj gt"yi cp"tgeqputvevkpi "k0

Kp"eqpygo r qtct {"iy qwi j v"iy g"qrf "qr r qukkqp"ku"tgy qtf gf "kp"ygto u"qh"c"f knvkpevkqp"dgyy ggp"uco qknvpg"qt"±ugh/uvhkekgpvø'cpf 'zwiazane "qt"±pygi tcygf ø'tcpurcykqpu<"y j krg"y g"hqto gt"eqo g"vq"gzknv"cu"kpf gr gpf gpv"ygzvu." kpygtr tgycykqpu"qh"y g"hcygi "ctg"cej kgxgf "y tqwi j "eqphtqpycykqp"y kij "qtki kpcn"y qtmu"cpf "y gkt "gctnkgt" vcpurcykqpu0"Vj g"f knvkpevkqp"y cu"hktuv"hqto cm{"r tqr qugf "d{"Ucpkn€y" Dctc e| cm™3; 68/+"c"r qgv"cpf "qpg"qh"y g" dguv"eqpygo r qtct{"vcpurcytqu"qh"r qgvt{."y j q"eqo dkpgu"y g"crgpv"qh"c"r qgv"y kij "y g"gzvgpukxg"mpqy rgf i g"qh"c" rkygtct{"etkke0Cu"c"y gqtknv."Dctc e| cmtgr tgugpvu"y g"kygtct{"dtcpej "qh"Rqrkuj "vcpurcykqp"uwf kgu"™Dctc e| cmtgr tgugpvu"y grtkygtct{"dtcpej "qh"Rqrkuj "vcpurcykqp"uwf kgu"™Dctc e| cmtgr tgugpvu"y gqt{"kp"Rqrcpf"j cu"vtcf kkqpcm{"vcmgp"y g"tj cr g"qh"kpf kxkf wcntecug"uwf kgu"kp"y j kej "r tcevkukpi "vtcpurcyqtu"f knewnu"y gkt "qy p"y qtmtqt"y g"y qtmtf qpg"d{"y gkt"eqmgci wgu0" Cnj qwi j "qhvgp"kpygtguvkpi ."uwej "guuc{u"tctgn{"qhtgt"cp{y kpi "o qtg"y cp"r cuukpi "qdugtxcykqpu"cpf" htci o gpvgf" eqo o gpvu0

O qtg"\j gqt{/qtkgpvc\gf"eqp\tkdwkqpu"eco g"htqo "uwej "uej qrctu"cu"Y ce\eqy "DQTQY [ "cpf 'Gf y ctf "Dcregt| cp" \dagger \frac{59/+"\j g"rc\wgt"c"\urger gekch\underline\text{p"hkgtct} \text{"tcpurc\urger tqp"\j gqt {."y j q."cu"c"\wpk\urger t\urger \text{pk\urger tqp\urger t\urger f" tqp\urger t\urger f" t\urger gekch\urger \text{ppu"c\urger tqp"\text{y j q."cu"c"\wpk\urger t\urger \text{pk\urger tqp\urger t\urger f" tqp\urger t\urger f" t\urger \text{ppu"c\urger tqp"\text{y j q."cu"c"\wpk\urger t\urger t\urger t\urger t\urger t\urger ge\urger f" t\urger \text{ppu\urger t\urger \urger t\urger t\ur

3; 92u. "y g"hrqwtkuj kpi "qh'eqpvtcurkxg"rkpi wkurke "uwwf kgu' % o ckprl{ "Rqrkuj / Gpi rkuj +"i cxg"tkug" \q"y qtmu'y j kej " f ghkpgf "tcpurcvkqp" gs wkxcrapeg" y kej kp" y g"htco gy qtm'qh''tcpuhqto cvkqpcrô i gpgtcvkxg" i tco o ct "% O ctvqp" 3; 8: ." Mt | gu | qy umk' 3; 96+0 kp" nggr kpi "y kej "f gxgrqr o gpvu" grugy j gtg. "y g"crrtqcej "vq" tcpurcvkqp" ej cpi gf "kp" tgegpv" { gctu'vq" tghrgev'f gxgrqr o gpvu" kp" y g"hkgrf "qh" r tci o cvkeu" cpf "y g"r qr wrctk\{"qh" y g"eqi pkkxg" uej qqrl\kp" r kp" vktourcvkqp" y cu'dggp" tgf ghkpgf "kp" vgto u'qh'hwpevkqpcn'tcy gt "y cp"hqto cn'etkxgtkc. "cpf" kv'ku'pqy "y kf gn\{"tgeqi pk gf" 'y cv'gs wkxcrapeg'ku'eqpf kkqpgf" d\{"eqi pkkxg" cpf" r tci o cvke 'hcevqtu' \% Mt | gu | qy umk' 3; : 3+0 Cu'hct" cu'hkgtct \{"vtcpurcvkqp'ku'eqpegtpgf." y g"pgy "o qf grl\j cu'y g"cf xcpvci g"qh'dtkf i kpi "y g'vtcf kkqpcn' i cr "dgwy ggp'rkxgtct \{"cpf "rkpi wkurke" uwwf kgu' \% Vcdc/mqy umc" 3; ; 5+. "y qwi j "y gqtgvkecn'y qtmu'qp" pqp/rkxgtct \{" vtcpurcvkqp'tgo ckp" j gcxkn\{"y gki j vgf "vqy ctf u'rkpi wkurkecm\{"dcugf" o qf grl\" \% Mqr e | \{ unk'3; : 2. "Rkucturc'3; ; 2+0 \}

## Vj g'lf gpvls/{ 'cpf 'inc wu'qh'it cpurc vqt u

F wtkpi "gctrkgt"r gtkqf u"qh"j kuvqt { ."vtcpurcvqtu"y gtg"tgeqi pk gf "cu"etgcvqtu"qh"rkvgtcwtg"cpf "y gtg"ceeqtf kpi n{ " i tepvgf "tki j vu"gs ven"vq"vj qug"qh"qtki kpen"ewj qtu0"Vj g"i tef ven"r tqhguukqpenkt evkqp"qh"vj g"Iqd."j qy gxgt."dtqwi j v"  $cdqw'c''tcf \ kecn'ej\ cpi\ g''kp''yj\ g''uvcwu''qh''tcpurcvqtu0Cu''gctn{"cu''}3994. \ ''Klpce{"Mtcukenk'hgn''qdrki\ gf''vq''o\ cng''c''r\ ngc''} \ del{thecn'ej} \ cpi\ g''kp''yj\ g''uvcwu''qh''tcpurcvqtu0Cu''gctn{"cu''}3994. \ ''Klpce{"klpce{"cu''}3994. \ ''Klpce{"cu''}3994. \ ''N \ cukenk'hgn''qdrki\ gf''vq''o\ cng''c''r\ ngc''' \ del{thecn'ej} \ del{thecn'ej} \ cpi\ g''uvcwu''qh''tcpurcvqtu0Cu''gctn{"cu''}3994. \ ''N \ nce{"cu''}3994. \ ''N \ nce{"cu''}$ kp"Wy ci k'q"\€wo ce/gpkw ksiag "\*Qp"Vtcpurckpi "Dqqmu+'hqt"yi g"ko rqtvcpeg"cpf 'r tguvki g"qh'yi g'r tqhguukqp"vq"dg" tgeqi pk gf 0'Vqf c{. 'vj g'\tcpurc\qt'\ku'pq'nqpi gt'\uggp'cu'c'o gf kc\qt'\pqt'\tcpurc\qp'c'i wkf g'\q'qtki kpcn'nkgtcwtg=" yj g"tcpurcvqt"ku'uko rn{"c'rtqhguukqpcn'gpi ci gf "kp"c'urgekhke'hqto "qh'eqo o wpkecvkqp0C'hgy "tcpurcvqtu" eqpvkpwg"\q"hqmqy "yj g"qnf "\tcf kklqp."o cmkpi "yj gkt"pco gu"o ckpn{ "cu"y tkxgtu."r qgw"qt "rkxgtct { "etkkleu0 Vtcpurcvkqp"cu"c"r tqhguukqpcn"cevkxkv{ "kp"Rqrcpf" y cu"hktuv"kpuvkxvvkqpcnk gf" y ky "y g"hqwpf kpi "qh" y g"Vtcpurcvqtuø" Eqo o kuukqp"qh'yi g"Wpkqp"qh'Rqrkuj "Y tkgtu'kp'3; 980Kp'3; : 3"c"pgy "qti cpk cvkqp"y cu"guvcdrkuj gf <'yi g" Cuuqekcvkqp"qh'Rqrkuj "Vtcpurcvqtu'cpf 'Kpvgtr tgvgtu0'Dqvj "qti cpk cvkqpu'ctg'chkrkcvgf 'vq'HKV0'Uqqp'chvgt'vj g" newgt'y cu'hqto gf.'Y ctucy 'j quvgf'y g'P kpyj 'Y qtnf'Eqpi tguu'qh'HKV'\*3;: 3+0'VGRKU'\*Rqnkuj 'Cuuqekcvkqp'qh' Vtcpurcvqtu'qh'Geqpqo ke. 'Ngi cn'cpf 'Eqwtv'F qewo gpvu+'j cu't gegpvn( 'dggp'guvcdrkuj gf = kvu'o ckp'cko u'ctg'vq'' rtqvgev'vj g'tki j wu'qh'kwu'o go dgtu'cpf "vq'rtqo qvg'kp/ugtxkeg'\tckpkpi 0Kp'3; : 7."\ {i o wpv'Uvqdgtunk 'o go dgt 'qh' yj g'Gf kqtkcn'Eqo o kwgg'qh'yj g'lqwtpcn'Dcdgn'dgeco g'Rtgukf gpv'qh'yj g'Kpvgtpcvkqpcn'Qti cpkt cvkqp'hqt'yj g' Wpkhlecvkqp'qh'Vgto kpqmi kecn'P gqmi kuo u0'Kb'y cu'cv'Uqdgtumkøu'kpkklcvkxg'vj cv'vj g'nkuv'qh'Kpvgtpcvkqpcn' Uekgp\khke"Vgto uô y j kej "crrgctgf"cu'c"tgi wrct"eqnwo p"kp"\(Dcdgn\)htqo "3; 99"\q'3; : 70 y cu'\writcf gf "kpvq"cp" kpf gr gpf gpv'r wdrkecvkqp<"PGQVGTO."c"dwrgykp"r wdrkuj gf "kp"Y ctucy "ukpeg"3; : 70 Kp"ur kvg"qh"kpetgcukpi "f go cpf "hqt"r tqhguukqpcn"\tcpurc\kqp"ugtxkegu. "\tcpurc\qt"\tckpkpi "kp"Rqrcpf "ku"uvkm'rcti gn(" kpcfgswcvg0'Xctkqwu'r wdrkecvkqpu'd{ 'uej qrctu'cpf'r tqhguukqpcn'vtcpurcvqtu. 'cu'y gm'cu'c'hgy 'qeecukqpcn' y qtmij qr u'qti cpk gf 'd{ 'kpf kxkf wcni'tcy gt''y cp'kpurkwrkqpu. 'r tqxkf g'uqo g'j grr 'hqt''y qug'y j q'y kuj ''\q'ko r tqxg'' yj gkt 'unkmu0'Rtqhguukqpcn'\tcpurcvqtu'cpf 'kpvgtrtgvgtu'ctg'\tckpgf 'cv'yj g'Kpuvkvwg''qh'Crrnkgf 'Nkpi wkuvkeu'qh'yj g'' Wpkxgtukv{ "qh"Y ctucy . "y j kej "cnuq"r wdrkuj gu"tgugctej "qp" y g" \gcej kpi "qh" \tcpurc \kqp" cpf "kpvgtr tgvkpi "¾ twe| c" 3; : 7."3; : 8+0°C "r quvi tcf wcvg" uej qqrl'qh" vtcpurcvkqp" cpf "kpvgtr tgvkpi "y cu" guvcdrkuj gf "cv' y g" Wpkxgtukv{ "qh' Rq| pc " lp'3; ; 40Qvj gt 'wpkxgtukkgu'qhhgt 'qeecukqpcn'ur gekcnkt gf 'eqwtugu'lp' 'tcpurcvkqp0T gegpv'r wdrkecvkqpu'lpenwf g'c' f kuewuukqp"qh"r tcevkecn'cur gevu'qh'nkvgtct { "\tcpurcvkqp"\*Y cy t | {pkcm'3; ; 3+"cpf "c"uwtxg { "qh"o clqt"o qf gnu"qh" wcpurcwqp'\*Mkgrct'3; :: +0

### Hwt yj gt 't gcf lpi

GN DKGVC"VCDCMQY UMC

## Dkqi terj kgu

DQTQY [ .'Y ce@y "\*3: ; 263; 72+0'Rqrkuj "j kuvqtkcp"cpf "rkvgtct{"etkke0'Cp"gzr gtv'qp"Rqrkuj "Tqo cpvke"r qgvt{." j g"y cu"cnuq "kpvgtguvgf "kp"Rqrkuj "vtcpurcvkqpu"qh"Uj cmgur gctg. "Grkqv."

Ej guvgt vqp "cpf "Eqptcf 0'Cr ctv'htqo "j ku'etkkecn'guuc { u'qp''xctkqwu''cur gewu'qh'nkvgtct { "vtcpurcvkqp. 'Dqtqy { "rtqf wegf "pwo gtqwu''r wdrkecvkqpu''qp''y g'j kuvqt { "qh''vtcpurcvkqp."cpf "j ku''guuc { u'qp''y g''gctn( ''y gqtkuvu''qh'' vtcpurcvkqp''ctg''y qwi j v'vq''dg''co qpi ''y g''o quv'uki pkhecpv''eqpvtkdwkqpu''vq''Rqnkuj ''vtcpurcvkqp''uwxf kgu0'J ku''guuc { u''qp''vtcpurcvkqp''ctg''eqnrgevgf "kp"Uwxfkc''k'tq/rtcy { "\*Uwxf kgu''cpf 'F kuugtvcvkqpu."3; 74+"c''y q/xqnwo g''cpyj qnqi { "r wdrkuj gf 'r quvj wo qwun{ 'd{ ''Dqtqy} { øu''eqnrgci wgu''cpf ''uwxf gpw0}

I ~ TPIEMKV wnru | \*374963825+0Rqrkij 'r qgv'cpf 'r qrkkecn'y tkgt0'Gf wecyg 'lp'Ref we."j g'ur gpv'j ku'o cwt g" {getu'ev'y g'tq{en'eqwtv'cu'e'ugetgwet {"cpf "ikdtetkep"qhi'Mlpi" \ {i o wp√Cwi wuv0'O quv'qhi'I »tpkenkøu'qtki kpen' rkgtet{"qwr wi'ku'nquv."cpf "j g'ku'y gtghqtg'tgo go dgtgf "o ckpn("cu'y g'ttepurevqt "qh'Derf cuuettg'Ecurki rkqpgøu'\*\*\*/ rkdt q'f grleqt vgi kepq0'Kp"j ku''xgtukqp"F y qt/cplp"r qnunk'\*Vj g''Rqrkuj "Eqwt kgt."3788+"I »tpkenk'tgr ræegf "y g''eqwtv' qh''ep''Kenkep"r tkpeg."y j kej "ku''y g''ugwkpi "qh''y g''qtki kpen'uvqt {."y ky "y g''eqwtv'qh''e''Rqrkuj ''dkuj qr."cpf ''kpuvgef ''qh'' Kenkep"pqdrgo gp"cpf ''pqdrgy qo gp"j g''kpvtqf wegf ''nqeen'ej etcevgtu0'Kp"y g''kpvtqf wevkqp"vq"j ku''xgtukqp."I »tpkenk'' cumu"÷Y j {"ku''ky'y ev'Kf khtgt"htqo "i tqh'Deregt"MeukhqpAø0'Kp''epuy gt"vq"y ku''s wguvkqp."j g''f geknu'j ku'tgeuqpu'hqt" ej cpi kpi ''uwej ''gngo gpwu'qh'y g''qtki kpen'ewnwten'ugwkpi ''cu''j g''lwf i gf ''enkgp. "qh'hgpukxg''qt ''f khtkewn''vq''wpf gtuvepf "hqt''e''Rqrkuj ''tgef gt0'Vj ku''gzr repevkqp"getpgf "j ko "y g''r qukkqp"qh'y g''hqwpf kpi 'hey gt''qh'y j ev'eeo g''q''dg''npqy p'' cu''y g''÷o gyi qf ''qh''Rqrqpk gf ''ef cr vevkqpø'vq''y j kej ''Rqrkuj ''tepurevqtu'y gtg''vq''ef j gtg''hqt''y g''pgzv''eqwr rg''qh'' egpwtkeu0

RGVT[E[.'Ugdcukep'qh'Rkh pq'\*377663848+0Rqnkij "rj krquqrj gt."rj {ukekep."rqgv'epf "tcepurevqt0Kp"37: 5."j g" y cu''er rqkpvgf "ngewtgt "kp''nksgtct { "rqgvkeu''ev'j g''Wpkxgtukv{ "qh''Mtcm>y 0Rgvt { e { "y cu''mpqy p''eu''ep''ewj qt''qh''dqyj " o gf kecn'ttgevkugu''epf "n{tkeu'kpur ktgf "d { "Jqtceg0J ku''eppqvevgf "tcepurevkqpu"qh''Ctkuvqvrgøu''Rqrkkeu''epf " Geqpqo keu."f gf kecvgf "vq''Mkpi "\ {i o wpv''KKK'y gtg''r wdrkuj gf "kp''Mtcm>y "kp''3827"epf "383: "tgur gevkxgn{0Kp''y g'' kptqf wevkqp''vq''dqyj "y qtmu."j g''gzr rekpgf "vq''y g''Rqrkuj "tgef gt''j ku''tcepurevkqp''untevgi { "qh''÷wtpkpi "y g''hqtgki p" kpvq''qwt''qy pø'd { "÷uqhvgpkpi "y g''j ctf. "ukrgpekpi "y g''uj co ghwn'hkrdpi "kp''y g''i cr uø''\*tcepurevgf +0Rgvt { e { "ku'' eqpulf gtgf "qpg''qh''y g''gctrkguv'y gqtkvwu''qh''tcepurevkqp''kp''Rqrepf 0

GN DKGVC"VCDCMQY UMC

## T

## Tqo cpkcp'ttcf kkqp

Vj g'Tqo cpkcp''rcpi wci g'ku'c'f guegpf cpv'qh'y g'Ncvkp''qpeg''ur qngp''kp''y g''gcuvgtp''r ctv'qh'y g'Tqo cp''go r ktg''
\*Tqugvk'3; : 8-98+0'Chvgt''y g'Tqo cp''eqps wguv'kp''CF ''328.''y g''r tqxkpeg''qh'F cekc''\*tqwi j n{ 'eqttgur qpf kpi ''vq'' o qf gtp'Tqo cpkc+'y cu''eqnqpk| gf ''cpf ''Ncvkp''dgeco g''y g''xgj keng''qh'eqo o wpkecvkqp''co qpi ''kwi'kpj cdkxcpw0'Vj g'' xctkgv{ ''qh''Ncvkp''y j kej ''ugtxgf ''cu''c''dcuku''hqt''y g'Tqo cpkcp''rcpi wci g'y cu''pqv'f khngtgpv'htqo ''y g''Ncvkp''wugf ''kp'' qy gt'Tqo cp''r tqxkpegu.''dwv'kv'j cu''ukpeg''r cuugf ''y tqwi j ''eqpvkpwqwu''vtcpuhqto cvkqpu.''qy kpi ''r ctvn{ ''vq''ku''pqto cn'' gxqnwkqp.''cpf ''r ctvn{ ''vq''y g''kphrwgpeg''qh''y g''rcpi wci gu'y kyi ''y j kej ''kv'eco g''kpvq''eqpvcev0'Rtgugpv\f c{ 'Tqo cpkcp'' j cu''dggp''kphrwgpegf ''d{ ''pqp/Tqo cpeg''rcpi wci gu''uwej ''cu''J wpi ctkcp.''Cndcpkcp''cpf ''xctkqwu''Urcxke''rcpi wci gu.'' y j kej ''ctg''ur qngp''kp''pgki j dqwtkpi ''eqwpvtkgu0'

Tqo cpkc'uy kej gf 'htqo ''vj g'E {tkmke''vq''vj g'Tqo cp'uetkr v'kp''3: 820J qy gxgt.'Tqo cpkcp'ku'cnuq'ur qmgp'kp'uqo g'' r ctwi'qh''vj g'hqto gt''Uqxkgv'Wpkqp.''y j gtg'kk'ku'mpqy p''cu''O qnf cxkcp.''cpf ''vj gtg'kk'ku'uvkm'y tkwgp''kp''vj g''E {tkmke'' cm j cdgv0

### Geta 'tt cpurc vkqpu

I kxgp"y cv'Tqo cpkcp"y cu'pqv'c"y tkwgp"hcpi wci g"cv'y g"vko g."y g"qhhlekch'hcpi wci g"dglpi "Urcxqpke"lp"cm' eqpvzvu."y g"hkuv'Tqo cpkcp"tcpurcvlqpu"qh'tgrki kqwu"vgzvu"ecppqv'dg"gzr nclpgf "lp"vgto u"qh'lpvgtpch'pggf u0' Vj gug"vtcpurcvlqpu"cr r gct "vq"j cxg"dggp"f tkxgp"d{ "Nwj gtcp"cpf "Ecnxlpkuvke"r tqr ci cpf c0'Vj g"Nwj gtcp" Tghqto cvlqp"y cu'y gneqo gf "d{ "vj g"O ci {ctu'cpf "Uczqpu"qh"Vtcpu{nxcpkc."y j q"vj gp"uqwi j v'vq"cwtcev'y g" Tqo cpkcpu"vq"y gkt"pgy "hckj ="vj g"f kuvkdwklqp"qh"r tlpvgf "vtcpurcvlqpu"qh"tgngxcpv"vgzvu"r tqxkf gf "cp"ghhlekgpv" o gcpu"qh'cej kgxkpi "vj ku'cko 0'Vj g"hkuv'Tqo cpkcp"r tkpvgf "f qewo gpv'y cu'c"Nwj gtcp"ecvgej kuo "r wdrkuj gf "d{ "vj g" Uczqpu"lp"Ukdkw'lp"3766"\*pq"nqpi gt"gzvcpv+0'Vj g"Uczqpu"lp"Dtc qx"uqqp"tgcnkl gf "vj g"dgpghkvu"qh'dgkpi "cdng"vq" f kuvkdwwg"dqqmu"lp"Tqo cpkcp"qp"c"ncti g"uecng"

cpf "dgi cp"\q"\wg"\y g"gzknkpi "r cr gt/o kni'cpf "r tkp\kpi "uj qr "o qtg"gz ygpukxgn{0Vj g{"j ktgf "F gceqp"Eqtguk"y j q" r tqxgf "\q"dg"gz ytgo gn{"ce\kxg0V\p"377; ."j g"r wdrkuj gf ""pyt gdct g"et g ykpgcue "\*Vj g"Ej tku\kcp"\ps wkt {+:'yj g'hktuv" r tkp\ygf "Tqo cp\kcp"\tcpurc\kqp"qp"tgeqtf = kp"3783"j g"r wdrkuj gf "c'Tqo cp\kcp"I qur gn"cpf "\p"3792"c'Tqo cp\kcp" Rucn\ygt "cpf" c"Tqo cp\kcp"o kuucn\vgy gug"\tcpurc\kqpu"gplq{gf "yj g"uwr r qt\v'qh'\yj g"cwyj qtk\kgu0\Rt\\peg"\ar r qn{c'qh" Vtcpu{\text{rxcpkc."hqt "kpuxcpeg."r gtuqpcm{"eqo o kuukqpgf "yj g"tgr rcego gp\v'qh"Urcxqp\ke"dqmu"d{"Tqo cp\kcp"qpgu0 Nkng"\yj g"Nwj gtcpu."\yj g"Ecrx\kp\kuvu"cnq"\wgf "\tcpurc\kqpu"\kpq"Tqo cp\kcp"\q"r tqo q\yg"\yj g\t"\tck\yj 0C"dqqmiqh" r ucmo u'y cu'\tcpurc\yf "htqo "J wpi ct\kcp"\kp"3792"cpf "r t\kp\ygf" y kj "Nc\xp"ej ctce\ygtu"\kp"\Qtcf gc"\qt"En\l0D\kuj qr "O 0' Vqtf" uk'\tcpurc\yf "yj g"dqqmu"qh'I gpguku"cpf "Gzqf wu'htqo "\yj g"J wpi ct\kcp"Dkdrg"\qh"I a'ur a't"J gn\ck \yj \kj j \equiv \text{yj kej "r rcegtgf "\kp"En\ld"\pyf" y kyj "\text{y yj g"Tqo cp\kcp"hkyff" t\kp\yf" v ky"\pyf" y kyj "\text{y yj g"Tqo cp\kcp"hkyff" t\kp\yf" v ky"\pyf" y kyj "\text{y yj g"Tqo cp\kcp"hkyff" t\kp\yff" v kymp" y tqwi j qw'\yj g"tgi kqp"r rc{\yff gekukxg"tqrg"\kp"f gxgmr kpi "cpf"\uj cr \kpi "\yj g"Tqo cp\kcp"hkyftct{" rcpi wci g0}

Kp''386: .''vj g''y j qrg''qh''vj g''P gy "Vguvco gpv'y cu''vtcpurcvgf 'kp''Crdc''Kwrkc''wpf gt''vj g''uwr gtxkukqp''qh''O gvtqr qrkxcp'' Uko kqp'' vghcp0'Ctqwpf ''vj g''uco g''vko g.''cpf ''kp''vj g''uco g'tgi kqp.''vj g''Cr qet {rjc''\*vj g'hqwtvggp''dqqmu''cr r gpf gf ''vq'' vj g''Qrf ''Vguvco gpv'kp''yj g''Ugr wci kpv''cpf ''vj g''Xwri cvg+''y gtg''vtcpurcvgf 'htqo ''Urcxqpke0

### Vj g'lgxgpvggpvj 'egpwt{

Vj g'ugxgpvggpvj 'egpwt { 'y cu'c'vko g'qh'r qrkkecrlkpuvcdkrkv{ 'kp'vj g'r tkpekr crkkgu'cpf ''Vtcpu{ rxcpkc.''cpf 'vj ku'uvcvg'' qh'chcktu'pcwtcm("fkf"pqyjkpi"vq'uvko wrcvg"cp"cevkxg"ewnwtcn'nkhg0"Hqt"cm quv'72"{gctu'pq"dqqmu'qh'cp{"mkpf" y gtg'r wdrkuj gf 0P gxgtyj grguu. "gxgp"kp" y gug'i rqqo { 'hgwf cri'vko gu'uqo g''vtcpurcvkqp"cpf "cf cr vcvkqp"qh'hqrm/vcrgu" eqpvkpvgf "\q"dgct"\guvko qp{ "\q"gzkuvkpi "hkpmu"y kij "\j g"Qtkgpv0Cv"\j g"uco g"\ko g. "hkgtct{ "cpf "r tkpvkpi "cevkxkvkgu" i tcf wcm{ "htggf "yi go ugnxgu"htqo "ej wtej "cwyi qtkx{ . "cpf "eqpvcev"y kyi "Gwtqr gcp" J wo cpkuo "y cu"guvcdrkuj gf " yj tqwi j 'O qnf cxkcp''cpf "Y cmcej kcp''uej qnctu''y j q''uwwf kgf ''cv'Kkcnkcp''cpf ''Rqnkuj ''wpkxgtukkkgu0'Vj ku''j cf ''vj g''ghhgev'' qh'f ko kpkuj kpi 'yi g'ko r qt vcpeg''qh''Urcxqpke. "cpf "tcpurcvkqpu'htqo "qyi gt''uqwteg'hcpi wci gu''dgi cp''vq''cr r gct0' P keqrcg'Equvkp'\*388263934+.''uvcvguo cp''cpf'j kuvqtkcp.''vtcpurcvgf'Cpvqpkq'fg'I wgxctcøu'hco qwu''dqqm'qp'' O ctewu'Cpvqpkvu." Tgrqz'f g'Rt kpekr gu'\*374; +: 'htqo 'Ncvkp0'Ur cvj ctwu'O krguew'\*38586392: +: 'f kr mo cv'cpf 'i tgcv' uej qrct. 'y cu' y g'hktuv' y 'tcpurc y f ktge vn ('htqo 'c' I tggm'qtki kpcn="j g'r wdrkuj gf 'j ku' 'tcpurc y qp' y h' y g' Dqqm'y kj '' Ocp{'S wguskqpu'd{'Cyj cpcukwu'qh'Crgzcpf tkc'kp'38830'O krguew'cnuq'r wdrkuj gf'yj g'hktuv'\tcpurc\kqp'qh'c" rjknquqrjkecn'\gzv*\gp'Rtgxcknkpi'Tgcuqp*'\s38::+.''cwtkdwgf'\q''Hncxkwu'Lqugrjwu0'Dwv'Oknguewøu'oquv'korqtvcpv' eqpvtkdwkqp"y cu"vtcpurcvkpi "vj g"Qrf" "Vguvco gpv"kp"hwmlhtqo "c"xgtukqp"qh"vj g"Ugr wci kpv"y j kej "y cu"r wdrkuj gf "kp" Htcpnhwtv'lp'37730'Vjg'\tcpurcvkqp''crrgctgf''lp'38:: "wpfgt''vjg'\kwg''Dkdnkc'fg'nc''Dwewtgurk'\*Vjg''Dkdng'htqo" Dwej ctguv+."cpf "cmlTqo cpkcp"xgtukqpu"qhl'vj g"Ugr wci kpv"j cxg"ukpeg"dggp"dcugf "qp"k0 Vj g'hktuv'r qgv'ttcpurcvqt'kp''yj g'Tqo cpkcp''ttcfkkqp''y cu'F QUQHVGK\*38456; 5+.''yj g'O gvtqr qrkxcp''qh'O qrf cxkc0' J ku'xgtug'xgtukqp"qh'yj g"*Rucngt* "\*3895+'tgo ckpu'qpg"qh'yj g"o quv'j ki j n( "xcnwgf "\tcpurcvkqpu'qh'yj g"*Rucno u'qh'* Fcxlf."eqorctcdrg"kp"\gtou'qh'kxu'kphrwgpeg'\q'hcoqwu'xgtukqpu'uwej "cu'\jqug'd{ "Icp'Mqejcpqy unk'cpf" Ento gpv'O ctqv0'Vj ku'y cu'y g'hktuv'vko g'vj cv'j ki j "s wcnkv{ "r qgvt { "cr r gctgf "kp'vj g'Tqo cpkcp"ncpi wci g0'Vj g" cguyj gyke"s wcrky{ "qh"F quqhygkøu"xgtug"ku"cnuq"gxkf gpy"kp"yj g"htci o gpy"y j kej "j g"ytcpurcygf "htqo "yj g"Etgycp"f tco c" Gt qllarg. "c"I tggmlcf cr vcvkqp"qhl'yj g"Kcrlcp"dctqs wg"r rc {"Qt dgeej g"d {"I ktcrf k0F quqhvgk"cnuq"\tcpurcvgf "c"r tc { gt" dqqml\*38: 3+"cpf "c"o kuucnl\*389; +"htqo "I tggmlxgtukqpu0"Vj gug"tcpuncvkqpu."y j kej "y gtg"r tgr ctgf "hqt"O qnf cxkcp" ej wtej gu. 'uqqp''ur tgcf''y tqwi j qwy'y g'r tkpekr crkkgu''cpf''dgeco g'hct''o qtg'r qr wrct''y cp''y qug'f qpg''d { 'Eqtguk'' crrtqzko cvgn("322"{ gctu"gctrkgt. 'vj wu'o crkpi 'kv'r quukdrg' vq' uvctv'eqpf wevkpi "ej wtej "ugtxkegu'kp' Tqo cpkcp0 Vj g'hktuv'ncy "dqqmu'cpf "f kevkqpctkgu'y gtg"cnuq "tcpuncvgf "cpf "r wdrkuj gf "f wtkpi "vj ku'r gtkqf 0'Vj g{ 'kpenwf gf " Rtcxkr: "f g'rc 'I qxqtc" Vj g"Ncy "Dqqmi'htqo "I qxqtc+" 'tcpurcygf "d{ "yj g"o qpm'O qzc'htqo "Urcxqpke" cpf " r wdrkuj gf 'kp''Y cmcej kc'kp''3862."cpf ''Rt cxkngng''' o r t vg vk'\*Vj g'Ko r gtkcn'Dqf { ''qh'Ncy +: '\tcpurcvgf ''d { ''Gwuvtcvkg'' htqo "I tggm'cpf "Ncvkp"uqwtegu"cpf "r wdrkuj gf "kp"O qrf cxkc"kp"38680"Dqyj "ctg"co qpi "yj g"gctrkguv'uvcvgo gpvu'qh" ngi ch'eqf gu"

y tkwgp"f qy p"kp"cp{ "pcvkqpcn"repi wei g"kp"Gwtqr g0"Vj g"hktuv"dkrkpi wen"f kevkqpct{ "y ksj "Tqo cpkcp"cu"vj g"uqwteg" repi wei g"y cu"*F kevkqpct wo "xcrcej keq/rcvkpwo 0*"KV"eqpvckpgf "7222"j gcf y qtf u"cpf "y cu"eqo r krgf "d{ "O kj ck"J crkek" htqo "vj g"vqy p"qh"Ectcpugdg "kp"38650

Ngzkeqi tcr j ke"ce\kxk\{."eqo dkpgf "y kij "kpetgcugf "kpxqnxgo gpv'kp"\y g"r tce\kecn'r tqdngo u"qh'\tcpurc\kqp." u\ko wrc\yf "\y kpnkpi "kp"\y ku"ctgc0\V j g"rcen'qh'r gthge\'eqttgur qpf gpeg"dgw ggp"\y g"y qtf u"qh'\y q"rcpi wci gu"dgi cp" vq"dg"pq\yf "cpf "f kuewugf 0\Y j krg"\tcpurc\kpi "\y g"Ectvg'fg'rtcxkrg"\Dqqm'qh'\Ncy u\th'\hqt"\kpu\cpeg."KD\F gngcpw' qdugtxgf "\y cv'\y gtg'y cu'pq"gzcev'Tqo cp\xcp"\yto "\hqt"\y g"I gto cp"\Xgt\dtgej\gp"\cpf "\pq\yf "\y cv'\y g"\rcm'qh'\cry crt qtr\x\cy"\yto \x\pq\q\tect\yf g'rt\cx\k\quare\tect\yf g\tent{

### Vj g'Gprli j vgpo gpv

F wtkpi ''y g''gki j vggpyj ''egpwt {.''y j gp''y g''Gprki j vgpo gpv'y cu''dgi kppkpi ''vq''i ckp''i tqwpf 'kp''Gwtqr g.''y g'' j qur qf ctu''qt''i qxgtpqtu''cr r qkpvgf ''d{ ''y g''Qwqo cp''uwncp''dgi cp''vq''twrg''kp''y g'Tqo cpkcp''r tkpekr crkkgu0' J wpi ct{ 'j cf 'hcmgp''wpf gt''Vwtnkuj ''twrg''kp''3748. ''chwgt''c''nqpi ''r gtkqf ''qh''uvtwi i rg''dgw ggp''f {pcuvkgu''cpf ''y tgcwu'' htqo 'hqtgki p''r qy gtu.''cpf ''gxgpwcm( ''dgeco g''r ctv'qh''y g''J cdudwti ''Go r ktg''kp''y g''ugxgpwggpyj ''egpwt {0' Cny qwi j ''y ku''r gtkqf ''ku''uvkm'xkgy gf ''pgi cvkxgn( ''d{ ''Tqo cpkcpu''cu''y gm''cu''J wpi ctkcpu.''y g''gpuvkpi ''f gecf gu'' y kpguugf ''c''y tkxkpi ''ewnwtcn'nkg0'Vj g''j qur qf ctu''y gtg''hwpevkqpctkgu''cpf ''f tci qo cpu''\*kpvgtr tgvgtu+"qh'y g''Rqtvg.'' y gm''gf wecvgf ''cpf ''y kyj ''c''i qqf ''eqo o cpf ''qh''Htgpej ''cpf ''Kcrkcp0'Vj g{ ''ko r qugf ''y g''wug''qh'I tggm'kp''cm''eqpvgzvu.'' kpenwf kpi ''y g''ej wtej 0'O qtg''y cp'522''dqqmu'y gtg''r tkpvgf ''dgw ggp''3942''cpf ''3: 420

Vj g'r tkpekr crkkgu'\*Y cmcej kc''cpf 'O qrf cxkc+''cpf "Vtcpu{nxcpkc''y gpv'y tqwi j 'c'tcr kf 'r tqeguu'qh'ugewrctk ckqp" f wtkpi ''y ku'r gtkqf .''y kyj ''y tcpurckqpu''cpf 'cf cr vckqpu''qh'r qr wrct''rksgtcwtg'i tcf wcm{ 'tgr rcekpi ''y qug''qh'tgrki kqwu'' y qtmu0Htgpej ''dgeco g''y g''f qo kpcpv'uqwteg''rcpi wci g'kp''tcpurckqp.''y kyj ''y tksgtu'y j q''gzr tguugf ''y g''ur ktk'qh'' y g''Gprki j vgpo gpv.''uwej ''cu''Xqnrcktg.''O qpvgus wkgw''cpf ''Tqwuugcw.''dgkpi ''co qpi ''y g''o quv''tcpurcvgf 0'Vj g'' vtcpurcvqtu''y go ugrxgu'y gtg''gkyj gt''gf wecvgf ''o go dgtu''qh''y g'Tqo cpkcp''tq{crlhco kn{.''nkng''Kcpew''X e tguew''cpf '' Kqtf cej g'T qrguew.''qt'T tggrh'uej qrctu''dtqwi j v'kp''d{''y g''pgy ''twrgtu''vq''vgcej ''cv''y g''tq{crl'cecf go kgu''kp''Kc k''cpf '' Dwej ctguv0

K'ku''q''Vtcpu{nxcpkcøu''etgf kv''q''j cxg''etgcvgf ''y g''o qf gtp'Tqo cpkcp''gf wecvkqp''u{uvgo 'f wtkpi ''y ku''r gtkqf 0'
P wo gtqwu'I tggm'j cpf dqqmu''qp''c'xctkgv{ ''qh''uwdlgew''uwej ''cu''nqi ke. ''gyj keu''cpf ''o gvcr j {ukeu''y gtg''vtcpurcvgf ''vq'' ecvgt ''hqt ''y g''f go cpf u''qh''y g''pgy ''u{uvgo 0Gwi gp''Xwii ctkuøu''vtcpurcvkqpu''qh'y g''Htgpej ''y tksgt''Hqpvgpgmg''ngf ''
Tqo cpkcpu''vq''dgrkgxg''y cv''y g''uwp''y cu''y g''egpvtg''qh''y g''wpkxgtug0'Hqmn'vcrgu''y gtg''cnnq''tgvtcpurcvgf ''qp''y g''dcuku''
qh'I tggm'o qf gnu''uwej ''cu''*J crko c*. ''y g''*Qf {uug{* ''cpf ''*Cguqr øu'Hcdngu0*'Uco wkrl'O kew.''qpg''qh''y g''tgr tgugpvcvkxgu''qh''
c''o qxgo gpv''mpqy p''cu'' eqcre ''Ctf grgcpc'\*\*Vj g''Vtcpu{nxcpkcp''Uej qqn+.''vtcpurcvgf ''Dcwo gknytøu''*Grgo gpvc''*Rj knquqr j kc g''wpf gt''y g''kng''Nqi kec'\*\*Dwf c''39; ; = ''y ku'y cu''y g''hktuv''cpf ''o quv'ko r qtvcpv'eqpvtkdwkqp''q''y g''
etgcvkqp''qh''c'Tqo cpkcp''r j knquqr j kecn''rcpi wci g0

F wtkpi "'y g"hcuv's wct vgt "qh''y g"gki j vggpyj "egpwt {"cpf "'y g"hktuv's wct vgt "qh''y g"pkpgvggpyj "egpwt {."Tqo cpkcpu" dgeco g'r ct wewctn{ 'tgegr vkxg" \q 'Gwtqr gcp "uekgpeg" cpf "r j knquqr j { "kp "y g"r tkpekr cnkkgu" cpf "Vtcpu{nxcpkc." cevkxgn{ "cuulo krcvkpi "Y guvgtp "hkytcwtg" cpf "kpvgi tcvkpi "kv'kpvq" y g"kpf ki gpqwu" ewnwtg" \mathfrakgt ww'3; 92 \alpha 77 +0 \text{Hrgg" cf cr vcvkqp" y cu'y g"qtf gt "qh'y g"f c{."y ky ":hcky hwp' vtcpurcvkqpu" dgkpi "'y g"gzegr vkqp" tcy gt "y cp "y g"pqto 0 Vj g" cf cr vcvkqpu" ctg" dqy "gpvgtvckpkpi "cpf "kputvevkxg0 Ucr r j q. "Cpcetgqp. "Rgvtctej." Tqpuctf. "O gcuvcukq" cpf "qy gt" tgr tgugpvcvkxgu" qh''y g"i tgcv'Gwtqr gcp" vtcf kkqp" \mathfrakgr \mathfra

Hrqtkcp'r qtvtc{gf "o cp'cu'c'eqo r rgz "dgkpi = "y g'r tg/Tqo cpvke" gtq'i tcf wcm{ 'hqwpf "j ku'y c{ 'kpvq'Tqo cpkcp'' rkgtcwtg0'V gcvtkecn'r gthqto cpegu'i kxgp'kp" y g'r tkpekr crkkgu'd{ 'pwo gtqwu'Htgpej .'Kcrkcp.'I gto cp'cpf "Twukcp'\qwtkpi "tqwr gu'r tqxkf gf 'hwtyi gt'eqpvcev'y kyi 'Gwtqr gcp'rkgtcwtg0'V j g'r gthqto cpegu'y gtg' j quvgf 'd{ "y g'ewnwtgf "o go dgtu'qh'yi g'tq{crihco kn{.''yi g''dq{ctu.''y j q''vtcpurcvgf "yi g''r rc{u'kpvq'I tggm'cu'y gm'cu''} Tqo cpkcp0'V j g''qti cpk gt''qh'yi g''httuv'r gthqto cpeg'kp''yi g''ekv{ "qh'Kc k'y cu'I j gqti j g'CUCEJ K'y j q''cf cr vgf "Oktyi krlcpf "Ej rqg''d{ "Hrqtkcp'kp''3: 38''cpf "rcvgt''Cn\ktg''d{ "Xqnxcktg'kp''3: 3: 0'Kcpew'X e tguew'vtcpurcvgf "I qgyi g'' \*c'htci o gpv'htqo "Hcww+'Tcekpg''\*Dtkcppkewu+"cpf "yi g'I gto cp'r rc{tk j v'Mqv| gdwg''\*Vj g'Gxgpkpi "J qwt+0"

### Dg{ qpf 'tj g'Gprki j vgpo gpv<'tj g'pkpgvggpvj 'egpvwt {

Gwtqrgcp"ewnwtg"cpf 'rkgtcwtg0'Htgpej "eqpvkpwgf" 'q"dg" y g"f qo kpcpv'uqwteg' rcpi wci g. 'y kj 'y g'y tgg'i gptgu'qh' f tco c."gr ke"r qgvt { ."cpf "vj g"n{ tke"dgkpi "y gmltgr tgugpvgf 0"Y qtmu"vtcpurcvgf "f wtkpi "vj ku"r gtkqf "kpenwf g"Rj 3f tg" cpf "Cyj cnkg"d{ "Tcekpg." J qt ceg"d{ "Eqtpgkng." Ng"O kucpyj tqrg" cpf "Ngu"Rt2 ekgwugu"t kf kewngu"d{ "O qnk tg." Cn/ ktg" cpf "O2tqrg"d{ "Xqnxcktg."cpf "Octkg"Vwfqt"d{ "Xkevqt"J wiq0Crctv"htqo "ftcoc."Tqocpvke"rqgvu'uwej "cu'J wiq" cpf "Nco ct/kpg"tgegkxgf "ur gelcn'cwgp/kqp."dwi'yj gtg"y gtg"cn/q"ugxgtcn'/tcpurc/kqpu"qh'r tqug'y tk/gtu'/uwej "cu" Nguci g. 'Rt² xquv.'I gqti g'Ucpf.'F wo cu.'Gwi ³ pg'Uwg. 'cpf 'Dcn ce0'Vj g'r qr wrctkv{ ''qh'Htgpej ''ewnwtg'cnuq'' gpeqwtci gf "vj g"vtcpurcwlqp"qh"c"i tgcv'pwo dgt "qh"i tco o ctu"cpf "qvj gt"v(r gu"qh"j cpf dqqmu0 Kp"cffkkqp"vq"Htgpej 'rkvgtcwtg."y qtmu"d{ "Kvcrkcp"y tkvgtu"uwej "cu"Fcpvg. "Ctkquvq. "Vcuuq"cpf 'Crhkgtk'y gtg"cnuq" vtcpurcvgf 0'Gpi rkuj 'y tkvgtu'uvej 'cu'[ qwpi .'D{tqp'cpf 'Uj gmg{ 'y gtg'i gpgtcm{ ''tcpurcvgf 'htqo ''Htgpej '' kpvgto gf kctkgu01 wmkxgt øu'Vt cxgnu'dgeco g'xgt { 'r qr wrct 'uj qt vn{ 'chvgt 'kv'y cu'hktuv'r wdrkuj gf 'kp'3: 6: 'cpf 'y cu' vtcpurcvgf "ugxgtcn'\ko gu01 gto cp"rkvgtcwtg"f kf "pqv'hctg"xgt{"y gm'f wtkpi "vj ku'r gtkqf."y kj "c"uo cm'pwo dgt"qh" y tkgtu'uwej "cu'I qgvj g"cpf "Uej kngt"dgkpi "tcpurcvgf 0 Kpvgtguv'kp"T wuukcp'rkkgtcwtg"y cu'r ctvkewrctn( "uvtqpi 'kp" O qrf cxkc. 'y ky 'Rwuj mkp'dgkpi 'y g'o quv'r qr wrct 'y tkgt <'Vj g'I {rukgu'y cu'vtcpurcvgf 'd{ 'Cr0F qpkek'kp'3: 59'cpf " Vj g'DrcentUj cy ntd{ "EP gi tw| | ktlp"3: 560Gwtqr gcp"y qtmu"qh"etkkekuo ."uwej "cu"yj qug"d{ "Nc"J ctr g. "O cto qpvgn" UckpvOcte'I ktctfkp."cpf 'Lwgu'Icpkp"cnuq"dgeco g"cxckrcdrg"kp"\tcpurc\kqp0 Vj tgg"qwuvcpf kpi "uej qrctu." J grkcf g'Ta f wrguew Y crrcej kc+." I j gqti j g'CUCEJ KYO qrf cxkc+"cpf 'I Octkkw" \*Vtcpu{nxcpkc+: "gpeqwtci gf 'vj g'Tqo cpkcp'r wdrke'vq'tgcf 'vj g'o cuvgtr kgegu'qh'xctkqwu'ewnwtgu'cpf 'vq'cf qr v'vj g'' o qtcrl'xcnvgu'gur qwugf 'lp''y go 0J grlcf g'Taf wrguew'\*3: 24694+'lpkvlcvgf 'c'eqrrgevlqp'qh'encuulecrl'cwj qtu'lp'' 3: 58="vj gug"kpenwf gf "J qo gt. 'Zgpqr j qp. "F go quvj gpgu. "Xkti kn "Vcuuq. 'D{tqp"cpf "J wi q. "co qpi "qvj gtu0"kp" 3: 68. "j g"r wdrkuj gf "vj g" Dkdrkqvgec "Wpkxgt ucn "\*Wpkxgt ucn Nkdtct {+0 Vj ku 'y cu 'c 'eqngevkqp 'qh '454 'hoo qwu 'cw j qtu" htqo "xctkqwu"j kuvqtkecn'r gtkqf u"cpf "tgr tgugpvkpi "xctkqwu"hkgnf u"qh"npqy ngf i g. "kpenwf kpi "r j knquqr j { . "ncy . " crrtgelæy 'rkvgtct { "o cuvgtrkgegu 'qt 'cnvgtpcvkxg 'o qtcn 'cpf 'ewnwtcn 'xcnwgu 'cpf 'eqwrf 'pqv 'cuuko krevg 'Gwtqrgcp'' ewnwtg0Vj g"ctkunqetce{"eqpnkpwgf"vq"gplq{"vj g"o cungtr kgegu."y j kng"vj g"nguu"gf wecngf"o kff ng"encuu"r tghgttgf"vj g" o graftco c. "eqo gf { "qt" o cy nkuj "pqxgrgwg0J grkcfg" j ko ugrh" cpvkekrcvgf "vj ku" tgcevkqp" cpf "vtkgf" vq" uvtkng" c" dcrcpeg'dgw ggp''y g'pggf u'qh'y g'eqo o qp'tgcf gt''cpf ''y g'f gultcdkrkv{ "qh''tcpurcvkpi 'j ki j 'hkgtcwtg0J ku" vtcpurcvkqpu'qh'yj g'rcwgt'v(r g'kpenwf gf 'Egtxcpvgu'\*cp'gzvtcev'htqo "Fqp'S wkzqvg''cr r gctgf 'kp'3: 62+.'Nco ctvkpg." D{tqp. "Xqncktg. 'Tqwuugcw.' Dqkrgcw.' I qgyj g'cpf "Uej krrgt="j ku'\tcpurc\kqpu''qh'\yj g''nkpf ''qh''nkxgtcwtg'kp''y j kej ''yj g'' eqo o qp"tgcfgt"vqqm"cp"kpvgtguv"kpenwfgf"I wkpqv."Octkg"C {ctf"Octxkmg"cpf"Okuu"Pqtvqp0"Vjg"rqrwnctkv{"qh" grj go gtcn'hphgthqt'hkgtcwtg'hp'tcpurchqp"gpeqwtci gf 'uqo g'hpvgngewcnu'vq'ceewug'tcpurchqp'qh'dghpi 'c' -f cpi gtqwu'o cpkcø'cpf "vq'uwi i guv'yi cv'Tqo cpkcp'tgegr vkqp"qh'hqtgki p''nkxgtcwxtg''kp''yi g''pkpgvggpyi ''egpwxt { 'y cu'' o qvkxcvgf "o gtgn("d{":\tiwrrn("cpf"f go cpf \( \phi\) \text{\text{Eqtpgc}}"3; 92\( \price 2\); +0

I (Dctkkw'\*3: 346; 5+'r re{gf 'c'ngcf kpi 'tqng'kp''y g'ewnwtcn'nkhg''qh''Vtcpu{nxcpkc.''gur gekcm( 'kp''y g'hkgnf ''qh'' vtcpurcvkqp0J g'y cu'c'i tgcv''

cf o ktgt "qh'Gpi rcpf "cu'c": o qf gn'qh'r qnkkecn'htggf qo ø\*Dctk kw'3: 59+"cpf "qpg"qh'yi g'hktuv'\tcpurc\qtu'qh"
Uj cmgur gctg0 kp''3: 62. "j g'r wdrkuj gf "gz\tce\ui'htqo "Lwnkwi'Ecguct" cpf "Vj g'Ogtej cpv'qh'Xgpkegø" 'yi gug"y gtg"
\tcpurc\yf 'htqo "I gto cp'\xgt\ukqpu'\xcu'y gtg"j ku'\rc\yf "gz\tce\ui'htqo "y qtmu'd{ "F kengpu+0"J g'r wdrkuj gf "yi g'hwn'\yz\v'
\qh'Lwnkwu'Ecguct "kp''3: 66="yi ku'y cu'\yi g'hktuv'eqo r ng\yg'\tcpurc\ykqp"qh'c"Uj cngur gctgcp"r nc{ "\q'cr r gct "kp''Tqo cpkc0'
\di ku'\tcpurc\ykqpu'qh'Uej kngtøu'Fqp'Ectnqu.'Octkc'Uwctv'cpf "Hkgunq"cr r gctgf "kp''3: 650

Kp"y g"r gtlqf "j gtcrf kpi "y g"tlug"qh"y g"tgxqnwlqpct {"o qxgo gpv"y j lej "uy gr v'o wej "qh"Gwtqr g. "kpenxf kpi "
Tqo cpkc. "ctqwpf "y g"o kf f ng"qh"y g"pkpgyggpy "egpwt {."D{tqpøu"r gtuqpcrkv{ "cpf "j ku"hkgt {"r qgo u"dgeco g"xgt {" r qr wrct. "cpf "Gpi rkuj "rkytcwtg."y j lej "d{"cpf "rcti g"j cf "dggp"ki pqtgf "wpvkrly gp."dgi cp"vq"cwtcev"o qtg" cwgpvkqp0"Vj g"htuv"f ktgev"tcpurcvkqp"htqo "Gpi rkuj "y cu"r tqdcdn{ "D{tqpøu"O cpht gf." "tcpurcvgf "kp"3: 65"d{"y g" Tqo cpkcp"tgxqnwkqpct {"cpf "y tkyt"E0C0Tqugwk0"Vj g"D{tqpke"j gtq"y kj "j ku"tqo cpvke"cpf "tgdgmkqwu"cwkwf g" dgeco g"c"f kn/kpevkxg"hgcwtg. "gxgp"c"o qf gn"qh"Tqo cpkcp"ewnwtcn'hkg0"Vj g"hktuv'Gpi rkuj "pqxgn'vq"dg"vtcpurcvgf "y cu"cnq"vq"dgeqo g"qpg"qh"y g"o quv"r qr wrct="y ku"y cu"F ghqgøu"Tqdlpuqp"Et wuqg. "vtcpurcvgf "cpf "r wdrkuj gf "d{"X0 Ft i j kek"lp"y g"ekk{"qh"Kc k"kp"3: 570Dwy gt/N{wqpøu"Vj g"Ncw/F c{u"qh!Rqo r gkk"r wdrkuj gf "kp"Nqpf qp"kp"3: 56." y cu"ugtkcrkl gf "kp"Tqo cpkcp"o ci c| kpgu"kp"3: 5: 0"Y cngt "Ueqwøu"j kuvqtkecn'pqxgnu"y gtg"y gm'mpqy p"vq"y g" Tqo cpkcp"r wdrke "htqo "y g"o kf/3: 72u"qpy ctf u0

Tqo cpkcp"o ci c| kpgu"cniq"ecttkgf "vj g"hktuv"pgy u"cdqw"vj g"P gy "Y qtrf "f wtkpi "vj ku"r gtkqf ."cpf "vtcpurcvkqpu"qh" Co gtkecp"rksgtcwtg"uqqp"dgi cp"\q"crrgct0"Y cuj kpi vqp"Kxkpi "y cu'\j g"htuv'cwj qt'\q"dg'\tcpurcvgf "kpvq" Tqo cpkcp. 'kp'3: 58. 'hqmqy gf 'd { 'Dgplco kp'Hicpmkp. 'Hgpko qtg'Eqqr gt. 'Gf i ct'Cmcp'Rqg'cpf 'O ctm'Vy ckp0' J cttlgv'Dggej gt''Uqy gøu''Wpeng'Vqo øu'Ecdlp.'r wdrkuj gf'llp''3: 74.'y cu'vtcpurcvgf'llp''Kc k'llp''3: 75''cpf'llp'' Dwej ctguv'kp"3: 760'Vj ku'pqxgn'y cu'r ctvlewrctn{ "r qr wrct"dgecwug"qh'vj g'vqr kecrkv{ "qh'kxu'uqekcn'o guuci g."y j kej " y cu'eqpukuygpv'y kij ''y g'lkf gqrqi { ''qh''y g'lf go qetcvke''kpvgrrgewcnu'uvtkxkpi ''vq''go cpekr cvg''y g''i {r ukgu0 Vj g'hrqwtkuj kpi ''qh'\tcpurcvkqp''cevkxkv{ ''f wtkpi ''vj g''pkpgvggpvj ''egpwt{ ''j cf ''cp''gpf wtkpi ''kphrwgpeg''qp''Tqo cpkcp'' ewnwtcn'i'ldg''cpf 'j grr gf ''vq''dtkpi 'Tqo cpkc''erqugt''vq''y g'tguv''qh''Gwtqr g0'Vj g''kphrwgpeg''qh''Htgpej ''ewnwtg''eqwrf ''dg'' uggp'kp''y g''qxgtcm'r tqeguu''qh''o qf gtpk cwqp''y j kej ''dgi cp''vq''vcng''r rceg0'Vj g''Uej kngt''egpvgpct { 'kp'3: 7; ''y cu''  $hqmqy \; gf \; "d\{\; "c"dqqo \; "kp" ij \; g" itcpurc kqp" qh" j \; ku" y \; qtm" cu" y \; gm" cu" iy \; gtm" qh" iy \; gt" I \; \; gto \; cp" cwj \; qtu" uwej \; "cu" iy \; gm" cu" iy \; gt" iy \; qtm" qh" iy \; gt" iy \; qtm" qh" iy \; gt" iy \; qtm" iy \; qt" iy$ I qgyj g. "J gkpg"cpf "Ngpcw0I gto cp"hkygtcwtg"cpf "r j krquqr j { "j grr gf" uj cr g" yj g" yj kprhpi "qh" c "pwo dgt" qh" kphrwgpvkcn'Tqo cpkcp'r gtuqpcrkxkgu'y j q'uwxf kgf 'kp'Dgtrkp.'Xkgppc''cpf 'qvj gt'I gto cpur gcmkpi 'wpkxgtukxkgu0Vkw' O ckqtguew. 'hqwpf gt ''qh''y g''o ci c| kpg''Eqpxqtdktk'nkytctg. "\*Nkytct{ "Vcm+."y cu'j ki j n{ 'kphrwgpegf ''d{ ''y g'kf gcu'qh' Uej qr gpj cwgt0'Vj g'r qgv'O kj ck'Go kpguew'\*3: 726: ; +'y cu'uko krctn{ 'kphnwgpegf 'd{ 'I gto cp'Tqo cpvkekuo 0J ku' gzegngpv'\tcpurc\kqpu'qh'\j g'Cwutkcp'r qgv'Ngpcw."Dkwg'\\*Tgs wguv+"cpf "Fcu'f Attg'Drcw'\\*Vj g"Y kij gtgf "Ngch+." y gtg'r wdrkuj gf 'kp''Eqpxqtdktk'hkvgtctg''kp''3: 9; 0Go kpguew'etgcvgf "c''j ki j n{ "gzrtguukxg"rqgvke 'hcpi wci g. "cpf 'kp" uq'f qkpi'o cfg'kk'r quukdrg'hqt''tcpurc'kqpu'kpvq'Tqo cpkcp''vq''uvcpf''kp''yj gkt''qy p''tki j v''cu''gs wcnu''qh''yj gkt''Gwtqr gcp''cpf 'Co gtkecp'qtki kpcni0

Vj g'ˈrcuvˈs wct vgt "qhˈy g'ˈpkpgvggpyj "egpwt { "y kpguugf "cp"go r j cukuˈqp" vcpurc vkpi "y qtmuˈy j kej 'ˈhqewuˈqp" uqekcn' kuuwgu0'Vj gug'ˈkpenwf gf 'I qi qnźuˈ*Vj g'ˈkpur gevqt/I gpgt cn* "r wdrkuj gf 'kp"3: 96. "Vwti gpgx*x*u'ˈ*Vj g'P guvˈqhlI gpwghqmi*' \*3: : 2+. "F quvq { gxum( øuˈ\*Etko g'cpf 'Rwpkuj o gpv!\*3: ; : +"cpf 'Ej gnj qxøu'O qvg{ 'Uqt kgu!\*3: ; ; +0Htci o gpwuˈqh' F kengpuø''Vj g''Qnf 'Ewt kqukv{ 'Uj qr "y gtg'r wdrkuj gf 'kp"yj g'o ci c| kpg''Eqpvgo rqtcpwn!\*Vj g'Eqpvgo rqtct {+'kp" 3: : 5. "cpf "y g'vgzv'cr r gctgf 'kp'hwnlkp'3: ; 60'Gf i ct''Cnrcp''Rqgøu''Vj g''O wtf gtu'kp''yj g'Twg''O qt i wg''cr r gctgf 'kp'' vtcpurcvkqp''kp'3: ; 4"cpf 'Go krg'\ qrcøu''Vj g'F tgthwu''Chtctt'\kp''3: ; 0

## Vj g'ty gpvlgvj 'egpvvt {

#### Vtcpurcvkqp'dghqtg'Y qtrf'Y ct'Vy q

F wt kpi ''y g'hktuv'j crh'qh'y g''y gpvkgyj ''egpwt { .''c''pwo dgt ''qh''gzegngpv'\tcpurcvkqpu'y gt g''r wdrkuj gf ''d { ''uej qrctu'' y j q''y gt g''guvcdrkuj gf ''r qgwi'kp''y gkt ''qy p''t ki j v0'Vj g''Vtcpu{rxcpkcp''r qgv'I gqti g'EQ DWE''\tcpurcvgf ''htqo '' I gto cp''cu'y gm'cu'c''pwo dgt ''qh'qyj gt ''rcpi wci gu. ''kpenwf kpi ''I tggm'\stJ qo gtøu'\Qf { uug{+:''Ncvkp'\stXkti krøu'Cgpgkf'' cpf ''I gqti keu+:''Ucpurtky'\stTki / Xgf c=\stMcnlsf cucøu'\U'' mwpvcrc. 'Tco c{cpc''cpf ''Ocj cdj ctcvc+:''cpf''}

Kichcp0J ku'\tcpurc\kqp'qh'F cp\gøu'\Vj g'Fkxkpg'Eqo gf {"y cu'eqpukf gtgf 'qpg'qh'\j g'dguv'gzku\kpi 'xgtukqpu'd{ 'E0 Vci nlexkpk "c"y gm/mpqy p"Klenkep"uej qret"y j q"j ef "c"ur geken'kpvgtguv'kp"Tqo epkep. "Cpqvj gt"Vtepu{nxepkep." vQ0 Kqukh'\*3: 9763; 35+.'y cu'eqpukf gtgf 'qpg'qh'y g'dguv'tcpurcvqtu'qh'I gto cp'r qgvt { 'f wtkpi 'j ku'vko g0J g''tcpurcvgf " J gkpg. "I qgyj g. "Uej kmgt. "Dwti gt. "cpf "Ngpcw0J g"cnuq" \tcpuncvgf "y qtm'd { "\y g'J wpi ctkcp" r qgv'Rgv/2kk" \times Vj g" Crqung+"cu"y gm"cu"Uj cngur gctgøu"Tqo gq"cpf "Lwnkgv"cpf "C"O kf uwo o gt "P ki j vøu"F t gco O'Vj g"Knkcf "cpf "Qf { uug{" y gtg"tcpurcvgf "lip"r gthgev"j gzco gvgtu"d{ "I @ wtpw@Q yi gt"y tkvgtu"tcpurcvgf "qt"tgvtcpurcvgf "f wtlipi "yi ku"r gtliqf" kpenwfg"Lwngu"Xgtpg. "Quect"Yknfg. "Oknjckn' Ngtoqpvqx. "Kkcp"Iqpejctqx. "Tckpgt"Tknng. "Gwigpg"QøPgkn" Htcp±qku'Xkmqp. 'O ctm'Vy ckp. 'O ctegn'Rtqwuv.'cpf 'Dcn ce0'Vj gug'\tcpurc\kqpu'y gtg'\j g'tguwn\'qh'r gtuqpcn' chłok ("cpf "kpf kxkf wcn'ej qkeg"qp" y g'r ctv'qh' y g'tcpurc qtu'tcy gt" y cp"qh'qhhkekcn'r rcppkpi O'Rwdrkuj gtu' y gtg" o clon{ 'kpygtguygf 'kp'r tqf wekpi 'hwetcykxg.'r qr wrct'hkgtcwtg0J qy gxgt.'j ki j 's wchky{ 'hkgtcwtg'eqwrf 'cnyq'dg'' uweeguuhwt0Qpg"qh"yj g"o quv"r qr wrct "cwj qtu"f wtkpi "yj ku"r gtkqf "y cu"Y 0Uqo gtugv'O cwi j co <cro quv'52"qh"j ku" vkurgu'y gtg''tcpurcvgf ''d{ ''y g'Tqo cpkcp''y tkgt'III kwtgc''cpf 'r wdrkuj gf ''dgwy ggp''3; 52''cpf ''3; 670 Vtcpurcvkqpu'htqo "J wpi ctkcp'y gtg'r ctvkewrctn{ 'y gm'tgegkxgf 'f wtkpi 'y ku'r gtkqf 0'Vj ku'eqwrf 'dg''gzr rckpgf 'd{ 'y g" gzknygpeg"qh"c"hcti g"eqtg"qh"uj ctgf "grgo gpw"cpf "xcnwgu"kp"yj g"j knyqt { "cpf "yj g"f ckn( "hkhg"qh"Tqo cpkcpu"cpf " J wpi ctkcpu0'Vj g'uqekcn'yj go g'y cu'vqr kecn'kp''dqyj ''eqwpvtkgu0'Hqt'Tqo cpkcpu.''yj g'tgxqnwkqpct{''xgtugu''qh'yj g'' J wpi ctkcp'y tkxgt"U pfqt'Rgv//nk'ecttkgf "o wej ''y g'uco g'o guuci g''cu''y cv'fgtkxgf ''d { ''J wpi ctkcpu'ntqo ''y g'rqgxt { '' qh'y g'Tqo cpkcp'y tkgt'I gqti g'EQ DWE0'Vj ku'uwo wrcvgf "tcpurcvkqp"cevkxkv{ 'dgw ggp'y g'w q'rcpi wci gu. 'cv' wło gu'gxgp'ci ckpuv'qhhekcn'r qnkwkecn' tgpf uO'Nkdgtcm( 'o kpf gf 'kpvgmgewcnu'y gtg'eqpuekqwu'qh' y g'eqpvtkdwkqp'' o cf g'd{ "\tcpurc\kqpu"kp"\gto u'qh'cej kgxkpi "dgwgt"\wpf gtuvcpf kpi "cpf 'j cto qp{ "dgw ggp"\j g"\w q"r gqr rgu." gur gekcm{ "ci ckpuv'i tqy kpi 'hcuekuo 'kp'dqyj "eqwpvtkgu0kp'3; 57. 'hqt'kpuvcpeg. "I 00 q qkw. 'Nqtf'0 c{qt"qh'Qtcfgc." qhhgtgf "c"tcpurcvkqp"rtk g"cu"c"y c{"qh'rtqo qvkpi "o wwcn'wpf gtuvcpf kpi "dgw ggp"Tqo cpkcpu"cpf "J wpi ctkcpu"0" Qpg"qh"yj g"o quv'uweeguuhwrl'tcpurcvqtu"htqo "J wpi ctkcp"f wtkpi "yj ku'r gtkqf "y cu'yj g"Vtcpu{nxcpkcp"r qgv'Qevcxkcp" I QI COJ kuˈxgtukqpuˈqhˈRgv/hk 'Cf { 'cpf 'O cf a ej "\*Vj g'Vt ci gf { ''qh'O cp+'y gtg'qwuvcpf kpi 0

#### Vt cpurc vkqp 'chygt 'Y qt ıf 'Y ct 'Vy q

Y qtrf "Y ct"Vy q"cpf "y g"{ gctu"y j kej "hqmqy gf "kv"dtqwi j v'cdqwv'c"pgy "kuqncvlqp0Dqyi "qtki kpcn'cpf "tcpurcvlf" rksgtcwtg" y gtg"egpuqtgf 0Vj g"3; 72u"y kpguugf "c"i tqy kpi "f go cpf "hqt"hqtgki p"hkgtcwtgu."y kyj "c"f ghkpkg"pggf "hqt"tcpurcvlqpu. "ukpeg"y g"o clqtk/{ "qh"y i g"Tqo cpkcp"r wdrke"f kf "pqv"ur gcmlhqtgki p"ncpi wci gu0O cp{"y tksgtu" tghwugf "vq"r wdrkuj "y gkt"qy p"y qtmu"qp"hkgtct { "qt"o qtcnli tqwpf u."r tghgttkpi "kpuvgcf "vq"uki p"vtcpurcvlqp"eqpvtcewl" y kyj "r wdrkuj kpi "j qwugu0Vj g"tguwn/y cu"y cv'ugxgtcnlo cuvgtr kgegu"cr r gctgf "kp"gzegngpv"vtcpurcvlqpu"f wtkpi "yi ku" r gtkqf 0Hqt"gzco r ng."kp"3; 77"y q"ko r qtvcpv'y qtmu"d{ "I qgyi g"y gtg"r wdrkuj gf "Hcww."vtcpurcvlf"d{ "y g"i tgcv" r qgv"cpf "r j knquqr j gt"Nwekcp"Drci c. "cpf "y g"cwqdkqi tcr j kecn'pqxgn"Htqo "O{"Nklg0Rqgvt{"cpf"Vtwy}."vtcpurcvlf" d{"Vtwy t"xkcpw."cp"qwuvcpf kpi "uej qnct"qh'yi g"ko g0Vtcpurcvlqpu"qh'yi ku'v{ r g'y gtg"yi g"tguwn/qhl'r gtuqpcn" ej qkeg0Qpn("yi g"Twukcp"encukeu"y gtg"tcpurcvlf"u{uvgo cvkecm("kp"c"ugtkgu"qhleqo r ngvg"y qtmu."kpenwf kpi "I qi qn1\*3; 766: +"Ej gmj qx"\*3; 76685+"cpf "Vwti gpgx"\*3; 75684+0Vj g"qpn("pqp/Twukcp"cwj qt"y j qug"y qtmu" y gtg"vtcpurcvgf "cpf"r wdrkuj gf "kp"c"eqo r ngvg"gf kkqp"y cu"Uj cngur gctg"\*3; 77685."kp"33"gzegngpv'xqnwo gu"d{"N0 Ngxkej k'cpf" "F Gr wguew+0

Vj g"gctn{"3; 82u"dtqwi j v'c"i tcf wen'tger r tekuen'qh'Tqo epkep"epf "hqtgki p"hkgtewtg0J ki j "s wenk{"tcpurevkqpu" er r gctgf "qh'qwurepf kpi "y qtmu'qh'rkkgtewtg"htqo "em'qxgt" j g"y qtnf 0Vj g"o ci c| kpg"*UgeqnwiZZ*"\*Vj g"Vy gpvkgyj " Egpwt {+"cpf "vj g"Gf kwtc"r gpvtw'Nkgtewt "Wpkxgtuen "\*Rwdnkuj kpi "J qwug"hqt"Y qtnf "Nkgtewtg."revgt"mpqy p"cu" Wpkxgtu+"r re{gf "cp"ko r qtvcpv'tqng"kp" j ku'r tqeguu0Dgvy ggp"3; 83"cpf "3; : 2."Wpkxgtu'r wdnkuj gf "4.922"vkngu"d{" 4.322"f khtgtgpv'cwj qtu0Kp" j g"hqmqy kpi "{ getu. "pwo gtqwu"qvj gt"r wdnkuj kpi "j qwugu'y gtg"ugv'wr ."hqt"gzco r ng" O kpgtxc. "Cmlevtqu."cpf "Vj g"Tqo epkep"Dqqn0"Vj gug. "vqi gvj gt"y kj "ur gekenk gf "lqwtpenu'uwej "cu"*Hco knkc."Vj g" Nkytet { "Tqo epke."J qtk qp*"cpf "o cp{"qvj gtu."gpuwtgf "vj ev'em'y g"emuukeu'htqo "gxgt{"eqwpvt{"cpf "gr qej "y gtg" vtcpurevgf 0"Vj gtg"ku"j etf n{ "cp"kpvgtpcvkqpen'y tkgt"y j q"j cu'pqv'dggp"vtcpurevgf "kpvq"Tqo epkep"ev'ngcuv'qpeg."c" lcev'qhygp"

j ki j rki j vgf 'kp'WP GUE Q'tgrqtvu'cpf 'uvcvkurkeu0'Cu'kp'r tgxkqwu'f gecfgu.''y g'o quv'uweeguuhwrivtcpurcvqtu'y gtg'' y tkgtu.''gur gekcm{'r qgvu.''kp''y gkt''qy p'tki j v0

Qpg"qh"yi g"o quv"xcnwcdrg"eqpvtkdwwkqpu"qh"Wpkxgtu"y cu"r wdrkuj kpi "ugo kpcn"y qtmu"kp"yi g"hkgrf u"qh"cguyj gvkeu." r rksgtct { "yi gqt { "cpf "etkkekuo "uqqp"chygt"yi g{ "j cf "cr r gctgf "cdtqcf 0"Vj g"r g"r u"ugtkgu"kpenwf gf "yi g"o ckp"y qtmu" qh"Etqeg. "Ewtvkwu." I gpgwg. "Y gmgm"r geq. "I tgko cu." Mckugt. "Nqvo cp. "Crqpuq. "Ht { g. "Vqo cugxurnk "Xquurgt." \ wo yi qt. "Htkgf tkej." Y cn gn"cpf "o cp{ "qyi gtur0C"uko krct "ugtkgu"y cu"r wdrkuj gf "d{ "yi g"Rqrkxkecn"Rwdrkuj kpi "J qwug" wpf gt "yi g"kxrg" r gk"eqpvyo r qt r cpg" Eqpvyo r qt ct { "If gcur gtu"kupenwf gf "y qtmu"d{ "O ctuj cm'O eNwj cp. "O ctewug." J cdgto cu. "cpf" "Lcur gtu." co qpi "qyi gtur0

Kp'tgegpv'f gecf gu. "vj gtg"j cu'dggp"c'i tqy kpi "kpvgtguv'kp'pqp/Y guvgtp"rkvgtcwtg0U0Cn0I gqti g'r wdrkuj gf "c" eqo r ngvg"vtcpurcvkqp"qh"Dj ci cxcf/I kvc "htqo "J kpf k'kp"3; 93="vj ku'ku'qpg"qh'vj g'o quv'hco qwu'r j krquqr j kecn" r qgo u"qh"vj g"qtkgpvcn'y qtnf 0'Vj g"Cpvqnqi kc "hvgt cwt kk'r t geqnwo dkgpg"\*eqxgtkpi "vj g"rkvgtcwtg"qh'vj tgg"ewnwtgu<" O c{cp. "O gzkecp"cpf "Kpecp+"cr r gctgf "kp"3; 95. "cpf "Cpvqnqi kg"J cknw"\*Icr cpgug"n{tke"r qgvt { "htqo "vj g"ukz vggpvj " vq"vj g"vy gpvkgvj "egpwtkgu+"hqmqy gf "kp"3; 960

Vj g'tgrcvlqpuj kr "dgwy ggp"pcvlqpcni'cpf "vtcpurcvgf "ikwgtcwtg" ku"qlngp"qpg"qh"enqug"kpvgtf gr gpf gpeg0'Y qtmu"d { " I kf g"cpf "Rtqww."y j q"i tgcvn( "kphnwgpegf "vj g"gxqnwkqp"qh"vj g"Tqo cpkcp"pqxgn"kp"vj g"hktw"j cnh"qh"vj ku"egpwt { ." tgo ckpgf "reti gn( "wpvtcpurcvgf "f wtkpi "vj cv"r gtkqf 0D{ "vj g"3; 82u"cpf "3; 92u."vj g"i tqwpf "j cf "dggp"r tgr ctgf "d{ " kpf ki gpqwu"y tkkpi u"cpf "vj gkt"eqo r ngvg"y qtmu"dgeco g"cxckrcdng"kp"vtcpurcvkqp0Wpf gt "vj g"kphnwgpeg"qh"Dcn; ce." vj g"pqxgrkuv"Eg| ct "Rgvtguew"etgcvgf "vj g". Eqo 2 f kg"j wo ckpgø"qh"Tqo cpkcp"uqekgv{ "dgwy ggp"vj g"w q"Y qtm" "Y ctu0" k"y cu"qpn( "f wtkpi "vj g"ugeqpf "r ctv"qh"vj ku"egpwt{ ." y j gp"vj g"Tqo cpkcp"r wdnke"j cf "eqo g"vq"cr r tgekcvg"j ku"qy p" y qtm" y cv"j g"y cu"cdng"vq"r wdnkuj "uweeguulnwn( "j ku"gzegngpv"vtcpurcvkqpu"qh"Dcn; ceøu"\Ng\R^3 tgT qtkqv"cpf " \\ Gwi^2 pkgT tcpf gv0Vj g"r qr wrctks{ "qh"egtvckp"y qtmu"kp"c"hqtgki p"ewnwtg"ku"cnuq"qhngp"ckf gf "d{ "vj g"tgngxcpeg"qh" vj gkt"r qnkkecn'cpf "uqekcn'vj go gu."r ctvkewrctn( "vj gp"vj gug"vj go gu"ecppqv"dg"cf f tguugf "qr gpn( "kp"vj g"kpf ki gpqwu" nkytcwtg0Vj g"ej ctcevgt"qh"vj g"f kevcqt. "f gxgnqr gf "kp"vj g"eqpvgzv"qh"c"wtdwgpv"r qnkkecn'ukwcvkqp. "ku"c"tgewttkpi " hgcwtg"qh"o qtg"tgegpv"Uqwj "Co gtkecp"nkytcwtg."cu"kp"Vj g"Rt gulf gpv'd{ "O ki wgn'Cpi gn'Cuwwt kcu."Vj g"Cwmo p" qh'vj g"Rcvtkctej" "d{ "I cdtkgn'I cte¶c"O "ts wgl ."cu"y gm'cu"y g"pqxgnu"qh'Cnglq"Ectr gpvgt="vtcpurcvkqpu"qh"cm'vj gug" y qtmu'y gtg"xgt { "r qr wrct"wpf gt"vj g"Egcw guew'f kevcytuj kr 0

#### Vtcpurcvkqp'\'ij gqt{'\'vqfc{

Vtcpurcvkqp" yi gqt { "tgo ckpu" equipq "eqppgevgf" y kij "r tcevkeg" kp" Tqo cpkc0O quv'qh' yi g'nkgtcwtg" qp" vtcpurcvkqp" ku" r wdrkuj gf "d { "r tqhguukqpcn' vtcpurcvqtu' qt" vgcej gtu' qh' vtcpurcvkqp0 Vkrgu' uwej "cu" y qy "K'Vtcpurcvgf" Hcwurø' v Drci c"

3; 77+:"-P qvgu"qh"c"Vtcpurcvqtø"F qkpc "3; 94d+"cpf "-Qp"yj g"Hckj hwrlVtcpurcvkqp"qh"Rqgvt {ø"F qkpc "3; :: d+"ctg" i qqf "gzco r ngu"qh"yj gqtgvkecn'uwf kgu"y j kej "ctg"i tqwpf gf "kp"i gpwkpg"\tcpurcvkqp"\cumu0Kp"3; 87."\yj g"o ci c| kpg" \$\$\$UgeqnwrlZZ.\"y j kej "j cu"r wdrkuj gf "y qtmu"d{"yj gqtknvu"uwej "cu"I gqti g"Uvgkpgt."Ik¶Ngx{"cpf "Qtvgi c"{"I cuugv'qp" c"tgi wrct "dcuku."qti cpk gf "c"f gdcvg"qp"I gqti gu"O qwpkpøu"Ngu"r t qdrð o gu"yj ² qt ks wgu"f g"rc "vt cf wevkqp"\"y j kej " o cp{"y gm/npqy p"\tcpurcvqtu"eqpvtkdwgf 0C"xctkgv{"qh"rkpi wkurke."cgunj gvke"cpf "ewnwtcn"kuuwgu"y gt g"f kuewuugf 0' Kp"yj g"\kxrg"qh"j ku"eqpvtkdwkqp"\"q"yj ku"f gdcvg." v0Cwi 0F qkpc "\3; 87+"gzr tguugf "yj g"xkgy "j gnf "d{"c"i gpgtcvkqp" qh"Tqo cpkcp"\tcpurcvqtu\"-F khhewn."Tkun("dwv"pqv"Ko r quukdngø0

Kpvgtguv'kp''tcpurcvkqp''yi gqt{'ku''cnıq'uvko wrcvgf''d{''yi g''pggf''vq''tckp''tcpurcvqtu''cpf''kpvgtrtgvgtu0Xctkqwu'' o cpwcni''cpf''ji cpf dqqmi'ji cxg''dggp''r wdrkuj gf.''cu''y gm'cu''c''pwo dgt''qh''vtcpurcvkqp/qtkgpvgf''hkpi wkurke''uwwfkgu0' F qevqtcn'f kuugtvcvkqpu''qp''yi g''uwdlgev'ji cxg''dggp''r tgugpvgf''cv''yi g''wpkxgtukkgu''qh''Dweji ctguv.''Vko k qctc''cpf''Enwl0' Qxgtcm''ji qy gxgt.''yi g''pwo dgt''qh''r wdrkuj gf''dqqmu''qp''vtcpurcvkqp''tgo ckpu''tgrcvkxgn{''uo cm0

### Vj g'qti cpk/cvkqp'qk'vj g'rtqhguukqp

Vj gtg"ctg"ewttgpvn( "'y q"cuuqekcvkqpu"y j kej "tgrtgugpv"vtcpurcvqtu"cpf "kpvgtrtgvgtu"kp"Tqo cpkc0'Vj g"qnfgt"qh'vj g" y q"ku'vj g"Vtcpurcvkqpu"cpf "Y qtnf "Nkvgtcwtg"Ugevkqp"qh'vj g"Y tkvgtuø"Wpkqp"\*c"o go dgt"qh"HKV+0'Vj g" Rtqhguukqpcn"Wpkqp"qh"Kpvgtrtgvgtu"cpf "Vtcpurcvqtu"\*WRKV+'y cu"guvcdrkuj gf "kp"3;; 2"cpf "ku"tgurqpukdrg"hqt" rtqvgevkpi "vj g"tki j vu"qh"cwj qtu"cpf "rtqo qvkpi "vj g"rtqhguukqpcn"uvcwu"qh"vtcpurcvqtu"cpf "kpvgtrtgvgtu0

### Hwt vj gt 't gcf lpi

Dctkkw'3: 5: ='Eqtpgc'3; 92='F ww'3; 92='Kxc ew'3; 8; ='Mqj p'3; : 2. 'Tqugwk'3; : 80

Lf P QU'MQJ P

# Dkqi tcrj kgu

CUCEJ KI j gqt i j g'\*39:: 63: 8; #0Tqo cpkcp'y tkgt."uej qrct."cpf "tcpurcvqt0Cucej k'r rc{gf "c'o clqt'tqrg'kp" hqwpf kpi "y g'Cecf go kc'O kj krgcpc'kp'K k'y j gtg'j g'wwi j v'o cyj go cvkeu'cpf "ctej krgewtg0J g''cnq'hqwpf gf "y g" htuv'rksgtct{"Iqwtpcni'kp'O qrf cxkc<"Cdkpc'Tqo -pgcue "\*Vj g'Tqo cpkcp'Dgg."3: 4; #'cpf "Cn wc'Tqo -pgcue " \*Vj g'Tqo cpkcp'Hrwg."3: 59#0J ku'rksgtct{"cpf "tcpurcvkqp"cevkxkkgu'ur cppgf "c'y kf g'tcpi g'qh'i gptgu'dw'j g'y cu'' r ctvkewrctn{"f tcy p''vq''ercunkecn'cpf "Y guvgtp'y qtmu0Co qpi "qvj gt'y qtmu."j g''cf cr vgf "Okt yi kilcpf "Ej rqg''d{" Hrqtkcp"cpf "Cn/kt g''d{"Xqncktg0Vqi gvj gt'y kj "vj g'Y cmcej kcp"J grkcf g'Ta f wrguew'cpf "vj g''Vtcpu{rxcpkcp'I 0' Dctkkw.'Cucej k'r rc{gf "c'o clqt'tqrg'kp''gpeqwtci kpi "vj g'Tqo cpkcp'r wdrke''vq'tgcf "vj g'o cuvgtr kgegu'qh'xctkqwu'' ewrwtgu''cpf "vq''cf qr v'vj g'o qtcn'xcnwgu''gur qwugf "kp''y go 0

EQ DWE.'I gqt i g'\*3: 8863; 3: +0Qpg'qh'yi g'i tgcvguv'r qgwu'kp''yi g'j kuvqt { "qh'Tqo cpkcp'rkvgtcwxtg."qhvgp'tghgttgf "vq''cu''÷yi g''r qgv'qh'yi g''r gcucpvuø''cu''y gm''cu''cp''qwwvcpf kpi "vtcpurcvqt"qh'r qgvt { 0J g''y cu''r tqhqwpf n{ "kphrwgpegf "d{ "I gto cp''pgqercuukecn'rkvgtcwxtg''cpf 'Tqo cpkcp''hqmmqtg0Eq dwe''vtcpurcvgf 'htqo ''c''xctkgv{ "qh''rcpi wci gu." kpenwf kpi 'I tggm''Ncvkp."I gto cp. "Kcrkcp''cpf ''Ucpumtkv0

FQUQHVGK'tgcn'pco g'F wo ktw'D tkn = '38456; 5+0'O qrf cxkcp'O gvtqr qrkcp. "vtcpurcvqt "cpf "qpg"qh'vj g'hktw' Tqo cpkcp"r qgvu"qp"tgeqtf 0J g'y cu"grgevgf "Ctej dkuj qr "qh'Kc K'kp"3893"dw'y cu"rcvgt "r tqugewgf "hqt "r qrkkecn' tgcuqpu0F quqhvgkou'xgtukqpu"qh'vj g"Rucngt. "Rucno u"qh'F cxkf." "cpf "qvj gt "tgrki kqwu"o cvgtkcn "kpenwf kpi "c"r tc { gt" dqqn'cpf "c"o kuucn "y gtg"j ki j n( "gzr tguukxg"cpf "dgeco g"gzvtgo gn( "r qr wrct "kp'O qrf cxkc"cpf "vj g"r tkpekr crkvkgu." o cmkpi "kv'r quukdrg"vq"uvct v'eqpf wevkpi "ej wtej "ugtxkegu"kp"Tqo cpkcp"hqt"vj g'hktuv'vko g0

I QI C.'Qewxkcp'\*3:: 363; 5: +0Tqo cpkcp'r qgv.'r qrkkekcp''cpf ''tcpurcvqt''qh'xctkqwu'r qgvu.'kpenwf kpi ''Rgvl/tk'' Cf { "cpf 'O cf a ej 0J g'uwwf kgf 'r j krqrqi { 'kp'Dwf cr guv.'Dgtrkp''cpf ''Rctku0I qi cøu'qwur qngp''xkgy u''qp''y g'' wpkhecvkqp''qh''Vtcpu{ rxcpkc''cpf 'Tqo cpkc''ngf ''vq''j ku'ko r tkuqpo gpv'kp''y g''ekv{ ''qh''U| gi gf ''dwv.'hqrrqy kpi "wpkhecvkqp''kp''3; 3; .''j g''j grf ''ugxgtcrl'o kpkuvgtkcrl'r quvu''cpf ''gxgpwcrn{ ''dgeco g''Rtko g''O kpkuvgt''kp''

3; 5: 0J g'y cu'cy ctf gf 'ý g'P cykqpcn'Rtk g'hqt 'Nkgtcwtg'kp'3; 46''cpf 'j ku''y cpurcykqp''qh'O cf  $^a$  ej øu''Vtci gf { ''qh'' Ocp''ku'uykm'eqpukf gtgf ''qpg''qh''y g''dguy'kp''gzkuygpeg0

Lf P QU'MQJ P

# Twukep'ttef kkqp

Twukcp'ku'r ctv'qh'vj g''Gcuv'Urcxqpke'hco kn{"qh'hcpi wei gu'cpf "qpg'qh'vj g''ukz'qhhkekch'hcpi wei gu'qh'vj g''Wpksgf "
Pevkqpu0'Vj g''j kurqt { "qh'o qf gtp'Twukc'f evgu'deem'vq'vj g''pkpvj "egpwt { "CF." y j gp"c''pwo dgt "qh'Gcuv'Urcxqpke"
vkdgu'wpksgf "vq'hqto "c''pgy "uvcvg''mpqy p''cu'Mkgxcp'Twu."chygt''vj g''pco g''qh'ku''ecr kscn'0Nevgt''vj g''eqwpvt { øu''
r qrkskecn'egpvtg'o qxgf ''vq'O queqy .'y j kej "dgeco g''vj g''ecr kscn'qh''c''wpksgf "Twukc''wpf gt "Kscp''vj g''I tgev'kp''vj g''
hkhyggpvj "egpwt { 0Eqpvcev'y kyj "Y guvgtp'Gwtqr g''y cu'kpkskevgf "kp"vj g''ugxgpvggpvj "egpwt { "d{ "Rgvgt''vj g''I tgev."
y j q''guvcdrkuj gf "vj g''gf wecvkqpcn'u{ uvgo "cpf "dwkn'/c''pgy "eer kscn''Uv'Rgvgtudwti "\*revgt''vq''dgeqo g''mpqy p''cu''
Ngpkpi tcf +0Rqrkskecn'wptguv'wpf gt "vj g''uctu''ewmo kpevgf "kp"c''r gtkqf "qh'ekxkri'y ct''\*3; 3: 644+:"chygt''y j kej "vj g''
Eqo o wpkruu''guvcdrkuj gf "eqpvtqn'qh'vj g''eqwpvt { 0V j g''gpf "qh'Y qtnf "Y ct''Vy q''ucy "vj g''tkug'qh'vj g''Uqxkgv'Wpkqp''
cu''qpg''qh'vj g''y q''o clqt''y qtnf "r qy gtu0'Vj g''o kf/3; : 2u''ucy "vj g''dgi kppkpi "qh'c''r gtkqf "qh''uqekcn'cpf "r qrkskecn''
tghqto .'mpqy p''kp"vj g''Y guv'cu''r gtguvtqknc."cpf "vj g''r tqi tguukxg''f kugpi ci go gpv'qh'T wurkc''htqo "Gcuvgtp'Gwtqr g0
Vj g''tgeqtf gf "j knvqt { "qh''tcpurcvkqp "kp"T wurkc''ku''cu''nqpi "cpf "tkej "kp"gxgpvu0'Vj g''hqmy kpi "ku''c''dtkgh'qxgtxkgy "qh"
vj g''o ckp''tgpf u'gxkf gpv'f wtkpi "f khtgtgpv'j knvqtkecn'r gtkqf u0

### Vt cpurc wqp'lp'Mlgxcp'Twu

Y tkkpi ."iksgtcwtg"cpf "tcpurckqpu"y gtg"kpvtqf wegf "kp"Mkgxcp"Twu"kp"c"tgrckxgn( "o cwtg"hqto 0'Kp"y g"{gct": 86." c"I tggmlr tkguv'pco gf "E[ TKN"cpf "j ku"dtqvj gt"O GVJ QF KWU."y j q"y gtg"ugpv'd{ "vj g"D{| cpvkpg"go r gtqt"vq"f q" o kuukqpct{"y qtmlco qpi "vj g"Urcxqpke"r gqr rgu."dgi cp"y kj "vj g"etgcvkqp"qhlc"pgy "cm j cdgv"pqy "mpqy p"cu" E{tkmle+"y j kej "vj g{ "wugf "vq"tcpurcvg"c"pwo dgt"qhltgrki kqwu"vgzwu"htqo "I tggmlkpvq"Qnf "Ej wtej "Urcxqpke0" Co qpi "vj gkt"hktuv'vtcpurcvkqpu"y gtg"vj g"P gy "Vguvco gpv."vj g"Rucngt"cpf "vj g"Rtc{gt"Dqqn0Chygt"Twu"go dtcegf "Ej tkmkcpkv{"kp"; : : ."pwo gtqwu"vtcpurcvkqpu"y gtg"o cf g"vq"i kxg"vj g"eqpxgtw"ceeguu"vq"vj g"r j krquqr j kecnlcpf "gyj kecnlf qevtkpgu"qh"vj g"pgy "tgrki kqp"cpf "vq"vj g"ej wtej øu"tkwcmi"cpf "ewuvqo u0"Vj gug"kpenwf gf "c"xctkgv{"qh" i gptgu."uwej "cu"Nkxgu"qh"Uckpvu."J qo krlgu."Ej tqpkergu"cpf "vj g"irkng0Cr qet{rj c"cnuq"gplq{gf "i tgcv"r qr wrctkv{" y kij "vj gkt"uvqtkgu"qh"o ktcergu."hcpvcukgu"cpf "gzqvkekno ."uqo gvko gu"dqtf gtkpi "qp"y j cv'y cu"rcvgt"ecngf "hkevkqp0' O quv'qh"vj gug"tcpurcvkqpu"y gtg"o cf g"kp"Dwri ctkc"dw'y gtg"wugf "kp"Twu0"Vj g"tcpurcvqtu"qh"tgrki kqwu"dqqmu" wuwcm{"qr vgf "hqt"y qtf /hqt/y qtf 'tgpf gtkpi "qh"vj g"uqwteg"vgzv0

C'ueqtg''qh''\tcpurc\kqpu''y j kej ''y gtg''pqv''gzenxukxgn{ ''tgrki kqwu''cpf ''tgrc\kxgn{ ''nguu''rkxgtcn'y gtg''cnuq''o cf g''kp'T wu''cv'' y g''\ko g0Co qpi ''vj go ''y gtg''uwej ''dqqmu''cu''y g'\j kkg''Cpf tg{ c''[ wtqf kxqi q''\*Vj g''Nkhg''qh''Cpf tgk''y g'O cp''qh'' I qf +"Rej grc''\*Vj g''Dgg+"Mquo qi tchk{c''\*Equo qi tcr j {+"cpf "Hk| kqrqi '"\*Vj g''Rj {ukqrqi kuv+''vq''o gpvkqp''Iwuv'c'' hgy 0Qpg''eqpukf gtcdrg''cej kgxgo gpv'y cu''y g''ttcpurc\kqp''qh''Lqugr j "Hrcxkxuvø''Vj g''Lwf cke''Y ct. ''kp''y j kej ''y g'' ttcpurc\qt''uweeguuhwrn{ ''cxqkf gf ''o cp{ ''r kxhcmu''qh''rkxgtcrpguu0}

Kp"yj ku"getn{ "r gtkqf "yj g"\tepure\qtøu"peo g"y cu"pqv"o gp\kqpgf "cu"c"t\wrg."epf "kv"y cu"qh\gp"ko r quukdrg"\q"ue{" y j gyj gt"c"\tepure\kqp"y cu"o ef g"y kyj kp"yj g"eqwp\t{"qt"dg{qpf "kwu"dqtf gtu0}

F wtkpi "y g"ttci ke"{ gctu"qh'y g'O qpi qn'kpxcukqp"\*344: 636: 2+'ttcpurckqpu"eqpvkpwgf "vq"r rc { "c"o clqt"tqrg"kp" uj cr kpi "y g"ewnwtcn'ej ctcevgt "qh'y g"eqwpvt {0O qtg'r ctw"qh'y g"Dkdrg"y gtg'ttcpurcvgf "cpf "uqo g"qh'y g"r tgxkqwu" tcpurcvkqpu"y gtg'tgxkugf "qt"tgr rcegf "y ky "pgy "qpgu0Crqpi ukf g"tgrki kqwu"tcpurcvkqpu."tcpurcvgf "xgtukqpu"qh" pqp/tgrki kqwu"o cvgtkcn'i tcf wcm{ "dgi cp"vq"cr r gct."kpenwf kpi "*Knqt kl c "Kpf kl unqi q"Mqt qrgxuxxc*"\*C"Vcrg"qh'y g" Kpf kcp"Mkpi f qo +"cpf "Vtq{cpurc{c"Xqkpc"\*Vj g"Vtqlcp"Y ct+0O quv'tcpurcvkqpu"y gtg"o cf g"htqo "I tggm"uqo g" r tguwo cdn{ "wugf "Ncvkp"cpf" Qrf "J gdtgy "uqwtegu0

Vj ku'r gtkqf "cnuq"y kpguugf "vj g'i tcf wcn'hqto cvkqp"qh'vj g'T wuukcp"rcpi wci g"cu'c'tguwn/'qh'o wwcn'kphnwgpeg" dgw ggp"Qnf "Ej wtej "Uncxqpke"cpf "vj g'r gqr ngøu'xgtpcewrct0J qy gxgt."tgnki kqwu'vgzw'eqpvkpwgf "vq"dg"vtcpurcvgf "

kpvq''Qrf''Ej wtej ''Urcxqpke.''y j kej ''pqdqf { ''ur qng''qwukf g''ej wtej ''ugtxkegu0Cv''y g''uco g''ko g.''eqpvcev'y ky ''qy gt'' eqwpvtkgu''tgs wktgf ''y g''tcpurcvkqp''qh''r qrkskecn'cpf ''dwukpguu''f qewo gpvcvkqp.''cpf ''j gtg''y g''pgy 'Twuukcp''rcpi wci g'' dgi cp''vq''i ckp''i tqwpf 0Cr ctv'htqo ''tcpurcvkqpu.''qtki kpcn'vgzvu''f wtkpi ''y ku'r gtkqf 'y gtg''y go ugrxgu''cnuq''y tkwgp''kp'' c''o kzwtg''qh''Urcxqpke''cpf ''Twuukcp0

## Vt cpurc vkqp'kp'tj g'tikz vggpvj 'cpf 'tigxgpvggpvj 'egpvwt kgu

Htqo "vj g"ukzvggpvj "egpwt { "qpy ctf u." O queqy "dgi cp"vq"go gti g"cu"vj g"r qrkkecrl'cu"y gm"cu"vj g"tcpurckqp"egpvtg" qh'y g'eqwpvt {0'Korqtvcpv'\tcpurcvkqpu'y gtg'pq'nqpi gt'cpqp{o qwu.'cpf 'y gkt'eqpvtkdwkqp'\q'y g'eqwpvt {øu' ncpi wci g'cpf "ewnwtg"i ckpgf "o qtg'tgeqi pkkqp0'Vj wu'kp'3737"Dcukn'KKK'vj g'I tcpf "Rtkpeg'qh'O queqy ."cungf 'hqt" c'hgetpgf "\tepurevqt'\q'dg'ugpv'\q'O queqy 'htqo 'c'I tggm'o qpeuvgt {0Vj g'o ep'eco g'\q'O queqy 'kp'373: 'y ky 'c' I tggm'go dcuu{ "cpf "dgeco g"mpqy p"cu" O CZKO "VJ G"I TGGMOF wtkpi "vj g"tguv'qh'j ku hkhg" j g"f kgf "kp" 3777" qt" 3778+j g'y qtmgf 'cu'c'\tcpurcvqt'qh'tgrki kqwu'dqqmu'cu'y gm'cu'uqo g'pqp/tgrki kqwu'\gzvu0Kp''cffkkqp.'j g'tgxkugf 'c' pwo dgt "qh"gzkukpi "tcpurckqpu"cpf "cffgf"eqo o gpvctkgu"vq"vj go 0°C v"hktuv."j g"mpgy "pgkvj gt"Twuukcp"pqt"Qnf" Urcxqpke"cpf "j ku'tcpurcvkqpu'y gtg"o cfg"kp"y q"urci gu<j g'tcpurcvgf 'htqo "I tggmlkpvq'Ncvkp"cpf "j gp'j ku" cuukucpvu''tcpurcygf "yj g''Ncvkp''yzv'kpvq''Qrf "Urcxqpke0'Kp''j ku'tgxkukqpu''qh''qrf ''tcpurcvkqpu.''j g''qhygp''ki pqtgf ''mpi / guvcdrkuj gf "tcf kkqpu"cpf "uwhgtgf "ceewuckqpu"qh"j gtgu{"cpf "drcur j go {00 czko "yj g"I tggmly cu"cnuq"c"r tqrkhe" y tkigt. "gf wecyqt"cpf "rj kiquqrj gt0"kp"j ku'y tkikpi u'y g'ecp"hkpf "pwo gtqwu'uvcygo gpwi'qp"vj g"ctv"qh"vtcpurcykqp. "cpf" yj gug'tgrtgugpv'vj g'hktuv'tgeqtfgf"gzrqukkqp"qp"vjg"uwdlgev'kp"Twuukc0Jg'kpukuvgf"qp"vjg'pggf"hqt"c"ectghwrl cpcn(uku'qh'yi g''uqwteg''yzv'kp''qtf gt''vq''i tcur ''cm'kvu''pwcpegu''cpf ''cmgi qtkgu0'Vq''ectt { ''qwv'uwej ''cp''cpcn(uku.''yi g'' vtcpurcvqt"j cf "vq"r quuguu"pqv"qpn("i qqf "h\pi wkurke"dwv"cnuq"gzvgpukxg"r j krqrqi kecn'mpqy rgf i g"cpf "j cf "vq" wpf gt vcmg"c"i tgcv"f gcn"qh"r tgr ctcvqt { "y qtn000 czko" "dcemgf" wr "j ku"r tguetkr vkqpu"y kyj "cor mg"qdugtxcvkqpu"cdqww" I tggm/xqecdwrct { . "tj { vj o kecn'qti cpk| cwkqp"cpf "r j qpgwle" hgcwxtgu. "y j kej "y gtg" vq"dg"ceeqwpvgf "hqt" kp" we will on the problem of the prortqrgt"pcogu"dww"cnuq"kpenwfgf"uqog"Ncvkp"cpf"Jgdtgy"pcogu0

Cnj qwi j "j g'Twuukcp"uej qrctu"qh'j g''ko g''uggo "vq"j cxg"cntgcf { "hqto gf "uqo g'kf gcu''cdqw''j g'pggf 'hqt''j g'' vtcpurcvqt "vq"j cxg"c"r gthgev'eqo o cpf "qh'j g''w q''rcpi wci gu''cpf "gzvgpukxg''dcemi tqwpf "mpqy ngf i g."kp"r tcevkeg" o quv''vtcpurcvqtu''rcengf "r tqr gt "gf wecvkqp0"Vj gkt "mpqy ngf i g''qh'rcpi wci gu''cpf "j g'tguwnkpi "vtcpurcvkqpu''qhvgp" nghv'o wej "vq''dg''f guktgf 0

Kp"yi g"ugxgpvggpyi "egpwt{."c"i tgcvgt"pwo dgt"qhi'vtcpurcvkqpui'qhi'r tgf qo kpcpvn{"pqptgrki kqwu"o cvgtkcni'dgi cp"vq" cr r gct0'Uej qrctn{"tcpurcvkqpui'kpenwf gf "vqr keu'kp"cuvtqpqo {"cpf "cuvtqrqi {."ctkij o gvke"cpf "i gqo gvt{."cpcvqo {" cpf "o gf kekpg."cu"y grn"cu"f guetkr vkqpui'qhi'xctkqwu"cpko cnu0'Uqo g"vtcpurcvkqpu"eqwrf "dg"f guetkdgf "cu"y qtmu"qhi" nkvgtcwtg"kp"yi gkt"qy p"tki j v0'Cnuq"f wtkpi "yi ku"egpwt{."dkrkpi wcn'f kevkqpctkgu'y gtg"eqo r krgf "hqt"yi g"httuv'vko g"vq" j grr "vtcpurcvqtu"kp"yi gkt"y qtmx"Ncvkp/I tggnrUrcxqpke."Rqrkuj /Urcxqpke."Twuukcp/NcvkpUy gf kuj "cpf "qvj gt" eqo dkpcvkqpu0

Vtcpurcytu'qh''y ku'r gtkqf 'hgrikpvq'hqwt'i tqw u0Hktuv.'y gtg'y gtg'uvchh'tcpurcytu'kp'xctkqwu'cf o kpkntcvkxg" f gr ctvo gpw0Vj gug'y gtg'o quvn( 'hqtgki pgtu'\*Rqrgu.'I gto cpu.'F wej o gp+'qt'pcvkxgu'htqo ''y g'uqwy gtp''qt'' y guvgtp''r ctwi'qh'y g'eqwpvt{0Cu'qhvgp''cu'pqv''y g{ ''j cf ''c'i qqf ''eqo o cpf ''qh'ercuukecn'repi wei gu'qt'qh'Rqrkuj ''dw'' y gkt ''mpqy rgf i g'qh'T wurkcp''cpf ''Qrf ''Urcxqpke''y cu'xgt{ ''uecpv0Vj g{ 'y gtg''r tqdcdn( ''cuukrvgf ''d{ ''uetkdgu.''y j q'' y tqvg''f qy p''cpf ''eqttgevgf ''y gkt''tcpurcvdqpu0Vj g''ugeqpf ''i tqwr ''y cu'uo cm''cpf ''eqpukrvgf ''qh'c'hgy ''o qpmu'y j q'' j cf ''c'uej qrctn( ''dcemi tqwpf ''cpf ''tcpurcvgf ''qpn( ''tgrki kqwu''cpf ''f kf cevke''dqqmu'htqo ''Ncvkp''cpf ''I tggn0Vj g''dguv'' mpqy p''co qpi ''y go 'y gtg''Gr kr j cpkwu.''Urcxkpg| m{ .''Ctugpkwu''y g'I tggm''cpf ''F kqp{ukwu''y g'I tggn0Vj g''y kff '' i tqwr ''y cu'y g''ncti guv''cpf ''ku''o go dgtu''eqwf ''dg''f guetkdgf ''cu'r ctv'vko g''\tcpurcvqtu'y j q''qeecukqpcm( ''o cf g''qpg'' qt''y q'\tcpurcvkqpu''kp''y gkt''ur ctg'\ko g0Hkpcm{ .''y gtg'y gtg''\tcpurcvqtu'y j q'y qtrngf ''qp''y gkt''qy p'kpkkcvkxg''cpf '' ej qug''y g''uqwteg''yzxu''y g{ ''y cpvgf ''q''\tcpurcvg0Co qpi ''y go ''y gtg''uqo g''cwgpf cpwu'qh''y g''uct.''hqt''gzco r rg'' Cpf tgk'O cwggx.''Dqi f cpqx''cpf ''Rtkpeg''Mtqr qvnkp0

### Vt cpurcvkqp'kp'tj g'gki j vggpvj 'egpwt {

Vj g"gki j vggpvj "egpwxt { "r tqxgf "f gekukxg"kp"vj g"f gxgmqr o gpv"qh"vtcpuncvkqp"kp"T wuukc0"Rgvgt"vj g"I tgcvøu"r qnkkecn" tghqto u'i tgcvn("gzrcpf gf "Twukcøu"geqpqo ke"cpf "ewnwtcn'eqpvcevu"y kyj "Gwtqrgcp"eqwpvtkgu."cpf 'vj ku'etgcvgf "c" f go cpf 'hqt'pwo gtqwu'\tcpurc\kqpu'qh'uekgp\khke'cpf '\gej pkecn'\gzvu.''cu'y gm'cu'y qtmu'qh'hke\kqp0'Vtcpurc\qtu' y gtg'pqy "gzr gevgf 'vq'r tqf weg'y qtm'vq'j ki j gt'uvcpf ctf u0'Vuct'Rgvgt'kuuwgf "c'ur gekcn'f getgg'qp'vtcpurcvkqp" f go cpf kpi "c"hckj hwrltgpf gtkpi "qh"yj g"qtki kpcrlugpug0"Vj ku"y cu"c"r gtkqf "f wtkpi "y j kej "yj g"T wuukcp"ncpi wci g" dgi cp"vq"f gxgmr "ku"qy p"rkgtct { "o qf gnu"cpf "o cp { "gprki j vgpgf "T wuukcpu"ucy "\tcpurc \kqp"cu"c"o gcpu"qh" gptkej kpi "yj gkt 'hopi wci g''cpf "qh''cuugt kpi 'kku''qtki kpcrkv{ "cpf 'kku''gzr tguukxg''r qvgpvkcr0 O knj ckrlNQO QP QUQX. "vj g"i tgcv'T wuukcp" uekgpvkuv'cpf "r qgv. "r nc { gf "cp" qwuvcpf kpi "tqng" kp" vj ku 'r tqeguu0' Nqo qpquqx"cpf "qyj gt"r tqo kpgpv'y tkvgtu"f wtkpi "yj ku'r gtkqf."uwej "cu'C (RO'Uwo ctqmqx"cpf "XOMO VTGF ICMQXUM[ .'r tqf wegf "o cp{ "tcpurc ldqpu.'r tgf qo lpcpvn( "qh'r qgvt {0'Vj g{ "qhvgp"uwr r ngo gpvgf "vj ght" vtcpurcvkqpu'y ky "vj gqtgvkecn'f kuewuukqpu."gzr nckpkpi "y j { "vj g{ 'tgpf gtgf 'vj g'uqwteg' vgzv'vj g'y c{ "vj g{ 'f kf "cpf " go rj cult kpi 'y g'i tgcv'xcnwg'qh'y g''tcpurcvqtøu'y qtm'cpf 'kw'etgcvkxg'pcwtg0 C'pgy 'uvci g'kp''tcpurcvkqp'cevkxkv{ 'dgi cp''vq'fgxgrqr''kp''vj tgg'fktgevkqpu0Hktuv.''vtcpurcvkqp''dgi cp''vq''dg'' kpurkwukqpcnk gf. "y ky "pgy "urtwewtgu"go gti kpi "\q"qti cpk g"cpf "uwr gtxkug"y g"y qtn0C"i tqwr "qh"\tcpurc\qtu" y gtg"cuugo drgf "kp"Vuct "Rgvgtøu "Hqtgki p"Eqrrgi kvo."cpf "kp"3957" yi g"UV Rgvgtud wti "Cecf go { "qh" Uekgpeg" guvedrkuj gf ''y g'Twuukep'Cuugo dn{. ''y j kej ''y cu''y g'hktuv'r tqhguukqpen'qti epk evkqp''qh''\tepurevqtu0'Nqo qpquqx.'' Vtgf kcmqxum("cpf"c"hgy "qvj gt"o go dgtu"qh"vj g"Cecf go {"y gtg"cevkxg"kp"vj g"Cuugo dn(."y j kej "j cf"c"dqf {"qh" uvchh'tcpurcvqtu0Vj g'Cuugo dn{ 'ugrgevgf 'dqqmu'hqt''tcpurcvkqp. 'rckf 'f qy p'uqo g'twrgu'cpf 'r tkpekr rgu'cpf '' rtqf wegf "etkklecn'tgxkgy u'qh'y g'y qtm'r gthqto gf O'Kt'y cu'cnuq'kpxqnxgf 'kp''tckpkpi 'hwwtg''tcpurcvqtuO'Vj g'' Cecf go { "ugv"wr "c"hcpi wci g"uej qqrly j qug"i tcf wcvgu"qhvgp"dgeco g"qhhkekcrl\tcpurcvqtu0Vj g"i gpgtcrl\tgs wktgo gpv" cv'y g'vko g'y cu'y cv'c'vtcpurcvqt" gf 'vq'dg'cdrg'vq'vtcpurcvg'htqo 'cv'rgcuv'y tgg'rcpi wci gu<'Ncvkp.'I gto cp'cpf'' Htgpej O'Uqo g'uwf gpui'y gtg'ugpv'd{ ''y g'Cecf go { ''vq'uwf { "ircpi wci gu'cpf 'uekgpeguø'cdtqcf O'Gzco kpcvkqpu" y gtg'j grf "vq"cuuguu" y g'r tqhguukqpcn'r gthqto cpeg"qh' \tcpurcvqtu0 Vj g'Cecf go { "cnuq" \tkgf "\q'uvko wrcvg'r wdrke" kpygtguv'kp''tcpurcykqp0'Kp''396: ''kwi'Rtgukf gpv'cppqwpegf ''cp''qtf gt''htqo ''vj g''Vuctkpc''Grkucdgyj ''vq''uvgr ''wr ''vj g'' vtcpurcvkqp"qh"pqp/tgrki kqwu'\*ugewrct+"dqqmu0Ncvgt."vj g"Cecf go {"Ej cpegt{"rwdrkuj gf"cp"crrgcn"vq"vj g" i gpvnghqmlcpf 'r gqr ng'qh'qvj gt 'tcpmuø'vq'r tqf weg'vtcpuncvkqpu0KV'y cu'f wtkpi 'vj ku'r gtkqf 'vj cv'vtcpuncvqtu'dgi cp'' vq'tgegkxg'tgi wrct'tgo wpgtcvkqp'hqt'vj gkt'y qtn0

Kp'398: .''vj g''Uqekgv{ 'hqt''vj g''Vtcpurcvkqp''qh''Hqtgki p''Dqqmu'y cu''guvcdrkuj gf ''y kvj ''336''o go dgtu="co qpi ''vj go '' y gtg''uwej ''go kpgpv'r gtuqpcrkxkgu''cu''Vtgf kcmqxum{.''Uwo ctqmqx''cpf 'Tcf kuj ej gx0'Vj g''Uqekgv{ ''gzkuvgf 'hqt''36'' { gctu''cpf ''r tqf wegf ''o cp{ ''rkvgtct { ''tcpurcvkqpu="kv''cmq''uvko wrcvgf ''f kuewuukqpu''qp''vj g''vj gqtgvkecn'r tqdrgo u''qh'' vtcpurcvkqp0

Vj g'ugeqpf "f ko gpukqp"qh'vj ku'pgy 'uvci g'qh'vtcpurcvkqp''cevkxk/ 'kpxqnxgf 'c'ej cpi g'kp''yto u'qh'vj g'ugrgevkqp'qh'' dqqmu'vq'dg''vtcpurcvgf 0C v'vj g'wxtp''qh'vj g'egpwxt {.''vtcpurcvkqpu'qh'ercunkecn'cwoj qtu'dgi cp'vq'dg''uwx r ngo gpvgf 'd{" c'i tgcv'pwo dgt'qh'dqqmu'qh'c'r tci o cvke'pcwxtg='vj gug'y gtg'pggf gf 'vq'uwx r qtv'vj g'ci g'qh'tghqto 0'Vj g'r tqeguu'' y cu'ceeqo r cpkgf 'd{"c'ej cpi g'kp'vj g'uqwteg''rcpi wci guz'Rqnkuj 'vgz vu'pqy 'mquv'vj gkt'r qr wctkv{ 'cpf 'vj g'go r j cuku'' i tcf wcm{ 'uj khngf 'vq'o qf gtp'Gwtqr gcp''rcpi wci guô o ckpn( 'Htgpej .''I gto cp''cpf 'Gpi nkuj 0 Vgej pkecn'vtcpurcvkqpu''rcyt''nquv'vj gkt''r tgf qo kpcpv'r qukkqp''cpf 'hkgtct{ 'vtcpurcvkqpu''eco g'vq''qeewr { 'vj gkt''r nceg0' Uqekn'tghqto u'uvko wrcyf 'ewnwtcn'hkg.''cpf 'nqecn'hkgtcwtg'y cu'pqv'{ gv'cv'c'uvci g'vj gp''ka'eqwrf 'hwhkn'vj g'' ewnwtcn'pggf u'qh'T wulkcp'uqekgv{ 0'Nksgtct { 'vtcpurcvkqpu'y gtg''gzr gevgf 'vq'hkm'vj g'i cr 'cpf 'vq'o ggv'ko r qtvcpv' uqekcn'cpf 'ewnwtcn'pggf u0'Vtcpurcvqtu'tgi ctf gf 'vj gkt'y qtm'cu'c'ugtxkeg'vq'vj gkt'eqwpvt{ .''cpf 'vj g{ ''gzr tgungf 'vj ku'' dgnkgh'kp'hqtgy qtf u'cpf 'r tghcegu'vq'vj gkt''tcpurcvkqpu0'Vj g{ ''dgnkgxgf 'vj cv'vj gkt''o knukqp'y cu'vq''gpnki j vgp''cpf '' kputvev'vj gkt''eqo r cvtkqvu.''vq''ugv'o qtcn'ucpf ctf u'cpf 'vq''etgcvg'c'pgy 'Twnukcp''hksgtcwtg0'Htqo 'vj cv'vko g''qp'' nksgtct{ ''tcpurcvkqpu''cy c{ u'gplq{gf 'c'j k j 'uvcwu'kp'' Twnukcp''ewnwtg0}

Vj ku'pgy 'cy ctgpguu'qh'vj g'uqekcn'ko rqtvcpeg'qh'vtcpurcvkqp''cpf 'vtcpurcvqtu'eqpuvkvwgf''

y g''y ktf ''ej ctcevgtkurke'hgcwtg''qh''y g''r gtkqf 0'Vtcpurcvkqp''y cu''pqy ''eqpukf gtgf ''c''nkpf ''qh''etgcvkxg''y tkkpi .''pq''nguu'' y qtyj { ''qh'tgur gev''y gp''qtki kpcn'hkgtcwtg0'Vj g''tcpurcvqt''y cu'tgi ctf gf ''cu''c''tkxcn'qh''y g''uqwteg/vgzv''cwj qt.''y kyj '' y g''tcpurcvgf ''vgzv'dgkpi ''gzr gevgf ''vq''cur ktg''vq''j ki j gt''uvcpf ctf u''cpf ''gxgp''vq''uwtr cuu''y g''uqwteg''vgzv''kp''vgto u''qh'' ctvkurke''s wcrkv{0

Vj g'gki j vggpyi "egpwt { "cnq"y kpguugf "yj g'go gti gpeg"qh"r qgtt { "tcpurc'kqp"kp"T wuukc."y j kej "rcvt"f gxgqrr gf " kpvq"c"j ki j n{ "guvggo gf "ccvkxk{0VTGF KCMQXUM[..."hqt"kpuvcpeg."o cf g"j ku'tgr wcvkqp"htqo "j ku'tcpurc'kqp"qh"R0' Vcm cpøu"Xq{ci g"c" "po", rg"f &co qwt."y j kej "kpenwf gf "o cp{"xgtugu"y cv"y gtg"uweeguuhwn{ "tgpf gtgf "kp"T wuukcp" tj {o g0Nguu"npqy p"dw"pq "rguu"tgo ctmcdrg"y cu"C0Mcpvgo ktøu"vtcpurc'kqp"qh"J qtcegøu"Gr kwrgu"cpf "qyj gt"r kgegu" qh"r qgvt{"htqo "Ncvkp"cpf "Htgpej 0Gur gekcm{"pwo gtqwu"cpf "xctkgf"y gtg"NQO QP QUQXøU"vtcpurc'kqpu"htqo "Ncvkp."I gto cp. "Htgpej "cpf"I tggm"kp"y j kej "j g"uj qy gf "tgo ctmcdrg"unkm"dqy "kp"tj {o gf "cpf "htgg"xgtug0"J g" r ckf"o wej "cwgpvkqp"vq"tgr tqf wekpi "vj g"tj {o kpi "uej go g"qh"yj g"uqwteg"vgzv."wukpi "xctkqwu"hqto u"qh"ej qtgg"cpf" kco dwu"vq"tgpf gt"yj g"cngzcpf tkpg"qh"Htgpej "gr keu"cpf "vj g"j gzco gvgt"qh"I tggmivtci gf kgu0Cu"T wuukcp"r qgvt {"qh" yj g"vko g"y cu"pqv"j ki j n{ "f gxgqr gf "cpf" y cu"uvkmidcugf "qp"yj g"f kuvtkdwkqp"qh"u{mcdrgu."Nqo qpquqxøu" kppqxcvkqpu"j grr gf "vq"gptkej "kv"cpf" "q"guvcdrkij "pgy "hqto u"cpf "vtcf kkqpu"lp"yj g"i gptgu"cpf "o gvtgu"qh"T wuukcp" xgtug0

### Vj g'plpgvggpvj 'cpf 'gct n( 'ty gpvlgvj 'egpvwt lgu

Rwuj nkp'tghgttgf 'kq'\ J WMQXUM[ 'cu'-xj g'i gpkwu'qh'\tcpurc\kqp\Ø\\ j wnqxum[ 'y cu'c'\crepvgf 'Twukcp'r qgv'dw' \tcpurc\kqpu'ceeqwp\gf 'hqt'c'eqpukf gtcdrg'r ctv'qh'j ku'qwr w\ØJ g'\tcpurc\gf 'htqo ''Gpi rkuj .''Htgpej .''Qrf 'Twukcp.'' \Nc\kp''cpf ''I gto cp\ØVj cpmu'\q'j ko .''Twukcp'tgcf gtu'i ckpgf ''ceeguu'\q'o cp\{ 'y qtmu'qh'Uej kngt.''I qgvj g.''D\{tqp.'' Y cn\gt ''Ueqw'cpf ''qvj gt'i kcpwi'qh'y qtnf ''rk\gtcwt\g\ØVj g'\tcpi g''qh'j ku''etgc\k\g\g''\tcpurc\kqp''ce\k\k\\\ 'y cu'\u\ci i gt\pi .'' eqxgt\pi .''co qpi ''qvj gt''y kpi u.'\tcpurc\kqpu''qh'hckt\{ '\creu'd\{ 'Ej ctngu'Rgttcwn\''cpf ''y g'I tko o ''dtq\y gtu.''c'' eqo r ng\g'\tcpurc\kqp''qh'J qo gt\pi u'\g\f\{ uu\g\{ ''cpf 'c'\tcpurc\kqp''qh'\y g'\pco qwu'\Qrf 'T\wu\kcp''gr \ke''\uq\q''q''\q\mw'' \K \qt\g\g\g''\xVj g'\crey'qh'\K\qt\g\u\\\) j wnqxum\(''\ku'\qpg''qh'\y g'\pco gu'\kp'\y g'\y ku\qt\{ ''qh'\tcpurc\kqp''\kp'' \T\wu\kc\\}

 $Nkng''Mctco \mid kp.' \mid j \ wnqxum ("cf \ xqecvgf" \ htgg'' tcpuncvkqp." y j kej "uqo gvko gu't guwngf" kp"c"r ctcr j tcug" qt "gxgp"c" pgy "uvqt { "qp" y g'uwdlgev'qh' y g'uqwteg" yz v0 J g'y qwrf "qeecukqpcm { "vtcpuhgt" y g'ugwkpi "vq" Twuukc." i kxg" y g" uqwteg" yz v'ej ctcevgtu' Twuukcp" pco gu. "cpf" uq" qp0 J ku" qwuvcpf kpi "vcngpv." j qy gxgt. "gpcdngf" j ko "vq" tgr tqf weg" y g'uv { ng." tj { y o "cpf" vqpg" qh' y g'qtki kpcn'r qgvt { ."cpf" j ku" dguv' vtcpuncvkqpu'y gtg" tgo ctncdn { "hcky hwn' vq" y gkt" uqwtegu0 Vj g'Twuukcp" uej qqn' qh' vtcpuncvkqp" qy gu'o wej "vq" \ j wnqxum (øu" ng ce { 0} \)$ 

Vj g'r tcevkeg"qh'vcmkpi "hkdgt vkgu"y kyj "vj g'uqwteg" vgz v'y cu"cnuq"ej ctcevgt kurke "qh'r tqug" vtcpurc vkqpu"qh'vj g'r gt kqf 0' Ktkpctnj "Xxgf gpum{."c" vcngpvgf "cpf "xgt { "r qr wrct" vtcpurc vqt"qh'o cp { "pqxgnu"d { "Ej ctngu"F kemgpu"cpf "Y knrkco " O cngr gceg" Vj cemgtc { ."y qwrf "v{r kecm{ "cf f "ugxgtcn'r ci gu"y j kej "j cf "pqvj kpi "vq"f q"y kyj "vj g"uqwteg" vgz v0 Kp"j ku" vtcpurc vkqp"qh"F kemgpuøu" F cxkf "Eqr r gt klgrf ."hqt"gzco r ng."j g"kpvtqf wegf "j ku"qy p" vgz vu"cv'vj g"gpf "qh'vj g"ugeqpf" ej cr vgt."cv'vj g"dgi kppkpi "qh'vj g"ukz vj "ej cr vgt"

cpf 'kp''uqo g''qvj gt''r ctvu''qh''vj g''pqxgrf)Cpf 'j g''lwuvkhkgf ''uwej ''eqpvtkdwkqpu''d{ ''vj g''f guktg''vq''r rgcug''vj g''tgcf gt.'' encko kpi ''vj cv''vj g''vtcpurcvqt''j cf ''vj g''tki j v''vq''htggrf(''tgetgcvg''vj g''ur ktkv'qh''vj g''uqwteg''vgzv.''vq''i kxg''c''pgy ''nkhg''vq''y g'' kf gcu''qh''y g''cwyj qt''kp''c''pgy ''ukwvcvkqpô ÷vpf gt''cpqvj gt''urnf(ø''cu''j g''r wv''kv0

Cngzepf gt "Rwuj młp"epf 'O knj ektiNgto apvąx. "y g"y q"i tgev'T wurkep"r agvu. "enaj" ne { gf "c"o elqt "tqng"kp"y g" j knqt { "qh"vtepurevkqp"kp"T wurke0Cnj qwi j "vtepurevkqpu"qeew kgf "c"tgrevkzgn{"o af guv'r neeg"kp"y gkt "r agvt { ."y g { "o ef g"c"uki pktkeepv'eapvtkdwkqp"vq"y g"ko r tqxgo gpv'qhi'nkgtet { "vtepurevkqp"kp"T wurke0Kp"y gtt "r agvte" r eter j teugu" epf "ko kevkqpu"y g{ "o epei gf "vq"tgr tqf weg"y g"o quv'ko r qtvepv'hgewtgu"qh'hqtgki p"r qgvt { "epf ."edqxg"em"y gkt" tgpf gtkpi u"y gtg"tgo etnedng"y qtmu"qh"etv'kp"y gkt"qy p"tki j v."kp"pq"y e{ "kphgtkqt"vq"y gkt"qtki kpen'o euvgtr kgegu0' Vj gug"ttgg"tcpurevkqpu'ugtxgf "cu"c"o qf gn'hqt"qy gt "tcpurevqtu"epf "guvednkuj gf "ep"ko r qtvepv'r tkpekr ng. "peo gn{" y ev'c"i qqf "hkgtett { "vtepurevkqp"uj qwf "dg"r etv'epf "r etegn'qh'y g"pevkqpen'hkgtewtg"kp"y g"veti gv'mpi wei g0'Vj g" tqng"r ne { gf "d{ "Rwuj mkp"kp"y g"f gxgnqr o gpv'qh'y g"T wurkep"uej qqn'qh'vtepurevkqp"f gugtxgu'ur geken'go r j cuku0J g" eny e{ u'uj qy gf "i tgev'kpytguv'kp"y g"r tqdngo u'qh'vtepurevkqp."epf "j ku'etkkeen'epen(ugu'qh'vtepurevkqpu'y gtg" gzgo r net { "epf "y qwi j v'rtqxqmkpi 0J g"go r j cuk| gf "y g"ko r qtvepeg"qh'yj g"hykken'ugngevkqp"qh'yj g"hkgtet { 'y qtmu" q"dg"vtepurevqf 0J ku'kpukungpeg"qp"nq { en/{ "q"y g"uqwteg" yzv."eqwr ngf "y kyj "y g"j ki j "s werkv{ "epf "gzr tgunkxgpguu" qh'y g"vtepurevqtøu'hkytet { "uv{ ng. "y cu'c'r qukxkxg"kphnwgpeg"qp"y g"dguv/T wurkep"vtepurevqtu'qh'y g"pkpgygpy "epf " y gpvkgy "egpwxtlgu0

Cnj qwi j "j g'o clqtk/{ "qh'\tcpurc\qtu'f wt\pi "j ku'r gt\qf "cf xqec\yf "cpf "r tce\kugf "htgg"\tcpurc\qp."c'\py "\pu\ku\gf" qp"eqo r rg\yf "b\kij hwpguu'\q" j g"uq\kteg"\yz\"qp"h\kgtcr\kuo "gxgp"\q" j g"f g\tko gp\'qh'ugpug"cpf "erct\k\{0Co qpi " y gtg"uwej "r tqo kpgp\'o gp"qh'rg\ygtu"cu'\R0C0X\{c| go um\{."P 0KI pgf kej "cpf "C0C0Hg\v"cm'qh'y j qo " \tcpurc\yf "htqo "c"pwo dgt"qh'f kh\gtgp\'repi wci gu0J qy gxgt."\j g\{"f kf "pq\'cny c\{u'r tce\keg'y j c\'y j g\{"r tgcej gf 0' Uqo g\ko gu'\j g"\tcpurc\yf\u'ct\ku\ke"\kp\wk\kqp"cpf "\crpv'dtqng"\j tq\wi j "\j g"\dtt\kgt'qh'r\kgtcr\kuo 0X\{c| go um\{\pi u} \text{ u'r tce\keg'y j c\'y j g\{"r tgcej gf 0' Uqo g\ko gu'\j g"\tcpurc\yf\u'ct\ku\ke"\kp\wk\kqp"cpf "\crpv'dtqng"\j tq\wi j "\j g"\dtt\kgt'qh'r\kgtcr\kuo 0X\{c| go um\{\pi u} \text{ u'r tce\keg'y j c\'y g um\{\pi u} \text{ u'r tce\keg'y j c'y j g um\{\pi u} \text{ u'r tce\keg'y j c'y j g um\{\pi u} \text{ u'r tce\keg'y j c'y j g um\{\pi u} \text{ u'r tce\keg'y j c'y j g um

Htgg'\tcpurc\kqp'\y cu'\uqo g\ko gu'r tce\kugf ''cu'c''o gcpu'qh'r tqo q\kpi ''f go qetc\ke'\kf gcu.'\y j kej ''y q\wf ''pq\v'j cxg'' guecr gf ''qhhke\kcn'egpuqtuj kr ''kp''qtki kpcn'y qtm\0'V\tcpurc\qtu'\uwej ''cu''X\0M\wtqej mkp.'\F\00 kpcgx''cpf ''O\00 kmj ckmx.'' co qpi ''q\ng gtu.''cej kgxgf ''\ng ku''d\{ ''ej qqu\kpi ''u\wkcdng''uq\wteg'\\gz\wu''cpf \qt ''d\{ ''kp\tqf \wekpi ''\ng gkt'\tcpurc\kqpu''u\wd\wg'' ej cpi gu'\y j kej ''\tki i gtgf ''cuu\qekc\kqpu'\y k\ng ''\ng g'T\wu\kcp''eqp\ygz\0'\K\'y cu''f \wt\kpi ''\ng ku''r gt\kqf ''\ng gp'\ng c\'\wu\kpi ''\tcpurc\kqpu''\tcf \k\kqp0

### Vj g'Uqxlgv'r gt lqf

Vj g"{ gctu'hqmqy kpi "ý g"3; 39"T gxqnwkqp"ucy "c"pgy "wr uwti g"kp"\tcpurc\kqp"ce\kxk\{0\Qp"O czko "I qtm\\phiu" kp\kkc\kxg."c"pgy "r wdrkuj kpi "j qwug'y cu'ugv'wr "y ky "cp"co dkkqwu'i qcn'qh'r wdrkuj kpi "ý g'pgy "qt"\tgxkugf" \tcpurc\kqpu"qh'cm'o clqt"rk\gtct\{ "cej kgxgo gpw"dq\/y "kp"\/y g"Y guv'cpf "kp"\/y g"Gcu\0\K\p"\ur k\g"qh'gpqto qwu'r tce\kecn' cpf "cf o kp\ku\tc\kxg"f khhewn\kgu."\/y ku'\qti cp\\ c\kqp"o cpci gf "\q"r wdrkuj "\kp"\/y g'hqmqy kpi "\w q"f gecf gu'\qt" \tcpurc\kqpu"qh'\/y g"y qtmu'\qh'\uvej "i tgc\v'cwj qtu'\cu'\Dc\\q ce. "Cpc\qrg"Htcpeg. "U\gpf j cn"J g\kpg."\Uej krgt."\D\\q tqp." F\lengpu. "D\gtpctf" Uj cy ."O ctm'\Vy c\kp"cpf" o cp\\\ "q\/y gtu\0

C'i tgcv'pwo dgt ''qh''tcpurcvkqpu'y gtg''cnuq''r wdrkuj gf ''d{ ''qyi gt ''pcvkqpcn'cpf ''nqecn'r tguugu'kp''yi g''3; 52u''cpf ''yi g'' hqmy kpi 'f gecf gu0'Vj g''eqwpvt {øu''dguv'uej qrctu''cpf ''y tkwgtu''r ctvkekr cwgf 'kp''yi ku''y qtm''grgxcvkpi ''yi g''ctv'qh'' vtcpurcvkqp''vq''c''pgy ''rgxgn'qh''r gthgevkqp0'O cp{ ''vcrgpvgf ''vcpurcvqtu''dgeco g''mpqy p''cpf ''tgur gevgf ''kp''yi g''Uqxkgv'' Wpkqp''cpf ''cdtqcf ''f wtkpi ''yi ku'r gtkqf = ''yi g{ ''kperwf gf ''O 0Nq| kpum(.''V0Uj ej gr nkpcMwr gtpkm''U0O ctuj cm'P 0 Nwdko qx.''G0Mcrcuj pkmqxc.''P Cf ctw| gu''cpf ''o cp{ ''qyi gtu0

Vj g'hcev'ý cv'ý g''Uqxkgv'Wpkqp'y cu'c'o wnkpcklqpcn'uvcyg'eqpvtkdwyf 'vq'ý g'i tqy kpi 'f go cpf 'hqt''tcpurcklqp0' Vj g''uecrg''qh''vtcpurcklqp''co qpi 'pcklqpcn'nkytcwtgu'y cu'r ctvkewrctn( 'ko r tguukxg0'T wuukcp''tgcf gtu''dgeco g'' hco krkct'y ky 'vj g'i tgcv'gr keu'htqo 'I gqti kc.''Cto gpkc.''W dgnkuvcp.''Mc| cmj uvcp.''C| gtdcklcp''cpf ''gnugy j gtg0' O wej "

y cu'f qpg'kp''y ku'hkgrf 'd{ 'uwej 'r tqo kpgpv'Twukcp'r qgw'cpf 'y tkgtu'cu'Ngx'I kp| dwti .'Dqtku'Rcuvgtpcm'cpf '' P kmqrck'Vknj qpqx0

Vj g'lphqto cvkqp'gzr mukqp'qh'vj g'ugeqpf 'j cnh'qh'vj g'vy gpvkgvj 'egpwxt { 'i cxg'c'vtgo gpf qwu'ko r gwwu'vq'pqp/rkxgtct { ''vtcpurcvkqp0'Vj g'o clqtkx{ ''qh'vtcpurcvkqpu'y gtg'pqy ''qh'uqekcn'r qrkxkecn'uekgpvkhke''cpf ''vgej pkecn'o cvgtkcn0' Vj gtg'y cu'c'i tqy kpi 'f go cpf 'hqt'r tqhguukqpcn'vtcpurcvqtu.''dw'pqp/rkxgtct { ''vgzwu'y gtg'uvkm'htgs wgpvn{ ''dgkpi ''vtcpurcvgf ''d { ''pqp/r tqhguukqpcn'cu'r ctv'qh'vj gkt'y qtm'kp'qvj gt'urj gtgu0

Vj ku'wpr ctcmgmgf ''dqqo ''kp''tcpurcvkqp''cevkxkv{ ''dtqwi j v'o cp{ ''pgy ''r gqr ng''kpvq''yj g''r tqhguukqp''cpf ''tguwngf ''kp'' unt wewtcn''cpf ''qti cpl\centre cvkqpcn''ej cpi guOC ''pgwy qtm'qh''vtcpurcvkqp''ugtxkegu. ''ci gpekgu''cpf ''f gr ctvo gpwu''y cu'' guvcdnkuj gf ''kp''i qxgtpo gpv'qhhkegu''cpf ''kpf wurtkcn''cpf ''eqo o gtekcn'gpvgtr tkuguOO cp{ ''vtcpurcvqtu''cpf ''kpvgtr tgvgtu'' dgeco g''unchh''r gtuqppgn=''qvj gtu''y qtmgf ''r ctv'vko g''qt''htggrcpegOI kxgp''yj g''uecng''cpf ''yj g''qxgtcm'j ki j ''s wcnkv{ ''qh'' vtcpurcvkqpu. ''dqvj ''nkvgtct{ ''cpf ''vgej pkecn''yj g''eqwpvt{ ''y cu''lwurn{ ''tgi ctf gf ''cu''c''i tgcv'vtcpurcvkqp''r qy gt''f wtkpi ''yj ku'' r gtkqf 0

Vj g'lpetgeugf 'lf go epf 'lhqt'r tqhguulqpen'\tepure\qtu'y eu'o gv'd { 'pwo gtqwu'\telplpi ''guvedrkuj o gpw0C 'pwo dgt'qh'' hqtgki p''repi wei g'llpurkwwgu'\ugv'\wr '\tepure\qtp' f gr et vo gpw."epf '\tepure\qtu'y gtg''enq'\telpgf 'l\p'\wpkxgtukkgu''epf '' vgej pleen'eqmgi gu0O ep { ''gf weekqpen'guvedrkuj o gpw1'qh\teptgf ''y gkt''uwf gpw1'eqwtugu'\tep'\tepure\qtu'y cupi ukf g'' y gkt''o elp''r tqhguulqpen'\ugveq geken\teptq evkqp0

Nkgtct { "tcpurcvqtu"tgegkxgf "vj gkt"tckpkpi "cv"vj g"I qtm("Nkgtct { "Kpurkwwg."y j kej "y cu"ur qpuqtgf "d { "vj g"Uqxkgv" Y tkgtu"Wpkqp0"Vj g"go r j cuku"j gtg"y cu"qp"tcpurcvkpi "htqo "vj g"rcpi wci gu"qh"vj g"xctkqwu"gvj pke"i tqwr u"qh"vj g"Uqxkgv"Wpkqp0

Vj ku'tkej "cpf "xctkgf "\tcpurc\kqp"ce\kxk\{"cwtce\vgf"o wej "cv\gp\kqp"cpf "\tgeqi pk\kqp0O cp{"r gtkqf kecnu'tgi wrctn{" r wdrkuj gf "\tcpurc\kqpu'htqo "xctkqwu'rcpi wci gu'cu'y gm'cu'etk\kecn'cuuguuo gp\u'qh'\y g'\u\tgpi y u'cpf "y gcmpguugu" qh'\ur gekhke "\tcpurc\kqpu0

### Vt cpurc vkqp'kp'vj g'r quv/Uqxkgv'r gt kqf '\*vj g'3;; 2u+

Vj g"{ gctu"qh"r gt guxt qkmc "tcf kecm{ "ej cpi gf "ý g"pcwstg"qh"vtcpurcvkqp"r tcevkeg "kp"i gpgtcn"cpf "ý g"o ctmgv"hqt" vtcpurcvkqpu"kp"r ctvkewct0Vj g"cdqnkvkqp"qh"egpuqtuj kr "j cu"o cf g"kv"r quukdng"vq"vtcpurcvg"o cp{ "dqqmu"y j kej "j cf "dggp"tgi ctf gf "cu"kpcf o knukdng"qp"kf gqmi kecn"qt"o qtcn"i tqwpf u0Rwdnkuj kpi "j qwugu"ctg"pq"mpi gt "hkpcpegf "d{" yi g"uvcvg."cpf "o cp{ "j cxg"ukpeg"i qpg"dcpmtwr v"qt"j cxg"j cf "vq"tgf weg"yi gkt "qwr wv"f tcuvkecm{0Vj g"o ctmgv"j cu" dggp"uy co r gf "d{ "r tkxcvg"eqo o gtekcn"gpvgtr tkugu. "y kyj "yi g"tguwnv"yi cv"dqqm"r tkegu"j cxg"tkugp"uj ctr n{ "cpf" uvcpf ctf u"j cxg"i gpgtcm{ "f tqr r gf 0Go r j cuku"j cu"pqy "uj khvgf "vq"vtcpurcvkpi "r qr wrct "hkevkqp"cpf "r qtpqi tcr j ke" o cvgtkcn0

Vj g"pgy "ukwcvkqp"j cu"j cf "dqvj "r qukvkxg"cpf "pgi cvkxg"ghhgewi"qp"vj g"dwukpguu"ukf g"qhi'vtcpurcvkqp0O quv" vtcpurcvkqpu"ctg"pqy "htqo "Gpi nkuj "cpf "vtcpurcvqtu"tgegkxg"dgwgt"tgpwo gtcvkqp0J ki j gt"hggu"gpeqwtci gf "o cp{" pqp/r tqhguukqpcnu"vq"vt{"vj gkt"j cpf "cv"vtcpurcvkqp."cpf "vj ku"j cu"pcwvtcm{"r tqf wegf "c"i tgcv"pwo dgt"qhir qqtn{" vtcpurcvgf "dqqmu0Vj g"pgy "r wdrkuj gtu"ugv"xgt{"vki j v"f gcf nkpgu"kp"qtf gt"vq"o ctngv"vj g"vtcpurcvkqpu"cj gcf "qh"vj gkt" eqo r gvkqtu="vj g{"ctg"pq"nqpi gt"kpvgtguvgf "kp"uwr r qtvkpi "vj g"nkpf "qh"nqpi "cpf "ctf wqwu"ghqtv"vj cv"ecp"tguvnv"kp"c" o cuvgtr kgeg0

Vj gtg'j cu'cnıq'dggp'c'i tgcvgt'f go cpf 'hqt'Gpi nkuj 'cpf'I gto cp'kpvgtrtgvgtu.'cpf 'o cp{'qh'vj go 'gctp'i qqf'' o qpg{'y qtmkpi 'hqt'pcvkqpcn'qt'hqtgki p'hkto u.'qt'lqkpv'xgpwtgu0D{'eqpvtcuv.'vtcpurcvqtu'htqo 'qvj gt'ncpi wci gu'' qhvgp'hkpf 'kv'f khhkewn'vq'o cng'c'nkxkpi 0Gur gekcm{'j ctf'j kv'j cxg'dggp'vj g'ncpi wci gu'qh'nko kvgf 'f khhwukqp'cpf'' uvchh'vtcpurcvqtu'y j q'j cf'rtgxkqwun{ 'gplq{gf'c'tgi wrct'kpeqo g'kp'vj g'uvcvg'r wdnkuj kpi 'j qwugu0 Vj g'pgy 'o ctngv'eqpf kkqpu'j ki j nki j v'vj g'cdugpeg'qh'crrtqrtkcvg'ngi kurcvkqp'vq'tgi wrcvg'vtcpurcvkqp'cevkxkvkgu'kp'' Twuukc0'Vj g'pgy n{ 'hqwpf gf 'Wplqp'qh'Vtcpurcvqtu'j cu'dggp'vt{kpi 'j ctf'vq'tckug'vj g'uqekcn'cpf'hkpcpekcn'uvcwu'qh'' ku'o go dgtu'cpf 'vq'tguvqtg'vj g'rtguvki g'qh'vtcpurcvkqp'kp'Twuukc0

## $Vt\,c\,purc\,vlqp\,'vj\,\,gqt\,\{\,'lp\,'T\,wurlc\,$

Cu'cp'ko r qtvcpv'cur gev'qh'yi g'pcvkqpøu'ewnwtg.'\tcpurcvkqp'j cu'dggp'yi g'qdlgev'qh'uej qrctn( 'f kuewnukqp'kp'Twnukc'' yi tqwi j qw'kwu'nqpi 'j kuvqt {0'Kv'y cu'pqv.'j qy gxgt.'\wpvkn'yi g'ugeqpf 'j crh'qh'yi g'vy gpvkgyi 'egpwt { 'yi cv'yi g'' yi qwi j vr tqxqnkpi 'dww'qhvgp'uwdlgevkxg'kf gcu'qh'etkkeu.''

cwi qtu'cpf 'o go dgtu'qh'ij g'r tqhguukqp'y gtg'uwr r ngo gpvgf 'd{ 'cwgo r wi'vq'f gxgnqr 'c'eqi gtgpv'ij gqt{ 'qh' vtcpuncvkqp0'Ukpeg'ij gp.'ij g'ngxgn'qh'i tqy yj 'kp''vtcpuncvkqp''cevkxkv{ 'j cu'dggp'o cvej gf 'd{ 'pwo gtqwu'r wdnkecvkqpu'' qp''yj gqtgvkecn'cur gewu'qh'vtcpuncvkqp0

Vtcpurcvkqp'tgugctej 'kp'Twukc'uvgo u'htqo 'f khhgtgpv'uej qqnu'qh'vj qwi j v.'tghrgevu'f khhgtgpv'ctgcu'qh'kpvgtguv'cpf "gzrtguugu'qrrqukpi 'xkgy u0P gxgtvj grguu.'uqo g'eqo o qp'hgcwtgu'ecp'dg'ukpi rgf 'qwv'vq'kf gpvkh{ 'y j cv'ecp'dg' f guetkdgf ''cu'vj g'Twukcp'uej qqn'qh'vtcpurcvkqp'vj gqt {0

Twukcp''tcpurc'kqp''j gqtkgu''ctg''rcti gn( 'dcugf ''qp''j g''cunwo r kqp''j cv''tcpurc'kqp''ku''c'r j gpqo gpqp''j cv'ecp''dg'' uwf kgf ''cpf ''f guetkdgf ''kp''cp''qdlgevkxg''cpf ''eqpuknygpv'y c { .''wukpi ''xctkqwu''o gyj qf u''qh''qdugtxcvkqp''cpf ''cpcn( uku0' Vj g''tcpurc'yt¢u''f gekukqp/o cmkpi ''r tqeguu''o c { ''uggo ''uwdlgevkxg''cpf ''kpwkkkxg. ''dw''kv'ku''wuko cygn( 'i qxgtpgf ''d { ''eqttgrevgf ''hpi wkuke''cpf ''eqi pkkxg''r cwgtpu''kp''yj g''uqwteg''cpf ''vcti gv''mpi wci gu0'Vtcpurc'kqp''yj gqt { 'ku''gzr gevgf ''yq''dg''f guetkr vkxg''kp''yj g''htuv'r reeg. ''cpf ''ku''o ckp''vcum'ku''yq''uwf { ''qdugtxcdng''hcevu.''vq''f kueqxgt''yj g''tgi wrct'' hgcwt gu''qh''yj g''tcpurc'vkpi ''r tqeguu''eqo o qp''vq''o quv''kpf kxkf wcn'cevu''qh''vtcpurc'vkqp0'Ky'ku''qpn( ''chvgt''f kueqxgtkpi ''yj cv''tcpurc'vkqp''cewcm( ''ku''yj cv''eqpenxukqpu''ecp''dg''f tcy p''eqpegtpkpi ''yj cv''kv''uj qwrf ''dg0'Vj gqtgvkecn'' i gpgtcnkj cvkqp''o wuv''yj gtghqtg''dg''dcugf ''qp''hcevu''tcyj gt''yj cp''qp''uwdlgevkxg''ur gewcvkqp0'Vj g''o ckp''o gyj qf ''qh'' tgugctej ''wugf ''d{ ''T wuukcp''tcpurc'vkqp''yj gqtkuvu''ku''yj g''eqo r ctcvkxg''cpcn(uku''qh''yj g''uqwteg''cpf ''vcti gv''yzvu.''cu''y gm'' cu''xctkqwu''gzr gtko gpvcn'uwf kgu''qh''yj g''cewcn'cev'qh''vtcpurc'vkqp0

Vj gqtgvlecn'lpxgurki cvkqpu'qh'vtcpurcvkqp'kp'T wuukc''ctg''rcti gn{ "ecttkgf "qw'y ky kp''c'hpi wkurke'htco gy qtm0O quv' tgugctej gtu'tgi ctf ''y g'hpi wkurke'y gqt { "qh'vtcpurcvkqp''cu''cp'ko r qtvcpv'dtcpej "qh'y g'hpi wkurke'uekgpegu." cmpi ukf g'i gpgtcn'hpi wkurkeu. "eqo r ctcvkxg''hpi wkurkeu. "r u{ ej qrkpi wkurkeu. "uqekqrkpi wkurkeu. "yzzv'hpi wkurkeu''cpf "qyi gt''ctgcu''qh'hpi wkurke'tgugctej 0'Vj ku''dtqcf "eqpegr v'qh'o cetqrkpi wkurkeu'o cmgu'kv'r quukdrg''vq'o cmg''gzvgpukxg'' wug''qh'hpi wkurke'o gyi qf u''vq''f guetkdg''yi g'hqto cn''ugo cpvke''cpf "eqi pkkxg''cur gevu''qh'vtcpurcvkqp0O quv'' vtcpurcvkqp''yi gqtkuru''kp'T wuukc''ctg''r tqhguukqpcn'hpi wkuru''cu'y gm'cu''r tcevkukpi "vtcpurcvqtu0'Vj ku'j grr u''vq''o ckpvckp'' c''enqug''hpm'dgyy ggp''yi gqt { "cpf ''r tcevkeg0

Uej qrctu"qh"vtcpurcvkqp"kp"T wuukc"ectt { "qwv"c"y kf g"tcpi g"qh"kpxguvki cvkqpu"y j kej "go dtceg"cm"cur gewi"qh"y g" vtcpurcvkpi "r tqeguu"cpf "cm"y g"hcevqtu"y j kej "ctg"y qwi j v"vq"kphrwgpeg"kv0Vj g{ "cwgo r v"vq"f gcn"y kyj "i gpgtcn" cur gewi"qh"kpvgtnkpi wcn"eqo o wpkecvkqpô ku"nkpi wkuvke. "eqi pkxkxg"cpf "r u{ej qmi kecn"f ko gpukqpuô cu"y gm"cu" r tqdrgo u"cuuqekcvgf "y kyj "vtcpurcvkqp"htqo "qpg"r ctvkewrct "rcpi wci g"kpvq"cpqvj gt0O wej "cwgpvkqp"ku"r ckf "vq"yj g" eqpegr v"qh"gs wkxcrgpeg"kp"vtcpurcvkqp."vq"yj g"r tci o cvke "cpf "uv/nkuvke"cur gewi"qh"vtcpurcvkqp."vq"xctkqwu"o qf gmi"qh" vj g"vtcpurcvkpi "r tqeguu"cpf "vj g"o gcpkpi hwrivgzv"eqo r qpgpvu"y j kej "ctg"tgr rcegf "d{ "gs wkxcrgpv"grgo gpvu"kp"vj g" vcti gv"vgzv0Vtcpurcvkqp"r tqdrgo u"ctg"kpxguvki cvgf "vj tqwi j "vj g"cpcn{uku"qh"vtcpurcvkqpu"htqo "cpf "dgw ggp" Gpi nkuj ."I gto cp. "Htgpej ."Ur cpkuj ."Kcnkcp."T wuukcp"cpf "qvj gt"rcpi wci gu0Vj g"kf gc"ku"vj cv'uwej "eqo r ngz"uwf kgu" qh"vtcpurcvkqp"cevkxkv{ "y km"gxgpwcm{ "gpcdrg"uej qrctu"vq"i gpgtcnk{g"htqo "vj gkt"hkpf kpi u"cpf "vq"f gxgmqr "c"xkcdrg" htco gy qtm"vj cv'ecp"ceeqo o qf cvg"c"i gpgtcnky gqt { "qh"vtcpurcvkqp0

Qh'pq'uo cmlo r qtvcpeg'ku'y g'hcev'y cv'tcpurcvkqp'uwf kgu'kp'T wuukc'go dtcegu'cmlv{ r gu'qh'vtcpurcvkqp0'O wej " cwgpvkqp'ku'r ckf "vq'y g'f guetkr vkqp"qh'xctkqwu'cur gewi'qh'pqp/nkgtct { "vtcpurcvkqp."dqy "y tkwgp'cpf "qtcn'y ky "cp" go r j cuku'qp''r qnkvlecn'vgej plecn'eqo o gtekcn'cpf "uko krct'v{ r gu'qh'vtcpurcvkqp0T gugctej 'kp''y g'hkgnf 'qh'nkgtct { " vtcpurcvkqp'eqpukf gtu'dqy 'kwu'nkpi wkuvke'cpf "ctvkuvke'hgcwtgu0'Kp'vgto u''qh'qtcn'vtcpurcvkqp."y g''qdlgev'qh'kpvgtguv'ku'' o ckpn{ 'eqphgtgpeg'kpvgtr tgvkpi ."gur gekcm{ 'uko wncpgqwu'kpvgtr tgvkpi 0'Vj g'kpxguvki cvkqp''qh'uwej "c'y kf g'tcpi g''qh'' vtcpurcvkqpcn'cevkxkvkgu'j cu'o cf g'kv'r quukdng'vq'f guetkdg''dqy 'eqo o qp'hgcwtgu'qh'cmlvtcpurcvkqpu''cpf 'y g'' r gewrkctkvkgu''qh'gcej 'r ctvkewct'v{ r g'qh'vtcpurcvkqp0

Vtcpurcvkqp''uwf kgu''kp''T wuukc''j cu''cny c{u''o ckpvckpgf ''enqug''nkpmu''y kij ''yj g''r tcevkecn''vtckpkpi ''qh''hwwwtg''vtcpurcvqtu'' cpf ''kpvgtr tgvgtu0'Ur gekhke''v{r gu''qh''tgugctej ''j cxg''qhvgp''dggp''r tqo r vgf ''d{''yj g''pggf ''vq''f gxgmr ''ghhgevkxg''vtckpkpi ''u{mcdwugu''cpf ''ewttkewrcg0'Vtckpkpi ''guvcdrkuj o gpwu''wug''yj gqtgvkecn'tgugctej ''tguwnwu'vq''ugngev''crrtqrtkcvg'' vgcej kpi ''vgej pks wgu''cpf ''kpenwf g''eqwtugu''kp''vtcpurcvkqp''yj gqt{''cpf ''r tcevkeg''kp''yj gkt''u{mcdwugu0}

### Hwt yj gt 't gcf kpi

 $Dctnj \ wf \ ctqx'3; \ 97 = Ej \ gtp\{cnj \ qxunc\{c'3; \ 98 = Ej \ wnqxun('3; \ 86 = H\{f \ qtqx'3; \ 75.'3; \ 8: = T, \ qx' \ qx'$ 

 $\label{eq:local_state} $$I$ cej gej krcf | g'3; 92='Mqo kuuctqx'3; 95.'3; : 2.'3; ; 2='Mqr cpgx'3; 94='Ncv{uj gx'3}; : :='O kpø{ct/Dgrqtwej gx'3}; : 2='Tgwngt'3; 96='Tgx| kp'3; 86='Ugo gpgwl'cpf 'Rcpcuøgx'3; : ;='Uj xgkugt'3; 95.'3; : :0$ 

XKNGP 'P (MQO KUUCTQX

# Dkqi tcrj kgu

NQO QPQUQX.'O knj ckiXcuklgxlgej "\*3933687+0'Q wuvcpf kpi "T wuukcp"uekgpvkuv."j kunqtkcp"cpf "r qgv="hqwpf gt" qh'O queqy "Wpkxgtukv{0J ku"hkgrf "qh'cevkxkv{"y cu"cunqpkuj kpi n{"y kf g0J g"o cf g"tgo ctmcdmg"eqpvkdwkqpu"kp" r j {ukeu."ej go kunt{."o gvcmxti {"cpf "o cp{"qvj gt"dtcpej gu"qh'uekgpeg0'Kp"cf f kkqp."j g"y cu"kpunt wo gpvcn'kp"rc{kpi "f qy p"vj g"hqwpf cvkqpu"qh"vj g"T wuukcp"nkygtct{"repi wci g."y cu"c"r tqo kpgpv"gf wecvqt."r j knquqr j gt"cpf "r rc{y tki j v0' Vtcpurcvkqp."gur gekcm{"qh"r qgxt{."qeewr kgf "pq"uo cm'ur ceg"co qpi "j ku"pwo gtqwu"cej kgxgo gpw0J g"vtcpurcvgf"c" rcti g"pwo dgt"qh"r qgxke"vgz wu"ntqo "Ncvkp."cu"y gm"cu"ntqo "I gto cp."Htgpej "cpf" I tggm"o quv"pqwcdn{"J qtcegøu" Qf gu."J qo gtøu"kllcf" "cpf" "Xkti knøu"Cgpgkf 0'Nqo qpquqx"y cu"c"i tgcv"tghqto gt"qh"vj g"T wuukcp"r qgxke"rcpi wci g." gzr cpf kpi "kw"tj {o g"cpf "tj {vj o "r qvgpvkcn'JJ g"f kf"o wej "vq"r tqo qvg"vtcpurcvkqp"kp"T wuukc
j g"vqqmir ctv'kp"vj g"hkgrf"cpf "j ku"y tkkpi u"qp"vj g"tqrg"cpf "o gvj qf u"qh"vtcpurcvkqp" j cxg"r rc{gf"c"o clqt"r ctv'kp"gpj cpekpi "vj g"hqekcn'uvcwu"qh"vtcpurcvqtu"kp"T wuukc0

O CZKO 'VJ G'I TGGM'\*plempco g'qh'O knj ckri'Vtgxqrgu="369763778+0'C "eqpvtqxgtukcritgrki kqwu'y tkgt"cpf "c" r tqrkhe "tcpurcvqt0'Gf wecvgf "kp"Kcn( "cpf "I tggeg."j g'y gpv"vq'O queqy "kp"373: "cv"vj g"kpxkcvkqp"qh"DcukriKkKvq" y qtmiqp"tcpurcvdqpu"qh"tgrki kqwu'vgzvu"cpf "eqpugs wgpvn( "r tqf wegf "o cp{ "pgy "tcpurcvkqpu"cpf "eqttgevgf " r tgxkqwm( "tcpurcvgf "vgzvu0J ku"cevkxg'r ctvkekr cvkqp"kp"T wunkcøu"r qrkskecn'cpf "kf gqmi kecn'untwi i ngu"dtqwi j v"j ko " eqpf go pcvkqp"htqo "vj g"Ej wtej "cpf "j g"ur gpv"o cp{ "{gctu"kp"gzkng0O czko "cppqvcvgf "j ku"vtcpurcvkqpu"j gcxkn( " y kj "vj gqmi kecn'cpf "r j kmmi kecn'eqo o gpvctkgu0J ku"y tkskpi u"kpenwf gf "o cp{ "tghrgevkqpu"qp"y j cv'eqpuvkwwgu"c" i qqf "tcpurcvkqp="yi g"o quv"ko r qtvcpv"kp"vj ku"tgur gev'y cu"j ku"eqo o gpvct{ "qp"j ku"vtcpurcvkqp"qh"Vqmqxc{c" Rucnsf tk"\*Gzr ncpcvqt{ "Rucnsgt+."y j kej "j g"gpvkxngf "Rqurcpkg"nixgrlmqo w"mp{ c/{w"Xcukrk/w"Kcpqxkej w"\*C"O guuci g" vq"y g"I tcpf "Rtkpeg"Dcukn+0O czko øu"tghrgevkqpu"qp"ncpi wci g. "r ctvkewrctn( "i tco o ct. "y gtg"cnuq"ko r qtvcpv"hqt"y g" f gxgmr o gpv"qh"r j knqmi { "kp"T wunkc0J g"kn"y g"cwj qt"qh"y g"I tggm/Uncxqpke"F kevkqpct{ "Vqmqxcpkg"ho gpco "r q" cmcxkwy\*P co gu"fpvgtr tgygf "kp"Cnr j cdgvke"Qtf gt+0

VTGF KCMQXUM[.'Xcukk 'Mk knakej "\*392568: +0T wulkep"y tkgt"epf "vtepurevqt0'kp"3952."j g"r wdrkij gf "j ku" vtepurevkap"qh"Rovero epøu"Xq{ci g"«"hø",ng"f øco qwt."y j kej "j g"uwr r ngo gpvgf "y kij "c"pwo dgt "qh"j ku"qy p"nqxg" r qgo u0Dqyj "y g"vtepurevkap"cpf "y g"r qgo u'y gtg"y tkwgp"kp"cp"wpcf qtpgf "uv{ng"y j kej "i ckpgf "j ko "o wej " tgeqi pkkapp0'kp"3954."j g"dgeco g"c"uvchh"vtepurevqt "cv"y g"T wulkep"Cecf go { "qh"Uekgpeg"cpf "y g"hktuv"T wulkep" vtepurevqt "q"getp"j ku"hkkpi "d{ "tgi wret"r tqhgulkqpen'y qtm0'Vtgf kenqxum("y cu"c"tghqto gt"qh"y g"T wulkep"xgtug" u{ uvgo <j g"kpvtqf wegf "y g"u{ medke/vqpke"u{ uvgo "y j kej "j cf "c"i tgcv'ko r cev'qp"y g"uwdugs wgpv'f gxgmqr o gpv'qh" Twulkep"r qgvt{0J g"y cu"y g"hktuv'vq"wug"y g"T wulkep"j gzco gvgt. "nevgt"cf qr vgf "d{"uwej "go kpgpv'vtepurevqtu"cu" I pgf kej "cpf" \ J WMQXUM[ 0Co qpi "j ku"o quv'ko r qtvcpv'y qtmi'y gtg"vtepurevkqpu"qh"Dqkrgcwøu"NoCt v'r q² vks wg" \*3974+"cpf "H\* pgmpøu"Ngu'Cxgpwt gu"f g"V² n² o cs wg"\*3988+0

Vtgf kcmqxum( "y cu" y g"hktuv'T wuukcp" \tcpurc \qt "\q" r c{ "r ct \kewrct "cwgp \kqp" \q" y g" y gqtg \kecn'cur ge \u" \qh' \tcpurc \q p\" y g" y gqtg \kecn'cur ge \u" \qh' \tcpurc \q p\" y g" \tcpurc \qt y g" \qt y g" \tcpurc \qt y g" \tcpurc \qt y g" \qt y \tcpurc \qt y g"

\ **J WMQXUM[.'Xculrk['Cpf tggxkej**" \*39: 563: 74-10 Twulcp"r qgv'cpf "\tcpurcvqt0 Gf wecvgf 'kp"cp"ctkuvqetcvke" dqctf kpi 'uej qqn" j g"lqkpgf 'yi g"Twulcp"cto { 'kp"yi g"3: 34"y ct"ci ckpuv'P cr qrgqp"cpf 'y cu'rcvgt"cr r qkpvgf "wwqt" qh'yi g"Vuctøu'uqp0\\ j wmqxum{øu'ugpvko gpvcn'r qgvt { "

gplq{gf "i tgcv'r qr wrctk{."dwv'j g"y cu'gs wcm{ 'hco qwu'hqt''y g"s wcnk{ "qh'j ku'\tcpurc\kqpu0\Gur gekcm{ "uweeguuhwn" y gtg"j ku'\tgpf gt\pi u''qh'Tqo cp\ke''cwyi qtu\z'j ku'r qgo u'pqv'qpn{ "eqpxg{gf "yi g'uv{ ng. "eqp\uppv'cpf "cvo qur j gtg"qh" yi g'uq\uppveg'\uppvegz\upppegz\u

XKNGP 'P (MQO KUUCTQX

## U

# Umxcmitt cf kkqp

Unacmiku'c "Y guv'Unacypke "repi wci g. "v(r qmi kecm("emug"vq"E| gej 0KVj cu'c 'ikygtct { 'hqto .'wugf 'kp"qhhlekcn' eqo o wpkeckqpu. 'kp"rkygtcwtg"cpf 'kp"yi g"o gf kc. "cpf "xctkqwu"f kengew0Vj g'ikygtct { 'hqto "ku"dcugf "qp"yi g"Egpvtcn' Unacmif kengewi'cpf "j cu"dggp"venkpi "uj cr g"ukpeg"yi g"o kf f ng"qh"yi g"pkpgvggpyi "egpwt { 0Wpvkn'yi gp. "E| gej "\*y ky " cp"qeecukqpcn'cf o kzwtg"qh"Unacmingzkecn'gngo gpvn+"y cu"wugf "cu"yi g"ikygtct { "repi wci g"qh"yi g"vgttkqt { "qh"y j cv" ku"pqy "Unacmic0Vqy ctf u"yi g"gpf "qh"yi g"gki j vggpyi "egpwt { ."Cpvqp"Dgtpqn\* m\*x398463: 35+"cwgo r vgf "vq"etgcvg" c"hkytct { "Unacmirepi wci g"qp"yi g"dcuku"qh"y guvgtp"Unacmi\*pqy "mpqy p"cu"Dgtpqn\* m\*kpc. "kQ0Dgtpqn\* mi repi wci g+"dw"ky'y cu"Nwf qx¶\"\"\3: 37678+"y j q"rckf "yi g"uqnkf "hqwpf cvkqpu"qh"rkygtct { "Unacm0Hxm"uv{ rkurke" f gxgmr o gpv"f kf "pqv"dgi kp"wpvkn'chygt"3; 3: ."y kyi "yi g"guvcdrkuj o gpv"qh"yi g"Hktuv'E| gej qunacmiTgr wdnke"\"yi g" hktuv'Unacmiqtyi qi tcr j kecn'uvcpf ctf u'y gtg"rckf "f qy p"kp"3; 53+"cpf "o qtg"gur gekcm("chygt"3; 67. 'y kyi "yi g" guvcdrkuj o gpv'qh"yi g"Ugeqpf "E| gej qunacmiTgr wdnke0

### Dgi kppkpi u'qh'Uqxcm'tt cpurc vkqp

Wpkh'y g'wtp'qh'y g'gki j vggpy 'cpf 'pkpgvggpy 'egpwtkgu.''tcpurcvkqp'kp'y g'Uqxcm'ur genkpi 'vgttkqtkgu'y cu'' o ckpn( 'kpvq'E| gej .''y qwi j ''y gtg''y gtg''ur qtcf ke''cwgo r wi'cv'tcpurcvkqp'kpvq''ur qngp''Uqxcm''Uq g''cpekgpv'I tggm' vgzw'y gtg''tcpurcvgf 'kpvq''Ncvkp."gzenwtkgn( 'hqt''gf wecvgf 'tgcf gtu')Vqy ctf u'y g''gpf 'qh'y g''gki j vggpy 'egpwt { .'c'' hgy ''tcpurcvqpu'y gtg''o cf g''htqo 'I gto cp'kpvq''-Dgtpqn'' m'Uqxcmv')Vj g''tcpurcvqtu'y gtg''i gpgtcm( 'Ecyj qnke'' r tkguv')Vj g''o quv'ko r qtvcpv'hki wtg''qh'y cv''-tgkqf 'y cu'L' p''J qm '\*39: 763: 6; +"c''r tkguv'cpf 'r qgv'y j qug'y qtm' o ctngf 'c'pgy ''gr qej ''qh'\tcpurcvkqp<'j g'\tcpurcvgf ''y g''I tggm'cpf ''Ncvkp''r qgvu'kpvq''-Dgtpqn'' m'Uqxcmy 'kpenvf kpi '' Xkti knvu''eqo r ngvg''Cgpgkf '\*3: 4: +0Dqj wurcx''Vcdnke'\*398; 63: 45+:'c''Rtqvguvcpv'engti { o cp.''r qgv.''gpnki j vgpgt''cpf '' qti cpk gt''qh'ewnwtcn'hkbg'kp''y g'Uqxcm'tg kqp.''tcpurcvgf 'I gto cp'cpf ''Gpi nkuj ''r qgvt { "hqt''gzco r ng''Cpi nken'' o \hat{A} \left \left ''x'' gunq/unqxgpunt o ''qf xw<''Vj g''Gpi nkuj ''O wugu''kp''E| gej /Uqxcm'I ctd+0Uj cngur gctg.''Tcekpg.''O qnk'tg.'' Xqnvcktg.''Tqwugcw.''I qgyj g.''Rwuj mkp.''O kenkgy ke| ''cpf ''qyj gtu'y gtg''cnnq''tcpurcvgf 'kpvq''y g''pgy n{ ''etgcvgf '' Uqxcm'lksgtct { ''ncpi wci g''f wkpi ''y ku'r gtkqf 0

Cp"qwwcpf kpi 'hki wtg'kp"tcpurcvkqp"cv'vj g"gpf 'qh'vj g"pkpgvggpyj "egpwt { 'y cu'vj g'r qgv'cpf 'f tco cvkuv'Rcxqn' Qtu| a i j 'J xkg| f qurcx '\*3: 6; 63; 43+"y j q"tcpurcvgf 'htqo 'Gpi rkuj .'J wpi ctkcp.'I gto cp. 'Rqrkuj "cpf 'Twuvkcp0' J xkg| f qurcx.''vqi gyj gt'y kyj "vj g'hqmqy gtu'qh'Nwf qx\f\"\At.''vtcpuo kwgf "vj g'i tgcv'rkvgtct { 'y qtmu'qh'vj g" Tgpckuucpeg."pgq/ercuukecn'cpf 'Tqo cpvke"ci g"vq"vj g"Urqxcm'tgcf kpi "r wdrke0

### Vt cpurc wqp'lp'tj g'ty gpwlgtj 'egpwt {

Chygt "Y qtrf" "Y ct "Qpg"cpf "yi g"guvcdrkuj o gpv'qh" E| gej qurqxcmkc "yi gtg" y cu"cp "kpetgcug" kp "tcpurc kqp" ce kx kx { "kp" Urqxcmkc." dww'eqo r rgvg" go cpekr c kqp "htqo "E| gej "y cu"pqv" { gv'cej kgxgf 0 Hqt" qpg" yi kpi ." E| gej "vtcpurc kqpu" qh" yi g"y qtrf" "ercuukeu" j cf "vq" eqo r gpuc yg" hqt" yi g"uj qt vci g"qh" pc kxg" Urqxcm' vtcpurc kqpu. "cpf" hqt" cpqy gt. "yi gug" vtcpurc kqpu. "cm'qh'yi go "gct rkgt" yi cp" Urqxcm' vtcpurc kqpu. "htgs wgp vn { "r tqxgf" vq"dg" yi g" Urqxcm' vtcpurc vqt uø'o quv' ko r qt vcpv'y qt mkpi "ckf" kp" yi g"cdugpeg" qh" c"pc vkxg" vtcf kkqp" qh' rksgt ct { "vtcpurc vkqp0 Pqv' wp vkri'ch ygt" Y qtrf" "Y ct" Vy q"f kf" Urqxcm' vtcpurc vkqp" go cpekr cvg' kugrh' htqo "E| gej "o qf gnu. "cu" c"pgy" i gpgt c vkqp" qh" gf wecvgf "vtcpurc vqt u" eco g" vq" yi g" hqtg0 Htqo "yi g"3; 92 u"

qpy ctf. 'y g'i tqy kpi 'kpf gr gpf gpeg'qh'Uqxcm'rkvgtct { ''tcpurcvkqp''y cu'tghrgevgf 'kp''y g'hcev''y cv'pqv'qpn( 'hqtgki p.'' dw'cnuq'E| gej 'rkvgtcwtg''y cu''tcpurcvgf 'kpvq''Uqxcn0

Kp"r ctcmgn'y ky "tcpurcvkqp"r tcevkeg. "yi qwi j "o qtg"urqy n{ ."c"Urqxcm'yi gqt { "qh' tcpurcvkqp"eco g"kpvq"dgkpi 0"Vj ku" y cu'dcugf 'pqv'qpn( ''qp''y g''gzr gtkgpeg''qh''y g''ngcf kpi 'r tcevkkqpgtu''qh'o qf gtp''nkxgtct { ''tcpuncvkqp.''dwv'cnuq''qp''y g'' y qtm'qh'uqo g'vj gqtgvkekcpu. 'r tkpekr cm( 'vj qug'qh'y j cv'j cu'eqo g'vq'dg'mpqy p'cu'vj g'P kxtc''Uej qqn0Rtqeggf kpi " htqo "vj g"y qtm"qh"Ik ¶Ngx{."Unqxcm'uej qnctu"gncdqtcvgf "c"uelgpvlhle"f ghlpkklqp"qh"vtcpuncvlqp"cu"c"o gvcvgzv'y kvj kp" yj g'u{uvgo ''qh'nkvgtct{''eqo o wpkecvkqp0'Vj g'hqwpf gt ''qh'yj ku'uej qqn'qh'yj qwi j v'y cu'Cpvqp'RQRQXK '\*3; 556: 6+0' Gzr gtko gpvcn'O gyj qf qmi { 'y kj ''j g'qdlgevkxg''qh'f gxgnqr kpi 'c''y gqt { ''qh'rkxgtct { ''eqo o wpkecvkqp.''cpf 'y kj ''kv' cniq"c"eqo o wpłecykxg"yj gqt { "qh"rkygtct { "\tcpurcykqp0'Rqr qxk "qwrkpgf" j ku"yj gqt { "lp"c"pwo dgt "qh"r wdrkecykqpu." pco gn("Rqgvkmc"wo gngenij q'rtgmcfw"\*Rqgvkeu"qh'rksgtct{"\tcpurcvkqp."3; 93+"cpf"\Wo gngem "rtgmcf"x" UUT" \*Nksgtct{"tcpurcvkqp"kp"E| gej qurqxcmkc."3; 96+."cpf "gxgpwcm{ 'hqto wrcvgf 'kv'o qtg'hwm{ 'kp"j ku'o qpqi tcrj " Vg»tkc"wo grgenij q"rtgmcfw"\*Vj gqt{"qh'rksgtct{"\tcpurc\kqp."3; 97+0J g"cnuq"gf ksgf '\y g'xqnwo g"Qt ki kp" nl Rt gmcf. 'Kpvgtrt gvc pa' 'lyto kpqn» i kc' 'Qtki kpcnlVtcpurcvkqp. 'Kpvgtrt gvcvkqpcn' lyto kpqnqi {+'kp'3; :60 Cp"wpf guktcdrg"cur gev. kp"yj g"3; 92u"cpf "3; : 2u. 'y cuô lwuv'cu'kp"yj g'E | gej "Ncpf u"cpf "gnugy j gtg"kp"yj g"Uqxkgv" ur j gtg"qh"kphrwgpeg" y g"y kf gur tgcf "r tcevkeg"qh" y g"\tcpurc\kqp"qh"r qgvt { 'y kj "'y g"ckf "qh"÷kpvgtnkpgct "\tcpurc\kqpuø0" Vj ku'y cu'y gqtgykecm{ "Iwuykhkgf"d{ "yj g"cti wo gpv'yj cv'r qgyt{ "eqwrf"qpn("dg"ytcpuncygf"d{ "c"r qgy0"Vj g'tgcnltgcuqp." j qy gxgt. 'y cu'r qrkkecritcij gt 'y cp'rkgtct { .'kp'y cv'y g''Urqxcriir qgw'y gtg'uko r n( 'eqr { kpi 'y g'r tcevkeg'r tgxcrgpv' kp"yj g"Uqxkgv"Wpkqp0Cnyj qwi j "qp"qeecukqpu"yj g"eqqr gtcvkqp"dgvy ggp"c"rkpi wkuv'cpf "c"r qgv'wpf qwdvgf n{" tguwngf 'kp'hkpg''tcpurcvkqpu. 'kp''o quv'kpuvcpegu'kv'hckrgf ''vq''gptkej ''vj g''uvqtgj qwug''qh''Uvqxcm'rkvgtct { ''vtcpurcvkqp0 ô ncti gn{"tgrkgf"qp"E| gej "tcpunckqpu0Go cpekr cvkqp"htqo "E| gej "cu"cp"kpvgto gf kct{"ncpi wci g"dgi cp"qpn{"chvgt" Y qtrf "Y ct"Vy q0Vj g'3; 92u'y kpguugf "yj g'dgi kppkpi "qh'c"o clqt"tcpurckqp"f tkxg'htqo "o cp{ "rcpi wci gu."c" r tqeguu'y j kej 'j cu'eqp\kpwgf '\q'i cvj gt'o qo gpwo 'wpf gt'\j g'kpf gr gpf gpv'Uqxcm'T gr wdnke0 Y j krg''y gtg''o wuv'j cxg''dggp''uqo g'kpvgtrtgvkpi ''cv'f kr mo cvke''cpf ''i qxgtpo gpvcn'rgxgn'f wtkpi ''Unqxcmkcøu''dtkgh'' y ctvko g":kpf gr gpf gpegø'cu'c" I gto cp"enkgpv'uvcvg. "r tqhguukqpcn'kpvgtr tgvkpi "f kf "pqv'dgi kp'kp"gctpguv'vvpvkn'chvgt" Y qtnf "Y ct"Vy q0

### Rt qhgudqpenqt i cpk cvkqpu'cpf 'tt cpurcvqt 'tt clpkpi

Cu'lp''y g'E| gej 'Ncpf u 'iksgtct{ ''tcpurcytu'lp'Uqxcmc'c'ngt'Y qtrf ''Y ct''Vy q'y gtg'qti cpk gf ''cu'c'ugekqp''qh'y g''
Uqxcm'Y tkgtuø'Wpkqp='y ku'dgeco g'c'o go dgt''qh'HkV'lp''3; 920Qy kpi ''vq'c'iguu'f tcuke'r tqeguu'qh'r qrkkecn'
-:pqto crk cvkqpø'kp'Uqxcmc.''y g'Uqxcm'Y tkgtuø'Wpkqp'y cu'pqv'f kuuqnxgf ''cpf ''y g'Uqxcm'vtcpurcytuø'
o go dgtuj kr ''kp'HkV''y gtghqtg''eqpvkpwgf ''wpkpyttwr vgf 0'Hqt''kpvgtpcn'r wtr qugu.''j qy gxgt.''y gtg''gzkuvgf ''htqo ''y g''
3; 92u''cp''qti cpk cvkqp''wpf gt''y g''Uqxcm'Nkgtct{ ''Hwpf .''ecmgf ''y g''Uqxcm'Vtcpurcvqtuø'Egpvtg='wprkng'ku'E| gej ''
r ctcngn'qti cpk cvkqp''y ku'kpenwf gf ''dqy ''rkgtct{ ''cpf ''pqp/rkgtct{ ''tcpurcvqtuo'Cv'r tgugpv.''y g''hqmyy kpi ''
kpf gr gpf gpv''qti cpk cvkqpu''gzkuv'kp''y g''Uqxcm'Tgr wdrke<''y g''Uqxcm'Uqekgv{ ''qh'Nkgtct{ ''Vtcpurcvqtu'\*Uqxgpunî ''
spoločnosi 'prekladatelov ''wo grgengl''rkgtcvÀt{+''cpf ''y g''Uqxcm'Uqekgv{ ''qh'Ncgej pkecn'Vtcpurcvqtu'\*Uqxgpunî ''
spoločnosi 'prekladatelov ''qf dqtpgl''rkgtcvÀt{+''cpf ''y g''Wpkqp''qh'Kpvgtr tgvgtu''cpf ''Vtcpurcvqtu'\*Igf pqvc''wo q p¶mqx''
c' prekladatelov ''0

Wpkxgtukv{/ngxgnl\gcej kpi "qhl\tcpurc\kqp"kp"Unqxcnkc"dgi cp'kp"3; 8: "kp"Dtc\kurcxc.'hqmqy gf 'kp'3; 95"d{ "\y g" guvcdrkuj o gpv'kp"P ktc"qh'c"r quvi tcf wcvg"eqwtug'hqt"\tcpurc\qtu'ngcf kpi "\q'c"f gi tgg"\y guku"cpf "ku'f ghgpeg0' Vj cpmu"\q'\y g'r kqpggt'y qtm'qh'Cpvqp"RQRQXK ."\y g"f gr ctvo gpv'kp"P ktc"j cu'i ckpgf "kpvgtpc\kqpcn'tgpqy p'hqt" ku't gugctej "cpf "r wdrkec\kqpu0

## Hwt yj gt 't gcf lpi

Hgt gp \( \frac{4}{3}; : 4=\frac{1}{3} \) qej gn'3; ; 2=\frac{1}{3} \) Mqej qn'3; 8: =\frac{1}{3} \) kmq'3; : 4=\frac{1}{3} \) Xkrkmqxum '3; : 60

### Dkqi tcrj {

RQRQXK .'Cpup"\3; 556: 6+0\Unacminkgtct {"uej qmt"cpf"rgcf kpi "hki wtg"qh"vtcpurckqp"uwf kgu"kp"Gcuv"cpf" Egpvtcn'Gwtqr g"f wtkpi "vj g"3; 82u"cpf "3; 92u0Eq/hqwpf gt."y kj "Htcpvk-gm'O kmq."qh'vj g"Egpvtg"hqt "Nkgtct {" Eqo o wplecktqp"cpf "Gzr gtko gpvcn'O gvj qf keu"kp"P ktc "\3; 89+"cpf "vj g"Uwo o gt "Uej qqn'qh'Vtcpurckqp"Uwf kgu"kp" Unacmic "\3; 97+0Cu"c "f kuckr ng"qh"Ik \nacmic \machine \Geta E\_J "VTCF KKQP + "j g"eqpvkpwgf "vj g"E| gej "cpf "Unacmi untwewtcn'vtcf kkqp."r wdrkuj kpi "\machine \machine \machine \machine \Geta Unacmi \machine \machine \Geta Unacmi \machine \Geta \Geta Unacmi \machine \Geta \G

# Urcpkij 'ttcf kkqp

Vj g'ewnwten'f kagtuka{ "qh''Ur cpkuj "j kuqt{ "ku'pqv'eny c{u'xkukdng'kp''y g''o qf gtp''Ur ckp'qh''5; "o kntqp'kpj cdkscpu0' Vj g''ncpi wei g''npqy p''eu''Ur cpkuj ."o qtg''eqttgewa{ "ecmgf "Ecwkrkcp."ku''pqy "ur qngp''y tqwi j qww''Ur ckp''dww'ku''qpn(" qpg''qh''ugxgten'Tqo cpeg''ncpi wei gu''y cv'f gxgrqr gf 'htqo "Nevkp''chygt''y g''Tqo cp''eqps wguv'qh''J kur cpke''kp''y g'' y kt f''egpwt{ "CF 0'Vj g''o quv''cevkxg''o kpqtka{ "ncpi wei gu''ctg''Ecwncp''kp''y g''pqty /gcuv'y ky i''kur'egpvtg''kp'' Detegrape. "I cnkekcp''kp''y g''pqty /y guv."cpf "Deus wg."c''pqp''Tqo cpeg''ncpi wei g''y cv'j cu''uvtxkxgf "ctqwpf "'y g'' y guvgtp''Htgpej /Ur cpkuj "dqtf gt0'Vj g'' kurqtkeen'ncpi wei gu''qh''Ctci qp. "Ngqp''cpf 'Cuwtkcu''j cxg''cnuq''eqpvtkdwgf " q''y g''hqi wkurke''o qucke0'Eqnrgevkxgn( "npqy p''cu'Tqo cpeg."'y g''Ncvkp/f gtkxgf 'ncpi wei gu'y gtg''o qtgqxgt''ur qngp'' cripi ulf g''y g''Ctcdke." J gdtgy "cpf 'Ncvkp'qh'o gf kgxcn'Ur ckp0'Vj kn''eqpulf gtcdng''kpygtpen'f kxgtuka{ "j cu''dggp''dqy'' gpj cpegf "cpf 'tgr tguugf "d{ "tcpuncvkqp0'Vtcpuncvkqp''qqni'r nceg'kpyq''ugxgten'ncpi wei gu'y tqwi j qw'o wej "qh''y g'' o gf kgxcn'Tgeqps wknc." y j gp''Ej tkurkcpu''urqy n{ "±geqps wgtgf ø'y g''r gpkpuwrc''htqo "Kurco ke''twg0'Vj g''u{uvgo cvke'' rtkxkrgi kpi "qh'Ecunkrkcp''cu''c'vcti gv''ncpi wei g''ecp''y gp''dg''f cvgf 'tcyj gt''ctdkxtctkn( 'htqo "36; 4. 'kpkkcvkpi "c''nqpi " rgtkqf "qh''tgr tguukqp"qh''kpygtpen'f kxgtuka{ "y cv''ncungf "cv''ngcuv'y tqwi j "vq''y g''f gcyj "qh''Htcpeq''kp''3; 970C''egtvckp'' ewnwten'r nxtcrka{ 'ku''pygtyj grguu''dgkpi 'tgf kneqxgtgf 'kp''r tgugpv'f c{ "Ur ckp0

### Vj g'Tgeqps what '\*93: 636; 4+

O clqt"r ctwi'qh"Ur ckp"y gtg"wpf gt "Kurco ke"twrg"htqo '933"wpvkn"y g"y ktvggpy "egpwt{."cmj qwi j "I tcpcf c"tgo ckpgf" Kurco ke"wpvkn"36; 40"Vj g"egpwtkgu"qh"y g"*T geqps wkwc* "kpenwf gf "nqpi "r gtkqf u"qh"eqgzkuvgpeg"cpf "kphrwgpeg."o cf g" r quukdrg"d{ "vj g"ghqt wu"qh"kpvgtewnwtcn"i tqwr u"cdrg"vq"o gf kcvg"dgwy ggp"y g"Ctcdke"cpf "T qo cpeg"rcpi wci gu0" O gf kgxcn"vtcpurcvqtu"kp"Ur ckp"y gtg"qhvgp"Igy u."Eqpxgtuqu"\*Igy u"r wdrken{"eqpxgtvgf"vq"Ej tkuvkcpkv{+"qt" O q| ctcdu"\*Ej tkuvkcpu"y j q"j cf "rkxgf" wpf gt"Kurco ke"twrg+0"Vj gtg"y cu"cnq"c"tkej "xctkgv{"qh"kpvgtpcvkqpcn"uej qrctu" y j q"vtcpurcvgf"kpvq"Ncvkp0"Nkng"Ukekn{"cpf "Eqpuvcpvkpqr rg."Ur ckp"y cu"c"o wnkewnwtcn"tgi kqp"dgwy ggp"y g" Ej tkuvkcp"cpf "Kurco ke"y qtrf u0

Kurco ke"Ur ckp"j cf "vj g"o quv'cf xcpegf "uekgpvkhke"mpqy ngf i g"qh"vj g"ko g. "ncti gn( "vj cpmu"vq"vj g"I tggmivgzvu" vtcpuncvgf "kpvq"Ctcdke"kp"vj g"pkpvj "egpwxt { "\*ugg"CTCDKE"VTCF KVKQP +0Tgi wnct "vtcpuncvkqp"ghhqtvu"htqo "Ctcdke"kpvq"Ncvkp"f cvg"htqo "vj g"gctn( "vy grhvj "egpwxt { ."vj gp"Cf gnctf "qh"Dcvj "cpf "vj g"Eqpxgtuq"Rgvtwu" Cnr j qpuwu"dtqwi j v'mpqy ngf i g"qh"Ctcdke"cuvtqpqo { "vq"Gpi ncpf ."cpf "Dkuj qr "O kej cgn"qh"Vctc| qpc. "kp"vj g"pqtvj "qh"Ur ckp. "ur qpuqtgf "vj g"vtcpuncvkqp"qh"r tqvquekgpvkhke"vgzvu"htqo "Ctcdke"kpvq"Ncvkp. "s wkxg"r tqdcdn( "vq"o ggv"c" Htgpej "f go cpf 0Vj ku"pqtvj y ctf "hnqy "y cu"

### Dkqi tcrj {

RQRQXK .'Cpup"\3; 556: 6+0\Unacminkgtct {"uej qmt"cpf"rgcf kpi "hki wtg"qh"vtcpurckqp"uwf kgu"kp"Gcuv"cpf" Egpvtcn'Gwtqr g"f wtkpi "vj g"3; 82u"cpf "3; 92u0Eq/hqwpf gt."y kj "Htcpvk-gm'O kmq."qh'vj g"Egpvtg"hqt "Nkgtct {" Eqo o wplecktqp"cpf "Gzr gtko gpvcn'O gvj qf keu"kp"P ktc "\3; 89+"cpf "vj g"Uwo o gt "Uej qqn'qh'Vtcpurckqp"Uwf kgu"kp" Unacmic "\3; 97+0Cu"c "f kuckr ng"qh"Ik \nacmic \machine \Geta E\_J "VTCF KKQP + "j g"eqpvkpwgf "vj g"E| gej "cpf "Unacmi untwewtcn'vtcf kkqp."r wdrkuj kpi "\machine \machine \machine \machine \Geta Unacmi \machine \machine \Geta Unacmi \machine \Geta \Geta Unacmi \machine \Geta \G

# Urcpkij 'ttcf kkqp

Vj g'ewnwten'f kagtuka{ "qh''Ur cpkuj "j kuqt{ "ku'pqv'eny c{u'xkukdng'kp''y g''o qf gtp''Ur ckp'qh''5; "o kntqp'kpj cdkscpu0' Vj g''ncpi wei g''npqy p''eu''Ur cpkuj ."o qtg''eqttgewa{ "ecmgf "Ecwkrkcp."ku''pqy "ur qngp''y tqwi j qww''Ur ckp''dww'ku''qpn(" qpg''qh''ugxgten'Tqo cpeg''ncpi wei gu''y cv'f gxgrqr gf 'htqo "Nevkp''chygt''y g''Tqo cp''eqps wguv'qh''J kur cpke''kp''y g'' y kt f''egpwt{ "CF 0'Vj g''o quv''cevkxg''o kpqtka{ "ncpi wei gu''ctg''Ecwncp''kp''y g''pqty /gcuv'y ky i''kur'egpvtg''kp'' Detegrape. "I cnkekcp''kp''y g''pqty /y guv."cpf "Deus wg."c''pqp''Tqo cpeg''ncpi wei g''y cv'j cu''uvtxkxgf "ctqwpf "'y g'' y guvgtp''Htgpej /Ur cpkuj "dqtf gt0'Vj g'' kurqtkeen'ncpi wei gu''qh''Ctci qp. "Ngqp''cpf 'Cuwtkcu''j cxg''cnuq''eqpvtkdwgf " q''y g''hqi wkurke''o qucke0'Eqnrgevkxgn( "npqy p''cu'Tqo cpeg."'y g''Ncvkp/f gtkxgf 'ncpi wei gu'y gtg''o qtgqxgt''ur qngp'' cripi ulf g''y g''Ctcdke." J gdtgy "cpf 'Ncvkp'qh'o gf kgxcn'Ur ckp0'Vj kn''eqpulf gtcdng''kpygtpen'f kxgtuka{ "j cu''dggp''dqy'' gpj cpegf "cpf 'tgr tguugf "d{ "tcpuncvkqp0'Vtcpuncvkqp''qqni'r nceg'kpyq''ugxgten'ncpi wei gu'y tqwi j qw'o wej "qh''y g'' o gf kgxcn'Tgeqps wknc." y j gp''Ej tkurkcpu''urqy n{ "±geqps wgtgf ø'y g''r gpkpuwrc''htqo "Kurco ke''twg0'Vj g''u{uvgo cvke'' rtkxkrgi kpi "qh'Ecunkrkcp''cu''c'vcti gv''ncpi wei g''ecp''y gp''dg''f cvgf 'tcyj gt''ctdkxtctkn( 'htqo "36; 4. 'kpkkcvkpi "c''nqpi " rgtkqf "qh''tgr tguukqp"qh''kpygtpen'f kxgtuka{ "y cv''ncungf "cv''ngcuv'y tqwi j "vq''y g''f gcyj "qh''Htcpeq''kp''3; 970C''egtvckp'' ewnwten'r nxtcrka{ 'ku''pygtyj grguu''dgkpi 'tgf kneqxgtgf 'kp''r tgugpv'f c{ "Ur ckp0

### Vj g'Tgeqps what '\*93: 636; 4+

O clqt"r ctwi'qh"Ur ckp"y gtg"wpf gt "Kurco ke"twrg"htqo '933"wpvkn"y g"y ktvggpy "egpwt{."cmj qwi j "I tcpcf c"tgo ckpgf" Kurco ke"wpvkn"36; 40"Vj g"egpwtkgu"qh"y g"*T geqps wkwc* "kpenwf gf "nqpi "r gtkqf u"qh"eqgzkuvgpeg"cpf "kphrwgpeg."o cf g" r quukdrg"d{ "vj g"ghqt wu"qh"kpvgtewnwtcn"i tqwr u"cdrg"vq"o gf kcvg"dgwy ggp"y g"Ctcdke"cpf "T qo cpeg"rcpi wci gu0" O gf kgxcn"vtcpurcvqtu"kp"Ur ckp"y gtg"qhvgp"Igy u."Eqpxgtuqu"\*Igy u"r wdrken{"eqpxgtvgf"vq"Ej tkuvkcpkv{+"qt" O q| ctcdu"\*Ej tkuvkcpu"y j q"j cf "rkxgf" wpf gt"Kurco ke"twrg+0"Vj gtg"y cu"cnq"c"tkej "xctkgv{"qh"kpvgtpcvkqpcn"uej qrctu" y j q"vtcpurcvgf"kpvq"Ncvkp0"Nkng"Ukekn{"cpf "Eqpuvcpvkpqr rg."Ur ckp"y cu"c"o wnkewnwtcn"tgi kqp"dgwy ggp"y g" Ej tkuvkcp"cpf "Kurco ke"y qtrf u0

Kurco ke"Ur ckp"j cf "vj g"o quv'cf xcpegf "uekgpvkhke"mpqy ngf i g"qh"vj g"ko g. "ncti gn( "vj cpmu"vq"vj g"I tggmivgzvu" vtcpuncvgf "kpvq"Ctcdke"kp"vj g"pkpvj "egpwxt { "\*ugg"CTCDKE"VTCF KVKQP +0Tgi wnct "vtcpuncvkqp"ghhqtvu"htqo "Ctcdke"kpvq"Ncvkp"f cvg"htqo "vj g"gctn( "vy grhvj "egpwxt { ."vj gp"Cf gnctf "qh"Dcvj "cpf "vj g"Eqpxgtuq"Rgvtwu" Cnr j qpuwu"dtqwi j v'mpqy ngf i g"qh"Ctcdke"cuvtqpqo { "vq"Gpi ncpf ."cpf "Dkuj qr "O kej cgn"qh"Vctc| qpc. "kp"vj g"pqtvj "qh"Ur ckp. "ur qpuqtgf "vj g"vtcpuncvkqp"qh"r tqvquekgpvkhke"vgzvu"htqo "Ctcdke"kpvq"Ncvkp. "s wkxg"r tqdcdn( "vq"o ggv"c" Htgpej "f go cpf 0Vj ku"pqtvj y ctf "hnqy "y cu"

cdqwi35; 4. 'y j gp'Eqnweekq'Ucnwwcvk'y tqvg'\q'Lwcp'Hgtpa pf g| 'lf g'J gtgf kc'cumkpi 'hqt'c'eqr { "qh'j ku'Ctci qpgug" xgtukqp"qh'Rnwctej 0'Vj gug'eqpvcewi'tguwngf 'kp'\tcpurcvkqpu'cpf 'tgvtcpurcvkqpu'qh'vj g'i tgcv'vgzwi'qh'cpvks wkx{0' Y j gtgcu'vj g'Kcnkcpu'vtcpurcvgf 'kpvq'Ncvkp.'vj g'Ur cpkuj 'y qtngf 'kpvq'Tqo cpeg0'Vj g'\tcpuhgt'hnqy 'y cu'vj wu'' i gpgtcm( 'htqo 'Kcn( 'kpvq'Ur ckp.'y kj 'o cp{ "I tggnivgzwi'dgkpi 'tgpf gtgf 'kpvq'J kur cpke'Tqo cpeg'htqo "kpvgto gf kct{ 'Ncvkp'xgtukqpu'f qpg'kp'Kcn( 0'Vj ku'y qwrf 'kpf ggf 'dg'c'f kuvkpevkxg'hgcwtg'qh'Ur cpkuj '' r tqvqj wo cpkuo 0'Dwi'vj gtg'y cu'cnuq'uki pkhecpv'o gf kcvkqp'd{ 'Htgpej .'r ctvkewrctn( 'kp'vj g'ecug'qh'y qtm'kpvq'' Ecvccp0

Vj g'eqpvcev'dgwy ggp''Ur cpkuj "uej qnctu'cpf "Kcrkcp''J wo cpkuo "y cu'o ctngf "d{" 'y gqtgklecn'f khtgtgpegu0Kp''y g" 3652u''Crqpuq''f g'ECTVCI GP C'\*35: 663678+. 'Dkuj qr "qh'Dwti qu. "etkklek gf "Ngqpctf q'DTWP K'tugg" "WCNKCP" VTCF WKQP +'hqt''r tkxkgi kpi "vcti gv'ncpi wci g''grqs wgpeg0Ectvci gpc''kpukurgf "qp''wpcf qtpgf "uqwteg/vgzv'hkf grkv{" cti wkpi "yi cv''grqs wgpeg''tgukf gf "kp''uwduvcpeg''kpuvgcf "qh''uv{ng0Cnj qwi j "qr r qukpi "J wo cpkuv''grqs wgpeg." Ectvci gpc''y cu''pqv'ecrhpi "hqt'y qtf 'hqt/y qtf 'hkgtcrkuo 0J g''kpuvgcf "tgeqi pk gf "yi cv''-gcej "rcpi wci g''j cu''ku''qy p" y c{"qh''ur gcnkpi ø''cpf "yi cv'\'gz vu''uj qwf "dg''cf cr vgf "'q''y gug''f khtgtgpegu''gzegr v'kp''y g''ecug''qh''-f qevtkpgu'y j qug'' xcnvg''f gtkxgu''htqo "yi g''cwj qtkx{"qh''y g'' r tqpqwpegf "yi go ø'\*Ucpvq{q''3; : 9-55+0'Vj ku'tguvtkevkqp"qh'' eqwtug''j ctmu''dcem'vq''LGTQO G'\*tugg''NCVKP "VTCF WKQP +''cpf "y qwf "dg''r kengf "wr "kp''cdqwv''3662''d{"Crhqpuq" f g''O CF TKL CN'\*e08622677+. "y j q''kpukurgf "qp'y qtf/hqt/y qtf "o gyi qf u''\*kpvgtrt gvcekop+'hqt''uvej "ecugu''dw''yi gp'' lwukhlyf "yi g''wug''qh''-gzr qukkqp."eqo o gpvct {"qt''i nquuguø'hqt''qyi gt''gzv''\{r gu''\*P qtvqp''3; : 6-5364+0'Kp''r tcekleg." j qy gxgt. 'hkhvggpyj /egpwt {"Ur cpkuj "vtcpurcvqtu'y gtg''crtgcf { 'tgo ctnrcdn( 'htgg'y kyj "yi gkt''gzr qukklqpu." eqo o gpvctkgu''cpf "i nquugu0

Qpg"qh"y g"tgcuqpu"hqt"y g"kpetgcukpi "htggf qo "kp"tcpurevkqp"o gyi qf u"eqwrf "j cxg"dggp"yi g"pggf "q"kputwev'c" pgy "ercuu"qh"tgcf gtu0"Vj g"o ckp"r cxtqpci g"qh"tcpurevkqpu"j cf "tij khrgf "htqo "yi g"w grhij /egpwxt {"ej wtej "vq"yi g" yi kvggpyj /egpwxt {"etqy p"cpf ."d {"yi g"hkhrggpyi "egpwxt {."vq"yi g"Ur cpkiji "pqdktk(0"Vj g"rewgt."y j kej "j cf "ho ksgf" mpqy rgf i g"qh"Ncvkp. "htgs wgpvxt {"eqpvguvgf "yi g"r qy gt"qh"yi g"rhpi 0"Vtcpurevkqpu"yi wu"gpvgtgf "mqerilir qy gt" uxtwi i rgu0"Vj g"O cts wku"qh"UCP VKNNCP C"\*35; : 6367: +"y j q"rgf "yi g"pqdrgu"ci ckpux'yi g"rhpi ."y cu"c" r ctvlewretn("cevkxg"tr qpuqt. "tgegkxkpi "Ncvkp"xgtukqpu"f ktgevxt "htqo "Kcnt "cpf "j cxkpi "Xkti kn "Qxkf "cpf "Ugpgec" tgpf gtgf "kpvq"Ecurkrkcp0C"Htgpej "o ktkct {"dqqm"eqwrf"yi wu"dg"vtcpurevgf "kpvq"Ecurkrkcp"yy keg"kp"yi g"uco g"{gct." qpeg"hqt"Ucpvkrrcpc"cpf "ci ckp"hqt"j ku"ctej "r qrkskecnttkxcn\*\*Crxct"cpf "I »o g| "O qtgpq"3; : 9+0\*Ulo krctn(."eqi pevg" rcpi wci gu"j cf "yi gkt"qy p"xgtukqpu"qh"egtvckp"yzvu0Rcwq "Qtqukq"vtcpurevgf "Ctkrxqvgxu"Gy keu"htqo "Ctci qpgug" kpvq"Ecurkrkcp."cpf "yi g"vgzv'cnrq"gzknyf "kp"Ecvrcp="Gptks wg"f g"Xknrgpc"vtcpurevgf "j ku"qy p"Ecvrcp"kpvq" Ecurkrkcp0Qyi gt"y qtrmi'htqo "yi ku"r gtkqf "kperwf g"Rgtq"F kc| "f g"Vqrgf qxu"Ecurkrkcp"xgtukqp"qh"Rrcvqxu"Rj cgf q." vtcpurevgf "Itqo "Ngqpctf q"Dtwpkxu"Ncvkp"xgtukqp"kp"36770O cp {"qh"yi gug"vtcpurevqtu "kpenwf kpi "yi g"Dkij qr "qh" Dwti qu "y gtg"htqo "Eqpxgtuq"hco krkgu."y j kej "hqto gf"c"tcf kpi "cpf" "kpvgrgewcn"ercuu"kp"yi g"ugtxkeg"qh"yi g" xctlqwu"r qrkkecn"r qy gtu0

Kp'36966; "vj g''Ur cpkuj "pqdkrkx{"r tqxqngf "ekxkri'y ct"kp'Ecurkrg0Nguu'vj cp"wy q'f gecf gu'ncvgt. "kp'36; 4."j kurqt {" nqqngf "xgt {"f khhgtgpv0Wpf gt "vj g'Ecvj qrke"Uqxgtgki pu. "Ecurkrg"y cu'wpkxgf "y kyj "Ctci qp."vj g'Kys wkukxqp"j cf " dggp"ugv'wr."vj g'Kurco ke"mlpi f qo "qh'I tcpcf c"j cf "dggp"f ghgcvgf."vj g'tgo clopkpi "Igy u"j cf "dggp"gzr gngf." Eqnwo dwu'j cf "uggp"vj g'Co gtlecu. "cpf "Ur clp"y cu'i clpkpi "r qy gt "cpf "go r ktg0Vj gug"o clqt"ej cpi gu'chhgevgf " vtcpurcvkqp"kp"wy q"y c {u0Hktuv."vj g'Ecurkrkcp"rcpi wci g'mquv'ku'uwr r qugf "kphgtkqtkx{0Ugeqpf."hqt"uqo g'hkxg" egpwxtkgu."vj g'kf gcn'qh'Ecurkrkcp"r wtkx{"y qwrf "r gtkqf kecm{"gzr gn'f kuukf gpv'ewnwtcn'i tqwr u."pqvcdn{"Igy u." Rtqvguvcpvu."Lguvkku."uwr r qtvgtu'qh'P cr qrgqp. "T qo cpvke"rkdgtcnu."Ectrkuvu."F go qetcvu"cpf "T gr wdrkecpu0Cm'vj gug" gzkrgf 'i tqwr u'r tqf wegf "tcpurcvqtu0O gf kgxcn'vtcpurcvkqp"j cf "qy gf "o wej "vq'hqtgki pgtu"kp"Ur ckp="vtcpurcvkqp" chygt"36; 4"y qwrf "qhygp"dg"kpf gdvgf "vq"Ur cpkctf u'cdtqcf 0

## Vj g'tt kwo rj 'qh'Ecushkep'\*36; 463; 97+

Vj g"{gct"36; 4"o ctmu."co qpi "o cp{"qyj gt"yj kpi u."yj g"hktuv"y tkwgp"i tco o ct"qh"c"xgtpcewrct"rcpi wci g."Ecukrkcp." y tkwgp"d{"Cpvqpkq"f g"P gdtklc"dgecwug."cu"j g"tgr qtvgf n{"gzr rckpgf "vq"S wggp"Kucdgn":rcpi wci g"ceeqo r cpkgu" go r ktgoOUr ckp"dgeco g"vj g"f qo kpcpv"r qrkkecn"hqteg"kp"

Gwtqr g'kp''y g'ukz vggpy ''cpf ''gctn{ ''ugxgpvggpy ''egpwtkgu.''y cpmu'pqv'qpn{ ''vq''ku''eqnqpkcn'go r ktg''dw'cnuq''vq'' Ej ctngu''Xøu'uvcwu''cu'J qn{ 'Tqo cp''Go r gtqt'\*373; 678+"nkpi ''qh''Dwti wpf { ''cpf ''y g'P gyj gtncpf u'\*3728678+"cpf .'' cu'Ectnqu''K'nkpi ''qh''Ur ckp'\*3738678+0'Cv'y g'uco g''vko g''cu''kv'y cu''ko r qugf ''qp''y g''Co gtkecp''eqnqpkgu.'Ecuvkrkcp'' y wu''i ckpgf ''r qrkvkecn'cuegpf gpeg''qxgt''Htgpej .''Gpi rkuj ''cpf ''y g''ncpi wci gu''qh'pqtyj gtp''Gwtqr g.''kpet gcukpi n{ ''dgeqo kpi ''cp''gzr qtvgt ''qh''vgzvu0'Vj ku''uvtgpi y gpkpi ''qh'Ecuvkrkcp''ewnwtg''o qtgqxgt''eqo dkpgf ''y kyj ''y g''eqpvkpwgf ''kphrwgpeg''qh''Kcrkcp''vq''us wgg| g''qww''vtcpurcvkqpu''kpvq''qyj gt''J kur cpke''rcpi wci gu.''gur gekcm{ 'Ecvcrcp0'Vj g''ci g''qh'' go r ktg''j cf ''rkwrg''tqqo ''hqt''kpytpcn'f kxgtukx{ 0

Qpg"qh'yi g'r tqf wewi'qh'go r ktg"y cu'c'ugtkgu'qh'ncy u'r tqencko gf "htqo "374; "vq"3852"kp"qtf gt "vq"tgi wncvg" kpvgtr tgvgtu'kp"yi g'Co gtkecp"eqmpkgu0Vj gug'ncy u'uvkr wncvgf "yi g'hggu."y qtmqcf u'cpf "gyi kecn'qdnki cvkqpu"qh" kpvgtr tgvgtu'y qtmkpi "dgwy ggp"Ecuvkrkcp"cpf "yi g'Co gtkecp"vqpi wgu."cu'y gm'cu'yi g"gzvtgo g'r wpkuj o gpwu" cy ckkpi "yi qug'y j q"f kf "pqv'eqo r n $\{0$ S wksg'r tqdcdn $\{$ "y kyi qw'o wej "ghhgev'kp"yi g'eqnqpkgu."qpg"qh'yi g"vgz w'f cvkpi "dcem'vq"37: 5"f guetkdgu'kpvgtr tgvgtu'cu" $\div$ yi g'kpuvtwo gpv'd $\{$ "y j kej "lwurkeg'ku'f qpg."yi g'pcvkxgu'ctg'i qxgtpgf."cpf" yi g'lplwtkgu'f qpg'vq'yi g'pcvkxgu'ctg"eqttgevgf  $\emptyset$ " cti cvci rk'3; ; 4."wpr wdrkuj gf +0"Y j cvgxgt"yi g'cewcn'r tcevkegu." yi g'ngi kurcvkxg'tcvkqpcng'y cu'pqv'y kyi qwv'pqdkrkv $\{0\}$ 

Ur cpkuj "tcpurctkqp" y gqt { "cf lwurgf" 'q" y g" pgy "urcwu" qh" Ecurktkcp0 Hqt" cu" y g" Nctkp/f gtkxgf" rcpi wci gu" j cf "eqngetkxgn { "dggp" ecngf" Tqo cpeg." 'q" tcpurcty" kpq" y go "j cf "dggp" 'q" tqo cpegct." qp" ct" ct" y kj "xwii ctk/ct." J qy gxgt." y g" xgtd" 'tcf wekt" cpf "ku" eqi pcvgu. "i tcf wcm { "cf qr vgf" htqo "y g" Kcrkcp" J wo cpkuru" kp" y g" eqwtug" qh" y g" hthrogpy "egpwt { ."eqwf" pqy "dgeco g" rctv" qh" cp" ko rgtkcrkur kf gqmi { ."rtqi tguukxgn { "f qkpi "cy c { "y kj "y g" eqmgetkxgn { "kphgtkqt" Tqo cpeg0" V j g" o quv" tckugf "gzr tguukqp" qh" y ku" e j cpi g" y cu" Lwcp" Dque a pøu" 3756" tcpurctkqp" qh" Ecurki rkqpgøu" \*ktEqtvgi kcpq." y j gtg" y g" tcpurctyt" pqvgu" y cv" xq" tcpurcyg" \*tcf wekt + y ku" dqqm ku" pqv" tgcm { "vq" rw'kv" kpvq" Tqo cpeg" \*tqo cp/cmg+" dw' vq" o qxg'kv" htqo "qpg" xgtpcewrct" kpvq" cpqyj gt "y cv'ku" rgtj cr u" lwurv' cu" i qqf ø\* Ucpvq { q"3; : 9<7; +0

Vj g"pgy "eqphlf gpeg"y cu"pqv"tguxtlevgf "vq"y qtmlhtqo "Kcnlcp0Kp"374: "Hgtpap"R2 tg| "fg"Qnlxc"\*e06; 66e08753+" cf cr vgf "Uqr j qengu."r tqdcdn( "htqo "c"Ncvlp"xgtulqp."÷q"uj qy "vj cv"encualecn'll gcu"eqwrf "dg"gzr tguugf "lp" Ecuvlrlcpø0F wtlpi "vj g"uco g"r gtlqf."Lvcp"Nvku"XKXGU\*36; 463762+"vj gqtl\ gf "c"r cvj "dgwy ggp"ugpuwu"cpf "xgt dc" cu"vj g"qdlgewu"qh"vj g"vtcpurcvqtøu"hlf grlw{."i gpgtcm{"cmqy lpi "vj cv"vj g"uxtwewtgu"qh"qpg"ncpi wci g"uj qwrf "pqv"dg" gzr tguugf "lp"cpqvj gt0Uwej "c"vj ktf "cnvgtpcvlxg"y qwrf "j cxg"dggp"wpvj lpnvcdrg"y kvj qwreqphlf gpeg"lp"vj g" xgtpcewrct0

Uqo gʻʻgzeguuguʻʻy gtgʻʻr gtj cr uʻʻkpgxkxcdrg0kpʻʻ3738'RgtqʻʻHgtpa pf gʻʻʻf gʻʻXkrigi cuʻʻencko gfʻʻvqʻj cxgʻko r tqxgfʻʻpqvʻʻ qpn(ʻʻy gʻʻuv{rgʻʻuwʻcniqʻʻy gʻeqpvgpvʻqhʻy gʻ'F kxkpcʻ′E qo o gf kc0kpʻ'3748'C mpuqʻʻHgtpa pf gʻʻf gʻʻO cf tkfʻco r nkhlgfʻʻ Gtcuo wuxuʻʻGpej qt kf kqpʻʻvqʻcdqwiʻy kegʻkuʻqtki kpcnʻrgpi yi .''qo kwkpi 'r cuuci guʻcpfʻcf qr vkpi 'cʻr tgcej kpi 'vqpgʻpqvʻ vqʻdgʻʻhqwpfʻkpʻʻy gʻqtki kpcnʻ)C nyi qwi jʻʻpqvʻv(r kecnʻqhʻyi gʻr gtkqf .''uwej ''vtcpurcvkqpuʻgz vgpf gfʻʻyi gʻpqvkqpuʻqhʻʻ ÷gzr qukkqp.''eqo o gpvct{"qt''i muuguxoʻf ghgpf gfʻd{'O CFTKI CN0[ gvʻyi gʻ'wugʻqhʻco r nkhlecvkqpʻʻpqy 'cniqʻqy gfʻ' uqo gyi kpi ''qʻyi gʻvtcpurcvkqp'o gyi qf uʻqhʻGTCUO WUʻj ko ugrhʻ\*uggʻ<u>F WVEJ ''VTCF KVQP</u>+.''cpfʻvqʻyi gʻi tqy kpi '' kphrwgpegʻqhʻRtqvguvcpvkuo 0

#### Rt qvguvc pv'c pf 'r t qvguvlpi 'tt c purc vqt u

Qpg"qh"yi g"o clp"hcevqtu"cmqy lpi "yi g"eqpugetcvlqp"qh"Ecuvlrkcp"y cu"yi g"f gxgmqr o gpv"qh"ugtkqwu"r j kmmi {"lp" Ur clp0Cmj qwi j "egtvclpn("cp"qhhuj qqv"qh"Kcnkcp"J wo cpkuo ."Ur cpkuj "r j kmmi {"wpf gty gpv"c"uvtqpi 'Gtcuo kcp" lphwgpeg."o gf kcvgf "d{ 'vj g"uej qrctu"cv"vj g"Wpkxgtukv{"qh"Crecn" "f g"J gpctgu"y j q."wpf gt "Ectf kpcn"Ekupgtqu." r tgr ctgf "vj g"hktuv"r qn(i mv"dkdrg"vq"dg"r tlpvgf "\*3724639+0Gtcuo wu"y cu"vtcpurcvgf "kpvq"Ecuvlrkcp"htqo "3733=" Ur clp"y cu"qpg"qh"vj g"hgy "eqwpvtlgu"y j gtg"j ku"y qtmu"ektewrcvgf "htggn(="Ekupgtqu"gxgp"lpxkxgf "Gtcuo wu"vq"vj g" Wpkxgtukv{"qh"Crecn"."y kvj qw"uweeguu0J qy gxgt."Gtcuo wuxu"dkdrg"y cu"xkqrgpvn("cwcengf "y j gp"kv"cttlxxgf "lp" Ur clp"lp"37420'Vj g"eqo dlpcvkqp"qh"r j kmmi { "cpf "hqtgki p"Rtqvguvcpv"lf gcu"r tqxgf "f cpi gtqwu0Ki'kpxkxgf " vtcpurcvqtu"vq "cuuguu"tgrki kqwu"uqwteg"vgz w"etkkecm(."kpetgcukpi n("ej cmgpi kpi "vj g"qtvj qf qz "Ecuvlrkcp/Ecvj qnle" lpvgtr tgvcvkqpu0Qpg"tguvnv"y cu"vj g"gxcpi grkuvke"gzr cpukqp"qh"Hgtp" pf g| "f g"O cf tkf øu"xgtukqp"qh"Gtcuo wu0' Cpqvj gt."o qtg"ugtkqwu."y cu"r gtugewkqp"d{ "vj g"J qn("Qhhleg."vj g"Kps wkukkqp0

Vj g'Eqwpvgt/Tghqto cvkqp''yj cv'r wv'cp''gpf 'vq'' vkgppg'F QNGV'\*ugg''HTGPEJ ''VTCF WVQP +'kp''3768''y qwrf " o cng'hltg'f lthlewn/hqt'o cp{"Ur cpkuj "tcpurcvqtu'cu'y gm0Lvcp'Nvku'XKXGU'ku'uckf "vq"j cxg'hghv'Ur ckp'kp''qtf gt''vq" cxqlf "vj g"Kps wkukklqp0"Vj g"Gtcuo kcpu"y j q"vj gpv"kpvq"gzkrg"kp"vj g"o kf/ukzvggpvj "egpwt { "kpenwf gf "vj g"Dkdrg" vtcpurcvqtu'Lvcp'f g'Xcrf²u. 'Htcpekueq'f g'GP \ IP CU'\*ko r tkuqpgf 'kp'Dt wuugnu'kp'3765''chvgt'f gf kecvkpi 'j ku'' Ecurkrkep 'P gy "Vgurco gpv'vq'Go r gtqt'Ej ctrgu'X+: 'Lwep'R² tg| 'f g'Rkpgf c'\*cttgurgf 'd { 'vj g'Kps wkukkqp'kp'3779+" Ecular qtq"f g"TGKP C"\*dwtpv"kp"ghhki {"kp"3784+."cpf "Ekrtkcpq"f g"Xcrgtc"\*y j q"tgxkugf "Ecular qtqøu"Dkdrg"cpf" y gpv'wpr wpłuj gf +0C 'hwt y gt 'Rtqvguvcpv'ej cmgpi g'vq'qt y qf qz { 'y cu'Lqj cppgu'Nglt cttci cøu'vtcpurcvkqp''qh'y g" P gy "Vguvco gpv'kpvq'Dcus wg. 'ecttkgf 'qwv'cv'vj g'tgs wguv'qh'vj g'Ecnxkpkuv'u{pqf 'qh'Rcw. 'Htcpeg. 'kp'37930 Kp"yj gug"uco g"{gctu. "Htc{"Nwku"fg"Ng»p"\*e037496; 3+"y cu"ko rtkuqpgf"rctvn{"dgecwug"qh"gtqvkekuo "kp"j ku" vtcpurcvkqp"qh"yj g"Uqpi "qh"Uqpi u0Htc{"Nwku"cpf"yj g"Rtqvguvcpv"vtcpurcvqtu"uj ctgf"cp"kpukuvgpeg"qp"y qtmhtqo" yj g"qtki kpcn"vqpi wgu0"Vj ku"r tkpekr ng"pqy "cr r nkgf "dg{qpf" yj g"tgnki kqwu"ur j gtg"cpf" y cu"gur qwugf "d{"yj g"nkngu"qh" Fkgi q'I tcek' p. "qhhkekcn'ugetgvct { "cpf" :kpvgtrtgvgt "qh'hcpi wci guø' vq" Mkpi 'Ej ctrgu 'X "cpf 'Hgrkrg' KKOI tcek' p" quvgpukdn( "tgpf gtgf "encuukecn'\gzvu'htqo "I tggml\*\q'y j kej "j g"encko gf "Ecuvkncp'y cu'enqugt'\j cp"cp{ "q\j gt"  $mpi \ wci \ g\# : "dw'j \ ku'Rnwctej \ "y \ cu'ecns \ wgf \ "qp"c" Htgpej \ "xgtukqp"cpf \ "uqo \ g"qh'j \ ku'qvj \ gt \ "tcpurc \ kqpu'htqo \ "I \ tggm' \$ y gtg"o gf kcvgf "d{ "Gtcuo wuxu"Ncvkp"xgtukqpu0"Vj g"Rtqvguvcpvu"cpf "r j krqrqi kuvu"vgpf gf "pqv"vq"dg"uq"vtwuvhwrl'qh" kpvgto gf kct { 'vtcpurcvkqpu0

C"o clqt"o qxg"\qy ctf u"Ecu\kt\cp"r wt\\\"eco g"\p"377: \(\dots\", \) j gp"\textra g"\kt\mpqy p"\q'\Gpi r\kij "j \knqt\"cu"\j g"o cp" y j q"\ugp\'\j g"\Cto cf c."\ugv\'\wr "cp"\kpf gz"\qh"r tqj \kd\kgf "dqqmı"cpf "\ugxgt gn\" tgu\textra keyf "\uw\f\ \"cdtqcf 0"\Vj \ku"o qxg"y cu" cuuqe\kcyf "y \kj "eco r c\ki pu"ci c\kpu\"\ktq\ugv\cp\" tqp \underline \textra gcp \"kf gcu."\ugeqo \kpi "\ux\ur ke\textra p"\textra hu\pc \"\kt\wcm\\" equgf "\ktq\ug\ur y\textra gcp \"kf gcu."\ugeqo \kpi "\ux\ur ke\textra p"\textra hu\pc \"\y g"\uge\ur ke\textra gp\"\textra gcp \"\kf gcu."\ugeqo \kpi "\ux\ur ke\textra p"\underline \"\y g"\uge\ur ke\textra g\textra \"\textra \upp\"\upp\

#### Vj g'f genkpg'qh'Ur ckp 'cu'c 'uwr gt r qy gt

Vj g'ugxgpvggpyj 'egpwt { .''eqpvkpvkpi ''y g'I qrf gp'Ci g'qh'Ur cpkuj ''hkgtcwtg.''tcpurcvgf ''o quvn{ ''htqo ''Ncvkp.'' Kcrkcp''cpf ''Htgpej .''crapi ukf g'qf f kkgu''hkrg'I ctekrcuq''f g''rc''Xgi c''Kpecøu''vtcpurcvkqp''qh''y q''n{ tkecn'vgz uu'htqo '' S wgej wcp''kp''382; .''cpf ''y g''y qtrf øu''o quv'hco qwu''RUGWF QVTCP UNCVKQP .'Egtxcpvguø''Fqp''S wkzqvg.''y g''hktuv'' r ctv'qh''y j kej ''y cu''r wdrkuj gf ''kp''38350Cu''Htcpeg''dgeco g''y g''f qo kpcpv'r qrkvkecn'cpf ''ewrwtcn'r qy gt. ''Htgpej ''y cu'' kpetgcukpi n{ ''y g''kpvgto gf kct { ''rcpi wci g'hqt''yz wu'htqo ''Gpi rkuj .''I gto cp''cpf ''y g''Nqy ''Eqwpvtkgu0'Vj ku''r cwgtp'' y qwrf ''r tgxckn'hqt''uqo g''y q''egpwtkgu0'D{ ''y g''dgi kppkpi ''qh''y g''gki j vggpyj ''egpwt{ .''Htgpej ''y cu''y kf gn{ ''tgcf ''kp'' Ur ckp0'Kp''397; ''Dgpkq'Ig\*pko q''Hgkl\*q''eqo r rckpgf ''y cv''cnj qwi j ''o cp{ ''Ur cpkctf u''eqwrf ''tgcf ''cpf ''wpf gtuvcpf '' Htgpej .''hgy ''qh''y go ''eqwrf ''tcpurcvg'y gml\*Ucpvq{ q''3; : 9 < 327 + 0Hkwkpi n{ .''c''o cpwcn'hqt ''tcpurcvkqp''htqo ''Htgpej '' kpyq''Ecuvkrkcp'y cu'y tkwgp''d{ ''Cpvqpkq''f g''Ecro cp{ ''kp''39980}

Cm'y ku'ko g."j qy gxgt."y gtg"y cu'c'o kpqt"dwlf ktgev'hnqy "htqo "Kcnkcp"cpf "Nckp."c"f ktgevkqpcnkv{ "y cv'y cu" dtkghn{ "gpj cpegf "d{ "y g"6.222"qt"uq"Lguwku"gzkrgf "kp"Kcn{ 'htqo "39890"Vj g"vtcpurcvqtu"co qpi "y ku'i tqwr " kpenwf gf "Lqu² "Htcpekueq"Kurc."Ectnqu"Cpf t² u."y j q"vtcpurcvgf "y g"j kuvqt { "qh'y qtnf "rksgtcwttg"y cv'j ku'dtqyi gt"Lwcp" j cf "y tkwgp"kp"Kcnkcp."cpf "Rgf tq"O qpvgpi »p."y j q"vtcpurcvgf "Quukcp"htqo "cp"Kcnkcp"xgtukqp0 [ gv'y g"o ckp"y tgcv'vq"Ecuvkrkcp"r wtkv{ "y cu"pqv'htqo "Lguwkur"kp"Kcn{ 0"Vj g"tgcn'f cpi gt"rc{ "kp"y g"Htgpej " repi wci g."y j kej "pqy "dqtg"tgxqnwkqpct { "kf gcnt0"kp"y g"3992u."Vqo a u"f g"Kkctvg."uqo gvko g"qhhkekcn'vtcpurcvqt"cv' y g"O kpkurt { "qh"Uvcvg"kp"O cf tkf ."y cu"tgi ctf gf "y ky "uwur kekqp"y j gp"j g"vtcpurcvgf "Yqncktg."cpf " O qn² tg"hqt"y g"Ur cpkuj "uvci g0"kp"39; 4."O ctkcpq"Nwku"f g"Wts wklq"vtcpurcvgf "Xqncktg"

 $y\;kj\;"c"r\;tghceg"'yj\;cv"cwcengf\;"'yj\;g"'K\!p\!s\;wkukk\!lqp."wr\;qp"y\;j\;kej\;"'yj\;g"'tcpurcvqt"gpvgtgf\;''yj\;g"f\;kr\;nqo\;cvke"eqtr\;u"cpf\;'y\;cu"$ ugpv'vq'Nqpfqp'hqt'j ku'qyp'i qqf0Fgurkg'vjg'lkfgqnqi kecn'vgpukqpu."Urckp'pgxgtvjgrguu'vtcpurcvgf"  $rtgfqo kpcpvn ("htqo" Htgpej." rct vkewctn ("hqt" vjg" uvci g0 Cv" vjg" dgi kppkpi "qh" vjg" pkpgvggpvj "egpwt {."44" qh" vjg" uvci g0 Cv" vjg" dgi kppkpi "qh" vjg" pkpgvggpvj" egpwt {."44" qh" vjg" uvci g0 Cv" vjg" uvci g0 C$ rnc{u'rwdrkuj gf 'kp''y g''*Vgcvtq'Pwgxq'Gurc°qn*''quvgpukdn{''y g''÷Pgy "*Urcpkuj* "Vjgcvtgø'y gtg''tcpurcvkqpu''qt"  $cf cr w w q pu 0 C'r t qo k pg p v'g z co r g''q h'' y ku' v g p f g p e \{ 'y cu' V qo `a' u' I cte \c 'U w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V qo `a' u' I cte \c 'V w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V qo `a' u' I cte \c 'V w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V qo `a' u' I cte \c 'V w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V qo `a' u' I cte \c 'V w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V qo `a' u' I cte \c 'V w g n q \not u ' t c p u r w q p ''q h'' N g' E l f .'' \c 'V q p '' q h'' N g'' R g' n g'' n g'$ r gthqto gf "uweeguuhwm ("kp"O cf tkf 'kp"3: 250'Dw'\gp" {gctu'ncvgt." vj g"uco g"I cte \cdot cte \cdot cf \cdot vq"ngcxg" Ur ckp." vqi gyj gt 'y kj ''y g'32'222''qt ''uq''cht cpegucf qu'\* Htgpej khkgf ''Ur cpkctf uø+'y j q'j cf ''uwr r qt vgf ''y g'P cr qrgqpke'' kpxcukqp"qh"yj gkt "eqwpvt {0"Vj ku"i tqwr "qh"gzkrgu kpenwf gf "Htcpekueq"Lcxkgt "f g"Dwti qu" \*399: 63: 6: + 'y j q"o cf g" J qtceg'o qtg":pqdrgø'y tqwi j "qo kuukqpu"cpf "uwduvkwwkqpu."Lwcp"Oct¶c"Ocwt{"\*399463: 67+."y j q'r wdrkuj gf "kp" Rctku'cp'kphrwgpvkcn'dkrkpi wcn'j kuvqtkecn'cpyj qmi { ''qh'Ecuvkrkcp'r qgvt { .''cpf ''Htcpekueq''O ctvfpg| 'f g'nc'Tquc'' \*39: 963: 84+."y j qug"j kuvqtkecn'f too c"Cdgp"J wo  $g\{c\}$  cu'y tkvgp"kp"Htgpej "cpf" 'tcpurcvgf "kpvq"Ecuvkrkcp0 C'tgwtp'\q'cduqnwkuo 'kp'3: 45'ngf '\q'c'hwtyj gt'gzr wnkqp.'\yj ku'\ko g'qh'\yj g'nkdgtcn'Tqo cp\keu.'\y j q''go ki tc\gf '\q'' Gpi rcpf. 'Htcpeg'cpf ''y g'Co gtlecu0Dgw ggp'3: 46'cpf '3: 4: 'Nqpf qp'y cu'c'egpvtg'qh'Ur cpkuj 'kpvgmgewcn'nktg." ncti gn("yj cpmu"\q"yj g"I gto cp"r wdrkuj gt"Twf qrr j "Cengto cppøu"f kuxtkdwkqp"qh"qtki kpcn'\gz vu"cpf "\tcpunc\kqpu" yj tqwi j qwi'Ur cpkuj 'Co gtkec0Co qpi ''yj g''tcpurcvqtu''gzkrgf 'kp''Nqpf qp''y cu''Iqu2 'Iqcs w¶p'f g'O qtc.''y j q'' vtcpurcvgf "Y cnvgt "Ueqw'kp'3: 470 Kp" Ur ckp. "vj g'kpvgmgewcn'enquwtg'y cu'uwej "vj cv'y j gp" Hr rkz "Vqttgu'Co cv" r wdrkuj gf "j ku"Ecyj qrke" 'tcpurcykqp" qh''y g"Dkdrg" kp"3: 48" uqo g"uckf" ky"j cf "dggp" hkpcpegf" d{ "Gpi rkuj "Rtqvguvcpvu" \*kp'hcev'kv'j cf 'dggp'r tgegpuqtgf 'd{ ''y g'ej wtej 'cpf 'y cu'uwdukf k gf 'd{ ''y g'Ur cpkuj 'etqy p+0Chygt ''y g'Lyn( '' Tgxqnwkqp"qh'3: 52"o cp{"gzkrgf 'rkdgtcru'y gpv'htqo 'Nqpfqp'\q'Htcpeg."gxgpwcm{'tgwtpkpi '\q'Urckp'kp'\j g" eqwtug'qh'y g'f gecf g0

Vtcpurckqp"kpvq"Ecukrkcp"kpetgcugf "kp" y g"3: 52u"cu"c"tguwn'qh'hcxqwtcdrg"r wdrkeckqp"rcy u0Vgzw" y cv" y cf "rqpi" ukpeg"dggp"y tkwgp"y gtg"pqy "tcpurcvgf "hqt" y g"hktw'ko g<F kf gtqv'kp"3: 53."Tqwuugcw'kp"3: 580O quv'qh' y g" vtcpurcvkqpu"eco g"htqo "qt" y tqwi j "Htgpej 0Kf gcu"cdqw'vtcpurcvkqp"y gtg"cnuq"tgo ctncdn( "Htgpej ."r ctvkewrtn( "y ky "tgur gev'vq"cf cr wckqp"vq"vcti gvewnwtg"pqto u0Kp"3: 58"O ctkcpq"Lqu? "Ncttc"f genetgf "y cv'y g"eqttgev" vtcpurcvkqp"qh"eqo gf kgu"htqo "Htgpej "uj qwrf"dg":-vq"uggnigs wkxcrgpegu"pqv'qh'y g"y qtf u"dww'qh'y g"ukwcvkqpuø" cf qr vkpi "-yi g"ewnvqo u"qh'yi g"eqwpvt {"kpvq"y j kej "qpg"ku"vtcpurcvkpi ø" Ucpvq {q"3; : 9<387+0Htgpej "kphrwgpeg"y cu" cnq"xkukdrg"kp" y g"eqo o qp"r tghgtgpeg"hqt"tgpf gtkpi "xgtug"cu"r tqug0D{tqp"yi wu"gpvgtgf "Ecukrkcp"htqo "Htgpej "pqv'cu"c"r qgv'dw'cu"c"y tkgt"qh'uj qtv'uvqtkgu0Vtcpurcvkqpu"kp"yi ku"r gtkqf "y gtg"i gpgtcm("htgg."j wttkgf."cpf "o cf g" y ky "cp"g {g"vq"cwf kgpeg"ceegr wcdkrkv{0}

Htqo "cu"gctn{"cu"3: 56"\tcpurc\kqp"cnuq"r rc{gf "c"tqrg"\kp"\yi g"tgxkxcn'qh"Ecvcrep"cu"c"nkvgtct{"rcpi wci g."qhvgp" yi tqwi j "kpf ktgev"y qtm'cpf "cf cr vc\kqpu"hqt"\yi g"\yi gcvtg0"J qy gxgt."kv"y cu"pqv"wpvkn'\yi g"3: : 2u"\yi cv"\tcpurc\qtu" tgcm{"gpj cpegf "yi g"uvcwu"qh"Ecvcrep."ugwkpi "wr "c"uvtqpi "\tcpurc\kqp"ewnwtg"\yi cv"y cu"rcvgt "\q"dg"\kpvgttwr vgf "d{" yi g"Htcpeq"f kevcvqtuj kr 0

Cu'y g'pkpgyggpy "egpwt { 'r tqi tguugf . 'Ur ckp''nquv'ku'gz ygtpcn'eqnqpkgu'cpf 'uwhhgtgf 'y g'kpygtpcn'uvtkhg'qh'y g''
Ectrkuv'y ctuOT gcevkqpu''vq''y g''cr r ctgpv'f genkpg''o qf khlgf 'y g''ewnwtcn'f gr gpf gpeg''qp''Htcpeg''kp''y q''y c { uO'Hktuv.''
y g''*Mt cwukuo q*''o qxgo gpv.''f gxgnqr gf ''d { 'Lwkk p''Ucp| 'f gn'Tkq'htqo ''3: 79''qpy ctf u. ''tcpuhqto gf ''y g''kf gcu'qh'y g''
J gkf gndgti ''r j knquqr j gt ''MEO'HMtcwug''kpvq''c''r gewrlctn( ''Ur cpkuj ''nkdgtcntcvkqpcnkuo ''y cv'eqo dkpgf ''r qr wrkuv''
grgo gpwi'y ky ''kpygngewcn'² rkkuo O'Vj tqwi j ''y gkt''uvtwi i rgu''ci ckpuv'xctkqwu''cwy qtkkkgu''cpf ''y gkt''kpukuvgpeg''qp''
y g''tqng''qh''gf wecvkqp.''y g''Mtcwukuwi'kpvtqf wegf ''c''o qtg''Gwtqr gcp''kpygngewcn'xkukqp''y cv'y qwrf ''uwtxkxg'y gm'kpvq''
y g''y gpvkgy ''egpwt { OQr r qugf ''q'y go 'y cu''y g''pcvkqpcnkuo ''qh''O ctegrkpq''O gp² pf g| ''{ ''Rgrc { q'\*3: 7863; 34+:'c''
uej qrct''y j q''uqwi j v''q''dcug''Ecurkrkcp''r wtkx{ ''qp''Tqo cp/Ej tkukcp'hqwpf cvkqpuOJ ku'y qtm'j cf ''c'hct''o qtg''f ktgev''
kphrwgpeg''qp''tcpurcvkqpuO

vtcpurcvkqp"kp"Ur ckp0O gp²pfg| "{ "Rgrc{q"i gpgtcm{"ucy "vtcpurcvkqp"htqo "encuukecn'uqwtegu"cu'wr nkhvkpi "hqt"dqyj " pcvkqp"cpf "hcpi wci g."dw/tgi ctf gf "o cp{"qyj gt"uqwtegu"cu"o qtcm{"uwur gev'Kp"j ku'3::8"r tghceg"vq"c"vtcpurcvkqp"qh" D{tqp"y j kej "dtqng"y kij "yj g"r tgxkqwu"f qo kpcpeg"qh"r tqug."j g"encko gf "yj cv"r tqug"vtcpuncvkqpu"qh"xgtug"y gtg" uko rn(''y g'tguwn'qh''Ur cpkctf u'eqr {kpi ''y g'y gcmpguugu''qh''y g''Htgpej 'ncpi wci g'\*Ucpvq{q''3; : 9<3996: +0' Cnj qwi j ''y ku'r qukkqp''y cu'o qf khkgf 'kp'3; 2; 'y j gp''j g''r tckugf 'Nwku''Ugi cn'' ''{ ''Guvcngmcøu'r tqug''x gtukqp''qh''y g'' Klkcf. 'O gp² pf g| "{ 'Rgrc { qøu'r tghgtgpegu'j cf "c'r tqhqwpf "kphrwgpeg'qp"Ur cpkuj "r j krqrqi { 0 Ewnwtcn'pcvkqpcrkuo 'y cu'dtkghn( ''qr r qugf ''d { ''xctkqwu'equo qr qrkxcpu'y j q'j grf ''cmgi kcpeg'pgkxj gt''vq''Ur ckp''pqt''vq'' Ecurkrkep'xgtug0Kp'3; 2: .''yj g'I wevgo enep'Gptks wg'I »o g| 'Eettkmq.'r tgheekpi 'O epwgn'O eej ef qøu'r tqug'' xgtukqpu'qh'Xgtrckpg. 'ercko gf 'vj cv'xgtug'uj qwrf 'dg'\tcpurcvgf 'kp'uko r rg'r tqug. 'cu'O crrcto 2 'j cf 'f qpg'y kyj 'Rqg0' Cm quv'cm'uwdugs wgpv'xgtukqpu'qh'Htgpej 'r qgvt { 'y gtg'pgxgtvj grguu'kp''xgtug.'hcti gn( 'dgecwug''U{o dqrkuv'r qgvt { ''  $y \; cu''tgcf'' ll p'' ll r clp. 'wt plpi '' y \; g''tcpurc ll p vq''o \; gtg''uv \{ \; nkurle \; ''gz \; gtekugu 0 \; Gwt \; qr \; gcp'' P \; cwt c r kuo \; . ''qp'' y \; g'' \} \\$ qyi gt "j cpf." y cu'o cuulx gn ("tcpurcygf 'htqo "Htgpej "chygt" 3:: 2." y kyi "\ qrc" i gpgtcm ("dgkpi "tcpurcygf 'kp" y g"uco g" { gct 'cu'y g'Htgpej 'qtki kpcnı'y gtg'r wdrkuj gf 0Gpi rkuj 'cpf 'I gto cp'cwj qtu'cnuq'gpvgtgf 'Ecuvkrkcp'chvgt''y gkt'' ceegr vcpeg'kp'Htcpeg. "cn j qwi j ''y g''tcpurc kqpu''y gtg'kpetgcukpi n{ 'htqo ''y g''qtki kpcn'rcpi wci gu0'Uej qr gpj cwgt'' y cu'tcpurcyf 'kpyq'Htgpej 'kp'3: :: .'kpyq'Ecuvkrkcp'kp'3: :; 0T wurkp'tgcej gf 'Htgpej 'kp'3; 22. 'pqvcdn{ 'vj tqwi j " Rtqww."yi gp"Ecwkrkcp"yi g"uco g"{gct0

#### Vj g'ly gp llgyj 'egp wt {

Ugtkqwu'\tcpurc\kqpu'\htqo 'pqp/Htgpej 'uqwtegu'\f gxgmr gf 'cu'\j g'\y gp\kg\j 'egp\wt\{ 'r tqi tguugf 0'N\wku'\Cu\tcpc'' O ct\p'\\*3::; \ddots3; 82+'\tcpurc\yf 'Uj cmg\ur gctg\var\up u'eqo r ng\yg'\y qtm\u.'r \wdrk\uj gf '\kp'\3; 4; 0\Qp'\j g'\ng\xgn'\qh'\j gqt\{.'\Iqu'' \QT\VGI C'\[ ''I CUUG\V'\\*3:: 5\dots3; 77+''r \wdrk\uj gf '\j ku'\hco q\wu'\gu\uc\\ "\D \kugt\{ ''cpf ''Ur ngpf q\wt'\qh'\Vtcpurc\kqp\var\up '\kp'' 3; 590\Cmj q\wi j '\j g'\f g\hgpf gf '\j g'\kf gcn\u'\qh'\I gto cp/\kp\ur \ktgf ''n\kgtcn\uo .'\Qt\ygi c'\r gtj cr u'\j cf ''o qtg'\kp''o \kpf 0\J \ku'' f \wcr\ku\var\up '\qh'\tcpurc\kqp\cn\un'\cpf '\kp\ytpc\kqp\cn\un'\cpg \text{qpcn\un'\up ch'\up gr \text{qpcn\un'\up g'} \text{qpcn\un'\up g'' \text{qpcn\un'\up g'' \text{qpcn\un'\up g'' \text{qpcn\un'\up ku'\up g'' \text{qpcn\un'\up g'' \te

Vj g"gzkrg"qh"Tgr wdrkecpu"kp"3; 5; "y gpv"dg{qpf "vj g"y gm/y qtp"r cwgtp."f kur gtukpi "o clqt"Ur cpkuj "kpvgmgewcnu" vj tqwi j qw"Gwtqr g"cpf "vj g"Co gtkecu0O cp{"qh"vj g"gzkrgf "y tkxgtu"vtcpurcvgf ."qhvgp"vq"gctp"c"hxxkpi "dw"tctgn{"cu" c"hwm vko g"r tqhguukqp0"Vj gug"vtcpurcvqtu"y gtg"o quvn{"vgcej gtu"qt"lqwtpcrkwu."cu"qr r qugf "vq"r tgxkqwu" i gpgtcvkqpu"vj cv"j cf "qhvgp"eqo dkpgf "r ctv vko g"vtcpurcvkqp"y kyj "o gf kwo "qt"j ki j "r qukvkqpu"y kyj kp"vj g"uvcvg" uvtwewtg0F kevcvqtuj kr "pqy "ugr ctcvgf "vj g"gzvgtpcri'vtcpurcvqtu"htqo "gcu{"i qxgtpo gpv"lqdu0Cpf "vj ku"vko g"vj g" twr wtg"qh"gzkrg"y cu"pq"o qo gpvct{"chhckt0}

Htcpeqøu''Urckp''ncuvgf ''vj tqwi j ''vq''3; 97.'ko rqukpi ''xct{kpi ''f gi tggu''qh''egpuqtuj kr0'Hco qwu''gzco rngu''kpenwf g''vj g'' o qtcrkuvke "FWDDKPI" "qh'hkro u. "y j gtg"o kuvtguugu "y qwrf" "dg" ej cpi gf" kpvq" cwpvu "qt" ukuvgtu 000 qtg "korqtvcpv. "vj ku"  $tgrcvkxg''equwtg''tgrtguugf''Urckpøu''qpiuvcpfkpi''fkxgtukv{0Kpvgtpcm{.''vtcpurcvkqp''kpvq''rcpivcigu''qyigt''vjcp''}}\\$ Ecurkricp"y cu'hqt"o cp{"{gctu'kngi cn0'Gzvgtpcm{."tcpurcvkqp"j cf "vq"dg"kpvq"Ecurkricp"kh'kv'y cu'i qkpi "vq'hkpf"c" o ctmgv. "gkj gt "co qpi "gzkgu"qt "kp" Ur cpkuj "Co gtkec 0 Ecurkrkcp 'y cu' vj wu'r tkxkrgi gf "qp "dqvj "htqpw 0 Ur ckpøu" tgrcvkxg''enquvtg'f wtkpi 'f gecf gu''qh''vgej pqmi kecn'ej cpi g''cnq''y gcngpgf 'f ktgev'eqpvcev'y kyj 'kwu'hqto gt''eqmpkgu0' Kilgtkep"cpf "Ur cpkuj /Co gtkecp"vgto kpqnqi kgu"kpetgcukpi n{ "f kxgti gf 0"Ur cpkuj "Co gtkecpu"vqf c{ "vgpf "vq" \text{vtcpurevg"} f ktgevn( 'htqo 'Co gtkecp'Gpi nkuj '\*vj gkt'eqo r wgt'ku'c'eqo r wcf qt c+.''y j gtgcu'Klgtkcp''Ur cpkuj 'tgo ckpu'kp''enqug'' eqpvcev'y kj 'Gwtqrgcp'uqwtegu<cp'Kagtkcp'eqorwgt'ku'cp''qtfgpcfqt. 'eqttgurqpfkpi 'vq'vjg'Htgpej ''qtfkpcvgwt0 Rquv/3; 97"Ur ckp's wkemn( 'f gxgmr gf 'c'pgy 'kpvgtpcvkqpcnkuo 'vj cv'cuukuvgf 'vj g'vtcpukvkqp'vq'uvtqpi 'f go qetce{0' Ocp{"rtgxkqwun("dcppgf"y qtmu"y gtg"pqy "tcpuncygf 0Kpunkwukqpcn"rtqi tco o gu"y gtg"cnuq"i tcf wcm("ugv"wr "vq" f gxgmr "Ur ckpøu"qyi gt "ncpi wci gu. "gpeqwtci kpi "\tcpuncwkqp"kpvq"\yi go 0"Vj gtg"uggo gf "\q"dg"c "hnqqf "qh'\tcpuncwkqpu" qp"cmhtqpvu."o cp{"kp"i tgcv"j cuvg0Cpf"{gv"yj g"uvcvkuvkeu'hqt"dqqm'r wdnlecvkqp"kpf kecvg"c"hcktn{"eqpuvcpv"i tqy yj " kp"tcpurckqpu"htqo "vjg"3;82u"qpyctfu0"Ki'vjg"uvcktrkeu"ecp"dg"dgrkgxgf."jkij"ngxgnu"qh"tcpurckqp"jcf"hqt"uqog" wło g'dggp'r tgr ctłpi 'y g'Ur cłp'y cv. 'htqo '3; : 7. 'y qwrf 'dgeqo g'qpg'qh'y g'Gwtqr gcp'Wplqpøu'o quv'gpy wulcusłe'' o go dgtu0

# Vjg'rtgugpv'fc{

Vjg"*Kpfgz"Vt c purc vkqp wo* "hqt"3; 696: 8"uj qy u"Ur ckp"cu"co qpi "vjg"vjtgg"qt"hqwt"eqwpvtkgu"vjcv"vtcpurcvg"vjg"

o quv'y kj 'kwı'hcktn( 'eqpuvcpv'tkug'lp''tcpurc'kqpu'nggr kpi 'urki j vn( 'cdqxg'y g'lpvgtpcvkqpcn'cxgtci g0O qtg'tgegpv' hki wtgu'\*I cppg''cpf 'O kpqp''3; ; 4+'uj qy ''y cv''tcpurc'vgf ''kxrgu'y gtg''47'r gt 'egpv'qh'y g''Ur cpkuj ''qvcn'kp''3; : 8''cpf ''
48'r gt 'egpv'kp''3; ; 3. 'y gm'cdqxg''y g'r gtegpvci g'hqt ''cmh'cti gt 'Gwtqr gcp''eqwpvtkgu''gzegr v'Kcn( '\*47'r gt ''egpv'cpf ''
47'r gt ''egpv'tgur gevkxgn( +0O quv'dqqm'vtcpurc'vqpu''ctg''kp''y g'hkgnf u''qh'i gpgtcn'rksgtcwtg''\*64'r gt ''egpv'qh'cm'vkxrgu+''
cpf ''ej krf tgpøu''rksgtcwtg'\*\*73'r gt ''egpv+.''r tgf qo kpcpvn( ''htqo ''Htgpej ''cpf ''Gpi rkuj 0

Kp''cf f kkqp''vq''dqqm'r wdrkecvlqp. ''vtcpurcvqtu''cpf ''kpvgtr tgvgtu''ctg''go r m{ gf ''kp''pwo gtqwu''cur gewi'qh''uqekcn'rklg. ''kp''
y g''eqwtw. ''cv''eqphgtgpegu. ''kp''y g''o krkct{ .''cpf ''kp''qwtkvo .''y j kej ''ku''qpg''qh''Ur ckpøu''o clqt''kpf wwtkgu0'Ur cpkuj ''
wgryklukqp''j cu''c''i gpgtcm( ''j ki j ''eqpvgpv'qh'hqtgki p''r tqi tco o kpi .''y ky ''c''o ctngf ''r tghgtgpeg''hqt''F WDDRP I 0'
Tgi kqpcn'vgryklukqp''ej cppgnu''tcpuo kv'kp''Ecvcrep. ''Dcus wg. ''cpf 'I crkekcp. ''o quvn( ''kp''f wddgf ''xgtukqpu'qh'hqtgki p''
Tgi kqpcn'vgryklukqp''ej cppgnu''tcpuo kv'kp''Ecvcrep. ''Dcus wg. ''cpf 'I crkekcp. ''o quvn( ''kp''f wddgf ''xgtukqpu'qh'hqtgki p''

r tqi tco o gu0'Uqo g"r tqi tco o gu"qp"Dcus wg"vgrgxkukqp"ctg"f wddgf "kp"Dcus wg"cpf "uwdvkurgf "kp"Ecuvkrkcp0
Y kyi kp"yi g"r tqhguukqp. "tgegpv"tgpf u"uwi i guv"c"o qxg"cy c{ "htqo "r tcevkegu"hkng" J kur cpk kpi "hqtgki p"r tqr gt"
pco gu"\*cu"kp" Ectrqu"O ctzø+"qt"yi g"qpeg"eqo o qp"wug"qh"s wkwg"tki kf "rkwgtcrkuo "kp"rgi cri'tcpurcvkqpu0'Egtvckp"
wpwuwcri'pco gu"rkng" Rqwej mkpgø"j cxg"kp"o quv'ecugu"dggp" J kur cpk gf . "ghhcekpi "yi g"hcev'yi cv'yi gug"cwyi qtu"
qtki kpcm("tgcej gf "Ecuvkrkcp"yi tqwi j "Htgpej 0

#### Qti cpk/cvkqp'qh'\( i g'rtqhguulqp \)

Vj g'o ckp'r tqhguukqpcn'cuuqekcvkqp'hqt''yj g'y j qng''qh''Ur ckp'ku''CRGVK\*Rtqhguukqpcn'Cuuqekcvkqp''qh''Vtcpuncvqtu'' cpf ''Kpvgtr tgvgtu+: 'hqwpf gf ''kp''3; 760T gi kqpcn'cuuqekcvkqpu''gzkuv'kp'Ecvcmpkc.''yj g'Dcngctke'Kuncpf u.'I cnkekc''cpf '' yj g'Dcus wg'Eqwpvt {.''cpf ''yj g'qhhkekcn'cuuqekcvkqp''qh'y tkvgtu'\*Cuqekcekop'Eqngi kcn'f g'Guetkvqtgu+'j cu''c'ugevkqp'' hqt''vtcpuncvqtu0'Hwtvj gt''cuuqekcvkqpu''j cxg''tgegpvn{''dggp''ugv'wr 'hqt''uy qtp''vtcpuncvqtu''cpf ''kpvgtr tgvgtu.''cpf ''yj gtg'' ku''c'tgi kqpcn'uqekgv{''qh''yj g''Dtkkuj ''Kpurkwwg''qh''Nkpi wkuvu0F gur kvg''yj gug''qti cpk| cvkqpu.''o cp{''vtcpuncvqtu''uvkm'' uwhngt''htqo ''c''ncem'qh'uqekcn'r tgurki g''cpf ''tgo wpgtcvkqp0

Vj g''Ur cpkuj ''O kpkut { "qh'Ewnwtg"r tqo qvgu'\tcpurc\kqp'\kp'\ugxgtcn'y c { u0P c\kqpcn'r t\k gu''ctg''cy ctf gf ''gcej ''{ gct'' hqt''y g''dguv'\tcpurc\kqpu''r wdrkuj gf ''cpf ''hqt''c''\tcpurc\qtau''nkhg\ko gau''y qtm0'\Vtcpurc\kqp'\ku''cnıq''qpg''qh''y g''nkgtct { "i gptgu''hqt''y j kej ''i qxgtpo gpv'i tcpwu''ctg''i kxgp''\q''Ur cpkuj ''y tkxgtu0'H\kty gt''uwdukf kgu''ctg''cy ctf gf ''hqt''y g'' r wdrkec\kqp''qh''\tcpurc\kqpu''dgwy ggp''\y g''qhhkekcn'Ur cpkuj ''rcpi wci gu.''o quvn\(''y) tqwi j ''y g''qhhkekcn'r wtej cug''qh'\wr " \q'822''eqr kgu''qh''\y g''r wdrkec\kqp0'H\kpcpekcn'cuukuvcpeg''\ku''cnuq''cxckrcdrg''\q''hqtgki p''r wdrkuj gtu''r t\kp\kpi '' \tcpurc\kqpu''qh''nkgtct { ''cpf ''uekgp\khke'y qtmu''d { ''Ur cpkuj ''cwyj qtu0'

#### Vtckpkpi

Kp''3; 96. "y g'Kpurkwwq'Wpkxgtukctkq'f g'Ngpi wcu'O qf gtpcu''{ "Vtcf wevqtgu'y cu'ugv'wr "cv'y g'Eqo r nwgpug" Wpkxgtuk{ "kp''O cf tkf "r tko ctkn{ "vq''tckp"rkxgtct{ "\tcpurevqtu0C''y kf gt''r tqhguukqpcn'o ctngv'y cu''cko gf "hqt''d{ "vj g" Gueqne"Wpkxgtukx{tkc'f g"Vtcf wevqtu'k'Kpvgtr tgwi'cv'y g'C wqpqo qwu'Wpkxgtukx{ "qh'Dctegnqpc0Cny qwi j 'hqwpf gf " kp''3; 94. "kwi'r tqi tco o g'y cu'pqv'hqto cm{ "tgeqi pk gf "d{ "vj g"Ur cpkuj "O kpkrt{ "qh'Gf wecvkqp"wpvkrl3; : 2. "r gtj cr u" kpf kecvkpi "uqo g"tgukuvcpeg"vq"kwi'wg"qh'Ecvcrep"cu'y gml'cu'Ecurkrkcp"cu'c'j qo g"rcpi wci g0Uko krct'r tqhguukqp/ qtkgpvgf "r tqi tco o gu'y gtg"guvcdrkuj gf "kp"I tcpcf c"kp"3; 9; "cpf "kp"Ncu'Rcm cu'kp"vj g"Ecpct{ "Kurcpf u'kp"3; : : 0' Vj gug"wpkxgtukx{ "uej qqnu'j cf "vj tgg/{gct"r tqi tco o gu'wpvkrl3; ; 465."y j gp"c'pgy "hqwt/{gct"f gi tgg"uvcwwtg'y cu" r j cugf "kp"cpf "vj g"uej qqnu'dgeco g'hcewnkgu0P qv'cej kgxgf "y kyj qwi'eqphrkev."vj g"pgy "uvtwewtg'tghrgevgf" gpj cpegf "qhhkekcn'tgeqi pkkqp"qh'vtcpurcvkqp"cu''cp"cecf go ke'f kuekr nkpg0Kp'nkpg'y kyj "vj ku'vtgpf."vj g'O cf tkf " kpukwwg''ej cpi gf "kwi'r tqi tco o g"vq"qhhgt"c''o qtg''i gpgtcn''r tqhguukqpcn'vtckpkpi "hqt"vtcpurcvqtu'kp"3; ; 20Vj gtg" y cu''y gp''tcr kf "gzr cpukqp"

kp"y g"hkgrf 0Hqwt/{ gct"r tqi tco o gu'y gtg"ugv"w "kp"O a rci c"cpf "Xki q"kp"3; ; 2."kp"Ucrco cpec"cpf "Dctegrqpc"

\*Rqo r gw"Hcdtc"Wpkxgtukv{+'kp"3; ; 4."kp"Xke"cpf 'O cf tkf "\*Eqo kncu"Wpkxgtukv{+'kp"3; ; 5."cpf "kp"Ecuvgm»p"cpf"

O cf tkf "\*Crhqpuq"Z "Wpkxgtukv{+'kp"3; ; 60Rquvi tcf wcvg"eqwtugu"kp"vtcpurcvkqp"uwvf kgu"ctg"qti cpk gf "kp"Dctegrqpc"

\*Cwqpqo qwu"Wpkxgtukv{+."Ng»p.'O cf tkf "\*Eqo r nwgpug+"cpf "Ucpvcpf gt"\*Ecpvcdtkc+0Ur gekcrk gf "o cuvgtu"

r tqi tco o gu"ctg"cnq"cxckrcdrg"kp"Crhecpvg."Dctegrqpc"\*Cwqpqo qwu"Wpkxgtukv{+."Dkrdcq"\*F gwuvq+."O cf tkf "

\*Eqo r nwgpug+."Xcrgpekc"cpf "Xkqtkc."cpf "c"O cuvgtu"kp"Eqphgtgpeg"Kpvgtr tgvkpi "ku"qhhgtgf "d{"yi g"Wpkxgtukv{"qh"

Nc"Nci wpc"kp"y g"Ecpct {"Kurcpf u0Eqwtugu"kp"Ur cpkij /Gpi rkij "vtcpurcvkqp"j cxg"dggp"vcwi j v'cv'y g"F kncpeg"

Vgcej kpi "Wpkxgtukv{ "kp"O cf tkf "ukpeg"3; :: 0"Vj g"Vqrgf q"Vtcpurcvqtuo"Uej qqn"hqwpf gf "kp"3; ; 6."qti cpk gu"

eqphgtgpegu"cpf "eqwtugu"qp"vtcpurcvkqp"dgw ggp"Gwtqr gcp"cpf "Ugo kke"rcpi wci gu0"Vj g"xctkqwu"wpkxgtukv{"

egpvtgu"cpf "f gr ctvo gpwu"qh"vtcpurcvkqp"hqto gf "cp"cuuqekcvkqp"\*Eqplgtgpekc+"kp"3; ; 70

#### Tgugctej 'cpf'rwdnecwqpu

Cnj qwi j "o quwl "cdugpv'htqo "vj g'lpvgtpcvkqpcn'htwu."uqo g'8.222"Ur cpkuj "cpf "Ur cpkuj /Co gtkecp"dqqmu'cpf "
ctvkergu'qp"vtcpurcvkqp"ctg'rkuvgf "lp"Ucpvq{qøu'3;; 8"dkdrkqi tcr j {0'Vj g'ewttgpv'tgugctej "ku"o quwl "qp"rkpi wkuvke"
cpf "r gf ci qi kecn'cur gewu."urki j vn{ "rguur'qp"j kuvqtkecn'uwdlgevu."cpf "qpn{ "qeecukqpcm{ "qp"r tqdrgo u"qh'dcuke"
vj gqt{0'Vj ku"vtgpf "ku"i gpgtcm{ "dqtpg"qw"d{ "vj g"ur gekcrk gf "lqwtpcnu."pqvcdn{ "vj g"S wcf gtpu"f g"Vtcf week» "k"

\*\*Kpvgtrtgvcek\*\*\*\*\*Cwqpqo qwu"Wpkxgtukx{ "qh'Dctegmpc."htqo "3; : 4+."\*Uppf gdct"\*\*Wpkxgtukx{ "qh'I tcpcf c."htqo "
3; ; 2+."\*Nkxkwu"\*\*Wpkxgtukx{ "qh'Ng\*p."htqo "3; ; 4+."\*I cegw "f g"nc "vtcf week\*p"\*\*CRGVK"htqo "3; ; 5+."\*Dqrgvfp"f g"

\*\*Guwf kqu'f g"Vtcf week\*p"\*\*Xkqtkc"cpf "Ngqp."htqo "3; ; 667+."\*I kgt qpko wu'Eqo rnwgpuku"\*\*Eqo r nwgpug"kp"O cf tlf ."
htqo "3; ; 7+"cpf "Xkegxgtuc"\*\*Wpkxgtukx{ "qh'Xki q."cnuq'htqo "3; ; 7+0

 $\label{thm:control_c$ 

Y qtm'qp''y g''o qtg''r tcevkecn'cur gevu'qh''vtcpurcvkqp''j cu''dggp''uvtqpi n{ 'kphrwgpegf ''d{ ''Xcrgpv¶p''I cte¶c''[ gdtc." y j qug''Vgqt¶c''['rt" evkec']f g''nc''vtcf week»p'\*3; : 4+''cf qr vu''c''dcukecm{ ''hpi wkuvke''crrtqcej ''hqwpf ''kp''o quv'qh'y g'' ewttgpv'o cpwcnu0C''o qtg''hqto cnk gf ''hpi wkuvke''crrtqcej ''ku''r tqr qugf ''kp''Tquc''Tcdcf a pøu''Gs wkxcrgpekc''['' vtcf week»p'\*3; ; 3+0P qv'uwtrtkukpi n{ .''y g''qpn{ ''qhhkekcn'tgugctej ''ecvgi qt{ ''pco kpi ''tcpurcvkqp''ku''÷Nkpi wkuvkeu'' Crrnkgf ''y ''Vtcpurcvkqp''cpf ''Kpvgtrtgvcvkqpø0

## Hwt yj gt 't gcf kpi

CP VJ QP [ 'R[ O

#### Dkqi tcrj kgu

CNHQPUQ'Z'\*34436: 6+0'Mkpi "qh'Ecukrg'\*Ur ckp+'htqo "3474."cur ktcpv'vq'vj g'r qukkqp"qh'J qn( "Tqo cp" Go r gtqt0'Crhqpuq'Z'ku'npqy p''cu''grl'Uc dkq''\*-ij g''Y kugø+'o qtg'hqt'j ku'ur qpuqtuj kr 'qh'ngctpkpi 'vj cp'hqt'j ku'' f kucuvtqwu'r qrkkecn'cpf "geqpqo ke''o cpci go gpv'qh'Ecukrg0J g''y cu''cp''-cevkxg''i gpgtcn'gf kqtø'\*Rtqevqt''3; 73<5+'' hqt''pwo gtqwu''vtcpurcvkqpu'htqo ''Ctcdke."o quvn( "kpvq'Ecuvkrkcp"cpf ''o quvn( "kp''yj g'hkgrf ''qh''cuvtqpqo {0'Vj g'' Crr j qpukpg''vtcpurcvqtu''uj qwrf ''pqv'dg''eqphwugf ''y kyj ''yj g''y grhvj /egpwt { ''ej wtej ur qpuqtgf ''vtcpurcvqtu''uqo gvko gu'' f guetkldgf ''cu''yj g''-'Lej qqn'qh''Vqngf qø0

ECTVCI GP C.'Cmpuq'f g'\*35: 663678+0Dkuj qr ''qh''Dwti qu.''Ur ckp.''htqo ''3657=''tcpurcvkqp''vj gqtkuv0J ku'' etksks wg''qh''Ngqpctf q''DTWP nøu''

\*ugg"KVCNKCP "VTCF KVKQP +"Ncvkp"xgtukqp"qh"Ctkuxqvrgøu"Gyj keu"cwtcevgf "cwgpvkqp"kp"Kcn( "kp"365869"cpf "rgf" vq"c"f gdcvg0Kp"F g"kpvgt r t gvcvkqpg"t gevc. "Dtwpk"j cf "r tkxkrgi gf "vcti gvrcpi wci g"grqs wgpeg="Ectvci gpc"kpukuvgf "qp" wpcf qtpgf "uqwteg/vgzv'hkf grkv(."cti wkpi "vj cv"grqs wgpeg"tgukf gf "kp"uwduvcpeg"cpf "pqv'uv( rg0'Ukpeg"Ectvci gpc"f kf "pqv'mpqy "I tggm"j g"y cu"kp"hcev'f ghgpf kpi "uej qrcuvke"vtcpurcvkqpu"qh"Ctkuxqvrg0Dtwpkøu"r ctcf ki o "y qp"qwx" cppqwpekpi "c"o clqt"Tgpckuucpeg"o qxg"vqy ctf u"Ngu"Dgngu"Kphf 3 ngu"\*ugg"HTGP EJ "VTCF KVKQP +0"Dtwpk"cpf" Ectvci gpc"pgxgtvj grguuteqttgur qpf gf "co kecdn( "htqo "3664"qpy ctf u0"Cu"c"vtcpurcvqt. "Ectvci gpc"r tqf wegf" Ecuvkrkcp"xgtukqpu"qh"Ugpgec"cpf "Ekegtq0

GP\ RPCU'Ht cpekneq'f g'\*cnq'r wdrkuj gf "r ugwf qp{o qwun{ "wpf gt "y g"pco gu'Ft {cpf gt. "F wej gupg. "Xcp/Gkem" Gkej o cpp+"\*3742674+0Ur cpkuj "Rtqyguvcpv'uej qret "cpf "Dkdrg"tcpurcvqt0Kphrwgpegf "d{ "Rtqyguvcpv'y qwi j v'y j krg" kp'Ngwxgp. "kp"3763"j g"o qxgf "vq"Y kwgpdgti "y j gtg"j g"dgi cp"c"Ecuvkrkcp"xgtukqp"qh'y g"P gy "Vguvco gpv." r wdrkuj gf "kp'Cpwy gtr "kp"37650Cy ctg"yi cv'Go r gtqt"Ej ctrgu"X"j cf "qtf gtgf "cm'eqr kgu"vq"dg"ugkl gf. "Gp| kpcu" r tqo r vn{ "f gf kecvgf "y g"tcpurcvkqp"vq"j ko "cpf "y gpv"vq"Dtwuugmi"vq"i kxg"j ko "y g"htuv'eqr {0'Y j gp"y g"go r gtqt" cumgf "kh'j g"y cu'y g"cwj qt "Gp| kpcu"tgr nkgf "-P q."y g"J qn{ "Ur ktk/ku'y g"cwj qtí "Kco "qpn{ "ku'hckj hwrlugtxcpv" cpf "y gcmlkpurtwo gpv%"O gp² pf g| "{ "Rgrc{q"3; 74<4089+0Vj g"kwrg"qh'y g"tcpurcvkqp"f qgu"kpf ggf "ur gekh{"J cdrc" Fkqu"\*-I qf "Ur gcmuø+0Vj g"tcpurcvkqp"y cu"pgxgtyj grguu"r tquetklgf "cpf "Gp| kpcu"y cu'ko r tkuqpgf "kp"Dtwuugm." r quukln{ "vq"r tqvgev'j ko "htqo "dgkpi "ugpv'vq"y g"Kps wkukkqp"kp"Ur ckp0J g"j cf "pq"tqwdrg"guecr kpi "cpf "y gpv'vq" Cpwy gtr ."Y kwgpdgti ."Utcudqwti ."Eqpuvcpeg."Dcurg"cpf "yj gp"Gpi rcpf ."y j gtg"j g"dgeco g"Rtqhguuqt "qh'I tggmlcv" Eco dtkf i g0Gp| kpcu"cnq"tcpurcvgf "Rnwctej ."Nwekcp"cpf "Nx{ "kpvq"Ecuvkrlcp."cnj qwi j "j ku"wug"qh'r tqvgevkxg" r ugwf qp{o u"cpf "cpqq o kv{"o cngu'yj g"cwtkdwkqpu'wpegtvckp0

I GTCTF 'QHETGO QPC'\*I ktctf wu'Etg'o qpgpuku+'\*e03366: 9+01Kcnkcp'\tcpurcvqt'qh'Ctcdke'\uekgpeg'kpvq" Nc lip. 'ly g'o clp'hki wtg'lwwkh{ lipi 'vemiqh'e': Uej qqn'qh'Vqngf qø'\*Tqug'3: 96+. 'epf ''-ir gtj er u'y g'i tgevguv'tepune vqt'' qh'cm'vko go'\*xcp'J qqh'3; : 8<2+0 Ceeqtf kpi 'vq'vj g'Xkx'y tkvgp'd { 'j ku'cuuqekcvgu'qt'uqekk'I gtctf'y gpv'vq'' Vqrgf q'lxp''Ur clxp'hqt''rqxg''qh''Rvqrgo {øu''Crociguv.''y j lej 'j g'eqwrf 'pqv'hkpf''coqpi ''y g''Ncvkpu0J g''rgctpgf'Ctcdle'' cv'Vqrgfq"cpf. 'ceeqtfkpi '\q'y g'Xkx. '\tcpurcvgf 'uqo g'93'\yzvu'htqo 'Ctcdke'kpvq'Ncvkp. 'o quvn( 'kp'\y g'hkgrf u'qh' o cyj go cykeu. "cuytapago {. "r j kraugr j { "cpf "o gf kekpg0"Cnyj qwi j "j g "r tadcdn ( "eagtf kpcygf "ugo g "mkpf "ah" vgco y qtm'I gtctføu'\tcpurc\kqpu'j cxg'c'tgeqi pk cdrg'\uv{ rg0'kp''yj g'y qtf u'qh''yj g''Xkvc.''Vq''yj g''gpf ''qh'j ku'hkhg'j g'' o cp{"uwdlgevu."cu"ceewtcvgn{"cpf"cu"r rckpn{"cu"j g"eqwrfø"s wqvgf"kp"tcpurcvkqp"kp"O eXcwi j "3; 96+0 NQRG\ 'FG'C[ CNC.'Rgt q'\*355463629+0'Ur cpkij "r qrkskekcp."j kuvqtkcp."r qgv."vtckqt."r tkuqpgt."f kr mqo cv"cpf " vtcpurcvqt0C'i tgcv'uwtxkxqt'kp'xgt{'\tqwdrgf'\ko gu.'j g'j cf'c'rqpi 'r wdrke'ectggt'f wtkpi 'y j kej 'j g'y cu.'co qpi " o cp{"qyj gt"yj kpi u."cf xkugt"vq"yj g"mkpi "qh"Htcpeg."pgi qvkcvqt"y kyj "yj g"j qwug"qh"Ncpecuvgt."cpf "Tq{cn"Ej cpegmqt" qh'Ecukrg0J g'y cu'y keg'\cngp"r tkuqpgt."qpeg"d{ 'Gf y ctf 'y g'DrcentRtkpeg'hqt 'ukz 'o qpyj u. 'ncvgt'd{ 'y g' Rqtwi wgug0Ncvg'kp'nkhg'j g'tgvktgf 'vq'j ku'guvcvgu'y j gtg'j g'y tqvg'ej tqpkengu'dcugf ''qp'j ku'qdugtxcvkqpu'cpf " vtcpurcvgf "ugrgevkqpui"htqo "I tgi qt{"vj g'I tgcv."Nkx{."Kikf qtvui"J kur cpgpuku."I vkf q'f g'Eqmppc"cpf "Dqeeceekq0" Vj gug"tcpurcvkqpu'r rc{gf "cp'ko rqtvcpv'tqrg'kp''yj g'kpvtqf wevkqp"qh'Kvcnkcp'J wo cpkuo "vq''Urckp0 OCFTH CN.'Crhqpuq'f g'\*GrlVquvcf q+'\*e\B622\677+0'Ur cpkuj "uej qrcuvke' y gqrqi kcp."r tgugpv'cv'y g'Eqwpekrlqh" Dcurg. 'rcvgt'kp''y g'ugtxkeg'qh'Lvcp'KKqh'Ecuvkrg. 'cpf 'dkuj qr 'qh'Cxkrc'htqo '366; 0Kp''cdqw'3672'j g''vtcpurcvgf'' Nkdtq'fg'ncu'Etqpkecu'q'\kgprqu'fg'Gwugdkq'Eguctkgpug'htqo'Ncvkp'kpvq'Ecuvkrkcp0Kp''yjg'eqoogpvct{" ceeqo r cp{kpi "y g"\gzv."O cf tki cn'tgo ctmu" y cv'y j gp"\tcpurc\kpi "htqo "Nc\kp." y qtf/hqt/y qtf "o gy qf u"  $\label{eq:condition} \parker t gweek p + ctg'f khhkewn'cpf'ecp'i kxg'y c \{ 'vq'' + gzr qukkqp. "eqo o gpvct \{ ''qt''i quuguø0J g''y wu''f kurkpi wkuj gu'' + gzr qukkqp. "eqo o gpvct \{ ''qt''i quuguø0J g''y wu''f kurkpi wkuj gu'' + gzr qukkqp. "eqo o gpvct \{ ''qt''i quuguø0J g''y wu''f kurkpi wkuj gu'' + gzr qukkqp. "eqo o gpvct \{ ''qt''i quuguø0J g''y wu''f kurkpi wkuj gu'' + gzr qukkqp. "eqo o gpvct \{ ''qt''i quuguø0J g''y wu''f kurkpi wkuj gu'' + gzr qukkqp. "eqo o gpvct \quad \quad$ w q'mkpf u'qh'\tcpurc\kqp'hqt'\w q'mkpf u'

qh'ukwcvlqp0'Hwtyi gt.''yi g''htggt''qh''yi g''o gyi qf u''ku''uwr r qtvgf ''d{ ''yi g''dgrkgh''yi cv''÷yi gtg''ku''pqyi kpi ''yi cv'ku''uki pkhkgf '' d{ ''yi g''y qtf u''qh''cpqyi gtø'\*Twuugm'3; : 7 < 3 + 0'Vj ku''yi gqt{ ''qwrkpgf ''c''eqttgevlqp''qh'IGTQO G'\*ugg''\frac{NCVKP''VTCFKVKQP}{VTCFKVKQP}+.''ukpeg''ur gekcn''eqpf kwlqpu''y gtg''vq''cr r n{ ''vq'' vtcpurcvlqpu''kpvq''yi g''xgtpcewrct0}

QTVGI C'[ 'I CUUGV.'Lqu² '\*3::563;77+0'Ur cpkij 'rj krquqrj gt.'y tkgt.'r qrkkekcp'cpf 'uqo gwo g'vtcpurcwqp'' yi gqtkm0'Chgt'uwf {kpi 'lp''Ur ckp''cpf 'I gto cp{.'j g'dgeco g'r tqhguuqt 'qh''O gwrj {ukeu'cv'O cf tkf 0'Ipkkcm(" pgqMcpwcp.'j g'ecmgf 'hqt''c' tgxkcnk cwlqp''qh''Ur ckp''dcugf 'qp''kpf kxkf wcrkuo 'cpf '2 rkkuo 0J ku''guuc{":O kugt {"cpf" Ur rgpf qwt 'qh''Vtcpurcwlqpø'y cu'r wdrkuj gf 'cu''c' ugtkgu''qh''ct wergu''kp''y g'Dwgpqu''Cktgu''pgy ur cr gt''Nc''Pcek»p''kp'' 3; 590'Qpg''qh''y g''xgt { 'lpy 'pqp/I gto cpu''q'j cxg'tguwttgevgf 'UEJ NGKGTO CEJ GTøu''cti wo gpwu''kp''ncxqwt''qh'' rkwgtcrkuo '\*ugg''<u>I GTO CP 'VTCF KVKQP</u> + ''Qtvgi c''ucy ''y g''tcpurcvqt''cu''cp''kf gcrkuv'y j q''uj qwrf ''gpcdrg''y g''tgcf gt'' q''gzr gtkgpeg''y g''urtcpi gpguu'qh'hqtgki p'y qtmu0J ku'f wcrkuv'tghrgevkqpu''qp''y g''y q''ercuukecm(''qr r qugf 'o gyi qf u'' qh''tcpurcvkqp''ecp''dg''tgrcvgf ''pqv'Iwuv'vq''y ku'r j kquqr j kecnletkks wgu''qh'o cuu''ewnwtg''dw''cnuq''vq''y g''eqpvgzv'qh''y g'' Ur cpkuj ''ekxkriy ct'\*3; 586; +0J g''hxgf''kp''xqnwpvct {"gzkrg'Itqo ''3; 58''vq''3; 670

TC[ O QPF.'Ctej dkuj qr'qh'Vqrgf q'\*Tc{o qpf 'f g'rc'Ucwxgvcv.'Tcko wpf wu'Vj qrgvcpwu+.'ctej dkuj qr 'htqo " 3347"vq"33740"Dqtp"kp"Htcpeg"cpf "hcrugn("f guetkdgf"cu"vj g"hqwpf gt"qh"c"eqmgi g"qh"vtcpurcvqtu"cv"Vqrgf q" \*Iqwtf ckp'3: 95-32: +0Ceeqtf kpi '\q'I qp| a rg| 'Rcrgpekc'\3; 64+.'Tc{o qpf øu'r tko g'kpvgtguv'y cu'yj g'ceewo wrcvkqp" qh'y gcnj "cpf 'vj g'i clplpi "qh'r qy gt "qxgt "vj g'tgegpvn( "eqps wgtgf "ncpf u0J g"o gv'Rgvgt 'vj g'Xgpgtcdng'lp" Ucroo cpec 'kp'3364''cpf 'y cu'r tguwo cdn( 'cy ctg'qh''y g'hcwgtøu'r tqlgev''q''j cxg''y g'S wtø p''tcpurcvgf 'kpvq''Ncvkp0' Vj ku'o ki j v'j cxg'kpur ktgf 'j ko 'vq'ur qpuqt'Iqj p'qh'Ur ckpøu'vtcpurcvkqp'qh'Equvc'dgp'Nvecøu'*F g'f kHgt gpvkc''* ur kt kwu'gv'cpko â. "yj g''qpn{ ''tcpurcvkqp''kp''y j kej 'j g''ku''ergctn{ ''pco gf ''cu''c''r cvtqp''\*f øCnxgtp{ ''3; 86+0 TGHP C. 'Ecular qt q'f g' \*e 187426; 6+0 Ur cpkuj 'Rtqvguvcpv'vj gqnqi kcp. 'r quukdn( "qh'O qtkueq"qtki kp="vtcpurcvqt"qh" yj g'Dkdrg'kpvq'Ecuvkrkcp0Qpg'qh'c'i tqwr ''qh'Rtqvguvcpvu'y j q'hrgf 'htqo ''Ugxkrrg.'j g''cttkxgf 'kp''Nqpf qp''y j gtg''j g'' rtgcej gf "vq" yj g"Urcpkuj "eqo o wpkv{"cpf" tgegkxgf" c"rgpukqp" htqo "yj g"Gpi rkuj "etqy p." rquukdn{ 'hqt" y qtm'cu" c" ur {01kp'3784''yi g''kps wkukkkqp''dwt.pgf''j ko''kp''ghhki {01Ceewugf''kp''Nqpfqp''qh'j gtgu{''cpf''uqfqo{.'j g''hrgf''vq'' Cpw gtr 'kp'f kui wkug'cpf 'vj gp'vq'Htcpmwtv0J ku'vtcpurcvkqp'qh'dqvj 'vguvco gpvu'qh'vj g'Dkdrg'\*vj g'Dkdrkc'f grlQuq+" y cu''y g'hktuv'kp'Ecuvkrkcp'htqo ''y g''qtki kpcn'ncpi wci gu0'K/tgrqtvgfn(''vqqm'j ko '32''{ gctu''cpf'y cu'r tkpvgf''kp''Dcurg'' kp"378; 0Ncvgt"tgxkugf "d{ "Ekrtkcpq"fg"Xcrgtc."cp"gzkrg"yjq"jcf"cnuq"hrgf "htqo" "Ugxkrrg."vjg"vgzv"ycu"ektewrcvgf" lp"Ur clp"d{"'y g"Dkdrg"Uqelgv{"htqo "'y g"o lf f rg"qh" y g"plpgyggpy "egpwt{"cpf" tgo clpgf" y g"uvcpf ctf"Dkdrg"qh" Ur cpkuj 'Rtqvguvcpvu'wpvkn'vj g'o kf/w gpvkgvj 'egpwt{0

XKXGU'Lwcp'Nwku'\*Lqj cppgu'Nwf qxkeq+'\*36; 463762+0'Ur cpkuj "J wo cpkuv'r j knquqr j gt "cpf "gf wecvkqpcnkuv" y j q"f gxgnqr gf "c"vtcpurcvkqp" y j qt { "qh"j ku"qy p0'Chryt "uwf {kpi "kp"Xcngpekc"cpf "Rctku." j g"nkxgf "kp"Dtwi gu"cpf "Ngwxgp." y j gp"Gpi ncpf "y j gtg"j ku"qr r qukxkqp" \q"J gpt { "XKKxu"f kxqteg"htqo "Ecyj gtkpg"qh"Ctci qp"gctpgf "j ko "ukz" o qpyj u"kp" y g"Vqy gt "qh"Nqpf qp0'Kp" y g"ej cr vyt"-Xgtukqpgu"ugw"kpvytr tgvcvkqpguxo'qh"F g"t cvkqpg"f kegpf k" r wdrkuj gf "kp"Ngwxgp"kp"3755. "Xkxgu"f kuxkpi wkuj gu"dgwy ggp" y tgg"nkpf u"qh"vtcpurcvkqp<"hqmqy kpi "ugpuwu." hqmqy kpi "xgt dc." qt"eqo dkpkpi "dqyi "uwej "y cv"-y qtf u"dtkpi "r qy gt"cpf "gngi cpeg" \q"y g"ugpuguxo'V y ku"ncuv'qr vkqp" o ki j v'dg"uggp"cu"cp"cf xcpeg"qp"

encunkecn'dkpct { "qr r qukkqpu0Xkxgu"tgeqo o gpf u"yj cv"yj g"\tcpurcvqt "ugrgev"c "o gyj qf "kp"ceeqtf cpeg"y kyj "\gzv" v{r g. "cpf "j g"i gpgtcm{ "cmqy u"yj cv"yj g"hki wtgu"cpf "r cwgtpu"qh"qpg"rcpi wci g"uj qwrf "pqv"dg"gzr tguugf "rkxgtcm{ "kp" cpqyj gt0J ku"o cp{ "qyj gt"y qtmu"grcdqtcvg"c "etkkecn'go r ktlekuv"r j krquqr j { "cpf "kpenwf g"F g"f kuekr rkpku"rkdt k"zz. "kp" y j kej "j g"cf xqecvgu"yj g"wug"qh"yj g"xgtpcewrct "kp"uej qqnu"cpf "yj g"gf wecvkqp"qh"y qo gp0"Y j krg"cv"Qzhqtf "kp"3745" j g"\tcpurcvgf "Kuqetcvgu"htqo "I tggmikpvq"Ncvkp0 CP VJ QP [ "R[ O

# Uy gf kuj 'tt cf kskqp

Uy gf kuj 'ku'ur qngp''d{ ''cr r tqzko cvgn{ '': ''o knkqp''r gqr ng'kp''Uy gf gp''cpf ''522''222'kp''Hlpncpf .''y j gtg''y g''Uy gf kuj / ur gcnkpi ''o kpqtkx{ ''hqto ''uqo g''8'r gt ''egpv''qh''y g''r qr wcwkqp0'Ki'ku''qpg''qh''y g''y q''qhhkekcn'rcpi wci gu''qh''Hlpncpf 0 Kp''Uy gf gp''kwugrh''Uy gf kuj ''j cu''dggp''y g''r tgf qo kpcpv'rcpi wci g''ukpeg''y g''f cy p''qh''y kwqt { ''cpf ''y g''uqng''qhhkekcn' pcwkqpcn'rcpi wci g''ukpeg''y g''guvcdrkuj o gpv''qh''y g''o qf gtp''ucvg''cv'y g''gpf ''qh''y g''O kf f ng''Ci gu0'Ki'ku''ewttgpvn{ ''ur qngp''cu''c''pcwkxg''qpi wg''d{ ''cv'ngcuv'; 2''r gt''egpv'qh''y g''r qr wncwkqp''qh''Uy gf gp''\*kpenwf kpi ''pcwkxg''f guegpf cpwu''qh'' ko o ki tcpwu+0'O qtg''y cp''c''o knkqp''kpj cdkxcpwu''qh'y g''eqwpvt { ''ctg'ko o ki tcpwu''qt''f guegpf cpwu''qh'ko o ki tcpwu''y j q'' cttkxgf ''kp''y g''ncw''y q''qt''y tgg''f gecf gu=''y g{ ''pggf ô cpf ''y g'xcw'o clqtkx{ ''qh'y go ''f q'' cxgô c''tgcuqpcdng'' eqo o cpf ''qh''Uy gf kuj 0

Uy gf kuj "ku' yj g'icti guv'qh' yj g''ukz "P qtf ke "icpi wci gu'kp' vgto u'qh' pwo dgt "qh' ur gcngtu="yj g'q yj gt "icpi wci gu'ur qngp" kp'P qtf ke "eqwpvtkgu' ctg' Hkppkuj . "F cpkuj ." P qty gi kcp. "Kegrcpf ke "cpf "Hctqgug0Qh' yj gug." yj g''yj tgg" Uecpf kpcxkcp" repi wci gu'pco gn{ "Uy gf kuj ." F cpkuj "cpf "P qty gi kcpô ctg' ur qngp" d{ "uqo g''3: "o kndqp''r gqr ng="yj g{ "ctg' kp" r tkpekr ng'o wwcm{ 'kpvgnki kdng." cpf "yj gkt''r tgugpv'hqto "cpf "j kuvqtkecn'uvcwu'ctg' uko knct0'Y j kng' yj gug'incpi wci gu" ecp''dg''cpcn{ ugf "cpf "f guetkdgf "y kyj kp' yj g''uco g''nkpi wkuvke "htco gy qtm' yj g{ "j cxg''f kuvkpev'ewnwtcn'cpf " uqekqnkpi wkuvke "dcemi tqwpf u0Kp' hcev." yj g''j kuvqt { "qh' Uy gf kuj "j cu''dggp''s wkxg''f kuvkpev'htqo "yj cv'qh' kuv'enqug" pgki j dqwtu''ukpeg' yj g''gctn{ 'O kf f ng' Ci gu0

Qpn("y ký "ý g"hpcn'lpvgi tcvkqp"qh''Uccpf kpcxkc"kpvq"o gf kgxcn'Gwtqr gcp"ekxktk cvkqp"f qgu"ý g"ko r cev'qh'hqtgki p" kphrwgpegu"dgi kp"vq"hwpf co gpvcm("chhgev'ý g"xgtpcewrct"rcpi wci g0"Vj qwucpf u"qh'twpke"kpuetkr vkqpu'htqo "ý g" Xknkpi "Ci g."r tgugtxgf "qp"uvqpg"o qpwo gpvu'kp"egpvtcn'r ctw"qh'Uy gf gp"cpf "F gpo ctm"eqphkto "ý ku"r kewtg<" yi gkt "hpi wkuke"hqto "ku"gpvktgn("f qo guvke0"Vj g"f gekukxg"uvgr "kp"ý g"kpvgi tcvkqp"r tqeguu'ku'ý g"go gti gpeg"qh" y tkwgp"xgtpcewrctu. "wukpi "c"uetkr v'dcugf "qp"vj g"Ncvkp"crr j cdgv0"Vj ku'uvcyg"qh'nkpi wkuke"ewnwtg"y cu'cvckpgf "kp" Uy gf gp"qpn("cu'c'tguwn'qh''y g"Ej tkukcp"o kuukqp"cpf "ý g'uwdugs wgpv'kpvtqf wevkqp"qh''Ncvkp"kp"y g"grgxgpyj " egpwt{"\*cdqw'qpg"egpwt{"hcvgt"y cp"kp"F gpo ctm'cpf "P qty c{+0"Vj g"htuv'-dqqmuø"y j kej "y gtg"y tkwgp"y kyj " Ncvkp"v(r gu'kp"y g'xgtpcewrct"rcpi wci g'\*klg0kp"Gcuv'P qtug"qt"ercuulecn'Qrf "Uy gf kuj +"f kf "pqv'cr r gct "wpvkrly g" gctn("ý ktvgpyj "egpwt{="y g"qrf guv'eqo r rgvg"eqr kgu"gzvcpv'vqf c{"f cvg"htqo "e084: 20

Vj gug'r kqpggtkpi "f qewo gpvu'qh"Uy gf kuj "rkvgtcwtg"ctg'tgeqtf u'qh"r tqxkpekcnircy 0'Vj gkt 'rkpi wkurke 'hqto 'ku" ej ctcevgtk gf "d{"cp"cm quv'gpvktgn{"f qo gurke 'xqecdwrct {"cpf 'uko r ng"u{ pvcz "cpf ."cdqxg"cm"d{"c'hqto wrcke." tgr gvkxkzg"uv{ ng0'Vj gug"f qewo gpvu'cnıq"o ctm"cv'ngcuv'ko r nkekur{ ."vj g"r qvgpvkcnivvctvkpi /r qkpv'qhi'Uy gf kuj " vcpurcvkqp0'Vtcf kkqpcm{ ."vj g"o gf kgxcnirgi cniuv{ ng"j cu'dggp"vtcegf "dcemivq"c"f qo gurke."r tg/nkvgtct { "qtki kp"qhi'vj g" rcy u0'Vqf c { ."j qy gxgt."uej qnctu"s wgurkqp"vj g"ko o gf kcvg"f gr gpf gpeg"qhi'ngi cniuv{ ng"wr qp"c"pcvkxg"qtcnivtcf kkqp0' Kpuvgcf ."cvvgpvkqp"j cu'dggp"f tcy p"vq"urtknipi "uko krctkkgu'y kyj "eqpvkpgpvcningi cniy tkkpi u."uwej "cu'T qo cp" lwtkur twf gpeg"cpf "ecpqp"ncy 0'I kxgp"vj g"r tgugpv'uvcvg"qhi'tgugctej ."vj ku'o gcpu"vj cv'y g"ctg"pqv'egtvckp"y j gvj gt" vj g"j kurqt { "qh'vtcpurcvkqp"kpvq"Uy gf kuj "cewcmr{ "dgi kpu"y kyj "vj g"httuv'eqf khlecvkqp"kp"uetkr v'qhi'kpvgtpcvkqpcmr{ "ewttgpv'ngi kurcvkqp"kp"y g"J ki j "O kf f ng"Ci gu0

# Vj g'r gt kqf 'qh'ej kxcrt { < gct r( 'tj kt vggpvj 'tq'hc vg'hqwt vggpvj 'egpwt {

Kp"Uy gf gp."cf cr wvkqp."tcvj gt"vj cp"\tcpurcvkqp."o c{ "j cxg"r rc{gf "vj g"o ckp"tqrg"kp"kpkkkcvkpi "vj g"f gxgrqr o gpv"qh" xgtpcewrct "rkvgtcwtg0"Ngcxkpi "cukf g"vj g"twpke"kpuetkr vkqpu."vj g"f qo guvke"y tkvvgp"\tcf kvkqp"uggo u"vq"j cxg" qtki kpcvgf "y kvj "

r ctcr j tcugu'kp''y g'xgtpcewrct'rcpi wci g'qh'eqpvgo r qtct { ''y tkkpi 'kp''Y guv'P qtug.'O kf f rg'Nqy 'I gto cp.'Qnf "
Htgpej ''cpf ''Ncvkp0'Vj ku'ku'r ctv'qh'c'i gpgtcn'r cwgtp'kp''Uy gf kuj ''rksgtct { ''etgcvkqp'kp''y g''J ki j 'O kf f rg''Ci gu.''cp''
gr qej ''qhvgp''tghgttgf ''vq''cu''y g''i qnf gp''ci g''qh''Gcuv'P qtug''rksgtcwtg0'Vj g''tcpurcvgf ''rksgtcwtg''qh''Y guv'P qtug.''
O kf f rg''Nqy ''I gto cp''cpf ''Qnf ''Htgpej ''ku''enqugn{ ''tgrcvgf ''vq''÷ej kxcnt { ø''y g''ewnwtcn'cpf ''kf gqnqi kecn''tcf kkqp''
r tgxckrkpi ''kp''Y guvgtp''Gwtqr g''cv''y cv''ko g0

Vj g'kí gqmi { "qh'ej kxcnt { "y cu''\tcpuo kwgf "\q'\y g'wr r gt''encungu''xkc"-ej kxcntkeø'gr ke "xgtug. "gzr tgungf "\p'\tj { o gf " ej tqpkengu. "dcmcf u"cpf "xgtug'tqo cpegu'y j kej "y gtg''dcugf "qp''Htgpej "cpf "I gto cp''qtki kpcnu."uqo g\wo gu'\yi tqwi j " y g'o gf kc\wqp''qh''Y guv'P qtug\OCP "gxgp"o qtg''egp\tcn'\cum'qh'y tk\woj "\nqt''c''ncti g''tgcf gtuj kr "\woj'\y ku''r gt\woj " eqp\ukuvgf "qh'\yi g''r tqr ci c\woj qh'\yi g''Ej tkn\wcp"o guuci g'\woj''r tc{gtu''cpf "J { o pu. "\woj''r tgcej kpi "cpf "\woj y qtmi'qh" gf khec\woj ON\ng''ej kxcnt\e''r qg\ts {."\yi gug''i gptgu. "\wwwm{y tk\woj "\woj "Nc\woj "y gtg''\to r qt\woj "htqo "cdtqcf \OV\j g\ts" tj g\tgtecn''r cwgtpu'y gtg''o qtg''qt''ng\un''hxgf. "hng'\yi qug''qh'\yi g''xctkqwu''nqto u''qh'ej kxcnt\e''r qg\ts {."\dw'\yi g''y gtg'' s \wkg'' khtgtgp\v'htqo "\yi go "\woj "qt\ki \woj "cpf "\ukuvew\tg=\woj q\text{" tgungf "c" f khtgtgp\v'r wdn\e0\Uy gf \ki j "tgn\ki \kqwu" \woj g''y gtg'' s \wkg'' khtgtgp\v'htqo "\yi go "\woj "qt\ki \woj "cyf' tgugtxgf "r t\to ct\kn\("\woj y'' g''\to "\woj h''\to "\woj h''\to "\woj ph'\to "\woj

## Vj g'o qpcusle'r gt lqf < 'ic vg'hqwt vggpvj 'vq'gct n( 'tikz vggpvj 'egpwwt lgu

Vj g'O qpcuvgt { "qh'Xcf uvgpc"ku"cti wcdn{ "vj g"etcf rg"qh"Uy gf kuj "vtcpurcvkqp0"Vj ku"hco qwu"kpuvkwwkqp"qh'ncvg" o gf kgxcn"Uecpf kpcxkc"y cu"etgcvgf "d{ "Uv"Dtkf i gv"cpf "r quvj wo qwun{ "hqwpf gf "kp"ceeqtf cpeg"y kvj "j gt "qy p."xgt { "gzcev"kpuvt wevkqpu0

Qpg"qh"yi g"hktuv"i tgcv"gpvgtr tkugu"qh"yi g"pgy "Dtkf i gvkpg"eqpi tgi cvkqp"eqpukuvgf "qh"tgvtcpurcvkpi "yi g"hqwpf tguuxu" gpvktg"eqmgevkqp"qh"Tgxgrcvkqpgu"dcemlhtqo "yi g"Ncvkpô kpvq"y j kej "yi g{ "j cf "dggp"tgpf gtgf "d{ "j gt"eqphguuqtuô kpvq"j gt"qy p"Uy gf kuj "o qvj gt"vqpi wg0"Vj ku"o clqt"cum'uggo u"vq"j cxg"dggp"r gthqto gf "kp"eqppgevkqp"y kvj "yi g" kpcwi wtcvkqp"qh"yi g"O qpcuvgt { "kp"35: 60"Vj g"r tkpvgf "gf kvkqp"cxckrcdrg"vqf c { "qeewr kgu"qxgt"3422"r ci gu"cpf "ku" y tkwgp"kp"i qqf ."uv{ rkuvkecm{ "cf gs wcvg"Qrf"Uy gf kuj 0

Vj ku'tcpurckqp'ku'uwduvcpkcm("f khtgtgpv'htqo" 'y g'htgg'r ctcr j tcugu'qh'qrf gt'o gf kgxcn'r gtkqf u. 'uq'y cv'y g"

Dtkf i gkpg'\gzv'o c{"dg'tgi ctf gf "cu'y g'htuv'tcpurckqpô kp'y g'utkev'ugpug'qh'y g'y qtf ô gxgt'\wpf gtvcngp'htqo" c'hqtgki p''rcpi wci g'kpvq''Uy gf kuj 0'kp'hcev'kv'ku'r quukdrg'\q'hqmqy "y g''tcpurcvqt''cro quv'y qtf 'hqt'y qtf 'cu'j g"

rtqeggf u''y tqwi j "y g''gki j v'dqqmu'qh'T gxgrckqpu0'Vj ku''o qpm'tcpurcvqt''ergctn("cko gf "cv'hpi wknke"gs wkxcrgpeg"

yi tqwi j qwô cv'y g''gxgrlqh'y qtf .'r j tcug''cpf 'ercwugô cpf 'o cpci gf "\q'hwrhkri'y ku''cko "\q'c''rcti g''f gi tgg0

Y j krg''kv'o c{"dg''cti wgf "y cv'y g''Xcf uvgpc''o qpmu'y gtg. 'untkevn("ur genkpi .'yj g''htuv'Uy gf kuj "\tcpurcvqtu."

vcpurcvkqp''kp'i gpgtcn'ecppqv'dg'uggp''kp'kuqrcvkqp'htqo "yj g''eqpvgzv'kp'y j kej 'kv'hwpevkqpu0'F wtkpi ''yj ku''gctn("

r gtkqf .''yj g''xgtpcewrt'\*\*cti gv+'rcpi wci g'y cu'uggp''cu'kplgtkqt'\q''y g''uqwteg''rcpi wci g. "cpf ''yj ku''pcwtcm("

gpeqwtci gf "\tcpurcvqtu'\q''eqr { "'y g''hpi wknke'hqto "qh'yj g''qtki kpcn'0'yj ku''cr r nkgf "gxgp'\q''i tco o cvkecn'hqto <"
o qpcuvke''tcpurcvqtu''tkgf "\q''eqr { "'ur gekhle''r cwgtpu''qh''Ncvkp''u{pvcz''tcyj gt''y cp''lwuv'ku''tj gvqtkecn'uv{ rg0'Vj ku''f qgu''

pqv'f gvtcev'htqo "yj g''xcnwg''qh'yj gkt''y qtm'cu''xgtpcewrt''uv{ rknvu='yj g{ "uweeguuhwn("'cpf "unknhwn("o cpkr wcvgf "yj g''

tguqwtegu''qh''rcvg''o gf kgxcn'Uy gf kuj .''c''tcyj gt''dcuke''kf kqo "yj kej ''rcengf''yj g''nkpf ''qh'tghkpgo gpv'yj cv'ecp''qpn("

eqo g''htqo "c''nqpi "'cpf' 'tkej ''hxgtct { "'tcf kkqp0

Vj ku'i tgcv.'r kqpggtkpi "gpvgtr tkug"r tqxkf gf "vj g"dcuku'cpf "kpur ktcvkqp"hqt"pwo gtqwu'uwdugs wgpv'vtcpurcvkqpu" y j kej 'y gtg"wpf gtvcmgp"cv'vj g'O qpcuvgt { "vj tqwi j qwv'vj g'O kf f rg"Ci gu0Vj g"r tkpvgf "gf kkkqpu"qh'vtcpurcvgf "rkwgtcwxtg"htqo "Xcf uvgpc"ewttgpvn{ "qeewr { "vj g"ur ceg"qh"c"y j qrg"uj grh"y j kej "ku"qpg"o gvtg"kp"rgpi vj 0Vj g"

Xcf uvgpc"tcpurcvqtu"ctg"o quvn{"cpqp{o qwu="y g"mpqy "qpn{"c"hgy "qh'yi go "d{"pco g."yi g"dguv'mpqy p"dgkpi "yi g" kpf wuxtkqwu"L>pu"DWFFG0

Vj g'O qpcuvgt { "qh"Xcf uvgpc"f qo kpcvgf "vj g"r tqf wevkqp"qh"rkvgtct { "vgzvu"kp"Uecpf kpcxkc"f wtkpi "vj g"hkhvggpvj " egpwt { 0 Y ky "vj g"kpvtqf wevkqp"qh"r cr gt."vj j kej "v cu"eqpukf gtcdn( "ej gcr gt"cpf "gcukgt"vq"j cpf rg"vj cp"qrf " r ctej o gpv."vj g"xqnwo g"qh"vgzv"r tqf wegf "cv"vj g"O qpcuvgt { "kpetgcugf "eqpukf gtcdn( 0"Vj g"o clqtkx( "qh"vj ku" o qpcuvke"y tkkpi "v cu"kp"Ncvkp."cpf "xgtukqpu"r tqf wegf "kp"vj g"xgtpcewrct"vy gtg"pqto cm( "dcugf "qp"Ncvkp" qtki kpcn0"Vj g"Ncvkp"vtcpurcvqtu"qh"vj g"O qpcuvgt { "f gxgmr gf" c"u{uvgo "qh"vj gkt"qy p0"Vj g{ "rgctpv"vq"y tksg" Uy gf kuj "kp"cp"wpr tgegf gpvgf "tqwkpg"hcuj kqp"cpf "r tqf wegf "c"rcti g"xqnwo g"qh"s wcrkx{ "y qtm"cv"ur ggf "y ky kp"c" xctlgv{ "qh"f qo ckpu."uqo g"qh"vj kej "y gtg"xgt { "cduvtcev0"Vj g{ "y tqvg"y kj "c"egtvckp"f gi tgg"qh"hqto cn"cpf " rkpi wkrke"eqpukuvgpe { ."y j kej "y cu"s wky"cp"cej kgxgo gpv"hqt"o gf kgxcn"Uecpf kpcxkc0"Vj g"vtcpurcvqtu"cv"Xcf uvgpc" kp"hcev"f guki pgf "vj g"o qwrf u"kpvq"y j kej ."uqo g"egpwxtkgu"rcvgt."c"Uy gf kuj "uvcpf ctf "rcpi wci g"y cu"vq"dg"ecuv" i tcf wcm{ "cpf "rcdqtkqvun{0}

# Vjg'Tghqtocvlqp'cpf'vjg'itgcv'rqygt'rgtlqf<'gctr('ilkzvggpvj'vq'lgxgpvggpvj'' egpvvtlgu

Qpg"cpf "c"j cnh'egpwtkgu"chvgt "vj g'hktuv'Dtkf i gvkpg"tcpurcvkqp."vj g'ngcf kpi "o gp"qh'vj g"Uy gf kuj "Tghqto cvkqp" y gtg"gpvtwuvgf "d{ "Mkpi "I wuvcx "Xcuc"y kyj "vj g'ko r qt vcpv'vcum'qh'r tqxkf kpi "hqt"vj g'Uy gf kuj "r gqr ng"c"J qn{ "Dkdng" kp"vj gkt"qy p"ncpi wci g0"Vj g"Xcf uvgpc"vtcf kkqp"r tqxkf gf "wughwn'o qf gnu'hqt"vtcpurcvkqp"kpvq"ghhgevkxg"Uy gf kuj ." r ctvkewrctn{ "dwv'pqv'gzenwukxgn{ "qh'tgrki kqwu"vgzwu0

Vj g'Uy gf kuj 'P gy ''Vgucco gpv'cr r gctgf 'kp'37480'Vj g'uqwteg'\gzv'y cu'r tqdcdn( '\j g'\Nc\kp'\xgtukqp'\qh'\j g'' Tgpckuucpeg''gf kkqp''qh'Gtcuo wu0'Vj g''qrf guv'eqo r rgvg''Uy gf kuj ''Dkdrg.''mpqy p''cu'\j g'I wuxcx''Xcuc''Dkdrg.''y cu'' r tkpvgf ''cv'Wr r ucrc'\kp''3763''cpf 'ku'\j qwi j v'\q''dg''dcugf ''r tkpekr cm( ''qp''O ct\kp''Nwj gtøu''eqpvgo r qtct { ''J ki j '' I gto cp''\tcpurc\kqp0'Dqij ''Uy gf kuj ''\tcpurc\kqpu''ctg''eqmge\kxg''wpf gt\cm\kpi u. ''cpf ''y g''f q''pqv''mpqy ''hqt''egt\ckp'' y j kej ''\kpf kxkf wcn'\tcpurc\qtu''y gtg''tgur qpukdrg''hqt''r ct\kewrct''uge\kqpu''qh''\j g''y q''\gz\w00J qy gxgt.''\j gtg''\ku'' eqpx\kpekpi ''gxkf gpeg''\j cv'\j g''rgcf gtu''qh'\j g''Uy gf kuj ''Tghqto c\qqp''\j g''ej cpegmqt''Ncwtgp\kwu''Cpf tâ .''\j g''tq{cn'' ugetgvct { ''Qrcwu''Rg\tk'cpf ''Ctej dkuj qr ''Ncwtgp\kwu''Rg\tk\ô y gtg''\kpxqr\xgf ''cv'f kh\gtgpv'\uci gu''qh'\j g''y qtm\0'C'' r t\pvgf ''eqr { ''qh'\j ku'\gz\v'y cu''f kn\tkdwgf ''q''gcej ''r ct\kuj ''\j tqwi j qw'\j g''eqwp\t\ { 0'K'y cu''gzr ge\ygf ''q''dg'' wpf gtu\qqf ''cf gs wc\ygn\{ 'ygtgt\{ y j gtg. ''kttgur ge\xxg''qh'f kcrge\v'cpf ''\pf kx\f wcn'\necn'eqp\yz\v\0'Vq'\nwh\kn'\j ku''r wtr qug.''c'' egt\ckp''wpk\hqto k\f ''\p''hpi wkn\ke''gzr tguu\qp''y cu''uggp''cu''c''r tgtgs wkn\kyg0

Vj ku'ukzvggpyj /egpwt { "xgtukqp" y cu'vq" dgeqo g'vj g"qhhkekcn'dkdrg" qh'vj g"Uy gf kuj "Uvcvg" ej wtej "wpvkn'3; 39. "y j gp"kv" y cu'tgr megf 'd{ "c'pgy "qhhkekcn'\tcpumvkqp."ewttgpvn{ "cnuq'kp"\j g'r tqeguu'qh'dgkpi "tgr megf 0'Vj g'Xcuc'Dkdrg" j qnf u'c'wpks wg'r qukukqp'kp''Uy gf gpøu'nkvgtct{"cpf"nkpi wkuvke'ewnwtg0'Hqt"cno quv'hqwt'egpwtkgu'vj ku'vgzv'y cu'' tgekgf "cmwf"htqo "vj g"r wr kv. "tgcf "d{"vj g"rkgtcvg. "s wqvgf "cpf "tghgttgf "vq"kp"rkvgtcwtg"cpf "kp"gxgt{fc{"rkhg0'KV" pewtem ("en.q"r ne { gf "e"o elqt "tqng"kp"uvepf etf k kpi "yi g"y tkwgp"nepi wei g0Cu"het "eu"yi g"i gpgten"j kuvqt { "qh" Uy gf kuj 'ku'eqpegtpgf.''vj ku'tcpurcvkqp'ku'd{'hct''vj g'o quv'ko r qtvcpv'vgzv'gxgt''y tkwgp'kp''Uy gf kuj 0 Vj g"j kuvqtkecn'cpf "nkpi vkuvke"ko rqtvcpeg"qh"vj g"Uy gf kuj "vtcpurcvkqp"qh"vj g"dkdrg. "nkng"vj cv"qh"eqpvgo rqtct{" vtcpurcvkqpu'kp''qyi gt''Nwyi gtcp''eqwpvtkgu.''j cu''vq''dg''uggp''wndo cvgn{'htqo ''vj g'r qkpv'qh''xkgy ''qh'nkpi wkuvke''kf gqnqi {'' tcyj gt "yj cp "geengukcurkecn'cwyj qtkx{0 Hqt "O ctvkp "NWVJ GT "\*ugg" I GTO CP "VTCF KVKQP +: "yj g"dkdng" j cf "vq"dg" vtcpurcvgf "kp"uwej "c"y c{"cu"vq"cmqy "eqo o qp."wprgctpgf "r gqr rg"vq"wpf gtuvcpf "vj g"y qtf "qh"I qf 0"kp"Uy gf gp."cu" kp"qyjgt"eqwpvtkgu"kphnwgpegf"d{"vjg"Tghqtocwkqp."vjku"Nwwjgtcp"vtcpuncwkqp"fqevtkpg"jcf"cp"gzwgpukxg"cpf" muskpi "ghłgev'qp"cykwf gu'\q"pcykqpcn'repi wci g."cu'y gm'cu'y g'pcykqpcn'repi wci g'ksugnf0'Vj g''stepurcykqp" cej kgxgo gpwl'qh'Uy gf kuj 'tghqto gtu'r tqdcdn{ 'o ctm'c'f ghkpkg'f gr ctwtg'htqo 'vj g'Xcf wgpc'xkgy ''qh'vj g'' xgtpcewrct "cu"c"xwri ct "rcpi wci g"hqt "gxgt {fc{"wug."qpn{"korgthgevn{"oktqtkpi" 'y g"oci pkhkegpeg"qh"Ncvkp0" Vtcpurcvqtu'qh'vj ku'r gtkqf 'f grkdgtcvgn( "gpf gcxqwtgf "vq'wug"cp"cf gs wcvg"pcvkqpcn'rcpi wci g"ghhgevkxgn( ."cpf " kpurgcf "qh'eqr {kpi "vj g'hkpi wkurke 'hqto "qh'vj g'qtki kpcn 'vtcpurcvkqp 'pqy "o gcpv'y tkxkpi "chtguj 0 Vj ku'ej cpi g'kp'cwkwfg'y cu'uwrrqtvgf 'd{ 'qvjgt'j kuvqtkecn'fgxgrqrogpvu0'Vjg'oqfgo''Uygfkuj 'uvcvg'ycu'' guvcdrkuj gf "d{ "Mkpi "I wuvcx "Xcuc." y j q "ko r ngo gpvgf "tki kf "o gcuvtgu" qh"

egpvtcnk cvkqp0Rtkpvkpi ."y j kej "y cu'kpvtqf wegf "f wtkpi "vj g'Tghqto cvkqp."cnıq"r m{gf "c"tqng"kp"hkzkpi "vj g'hqto "qh" y tkwgp"ncpi wci g0J qy gxgt."kp"ur kwg"qh"vj g'hcev'vj cv'r tkpvkpi "o cf g"vj g"vgzvu"r tqf wegf "d{ "Tghqto cvkqp"y tkwgtu" cpf "vtcpuncvqtu"cxckmcdng"qp"c"ncti g"uecng."cpf "pqw kvj uvcpf kpi "vj g'xgt{ "tgcn'cej kgxgo gpwu"qh"dkdng"vtcpuncvqtu." yj g"rkwgtct{ "ewnwtg"qh"Uy gf gp"f wtkpi "vj g"Tghqto cvkqp"r gtkqf "y cu'y gcn0

Uy gf gp"go gti gf "htqo "yj g"Vj ktv[" gctuø"Y ct"cu"c"o clqt"Gwtqr gcp"r qy gt "lp"yj g"ugxgpvggpyj "egpwt {0Mkpi "
I wxx."Cf qrh"cpf "S wggp"Ej tknkpc"j cf "co dkkqpu"qh"ewxwtcn"r tgxki g0Vj gkt"r gtkqf "qh"twrg"y cu"ej ctcevgtk gf "
d{"c"hckn("qr gp/j cpf gf "ewxwtcn"r qrke{."Nwj gtcp"qtyj qf qz {"cpf"cp"grgo gpv"qh"r ctkqke lj knqtke"hcpvcuk kpi 0'
F wtkpi "yj g"eqpenxf kpi "Ectqrkpg"gr qej ."yj gtg"y cu"cnxq"c"r tqpqwpegf "kpvgtgxv"kp"qty qi tcr j {."i tco o ct."cpf "yj g"
r tgxgtxcvkqp"cpf "tgi wcvkqp"qh"yj g"pcvkqpcn"hcpi wci g0Cm"yj gug"hcevqtu"uwr r qtvgf "yj g"r tqf wevkqp"qh"r tkpvgf "vgzv"
kp"Uy gf gp"cpf "kphrwgpegf"yj g"f gxgmr o gpv"qh"vtcpurcvkpi "cevkxkkgu"kp"yj g"ugxgpvggpyj "egpwt {0
X gtpcewrt"y tkklpi "f wtkpi "yj ku"r gtkqf "y cu"o ckpnf "qtki kpcn\*vJ cpuxqp"3; : 4+016"uj ctr "eqpvtcuv"vq"eqpf kkqpu"kp"
o gf kgxcn"cu"y gm"cu"o qf gtp"r gtkqf u "qpnf "qpg"dqqn"qw"qh"hkxg"y tkwpp"kp"Uy gf kuj "y cu"c"vtcpurcvkqp0"Ncvkp"
tgo ckpgf "c"o clqt"hcpi wci g"kp"yto u"qh"yj g"vqvn"r tqf wevkqp"qh"r tkpvgf "yzxv"cmo quv"cu"y gmitgr tgugpvgf "cu"
Uy gf kuj "kwgrh0"Cu"c"uqwteg"hcpi wci g"hqt"vtcpurcvkqp."yj qwi j ."Ncvkp"y cu"pqy "tgf wegf "q"ugeqpf "r qukkqp0"Qh"yj g"
vqvn"557"r tkpvgf "dqqn"vtcpurcvkqpu"kpvq"Uy gf kuj "y j kej "cr r gctgf "f wkpi "yj g"ugxgpvggpyj "egpwxt {."yj g"o clqtkxf"
\*425"kxngu"qt"83"r gt"egpv+"ctg"tcpurcvkqpu"qh"I gto cp"y qtmu"qh"tgrki kqwu"gf khecvkqp "kpvgpf gf "hqt"y g"i gpgtcn"
r wdrke0C"s wctvgt"\*: 4"kxngu"qt"46"r gt"egpv+"ctg"dcugf "qp"Ncvkp"qtki kpcn0Qyj gt"uqwteg"hcpi wci gu"ceeqwpv"hqt"37"
r gt"egpv"qh"kxngu"vtcpurcvgf <"I qy ke"\*tQ0Qnf "Kegrcpf ke."32"kxngu+"Htgpej "\*36"kxngu+"Gpi rkuj "\*33+"F cpkuj ."
U'cpkuj ."F wej "cpf" "Rqnkuj "\*qpg"gcej +0

F gxqvkqpcn'nkgtcwtg'cpf "eqmgevkqpu'qh'ugto qpu'vtcpurcvgf 'htqo 'I gto cp'y gtg'u{uvgo cvkecm{ "wugf 'd{ "y g'Uvcy" ej wtej "hp'cpvkr cr kuv'r qr wrct "gf wecvkqp." y j kej "y cu'ej ctcevgtk gf "d{ "ugxgtg'Nwj gtcp"qty qf qz {0Vj g''vtcpurcvqtu" qh'y gug'y qtmu'y gtg'o quvn{ "engti {o gp0Vtcpurcvkqp'htqo "Ncvkp"qtki kpcnu'y cu'i gpgtcm{ "ecttkgf "qw'd{ "rc{ "r gqr rg'y qwi j "uqo g." hqt "gzco r rg"UEJ TQF GTWU." y gtg'kphnvgpvkcn'r tqhguukqpcnu0Vj g'vtcpurcvkqpu'eqpukuvgf" qh'f kf cevke "nkygtcwtg"qh'ic" o qtg'y qtnf n{ "ej ctcevgt"cpf "c'xctkgv{ "qh'j kuvqtkecn'cpf "r qrkskecn'y qtmu0 kp''hpg'y kj "y g'ewnvtcn'co dkkqpu'qh'c'pgy "i tgcv'r qy gt." o cp{ "qh'y g''vtcpurcvkqpu'wpf gtvcmpp"f wtkpi "y ku'' r gtkqf "y gtg'qh'o gf kgxcn'Kegrcpf ke'uci cu0Encuukecn'hkygtcwtg'y tkvgp'kp"Y guv'P qtug'y cu''r tgugpvgf "cu''I qy ke'kp" qtki kp'\*ko r n{ kpi "y cv'kv'y cu''Uy gf kuj #'y ku''cev'qh'r cvtkqvke'hqti gt{ "y cu'wpf gtvcmpp"y kj "tq{cn'uwr r qtv0' Kegrcpf gtu''eqwnf "gctp"o qpg{ "d{ "ugmkpi "uci c'o cpwwetkr wi'cpf "ygcej kpi "y gtg'gci gtn{ "gzr rqkgf "cu'tgrkeu'qh" cp''cmgi gf 'i mtkqwu''r cuv0

# Vj g'cecf go le'r gt lqf <'gct n( 'gli j vggpvj 'egpwt { 'vq'e\B: 52

Kp"y g"egpwtkgu"ko o gf kcvgn ("hqmy kpi "y g"Tghqto cvkqp."y tkvgp"Uy gf kuj "j cf "umy n ("dw'uvgcf kn ("uvtgpi y gpgf" kui" qukkkqp"cu"c"ekxkk gf "Gwtqr gcp"repi wci g0Vj g"r qukkkqp"qh"Uy gf gp"cu"c"o clqt "Gwtqr gcp"r qy gt"y cu" wpf gto kpgf "d {"vj g"I tgcv'P qtvj gtp"Y ct"\*3922643+"cpf "vj g"f gcvj "qhi'Mkpi "Ej ctrgu'Z KKkp"393: "o ctrngf "cp" ko r qtvcpv'vtcpukkkqp"\q"c"pgy "gtc0Uy gf gp"y cu"pqy "hqtegf "vq"i kxg"w "ku"co dkkkqpu"cu"c"i tgcv'r qy gt"cpf "dgi cp" cf lwwkpi "vq"ku"pgy "tqrg"cu"c"uo cm"r gceghwn "ht kpi g"uvcvg"kp"pqtvj gtp"Gwtqr g0Vj g"pcvkqpcn"repi wci g"eqwf "pqy " r gceghwn "cpf "uvgcf kn "f gxgmqr "cpf "dg"tghkpgf "vq"ceeqo o qf cvg"cm"v r gu"qh"vgzv"cpf "ugtxg"vj g"pggf u"qh"o quv" rkygtct {"i gptgu0Vj g"gr wecvgf "ercuugu"dgi cp"vq"f gxgmqr "c"o qtg"kpvgtpcvkqpcn"qwnqm"cpf "vj g"kphrwgpeg"qh" Htgpej "qp"Uy gf kuj "ewnwtg"tgcej gf "kwi"r gcm'wpf gt "vj g"tgki p"qh"Mkpi "I wwcxwu"KKX\*39946; 4+0 Ugtkqwu"f kwetgr cpekgu"kp"j g"j kwqtkecnttgeqtf u"qh"vj g"r gtkqf "wphqtwpcvgn "o gcp"vj cv'y g"npqy "xgt {"kwyg"cdqw" vtcpurcvkpi "cevkxkkgu"kp"i gpgtcn"cpf "gxgp"rguu"cdqwv"kpf kxkf wcn'vtcpurcvkpi "cej kgxgo gpwu"kp"gki j vggpvj /"cpf" gctn "pkpgvggpvj /egpwt {"Uy gf gp0Cu"{gv."pq"uvcvkurkecnllphqto cvkqp"ku"cxckrcdrg0Y j cv'y g"f q"npqy "ecp"dg" uwo o ctk gf "kp"c"hgy "i gpgtcn"ucvgo gpw0

Vj g'etgckqp''qh''y q'hgctpgf 'cecf go kgu'kp''Uy gf gp.''y g'Cecf go { ''qh''Uekgpegu'kp''395; ''cpf ''

y g''Uy gf kuj ''Cecf go { ''kp''39: 8. 'tghrgevu''c''uqdgt/o kpf gf ''cpf ''wkrksctkcp''xkgy ''qh''rcpi wci g''cpf ''rksgtcwtg. ''v{r kecn' qh''y g''Ci g''qh''Gprki j wpo gpv0Cmpi ''y kyj ''y g'f gxgmr o gpv'qh''y g''pcwtcn'uekgpegu. ''kpur ktgf ''r ctvn{ ''d{ ''y g'' kmwwtkqwu''gzco r ng''qh'Ectqnwu''Nkppâ wu'\*\*y g''y gmmpqy p''Uy gf kuj ''dqvcpkw'y j q''guvcdrkuj gf ''y g''r tkpekr ngu''hqt'' pco kpi ''cpf ''encuukh{ kpi ''r ncpwu''cpf ''cpko cn++. ''c''Uy gf kuj ''uekgpvkhke''r tqug''y cu''guvcdrkuj gf ''kp''y g''o kf f ng''qh''y g'' egpwt{ 0'K'y cu''dcugf ''o ckpn{ ''qp''qtki kpcn'r tqf wevkqp0

Tevkqperkuvkí geu'cpf "ugxgtg"Htgpej "Encurkecníf go cpf u'qp"uv(ng"cpf "kpi wkuke"hqto "i qxgtpgf "kxgtet { "y tkkpi 0' S wcpvkcvkxgn("ur gemkpi ."tcpurcvkqp"y cu'r tqdcdn("tcy gt"kpuki pktkecpv'cu'cp"cevkxk/ô cu'kv'y cu'f wtkpi "y g" ugxgpvggpyj "egpwt {ô cpf "y ku'y cu'vq'tgo ckp"yj g"ecug"wpvkri'y g"reuv'f geef gu'qh'y g"gki j vggpyj "egpwt {."y j gp" y q"pgy "i gptgu"qh'ikvgtet { "tcpurcvkqp"go gti gf 0Vj g"htuv'y cu'ur qpuqtgf "d{ "Mkpi "I wuxxwu"kkKj ko ugnt0Wpf gt" j ku'r tqvgevkqp."yj g"y gevtg"gzr cpf gf 'tcr kf n{ ."cpf "y ku'ngf "vq"c"uvtqpi "f go cpf "hqt"y g"tcpurcvkqp"qh'ir re{u0Vj g" ugeqpf ."eqpf kxkqpgf "d{ "r qnkxlecn'cpf "geqpqo ke "hcevqtu."y cu'vj cv'qh'ir tqug"hkevkqp"kpvgpf gf "hqt"ewnxxcvgf" gpytvckpo gpv'qh'yj g"dqwti gqku'o kf f ng"encun'yj cv'j cf "i tqy p"kp"yj g"gki j vggpyj "egpwx {0O quv."kh'pqv'cm "qh'y ku"«/ rc/o qf g"hxgtcwtg"eqpukuvgf "qh'eqo o gtekcn'vcpurcvkqpu'd{ "ugnh'go r m{ gf "r tqhguukqpcnu0Htgpej "uggo u"vq"j cxg" dggp"yj g"f qo kpcpv'uqwteg"repi wci g"cv'yj g"dgi kppkpi ."dw'y cu'ncyt"ej cmgpi gf "d{ "I gto cp"cpf ."cv'yj g"xgt { "gpf" qh'y g" r gtkqf ."Gpi nkuj 0Vj g"f kuugo kpcvkqp"qh'dqqmu'y cu'f gr gpf gpv'vq"c"ncti g"gzvgpv'qp"o qdkrg'hkdtctkgu="yj gtg" y cu'c"j cpf hxn'qh'y go "kp"Uvqenj qno "cv'yj g"wtp"qh'yj g"egpwx { "\*D13/4nno cp"3; ; 4+0 Vj g"uxttgpf gt "qh'Hkprepf "vq"T wuukc"kp"3: 2; ."hqmy kpi "c"eccuntqr j ke"y ct."f ggr n{ "chhgevgf "yj g"Uy gf kuj "pcvkqp" cnf" sef "hit entreplane" set "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" "hyd e"levt" sef "" "povyf lpi "tcpurcvkp0" ev gyet "hyd e"levt" "hyd en gyet "hyd ey gyet "h

Vj g'uwttgpf gt "qh" Hkprcpf "vq" Twuukc "kp" 3: 2; . "hqmqy kpi "c "ecvcurtqr j ke "y ct. "f ggr n{ "chhgevgf "vj g" Uy gf kuj "pc kqp" cpf "j cf "uki pkhecpv" ko r necvkqpu 'hqt "rkvgtct { "ewnwtg" kp" Uy gf gp. "kpenwf kpi "vtcpurcvkqp0 U qy gxgt. "uqo g"qh" y g" f gxgrqr o gpvu "vj cv" vqqn" rceg" f wtkpi "vj g" I wuxcxkcp "gtc. "r ct vkewrctn{ "vj g" vtcpurcvkqp" qh" r tqug 'hkevkqp. "uwtxkxgf "vj tqwi j "vq" o qf gtp "vko gu0

# Vj g'lpf wwt k: ni' gt lqf <'e'\mathcal{B}: 52'\mathcal{V}'\vj g'\rt gugpv

Uy gf kuj 'uqekgv{ 'j cu'wpf gti qpg'uqo g'o clqt'ej cpi gu'ukpeg'vj g'dgi kppkpi ''qh'vj g'pkpgvggpvj ''egpwt { .''kpenwf kpi '' kpf wuxtkcnk cvkqp.''xctkqwu'r qr wrct'o qxgo gpvu.''go ki tcvkqp.''vj g''cttkxcn'qh'f go qetce { ''cpf ô kp''vj g''ncuv'vj tgg'' f gecf gu''cduqtr vkqp''qh''c'eqpukf gtcdng''pwo dgt''qh'ko o ki tcpvuOCpf ''{ gv.''vtcpurcvkqp''cevkxkv{ 'f wtkpi ''vj ku''rcuv''cpf '' o quv''gzvgpf gf ''r gtkqf ''ku''ej ctcevgtk gf ''d { ''c'tgo ctnrcdng''f gi tgg''qh''eqpvkpvkx{ .'y j kng''cv''vj g''uco g''vko g''dgkpi '' f knypevn{ ''f khngtgpv''qp''c''pwo dgt''qh''eqwpwu''htqo ''vtcpurcvkqp''f wtkpi ''gctnkgt''r gtkqf uO

F wtkpi "'y ku'o qf gtp'r gtkqf .'y g'ugg'pgy 'i gptgu'qh'hke kqp'dgkpi 'ktcpurcvgf 'hqt'o cuu'r tqf we kqp'kp'qtf gt'vq'' r tqxkf g'uko r ng''gpvgtvckpo gpv'hqt''y g'i gpgtcn'r wdrke0'Eqo o gtekcn\tankt cvkqp''tgs wktgu'j ki j /ur ggf 'r tqf we kqp''cpf '' y g''wug''qh'hkpi wku ke'hqto u'y j kej ''ecp''dg''wpf gtuvqqf ''d\{ ''y g''qtf kpct \{ ''tgcf gt0'C''nqi kecn'eqpugs wgpeg. ''qt''r gtj cr u'' c''pgeguuct \{ ''r tgtgs wku kg''qh''y ku.''j cu''dggp''y g''cr r gctcpeg''qh''y g''r tqhguukqpcn'vtcpurcvqt. ''c''f gxgnqr o gpv'y j kej '' uvctvgf 'kp''y g''r tgxkqwu''r gtkqf 0

Y ký kp''ý g''rkgtct { "guvcdrkuj o gpv."qp''ý g''qý gt''j cpf."r tkqtk\{ "y cu''i kxgp''\q''etgc\kxk\{ "cpf "qtki kpcrk\{ ."cpf "r tkqtk\{ "y cu''i kxgp''\q''etgc\kxk\{ "cpf "qtki kpcrk\{ ."cpf "r tkqtct { "qwr w''y cu''i qxgtpgf "d { "'y g''r tgxcrgpv''cguý g\ke''xcnwgu''qh'I gto cp''Tqo cp\kekuo 0'Vj ku''pcwtcm\{ "rgf "\q''c" rem'qh''cr r tgekc\kqp"qh''ko kc\kxg''ce\kxk\kgu''uwej "cu''\tcpurc\kqp."cpf "eqpugs wgpvn\{ "cnıq'\q''cp''cwkwf g''qh'' kpf kthgtgpeg''\qy ctf u''\tcpurc\qtu''cpf "'y gkt''cej kgxgo gpw0'kp''pkpg\ggpyj /egpwt { "Uy gf gp. ''y g'r tqhguukqpcn'' \tcpurc\qt''y cu''c''j wo drg''etchwo cp''y j q''rcengf "'y g''cwtc''qh''tqo cp\ke''i gpkwu."c''\;y j kg''eqrrct''r tqrg\ct\kcp\ø'' y qtnkpi "\wpf gt''f kthkewn\''eqpf kkqpu0'C''eqpukf gtcdrg''pwo dgt''qh''\tcpurc\qtu''f wtkpi "'y ku''r gtkqf "y gtg''y qo gp'' \text{3 gpo /O kre| { p''3; : 5\lefta}

Cu'y kỷ "ý g'ugxgpvggpỷ "egpwt {."c"eqpulf gtcdrg"co qwpv'qh'kpvgtguvkpi "uwcvkuvkecn'gxlf gpeg'ku'cxckrcdrg'\qf c {'hqt" rksgtct {"dqqm'r tqf wevkqp"\dqi "qtki kpcn'cpf "vtcpurcvkqp+"kp"pkpgvggpỷ /"cpf "vy gpvkgỷ /egpwt {"Uy gf gp0"Y g" mpqy ."hqt"kpuvcpeg."ý cv'435"\kvrgu'qh'r tqug'hkevkqp"\tcpurcvgf "kpvq"Uy gf kuj "htqo "xctkqwu'rcpi wci gu'y gtg" r wdrkuj gf "dgwy ggp"3: 88"cpf "3: 92"\vquad Vqti gtuuqp"3; : 4+0'Ukzv{"{gctu'rcvgt."dgwy ggp"3; 48"cpf "3; 52."ý g" eqttgur qpf kpi 'hki wtg"y cu'3.6; 2"\kvrgu0'Chvgt"cpqý gt'82"{gctu."kp"3; : 86; 2."ý ku'hki wtg'tqug'\q"crrtqzko cvgn{"7.722"\kvrgu'\vq qrkp. 'hqtý eqo kpi +0'Vj g'hki wtgu'hqt"qtki kpcn'Uy gf kuj "r tqug'hkevkqp"r wdrkuj gf 'f wtkpi "ý g'uco g" ý tgg"r gtkqf u'ctg"3: 9."3.342"cpf "crrtqzko cvgn{"3.722"\kvrgu'tgur gevkxgn{0'KV'}

uggo u'gxkf gpv'htqo "yi gug'hki wtgu''yi cv'yi gtg'y cu'c'ukz/'qt'ugxgp/hqrf "kpetgcug'kp''yi g'qxgtcmi'r tqf wevkqp'qhi'r tqug'' hkevkqp."\tcpurevgf 'cu'y gmi'cu'qtki kpcn'f wtkpi ''yi g'hktuv'82/{gct'r gtkqf ='yi gtg'cnuq'uggo ''vq''y cxg''dggp''o qtg'' \tcpurevkqpu''yi cp''qtki kpcn'y tkkpi .'pqyi y kyi uvcpf kpi "o kpqt''yo r qtct { 'hnwewckqpu'y kyi kp''yi g''r gtkqf ''cpf'' ej cpi gu'kp'f qo kpcpv'uqwteg''rcpi wci gu0'kp''yi g''ugeqpf '82/{gct'r gtkqf .'\tcpurevgf ''dqqmi'r tqf wevkqp''eqpvkpwgu'\q'' kpetgcug."yi qwi j ''kp''urki j w{ ''nqy gt''r tqr qtvkqpu."y j gtgcu''qtki kpcn'y tkkpi ''tgo ckpu''tgrevkxgn{ 'uvci pcpv0'Vj g'' cxgtci g''tcpurevkqp''tcvkq''hqt''yi g''hktuv'yy q''r gtkqf u'ku''77''r gt''egpv.'hqt''yi g''yi ktf ''kv'ku''tqwi j n{ '': 2''r gt''egpv0 Vqf c{.'pqp/rkygtct{''i gptgu''ctg''eqpukf gtcdn{ ''rguu''uki pkhecpv''yi cp''nkygtct{''i gptgu''kp''ygto u''qh''vqvn''dqqm'' rtqf wevkqp''kp''Uy gf gp0'Hkevkqp''ceeqwpwu''hqt''yi g''o clqtkx{ "qh''dqqm'\tcpurevkqpu''cpf .''kp''wtp.''tcpurevkqp'' fqo kpcvgu''hkevkqp''y tkkpi 0'Qpg''tgcuqpcdrg''j {r qyi guku'\*cu''{ gv''wpvguvgf +'ku''yi cv'yi ku''tgrevkxg''dw''eqpuvcpvn{ '' i tqy kpi ''qxgtrcr''dgwy ggp''tcpurevkqp''cpf 'hkevkqp'' cygu''dcem'ya''yi g''go gti gpeg''qh''eqo o gtekcn'nkygtct{ ''hkevkqp'' uqo g''422''{ gctu''ci q0'Ki'yi ku''twy."'yi gp''yi g''tcpurevkqp''qh''hkevkqp''o c{ ''dg''uckf''vq''j cxg''y kuvqtkecm{ ''o cti kpcnkl gf'' pqprksgtct{ ''dqqm'\tcpurevkqp''kp''Uy gf gp0

Vj g''uqwteg''rcpi wci gu''qh''vtcpurcvlqpu''j cxg''ej cpi gf ''qxgt''vko g0'Vj g''f qo kpcpeg''qh'Htgpej ''cpf ''I gto cp''kp''y g'' gctn{ ''pkpgvggpyj ''egpwtt { ''y cu''f kutwr vgf ''d { ''y g''cttkxcn'qh'Gpi rkuj ''kp''y g''o kf/pkpgvggpyj ''egpwtt { ''y g''tgrgxcpv'' hki wtgu'hqt''y g''r gtkqf ''3: 88692''ctg''72''vkvrgu'htqo ''I gto cp.''77'htqo ''Htgpej ''cpf ''8: 'htqo ''Gpi rkuj 0'Hqt''y g''r gtkqf ''3; 48652.''y g'hki wtgu''ctg''39: .''3; 8''cpf '': 36''tgur gevkxgn{='hqt''3; : 86; 2.''y g''\*crr tqzko cvg+'hki wtgu''ctg''362.''482'' cpf ''pq''rguu''y cp''6.6220'Co gtkecp''Gpi rkuj ''j cu''i tcf wcm{ ''i ckpgf ''i tqwpf ''cv'y g''gzr gpug''qh''Dtkkuj .''uvctvkpi ''y kyj '' cm quv''pq''uj ctg''qh''y g''Gpi rkuj ''hki wtgu''kp''y g''3: 82u''vq''tqwi j n{ ''c''s wctvgt''kp''y g''3; 42u''cpf ''eqpukf gtcdn{ ''o qtg'' y cp''c''j cm''kp''y g''3; 2u0

Vj ku'i tqy kpi 'Cpi rq/Co gtkecp'f qo kpcpeg'ku'r ctvn{ "eqwpvgtdcmpegf "d{ "c'r ctcmgn'kpetgcug'kp" j g'tcpi g'qh'qyi gt" uqwteg'ncpi wci gu0'Hqt"gzco r rg. 'kp" j g'r gtkqf "3; 48652. 'uqwteg'ncpi wci gu'kpenwf gf "P qty gi kcp" ; ; '\kurgu+." F cpkuj '\*73+. 'T wuukcp'\*72+'cpf 'Kcnkcp'\*52'\kurgu+." r nwu'hgy gt '\kurgu'htqo "Ur cpkuj ." J wpi ctkcp. 'F wej ."Rqnkuj ''cpf " c'f q| gp"qyi gt 'uqwteg'ncpi wci gu. 'r tcevkecm{ "cm'Gwtqr gcp0'Hqt"3; : 86; 2. 'yi g'nkuv'ku'uko krct. 'yi qwi j ''pqy ''urki j vn{ " gptkej gf 'd{ "c'hgy '\kurgu'htqo "o clqt'pqp/qeekf gpvcn'ncpi wci gu'uwej "cu'Ctcdke. 'Ej kpgug'cpf 'Icr cpgug0'Ur cpkuj ." r ctvkevrctn{ "yi g'Ncvkp'Co gtkecp'xctkgv{ ."pqy 'tcpmu'hqwtyi ."y kyi "; 4"\kurgu='yi ku'o c{ "dg'r ctvn{ "f wg'vq'yi g'ur gekcn' r tghgtgpegu'qh'yi g'Uy gf kuj ''Cecf go {øu'P qdgn'Rtk g'eqo o kwgg0

Cpi m/Co gtkecp"f qo kpcpeg"kp"o qf gtp"hkgtct { "tcpurcvkqp"j cu"i kxgp"tkug"\q"o wej "etkkekuo "cpf "ugtkqwu" eqpegtp"kp"f khhgtgpv'ektengu"qh"Uy gf kuj "uqekgv{."cpf "kv'ku"c"tgewttgpv'kuuwg"kp"r wdrke "f kuewuukqpu"qh"tcpurcvkqp0' Y j cv'ku"qhvgp"qxgtmqmgf "ku"vj g"o cpkhqnf "pcwttg"qh"tcpurcvgf "rkvgtcwtg0Gxgp"vqf c { ."o qtg"ugngevkxg"cpcn(ugu"qh" r wdrkuj gf "vkvrgu."hqt "kpuvcpeg"kp"vgto u"qh"tguvtkevkpi "vj g"cpcn(ugu"vq"cwj qtu"qh"uqo g"rkvgtct { "f kuvkpevkqp."uwi i guvu" y cv'vj g"r tqr qtvkqp"qh"Gpi rkuj "uqwteg"vgzvu"ku"f tco cvkecm("nqy gt"vj cp"ku"qhvgp"encko gf ."r gtj cr u"d { "uqo g"62"r gt" egpv0Vj g"cuuguuo gpv"qh":s wcrkv{ø'ku"pgxgt"c"uvtcki j vhqty ctf "gzgtekug."dwv'y g"uvkm'ecppqv"chhqtf "vq"ki pqtg"vj g" kuuve0

P qp/rksgtct { "tcpurcvkqp"tgo ckpu'rguu'r tqf wevkxg''y cp''rksgtct { "tcpurcvkqp"kp"o qf gtp"Uy gf gp0Cdqwi'qpg"y ktf " \*qt"hgy gt "y cp'922+"qh"cm'vkxrgu'r wdrkuj gf "kp"y g"s wkxg"v{r kecn"{ gct "3; : 7"dgmpi "vq"c"y kf g"tcpi g"qh"pqp/rksgtct { "i gpt gu0Cu"c"vqvcn"y ku"ku"qh"eqwtug"pqv"kpuki pkhkecpv0Gpi rkuj "ku"rguu"f qo kpcpv"cu"c"uqwteg"rcpi wci g"y cp"kp" rksgtct { "tcpurcvkqp0

#### Kpvgtrtgvkpi

Kpvgtr tgvkpi "j cu'dggp'r tcevkugf "qp"cpf "qhh'kp"Uy gf gp"hqt"ugxgtcn'egpwtkgu0'Vtckpkpi "ku"

ewttgpwl "rtqxkf gf "d{"y g"Uy gf kıj "Cto {."r ctvlewrctn{"hqt"Twuulcp0Qwwlf g"y g"o kıkct{"ctgpc."kpytrtgykpi "j cu" j kınqtlecm{"dggp"o qtg"qt"guu"nlo kgf "vq"f kr mo cvle"eqo o kıulqpu"cpf "y cu"qh"nkwg"uki pkhlecpeg"kp"yi kıl" rtkpekr cm{"o qpqnkpi wcn'eqwpvt {"wpvkıt'y g"3; 82u0"Vj cvlf gecf g"ucy "y g"dgi kppkpi "qh"gz ygpukxg"ko o ki tcvlqp" htqo "pwo gtqwu"eqwpvtkgu."uqo g"qh"y j kej "ctg"hipi wkınkecm{"cpf "ewnwtcm{"tgo qvg0"Vj g"kpygi tcvlqp"qh" ko o ki tcpvu."y j q"tgr tgugpv'o qtg"y cp"qpg"o kınkqp"vqf c{"%kpenxf kpi "ugeqpf "cpf "y ktf "i gpgtcvkqpu+:"j cu" pgeguukxcygf "y g"lo r mo gpvcvkqp"qh"o cp{"r wdnke"r qnkekgu."uqo g"qh"y j kej "tgrcvg"vq"y g"r tqxkukqp"qh"kpygtr tgykpi "ugtxkegu0Cp"ko o ki tcpvl\*p"Uy gf gp"ku"ngi cm{"gpvkngf "vq"y g"cuukuvcpeg"qh"cp"kpygtr tgygt "kp"j kulj gt"eqpvcevu'y kyj "y g"cwj qtkkkgu."y kyj qwv"ej cti g"\*ugg"EQOO WP KV[" "R VGTRTGVRP I =0"Vtckpkpi "hqt"kpygtr tgygtu"y qtnkpi "kp" yj gug"eqpvgz vu"ku"uwr rqtvgf "d{"y g"uvcyg."y j kej "cnuq"r tqxkf gu"egtvkhkecvkqp"hqt"r tqhguukqpcnlkpygtr tgygtu0 Cpqy gt"ko rqtvcpv'cpf "uvgcf kn{"i tqy kpi "ecvgi qt{"qh"kpygtr tgygtu"ku"gpi ci gf "kp"UK P GF "NCP I WCI G" RP VGTRTGVRP I "hqt"y g"f gch"cpf "yj qug"y kyj "ko rcktgf "j gctkpi 0"Vj gtg"ctg"cv"r tgugpv"ugxgtcn'j wpf tgf u"qh"uki p" rcpi wci g"kpygtr tgygtu'y qtnkpi "kp"Uy gf gp"\*y j kej "ku"hct"o qtg"y cp"uqo g"f gecf gu"ci q."dw"uxhn'hct"rguu'y cp" pggf gf +0

Dwukpguu'cpf 'EQP HGTGP EG'CP F 'UKO WNVCP GQWU'KP VGTRTGVKP I 'ctg'pqv'r ctvkewrctn( 'cevkxg'kp'' Uy gf gp0'Uy gf kuj 'ku'pqv'y kf gn( 'wugf 'qwukf g'Uecpf kpcxkc''cpf 'ku'j ctf n( 'wugf 'gxgp''cv'kpvgtpcvkqpcn'eqphgtgpegu'' j gnf 'y kyj kp'Uy gf gp'kugrh0'P qt'ku'kv'vcwi j v'hqt'kpvgtr tgvkpi 'r wtr qugu''cv'wpkxgtukkkgu''cdtqcf 0'Uy gf gpøu'tgegpv'' o go dgtuj kr 'qh'vj g'Gwtqr gcp'Eqo o wpkx{ "o c{ "j qy gxgt' wnko cvgn{ 'ej cpi g'vj ku'r kewtg0}

#### Rt qhguuhqp c n'qt i c p k| c vhqp u

Vj g''pwo dgt''qh''r gqr ng''y j q''tcpurcvg''y tkwgp''f qewo gpwi'htqo ''qpg'hcpi wci g''vq''cpqvj gt''kp''Uy gf gp''y cu'' guvko cvgf ''kp''3;; 6''cv'4.222=''vj g''o clqtkv{.''j qy gxgt.''f q''pqv''y qtm'hwm' vko g0'Urki j vr{ ''o qtg''vj cp''522''ctg'' cwj qtk gf ''r tqhguukqpcn''tcpurcvqtu0'O quv''tcpurcvqtu''y qtm'kp''rcti g''ekkgu.''o ckpr{ ''Uvqenj qm .''I ¾gdqti ''cpf'' O cm ¾lNwpf 0

Nkstct {"tcpurcytu" j g"o clqtk/+"cpf "tcpurcytu"qh"dqqmu"kp" i gpgtcn" j cxg"dggp"qti cpk/ gf "ukpeg" 3; 92="y g"

Vtcpurcytuo" ugevkqp"qh" y g" Uy gf kuj "Y tksgtuo" Wpkqp" j cf "cdqw" 722" o go dgtu"kp" 3; ; 80" V j g"o clqtk/{ "qh" y qug"ctg" pqv"hwm vko g"tcpurcytu" Uq o g" 322" y gcvtg" cpf "qr gtc" tcpurcytu" ctg" tgr tgugpvgf "d { "y g"Uxgpunc" ftco cvkngth 4 dwpf gv." y j krg"cr r tqzko cvgn/ "92" uetggp" tcpurcytu" dgmpi "vq" y g"Uxgpunc" vgcvgth 4 dwpf gv." V j g"

Uy gf kuj "Cuuqek vkqp"qh" Rtqhguukqpcn Vtcpurcytu. "y kj "uqo g" 492" o go dgtu"kp" 3; ; 6. "tgr tgugpvu" tcpurcytu "qh" r tqhguukqpcn "cpf" uekgpvkhe" vgz vu." y g"o clqtk/{ "qh" y j qo "y qtm hwm vko g" hqt" enkgpvu" kp" vtcf g" cpf" kpf wux { 0 O cp { " ctg" cnuq" o go dgtu" qh" V j g" Hgf gtcvkqp" qh" Cwj qtk/ gf" "Vtcpurcytu="o go dgtu" qh" y ku" qti cpk/ cvkqp" 462" kp" 3; ; 5+" ctg" cwj qtk/ gf "d { "y g" Mco o ctnqmgi kgv" P cvkqpcn Lwf kend Dqctf 'hqt" Rwdrke" Ncpf u" cpf" 'Hwpf uo 0 Cwj qtk/ gf" eqo o wpk/ "kpvgtr tgvgtu" ctg" tgr tgugpvgf" d { "c"o clqt" qti cpk/ cvkqp." Uxgtki gu" vqmh 4 dwpf" VVQH+: "y kj "uqo g" 922" o go dgtu" 0

Vj g''Koukwwg'hqt''Kpvgtrtgvcvkqp''cpf ''Vtcpurcvkqp''Uwfkgu'\*KkVU+''cv''Uvqenj qm ''Wpkxgtukv{ ''y cu'hqwpf gf 'kp'3; : 8." y ký 'tgurqpukdkvk{ ''hqt''y g''eqqtfkpcvkqp''qh'tgugctej.''vtckpkpi ''cpf ''kphqto cvkqp''cevkxkkgu.''cu'y gm''cu'hqt'' Uecpfkpcxkcp''eqqrgtcvkqp''y ký ký 'y g''hkgrfu''qh''kpvgtrtgvcvkqp''cpf''vtcpurcvkqp''kp''Uy gf gp0 Vj g'o quv'korqtvcpv''Uy gf kuj ''r gtkqfkecn'kp''y g''hkgrf''ku''y g''s wctvgtn{ ''Vqmpkpi ur gt ur gmkx.''y j kej ''j cu''dggp'' emugn{ ''cuuqekcvgf''y ký ''y g''KkVu''ukpeg''3; ; 70

#### Hwt yj gt 't gcf kpi

 $\label{eq:continuous} \text{Cpf gtuuqp'3}; : 9 = \text{Dl}^3/4 \text{mo cp'3}; ; 4 = \text{J cpuuqp'3}; : 4 = \text{J lgmo /O kre} \\ \{p'3; : 5 = \text{Vqti gtuqp'3}; : 4 = \text{Y qrrkp'3}; ; 3c.'3; ; 3d.'' \text{lqty eqo kpi 0} \\ \text{lqty eqo kpi 0}$ 

NCTU'Y QNNKP

#### Dkqi tcrj kgu

DWF F G.'L» pul\*cnq'mpqy p'cu'L3/pu'Tò m'qt'Tò em'e08658ô chrgt''36; 3+0O qpm'cv'yi g'Dtkf i gwpg'O qpcuvgt { "qh" P°f gpf cn''pgct''Vwtmwl¤ dq'kp'Hkprcpf .'c''f cwi j vgt''j qwug''qh'yi g''o qpcuvgt { "qh''Xcf uvgpc''kp''Uy gf gp0'Dwf f g'y cu'' yi g''o quv'kpf wurkqwu''tcpurcvqt''qh'yi g''Xcf uvgpc''o qpcuvke''vtcf kkqp''cpf ''j gpeg''qh'o gf kgxcn'Uecpf kpcxkc0'J g'' vtcpurcvgf ''uqo g''42''o clqt''y qtmu''qh'f khlgtgpv'tgrki kqwu''i gptgu'kpvq''Qrf ''Uy gf kuj 0'Uki pkhkecpv'kygo u''qp''j ku'tgeqtf''

kpenwf g'c'pwo dgt ''qh'dqqmu'htqo ''y g''Qrf ''Vguvco gpv.''uqo g''qh''y go ''Cr qet {r j c'\*\*y g''dqqmu''qh''Lwf ky .''Guvj gt.'' Twj ''cpf ''y g''O ceecdggu+.''dqqmu''qh'r tqo kpgpv'o {uvkeu'uwej ''cu'O gej vkrf ''qh'J cengdqtp''\*\*\\dgt ''ur gekc rku''i t cekò +'' cpf ''Uwq''\*J qt qnqi kwo 'f kxkpò ''Ucr kgpvkò +''cu'y gm'cu''y g''cpqp {o qwu''Ercwuxt wo ''cpko â O'J g''hwt y gt ''tcpurcygf ''c'' pwo dgt ''qh''y qtmu''qh''gf khkecvkqpO'Enqug''uwf { ''qh''j ku''vgz w'tgxgcnu''y cv''Dwf f g''y cu''c''unkrhwri'vtcpurcyqt ''cu''y gm'cu'' cp''kpur ktgf ''r tgcej gtO'J ku''y qtm'y cu''uki pkhkecpv'kp''ygto u''qh''y g''f gxgnqr o gpv''cpf ''tghkpgo gpv''qh''nkygtct { ''Uy gf kuj '' kp''y g''rcvg'O kf f rg''Ci guO

J CI DGTI .'EctrlCwi ww'\*3: 32686+0'Vtcpurcyt"qh'r qgt {."Rtqhguuqt"qh'r guy gweu"cpf "O qf gtp"Ncpi wci gu"cv" Nwpf \*\*3: 6267: +"cpf "qh"Uccpf kpcxkcp"Rj krqrqi {"htqo "3: 7; 0Vj g"uqp"qh'c"ergti {o cp"y kaj "hkgtct {"co dkklqpu." J ci dgti "y cu"kpvtqf wegf "\q"y g"ercunkecriI tggm'cwj qtu"cu"c"ej krf 0'Hqrrqy kpi "c"f knklpi wkuj gf "cecf go ke"ectggt" cpf "c"Gwtqr gcp"i tcpf "\qwt"kp"3: 5768." g "f gxqvgf "uqo g"33" {gctu"\q"j ku"hkgtct {"o ci pwo "qr wu<"y g" eqo r tgj gpukxg"Uy gf kuj "eqtr wu"qh"y g"r rc {u"qh"Uj crngur gctg." r wdrkuj gf "dgw ggp"3: 69"cpf "3: 73"kp"34"xqrnvo gu" wpf gf "y g"kxrg"Uj crngur gct gau'f tco cvkme "ctdgvgp"\*Uj crngur gctgau'f tco cvke"y qtm+0Vj ku"tcpurcykqp"ugewtgf "hqt" J ci dgti ."cu"y gm'cu"Uj crngur gctg."c"r tqo kpgpv'cpf "gpf wkpi "r qukklqp"kp"Uy gf kuj "hkgtcwtg0"J ci dgti au"xgtukqpu" qh"Uj crngur gctgau'r rc {u"ctg"y tkxpp"kp"grgi cpv'drcpnixgtug"cpf "y kxkn("tgr tqf weg"yj g"r wpu"cpf "ko ci kpcvkxg"uv{rg" qh"y g"qtik kpcm0"J cxkpi "cr r gctgf "kp"o cp{"gf kklqpu"cpf "tgr tkpw"qxgt"yj g"{gctu."yj g"\tcpurcykqpu"j cxg"dgeqo g"c" uqwteg"qh"eqwpvrguu'rco krkct "s wqcvkqpu"y j kej "ctg"uxkrifcevkxgn("wugf "\qf c{=!kp"yj ku"ugpug."yj g"ko r cev'qh" J ci dgti au"ygzu"cu"vtcpurcykqpu"ku"qpn("eqo r ctcdrg"\q"yj cv'qh"yj g"Tghqto cykqp"Dkdrg0Cv'yj g"uco g"ko g." J ci dgti au"ygzv"yj qwi j "dtkrikcpv."ku"f knxlpevn("qrf/hcuj kqpgf ."cpf "yj ku"vgpf u"\q"o cng"o qf gtp"r tqf wexlqpu"qh" Uj crngur gctg"qp"yj g"Uy gf kuj "uxci g"uqo gy j cv"rtqdrgo cyke"htqo "c"hpi wkrke"r qkpv"qh"xkyy ="yj g"r rc {u"ecp"cnq" ko r tguu"yj kej "cwf kgpeg"cu"c"ecvcnqi wg"qh"y gmnpqy p"s wqvxkqpu."y kyj "cp"wpo knvcncdrg"pkpgyggyj /egpwxt {" hrcxqwt."y j kej "ku"wpuwkcdrg"hqt"yj g"nnpqy p"s wqvxkqpu."y kyj "cp"wpo knvcncdrg"pkpgyggyj /egpwxt {" hrcxqwt."y j kej "ku"wpuwkcdrg"hqt"yj g"urci g0

 $\textbf{NCI GTN}^{\cdot \cdot} \textbf{ H'Gtrepf} \text{ "$3: 7663; 35+0"} Vtcpurcvqt \text{ "qh"cpekgpv'ercuulecn'r qgvt { ."r ctvlewrctn{ "J qo gt=Tgcf gt "qh" leader to get the second of the se$ Rj krquqrj {"cv'yj g'Wpkxgtukv{"qh'Nwpf "kp"Uy gf gp"\*3:; 46; 9+"cpf "rcvgt"ugpkqt"o cuvgt "cv'X@rvgt°u0Chvgt"uqo g" gzegngpv'tgpf gtkpi u'qh'Vj gqetkwu'cpf 'Lwxgpcn'kp''yj g''3: : 2u'cpf ''3: ; 2u. 'Nci gtn²/4x/u'\Qf {uu² gp''cr r gctgf 'kp''3; 2: " cpf "j ku" Kalcf gp" kp"3; 34 kp hckj hwn ('tgrtqf wegf "j gzco gygtu0" Y qtmkpi "y ky kp" y g'Uy gf kuj "r qgyke" y tcf kylqp" qh" Ukłgtpj kgm ."Vgi p²t."Uci pgrkwu'cpf 'Twpgdgti ."j g'pgxgtyj grguu'uweeggf gf 'kp'kpvtqf wekpi 'cp'cwyj gpvke'xgtukqp" qh'y g'J qo gtke 'gr ke 'uv{ ng 'vq 'y g' Uy gf kuj 'rkxgtct { 'ewnwtg0Vqf c { .' Nci gtn²4n⁄zu'J qo gt 'o c { ''cr r gct 'uqo gy j c v' cpvks wcvgf "kp"xqecdwrct { "cpf "r j tcugqrqi { ."dwv"pq"o qf gtp"xgtukqp"j cu"{ gv'uwtr cuugf "kv"kp"s wcrkv{ 0 UEJ TQFGTWU.'Gt kmi\*e0379263869+0Rtkpvgt."cwj qt"cpf "vtcpurcvqt0J gcf o cuvgt"cv"P {m²/4 kpi ."Uy gf gp"ukpeg" 3826. "cpf 'hovgt "crrqkpvgf 'tgxkugt "cv'yj g'Tq{cn'cpf "Uvcvg'rtkpvkpi "qhhkeg'kp'38340'Ctqwpf 'yj g'uco g'rgtkqf. "j g" y cu'eqo o kuukqpgf 'd{ 'Mkpi 'I wuxxwu'KKCfqrrj wu':q'\tcpurcvg'eqpvgorqtct{ 'o cvgtkcn/0Kp'cffkkqp'\q'\yiku'' tq{cn'ucretkgf 'r qukkqp'y j kej 'j grj grf 'hqt'uqo g'f gecf gu."Uej tqf gtwu'uvctvgf 'j ku'qy p'r tkpvkpi 'dwukpguu'kp'3852" cpf "uko wncpgqwun(" j grf " y g'r quv'qh'egpuqt "qh'cm'r tkpvgf "o cwgt "r wdrkuj gf "kp" Uvqenj qro 0 Vj qwi j "cp" cwj qt "kp" j ku'qy p'tki j v.''Uej tqf gtwuxu'tqrg''cu''y g''ut cpurc vqt 't gi pk'y cu'hct ''o qtg''uki pkhecpv0J g'r tqf wegf ''c''ugtkgu''qh'hcti g/ uecrg"tcpurctkqpu. 'r tko ctkn{ 'htqo "tj g"Nctkp0Dguv'mpqy p"ctg"j ku'tgpf gtkpi u"qh'Lqj cppgu'O ci pwuø'J kwqt { "qh" *Uy gf gp"*\*3842+"qh"Nkx{øu'*Tqo cp"J knqt*{"\*3848+"Qukcpf gtøu'*Ej wt ej "J knqt*{"\*3857+"cpf.'htqo "yj g'I gto cp." Ctpf vøu''Rctcf kug'Tctf gp''\*3868+0'Uej tqf gtwu'y cu''y g''ctej gv{rcn'-qhhkekcnø'tcpuncvqt=j ku'y qtm'o cf g'c'' uki pkhecpv'eqpvtkdwkqp'\q'\j g'f gxgrqr o gpv'qh'\j g'rkxgtct { 'ewnwtg'qh'Uy gf gp0

NCTU'Y QNNKP

# V

# Vwt nkij 'tt cf kkqp

Vj g"Vwtmkuj 'hopi wci g'y cu'kpvtqf wegf 'kpvq'Cukc'O kpqt lCpcvqnkc'd{ 'vj g'Ugnlwn'Vwtmu'kp'vj g'gngxgpvj 'legpwt{ "cpf 'hovgt'dgeco g'vj g'qhhkekcn'hopi wci g'qh'vj g'Qwqo cp'Go r ktg'\*o kf vj ktvggpvj 'lvq'vy gpvkgvj 'legpwtkgu+'lcpf 'qh'vj g'' tgr wdnke'qh'Vwtmg{ ''\*hqwpf gf 'lxp'3; 45+0

Vj g'Ugrlwn'uwncpcvg''qh'Cpcvqrkc''y cu''cp''qhhuj qqv'qh''y g''Kmj cpkf ''go r ktg''cpf ''gzvgpf gf 'htqo ''Kcp''vq''
O guqr qwo kc.''U{ tkc''cpf ''Rcnguvkpg''kp''y g''gngxgpyj ''egpwt {0'Vj g''r tkpekr crkv{ ''j cf 'c'o kzgf ''r qr wrcvkqp''qh''
O wurko u.''Ej tkuvkcpu.''Cto gpkcpu.''I tggmu.''U{ tkcpu.''cpf ''Kcpkcpu=''y g''Vwtrkuj ''gngo gpv'y cu''f qo kpcpv'dw''vqngtcpv''
qh'tcekcn'cpf ''tgrki kqwu''f khgtgpegu0'Kp''cf o kpkuvtcvkqp''cpf ''ewnwtg.''y g''uwncpcvg''cf qr vgf ''o ckpn{ ''Kcpkcp''o qf gnu''
cpf ''wugf ''Rgtukcp''cu''y g''qhhkekcn'ncpi wci g0

Vj g'Qwqo cp'Go r ktg''y cv'gxgpwcm{ 'i tgy ''qww'qh''xctkqwu''Cpcvqrkcp''r tkpekr crkxkgu''y cu''cnnq''o wnk/gyj pke." cmy kpi 'hqt''c''r nxtcrkx{ ''qh''repi wci gu''y kyj kp''ku''dqwpf ctkgu''y j kej ."cv''y g''r gcm'qh''ku''r qy gt''kp''y g''ukzvggpyj " egpwt{."j cf ''gzvgpf gf ''kpvq''egpvtcrl'Gwtqr g''kp''yj g''y guv.''Etko gc''kp''yj g''pqtyj ."cpf ''kpenxf gf ''y g''O kf f ng''Gcuv''cpf " Pqtyj ''Chtkec0'Vj g''f kuo go dgto gpv'qh''yj g''Go r ktg''chvgt''Y qtrf ''Y ct''Qpg''ngf ''vq''yj g''hqto cvkqp''qh''yj g''tgr wdrke''kp'' 3; 45. ''kp''Cukc''O kpqt''cpf ''r ctv'qh''Vj tceg0'Vj g''tgr wdrke''tgvckpgf ."qp''c''uo cmgt''uecng.''uqo g''qh''yj g''gyj pke1'' rkpi wkurke''r nxtcrkx{ ''qh''yj g''go r ktg0'Vqf c{.''Mwtf kuj ''ku''yj g''o quv''y kf gn{ ''ur qmgp''co qpi ''yj g''xctkqwu''o kpqtkx{ '' ncpi wci gu.''hqmqy gf ''d{ ''Ctcdke.''Cto gpkcp.''Ncf kpq''cpf ''I tggn0

# Qxgtxkgy 'qh'ij g'rtg/Qwqo cp'cpf 'Qwqo cp'rgtkqf u'\*vj ktwggpvj 'wq'pkpgwggpvj '' egpwwtkgu+

Kp" i g"Ugrlwmiucvg." y ky "Mqp { c"cu"ku" ecr kcn" i g"qhhlekcn" kpvgtr tgvgt/vtcpurcvqt" y cu"mpqy p"cu" vte $\tilde{Ao}$  cp" htqo "Ctcdke" vte $\tilde{Ao}$  vte $\tilde{Ao}$  vtequivevqt" y cu"mpqy p"cu" vte $\tilde{Ao}$  vtequivevqt" y cu"mpqy p"cu" vte $\tilde{Ao}$  vtequivevqt" y cu"mpqy p"cu" vte $\tilde{Ao}$  vtequivevqt" vtequ

Vj g'htuv'ko r gtkcnif tci qo cp"o gpvkqpgf 'kp"Qwqo cp"tgeqtf u'ku'Nwhk'Dg{."y j q"y cu'ugpv'cu'go kuuct{"'q"Xgpkeg" kp"369; "'q"f grkxgt"c"ttgcv{0Vj g"r qukkqp"qh'vj g"qhhkekcnif tci qo cp"kp"vj g"Qwqo cp"uvcvg"ku'vj gtghqtg"vj qwi j v'vq" j cxg"dggp"guvcdrkuj gf "d{ 'O gj o gf "KK\*36546: 3+"chwgt"vj g"eqps wguv'qh'Eqpuvcpvkpqr rg0I gqti kqu'Co ktwnku" \*Co ktwnk gu'kp"Vwtmkuj +"y j q"hgmlecr vkxg"vq'O gj o gv'KKhqmqy kpi "vj g"eqps wguv'qh'vj g"I tggmlRqpvke'Go r ktg."ku" mpqy p"vq"j cxg"vtcpurcvgf 'hqt"vj g"Uwncp"kp"uej qrctn{"o cvvgtu'dwv'pqv'kp"r qrkxkecn'eqo o wpkecvkqpu0 Rtqhguukqpcn'vtcpurcvkqp lkpvgtr tgvkpi "eco g"vq"dg"kpuvkwwkqpcnk gf "kp"vj g"ukzvggpyj "egpwt{"cu'vj g"i tqy kpi "f kr mo cvke"cpf "eqo o gtekcn'cevkxkxkgu"qh'vj g"Go r ktg"etgcvgf "o qtg"f go cpf "hqt"r tqhguukqpcn'f tci qo cpu0D{"vj g" gki j vggpyj "egpwt{"."yj g"qhhkekcn'hwpevkqp"qh'f tci qo cpu'y cu'guvcdrkuj gf "kp"hqwt 'ugr ctcvg"ctgcu<

\*c+'y g'hqtgki p''chhcktu'f gr ctvo gpv'qh'y g'Ko r gtkcn'Ej cpegt { "qh'Uvcvg."mpqy p''cu'y g''Uvdnko g'Rqtvg0 \*d+'y g''cf o kpkutcvkqp"qh'r tqxkpegu."y j gtg'kpvgtr tgvgtu'hqt'ncy "eqwtwi'y gtg''cr r qkpvgf "qt'f kuo kuugf "qp''y g'' tgeqo o gpf cvkqp"qh'nqecn'Iwf i gu''dw'f tci qo cpu'ugtxgf ."y ky "c''ur gekcn'y cttcpv."cu''kpvgto gf kctkgu''kp''cm'' qhhkekcn'o cwgtu''dgwy ggp''y g''pqp/Vwtnkuj "ur gcnkpi "uwdlgewi'qh''y g''go r ktg'\*y j q''eqpuvkwwgf "y g''o clqtkv{+" cpf "y g''nqecn'i qxgtpo gpv0

\*e+"gf wecvkqpcn"kpuvkwwkqpu"uwej "cu"yj g"Uej qqn"qh"O krkxct { "Gpi kpggtkpi ."yj g"Uej qqn"qh"P cxcn"Gpi kpggtkpi " cpf "vj g"Ngxgpv"i cttkuqp"hqt"vj g"vtckpkpi "qh"vj g"Pk co /k"Egfkf "vtqqr u."cmlhqwpf gf "qp"Gwtqr gcp"o qf gnu"kp" yj g'm:vg''gki j vggpvj ''egpwxt{''cu''r ctv''qh''o krkxct{''tghqto u0J gtg.''f tci qo cpu'kpvgtr tgvgf 'hqt'hqtgki p'kpuvtwevqtu'' y j q'f kf "pqv'ur gem'Vwtnkuj 0'Qh'ep "kpurkwwkqpen'dw'enqi gyj gt"f khhgtgpv'pewtg"y eu'yj g'r qukxkqp "qh'yj g"P exen" Ftci qo cp. "guvcdrkuj gf "o wej "gctrkgt"cpf 'vj g'hktuv'ko rqtvcpv'r quv'vq'dg"o cf g"cxckrcdrg"vq'Ej tkuvkcp"uwdlgevu" kp"yj g"Qwqo cp"Go r ktg0Vj g"r quv'y cu'j grf "gzenwukxgn("d{"yj g"I tggmlRj cpctkqwu"qh"Kncpdwn"cpf "yj g"j qrf gt" qh'y g'r quv'y cu'gxgpwcm('r tqo qvgf 'Ej kgh'F tci qo cp'\q'v g'Uvdrko g'Rqtvg0Cu'v g'f wv{ 'qh'y g'P cxcn' Ftci qo cp'y cu'\q'uwr gtxkug'\yi g'tgi wrct'eqmge\kqp'qh'\czgu'htqo 'pqp/O wurko 'uwdlgewi'kp'\yi g'O gf kgttcpgcp'' cpf 'Cgi gcp'kurcpf u'wpf gt'y g'lwtkuf kevkqp"qh'y g'Cf o ktcn'qh'y g'Hrggv.'j ku'cwy qtkx{ 'h'ct''gzeggf gf 'y cv'qh'cp'' kpygtr tgygt0Kp'3: 5; .'j qy gxgt.'c'ugtkgu'qh'tghqto u'mpqy p'cu'Vcp/ko cv'cpf 'f guki pgf 'vq'y guvgtpk g'vj g' go r ktg"tguwnygf "kp"nko kukpi "yj g"tgur qpukdkrkukgu"qh"yj g"P cxcn"F tci qo cp"vq"kpvgtr tgvkpi 0 \*f+'kp'hqtgki p'go dcuukgu'cpf 'eqpuwrcvgu. 'f tci qo cpu'y gtg'kpkkcm( 'r tqxkf gf 'd { 'vj g'Qwqo cp'i qxgtpo gpv0'kp'' yj g'ugxgpvggpyj 'egpwt{.'j qy gxgt.''yj g{'y gtg'crrqkpvgf 'd{''yj g'hqtgki p'o kuukqpu'htqo 'co qpi 'Ej tkuvkcp'' uwdlgevu."y j q"y gtg"gzgo r vgf "htqo "vj g"ncpf "cpf "ecr kxcvkqp"vcz"ngxkgf "qp"pqpO wurko u0"Vj g"f wv{ "qh"vj g" ftci qo cp'kp''y g'fkrmqo cvke''eqtru'y cu''vq'kpvgtrtgv'cpf 'hcekrkxcvg''eqo o wpkecvkqp''dgwy ggp''Qwqo cp'' uvcvguo gp"cpf "vj g"go dcuukgu"cpf "vq"j cpf rg"cmleqttgur qpf gpeg0"Uqo g"cej kgxgf "eqpukf gtcdrg"f kurkpevkqp<" O qwtcf i gc'f ø'Qj uuqp. 'vj g'Cto gpkcp'f tci qo cp'qh'vj g'Uy gf kuj 'Go dcuu{ 'kp'Kuvcpdwn'y cu'qpg'qh'vj g'w q'' Ej tkurkcpu'kp''y g'eqo o kwgg''qh'44'f ki pkxctkgu''cungf ''d{ "Ugrko "KKK\*398363: 2: +'kp'39; 3''vq'i kxg''y gkt''qr kpkqp'' qp''y g'tgcuqpu'hqt''y g'f genkpg''qh'Qwqo cp''r qy gt0'Kp''y g''gki j vggpyj ''egpwt{.''y g''Htgpej 'Go dcuu{''uvctvgf ''c'' uej qqrl\q'\tckp'kpvgtrtgvgtu'hqt'ku'qy p'\wug0Cv\y g'\ko g''qh'O cj o w\'KK\\*39: 763: 5; +'\y gtg'\y gtg'\43: "eqpuwrct" ftci qo cpu. "46" y kij "ur gekcn'y cttcpvu. "o quv'qh'y j qo "y gtg" I tggmu"cpf "uqo g'y gcnij { "gpqwi j "vq"r wtej cug" yj g'r qukklqp0'Kp''yj g'hkpcn'{ gctu'qh'yj g'Gorktg'hqtgki p'o kuukqpu'crrqkpvgf 'yj gkt''qy p''uwdlgevu''cu'f tci qocpu0

Kp"392; ."'y g"Ej kgh"Ftci qo cp"P kmqmcqu"Umctmcqu'y cu"crrqkpvgf "i qxgtpqt"qh"O qnf cxkc"cpf "Y cmej kc=" rtqo qvkqp"vq"y ku"r quv"cv"y g"gpf "qh"y g"ej kgh"vtcpuncvqtøu"vgto "qh"qhhkeg"dgeco g"tgi wnct"rtcevkeg"chvgt"y cv0Cu" y g"rtkpekr cn"f wkgu"qh"y g"Ej kgh"Ftci qo cp"y gtg"vq"kpvgtrtgv"hqt"y g"I tcpf "Xg| kt"y j gp"j g"tgegkxgf "hqtgki p" o kuukqpu"cpf "vq"vtcpuncvg"cm"f qewo gpvu"qy gt"y cp"y qug"kp"Ctcdke."j g"y cu"rtkx { "vq"uncvg"ugetgvu"cpf "cm"f gvcknu" tgi ctf kpi "hqtgki p"r qnke { 0'

Kp''y g''ugeqpf 'j crh'qh''y g''gki j vggpyj ''egpwt{ 'kv'y cu'hgnv'y cv'y ku'r qukkqp''qh'tgur qpukdkrkv{ 'y cu'dgi kppkpi ''vq''dg'' cdwugf ''d{ 'f tci qo cpu'kp''y gkt'tgrcvkqpu'y kyj ''y g'Htgpej .'Dtkkuj ''cpf 'T wuukcpu.''gcej ''tkxcrrkpi ''y g'qyj gt''kp''y gkt'' cwgo r wu''vq''i ckp''o qtg''kphrwgpeg'kp''y g''chhcktu''qh''y g'Go r ktg0

Kp''3: 43. 'y g''Rj cpctkqv'Ej kgh'Ftci qo cp'y cu'gzgewgf "qp'uwur kekqp'qh'dgkpi 'kpxqnxgf 'y kj 'I tggm' tgxqnwkqpctkgu0'[ cj {c'Ghgpf k'c'eqpxgtv'vq'Kurco 'y j q'vcwi j v'cv'y g'O krkct {'Uej qqrl'qh'Gpi kpggtkpi .'y cu'' cr r qkpvgf "vq'y g'r quv'y kj 'y g'tgur qpukdkrkv{ "qh'qti cpk kpi "c'vtckpkpi "r tqi tco o g'kp'I tggm'cpf 'Htgpej 'cpf " uwr gtxkukpi "y g'y qtm'qh'cp''Ho r ctvkcny'I tggm'cr r qkpvgf 'r tqxkukqpcm{ "cu'f tci qo cp0'Vj g''dtgcmf qy p''qh'' guvcdrkuj gf 'r tcevkeg''cpf ''cp'kpetgcukpi ''xqnwo g''qh'y qtm'gxgpwcm{ "ngf ''vq''y g''hqwpf cvkqp''qh''y g''Vtcpurcvkqp'' Ej co dgt ''cv'y g''Rqtvg'kp''3: 44="kp''3: 55."y g'Ej co dgt ''cevkxgn{ 'uvctvgf ''vtckpkpi ''Vvtmu''cpf ''qy gt''O wurko u''cu''uvcvg'' vtcpurcvqtu''cpf ''kpvgtr tgvgtu0'Vtcpurcvkqp''ej co dgtu''qh''c''uko krct''pcwtg'y gtg''cnuq''ugv'wr ''kp''qy gt''i qxgtpo gpv'' f gr ctvo gpvu0

Vj g''tcpurc\dp''ej co dgtu''j cf "c''xgt { 'uki pkhecpv'hwpe\dp''kp''y g''eqpygzv'qh'\Vcp/ko cv''y g''ugtkgu'qh'r qrkkecn'' uqekcn'cpf 'kpukwkqpcn'tghqto u''y cv'kpkkcygf 'kp''3: 5; ''y g''i tcf wcn'dw''eqpuekqwu''uj khv''qy ctf u'c''Y guygtp'' qwnqn0'Vj g{ ''ugtxgf ''cu''y g''o quv'ko r qtvcpv'kpukwkqpcn'egpytg''hqt''y g''r gpgytcvkqp''qh'Gwtqr gcp'kf gcu''\*o ckpn{ '' y tqwi j ''Htgpej +'cpf ''hqt''y g''g weckqp''qh'y g''o quv'f knkpi wkij gf 'uvcyguo gp.''y kpngtu.'uej qrctu'cpf ''hkgtct { '' kppqxcvqtu''qh'y g''ko g0F gur kg''eqps wguw''y cv'tgcej gf ''kpvq''egpytcn'Gwtqr g''cpf ''cevkxg'f kr nqo cvke''cpf '' eqo o gtekcn'tgrcvkqpu.''y g''Qwqo cpu''j cf ''i gpgtcm( 'tgo ckpgf ''kpf khhgtgpv'vq''y g''kf gcu'qh''y g''Gprki j vgpo gpv0'K'' y cu''qpn( ''kp''y g''pkpgvggpyj ''egpwt{ ''y cv'y g''y gcngpkpi ''Go r ktg. ''hqtegf ''d{ ''geqpqo ke''cpf '' qrkkecn'ektewo uvcpegu'' vq''wtp''q'Gwtqr g.''dgi cp''vq''f kneqxgt''y g''nko wkk'hqt'kpvgngewcn'tgxkxcn=''y g''hqwpf cvkqpu'qh'y g''Y guygtpknv'' o qf gtp''Vwtnkuj ''Tgr wdrke'y gtg''nckf ''kp''y g''pkpgvggpy ''egpwt{ 0'Vy q''o clqt''r j cugu'qh''ceewnwtcvkqp''kp''y g'' Vwtnkuj ''tgcm ''o wuv'y gtghqtg''dg''tgeqi pk gf <'Ctcd/Rgtukcp''kp''y g''hqwtvggpy ''vq''khrggpy ''egpwtkgu''cpf'' Gwtqr gcp''kp''y g''pkpgvggpy ''vq''y gpykgy ''egpwtkgu0

#### Vjg'Ctcd/Rgtukcp'rjcug<rtfqo kpcpeg'qh'Kurco ke'tuqwtegu

Nkgtct { 'y qtmu'dgi cp''q'cr r gct'kp''y g''y kt wgpyj "egpwt { 'cpf 'kpetgcugf 'kp''pwo dgt'kp''y g'hqwt wggpyj "egpwt { ." y j gp''yz wu''tcpurcyf 'htqo ''Rgtukcp''cpf ''Ctcdke''r rc { gf 'c'xkcn'tqrg'kp''y g'f gxgrqr o gpv'qh'y g'Vwtnkuj 'rcpi wci g0' Cv'yi cv'urci g. ''y g''ugrgevkqp''qh''wz wu''uggo u''vq''j cxg''dggp''o cf g''qp''c'wkrkctkcp''dcuku. 'kp''ygto u''qh'y j cv'y cu'' y qwi j v''q''dg'kpurt wevkxg''cpf ''wughwr0'Ucetgf ''yz vu''cpf 'tgrki kqwu''y tkkpi .''yi gtghqtg.''j grf ''c'xgt { 'r tqo kpgpv'r rceg'' kp''yi g''i tqy kpi ''eqtr wu''qh''tcpurcvkqpu''f wtkpi ''yi ku''r gtkqf 0'J qy gxgt.''yi g'S WTø P''\*y tkwgp'kp''Ctcdke+'y cu''j grf '' ucetqucpev=''uq''o wej ''uq''kp'hcev'yi cv'y j gp''yi g'Igy u.''y j q''ugwrgf ''kp''yi g''Qwqo cp'Go r ktg''chygt''yi gkt ''gzr wrukqp'' htqo ''Ur ckp.''hktuv'kpvtqf wegf ''yi g''r tkpvkpi ''r tguu''kp''yi g''ukzvggpyj ''egpwxt { .''yi g''o gtg''r quukdkrkv{ ''qh''r tkpvkpi ''kp'' Ctcdke''pywgtu'y cu''twrgf ''qw''d{ ''yi g''ej kgh'tgrki kqwu''f ki pkct { 0

Vj g'S wtø p'y cu'gxgpwcm("eqpukf gtgf "tcpurcvdrg"dw'qpn("qp"c"y qtf/hqt/y qtf "dcuku0Vj g"gctrkgur'mpqy p" kpygtrkpgct"o cpwietkr v'tcpurcvkqpu"qh'y g"S wtø p"kpyq"Cpcyqrkcp"Vwtnkij "f cwg"dcemi'y g'hywtyggpyj "egpwt{0' Gctrkgt "vtcpurcvkqpu"kpyq"Gcuvgtp"Vwtnke. "hqmqy kpi "y g"o cuu"eqpxgtukqp"qh"EgpvtcnCukcp"Vwtmu"vq"Kurco "kp"y g" vgpyj "egpwt{."ctg"o ckpn("qh"y q"nkpf u<\*c+"kpygtrkpgct."y j gtg"-gcej "Vvtmke"y qtf "qt"r j tcug"ku'y tkwgp"kp"uo cmgt" ej ctcevgtu"cv'cp"cpi ng"qh'67"f gi tggu"dgpgcyj "gcej "Ctcdke"y qtf ø"c"r tcevkeg"y j kej "tghrgevu"y g"qtcn'uwci g"kp"y g" vtcpurcvkqp"qh"y g"j qn("vgzv."cpf "\*d+"cppqvcvgf."y j gtg"-gcej "mi kecn'i tqwr "qh'Ctcdke"y qtf u"\*i gpgtcm("qxgtrkpgf" kp"o cpwietkr w"kp"tgf "kpm#lku"vtcpurcvgf "gp"dme"d{"c"i tqwr "qh"Vwtnke"y qtf u. "hqto kpi "ugpvgpegu"y j kej "wug"y g" i tco o cvkecn"u{pvcevkecn'cpf "rksgtct{"pqto u"qh"y tkwgp"Vwtnkeø\*Dktpdcwo "3;; 2<35636+0Vj g"uco g"vtcf kkqp" y cu'hqmy gf "kp"Cpcvqrkcp"Vwtnkij "xgtulqpu."y j krg"c"y ktf "\{r g"qh'vtcpurcvkqp"eqo dkpgf "y g"y q"o qf guto" Vj qwi j "xgt{"tctg."y gtg"y gtg"cmq"uqo g"hqwtygpyj /"cpf "hknygpyj /egpwt{"vtkrkpi wcn'xgtulqpu"kp"Ctcdke."Rgtulcp" cpf "Cpcvqrkcp"Vwtnkij ."y j gtg"y g"rewgt"y cu'y tkwgp"dgrqy "y g"Rgtulcp."y g"htuv'rcpi wci g"kpvq"y j kej "y g"S wtø p" y cu'vtcpurcvgf "kp"y g"ygpyj "egpwt{0}

Vj g''ugngevkqp''qh''vgzwu''hqt''rkvgtct{''vtcpurcvkqp''htqo ''Kurco ke''uqwtegu''ku''y qtvj ''gzco kpkpi ''kp''uqo g'f gvckn''dgecwug'' o cp{''j cxg''nqpi ''dggp''

crrtqrtkcvgf "d{"vjg"Qwqocp/Vwtmkuj "nkvgtct{"vtcfkvkqp"cu"qtkikpcn"yqtmu01 wngjtkou"hqwtvggpvj/egpwt{" vtcpurcvkqp"qh"vj g"Rgtukcp"r qgv"Hgtkf Af f kp/k"C wctøu"o cuvgtr kgeg"O cpvkmvøv/Vc{t"\*Vj g"Ncpi wci g"qh"Dktf u="cp" cmgi qtkecn'vcng'y kij kp"c"vcng"qh'dktf u'kp"ugctej "qh'o {uvke"vpkqp+"ku"c"ecug"kp"r qkpv<"yj ku"xgtukqp"ku"uckf "vq"qy g"ku" gzegngpeg"cpf ":qtki kpcnk/ ø'vq"y j cv'vj g"vtcpurcvqt"eqpvtkdwgf "vq"vj g"qtki kpcn'kp"vj g"hqto "qh'vcrgu'htqo "qvj gt" uqwtegu'cpf 'o cvgtkcn'qh'j ku'qy p'eqo r qukkqp="cpf 'vj ku'j g'f kf 'y kj qw'f co ci kpi 'vj g'wpkv{ 'qh'C wctøu'y qtm' y j kej 'ksugrh'y cu'c'r qgvke'' $\pm$ grcdqtcvkqpø'qh''y g'Ctcdke'' $Tkucrcv'cn'Vc\{t''*Uvqtkgu''qh''Dktfu+''d\{''I\ j\ c|\ |\ cnkO'', cn''Vc\{t''*Uvqtkgu''qh''Dktfu+''d\{'''I\ j\ c|\ |\ cnkO'', cn''Vc\{t'''*Uvqtkgu''qh''Dktfu+''d\{'''I\ j\ c|\ |\ cnkO'', cn''Vc\{t'''*Uvqtkgu''qh''Dktfu+''d\{'''I\ j\ c|\ |\ cnkO'', cn''Vc\{t''''Vc\{t''''Vc\{t'''', cn''Vc\{t''''', cn''Vc\{t''''', cn''Vc\{t''''', cn''', cn''', cn''', cn''', cn''', cn''', cn''', cn''', cn'''', cn''''', cn'''', cn'''',$ Vjg'yqtm'qh'Cjogf/k'Fck''tcpurcvqt.'rqgv.'uejqrct'cpf''eqwtv'wwqt.'rtqxkfgu'hwtyjgt''gzcorrgu0Fck'ku'fguetkdgf'' kp"yj g"hkgtct{"j kuvqtkgu"pqv"cu"c"\tcpurcvqt"dww"cu"c"r qgv"cpf "uej qrct."qp"yj g"dcuku"qh"j ku"yy q"eqrrgevkqpu"qh"r qgvt{" kp'Ctcdke''cpf 'Rgtukcp0'Dw'qh'j ku'pkpg'r tqug''y qtmu'kp''Vwtmkuj ."cm'y gtg'\tcpurc\kqpu'gzegr v'*Vgt guuÃrl*\*Eqr {/ dqqmlqt"Y tkkpi +: "c"i wkf g"vq"lqto cn'cpf "kplqto cn'eqttgur qpf gpeg. "mpqy p"cu'vj g"lktuv'dqqm'qp"Vwtmkuj " eqo r qukkqp0Co qpi "j ku'r tqug" tcpurckqpu. "j g"o quv'ko r qtvcpv'y cu''y g'hktuv' Vwtmkuj "xgtukqp" qh''y g'j ki j n{ " tgxgtgf "eqo o gpvct { "qp" vj g"S WT ø P "d { 'Gdwøtl Ng { u/k" Ugo gtmcpf k "hqmqy gf "d { "cp" cppqvcvgf "vtcpurcvkqp" qh" C{gv/wdlmvt uk'\*vj g'478 yj 'xgtug'qh'vj g'ugeqpf 'Uwtc'qh'vj g'S wtø p+.'y j kej 'kpenxf gf 'c'i rquuct { .'j ci kqi tcr j kgu.'cpf " o qtcrkv{ "\crgu"qh"F ckøu"ej qkeg"cpf "eqo r qukkqp0'Qyj gtu"y gtg"\tcpurc\kqpu"qh"Qpg"J wpf t gf "J cf kyj u" "j qn{" uc{kpi u+'qh'\j g''Rtqr j gv'O wj co o gf ''cpf ''*Vkdd/k'pgdgx*, ''\*Vj g''Rtqr j gv⁄u'O gf kecn'Cf xkeg+. ''c''eqmgevkqp''qh'j ku'' uc{kpi u'qp'j {i kgpg'cpf 'f kugcug0'Vj g'hcuv'y cu'c'r ct√tcpuncvkqp'qh'Gdw'Pcko 'Jchk /k'Kuhcj cpkøu'*Mkvcdwø'' / khc''* hkcj cf kuktorlOwwchc"\*Vj g"Dqqm'qh'Tgo gf kgu+:"y j kej "kxugnh'y cu'dcugf "qp" yj g"Rgtukcp" uwo o ct{/xgtukqp"d{"Ko co " Cj o gf 'dQ wuwh'gvVkhcukO

Qyj gt 'y gm/mpqy p 'gzco r ngu'htqo ''yj g 'hqwt wggpyj ''cpf 'hkhwggpyj ''egpwt kgu'kpenwf g 'Mwn'O guwf øu'o ckpn{ 'r tqug'' vtcpurc kqp ''qh''*Mgrkng''xg'F ko pg*'\*\*Mgrkng''cpf 'F ko pg. ''cpko cn'hcdngu''

vcpurcyf "htqo "y g"Ctcdle" xgtulqp. "kugrh'c" tcpurcylqp "htqo "Rgtulcp. "qtki lpcm("y tkwgp" lp" Ucpumtk+." g{j q mwu" \$\Oct | wdcp / pco g" \vert \vert g" Dqqm'qh' Oct | wdcpô I qxgtpqt. "c" eqnge \vert qp" qh' Rgtulcp "cplo cn'hcdngu' eqo dl\pgf "y kij " vcngu" qh'mpi u"cpf "r j knquqr j gtu+"cpf "O gtelo gm'Cj o gf \widon u"\text{Mcdww/pco g" \vert \vert g" Dqqm'qh' Mcdwu."c" j ki j n{ "r qr wct" \vert \vert \text{Vtqt' lnqt "Rt kpegu\widon "d{ "vj g" Rgtulcp" mkpi "Mg{ mcxwu+"eqo o knulqpgf "lnqt" Uwncp'O wtcf "KK\vert \vert \ve

#### Vt cpurc skap 'ahb gf kechlepf 'lækgp sklike 'sgz su

Kp"y g"hywt vggpy "cpf "hkhvggpy "egpwt kgu. "ue kgp khke" vgz w'y gt g'y t kwgp"cno quv "gp kt gn ( 'kp" Ctcdke. "y g g'o gf kwo "qh" uej qrctuj kr "kp" Ogf t gugu' "tuej qqru "qh"j ki j gt "rgctpkpi +0Co qpi "tj g"gctrkguv kp" Vwtrkuj "y gtg"dqqru "qp"o gf kekpg." uj qtvgt "xgtukqpu"qh"y gm/mpqy p"Ctcdke"vgzvu."qt"eqo r kncvkqpu"htqo "Ctcdke"uqwtegu*k"OAht gf cv/k"kdp"Dc{vct* "\*Kdp" Dc{vctøu'Dqqm'qh'Rctvkewrctu+." J cxcuu/wu/gfxk/g"\*Dguv'Mpqyp'Tgogfkgu+." Mcoku/Au/ukpcc"\*Rgthgev'Ctvu+OCp" go kpgpv'f qevqt ''qh''vj cv'ci g. 'Egncngf f kp''J kt kt '\*mpqy p''cu'J cek'Rcuj c+. ''y tqvg''r tkpekr cm{ 'kp'Ctcdke ''dww'cn.q'' c'uj qtvgt 'xgtukqp''qo kwkpi ''y gqtgvkecn'ej cr vgtu''\* Vguj kn'w / khc < Hcekrkscvkpi ''J gcnkpi + 'kp''y g'r tghceg''qh''y j kej ''j g'' cr qmi k gf 'hqt'y tkkpi 'kp''Vwtnkuj 'hqt'gxgt { 'qpg'\q'wpf gtuvcpf 0O quv'\tcpurc\kqpu'qh'\y ku'nkpf 'y gtg' eqo o kuukqpgf "d{ "Wo wt "Dg{ "cpf "Kuc "Dg{ ."r tkpegu "qh"C { f kp00 wndkn/| cf g"0 Ao kp¢u"\ cj ktg/k'O wt cf ktg" \*F kugcugu''qh''y g''Dqf {+''y j kej ''y cu''f gf kecygf ''vq''O wtcv''KK'\*3626673+''eqpukuygf ''qh''\tcpurcvkqpuô eqo r krgf ''htqo '' Ctcdke "cpf "Rgtukcp" uqwteguô kp" y j kej "Vwtnkuj "vgto u" y gtg" wugf "cmpi "y kyj "vj gkt" gs wkx cngpwi "kp" vj g" uqwteg" repi wei gu. "qdxkqwun( "kp"cp"ewgo r v'vq"f gxgmr "o gf keen'vgto kpqmi { "kp"vj g"veti gv"repi wei g0KVj eu'enuq"dggp" f kueqxgtgf 'vj cv'co qpi 'dqqmu'qp'uwti gt{."qpg'd{ "Ucdwpew'qi nw."tkej "kp"Vwtmkuj "\gto u'cpf 'encko gf "\q'dg''cp" Htqo "vj g"vko g"qh"O gj o gf "K"35:; 63643+."c"i tqy kpi "kpvgtguv"kp"gpe{emqr gf ke"y qtmu"r tqo r vgf "vj g"y tkvkpi "cpf" vtcpurcvkqp"qh"o cp{"dqqmu"qp"yj g":-y qpf gtu"qh"yj g"y qtnf ø"uwej "cu"\ gmgtk{c"gmMc| xkpkøu"hco qwu"Ceckd/Am o cj num-√"Utcpi g'Etgcwtgu+'kp'Ctcdke'"\*tcpurcvgf 'gki j v'vko gu'qxgt''yj g'egpwtkgu+.''y j kej 'hgcwtgf'kp'rctvkewrct'' pewten'epf 'uwr gtpewten'r repw'epf 'epko eni. 'e'hexqwtkg' vqr ke 'y kj 'uqo g'qh' y g'Qwqo ep 'uwnepu0

## Eqpweev'y kyj 'pqp/Karco ke'ewawt gu

Vj g'lpvgtguvu'qh'O gj o gf 'KK\*36546: 3+."cpf 'j ku'r cvtqpci g''qh''vtcpurcvkqpu."y gtg''qh'c'f khhgtgpv''pcwtg0J g''y cu'' eqo r gvgpv'lp''Ctcdke''cpf ''Rgtukcp''cpf ''r ctvkewrctn{ ''kpvgtguvgf ''kp''tgcf kpi ''cpf ''f kuewuukpi ''vj g''y qtmu''qh''vj g''I tggm'' r gtkr cvgvkeu''cpf ''uvqkeu''cntgcf { ''vtcpurcvgf ''kpvq''yj gug''rcpi wci gu0Vj g''Uwncp''ku''cnq''uckf ''vq''j cxg''eqo o kuukqpgf ''cp'' Ctcdke''vtcpurcvkqp''qh''yj g''P gy ''Vguvco gpv0

Hqmqy kpi "j ku'eqps wguv'qh'Eqpuvcpvkpqr ng''cpf "qvj gt '\gttkqtkgu. "O gj o gf 'KKpq''f qwdv'dgeco g''cy ctg''qh''j ku'tqng" cu'r cvtqp''qh'etquuewnwtcn''cpf ''uekgpvkhle''uej qnctuj kr 'kp''y g'Knrco ke''y qtnf . "y j gtg'Ctcdke''y cu''y g''r tkpekr cn' ncpi wci g''qh''ngctpkpi 0'Y j gp''j g''f kueqxgtgf ''Rvqngo {øu''I gqi tcrj { "co qpi "uqo g''D{| cpvkpg''o cpwuetkr vu''kp''3687." j g''j cf ''kv''vtcpuncvgf ''kpvq'Ctcdke''\*tcvj gt''y cp''Vwtnkuj +"d{ "I gqti kqu''Co ktwnku."c''tgpqy pgf ''Rqpvke''I tggm''uej qnct'' y j q''nkxgf ''kp''O gj o gf ''Kkøu''eqwtv'htqo ''3683''vkm'j ku''f gcvj ''kp''36970'J g''cnuq''j cf ''y q''vtgcvkugu''d{ ''Crk''Mwuew''qp'' o cvj go cvkeu''cpf ''cuvtqpqo { ''vtcpuncvgf ''htqo ''Rgtukcp''kpvq''Ctcdke0

Vj tgg"tcpurckqpu"kpvq"Vvtnkuj "Itqo "Vj ku"r gtkqf "ctg"y qty "o gpvkqpkpi 0Vj g"htuv'ku"Rnwctej øu"Nkxgu"y j kej ."

I kldqp"kp"Cf kxct"3; 92-47672+"encko gf ."y cu"tcpurcvgf "Itqo "I tggn"qp"\y g"Uvnxcpøu"qtf gtu0Vj g"ugeqpf "ku"\y g" nktg"cpf "f ggf u"qh"W wp"J cucp."\y g"Mkpi "qh"Rgtukc."htqo "y g"Kcnkcp"qtki kpcn"d{"I kqxcppk"O ctkc"Cpi kqngnq."y j q" vqnm"ctv'kp"\y g"gzr gf kkqp"y kyj "y g"Uvnxcpøu"uqp0"Vj g"y ktf "\gzv\ku"qh"r ctvkewrt "kpvgtguv'ukpeg"kv'y cu"c" vcpurcvkqp"qh"c"f gvkref "gzr qukkqp"qh"y g"Ej tknkcp"etggf "d{"y g"I tggn"Qtyj qf qz"Rcvkctej "I gppcf kqu" Uej qnctkqu."y j q. "uqqp"chgt"y g"eqps wguv'qh"Eqpuvcpvkpqr ng. "y cu"ecngf "kpvq"c"f gdcvg"y kyj "y g"Uvnxcp="y g" f gdcvg"vqnn"r neeg"y tqwi j "cp"kpvgtr tgvgt."y j q"y cu"cungf "vq"tgeqtf "kv"kp"y tkkpi 0"Vj g"ko r qtvcpeg"qh"y ku" f qewo gpv'ku"uwej "y cv'xctkqwu"tcpurcvqtu"qxgt"y g"egpwtkgu"y gtg"cungf "vq"ko r tqxg"qp"kv"Vj g"ygzv'y cu" r ctvr wdrkuj gf "kp"y g"O geo wc/k'Gdw/ kt c"\*Iqwtpcn"qh"Gdw| kt c+"kp"Kncpdwn"kp"3; 330

Vj g"uekgpvkhle"tgpckuncpeg"kpkkcvgf "wpf gt"y g"r cvtqpci g"qh"O gj o gf "Kkf kf "pqv"eqpvkpwg"wpf gt"j ku"uveeguuqtu0" Qwqo cp"uekgpeg"cpf "o gf kekpg"tgo ckpgf "i gpgtcm("eqphkpgf" "q"y g"y qtmu"qh"cpf "eqo o gpvctkgu"qp"Ctkuxqvg." Rvqgo {."I cngp"cpf "Cxkegppc"kp"Ctcdke."cpf "kpvgtguv'kp"qy gt "ewnwtgu"y cu"pqv'tgnkpf ngf "wpvkn'y g"gki j vggpyi" egpwt{0}

#### Vt cpurc vkqpu'ht qo 'Gwt qr gcp'liqwt egu'kp'\'ij g'gki j vggp vj 'egp vwt {

Vj g''rkdgtcn'cpf ''cguvj gvke ''qwwqqm'ej ctcevgtkurke ''qh''vj g''tgki p''qh''Cj o gf ''KKKkp''vj g''gki j vggpvj ''egpwt { ''dtqwi j v'' cdqwv'c ''tgcy cmgpkpi ''qh''kpvgtguv'lp''Y guvgtp''Gwtqr g0'Dwv''vj ku''kpvgtguv'y cu''o ckpn( ''kp''pqp/rkvgtct { ''y qtmu0'Vj g'' qpn( ''Gwtqr gcp''rkvgtct { ''y qtm'vq''dg''vtcpurcvgf ''\*vj kj ''cf f kkqpu+''dghqtg''vj g'' $Vcp/ko\ cv'$ '\*vj g''tghqto u''kpkkcvgf ''kp''vj g'' o kf/pkpgvggpvj ''egpwt { +''y cu''Crk'C| k| ''Ghgpf køu'' $O\ wj\ c\{\{grcv'$ '\*Hcpvcukgu=''39; 96: +.''c''xgtukqp''qh''Rgvku''f g''rc'' Etqkzøu''Vgu'' $O\ kng''$ gv''wp''lqwtu $O\$ 

tcpurckqpu'y cu'y g'ugwkpi 'wr 'qh'y g'r tkpkpi 'r tguu'kp'3949'd{ 'Kitcj ko 'O Axghgttknc.'c'eqpxgtv'qh'J wpi ctkcp'' qtki kp0Lgy kuj '\*36; 566+:'Cto gpkcp'\*3789+'cpf 'I tggml\*3849+'r tkpkpi 'r tguugu'j cf 'dggp'guvcdrkuj gf 'kp'Krcpdwri' mpi 'dghqtg'ur gekcn'r gto kuukqp'eqwf 'dg'qdvckpgf 'hqt'c''Vwtnkuj 'r tguu'vq'r tkpv'dqqmu'qp'pqp/tgrki kqwu'uwdlgevu.'W0 g0'gzenwf kpi 'yj g'S wtø p'cpf 'eqo o gpvctkgu.'j qn( 'tvcf kkqpu.'yj gqnqi { 'cpf ''j qn( 'tvcy '\*Ngy ku'3; 84</a>3+0Co qpi '' yj g'hktuv'dqqmu'vq'dg'r wdrkuj gf ''d{ ''yj g'O wghgttknc''r tguu.'uvctvkpi ''kp'394; .'y gtg'yj g'Xcpmrw/Nwi crk'\*Vj g'' Xcpmrw/Nwi crk'\*Vj g'' Xcpmrw/F kevkqpct{.'tgr tkpvgf ''kp'397768+''y j kej ''y cu'÷tcpurcvgf ø\*kQ0tgpf gtgf ''dkrkpi wcn+'htqo ''yj g''Ctcdke'kp'' yj g''ukzvgpyj ''egpwt{.''I tco o ckt g'Vwts wg. 'c''Vwtnkuj ''i tco o ct''kp''Htgpej .'O wghgttkncøu'vtgcvkugu'\*3953+.''cpf '' j ku'gzr cpf gf ''xgtukqp'qh'Ekj cppÃo c'\*Uj qy kpi ''yj g''Y qtrf +:'c''i gqi tcr j kecn'y qtm'dcugf ''qp''Gwtqr gcp''uqwtegu.'' d{ ''M-vkr '¥ grgdk'\*cnuq''npqy p''cu''J cek'J crkhg+0\dag{9} grgdk'y cu''yj g''tcpurcvqt''qh'O gtecvqtøu''Cvcu'Okpqt'\*387567+'' cpf ''c'uekgpvkhe''yj kpngt'hco qwu''hqt' gh''cwgo r wu'vq''dtgcmlf qy p''yj g''dcttkgtu''dgyy ggp''Gcuvgtp''cpf ''Y guvgtp'' uekgpeg''kp'yj g''ugxgpygpyj ''egpwt{0}

Vj g'ugeqpf 'r tkpvkpi 'r tguu. 'ugv'wr 'cv'vj g'Uej qqn'qh'O krkct { 'Gpi kpggtkpi 'kp'39; 8. 'cnuq''

ej qug''c''f kevkqpct { "cu'kwu'hktuv'dqqm'\*r tkpvgf 'kp'39; ; ='y ku'y cu''Dwtjcp/k'Mccvk'\*Eqpxkpekpi 'Rtqqh+.":\*xtcpurcvgf ø' kpvq''c''dkrkpi wcn'xgtukqp'htqo ''y g''Rgtukcp''cpf ''eqo r krgf ''d { ''Cuko ''Ghgpf k''hpqy p''cu''O Ãvgteko ''\*Vtcpurcvqt+''Cuko 0

## Vj g'Vcp/ko cv't gt kqf < Gp nki j vgp o gp vø'vj t qwi j 'lt cp urc vkqp 'kp 'lj g'p kp gvggp vj 'egp vwt {

Vjg'rtkpekrcn'tgxkxcn'kp'uekgpvkhke''cpf'rkvgtct{''vtcpurcvkqpu'htqo''Gwtqrgcp''uqwtegu'hqmqygf''vjg''ugwkpi''wr''qh'' yj g'i qxgtpo gpv''Vtcpurcvkqp'Ej co dgtu'kp'3: 550J qy gxgt.''vtcpurcvkqp'htqo ''Rgtukcp''cpf ''Ctcdke''j cf ''cnuq'' tgcej gf "ku'r gcm'f wtkpi "vj g"pkpgvggpvj "egpwt {0"Vj ku'uvcvg"qh'chhcktu'etgcvgf "vgpukqp"dgvy ggp"Gcuvgtp"uqwtegu'qh" ecpqpkecnlucwu'cpf 'uqwtegu'htqo ''y g''Y guv.''y g'hcwgt''cu''{ gv'r gtkr j gtcn'dw'i ckpkpi ''i tqwpf ''cpf ''dgeqo kpi '' kpetgcukpin ('r qy gthwn0'Y j cv'r tqxkf gf 'cp''cf f kkqpcn'kor gwu'pqv'qpn ('vq''yj g''o qf gtpk kpi 'tghqtou''qh'O cjow'KK' dw'\q'ceewnwtc\kqp'y kij 'Gwtqrg'y cu'\j g'gctrkgt''cpf 'o qtg'gzvgpukxg''y guvgtpk cvkqp''r tqi tco o g''qh'O gj o gf 'Crk'' Rcuj c. "vj g"Mj gf kxg"qh"Gi {r v. "y j q"y cu"kp"qr gp"eqo r gvkkqp"y kvj "vj g"Uwncp" "ugg"CTCDKE"VTCF KVKQP +0 Co qpi ''y g'pgy ''ewnwtcn'kpurkwwkqpu''qh''y g''o kf/pkpgyggpy ''egpwt { ''y cu''y g'Cecf go { ''qh''Uekgpegu''\*\*GpeÃo gp/k'' Fcpk + "guvcdrkuj gf "kp"3: 73"cpf "uwdukf k gf "d{ ''y g'i qxgtpo gpv."cpf ''y g'Qvqo cp"Uekgpvkhke "Uqekgv{ "\*Ego k{g√k" Kao k{g/{k'Quo cpk{g+."hqwpf gf "kp"3: 82"d{"O Apkh'Rcuj c."cp"go kpgpv'o go dgt"qh'vj g"Vtcpurcvkqp"Ej co dgt"y j q" y cu'gf wecvgf 'kp'Gi {r v0Cv'vj gug'egpvtgu.'y j kej 'kpenwf gf 'pqpO wurko 'o go dgtu.'vtcpurcvkqp'cevkxkv{ 'htqo " Gwtqrgcp'uqwtegu'y cu'qti cpk gf '\q'rtqxkfg''ygcej kpi 'o cygtkcnu'hqt'c'rtqurgevkxg'wpkxgtukv('cpf'\q'kpvtqfweg'' cpf "r tqo qvg"uelgpvkhle"cpf "uej qrctn("y qtm0C"vtcpurcvkqp"qh"IDOUc {øu"Ecv² ej kuo g"f ø", eqpqo kg"Rqrksks wg" \*3: 74+'cpf 'c'dkqi tcrj kecn'f kevkqpct { 'qh'go kpgpv'Gwtqrgcp'uvcvguo gp.'dqvj 'd { 'Cdtq'Ucj cm'Ghgpfk'y gtg'co qpi " yj g'hktuv'y qtmu'vq'dg'r wdrkuj gf 'd{ ''yj g'Cecf go {0'Ugxgtcn'j kuvqtkgu'y gtg'cnuq'y tkwgp''qt''vtcpurcvgf ''d{ ''yj g'' o go dgtu'qh'y g'Cecf go { 'dw'tgo ckpgf 'kp'f tchv'hqto 'cpf 'y gtg'pgxgt'r wdrkuj gf = 'y g{ 'kpenwf gf 'Cj o gf " C tkdq| køu"j kuvqt { "qh"Cpekgpv"I tggeg. "Vqf qtcmk"Ghgpf køu 'vtcpuncvkqp"qh"c"j kuvqt { "qh"Gwtqr g. "cpf 'Cngmq 'Ghgpf køu" dqqn'qp'yi g'ncuv'P cr qrgqpke'eco r cki pu0Vj g'hktuv'j kwqt { "qh'I tggm'r j krquqr j { "kp"Vwtmkuj ." Cdt² i² 'f g'nc 'Xkg'f gu" Rnwu'Knwut gu'Rj krquqrj gu'f g'høCpvks wkv². "y cu''vtcpurcvgf "d{ "Etkeqt"Ej wo ctkcp"cpf "r wdrkuj gf 'kpf gr gpf gpvn{ 'kp" Ko kt'kp''3: 76'kp''y g'hqto ''qh'r ctcmgn'\gzvu.''y kj ''y g''qtki kpcn'kp''Htgpej 0

Kp''3: 87."vj tgg"{gctu''chgt"y g''Cecf go { "y cu''enqugf ."c''Vtcpurc'\dqp''Eqo o kwgg'y cu'hqto gf "qp''uko krct''hpgu." j gcf gf "qpeg''ci c\p''d{ "O Ãp\h'iRcuj c."vj g''hqwpf gt "qh''vj g''Ue\gp\kh\e''Uqe\gv\{0Vj g'y qtmu''npqy p''\q''j cxg''dggp" r wdrkuj gf "d{ "vj ku''eqo o kwgg'y gtg''\tcpurc'\dqpu''qh''y q''dqqmu''qp''j kwqt{ "cpf "i gqi tcr j { ."htqo "Gpi rkuj "cpf " Htgpej "tgur ge\kxgn\{0O Ãp\h'iRcuj c''cnq''\kp\tqf wegf "c''o qtg''\kphrwgp\kcn''o gf kwo 'hqt''\y g''f kuugo \kpc\dqp''qh''Y guvgtp" ue\kgp\kh\e''y qwi j v'y kyj "j ku''O geo wc/k'Hwpwp'\*\*Iqwtpcn'qh''Ue\kgpegu+:"y g''hktuv''Vwtrnkuj "lqwtpcn'qh''ue\kgpegu."y j kej " cnq''ectt\kgf "\tcpurc\dqpu='k\v'y cu''r wdrkuj gf "\kp\gto kwgp\n\" 'dgwy ggp''3: 84"cpf "3: : 4"d{ "vj g''Ue\kgp\kh\e''Uqe\kgv\{0 O Ãp\h'iRcuj c'y cu''\kputwo gp\cn'\kp\tqf we\kpi "c''pgy ''h\kgtct{ "i gptg'y kyj "j ku''ugrge\kqp "qh'\tcpurc\kqpu'qh" r j krquqr j kecn'f kcmi wgu''d{ "Xqncktg." 'H' pgnqp''cpf "Hqp\kgpgng." wpf gt''y g''\ksgp''y cv'\k'y cu''y g''htuv'\q''\kp\tqf weg''y g'' \kgp\kqrup ggp\u''j g''krgp''y gy''y g''krg''O wj cxgtcv\k'J kngo k\g'' "\kg\kquqr j kecn'f kcmi wgu="3: 7; +0'Vj ku'y qtm'ku'j ki j n\g'' "\kp\tqp''gpx\ktqpo gpv'y j gtg''\xr j krquqr j kecn'ur ge\wc\kqp'' f kxqtegf ''htqo "yj gqrqi \{ "y cu''eqpu\kf gtgf "j gtg\kecn'\"O ctf kp''3; 84\456\xeta\6

Vy q"qvj gt"\tcpurc\kqpu"crr gctgf "kp"\j g"uco g"{ gct"cpf "o ctngf "vj g"cy cngpkpi "qh'kp\gtguv'kp"Gwtqr gcp"ercukeu="  $v_j$  g{ "\qq"y gtg"\q"j cxg"c"rcu\kpi "kphn\wgpeg"qp"\hqto u"cpf "kf gcu"\j cv\u)i cr gf "o qf gtp"V\wtn\kii "h\wgtc\wtg0V\ytego g/k"  $v_j$  vgrgo cm'y cu"c"\xgtu\kqp"qh'C\dd^2 "H\vgrqp\p\gu'\vgry\wq'\cxgp\wtgu'f g"\v^2\n^2 o cs \wg."c"r qrk\kecrr j \kquqr j \kecn'pq\xgn"d\w' cnq"c"\vgry\wq' \kq\u'y j \kej "y cu"o qtg"\tgcf \kn\u' "ceegr \cdrg'\kp"\j g"\Q\wqo cp"\tcf \kkqp"\j cv'\tcxq\wtgf "\Gcu\wgtp" gzco r rgu"\qh'\j ku'i gptg0\v^2\n^2 o cm'y cu'\h\ttu\v'ekt\ewr\wgf "\kp"o cp\wett\tr\v'cpf "y cu'\pq\v'r \wdr\wij gf "\wy\xhi3: 840\v'j g" \tcpurc\wf '\gru\wq'' y cu'\j g"\tcpurc\wf '\gr\wq'' \tcpurc\wf '\gr\wf '\gr\

\*cf cr vgf 'htqo 'ercuulecn'Ctcdle'cpf 'Rgtulcp+'vq'hcekrkxcvg'kxu'tgegr vkqp0

Vj g'hktuv'nksgtct{''tcpurcvqtu'j cf''vj wu'ugtxgf''vq'kpvtqfweg''vj tgg'pgy 'nksgtct{''i gptgu<'Y guvgtp'r qgvt{." r j knquqr j kecn'f kcnqi wg."cpf "vj g"pqxgn0C"{gct"rcvgt."kp"3: 82."Kdtcj ko "kpcuk'y tqvg"vj g"hktuv"Vwtmkuj "f qo guvke" eqo gf { "cpf "ugtkonk gf "kv"kp" vj g"pgy ur cr gt" Vgt eAo cp/k" Cj xcn" \*Kpvgtr tgvgt "qh" Eqpf kvkqpu+"kp" 3: 820' kpcuk "y j q" j cf "tckpgf "cv"qpg"qh"yj g"f gr ct vo gpvcn"tcpurcvkqp"ej co dgtu"cpf "j cf "xkukvgf "Htcpeg."y cu"cnuq"yj g"hqwpf gt"cpf " ej kgh'gf kqt "qh"*Vc uxkt/k'Ghm-t* "\*Knwurt cykqp"qh"Kf gcu. "guvcdrkuj gf "3: 84+. "qpg"qh"yj g"hkt uv'r t kx cyg"Vwt nkuj " pgy ur cr gtu'\q''cr r gct'\p''Kvcpdwr0'C'\twg'\ppqxcvqt."\j g'\tcpurc\qpu'j g'ugtkcrk gf 'qp'rksgtcwstg."uqekcrl'cpf" geqpqo ke''vqr keu. "cu''y gm'cu''r qnkkecn'y qwi j v'o cf g''j ku''pgy ur cr gt ''y g''o quv'uvko wrcvkpi "cpf 'r qr wrct "qh''y g''vko g0' J g"wugf" Iqwtpcnkuo "cu"c"o gfkwo "vq"r ww'kpvq"r tcevkeg" jku"r qnke{ 'hqt"ukor ng"Vwtmkuj "r tqug. "y jkej" jcf" c"ncuvkpi' kphrwgpeg"qp"yj g"hwwtg"qh"o qf gtp"Vwtnkuj "rcpi wci g"cpf "rkvgtcwtg0Dqyj "rkvgtct{"cpf "pqp/rkvgtct{"\tcpurcvkqpu"kp" pgy ur cr gtu"cpf "r gtkqf kecnu"ugtxgf "cu"qpg"qh"vj g"o quv"ko r qtvcpv"o gcpu"qh"ko r ngo gpvkpi "vj ku"r qnke { . "y j kej "y cu" cf qr vgf "d{"y tkvgtu"cpf "lqwtpcrkuvu"vq"eqo o wpkecvg"o qtg"gcukn{"y kyj "vj gkt"tgcf gtu0 Xkeyt'J wi qøu'Ngu'O ku² t c drgu'y cu'ugtkcnk gf 'kp'3: 84. 'hymy gf 'kp'uwdugs wgpv'{ gctu'd { 'Ej cvgcwdtkcpf øu'Cvcrc'' \*3: 8; +. 'f g''UckpvRkgttgøu''*Rcwd'gv'Xkt i kpk*g' \*3: 92+. ''Xqnxcktgøu''*O ket qo ² i cu'* \*3: 93+'cpf 'F wo cu'r ³ tgøu''*Ng'Eqo vg'' fg'Oqpvg'Etkuvq*'™3:93+0"Vjg''uvtcvgikgu'hqmqygf''kp''uvvej''\tcpurcvkqpu''qh'hkevkqp."oquv''qh'yjkej''ygtg''rcvgt'' r wdrkuj gf 'kp''dqqm'hqto .''etgcvgf 'c''i gpgtcn'cy ctgpguu''qh''y g''tcpurcvqtuø'pqto u''cpf ''qh''y g''r tqdrgo u''y g{ 'hcegf 0' Kp"j ku'r tghceg'\q"Cwnc"\readright wdrkuj gf 'kp"dqqmlhqto 'kp"3: 96+. 'Tgeck cf g'Gntgo 'f tgy 'cwgpvkqp'\q'vj g'kpcf gs wce { 'qh'

r wdrkij gf "hp"dqqmihqto ."etgevgf "c"i gpgtenicy etgpguu'qh'y g"tepurevqtuø'pqto u"epf "qh'y g"rtqdrgo u"y g{ "heegf 0' Kp"j ku'r tgheeg' vq"Cvvr" "r wdrkij gf "hp"dqqmihqto "kp"3: 96+."T geck ef g'Gmtgo "f tgy "cwgpwlqp" vq"y g'kpef gs wee { "qh" eqpvgo r qtet { "Vwtmkij "r tqug'hqt"y g'r wtr qugu'qh"vcpurevlqp0Vvq"ko r tqxg"qp"y g'hktw'ugtkerk gf "xgtulqpu."

\*\*Oket qo^i cu'\*3: 93+"epf "y g'hktw'gki j v'ej er wtu'qh"Ngu'O kv² tedngu'\*3: 9; +"y gtg'tgvtepurevgf "d{ "Cj o gf "Xghkm' Reuj e"pvgo r qtet { "Vo wsg." 3: 93+"epf "y g'hktw'gki j v'ej er wtu'qh"Ngu'O kv² tedngu'\*3: 9; +"y gtg'tgvtepurevgf "d{ "Cj o gf "Xghkm' Reuj e"pvgo r greek ygny pgf "rgzkeqi terj gt "kng" go ugf f kp"Uco k" emq"tgvtepurevgf "Ngu'Cxgpwt gu'f g'V² ro es wg'\*3: : 3+0"Kp"eqpvteuv'vq" [ wwwh'Mco kilReuj e'au'getnkgt "tepurevlqp" kp" y g'tef kklqpeni tepf "lw{ rg. "j ku'xgtulqp" wugf "uko r rgt "xqeedwet { "cpf "u{ pvez. "kpvgpf gf "vq"dg'hkgteniepf "eeewtevg." eu'y gmi'cu'r rgeukpi "hqt "y g'tgef gt0" go ugf f kp"Uco k "etkkek gf "hqt"dgkpi "vqq"hkgtenilp" j ku'xgtulqp"qhi'Ngu"

\*\*Okv² tedngu "f glgpf gf "j ku'uvtevgi { "kp" j ku'r tgheeg'vq "j ku'vtepurevlqp"qh'Tqdkpuqp"Etwuqg'\*3: : 7+."eti wkpi "y ev'pgy " kf geu"eqwf "pqv'dg"eqpxg{ gf "kp" j g'eqpxgpvlqpeniQwqo ep"uv{ rg'epf "y ev'enqug'ef j gtgpeg'vq" j g'uqwteg'yzv'epf " y g'wug'qh'uko r rg'r tqug'y gtg'eqpuekqwu'o qxgu'vq'wug'y g'hwnfi qvgpvleniqh'y g"Vwmkuj "repi wei g0Vj gk" eqpvgo r qtet { "Cj o gf "O kf j ev'Clgpf k'qp" j g'qy gt'j epf ."r wtwgf "pqv'qpg'dw'c'xetkgv{ "qh'tgy tkkkpi "uvteyi kgu" kp" j ku'pwo gtqwu'xgtulqpu'qh'erwukeu'cpf "r qr wtet'dqqmu'tgpf gtgf "htqo "Htgpej 0'Kp" j ku'r tgheegu." j g'htgs wgpvn{ "gzrtguugf" j ku'exgtulqp"qh'e"xkgtens' tepurevlqp'dgeewug'y j g'tguwn/f kf "pqv'tgef "hkng'ep'qtki kpen="g'eqpvkdwgf" "vq" y g'gredqtevlqp"qh'e"kkeenl" y gqtgykeenl" keentug'y j kej "gzr rqtgf "f kuvkpevlqpu'dgwy ggp"eqpegr wu'uwej "cu" -\*tepurevlqpa"-kpvgtr tgevklqpg'epf "-err tqr tkevlqp0

Vj g"{gctu"3: 956: 5"y gtg"y g"o quv"r tqf wevkxg"hqt"y g"y tkxgtulxtcpurcvqtu"qh"y g"\Vcp/ko cv\U\Vdugs wgpvn{." egpuqtuj kr "kp"Cdf Ãnj co kf "Kkxu"tgki p"ngf "o ckpn{"vq"y g"\tcpurcvkqp"qh"r qr wrct "Htgpej 'hkevkqp\U\y g"Eqpurkxwkqpcn' Tgxqnwkqp"qh"3; 2: "cpf "vj g"f gr qukkkqp"qh"Cdf Ãnj co kf "Kky gtg"hqmqy gf "d{"c"uki pkhkecpv"tgxkxcn'qh"\tcpurcvkqpu" qh"ecpqpk gf "y qtmu"kp"j kuvqt {."r j krquqr j {"cpf "vj g"uqekcn'uekgpegu."cu'y gm"cu'Gpi nkuj ."I gto cp"cpf "Twuukcp" nkytcwtg\Ucdf wrcj "Egxf gv."y j q"\tcpurcvgf "Uj cngur gctg."cpf "lqwtpcnkuvu"J Ãug{kp"Ecj kv"cpf "J c{f ct"Tkhcv"y gtg" vj g"o quv"cevkxg"cpf "eqo o kwgf "\tcpurcvqtu"qh"vj g"r gtkqf 0

# Vt cpurc vkqp'kp'tj g'Tgr wdrke'\*3; 45'tq'tj g'r t gugpv+

vq'tgr nceg'Ctcdke'ngwgtu0Vj g'hktuv'Vwtmkuj ''vtcpuncvkqp''qh''vj g'S wtø p'kp''vj g'Tqo cp''cnr j cdgv''cr r gctgf 'kp''3; 540' Vj g''o qxgo gpv'hqt''uko r ng''Vwtmkuj ''vj cv'j cf ''dgi wp''kp''vj g''pkpgvggpvj ''egpwt{ ''wnko cvgn{ ''tguwnygf ''kp''vj g'' uvcvgur qpuqtgf ''tcf kecn'ncpi wci g''tghqto ''qh''vj g''tgr wdnke''kp''vj g''3; 52u.''y j gtgd{ ''Vwtmkuj ''y cu''cnuq''vq''dg''÷r wtkhkgfø'' qh''Ctcdke''cpf ''Rgtukcp''kphnvgpeg0

Vj g'tgxqnwkqpct{"o qxg"o cf g"d{"J cucp"Žnk"[ Ãegn"O kpknyt"qh"Gf weckqp."kp"ugwkpi "wr "c"Vtcpurckqp" Eqo o kwgg"kp"3; 5; "cpf "c"Vtcpurckqp"Qhhkeg"kp"3; 62"y cu"kpvgpf gf "vq"tgkphqteg"j g"pgy "rcpi wci g"r qnkekgu"cpf " vq"qti cpk g"c"r tqi tco o g"hqt"ewnwtcn'tgxkxcn0Vj g"Qhhkeg."eqo r qugf "rcti gn{"qh"cecf go keu"cpf "r tqo kpgpv"o gp" qh"ngwgtu."y cu"vq"ugngev"cpf "vtcpurcvg":y qtnf "ercuukeuø"dgi kppkpi "y kj "Cpekgpv"I tggm"r j knquqr j {"cpf "rksgtcwtg0" Uwej "ng{"vgzvu"y gtg"cnuq"guugpvkcn'hqt"kpuvtwevkqp"kp"j g"pgy "j wo cpkkgu"f gr ctvo gpvu"qh"vj g"wpkxgtukkgu"kp" Knxcpdwrlcpf "Cpnrctc0Vj g"i gpgtcn'cko "y cu"vq":i gpgtcvgø'vj g"ur ktk/qh"j wo cpkno "d{"ewnkxcvkpi "cpf "cuuko krcvkpi" hqtgki p"rksgtcwtgu"vj tqwi j "vtcpurcvkqp="vj ku."kv"y cu"hgnv."y qwrf "dtkpi "cdqw"c"tgpckuucpeg"cpf "eqpvtkdwg"vq"vj g" f gxgmq o gpv"qh"vj g"Vvtmkuj "rcpi wci g"cpf "ewnwtg0

D{"y g"gpf "qh"3; 66."y g"o quv'kpvgpukxg"v tcpurcvkqp"r gtkqf."32; "y qtmu"y gtg"v tcpurcvgf."j gcf gf "d{"y g"I tggm"cpf" Htgpej "encurkeu0D{"3; 89"o qtg"y cp"3.222"v tcpurcvkqpu"y gtg"r wdrkuj gf."co qpi "y j kej "Gcuvgtp"cpf "Kurco ke"v zwu" eqpuvkwwgf "c"xgt {"uo cm"r tqr qtvkqp0C"ej cpi g"kp"i qxgtpo gpv'r qrkekgu"cpf "y g"f kuo kuucn'qh'kwu"ngcf kpi "o go dgtu" ngf "vq"y g"Qhhkeg"nqukpi "kwu"kpkkcn'ko r gww"chwgt"3; 720Vj tqwi j qwv'y g"3; 82u."j qy gxgt."hqmqy kpi "y g" eqpuvkwwkqpcn'ej cpi gu"qh"3; 83"y cv'cmqy gf "hqt"i tgcvgt htggf qo "qh"y qwi j v."r tkxcvg"r wdrkuj kpi "eqo r cpkgu" dgeco g"cevkxgn("kpxqrxgf "kp"y g"vtcpurcvkqp"qh"O ctzkuvluqekcrkuv'rkygtcwtg."y qwi j "uwej "cevkxkv{"j cf "kwu"tkumu" gxgp"hqt"y gm/guvcdrkuj gf "vtcpurcvqtu"cpf "o gp"qh"rgwgtu0

Cu'uj qy p'kp''y g''Kof gz''Vt cpurc kapwo.''y g''qvcn'pwo dgt ''qh''vt cpurc yg' ''kvrgu'ht qo ''3; : 4''vq''3; : 8''y cu'6.67; 0'
Ceeqtf kpi ''vq''y g''Vvt nkuj ''Rwdrkuj gtuø'Cuuqekc kapp''cppwcn'ecvcni wg.''y g''vqvcn'pwo dgt ''qh''vt cpurc yappu''kpenwf kpi ''
kpvt crkpi wcn'vt cpurc yappu'ht qo ''Qwqo cp'kpvq''eqpvgo r qtct { ''Vvt nkuj +''qp''y g''o ctngv''d { ''Qevqdgt''3; ; 6''co qwpvgf ''
vq''8.24: 0'Uvc yku yeu'uwr r nkgf ''d { ''c''r tkx cvg''dqqmuj qr ''\*Rcpf qtc+''uj qy ''y cv'kp''3; ; 5.''dghqtg''y g''geqpqo ke''t geguulqp''
hwn( ''j kv'y g''o ctngv.''88: ''kwrgu''\*o qtg''y cp''y q''y ktf u+''qh''c''vqvcn'qh'3.73: ''pgy ''r wdrkec ykqpu''\*gzenwf kpi ''yz ydqqmu''
cpf ''r wdrkec ykqpu''d { ''i qxgtpo gpv'o kpkuvt kgulqhhkekcn'kpuykwwkqpu+''y gtg''vt cpurc ykqpu0

Ukpeg''y g''o kf/3; : 2u. "Vwtnkuj 'r wdrkuj gtu'j cxg''ngr v'wr 'y ky ''y g'y qtrf ''o ctngv'd { 'r wdrkuj kpi 'vtcpurcwlqpu'qh'' kpygtpcwlqpcn'rksgtcwstg. 'htqo 'r tkl gy kppkpi 'hkevlqp''vq'r qr wrt 'dguwgngtu0Hki wtgu'hqt''y g''3; ; 2u''cnuq''kpf kecwj'c'' i tqy kpi 'kpygtguv'kp''r wdrkuj kpi 'vtcpurcwlqpu'kp''y g'hkgrf u'qh'j kuvqt { .''r j krquqr j { .''r u { ej qrqi { .''uqekcn'uekgpegu.'' i gpf gt''uwwf kgu.''ej krf tgpøu''nksgtcwstg.''cpf 'vj g''ctw0'Vwtrnkuj ''xgtukqpu''qh'kpygtpcwkqpcn'gpe { erqr gf kcu'j cxg''gplq { gf '' cp''wpr tgegf gpvgf ''dqqo ''ukpeg''y g''gctn(''3; : 2u0

C'r tqlgev'rcwpej gf 'd{ ''y g'Rwdrkecvkqpu'F gr ctvo gpv'qh'y g'[ cr k'Mtgf k'Dcpm'kp'3; ; 3.''y g'MH ko ''Vc mgpv' Rwdrkecvkqp''Ugtkgu.''ewttgpvn{ 'r c{ u'i gpgtqwu'hggu'hqt''y g'\tcpurcvkqp''qh'ercuukeu''cu''{ gv'wpr wdrkuj gf 'kp''Vwtrnkuj 0' Nksgtct{ ''tcpurcvkqp''r tk| gu'y gtg''cy ctf gf ''d{ ''y g''Vwtrnkuj ''Ncpi wci g'Cecf go { 'htqo ''3; 7; ''vq''3; : 60

#### Vtckpkpi.'tgugctej 'cpf'rwdnkecvkqpu

Vj g'Geqpqo ke'cpf 'Uqekcn'Uwf kgu'Eqphgtgpeg'Dqctf 'ugv'wr 'kp'3; 83'd{ ''vj g'Hqtf 'Hqwpf cvkqp.''Vwtmkuj '' kpf wuxtkcrkuw'cpf 'cecf go kekcpu'y cu'vj g'hktuv'vq'kpkkcvg'c'vtckpkpi 'r tqi tco o g'hqt'eqphgtgpeg'kpvgtr tgvgtu'kp'' Uy kk gtrcpf .'y j kej 'uwdugs wgpvn{ 'eqpvkpwgf 'vq'qr gtcvg'kp''Vwtmg{0Uqo g'qh'vj g'hktuv'r tqhguukqpcn'kpvgtr tgvgtu'vq'' dg'vtckpgf ''d{ ''vj ku'r tqi tco o g''ctg''pqy ''cnuq''cevkxgn{ 'kpxqrxgf 'kp'vtckpkpi ''cv'vj g''xctkqwu'wpkxgtukkgu0

Kp'tgur qpug'\q'c'i tqy kpi "f go cpf 'hqt'eqo r gvgpv'r tqhguukqpcn'vtcpurcvqtu'cpf "eqphgtgpeg'kpvgtr tgvgtu'kp''Gpi rkuj ." f gr ctvo gpvu'qh'vtcpurcvkqp''cpf 'kpvgtr tgvkpi 'y gtg''ugv'wr 'kp''3; : 566'kp''y q''wpkxgtukkgu."Dq c| k±k'\*Kncpdwn+''cpf " J cegwgr g'\*Cpnrctc+0'Cr ctv'htqo 'hqwt/{gct'f gi tgg'eqwtugu."vj gug'f gr ctvo gpvu'cnuq'qhhgt''O C''cpf 'Rj F 'f gi tggu'' kp''vtcpurcvkqp''uwxf kgu0'Vj g''Rj F 'r tqi tco o g''cv'Dq c| k±k'Wpkxgtukv{ 'y cu''vj g''hktuv'vq''qhhgt''c''eqwtug''qp''vj g''j knqt { " qh''vtcpurcvkqp''kp''Qwqo cp IVwtnkuj ''uqekgv{ .'y kyj ''vj g''cko ''qh'hqtgi tqwpf kpi ''vj g''nkpmu''dgw ggp''vtcpurcvkqp''cpf " rkxgtct{ kwnwtcn'j knqt{0[ krf k ''Vgej pkecn'Wpkxgtukv{ ''\*Kncpdwn+''r tqxkf gu''vtckpkpi ''kp''Htgpej .''Dknrgpv'Wpkxgtukv{ '' ''Kncpdwn+''r tqxkf gu''vtckpkpi ''kp''Htgpej .''Dknrgpv'Wpkxgtukv{ '' ''Cpnrctc+''kp''Htgpej ''cpf ''Gpi rkuj 0'Kncpdwn'Wpkxgtukv{ ''qhhgtu''cp''O C''f gi tgg''kp''Vtcpurcvkqp''hqt''i tcf wcvgu''htqo ''y g'' Gpi rkuj ''cpf ''I gto cp''F gr ctvo gpvu0

D{"eqpvcuv"q"yi g"y genji "qh"vtcpurcvkqpu"yi cv"j cxg"ceewo wrcyf "qxgt"yi g"egpwxtkgu."yi g"pwo dgt"qh"uwf kgu"kp"yi g" hkgrf "tgo ckpu"xgt{"uo cm0"Vj g"o clqtk\{"j cxg"uq"tct"hqewugf "qp"pkpgyggpyj /egpwxt{"tcpurcvkqpu"htqo "Gwtqr gcp" repi wci gu="yi gtg"ctg"pq"j kurqtkecn"uwf kgu"qh"o qf gu."o qf gnu"qt"yi gqtkgu"qh"vtcpurcvkqp"dcugf "qp"yi g"eqtr wu"htqo "Rgtukcp ICtcdke0Dkdrkqi tcr j kgu"ctg"hct"htqo "cf gs wcyg0J qy gxgt."ukpeg"yi g"o kf /3; : 2u"Dq c| k±k"Wpkxgtuk\{"j cu" dggp"r ctvkewrtn\{"cevkxg"kp"eqpf wcvkpi "f guetkr vkxg kcpcn\{vecn'cpf "yi gqtgxkecn'uwf kgu."i gpgtcm\{"tqqygf "kp"yi g" RQN[UUVGO"VJ GQT["vtcf kkkqp0Nkpi wkrke"cpf"r gf ci qi kecn'uwf kgu"j cxg"dggp"cevkxgn\{"r wtuwgf "d\{" J cegwgr g"Wpkxgtuk\{."y j kej "j cu"r wdrkuj gf "¥ gxkt kdkko "xg"W i wro crct k\*Vwf kgu"kp"Vtcpurcvqrqi \{"tukpeg"3; ; 40" kp"3; ; 7."VQO GT IDwtuc"rcwpej gf "yi g"hktuv'dqqmlkp"yi g"ugtkgu"¥ gxkt kdkko "\*Vtcpurcvqrqi \{"0}
F gur kg"yi g"xgt \{"reti g"pwo dgt "qh"yej pkecnl"hkgtct \{"vtcpurcvqtu"cpf "vtcpurcvqrp"ci gpekgu."yi gtg"ku"pq" rtqhguukqpcn'qti cpk\{ cykqp"y j kej "tgr tgugpvu"vtcpurcvqtu"kp"Vvtng\{0Kpygtr tgygtu"ctg"tgr tgugpygf "d\{"yi g" Cuuqekcvkqp"qh"Eqphgtgpeg"Kpygtr tgygtu. "hqwpf gf "kp"3; 8; "y kyi "yi g"cko "qh"rtqo qvkpi "yi g"rtqhguukqp"cpf" guvcdrkuj kpi "rtkpekr ngu"yi cv'eqphqto "y kyi "yi g"kpygtpcvkqpcn'uvcpf ctf u'qh'yi g"CUUQEKCVkQP"
RVGTP CVkQP CNG"F GU"kP VGTRT" VGU"F G"EQP HGTGP EG"\*CKKE+0Kp"3; ; 8."yi g"Cuuqekcvkqp"j cf "curvy gml'cu"y tkwgp" vtcpurcvkqp0

## Hwt yj gt 't gcf kpi

Cf kxct''3; 92="Mw'3; : 8="O ctf kp''3; 84="Qtj qpnw'3; 96="Rengt"3; ; 3="Rengt"gv'en03; ; 3="Rengt"epf "Vqunc."hqtyi eqo kpi =" Utcwuu''3; ; 6.''3; ; 7="Vgnkp''3; ; 40

UCNIA C'RCMGT

## Dkqi terj kgu

EGXF GV.'Cdf wncj "\*3: 8; 63; 54+0O gf kecn'f qevqt.'r qgv."y tkgt.'r wdrkuj gt"cpf "tcpurcvqt0Cp"kf gqrqi kecn' rgcf gt"qh'y g' [ qwpi "Vwtm'o qxgo gpv."Egxf gv'j cf "c'wwo wrqwu'ectggt"cpf. "wpvkri3; 33. "ur gpv'o quv'qh'j ku'rhg' kp" gz krg"kp"Uy ky gtrcpf "cpf "Gi {r v."hki j vkpi "y ky "j ku'r gp"ci ckpuv'y g"f gur qvke"t gi ko g"qh'Cdf wrj co kf "KtOJ g"y cu'c" rtqrkhke"y tkgt "cpf "y g"hktuv'vq"r tqf weg"hwrn'vtcpurcvkqpu"qh"Uj cmgur gctgøu"vtci gf kgu0Vj gug"y gtg"kphrwgpvkcn'dw' pqv'vqq"r qr wrct "qp"uvci g"dgecwug"qh'y gkt"j ki j /hrqy p"r qgvke"f kevkqp0"kp"3; 2: ."y g"{ gct"qh'y g"eqpurkwwkqpcn' tgxqnwkqp"y j kej "o ctngf" y g"gpf "qh'Cdf wrj co kf "Ktou't gki p."j g"r wdrkuj gf "\*kp"Ecktq+"j ku'vtcpurcvkqpu"qh"J co rgv' "r gthqto gf "kp"Krcpdwrlkp"3; 34+"cpf "Lwrkwu'Ecguct OVj gug"y gtg"hqmqy gf "d{ "vtcpurcvkqpu"qh'Ocedgy "\*3; 2; +" Tqo gq"cpf "Lwrkgv" "ugtkcrk gf "kp"Ugj dcrhkp"3; 2; 632+"Mkpi "Ngct" "3; 34+"cpf "Cpvj qp{"cpf "Engqr c vt c" "3; 43+0' Egxf gv'cnrq"vtcpurcvgf "I wucxg"Ng"Dqpøu"y qtmu."y j kej "y gtg"j ki j n{ "kphrwgpvkcnOJ ku'xgtukqp"qh"F q| {øu'Grucck" uwt 'mj knqkt g'f g'nøkurco kno g."r wdrkuj gf "chgt"3; 33."y cu'dcppgf "dgecwug'ky'y cu'etkskecn'qh'Kurco "cpf" y g"Rtqr j gvO

GTJ CV.'C| tc"3; 376: 5+0 Guuc {kuv'cpf '\tcpurc\qt0 Gf wec\gf '\kp'Dgri kvo . 'Gtj cv'y cu'qpg'qh'\yi g'hktuv'V\wtmkuj " encuulekuvu0'Uj g''ngewtgf 'cv'Cpmctc''Wpkxgtukx{ ''dww'y cu''f kuo kuugf 'kp''3; 67''hqt''j gt''nghv'y kpi ''xkgy u0'Uj g'y cu''cnuq'' c'o go dgt 'qh'y g''Vtcpurcykqp''Qhhkeg. 'hqt'y j kej 'uj g'ytcpurcygf 'Uqr j qergu. 'Gwtkr kf gu. 'Ctkuyqr j cpgu'cpf 'Rrcyq0' J gt "tcpurc kqpu" y kj "j g"r qgv" COMcf kt + "qh" y g" Mcf "cpf" y g" Qf { uug{ "kp" htgg" xgtug" j cxg" hqpi "dggp" tgeqi pk gf" cu'o cuvgtr kgegu0

G[ ODQ NW: Ucdcj cwlp'\*3; 2: 695+0 Guuc {kuv'cpf ''tcpurcvqt0 G{ Adq nw'rgewtgf 'kp' Htgpej 'cv' Kuvcpdwr' Wpkxgtukv{"cpf 'hcvgt'y qtmgf 'hqt''y g'O kpkvxt{"qh'Gf wecvkqp."y j gtg'j g'vqqm'qxgt'htqo 'CVC\forall 'kp'3; 67"cu'j gcf 'qh' yj g"Vtcpurcvkqp"Qhhkeg0J ku'vtcpurcvkqpu'tcpi g'htqo "Rrcvqøu'T grwdnke" \*hqt'y j kej 'j g'y qp. 'y kej 'j ku'eqvtcpurcvqt" O CCE ko eq | .''yi g'hktuv'\tcpurc\kqp'r tk g''qh'\yi g''Vwtmkuj 'Ncpi wci g'Cecf go {+'\q'O qpvcki pg. 'Tcdgrcku.''Nc'' Hapvelpg. "O grx kmg. "Eco wu"cpf "Dedgwh0'G{ Ada nw'y cu'ngcf gt "qh'y g": J wo cpkuw'i tawr "qh'uej arctu'cpf" vtcpurcvqtu'qr gtcvkpi "cv'yj g'Qhhkeg'cpf."hkmg'GTJ CV."y cu'r gtugewgf "hqt"j ku": J wo cpkuo ø"y j kej "cv'yj g'vko g" y cu'eqphwugf 'y kij 'Eqo o wpkuo .'dw'tgo ckpgf 'cevkxg'cu'qpg'qh'vj g'hqtgo quv'kpvgmgewcnı'qh'j ku'vko g0 O KF J CV'GHGP F K'Cj o gf "\*3: 6663; 35+0P qxgrkuv." uj qtv'uvqt { "y tkvgt." lqwtpcrkuv." r wdrkuj gt "cpf "\tcpurcvqt0" Hqwpf gt "qh" yi g"pgy ur cr gt "Vgt eÃo cp/k" J cmmc v" "Kpvgtr tgvgt "qh" Vtwj . "3: 9: +"cpf "qh" yi g"hktuv" Vwtmkuj "r wdnkuj kpi " j qwug'kp''Kuxcpdwn''Cj o gf 'O kfj cv'y cu''y g''o quv'r tqrkhke''cpf ''y kfg/tcpi kpi ''vtcpurcvqt''qh''y g''rcvg''pkpgvggpvj '' egpwt {0J g'j cu'dggp'etkkek gf 'hqt'j ku'r tqrkhe 'qwr w."÷hqt'j ku'i ki cpvke 'cr r gvkg. 'Zcxkgt'f g'O qpvgr kp''cpf " Gwi 3 pg''Uwg'y gtg''qh''y g'uco g'uwhh'cu'Egtxcpvgu''cpf ''J wi q. ''cpf '\ qrc''eqwrf ''gcukn( ''dg''r w''cukf g''kp''hcxqwt ''qh'' Rown'f g'Mqenø'\*Vopr kpct'3; : 3-684-10P gxgt yj grguu. 'Cj o gf 'O kf j cv'y cu'gz vtgo gn{ 'kphrwgp vkcn'kp'f tcy kpi " cwgpwlqp"\q"\j g"pggf" hqt "\tcpurcwlpi "Gwtqr gcp" encuwleu" cpf "\q"\j g"ko r cev'qh '\tcpurcwlqpu'qp" i gptgu 'cpf "o qf gnu" yj cv'y gtg'dwti gqpkpi 'kp'Qwqo cp/Vwtnkuj 'hkvgtcwtg'cv'yj g'vko g0J g'y cu'cnq'yj g'hktuv'vq'y tkvg'uj qtv'uvqtkgu'kp'' Vwtmkuj = 'vj gug'y gtg'r wdrkuj gf 'kp' vj g'uco g'eqmgevkqp' y kvj 'j ku' vtcpurcvkqpu'htqo 'vj g'Htgpej 0 O OVGTEKO 'CUKO '\*397763: 3; +0'Ngzkeqi tcr j gt.''j kuvqtkcp''cpf 'r qgv.''j g''qy gu''j ku''vkvrg''O Avgteko '\*\*Vtcpurcvqt+'' Vkd{cp/k'Pckk'f gt 'Vgt ego g/k'Dwtj cp/k'Mccvk'\*Vtcpurcvkqp''qh''Dwtj cp/k'Mccvk'Eqpxkpekpi ''Rtqqhô y ky ''Wughwri' Gzr repevkqpu+: "c"dkrkpi wen'xgtukqp"qh"yj g"Rgtukcp"f kevkqpct { "d { "J wug { kp"d0J ergh"qh"Vcdt kt = "kv"y eu"r wdrkuj gf "kp" 39; 9"cpf "r tgugpvgf "\q"Uvncp"Ugnko "KKK"gctpkpi "j ko "c"j qwug. "c"vgcej kpi "r quv"cpf "c"ucnct {0Vj g"ugeqpf 'y cu" Mco www.prlDcukv'lk'Vgtego gvk.prlMco www.prlOwjkv'\*Uko rnkhkgf "Xgtukqp"qh'yjg"Vtcpuncvkqp"qh'Mco www.prlOwjkv' Wpkxgtucn'F kevkqpct { +: "c"dkrkpi wcn'xgtukqp"qh'cp"Ctcdke"f kevkqpct { "d { "Hktw| cdcf k"r wdrkuj gf "kp"3: 36639"dw" rtgugpvgf "gctnkgt."kp"3: 32."vq"Uvnxcp"Ocjowf"KK⊑hqt"vjku"OAvgteko"Cuko"ycu"crrqkpvgf"vq"c"jkijgt'vgcejkpi" r quv'cpf 'y cu'cnıq'o cf g'lwf i g'qh'Ucmpkec0'Vj g'f kevkqpctkgu'ctg'pqv'lwuv'-xtcpurcvkqpuø'\*vj qwi j 'pco gf 'cu'uwej 'kp'' yj g'\kurgu+'dw'etkkecn'gfkkqpu'qh'yj g'Rgtukcp''cpf 'Ctcdke''o qpqrkpi wcn'qtki kpcnu.''y kyj ''o cp{ 'eqttgevkqpu''cpf '' cffk.kqpu'htqo "qvjgt"uqwtegu0Jg"ocfg"gxgt{"ghhqtv'vq"rtqxkfg"Vwtmkuj"gswkxcngpvu'\*uqogvkogu'htqo"jku'jqog" r tqxkpeg'Cpvgr +'hqt'Rgtukcp''cpf 'Ctcdke''y qtf u0O Ãvgteko 'Cuko ''cnuq''y tqvg''*Vwj hg/k'Cuko* '\*Cuko øu'Tj {o kpi '' F kevkqpct {+"c"tj {o kpi "Ctcdke/Vwtmkuj "f kevkqpct {"y j kej "y cu"r wdrkuj gf "kp"Gi {r v"kp"3: 5: 0 UCO K'' go ugf f kp'"cnuq"ecmgf" go ugf f kp''Uco k'Dg{ "Htcugtk="3: 7263; 26+0"P qxgrkuv."lqwtpcrkuv."tcpurcvqt"cpf" ngzkeqi tcr j gt0C"r kqpggtkpi "pqxgrkuv"kp"o qf gtp"Vwtnkuj "rkvgtcwtg." ggo ugf f kp"Uco k"qh"Cndcpkcp"qtki kp.'y cu" gf wecvgf 'kp'c'I tggm'i {o pcukwo 'kp'[ cppkpc0'Crctv'htqo 'pwo gtqwu'\tcpurc\kqpu'htqo '\j g'Htgpej .''o quv'pqvcdn{" Ngu'O ku² t c drgu. "j g"y tqvg"Mc o ww/k"Ht c pugxk"\*Ht gpej "F kevkqpct { +: "yj g"hkt uv"Ht gpej / Vwt mkuj 'cpf "Vwt mkuj / Ht gpej " f kevkqpctkgu. 'r wdrkuj gf 'kp'3: : 4'cpf '3: : 7'tgur gevkxgn(0J ku'qyj gt'kphrwgpvkcn'ngzkeqi tcr j kecn'y qtmu'ctg''

Mco wwwptCrco "\*WpkxgtucriF kevkqpct{."3::;  $\acute{o}$ ; : +:"cp"gpe{erqr gf ke"f kevkqpct{"kp"ukz "xqnwo gu."cpf "Mco ww/k" VÂt nk'\*Vwt nkuj 'F kevkqpct { .'3: ; ; 63; 22+.'c'o qpqrkpi worl'f kevkqpct { 'kp''y q'xqnwo gu'y j kej 'ku'eqpukf gtgf 'c'' rcpf o ctmlkp"vgto u'qh'vj g"

r wtkhecvkqp"qh"Vwtmkuj "htqo "Rgtukcp"cpf "Ctcdke"kphnwgpeg0

XGHKMRCUJ C.'Cj o gf "\3: 456; 3+\text{Oleveyuo cp."fkrmo cv."tcpurcyt"cpf "rgzkeqi tcr j gt\text{Olymory cpf "uvcyuo gp" qh'j ku'ko g. "XghkniRcuj c"dgi cp'j ku'ectggt 'kp''y g"Vtcpurcykqp''Ej co dgt "cv'y g"Uvdnko g'Rqtyg\text{OJ} g'y cu''y g" i tcpf uqp"qh'[ cj {c'Glgpf k":xctkqwm("tgr qtygf "cu'j cxkpi "dggp"qh'Dwi ctkcp."I tggniqt"Lgy kuj "qtki kp\text{\text{op} "Ngy ku"} 3; 84< 8+"c"o cy go cykekcp'y j q'y cu''cr rqkpygf "y g'htuv\text{O wurko "Ej kgh'Ftci qo cp"chygt"3: 43"cpf "uqp"qh" Twj wf fkp'O gj o gf "Glgpf k"cmq"c"o cyi go cykekcp"y j q"ugtxgf "cu"ftci qo cp"cv'yi g"Qwqo cp"Go dcuu{ "kp"Rctku"kp" 3: 566: 0XghkniRcuj c'ngctpv'Htgpej "cu'c"{qwpi "dq{"y j gp"j g"cwgpf gf "y g"N{e² g"Uv'Nqwku"kp"Rctku."dgeco g"c" fkr mo cy'chygt"j ku''cr rtgpykeguj kr "cv'yi g"Vtcpurcykqp"Ej co dgt."y gpv'dcem'yq"Rctku"cu'o dcuucf qt. "y cu" cr rqkpygf "I tcpf "Xg| kt "cpf" ugtxgf "cu'yi g"rtgukf gpv'qh'yi g"htuv'Qwqo cp"rctrkco gpv'kp"3: 980J g'ku'dguv'mpqy p" hqt"j ku'38"ytcpurcykqpu"qh'O qrk tg"\frac{\text{op} \text{v} \text{wdrkij gf "cu'c"eqnrgeykqp"kp"3: 9; \defta: 4+"y j kej "y gtg"kputwo gpvcn'kp" kpytqf wekpi "c'pgy "i gptg"kpyq"yi g'Qwqo cp"f tco cyke"ytcf kkqp\text{0J g"cf qr ygf"xctkqwu'urtcygi kgu'y j krg"ytcpurcykpi "y g"O qrk tg'eqo gf kgu."y g"o quv'r qr wct"qh'y j kej "ctg'i gpgtcm("eqpukf gtgf"\frac{\text{op} \text{v} \t

UCNKI C'RCMGT

# Dkdrkqi tcrj {

Cenqpgp."J 0\*3; : 8+"::Uwqo gpvco kugp"xctj ckuxckj gkcø"]Gctn("Uvci gu"qh"Vtcpurcvkqp"kpvq"Hkppkuj \_."kp"LiRgvgtk'gv'cn0\*gfu+" 32/xwqvkulwj rclwmckuw']32 yj "Cppkxgtuct{"Hguvuej tkhv'hqt"yj g"Vwtmw'Dtcpej "qh'yj g"Hkppkuj "Cuuqekcvkqp"qh"Vtcpurcvqtu" cpf "Kpvgtrtgvgtu\_"Vwtmw\*Uvqo gp"n@pv@kgp"lc"wmmkgp"rkkvq."Vwtwp"r ckncmkuqucuvq0

Conqpgp. "U0\*3;; 8+"Ceewnwtcvkqp"qh'vjg"Qvjgt0Ktkuj"Okrkgwz"kp"Hkppkuj"Ftcoc"Vtcpurcvkqp. "Iqgpuww."Iqgpuww" Wpkxgtukv{"Rtguu0

Cdw'Nkdf gj .'C0\*3; ; 3+":C'F kueqwtug'Rgtur gevkxg''qp'Hki wtcvkxg''Gzr tguukqp''kp''Nkgtct{''Y qtmu''y kj 'Tghgtgpeg''vq'' Gpi rkuj 1Ctcdke''Vtcpurcvkqpø0'Wpr wdrkuj gf 'Rj F ''y guku.''Gf kpdwti j <U gtkqvY cw''Wpkxgtukv{0

Ceeguu'\q''Kpvgtrt gvgtu'kp''yj g'Cwuxt crkcp'Ngi crl'Ulusgo "\3;; 3+'Tgr qtv'd{ "vj g'Eqo o qpy gcnij 'Cwqtpg{/I gpgtcniu" F gr ctvo gpv.'Ecpdgttc<'CI RU'\Cwuxtcrkcp'I qxgtpo gpv'Rwdrkecvkqp''Ugtxkeg+0

CGEO C'\*3; ; 7+"C'I wlf g'lqt''yj g'Rt grctcvlqp"qllCktetch/Ockpvgpcpeg'F qewo gpvcvlqp'lp''yj g'Cgt qurceg'Ockpvgpcpeg'' Ncpi wci gOCGEO C'Ulo rnllkgf 'Gpi nluj O'CGEO C'F qewo gpv<'RUE: 76387; : .'Kuunwg''3.'Dt wuugnu0

Ckło gt. "MO'cpf 'DOCnygodgti "\*3;; 8+"Kontaf wenkap. "kp" MOCkło gt. "DOCnygodgti "cpf "O (Laj cpunap" "gf u+" Ncpi wci gu" kp" Eqpnt cun: "Rcr gtu" htao "c" U{or qukwo "ap" Vgzvdcugf "Etquu/nkpi wkunke" Uwnf kgu. "Nwpf "667 'O ctej "3;; 6. "Nwpf "Nwpf" Wpkxgtukn{"Rtguu0

Cmlgt ugp. ''NONO'\*3; 94+''*Nkwgt â t ''qxgt uò wgnug*'']Nkgt ct { ''Vt cpurc  $\$  kqp\_. 'Eqr gpj ci gp0

Cmltgej v.''LO\*3; 95+''Nkpi wkwkmlwpf ''©dgtugv/wpi .''VÄdkpi gp<'P kgo g{gt''Xgtmi 0

Cndtgmuqp. 'D0\*3; 9: +":-Vj g'Uy gf kuj 'Qrf 'Vguxco gpv'Vtcpurcvkqp'Rtqlgevø'kp'Mqtrkp'I t@ u'cpf 'D0O cm dgti '\*gf u+" Vj gqt{ 'cpf 'Rt cevkeg'qh'Vtcpurcvkqp. 'Uvqenj qm <P qdgriU{o r qukwo '5; 0}

Crgm² gx. 'O knj c¹nˈRcxmxke'\*3; 97+"::Ng'r nwtkrkpi wkuo g'gvˈnc''etgcvkqp'ˈnkw² tcktgø''*Rt qeggf kpi u''qhl\j g'XKj 'KENC'' Eqpi t guu.* "Uwwi ctv<'Dkgdgt.'596620

Crgzcpf gt. 'O (LO)\*3; ; 6+"::Qrf 'Gpi rkuj 'Rqgvt { 'kpvq'O qf gtp'Gpi rkuj 'Xgtugø' 'Vt cpurc vkqp'cpf 'Nkvgt cvvt g'50

Cngzcpf gt. 'O kej cgnl\*gf 0+'\*3; 88+'Vj g'Gctnkguv'Gpi nkuj 'Rqgo u.''J cto qpf uy qtvj <'Rgpi wkp0

 $\label{eq:continuous} $$ ^cCrk'Lcy $f'*3;: 8+'Cn'Owhcuncn'hk'V t nj''cn'eCtcd''S cdnc''cn'Knn o'']C'Fgvckrgf''J knvqt{''qh''yj g'Ctcdu''Rtkqt''vq''yj g'Tkng'' qh''Knrco_''xqn'03.''Dgktwx'Fct''cneKro''n'kn'Ocn {p''cpf''Dcijfcf<'Ocmcdcv''cn'Pcjfc0}$ 

°Crk''U rej ''U rko '\*3; ; 4+":O kut gr t gugp vc vkqp ''qh''Uqo g ''Grrkr vgf ''Uvt wewst gu''lp ''y g ''Vt cpurc vkqp ''qh''y g ''S wt  $\phi p \phi$  ''O g w '59 \*5+<6: 96; 20

Crkhcpq.'Tqdgtvq'\*3;: 6+"Vy gpv{/Hqwt'Eqpxgtucvkqpu'y kj 'Dqti gu0Kperwf kpi 'c'Ugrgevkqp'qh'Rqgo u'\*Kpvgtxkgy u'd{'' Tqdgtvq'Crkhcpq'3;: 363;: 5+"J qwucvqpke.'O C<'Ncuecwz''Rwdrkuj gtu0

Cmupku. "Kkctu" 3; : 213 H+" : Vj g"J c| ctf u"qh" Vtcpurc kqpø "Rctcni ngu" 5 < 796: 6. "6 < 37; 69: . "7 < 756: 4. "I gpgxc < GVKO Cm ci qt. "F cp" 3; 97+" : Uj engur getg "dc/ukht w" j ckxtk "dk/ unwhcv" j c/ j cumere "w dk/ unwhcv" j c/vzk{ c < Unktc "dkdrk{ qi tchkv" w dkdrk{ qi tch{ cø"] Uj engur getg "kp" J gdtgy "Nksgtewtg" qh" y g" Gprki j vgpo gpv" cpf "Tgxkxcni Rgtkqf u < "C "Dkdrkqi tcr j kecri" Uwtxg{ "cpf "c" Dkdrkqi tcr j { \_. "kp" Dqc| "Uj cj gxkej "cpf "O gpcj go "Rgtt { "\*gf u+" Ughgt "j c/{ qxgrl'ng/Uj ko øqp" J cmkp"] Uko qp" J cmkp" Lvdkrgg "Xqnwo g\_" Igtwucrgo < Twdkp" O cuu. "9436: 60

CNRCE"\*3; 88+"Ncpi wci g"cpf "O cej kpgu<Eqo rwwgtu'kp"Vtcpurcvkqp"cpf "Nkpi wkukeu."c"tgrqtv'd{"vj g"Cwqo cvke"
Ncpi wci g"Rtqeguukpi "Cf xkuqt{"Eqo o kwgg."F kxkukqp"qh"Dgj cxkqtcn"Uekgpegu."P cvkqpcn'T gugctej "Eqwpekn"Y cuj kpi vqp."
FE<P cvkqpcn'Cecf go {"qh"Uekgpegu0

Cncpq."Y (D0\*3;; 2+":Vj g"Kpvtkecvg"Y kxpguuKpvgtrtgvgt'Tgncvkqpuj krø'kp'F 0'cpf 'O (Dqy gp'\*gf u+0

Cno cp. "Lcpgv"\*gf 0+"\*3; : 9+"Vgcej kpi "Kpvgtrt gvkpi <'Uwf { "cpf 'Rtcevkeg." Nqpf qp<'Egpvtg'hqt'kphqto cvkqp"qp"Ncpi wci g" Vgcej kpi "cpf 'Tgugctej 0

Crxct. 'Ectrqu'cpf 'Cpi grl'I »o g| '\*3; : 9+":-Vtcf weekqpgu'htcpegucu'gp 'grl'uki rq'ZXø'lp'IŒ0Ucpvq{q'gv'cr0\*gf u+'3; : ; .'xqr0' 3.'53690

f øCnxgtp{.'Octkg/Vj²t³ug'\*3; 86+"::Cxgpf cwj. Aø." *J qo gpclg"c "Oknt w/Xcnket qu.* "Dctegnpc<'Eqpuglq'Uwr.gtkqt'f g" Koxgurki cekqpgu'Ekgpv¶kecu0

```
ô ô *3; : 4+":-Vtcpurcvkqp"cpf "Vtcpurcvqtuø"kp"Tqdgtv"NDgpuqp"cpf "I krgu"Eqpuvcdrg'*gf u+"Tgpckuvcpeg"cpf "Tgpgy crlkp" yj g"Vy grhij "Egpwt { ."643684."Eco dtkf i g."O C<"J ctxctf "Wpkxgtukx{ "Rtguu0
```

ô ô \*3; : ; +":Ngu'\tcf wevgwtu'c'f gwz'\pvgtr t³ vgu. 'f øctcdg''gp''ncpi wg'\xgtpcewncktg''gv'f g''ncpi wg'\xgtpcewncktg''gp''nc\pø '\pv \\\
\text{Vtcf wevkqp''gv'\tcf wevgwtu''cw'O q{gp''Ci g. 'r tqeggf kpi u''qh'c'EP TU'\kpvgtpc\kqpcn'eqphgtgpeg''j grf ''4864: 'O c{ ''3; : 8.''}\\
\text{Rctkx'| f kkqpu'f w'Egpvtg'P c\kqpcn'f g''nc'Tgej gtej g''Ue\kgp\khks wg0}

Co gu. "Tqi gt. "Ej cp" Ukp/Y ck"cpf "Pi" O cw'ucpi "\*gf u+"\*3; ; 3+"*Kpvgtrt gvkpi "Ewnwt g" vj t qwi j "Vt c purc vkqp*. "J qpi "Mqpi <" Ej kpgug" Wpkxgtukv{ "Rt guu0

Co o cpp. 'O cti tgv'\*3; : ; 13; ; 2+'I twpf rci gp'f gt 'o qf gt pgp'Vt c purc vkqpuvj gqt kgô gkp'Ngkvlcf gp'lhÃt 'Uwf kgt gpf g''
\*Vtcpurc vqt kuej gu'J cpf grp'3+:'J gkf grdgti <'Wpkxgt uks®v

ô ô \*3; ; 2+":Cpo gtmxpi gp'| w'gkpgt" Vj gqtkg'f gt'©dgtug<br/> $\forall$  wpi umtkkm' Wpf 'kj tgt'r tcmkuej gp' Cpy gpf wpi ø<br/>" $VGZVeqpVGZV'7 \lessdot 42$ ; 6720

ô ô cpf "J cpu"IfXgto ggt "\*3; ; 2+"*Gpvy wt h'gkpgu'Ewt t kewnvo u'h*Ãt *"gkpgp"Uwf kgpi cpi "Vt cpurc vqrqi kg"wpf "Vt cpurc vqt km*" \*Vtcpurc vqt kuej gu'J cpf gpp"6+."J gkf grdgti <IOI tqquO

Co qu. "H0\*3; 4213; 95+" Gctn/" Vj gqtkgu"qh" Vtcpurc kqp. "Pgy" [qtm: "Qevci qp" Rtguu0

Co wpf ugp. 'TQQg'O cktg'\*3; : 3+":Klugpøu'Wug'qh'Cfftguu'kp"Uqo g'qh'J ku'Rtqug'Rrc{uø''Uecpfkpcxkec''42\*3+"65ó830 Cpej kgv.'IQ\*37; 7+"Ctvg'i tco o cvkec'fc'hpi wc''o cku'wucfc'pc''equwc'fq'Dtcukn''Eqko dtc<"Cpvqpkq'fg'O ctk 0

Cpf gto cp. "I 0\"3; ; 5c+":-Vtcpurc\kqp"cpf "Ur ggej "Ce\u\a\"kp"I co dkgt "cpf "Vqo o qrc"\"gf u+0

ô ô \*3;; 5d+":-Wpvtcpurcvcdktk/{<"Vj g"Ecug"qh"Rtqpqwpu"qh"Cfftguu"kp"Nkgtcwxtgø"Rgturgevkxgu0Uwfkgu"kp" Vtcpurcvqrqi{"3⊲96890

ô ô cpf 'O COT qi gtu'\*gf u+'\*3; : : +''Vt cpurc kqp'kp'Vgcej kpi ''Vgcej kpi ''Vt cpurc kqp. ''Uwttg{<'Egpvtg'hqt''Vtcpurc kqp'' cpf ''Ncpi wci g''Uwf kgu. ''Wpkxgtuk\{ ''qh''Uwttg{0

Cpf gtuqp. 'E0'cpf 'C0 OMs wj ctv'\*gf u+'\*3; : 6+'Tgcf kpi 'kp''c 'Hqt gki p'Ncpi wci g. 'Nqpf qp<'Nqpi o cp0

Cpf gtuqp."I gqti g'M0\*3; 6; +"Vj g'Nkgtcwtg"qll\sq g'Cpi rq"Uczqpu."Rtkpegvqp\"Rtkpegvqp"Wpkxgtukv\"Rtguu0

Cpf gtuuqp."Vj 0\*3; : 9+":Uxgpun'o gf gnkf 'k'hqtpuxgp/um'r gtur gmkxø']Vj g'O kf f ng'Ci gu'kp'Uy gf gp'htqo ''y g'Rgtur gevkxg'' qh'Qnf 'Uy gf kuj \_.'kp'I 0F cj nd@m'\*gf 0+"Uxgpun'o gf gnkf ulqt umpkpi 'kf ci 0Gp'hqt umpkpi uk'xxgt ukm']O qf gtp"Uy gf kuj "
Tgugctej 'kpvq''y g'O gf kgxcn'Rgtkqf 0C"Uwtxg{\_.'Wr r ucnc<I wo cpkukum'uco j @nuxgvgpuncr nki c'hqtumpkpi ut° f gv.'3466: 0
Cpf tcf g. ''Qf g'\*3; 92+"F q'r cw/dt cuki'c ''cpvt qr qlci kc ''g''«u'wyr kcu<'O cpklguvqu. 'Vgugu'f g''eqpewt uqu''g''gpuckqu. ''Tkq'f g''

Lcpgktq<'Gf kqtc'Ekxkrk c±q'Dtcukrgktc0

Cpi gpqv. 'O 0'I $\Omega$ Dguuk' tg. 'F (Hqmngo c''cpf 'G0'Mwij pgt'\*gf u+'\*3; : ; +'' $Vj^2qtkg'hkw^2tcktg$ . 'Retku<'RWHO

Cqnk''Vco qvw'\\$3;; 4+":\ wt'\@dgtug\ dctmgk'\xqp''Mwnwtø'\tcpu0'Uj kpi q''Uj ko cf c.'\kp'LOO cwj gu'\\$gf 0+\ y kwej gp'f gp''

Mwnwt gpA<F kg''Uq/kcny kuugpuej chgp''xqt'f go ''Rt qdngo 'f gu''Mwnwt xgt i ngkej u'\ I ¾wkpi gp<Qwq''Uej y ct\ ''cpf 'Eq.'6; ó8: 0

Cr gn''Htkgf o ct'\\$3; : 4+"Urt cej dgy gi wpi <'Gkpg'j kuvqt kwej /r qgvqnqi kwej g'Wpvgt uwej wpi ''| wo ''Rt qdngo 'f gu'\@dgt ugv| gpu.''

J gkf gnlgti <'Ectn'Y kpvgt0

Cr qmkpcktg. "I wkmewo g' $^3$ ; : 2+"Ecnki tco o gu "\tcpu0Cppg'J {f g'I tggv. "Dgtmgrg{<"Wpkxgtukx{"qh'Ecnkhqtpkc"Rtguu0Cr r kcj ."My co g'Cpyj qp{" $^3$ 3; ; 5+":-Vj kem'Vtcpurc\kqp.ø'Ecncnqq'38 $^4$ 6+ $^4$ : 2: 63; 0

Cr vgt. 'T0\*3; : 9+" F ki i kpi 'hqt 'vj g'Vt gc uwt g < Vt c punc vkqp 'c hygt 'R qwpf. 'P gy '[ qt m < Rctci qp 'I qwug0

CtcAq. "Cfg" 3; 74+" Ecvgekuo q'pc 'n pi wc 'dt cu flec. 'hceuko krg" tgr tqf wevkqp" qh'yi g'3uv'gfp" qh'383: ." y kyi "cp"

kpvtqf wevkqp'd{ ''ROCONgo qu''Dctdquc.'Tkq'f g''Lcpgktq<'Rqpvktflekc''Wpkxgtukf cf g''Ecv>nlecO

Ctdgtt{.'Ctvj wt'I0\*3; 77 B; 86+'Vj g'Mqtcp'Kpvgtrtgvgf.'Qzhqtf 'Vpkxgtukv{'Rtguu0

Ctgpekdkc. 'N0\*3; ; 4+":Cr wpvgu'r ctc"wpg'j kuvqtkc"f g"rc"vtcf week»p"gp"Evdcø'*Nkxhuu*'5&6520

Cti grevk "Hinkr r q'\*3989+"Didniqvgec "f gk'xqni ctid/cvqt k "q'iukc "f gmøqr gt g'xqni ctid/cvg'f øc wvqt k'ej g'iuet kuugt q'hp'inpi wg" o qt vg'r t ko c'f gn'ugeqnq'ZXi "eqnø'c f f k'kqpk'f k'Xkmc." O krep <"Ci pgm\0

Cti kpvguew/Co | c. "P 0\*3; 87+":F gur tg'öht wo qcugrg''etgf kpekqcugöø']Cdqwv'yi g'':Hckyi hwn'Dgcwkguø\_."*Ugeqnwlzz* "3<726; 0 Ctkuvqvrg'\*3; 93+"*Rqgvkeu*."kp"J c| ctf "Cf co u'\*gf 0+"*Etkkecn'Vj gqt{"Upeg'Rn*:vq."P gy "[ qtm:"J cteqwtv'Dtceg''Iqxcpqxkej." 6: 6880

Ctlqpc/Vugpi .'Gvkrxkc'\*3;; 3+"-Vj g'Etgevkqp"qh'c'I tef wevg'Kpurkwwg'hqt"Vtepurevkqp'epf 'Kpvgtr tgvevkqp'Uwvf kgu'kp''y g" Tgr wdrke 'qh'Ej kpc''epf 'Veky epø'kp'O ref gp'Iqxepqxke'\*gf 0+"Vtepurevkqp<'C'Etgevkxg'Rtqhguukqp.'Rtqeggf kpi u'qh'Z Kj "Y qtrf 'Eqpi tguu'qh'HKV.'Dgri tef g.'3;; 2.'Dgri tef g<'Rtgxqf kree.'7286480

Ctpcwf.'X0\*3; 72+"Nqu'kpv² trt gvgu'gp"gnff guewdt ko kgpvq. 'rc "eqps wkwc" ['rc "eqnqpk| cek»p"gp"gnfTkq'f g'rc "Rrc vc. "Dwgpqu" Cktgu<"pq"r wdrkuj gt0

Ctpqrf.'F 0'NDcmcp.'T0Ngg'J wo rj tg{u.'U0O gklgt'cpf'NULcf rgt' $^{1}$ 3; ; 6+'Ocej kpg'Vtcpurc kqp<'cp'Kpvt qf wevqt {'I wkf g.''} Eco dtkf i g.''O C'cpf 'Qzhqtf <'Dreeny gm0

Ctpqrf.'Ocwj gy "\*3: 83+"Qp"Vtcpurcvkpi "I qo gt."Nqpf qp<Nqpi o cp."I tggp."Nqpi o cp."cpf "Tqdgtvu="cnuq"kp"Guuc{u" Nkvgtct{"cpf 'Etkkecn'd{"Ocwj gy 'Ctpqrf."3; 28."Nqpf qp<Fgpv="P gy "[ qtm:F wvqp0

Ctp\'.'Tgkpgt'\'3;;5+"\-Vgto kpqrqi kecn'Gs wkxcrgpeg'cpf "Vtcpurcvkqpø'kp''Uqppgxgrf 'cpf 'Nqgpkpi '\\*gf u+0

ô ô cpf 'J (Rkej  $\lor$ ''3; : ; +'GkphÃj t wpi 'kp'f kg'Vgt o kpqnqi kgct dgkv.'J krf guj gko <'Qro u0

ô ô cpf 'I kugnc''Vj qo g'\*gf u+'\*3; ; 5+'©dgt ugv/ wpi uy kuugpuej ch0Gt i gdpkuug'wpf 'Rgt ur gmkxgp.''VÃdkpi gp<'P ctt0

```
Cttqlq."Tqugo\ ct{\ '*3; ; 5+\ 'V} tcf\ w\pm \bar{\ }q."f\ gueqpust\ w\pm \bar{\ }q"g"r\ ukecp^a\ rlug."Tkq"f\ g"Lcpgktq{\ 'Ko}\ ci\ q0
```

Cttqy uo kj ."Y knkco "cpf "Tqi gt"Uj cwwent gf u+"\*3; 83+"Vj g'Etch/cpf 'Eqpvgzv'qhlVtcpurcvkqp."J wo cpkkgu"Tgugctej " Egpvg."Cwurkp."VZ <Wpksgtukv "qh"Vgzcu"Rtguu0Tgrtkpvgf "3; 86+"P gy "[ qtm<Cpej qt"Dqqmu."Fqwdngf c { "cpf "Eqo r cp { 0 Ctvgci c. "Cntrgf "\*gf 0+"\*3; ; 6+"Cp'Qvj gt "Vqpi wg <Pcvkqp"cpf "Gvj pkekv "kp"vj g'Nkpi wkwke "Dqtf gtncpf u. "F wtj co ."P E "cpf " Nqpf qp <F wng"Wpksgtukv ["Rtguu0"]

Cuej gt. 'O ctekc''cpf 'Tqdgtv'Cuej gt'\*3; :  $3+"Eqfg''qh'vjg''S wkrwOC''Uwf\{'lp''Ogfkc.'Ocvjgocvkeu''cpf''Ewnwtg.''Cpp'' Ctdqt.''O K'Wpksgtuk\{''qh'Okejkicp''RtguuO$ 

Cuj etqhv. 'Dkm' I ctgvj 'I tkhkvj u'cpf 'J grgp' Vkhkvp' '\3; : ; +'\Vj g' Go  $rktg'Y tkgu'Dcem < Vj gqt \{ 'cpf' 'Rt cevkeg' kp' 'Rquw' Eqrqpkcrl' Nkgt cwt gu. 'Nqpf qp < Tqwrgf i g0$ 

Cuj vqp.'T0\*3; : 2+"Vj g'I gto cp"If gc<"Hqwt 'Gpi rkuj 'Y tkvgtu'cpf 'Vj g'Tgegr vkqp"qh'I gto cp"Vj qwi j v'3: 2263: 82." Eco dtlf i g<"Eco dtlf i g'Wpkxgtukv{ 'Rtguu0

 $\label{lem:curgewiqhivtcpurcvkqp'} \textit{Curgewi'qh'Vtcpurcvkqp''Uwf kgu'kp''Eqoowpkecvkqp''4'*3; 7: + "Vj g'Eqoowpkecvkqp''T gugctej 'Egpvtg. "Wpkxgtukv{ 'Eqnrgi g'' Nqpf qp0'Nqpf qp<'Ugengt'cpf 'Y ctdwti 0}$ 

Cuwtkcu. 'O ki wgn'Cpi gn'\*3; : 8+'':Rckpvgf 'O cpwwetkr wi'qh'r tg/Eqnwo dkcp'Co gtkecø''c''ugngevkqp''htqo ''vj g''WP GUEQ'' Eqwtkgt. 'O c $\{6Lwpg.'77680$ 

Cvnlqpu."U0"IŒ ngct"cpf "P Quvngt"\*3;; 4+"\*Eqtr wu"F guli p"Etksgtkcø"Nkgtct{"cpf "Nkpi wkuke"Eqo rwskpi "9\*4+<"36380 Cvskf grleqpxgi pq"\*Kp"f klyuc"f gk'\tcunqec\qt kf k'rct qng. 'Gf k\qt k'g'\tcf wwqt k'c"eqpht qp\q\psi\vert Vt kguvg."; 632"o ci i kq"3;; 3" \*3;; 5+\"Nkdtk'g"Tkxkuvg"f \psi\kcnlc.'O kpkuvgtq"r gt "k'dgpk'ewnwtcnk'g"co dkgp\cnk+."Tqo g<\"Kukwvq"Rqnki tchleq"g"\ geec"f gmq" Uccvq0

Cwdq{gt."Igcppkpg"\*3; 87+"Fckn/"Nkhg'kp"Cpekgpv'Kpfkc."htqo"crrtqzkocvgn/"422"DE"\q"CF"922."\tcpu0htqo"Htgpej"d{"U0Y 0Vc{mt."Nqpfqp<"Y gkfgphgnf"cpf"P keqnuqp0

Cwi wurkpwu. 'Cwt grkwu'\*3; 7: +''Qp''Ej t kurkcp'F qevt kpg. ''tcpu0F 0Y 0Tqdgt vuqp. 'It. 'Kpf kcpcr qrku<'Dqddu/O gttkm0 Cwo ckstg. 'ILO 0''NO qtgrl'cpf 'ILO 0Ncpegrl\*3; ; 4+":\VTCF GZ. 'wp'u{ uv³ o g'f g''tcf werkqp'f g'V rgzø''0 gvc''59-8466560 CWUKV'\*3; ; 4+"Kpxkukdrg'kpvgt r t gvgt u'cpf ''t cpurc t gpv'tt cpurc vqt u. 'Cwurt crkcp'Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh'Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp''Kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg''qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg'' qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg'' qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg'' qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg'' qh''Kpvgt r t gvgt u'cpf ''Vtcpurc vqt u. ''Cwurt crkcp'' kpurkwwg'' qh''Kpvgt r t gvgt u'

 $\label{eq:control_control_control_control} \text{Cwurkp.'ION0*3}; 84 + \text{'J} \ qy \ \text{'V} \ p \ \text{i'} \ \text{V} \ p \ \text{i'} \ \text{i'} \ \text{Y} \ q \ \text{tf} \ u \ \text{'Eco} \ \text{dtkfig.'O} \ \text{C} < \text{J} \ \text{ctxctf''} \ \text{Wpkxgtukv{'Rtguu0}}$ 

Dcctkpi .''N'3; ; 4+"Vqmpkpi ô j xqtj gp"qi 'j xqtf cp"]Kpvgtr tgvcvkqpô Y j gtg"cpf 'J qy \_.'Eqr gpj ci gp0

Dcdcm"J cucp"\*3; 96+":-Vctlqo gj "xc"Vcøuk/g"cp"f ct"\ cdcp"xc"Cf cd/g"Rctukø"]Vtcpurckqp"cpf "kw"Køhrwgpeg"qp"\j g"
Rgtukcp"Ncpi wci g"cpf "Nkgtcwtg\_."kp"*Uqnj cptcpkj c/{g"F qxxqo kp"F qy t gj /{g"Lcngucv/g"Uqnj cptcpk'xc"Dcj u"f ctdct gj /*{g"\ cdcp/g"Hctuk"]Vj g"Ugeqpf "Tqwpf "qh"Ngewtgu"kp"Ngewtg"cpf "F kuewuukqp"Ugtkgu"qp"\j g"Rgtukcp"Ncpi wci g\_."Vgj tcp<"
Gf ctgj /g"Mqm/g"P ci ctguj /g"Xg| ctcv/g"Hctj cpi "xc"J qpct."3965: 0

Dcdkpkqvku."I 0\*3; : 6+"I nquuqnqi kc"ng"Nqi qvgej pkc"]Nkpi vkuvkeu"cpf "Nkgtcwtg\_."Cyj gpu<"F gur kpc"O cxtqo o cvk0 Dcdrgt."Q(H0\*3; 92+":Rqgøu"oT cxgpö"cpf "vj g"Vtcpurcvkqp"qh"Rqgvt {ø"kp"J qm gu."f g"J ccp"cpf "Rqr qxk "\*gf u+0 Dcgvgpu"Dgctf uo qtg."J wi q"\*3; 9: +"::Rqn(i mqv"Nkgtcwtg"cpf "Nkpi vkuvke"Hkevkqpø"\*Kpvgt pcvkqpcn"Lqwt pcn'qh'vj g"Uqekqrqi {"qh'Ncpi wci g"37<"; 363240

ô ô cpf 'F Œqmgn{ '\*3; : 2+'Co gt kecp 'Uti p 'Ncpi wci g<'C'Vgcej gt øu'T guqwt eg 'Vgzv'qp'I tco o ct 'cpf 'Ewnwt g. 'Utrkgt''
Urtkpi .'OF <'VUORwdrkuj gtu0

Dengt. 'O qpc' '3; ; 4+" Kp' Qvj gt' Y qtf u<" C'Eqwtugdqqm'qp' Vt cpurc vkqp. 'Nqpf qp' cpf 'P gy '[ qtm Tqwrgf i g0

ô ô \*3; ; 5+":Eqtr wu'Nkpi wkurkeu'cpf "Vtcpurcrkqp"Uwf kgu0Ko r necrkqpu'cpf 'Crrnecrkqpuø'kp'O qpc'Dcngt. 'I km'Htcpeku" cpf 'Grgpc''Vqi pkpk/Dqpgnk'\*gf u+:"Vgzv'cpf 'Vgej pqnqi { <Kp"J qpqwt "qh'Lqj p"Upenckt. 'Co uvgtf co <Lqj p'Dgplco kpu." 4556720

ô ô \*3; ; 7+":Eqtr qtc'lp"Vtcpurc\lqp"Uwf kgu<'Cp"Qxgtxkgy "cpf "Uqo g"Uwi i gurkqpu'hqt "Hwwtg'Tgugctej ø"Vct i gv'9\*4+<' 4456650

 $\hat{o} \hat{o} *3;; 8+"+Npi wkukeu"cpf "Ewnwtcn"Uwf kguKEqo r ngo gpvct { "qt"Eqo r gvkpi "Rctcf ki o u"kp" Vtcpurcvkqp"Uwf kguAz"kp" Ncwgt."I gt| { o kuej Ctdqi cuv."J cngt"cpf "Uvgkpgt" %gf u+:"; 63; 0 }$ 

ôô \*3;;9+"-Eqtrwu/dcugf" Vtcpurcvkqp" Uwwfkgu<" y g"Ej cmgpi gu'' y cv'Nkg'Cj gcfø'kp" J ctqnf" Uqo gtu'\* gf0+" Hguwejtkhv'hqt" Lwcp" Ucigt. 'Couvgtfco" cpf'Rjkrcfgnrjkc<" Iqjp" Dgplcokpu0

\*hqtyj eqo kpi +":Pqp/Eqi pkkxg"Eqpuvtckpvu"cpf "Kpvgtrtgvgt"Uvtcvgi kgu"kp"Rqrkxkecn"Kpvgtxkgy uø "kp"Mctrl"Uko u"\*gf 0+"

Vtcpurcvkpi "Ugpukxkxg"Vgzv."Co uvgtf co <Tqf qr k0

 $\label{lem:condition} Dengt.''Tqdgtv'I 0'Cpftgy 'F 0Nco dqwtpg'cpf'I w{ 'Tqy uvqp'*3}; : 6+'J \ cpf \ dqqm'hqt' Vgrgxkukqp''Uwdvkrgt u.''Y kpej guvgt<'' NDC''Gpi kpggtkpi 'F kxkukqp''cpf''Wpkxgtukv{ ''qh''Uqwj co r vqp0}$ 

 $Dcmgt.'O 0 cpf ''VP ccklmgpu'*3;; 3+"+C''Rquwetkr vc''Hcpu''qh''J qm guø''kp''xcp''Ngwxgp/\ y ctv'cpf ''P ccklmgpu'*gf u+.''3; 5642: 0$ 

Dcrc{."Ej tknqrj gt"cpf "O kej grlEw{r gtu"\*3; : 5+"Cwz"Uqwt egulf g"rc"Pqwxgng'Rgt ucpg. "Rctku<"Htgpej "Kourkwwg"qh" Kcpqmj {0

- ô ô \*3; 9: +":-Rgtgxqf "ncn'ivxqtej guvxqø"]Vtcpurcvkqp"cu'Etgcvkxkv{\_.":Dcdgn'i47\*5+0
- ô ô \*gf 0+\*3; : 6+" $Y kgnqlg/\{e/pq$  "rksgt c wt { 'k'r t qdrgo { ''r t / gn&c f w'c t v{ uv{ e/pgi q'}}}Rnwt krlpi wcrkuo ''kp''Nksgt c wt g''cpf ''y g'' Rt qdrgo u''qh''Nksgt ct { ''Vt c purc vkqp\_ ''Y t qe €y <'Quuq rkpgwo 0
- Derf kem 'E0\*3; : 5+"Vj g'Uqeken'O kuukqp"qh'Gpi nkuj 'Et kskekuo '3: 6: 63; 54. 'Qzhqtf <'Qzhqtf 'Wpkxgtuks{ ''Rtguu0

Derf kpk 'I edt kgrg'\*3; 87+'Ne 'hqt wpe 'f k'Uj engur get g. 'O krep<'KKUei i kevqt g0

Dcmcp. 'N0\*3; ; 4+":-Vtcpurcvkqp"Vqqnva"O gw '49"\*52+<'62: 6420

- ô ô \*3; ; 4+"Fg"Eke²tqp" «'Dgplcokp0Vtcf wevgwtu." \tcf wevkqpu." tghgzkqpu. "Nkmg<"Rtguugu" Wpkxgtukcktgu" fg" Nkmg0
- $\hat{o} \quad \hat{o} \quad \text{"gf 0+"3; }; 7+\text{"} \textit{Tgrc vkqpu'F kuewt ukxgu'gv'Vt cf we vkqp"} \quad \text{wf gu'f g'hc''Vt cf we vkqp+.''Nkmg<''Rt guugu''Wpkxgt ukscht gu'f g''Nkmg0}$
- Dengungt. "Cpe"\*3; ; 7+"::Vj g'Rqnkkeu'qh'F wddkpi 0'Ur ckp<'e'Ecug'Uwf {ø'kp'Rgvgt'Icpugp'\*gf 0+"Vt cpurc kqp"cpf "vj g" Ocpkr wrc kqp"qh'F kueqwt ug. "Ngwxgp<'EGVTC."vj g'Ngwxgp'Tgugctej 'Egpvgt'hqt'"Vtcpurc kqp. 'Eqo o wpkeckqp''cpf'' Ewnwt gu. '37; 6: 30
- $\label{lem:control_control_control_control} Dcpf kc. 'Rcwri'H0*3; ; 5+": Vtcpurcvkqp'cu'Ewrwtcri'Vtcpuhgt<'Gxkf gpeg'htqo 'Chtkecp'Etgcvkxg''Y tkkpi ø''VVT<'Vtcf wevkqp.'' \\ Vgto kpqrqi kg. 'Tgf cevkqp'8*4+0$
- Dcpp."Ugrjgp"\*3; 99+"K:p"J co knqp"Hkpr:{."Nqpfqp<"Ctwl"Eqwpekr0
- Dcppgv.'Gxg.''Vcxqt.'\*3; ; 5+":-Vj g.''Uegpg.''qh''Vtcpurc.\kqp.''ch\gt.''Lcmqduqp.''Dgplco \kp.'\f g.''O cp.''cpf.'\F gtt\kf c\\phi''Pgy.''N\kgt ct { '' } J \kaqt { ''46 < 7996}; 70
- Dcpvc ."C0\*3; 9: c+":Cpcnk c"\gz wnwk" k'\tcf wegtkrgø"]Vgz\v'Cpcn(uku'cpf "Vtcpurc\kqpu\_."*Uwf kk" k'egt egv t k'hkpi xkukeg*"4; \*5+\"563680
- ô ô \*3; 9: d+":C"Hgy 'Rgewrctkkgu'qh'Eqpugewkxg"Vtcpurcvkqpø'kp'COcpvc '\*gf 0+'Gpi nkuj ''cpf 'Eqpvt cunkxg'Uwf kgu."

  Dwej ctguv'Vbej ctguv'Wpkxgtuk{ ''Rtguu0
- ô ô \*3; : 4+"÷Cur gewi'qh'Cr r nkgf "Ugo cpvkeu<"hqt 'O qf gtpk kpi "Dknkpi wcn'F kevkqpctkguø". Tgxwg"Tqwo ckpg"f g"nkpi wkwks wg" 55∠43: 64: 0
- $\hat{o} \quad \hat{o} \quad \hat{s}'' \exists ; : 7 + \text{"$-$V$ tepure $kqp/q$ tkgpvgf''$ Vgz v'Cpcn(ukuVQVC \( \phi' Tgxwg' Tqwo \ ckpg' f g' Nkpi wkuks wg''crrrks \( w^2 g' 47 + 4 + 325 6380 \ )$
- ô ô \*3; : 9+":Tgrgxcpeg"qh"F {pco ke/eqpvgzwcrlCpcn{uku'vq"vj g"Vj gqt{"cpf "Kortqxgo gpv'qh"Vtcpurcvkqpuø0'Rcrgt" rtgugpvgf "cv'vj g"Ugeqpf "KUCRN"Eqpi tguu. "Mcuugn "Lwn{0
- $\hat{o} \hat{o} *3; :: + ": U \{pqp \{o u'kp''Vgto u'qh''Ngzkeqi tcrj \{'cpf''Vtcpurcvkqpux0'Wpr wdrkuj gf''o cpwuetkr v.''Wpkxgtukv \{''qh''Vko k qctc0 \}$
- $\hat{o} \quad \hat{o} \quad \hat{s}'' : ; + \text{"+C''Hgy 'J } \{ \text{r qyi gugu''qp''Vtcpurcygf''Rqgyt} \{ \text{\'e}'' T \text{gxwg'} T \text{qwo } c \text{kpg'f g'Nkpi wkwks wg''} 55'' \text{$^{4}$-$^{3}696930 } \}$
- ô ô cpf 'E00 cpgc'\*3; ; 2+":Rtqr gt'P co gu'cpf 'P kempco gu<br/>'Ej cmgpi gu'hqt''Vtcpurcvqtu'cpf 'Ngzkeqi tcr j gtuø'Tgxwg''<br/> $Tqwo\ ckpg'f\ g'Nkpi\ wkwks\ wg''56*5+<'3: 56; 80$
- ôô \*3;; 3+"::Cur gewi'qhi'yi g''Y qtf/Eqpvgzv'Tgrcvkqp<"Kortqxkpi 'U{pqp{oke'Qrvkqp'kp'yi g''Vtcpurcvkqp'Rtqeguwa'' Tcuugi pc'Kcnkcpc'fk'Nkpi wkukec'Crrnkecvc."45\*5+<":; ó; 50
- ô ô \*3; ; 5+":Rtqr gt"cpf "I gqi tcr j kecn'P co gu. "D{pco gu"cpf "Qyi gt"Ej cmgpi gu"vq"Vtcpurcvqtuø." "Tcuugi pc" Kenkepe" f k" Nkpi wkukec "Crrnkecve" 47" \*4+<636740
- ô ô \*3; ; 6+":P co gu. "P kempco gu'cpf "Vkurgu'kp" Vtcpurc klapø "Rgt ur gevkxgu <"Uwf kgu'kp" Vtcpurc vanai {"3<9; ó: 90
- Dctc e| cm"U0\*3; 96+":Rt| gm&f 'Icnq'ouco qknp{o"k" "zwipzeny" 'qdkgm/kpvgtrtgvcelk" pc"o cti kpgukg 'pkgm»t{ej 'r qnunkej " v&o ce| g 'I qwhtkgf c'Dgppc+ø"]Vj g"Vtcpurcvkqp"cu"c":Ugrh/uwhhkekgpvø'cpf ":Kpvgi tcvgf ø'Qdlgev'qh'Kpvgtrtgvcvkqp<'Uqo g" Rqnknj "Vtcpurcvkqpu"qh'I qwhtkgf "Dgpp\_."kp"I0Dcnxej "\*gf 0+\" '\sqrt kk'k'j knqt kk'rt | gm\f cf w'ct v\ uv\ e | pgi q"]Uwf kgu"kp"vj g" Vj gqt {"cpf "I knqt {"qh"Vtcpurcvkqp\_."Mtcnqy <'Y {f cy pkey q"Wpky gtu {vgw'Ici kgmq umkgi q0}
- ô ô \*3; ; 4+"Qecnqpg"y "View ce/gpkw"] Ucxgf 'f wtkpi 'vj g"Vtcpurckqp\_." Rq| pc <"Y {f cy pkew q0
- Dct/J kngn'[ 0\*3; 82+":-Vj g'Rtgugpv'Ucwu'qh'Cwqo cvle''Vtcpurcvlqp''qh'Ncpi wci guø''*Cf xcpegu'lp'Eqo rwgt u'* 3 < 363850 Dctkkw.'I 0\*3: 5: +":Erculeklø']Vj g'Erculeu\_."*Hqckg'rgpvt w'o kpvg'lpko ''uk'rkvgt cwst* ''3\*38+<'3640
- Dctmj wf ctqx. "NOU0\*3; 97+"[ $c/\{m'k'rgtgxqf'']$ Ncpi wci g''cpf "Vtcpurc\kqp\_.''O queqy <'O g| j f wpctqf p{g''qvpquj gpk{c0 Dctpuvqpg. 'Y 0\*3; : 6+":Rtghgtgpegu''kp''Vtcpurc\kpi ''Rqgvt{ $\alpha''$ kp''Htcy rg{ ''\*gf 0+'3; : 6c0
- ô ô \*3;; 5+"Vj g'Rqgvkeu'qh'Vt cpurc vkqp<"J kwqt {."Vj gqt {."Rt cevkeg."P gy "J cxgp"cpf "Nqpf qp<"[ crg"Wpkxgtukx{"Rt guw0 Dctpy gm"Mcyj ctkpg"\*3; 97+"Dkdrg"Vt cpurc vkqp<"Cp"Kpvt qf wevqt {"E qwt ug"kp"Dcuke"Vt cpurc vkqp"Rt kpekr rgu."Iqu."P ki gtkc<"P ki gtkc"Dkdrg"Vtcpurc vkqp"Vt ww0
- Dctqp."F gppku'\*3; ; 2+"Vj g'Gpi nkuj/qpn('S wgurkqp<'Cp'QllkekcnlNcpi wci g'hqt'Co gt kecpuA."P gy 'J cxgp<[ crg'Wpkxgtukv(" Rtguu0
- Dcttcw. 'C0\*gf 0+'3; ; 4+'Y qo gpou'Y the lift in 'lop'Olff rg'Gpi rhuj. 'Nqpf qp'cpf 'P gy '[ qtm\'Nqpi o cp0
- Detum(."Tqdgtv"H0\*3;;5+":-Vj g"Kpvgtrtgvgt"cpf 'vj g'Ecpcfkcp"Eqpxgpvkqp"Tghwi gg"J gctkpi ø"VVT<"

```
Vt cf wevkqp. 'Vgt o kpqrqi kg. 'Tgf cevkqp'8*4+<'3536790
```

 $\hat{o} \quad \hat{o} \quad \hat{s} \\ \text{?":-Vj g'Kpvgtr tgvgt'cu'Kpvgtewnwtcn'Ci gpv'kp'Eqpxgpvkqp'Tghwi gg'J gctkpi uø'' } \\ \text{?"} \\ \text{?"}$ 

Dctv.''KV'cpf ''UVT'' mqu'\*'gf u+'\*3; : 3+'C''o  $\tilde{A}$ lqtf  $\mathcal{N}''$  u''o c'']Nksgtct{''Vtcpurckqp''Vqf c{\_.'Dwf cr guv<'I qpf qrcv0}

Dctyj gu. 'T0\*3; 86+'Guucku'et kıks wgu. 'Rctku-'Ugwkn='tcpu0'cu'Et kıkecn'Guuc{u.'3; 94. 'Gxcpuvqp<'Pqtyj y guvgtp' Wpkxgtukv{" Rtguu0

Dctwej .'T0\*3; : 9+'Pqto u'qh'Ncpi wci g0Vj gqtgvkecn'cpf 'Rtcevkecn'Cur gevu.'Nqpf qp<'Nqpi o cp0

Detwej uqp. "Uj kttc" '3; ; 5+" Uct ko "xgmqt øko < 'vct dw'j c/mt køc 'uj gn'{ gj wf g'kvcn{c''dg/uj knj g'j c/t gpgucpu''] Dqqmu''cpf"

Tgcf gtu-Vj g'Tgcf kpi 'Kpvgtguvu'qh'Kcrkcp'Lgy u'cv'vj g'Erqug'qh'vj g'Tgpckuucpeg\_.'Tco cvI cp-Dct/Kcp'Wpkxgtukv{'Rtguu0 Dct {.'N0\*3; ; 3+":Quy crf 'f g'Cpf tcf gøu'õEcppklcrkuv'O cpkhguvqøö.''Ncvkp'Co gt kecp'Nkvgt ct { 'Tgxkgy .'3; \*5: +<576690

Dcueqo ."Y 0T0\*3; 86+":Hqmmqtg'Tgugctej 'kp'Chtkecø''Lqwtpcn'qh'Co gtkecp'Hqmmqtg."99\*525+346530

ô ô \*3; 87+":-Vj g'Hqto u''qh''Hqmmqtg<'Rtqug''P cttcvkxguø'''Lqwtpcn'qh'Co gtkecp''Hqmmqtg''9: \*529+<'8; 0

Dcuj co .'C0N0\*3; 89+"Vj g"Y qpf gt "Vj cv"y cu"Kpf kc."Nqpf qp<"Ukf i y kem'cpf "Icemuqp0

 $\label{eq:control_problem} Deutupgw. "Uwucp'\$3; : 213; ; 3+"Vt\ cpurc\ kqp''Uwf\ kgu. "Nqpf\ qp''cpf'\ P\ gy\ "I\ qtm\$Tqwrgf\ i\ g0".$ 

- $\hat{o} \quad \hat{o} \quad \text{``3'}; : 7 + \text{''-Dktlpi wcn'Rqgvt} \\ \{ < C' Ej \text{ kecpq'Rj gpqo gpqp} \\ \text{''} T gxkuxc' Ej \text{ kecpq/Tks wg'} \\ c' \text{''35*5} \\ \text{``66+<'359} \\ \text{``690}$
- ô ô \*3; ; 2+":-Vtcpurckpi 'hqt''y g''Vj gcvtg<'Vgzwcn'Eqo r rgzkklguø 'Guuc{u'kp'Rqgvkeu'37\*3+<'936: 60
- ô ô \*3;;5+"Eqorctcvkxg"Nkytcwtg. 'Nqpfqp<"Dreeny gm0
- ô ô \*gf 0+\*3; ; 6+'Etquu'Ewnwtcn'Vtcpulgtu<Y cty kemiY qtmkpi 'Rcrgtu'kp'Vtcpurcvkqp. 'Y cty kemiY Egpvtg'hqt'Dtkkuj ''cpf'' Eqo r ctcvkxg'Evnwtcn'Uwf kgu. '36320
- ô ô cpf 'Cpf t² 'Nghgxgtg' \*gf u+'\*3; ; 2+'Vt cpurc vkqp. ''J kwqt { ''cpf 'Ewnwt g. ''Nqpf qp''cpf ''P gy ''[ qtmc'Rkpvgt 'Rvdrkuj gtu0

DcuupgwO eI wktg. "Uwucp"\*3; : 3+":Vj g"Rtqdrgo u"qh"Vtcpurcvkpi "Vj gcvtg"Vgzvuø""Vj gcvtg"S wctvgtn("32\*62+"5966; 0 "50\*3; : 7+":Y c("50\*3) u"Vj tqwi j "yj g"Ncd(50\*3) u"Vj gcvtg"Vgzvuø" v gcvtg"Vgzvuø" v gcvtg"Vgzvuø" v gcvtg"Vgzvuø" v gcvtg"Vgzvuø" v gcvtg"Vgzvuø" v gcvtg" v gcvtg

Dcurlp."I gqti gu'\*3; ; 5+"::Nc'pqrlqp'f øcf cr vcrlqp"gp''rtcf werlqpø''O gw'5: \*5+<6956: 0

ô ô \*3; ; 8+"äVtcf wekt "q"cf cr wtA"Ectcecu<"Hapf q"Gf katkenlf g"ne "Hee0lf g"J wo cpkf cf gu"{ "Gf weeek»p."WEX0

Dcvgu. 'GUU'\*3; 65+"Kpvgt vt chlke <'Uwf kgu'kp"Vt cpurc vkqp. "Nqpf qp <'Iqpcvj cp'Ecr g0

 $\label{eq:condition} \mbox{Devguqp.'I 0*3; 9: +"$Ugru''q''cp'$Geqqqi {"qh'Okpf."} \mbox{Nqpf qp<"} Renefkp0}$ 

Dey i evg. 'TO 0\*3; : 2+":Uwf kgu'qh''Vtepurevkqp''O qf gnu''3<'Cp''Qr gtevkqpen'O qf gn'qh''yi g''Vtepurevkqp''Rtqeguuø ''Vj g'' Kpeqt rqt cvgf 'Nkpi wkw''3; \*6+<'3356360

Dewerke. "HO'cpf 'GUgnre/O c| K\*3; ; 6+"I nquuqnqi knk'Rt qugpi kuk'uk'Vj gqt ke 'ng'\k'F kf cmknk'\ku'O gver j t cuku'] Nkpi wkurke" Crrtqej ''vq''yj g''Vj gqt { "cpf ''Vgcej kpi ''qh''Vtcpurevkqp\_'Eqthw<'Kqpkcp''Wpkxgtukx{ 0

Dcwgt. "T0" O G g'I tccv'cpf 'IOY gtvj gko gt'\*gf u+'\*3; :: +'F cu'Uj cngur gct g/Dkf 'kp'Gwt qrc''| y kuej gp'Cwhm@wpi 'wpf'' Tqo cpvkm'Dgtp<'Rgvgt'Ncpi 0

Dewij. "CE0"gf 0+"3; 89+"C"Nkgtet{"I knqt{"qhGpi rcpf."4pf "gf p. "Nqpf qp<Tqwrgf i g"cpf "Mgi cp"Rcwr0

 $\label{eq:constraint} $$ Dc\{gt."I0$^*3; 2; +"U$ consurant getg" f t$^a o$^a j$ "j$ c$/^a poolep."KK]$ Vj g"F too cu"qh"Uj consurant getg" f p"qwt" Eqwpvt {\_."Dwf cr guv" Htcpmkp0} $$$ 

Dgcn''Uco wgn'\'3; 33+'pgy ''gf p.''Vj g''Nhg''qh'J kwgpwkgpi .''Nqpf qp<''Vtwdgt0

Dgcp. 'O 0\*3; ; 5+":Eqo r wgt/cuukungf 'F kengev'Cf er verkqp"y kij "e'O wnkf kengev'Vtcpurerkqp"Eqo o kwggø"*P qvgu"qp" Vt cpurerkqp* '9\*3+<"36: 0

Dgcvqp. 'T0\*3;; 6+'Cp'Kpvtqf wevkqp'\q'Oqf gtp'I tggmlNkytcvvtg.''Qzhqtf <'Enctgpf qp''Rtguu0

Dgcwlqwt.'Grk cdgyj 'Mrquv{ '\*3; : ; +"Crkgp'Vqpi wgu<'Dkrkpi wcrlTwurkcp'Y tkrgtu'qh'yj g''+Hktuwo'Go ki tcvkqp.'Kij cec<'Eqtpgm' Wpkxgtukv{ 'Rtguu0

Dggd{.'Crrkuqp'\*3;;7+":Fgrlo kkpi 'Fkhhkewnkgu'cpf 'Guvcdrkuj kpi 'Rtqi tguukqp'kp"Vgcej kpi "Vtcpurcvkqp'htqo 'Urcpkuj ''
\*C+'Ncpi wci g'vq'Gpi rkuj '\*D+'Ncpi wci gø'kp'O cuqp'cpf 'Rci pqwrg'\*gf u+0

ô ô \*3; ; 8+"*Vgcej kpi 'Rt qug'Vt cpurc kqp'lt qo 'Ur cpkuj ''\q'Gpi rkuj* .''Qwcy c<'Wpkxgtukv{ ''qh'Qwcy c''Rt guu0

Dggno cp. 'Lqj p''Cpf 'Lqj p'Ecmqy '\*3; 9613; : 8+"Vt cpurc v p'' q p'' q p'' q p'' p''

 $Dgldn m'Cnqku'*3; : 7+" : gun{*} "r gmcf { "J extepcø" ] E | gej "'tepure vlqpu''qh' : Vj g'Texgpø_." kp'Cnqku'' Dgldn m'' gf 0+" Gf i ct" Cncp'Rqg." J extep. "'Ngunp'' ev'\ gun{*} ev'\ gun{*} ej "r gmcf ." Rtei wg<" Qf gqp."; 67; 0$ 

Dgmmw."U0 $^{*}3$ ; ;  $6+^{!}P$  kj qp"pq"o gk"| wkj kuw'dgmmcp'67"J qp{cmw']Egrgdtcvgf 'Icr cpgug'Guuc{u'xqr0'67<'Vtcpurcvkqp\_." Vqm{q<'Ucmwj kpuj c0

 $\label{eq:continuity} Dgm'Tqi\ gt'*3; :: + "O\ qf\ gmlpi\ ''y \ g'Vtcpurcvlqp''Rtqegut<''C''O\ clqt''Vcum'hqt''Vtcpurcvlqp''Vj\ gqt{$\emptyset''lp''Rt\ qeggf\ lpi\ u''qh''} \\ Eqphgt\ gpeg''qp''Vt\ cpurcvlqp''Vqf\ c{\{}.''J\ qpi\ ''Mqpi\ 0''}$ 

- ô ô \*3; ; 3+"Vtcpurc kqp"cpf" Vtcpurc kpi <'Vj gqt {"cpf" Rtcekeg." Nqpf qp"cpf" P gy "[ qtm: Nqpi o cp0
- ô ô \*3; ; 7+"::Y j cv'f q''Vtcpurcvqtu''Vj kpm'cdqww''VtcpurcvkqpA''Kpxguvki cvkpi ''vj g''Cvkkwf gu''qh''Vtckpgg''Vtcpurcvqtuø''kp'' O cuqp''cpf ''Rci pqwng'\*gf u+0

Dgmqe."J 0\*3; 53+":Qp"Vtcpurc\kqp\@'\Vj g"\Vc{\mtkcp'\Ngewtg.\"Qz\hqtf\"Erctgpf\qp\"\Rtguu0

Dgo dq.'Rkgvtq'\*3; 53+'Rt qug'f gmc'xqni ct'hlpi wc.''Vwtkp<'WVGV0

```
Dgp/Uj cj ct. 'Tkpc'*3; ; 6+'':-Vtcpurc\kpi 'Nkgtct { 'F kcmi wg<'C'Rtqdrgo "cpf 'Ku'Ko r rkec\kqpu'hqt''Vtcpurc\kqp''kpvq'' J gdtgy \emptyset''Vcti g\emptyset'8*4+C'3; 764430
```

Dgpf cxkf .'Cddc'\*3; 8913; 93+"*Nguj qp'o knt c'wnguj qp'zczco ko* '']Dkdrkecn'J gdtgy ''cpf 'O kuj pcke''J gdtgy \_.'KKK''Vgn'' Cxkx<'F xkt0

Dgpgf kmuuqp. "IO\*3; : 5+" *J wi v³/mlqi 'j gksk'k'd»mo gppvchtò k*"] I muuct { ''qh' Vgto u'lsp' Nkgtct { ''Vj gqt { \_. 'Tg{ mlcxkm<"O a n'qi '' O gpplspi 0

Dgpi k'Kılp'\*3;; 3+":Vj g'Gnqs wgpv'O gf kcvqt<Cj o gf 'O kf j cv'Ghgpf kø'lp'F qwy g'Hqnmgo c'\*gf 0+."Rt qeggf kpi u''qh'vj g''
ZKKij 'Eqpi t guu''qh'vj g'Kpvgt/pcvkqpcn'Eqo rctcvkxg'Nkvgtcvwt g'Cuuqekcvkqp."xqn07"Urceg'cpf 'Dqwpf ct kgu."O wplej <'
Kuf lekwo "Xgtnci."5:: 6; 50

Dgplco kp. "Cpf tgy " $^3$ 3; : ; +" $^4$ Vt cpurc  $^4$ dp" cpf " $^4$ j  $^4$ g"  $^4$ C"  $^4$ gy " $^4$ Vj  $^4$ gdt  $^4$ gd

Dgplco kp."Y cnygt"\*3; 4513; 85+"÷F kg"Cwhi cdg"f gu"©dgtugv| gtuø' kp"U¾4ki "\*gf 0+"3: 46; 70

ô ô \*3; 4513; 8; +":-Vj g''Vcum'qh''y g''Vtcpurcvqt<'Cp''Kpvtqf wevkqp''vq''y g''Vtcpurcvkqp''qh'Dcwf grckt gøu''*Vcdngc wz 'Rct kukgpu*ø'' kp''Y cnygt 'Dgplco kp.''*Knwo kpc vkqpu* '\*\gf 0+'J cppcj 'Ctgpf v.''vtcpu0J ctt{'\qj p.'P gy '[qtnx'Uej qengp'Dqqmu.'8; 6: 40 ô ô \*3; 4513; 94+"::F kg'Cwhi cdg''f gu''©dgtugv| gtuø''kp''Y cnygt''Dgplco kp''*I guco o gnyg'Uej t khygp*.''xqn0'KX.''T0Vkgf go cpp'' cpf 'J Uej y gr r gpj @wugt''\gf u+.''xqn0'KX<'V0Tgztqyj.''Htcpnhwtv'co 'O ckp<'Uvj tnco r .''; 6430

Dgppgw. 'Cf tkcp'C0\*3;  $89+Lqj p'Ht \{gt < Vj g'Kpvt qf wevkqp''qh'Y guvgt p''Uekgpeg''cpf' Vgej pqrqi \{''kpvq'Pkpgvggpvj / egpwt \{''Ej kpc.' Uckstf < Uckstf 'Vpkgtukv 'Rtguu'0 \}$ 

Dgppgw.'RcwrlC0'T0NUqj puqp.'ILOO eP cwi j v.'ILOO 0Rwi j .'ILEOUci gt "cpf "J 0NUUqo gtu'\*3; : 8+"*O wrkhlpi wcrlTlopqt o cwlqp"* Rt qeguulpi .'Crf gtuj qv.'I qy gt0

Dgpuqp. 'Grk cdgy 'R0\*3; 95+'O guqco gt kecp 'Y t kkpi 'U wgo u 'Y cuj kpi vqp. 'F E <'F wo dct vqp 'Qcmu'T gugctej 'Nkdtct {0 Dgt gkyt. 'E O'cpf 'O OLectf co crkc'\*3; : 9+'V j g'Ru(ej qrqi { 'qh'Y t kvgp 'E qo r qukkqp. 'J kruf crg. 'P L <'Ncy t gpeg 'Gtrdcwo '' Cuuqekcyu0

Dgti gt. "C0"3; : 9+":Nc "tcf werkqp"gv"nøcf cr vcvkqp"c "nø tg"f gu"o cuu "o 2 f kcuø "Vt cf wkt g"355<366390

Dgti qp. "H0\"gf 0\"\"3; : ; +\"Vj g'Lqwtpcnu'qh\Ngy ku'cpf 'Entm'\"P gy '[\qtm\"Xkm\pi\ 0\"

Dgti qp| k'D0\*3; ; 2+"Gzrnqf kpi 'Gpi nkij <'Et kkekwo .'Vj gqt {.'Ewnwt g.''Qzhqtf <'Enctgpf qp''Rt gww0

Dgtm/Ugrki uqp. "Uwucp"\*3;; 2+"*Vj g'Dkrlipi wcn'Eqwt vt qqo <'Eqwt v'Kpvgt r t gvgt u'lip"\j g'Lwf kekcn'Rt qeguu.* "Ej keci q"cpf" Nqpf qp<'Wpkxgtuk\{ "qh'Ej keci q"Rt guu0

Dgto cp. "Cpvqlpg"\*3;: 6+"N+ rt gwxg'f g'np vtcpi gt. "Rctku<" f kkqpu"I cmko ctf = "tcpu0\*3;; 4+"d{ "UI g{xcgtv'cu"Vj g" Gzrgt kgpeg"qh'vj g"Hqt gki p < Ewnwt g"cpf "Vt cpurc kqp"kp"Tqo cpvke"I gto cp{. "Cmlcp{ < Uvcvg"Wpkxgtukx{ "qh"P gy "[ qtm0 ô \*3;: 7c+"+Nc" \tcf wevkqp"gv'nc" ngwt g. "qw'npcwdgti g"f w'nqkpvckpp "kp"Ngu"Vqwt u'f g"Dcdgn < Guucku'uwt 'nc 'vtcf wevkqp." O cwxg| kp < VtcpuGwtqr/Tgrtguu0

ô ô \*3; : 7d+":Nc"\tcf\twe\lqp"eqo\ o\ g'2\ r\ tgwxg"f\ g'\np\ \tcpi\ gt\appa\ "Vgz\vg"6\ 89\ o: 30

ô ô \*3; : 7e+"*Ngu"Vqwt u'f g"Dcdgn<"guuc ku"unt "nc"\st cf we vkqp*. "O cwxg| kp<"Vtcpu/Gwtqr/Tgr tguu0

ô ô \*3; : 8+":Etkks wg. "eqo o gpvcktg"gv'\tcf wevkqp0S wgns wgu'\t² hrgzkqpu'c"r ctvkt "f g"Dgplco kp"gv'f g"Dncpej qvø" \Rq^2 ukg" 59 \\ \*4+\\:: : 63280

Dgto cp. 'T0\*3; 9: +"::Rquvr qpkpi 'Ngzkecn'Tgr gvkkqp"cpf 'vj g'Nkngô C''Uwf { 'kp'Eqpvtcuvkxg''Uv{ rkuvkeuø'' $Dcnij\ cpw''$  U ko  $wij\ k$ '3\*4+0

Dgtpcueqpg. 'Tquugmc'\*3;; 6+"CDE'f gmc''\tcf w/kqpg''\tgwgtctkc.''\V\ttgpkc''\V\ttgpkc''\U\corc\qt\l0

Dgtuej kp. "Y 0\*3; :: +"I tggn!Ngwgtu"cpf "\ij g"Ncvkp"O kff ng"Ci gu"ktqo "Igtqo g"\q"Pkej qncu"qh!Ewuc. "\tcpu0Igtqnf "E0 Htcngtu."Y cuj kpi vqp<"Ecyj qnke"Wpkxgtuk\{ "qh"Co gtkec0

Dgwyri gko . 'D0\*3; : 5+'Ht gwf 'cpf 'O cp $\phi$ u'Uqwn 'P gy '[ qtmcCrht gf 'Mpqr h0

Di q{c."Y 0\%3; : 9+"::Dqqmu"cpf "\yi gkt 'Tgcf kpi '\kp"\Vcp| cpkc0\WP GUEQ 'Uwf kgu"qp 'Dqqmu"cpf 'Tgcf kpi u\\\\\' 4466530

Dj cdj c."J qo k"3;; 6+"Vj g"Nqec kqp"qhEwnwt g."P gy "[ qtmkTqwngf i g0

ô ô cpf "Iqpcyi cp" Twj gthqtf "\*3;; 2+"÷Vj g"Vj ktf "Ur ceg<"Kpvgtxkgy "y ktj "J qo k"Dj cdj cø' kp" Iqpcyi cp" Twj gthqtf "\*gf 0+"

\*\*If gpvk/{ <Eqo o wpk/. 'Evnwtg. "F kthgt gpeg. "Nqpf qp<"Ncy tgpeg" cpf "Y ktj ctv0

Dkmpi vqp. 'O 0\*3; : 6+"::Xkmckpu'qh'yj g'Rkgegø''I wctfkcp."; "P qxgo dgt0

Dkppu."IOY 0\*3; ; 2+"Kpvgmgewcn'Evnwt g'kp"Grk\| cdgvj cp"cpf "Lceqdgcp"Gpi ncpf <'Vj g'Ncvkp"Y tkgtu'qh'vj g'Ci g."Nggf u<'
Htcpeku"Ecktcu0

Dktpdcwo.'Grgc| ct'\3;; 2+"::Qp'Uqo g'Kpvgtrkpgct''Vtcpurcvkqpu''qh'vj g'Mqtcpø'kp''Lqwtpcn'qh'Vwtmkuj ''Uwfkgu.''xqn036.''
Hcj kt''K''Hguwej tkh'K''gf 01 wpc{''Mw''cpf''I qpwn'COvgmkp.'3356450

Dktqp."J 0\*3; 8; +":I qf ghtq{"f g"Xkgwzr qpv."Lqugr j ø."*F kevkqpct{"qh'Ecpcf kcp"Dkqi tcr j {*."xqr0**'kK**"Vqtqpvq<"Wpkxgtukv{"qh" Vqtqpvq"Rtguu0

Dl³/4mo cp. 'O 0\\*3; ; 4+'N\@ $ctpcu'p^3/4g0Mqo\ o\ gtukgmc\ 'h^2\ pdkdnkqvgmlk'Uqemj\ qno\ '39: <math>5ó3:2$ ; ']Vj g'Iq{ ''qh'Tgcf kpi 0'

Ektewrcykpi "Nkdtctkgu'kp"Uqenj qm '39: 563: 2; \_."Wr r ucrc<"Cxf grpkpi gp'hqt"rkwgtcwtuqekqrqi k'xkf"

Nkvgtcwtxgvgpuncr nki c'kpurkwkqpgp0

Drocuej ."Y 0'RŒj ckz"cpf 'CO croo cj /Vj qo cu'\*gf u+'\*3; ; 3+'Vt kcpi rg'32<'Vj g'Tqrg'qh'Vt cpurc/vkqp'kp'Hqt gki p''
Ncpi wci g'Vgcej kpi '\*Rtqeggf kpi u'qh'vj g''Vgpvj 'Dtkkuj 'Eqwpeknl'I qgvj g''Kpurkswg1''Gpu/Etgf kh''Vtkcpi rg'Eqrnqs wkwo +."
Rctku<'F kf kgt0

Drcem'IOM0\*3; 99+'Wpksgf 'Ucvgu'Rgpgvtcvkqp''qllDtc/kn''Ocpej guvgt<'Ocpej guvgt''Wpkxgtukv{ ''Rtguu0

Drei c.'N0\*3; 79+":Ewo "co "\tef wu'r g"Hewuyo"]J qy "KVtepurevgf "Hewuy\_"."Uge we "7.": 76; 20

Drepej qv. 'O 0\*3; 93+":-Vtcf wkt gø 'kp"NøCo kk². ''Retkı<'I enko etf = '\tepu0Tkej etf ''Ukgdwt yi ''cu'':-Vtepure kpi ø ''Uknhwt''48 \*3; ; 2+ $^{\circ}$ . 4680

Drew. 'C0'MJ (Higki cpi . 'MF (Uej o k\) 'cpf 'I 0'Vj qo g'\\$3; :  $7+Eqo\ rwgt\ 'wpf\ 'Odgt\ ugv\ gp0Gkpg'Gkph\~Aj\ twpi$  . 'J krf guj gko <' I gqti 'Qro u'Xgtrei 0

Drkpp.'J 0\*gf 0+'\*3;; 5+"Vj g'I gto cp"Uj cngur gct g0Cp"Cppqvcvgf 'Dkdrkqi t cr j { "qh'vj g'Uj cngur gct g'T gegr vkqp 'kp'I gto cp/ur gcnkpi 'Eqwpvt kgu.'Dgtrkp<'Gtkej 'Uej o kf v0

Dmqo .'C0\*3; : 3+"Vj g"Nkpi wkake"Uj crkpi "qhlVj qwi j v<C"Uwf { "kp"\j g"Ko rcev'qhlNcpi wci g'kp"Ej kpc"cpf "\j g"Y guv."
Ncy tgpeg'Gtnlcwo 'Cuuqekcygu0

 $\hat{o} \quad \hat{o} \quad \text{``3'}; : 8 + \text{``+U'} \text{Lhw''qh''Eqj gulqp''cpf 'Eqj gtgpeg''lp''Vtcpurc'lqp@''lp''J qwug''cpf ''Dnwo /Mwmc'''gfu+ \text{''39}6570 }$ 

ô ô cpf 'Gf f kg'C0Ngxgpuvqp'\*3; : 5+":-Wpkxgtucm'qh'Ngzkecn'Ulo r nkhlecvkqpø'kp'Encwu'Hcgtej 'cpf 'I cdtkgrg'Mcur gt'\*gf u+" *Utt c vgi kgu'kp'Kovgt rcpi wci g'Eqo o wpkecvkqp*. "Nqpf qp'cpf 'P gy '[qtm

Dn{. 'Tqdgtv'\*3; : 6+":-Vj g''Gki j v''Uvci gu''qh''Vtcpurcvkqpø''kp''Htcy rg{ ''\*gf 0+'3; : 6c0

Dqcug/Dgkgt. 'Igcp'\*3;; 6+":-Vtcpurckpi 'Tgr gkkkqpø''Lqwtpcn'qh'Gwtqrgcp''Uwfkgu'ZZKX<'6256; 0

 $\hat{o} \quad \hat{o} \quad \hat{s}'' ; 7 + \text{``-Vtcpurc kqp''cpf''Rqgke''UV{ ng\'a''O qf gtp''Rqgkt{''kp''Vtcpurc kqp''8''*Y kpygt''3; ; 66; 7+0 }$ 

Dqksgv. 'E0\*3; ; 5+''-Nc'VCQ''eqo o g''vgej pqmi kg''uekgpvktks wg<'ng''ecu''f g''nc''vtcf wevkqp''cwqo cvks wg''hqpf² g''uwt''ng'' f kcmi wgø''kp''RDqwkmqp''cpf' 'C0Encu'\*gf u+''Nc''Vtcf wevks wg<'' wf gu''gv't gej gt ej gu'f g''vtcf wevkqp''rct''qtf kpc vgwt.'' O qpvt gcn\central Ngu''Rt guugu''f g''nø\byks gtuk\$\central T g'O qpvt² cnO

Dqnv."T0"O (Htc{p."E0 corvqp."URko qqv."I0Uco u"cpf "V0Y gtvgpdcngt"\*3; : ; +"Rnv.hqto "Rcrgtu."30Vtcpurc.hqp."
Nqpfqp<Tq{cn'P cvkqpcn'Vj gcvtg0

 $\label{eq:control_policy} Dqtf gpcxg. "O \times 3; ; 2+": Ucvg "qh'vj g' Ctv'kp'' Vtcpurcvkqp'' Vgcej kpi "cpf' Tgugctej 'kp'' Dtc| km²'' O gw'' 57*5+ <'765670$ 

Dqti gu. 'Lqti g'Nwku'\*3; 6613; 98+"*Hkeekqpgu*. ''gf 0I qtf qp'Dtqyj gtuvqp''cpf 'Rgvgt''J wro g. 'Nqpf qp<'J cttcr 0

ô ô \*3; 86+":Rkgttg'O gpctf.'Cwj qt'qh'y g'S wkzqvgø''vtcpu0Ico gu'GOKd{.'kp'Fqpcnf'C0[cvgu'cpf'Ico gu'GOKd{'\*gfu+" Ncd{tkpyj u<'Ugrgevgf''Uqtkgu'cpf''Qyj gt'Y tkkpj u.''P gy '[qtm'P gy 'Fktgevkqpu.'586660

Dqtqy {."Y 0\*3; 74+"*Umf kc 'k't q/rt cy {*"]*Umf kgu'cpf 'F knugt vc kqpu\_.*"xqnu'364."Y tqe€y <'Qunqrkpgwo 0

 $D^3/tuej$ . ' $U0^3/3$ ; : 8+": Kpvt qur gevkx g'O gyj qf u'kp'T gugctej "qp''Kpvgtrkpi wcn'cpf ''Kpvgtewnwtcn'Eqo o wpkecvkqpø''kp''J qwug''cpf ''Dnwo /Mwnrc''\*gf u+0

Dqy gp. "F cxkf" cpf "O cti ctgvc" Dqy gp"  $\$  gf u+" 3; ; 2+"  $\$  fvygtrt gykpi  $\$  gwygtf c{." Vqf c{." cpf" Vqo qtt qy}." Dkpi j co vqp. "P [  $\$  Uvcy" Wpkxgtuk \" qh "P gy" [ qtm 'c v' Dkpi j co vqp0

Dqy gp. 'O cti ctgvc'\*3; ; 6+":P gi qvkcvkqpu'vq'Gpf 'vj g'Ur cpkuj /Co gtkecp''Y ctø'kp''Upgm/J qtpd{.'R%ej j cengt'cpf 'Mckpf n' \*gf u+: '956: 30

Dtceg. "E0"3;; 6+":-Vj g"Hopkij "Hqto wrcø" "Ncpi wci g"Kpf wut { "O qpkqt" 43.3680"

Dtcf hqtf ."Y 0\*3; 74+"*Qh'Rn(o qwj ''Rrcpwcvkqp.''384263869*."gf 0'Uco wgrl'Grkqv'O qttkuqp."P gy "[ qtmx'O qf gtp''Nkdtct{0} Dtcf pgt.'Ngkeguvgt'\*3; 62+"*O wuc g'Cpi rkecpc g.''C"J kwqt { "qh'Cpi rq/Ncvkp"r qgvt { .'372263; 47.*"P gy "[ qtmx'O qf gtp" Ncpi wci g'Cuuqekcvkqp"qh'Co gtkec0

Dtcpf."E(R0\*3; 79+"Kcnf"cpf "ij g'Gpi nluj 'Tqo cpvkeu<'Vj g'Kcnkcpcvg'Hcuj kqp'kp'Gctnf 'Pkpgvggpvj/egpwt{'Gpi ncpf."

Eco dtlf i g<'Eco dtlf i g'Wpkxgtukvf 'Rtguu0

Dtgkkpi gt."I $\Omega$ 0\*396213; 88+"::Xqp"f gt "Mwpuv"f gt "©dgtugv" wpi ø'kp"I $\Omega$ 0tgkkpi gt"Etkkwej g"Fkej wwpuw"4"xqnı."Uwwi ctv" O gv ngtuej g"Xgtnci udwej j cpf nwpi ."3586; ; 0

Dtgppcp."O 0%3;; 6+"-Etquu/gzco kpkpi 'Ej krf tgp"kp'Etko kpcn'Eqwtv<Ej krf "Y grhctg"wpf gt'Cwcenø 'kp'Iqj p'I kddqpu" \*gf 0+"Ncpi wci g"cpf 'Vj g'Ncy ."U{f pg{<Nqpi o cp0

ô ô cpf 'F (Dtkgp'\*3; ; 7+":Eqwtug'Rtqhkrg<'O C 1'Cf xcpegf 'F kr mo c'kp'DUN1Gpi nkuj 'Kpvgtr tgvkpi ø''Vj g'Vtcpurc vqt '3\*3+<' 33364: 0

Dtkengt."Xkevqtkc"T0\*3;::+"Grkitcrj{."Cwunkp<"Wpkxgtukn{"qh"Vgzcu"Rtguu0"Uwrrngogpv"vq"vjg"Jcpfdqqm"qh"Okffng" Cogtkecp"Kpfkcpu."xqn060

Dt kgugo gkuyt. "F kgvt kej '\*3; : 7+":Htcp| ¾ukuej g'Nkgtcwt 'kp'pgwrcyslpkuej gp'©dgtug√ wpi gpø'kp'T0Lej qgem'\*gf 0+"Cevc" Eqpxgpwu'pgqrcvkpk'Dqpqpkgpuku. "Dkpi j co vqp. "P [ <'O gf kgxcn'cpf 'Tgpckuucpeg'Vgzwi'cpf 'Uwf kgu. '427ó370

Dtkurkp. 'Tkej ctf 'Y 0\*gf 0+'\*3; 98+'Vtcpurcvkqp<'Crrrkecvkqpu'cpf 'Tgugctej.'Pgy 'I qtm'I ctf pgt 'Rtguu0

Dtkugy. 'C0\*3; : 8+"-Vej gnj qx "gp 'Cdkkdk "Dtgej v'dcprkgwuctf 0'Gv'ng"s w² d² eqku'f gxkgpv'ncpi wg 'rkw² tckt gø "Ekt ewk/'34<320

ô ô \*3; : ; +":Kp"Ugctej "qh'c"Vcti gv"Ncpi wci gø "Vcti gv'3\*3+<'326490

ô ô \*3; ;  $2+"Uqekqetkks wg"fg"nc"vtcf wevkqp < Vj^2 ¬vtg"gv"cn²tk²"cw'S wgdge"*3; 8: 63; : : + 'O qpvtgcn<'Ng"Rt² co dwrg1 Dcn ce0$ 

ô ô \*3; ; 8+"C"Uqekqet kks wg"qh"Vt cpurc kqp"Vj gc vt g"cpf "Cngt k\{ 'kp"S wgdge. "Vqtqpvq<"Wpkxgtuk\{ "qh"Vqtqpvq"Rtguu0 Dtkkuj "P cvkqpcn"Eqtr wu"\\$3; ; 7+"Wugt "Tghgt gpeg"I wlf g<"Xgt ulqp"3Q. "Qzhqtf "Vpkxgtuk\{ "Eqo r wkpi "Ugtxkegu0 Dtqem"Ugdcuvkcp"\\$3; 9; +":Cur gevu"qh"Vtcpurc kqp"Vgej pls wg"kp"Cpvks wkv\{ \alpha "I \text{ t ggm"Tqo cp. "cpf" 'D\{ / cpvkpg"Uwf kgu" 42-8; \alpha: 90

Dtqqo j cm'O ctuj cm'\3; 99+\"Vj g'Dkdrg'\kp'Ej kpc.\"Ucp\"Htcpekueq<"Ej kpgug'O cvgt\kcnu\"Egpvgt\"Kpe0

Dtqyj gtuvqp.'I qtf qp'\*3; ; 4+'Dqqm'qh'vj g'Hqwt vj 'Y qtrf 0Tgcf kpi 'vj g'Pcvkxg'Co gt kecu'vj t qwi j 'vj gkt 'Nkvgt cwst g.'' Eco dtkf i g'Eco dtkf i g'Eco

 $Dtqy \ gt."T0C0"gf0""3;7;13;88+"Qp"Vtcpurcvkqp."Eco \ dtkfi \ g."OC\ C\ C\ ctxctf" \ Wpkxgtukx{"Rtguu1P gy"[ \ qtm:\ Qzhqtf" \ Wpkxgtukx{"Rtguu0}$ 

ô ô \*3; 96+"*Okt qt "qp" Okt qt <'Vt cpurc vkqp. "Ko kx vkqp. "Rct qf {*."Eco dtkf i g. "O C <'Wpkx gtukv{ "Rt guu0

Dtqy p. "R0" ILE qeng. "UF gnc" Rkgvtc. "XILF gnc" Rkgvtc. "HI gnkpgm" ILF (Nchhgt  $\sqrt{ . T0.00}$  gtegt "cpf "RUUT qquukp" 3; ; 2+":C" Ucvkn/kecn Crrtqcej "vq" O cej kpg "Vtcpurcvkqpø" Eqor www.kqpcn/Nkpi wkw.keu 38-9; 6: 70

Dtqy p.'T0'cpf 'C0 km cp'\*3; 82+":-Vj g'Rtqpqwpu'qh'Rqy gt''cpf 'Uqrkf ctkx{ \( \phi \) 'kp'L0Ncxgt''cpf 'U0 wej guqp'\*gf u+" \( Eqo \) o wpkecvkqp'kp'Hceg''wq'Hceg''Kpvgt cevkqp.''J cto qpf uy qtyj < Rgpi wkp0

Dtqy p. 'Tkej ctf '\*3; ; 4+":Dqi 'Rqgo u'cpf 'Dqqn'Rqgo u<br/>F qwdngpguu. 'Ugrh' vtcpurcvkqp. 'cpf 'Rwp'kp'Ugco wu'J gcpg{ "cpf "Rwr'O wrf qqpø'kp'P gkri<br/>Eqteqtcp'\*gf 0+"Vj g'Ej qugp'I tqwpf <'Guuc{u'qp''yj g'Eqpvgo rqtct{'Rqgvt{'qh'Pqtvj gtp'Ktgrcpf.}"} Dtkf i gpf <'Ugtgp. '3936: : 0

Dtqy p."U0\*3;; 5+":Ceeguu'\q"Lwukeg<'Vj g'Tqrg"qh'\j g"Kpvgtr tgvgtø"Lwf kekcn'Qllkegt u'Dwngvkp''7\*5+<'3963: 0

Dtqy pg. 'GU 0\*3; 2; 646+''Vj g'Nkgt ct { 'J kwqt { 'qhlRgt ukc' \*6'xqn+. 'Eco dtkf i g'cpf 'Nqpf qp<'Eco dtkf i g'Wpkxgtukx{ 'Rtguu0 Dtqy pkpi . 'T0\*3; 8; +'O gf kgxcn'cpf 'O qf gtp'I t ggm'Nqpf qp<'J wej kpuqp'Wpkxgtukx{ 'Nkdtct { 0

Dtweg."HIHO\*3; 92+"Vj g'Gpi rkuj 'DkdrgOC"J kwqt{''qhVtcpurcvkqpu'htqo ''\j g'Gctrkgw'Xgtukqpu'\q''\j g'Pgy ''Gpi rkuj 'Dkdrg." Pgy '[qtm\"Qzhqtf 'Wpkxgtuk\{'RtguuO

ô ô \*3; 9; +"*J kwqt { "qll\j g"Dkdrg"kp "Gpi rkij* . "Nqpf qp<"Nwwgty qtyj "Rtguu0

Dtwpk 'Ngqpctf q'\*3; : 9+":Qp"vj g'Eqttgev'Y c{ "vq"Vtcpurcvgø"kp"I qtf qp"I tkhkvj u. "Ico gu'J cpnkpu"cpf "F cxkf "Vj qo r uqp" \*tcpu0cpf "gf u+"Vj g"J wo cpkuo "qhNgqpctf q'Dtwpk<'Ugrgevgf "Vgzwu"Dkpi j co vqp. "P [ <"Egpvgt"hqt"O gf kgxcn"cpf 'Gctn{ "Tgpckuucpeg"Uwxf kgu. "43864; 0

Dtwuu."G0\%3; 99+":\Vj g"I co g"qh"\Nkgtcwtg"cpf "uqo g"\Nkgtct{"I co guø"\Pgy "\Nkgtct{"J knqt{"; \*3+\\congress\*3756940}}
Dt{cpv."Y (\C0\%tcpu0+\%3: 98+\"\Vj g"\Rkcf"q\"J qo gt.\"\Dquvqp\\congress\*\OTO\Qui qqf 0

DU'588; '\*3; 85+'Tgeqo o gpf cvkqpu'hqt 'vj g'Ugngevkqp.'Hqt o cvkqp''cpf 'F ghkpkkqp''qh'Vgej pkecn'Vgt o u 'Nqpf qp<'Dtkkuj "Ucpf ctf u'Kpurkswsg0

Dwej o cpp. 'D0\*3; : 9+'': Gctn{ 'J kuvqt { ''qh''O cej kpg''Vtcpurcvkqpø''kp''O 0Mkpi '\*gf 0+'O 0Cej kpg''Vtcpurcvkqp''Vqf 0C 0Cej kpg''Vtcpurcvkqp''Vqf 0Cej kpg''Vtcpurcvkqp

Dwf i g. "G0C0Y cmku"\*3: ; 713; 89+"Vj g"Dqqm"qh"Vj g"F gcf 0Vj g"Rcr{twu"qh"Cpk"P gy "[ qtm"F qxgt0

DÃj ngt."J krf gi wpf '\*gf 0+'\*3; : 7+"Vtcpurc vqt u''cpf 'vj gkt 'Rqukskqp''kp''Uqekgv(<'Rt qeggf kpi u''qh'vj g''Zvj 'Y qt rf 'Eqpi t guu''qh'' HKV. 'Xkgppc<'Y knj gno 'Dtcwo Ãngt0

DÃj ngt. "Mctn"\*3; 56+"*Urtcej vj gqtkg<Fkg"Fctuvgnwpi ulwpmkqp"f gt "Urtcej g.* "Igpc<I O'Hwej gt0

Dwo ng. '10%3; 89+''F kg't qo c pkuej f gwuej gp 'Nkygt c wut dg/ kgj wpi gp 'ko 'O kwgrc ngt 0Gkp' $\odot$ dgt drkem''J gkf grdgti <Ectri' Y kpvgt0

cn'Dwpf s.' Muhammad 'Salih '\*3; : 5+'Cn'O wwcuj tks wp''y c''\ctlco cv''cn'S wt\phi p''cn'Mct o '']Vj g''Qtkgp\cnkuu''cpf ''y g'' Vtcpurc\kqp''qh''y g''J qn( ''S wt\phi p\_\_''Dgktw\c'Fct''cn'Ch s ''cn'Lcf fc0

Dwti g. "V{ ngt "\*3; 9: +":-Ugrh/Tghgtgpeg"cpf "Vtcpurc\lqp\@'\lp"I wgp\j pgt "cpf "I wgp\j pgt/Tgwwgt "\gf u+: "359\6750

Dwtng. 'Mgppgy' '\*3; 98+":Cdqxg'y g'Qxgt/vqy gtkpi 'Dcddrgø' 'O kej ki cp'S wct vgt n('Tgxkgy '37<: : 63240

 $\label{eq:continuity} \text{Dwtpgw.'Ej ctrgu'UH0*3}; :; + \text{``-Vtcpurc vqpu'cpf''Vtcpurc vqtu.''Y guvgtp''Gwtqr gcp@'lp''Iqugr j''T0'Uvtc{gt.'*gf 0+ Fkevkqpct{''}} \\ \text{qll'ij g'Okf rg'Ci gu.''xqr034.'P gy ''[ qtm*Uetkdpgt@u0}$ 

 $\hat{o}$   $\hat{o}$  \*gf 0+'\*3; 88+'C'F qewo gpvct{''J kwqt{''qh'Dtc/kn''P gy ''[ qtm\ck'Mpqr h0

 $\label{eq:linear_control_co$ 

Dw| | qpk 'O cteq'\*3; ; 5+":Ur tcej r j knquqr j kuej g'wpf 'o gyj qf qnqi kuej g'Rtqdrgo g'f gt '©dgtugv| wpi 'cwu'r gtuqpcrkurkuej gt" Ukej vø'hp''Htcpm'O ccuu. 'Rcwrlcpf 'Vwtm'\*gf u+'446790

Ecdt<sup>2</sup>. "O Ovgt guc" "3; ; 5+" "Nc" 'vgt o kpqnqi \( \) "Ovgqt \( \) ". "o gvqf qnqi \( \) ". "crnkecekqpgu." "tcpuOhtqo "Ecvcncp" d\( \) "Ectnqu" Vgd<sup>2</sup>." Dctegnpc \( \) "Gf kqtkcn" Cpv tvkf c1" Go r AtkguO

Eckmku.'T0\*3; 89+'Ngu'lgwz 'gv'rgu'j qo o gu.'Rctku<'I cmko ctf 0

Ecmqy ."Mcyi nggp"\*3; 96+"F kueqwt ug"Eqpulf gt c kqpu"kp"Vt cpurc kpi "yj g"Y qtf"qhI qf ."O kej ki cp</ qpf gtxcp"Rwdrkuj kpi 0

Ecm qp. "R0"3; 7; +" J ku \* tkc" f q" Dt cukn" Tkq" f g" Lcpgktq <" Qn (o r kq0)

Ecn>i gtcu. "L(RO\%3; 85+'\C'\I) knqt { "qh\Dt c/kn' \R0C0\O ct\kp'\%\tcpu\0'cpf \"gf 0\\."\3uv'r wd0\kp'\3; 5; .\"\3uv't gkuuwg. \"P gy \"[ qtm\c\"T wuugn'cpf \"T wuugn\0'cpf \"T wuugn\0'c

Eco dt lf i g"I kwqt { "qh'ly g 'Dkdrg" \*3; 83+. "Eco dt lf i g 'Eco dt lf i g 'Wpkxgtukx{ "Rtguu0

 $Eco \ kpj \ c. \ "R0X0"3; \ 88+" \div Vj \ g'Ngwgt \ "qh'Rgtq''Xc| \ "f \ g'Eco \ kpj \ cø'' \ "tcpu0GDDDwtpu." \ "kp''Dwtpu'' \ "gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ '426; \ 0 \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ gf \ 0+. \ "tcpu0GDDwtpu." \ "kp''Dwtpu''' \ "tcpu0GDwtpu." \ "kp''Dwtpu''' \ "tcpu0GDwtpu." \ "tcpu0GDwtpu0GDwtpu." \ "tcpu0GDwtpu0GDwtpu." \ "tcpu0GDwtpu0GDwtpu0GDwtpu0GDwtpu0GDwtpu0GDwtpu0GDwtpu0GDwt$ 

Eco r dgm 'C0f g''U0\%3; : 6+":-Vtcf wqtgu'r Àdrkequ'g'\tcf w±; gu'l\wtco gpvcf cu'pq''Dtcukrø'kp''Y 00 0\Rqt\kpj q'\%gf 0+'C''  $vtcf w\pm^{-}q'v^{2}epkec''g''ugwu''r tqdrgo cu.''U'q''Rcwrq<'Gf kqtc''f rco q.''3296680$ 

 $Eco\ r\ dgm'IOCO''3;\ ;\ 5+"+E\ wnwtg''cpf''K\ gqmi\ \{''kp''j\ g''Vtcpurc\ kqp''qh''Rqgvt\{ \alpha''kp''I\ co\ dkgt''cpf''Vqo\ o\ qrc'''gf\ u+O'' qr''' qr''' qr''' qr''' qr''' qr''' qr''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''''' qr'''' qr''' qr''' qr'''' qr''''' qr''' qr'''' qr''' qr'''' qr'''' qr'''' qr'''' qr''' qr''' qr'''' qr'''' qr''' qr''' qr''' qr''' qr''' qr''' qr''' qr'''' qr''''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''' qr'''''' qr''' qr''' qr'''' qr'''' qr'''' qr'''' qr'''' qr''' qr'''''$ 

Eco r qu. 'Cwi wuxq'f g'\*3; 9; +'Xgt uq. 't gxgt uq. 'eqpvt qxgt uq. 'U q'Rcwq<'Gf kqtc'Rgtur gevkxc0

- ô ô \*3; : 8+"Q"cpvket ¶keq. "U q"Rcwrq<"Eqo r cpj kc"f cu"Ngvtcu0
- ô ô cpf 'J ctqrf q'f g'Eco r qu'\*3; 92+"Rcpqtco c'f g'Hlppgi cpu'Y cng. "U q'Rcwrq<"Gf kqtc'Rgtur gevkxc0
- $\hat{o} \quad \hat{o} \quad \text{."F gelq'Rki pcvctk'J ctqnf q'f g'Eco r qu."Lqu²' 'Nkpq'I twpgy cnf ."Tqpcnf q'C| gtgf q'*3; 84+"F q''xgtuq''c''r qgukc'' eqpet gwc."U q'Rcwnq<0 cuu q'Qpj q'*P qki cpf tgu''pqu07+0 }$

Eco r qu." I ctqnf q'f g'\*3; 94+":C"r q² wec'f c'wtcf w± qø'kp" I (f g'Eco r qu'\*gf 0+'C"ctvg"pq"j qtk|qpvg"f q"rtqx" xgn" U q" Rcwnq<Gf kqtc'Rgtur gevkxc0

- ô ô \*3; 98c+":Fc"\tcf w±q"eqo q"etkc±q"g"eqo q"et¶\kecø"\p"J ff g"Eco r qu"\gf 0+"O g\ckrhpi w\ci go ."U q"Rc\ckrq\c\Gf k\qtc"
  Evnt kz0
- ô ô \*3; 98d+' $C''qrgtc \pm q'fq''yzvq$ . 'U q'Rcwq<'Gf kqtc''Rgtur gevkxc0
- $\hat{o}$   $\hat{o}$  \*3; : 3+"F gwu''g''q'f kc dq'pq'Hc wuvq'f g'I qgvj g."U q"Rcwrq<"Gf kvqtc"Rgtur gevkxc0

Ecpcıg. 'O 0\*3; : 5+'':Htqo 'Eqo o wpłecvkzg'Eqo r gwgpeg'\q'Eqo o wpłecvkzg'Ncpi wci g'Rgf ci qi  $\{\emptyset'\$  'lp'L0Tlej ctf u'cpf 'T0 Uej o lf v'\*gf u+''Ncpi wci g'cpf 'Eqo o wpłecvkqp.' Nqpi o cp0

Ecphlenf.'I OY 0\signig: 5+"Uctcj 'Y kppgo weec 'qh'yj g'Pqtyj gtp'Rckwgu.'Pqto cp<"Wpkxgtukx{ "qh'Qmrcj qo c"Rtguu0

Ecppqp.'I ctrcpf'\*3; : 8+":Vj g'Eqpust weslqp"qh'vj g'Gwtqr gcp'Ko ci g'qh'vj g'Qtkgpv<"C'Dkegpvgpct { 'Tgcrrtckucn'qh'Ukt"

Y kmłco "Iqpgu''cu''Rqgv''cpf "Vtcpurcvqtø'' $Eqo\ rct\ cvkxg'Et\ kvkekvo\ <\!\!C''[\ gct\ dqqm''\!:\ 3896::0]$ 

Ecp»u. 'Tquc'Ci quv'\3;; 7+":\Vj g'Eqnqs w\cn'Tgi kn\gt "cpf 'F wdd\pi \@ '\p' \Lcpugp'\\gf 0\.'3: 564220

Ecq"Uj kdcpi '\*3; : 8+"\ *j qpi i wq'lwlkcq"[klkpi ''tij k'mplk*']Eqmgevgf 'Guuc{u'qp'Ej kpgug'Dwffj kuv'Uwtc''Vtcpurcvkqpu\_." Vckr gk<"Fqpi ej w'Rwd0'Eq0

Ecrrgt. 'E0\*3; ; 4+"Octictgv"Hwngt <'Cp"Cogtkecp"Tqocpvke"Nklg. 'Pgy "[qtmk"Qzhqtf" Wpkxgtukv{"Rtguu0

Ectf gpcn 'Gtpgurq' '3; ; 4+" Nqu'qxpku'f g''qtq. '\tcpu0T wuugm' Ucm qp. 'Drqqo kpi vqp < Kpf kcpc 'Wpkxgtukv{ 'Rtguu0

 $\label{eq:conditional} \text{Ectf ko ."H0*3; 5; $+$'Vtcvcfq'fc''vgttc''g''l gpvg'fq'Dtcukn''U'q''Rcwnq$'Eqorcpj kc''Gf kqtc''P cekqpcn0} \\$ 

Ectlipk 'Kulf qtq'\*3:; 6+"Ng"xgtukqpk"f gmc 'Dkddkc 'kp"xqni ctg"kxxnkcpq. "Ucp"Rkgt"f øCtgpc<'Ucrgulcpc0

Ectt. 'GO 0\*3; 83+"Y j cv/ku'J knqt{A."P gy "[ qtm;"Xkpvci g"Dqqmv0

Ectt. "Unkcpc." Tqf c'Tqdgt w. "Ckf ggp'F whqwt "cpf 'F kf k'Uvg $\{p'''gf u+'''3; g''' Et kkecn' Nkpm k'' k'vgt rt gvgt u'kp'' i g'' Eqo o wpk\{. "Co uvgtf co "cpf "Rj krcf grr j kc\' Lqj p'' Dgplco kpu<math>0$ 

Ectt²."I0/O 0\%3; 42+"Dkdrkqi tcrj kg"f g"I qgvj g"gp"Cpi rgvgttg."Rctkv\%Rrcp/P qwttkv"gv\"Ekg0

ô ô \*3; 85+"Ngu'I tcpf u'ttcf wevgwtu'ltcp±cku."I gpgxc<I gqti "( 'Ekg0

ô ô cpf "Y Olwo r gn/"3; 85+"S werke/ "kp" Vt cpure vkqp. "Qzhqtf <"Rgti co qp" Rtguu0

Ecuci tcpf g."Iqugr j "D0\*3; 76+":-Vj g'Gpf u'qh'Vtcpurcvkqpø"*Kpvgt pc vkqpc n'Iqwt pc n'qh'Co gt kecp 'Nkpi wkukeu*'42\*6+<"5576620 Ecuvtq/Mrct²p."U'cpf "J (Eco r qu'\*3; : 5+":-Vtcf weekqpgu."Vktclgu."Xgpvcu"{ 'Guvt gncu<"GriöDqqo öø "*Kf gqrqi kgu"cpf "*\*\*Nkyt c wrt g''6'\*\*Ugr vgo dgt/Qevqdgt+<"53; 65: 0

Ecvgpc|| k"Hrcxkq"\*3; 99+"Nølphwuuq"f gk'rt qxgp/crk'iw'vgo k'g'ko o ci kpk'f gmc"r qgukc"ukewnq/vquecpc."Dt guekc<" O qtegmlcpc0

ô ô \*3;; 6+"=Vtcpurcvkqp<"Qxgtxkgy ø'kp"T0G0Cuj gt"cpf "I0O (I Olko ruqp"\*gfu+"Vj g'Gpe{enqrgfkc"qhlNcpi wci g"cpf" Nkpi wkwkeu. "Qzhqtf"cpf "P gy "[qtm:\*Rgti co qp"Rtguu0

E² ngurkp."Vkpc'\*3; : 6+"O² vj qf qnqi kg'f g'nc't gej gt ej g'vgt o kpqnqi ks wg'r qpewwgng. 'S wgdge<'Qhhleg'f g'nc'hcpi wg'htcp±ckug0 gtxgpnrc.'O ktqurcx'\*3; 87+":P qx 'r tqlgm/'uvcvkurken² j q'tq| dqtw'xgtugø']C'P gy 'Rtqlgev'qh'Uvcvkurkecn'Cpcn(uku'qh'' Xgtug\_.'' gun² 'nkyt c wt c''35-8.'763660

Eguctqvk'O grej kqttg'\*39: 8+"Nøkklef g'f ''-Qo gtq't gecve'r qgvleeco gpvg'lp''xgtuq''uekqnq'lvenlepq.''Rkuc'O qrlpk'Nepf k0 ô \*3: 29+"Ng''qr gt g'f k'F go quvgpg''vt ef qwg''g''knnuut evg. ''Hrqtgpeg''O qrlpk'Nepf k0

Ej cf y kem'J gpt{'\*3; : 3+"Dqgyj kwu."Qzhqtf <'Qzhqtf ''Wpkxgtukv{''Rtguu0

```
Ej co dgtrekp. 'Nqtk'*3; : : +"\pm1 gpf gt 'cpf ''y g'O gvcr j qtkeu''qh''Vtcpurcvkqpø "\pm1 gpf gt ''cpf ''y g'O gvcr j qtkeu''qh''Vtcpurcvkqpø ''\pm2 6766940
```

- Ej cp''Ukp/y ck'cpf 'F cxkf 'Rqmctf '\*gf u+'\*3; ; 6+''*Cp'Gpe{enqr gf kc 'qhl'Vt cpurc vkqp0Ej kpguglGpi rkuj .'Gpi rkuj 1Ej kpgug.*" J qpi 'Mqpi <Ej kpgug''Wpkxgtukv{ 'Rtguu0
- Ej cpf kqwz.'IO\*3; : 91; +":32"cpu'f g'O | V| Q'\*O F +\$\pi\$ 'tgr t0\p'C0Cddqw'\*gf 0+"Nc 'Vt cf wevkqp'Cuukuv² g'r ct 'Qtf kpc vgwt <" Rgt ur gevkxgu'\vgej pqrqi ks wgu 'kpf wuxt kgrgu'gv² eqpqo ks wgu'gpxkuci gcdrgu''« 'røj qt k| qp'3; ; 2. ''Rct\unk\vF C KEC F KHO ô ô \*3; : ; +":O | V| Q<322'O krkqp''Y qtf u'Nc\vgt\unk\vert 'kp'F 0NO co o qpf '\*\gf 0+"Co gt kecp'Vt cpurc vqt u'Cuuqekc vkqp'' Eqphgt gpeg'3; : ; <\vert Eqo kpi ''qh'Ci g. 'O gf \unk\vert P L\vert Ngctpgf 'Kp\unk\vert poor cvkqp0
- Ej cr o cp. 'TŒ0\*3; ; 2+":J qy 'Co gtkecp'Eqwtvi'Xkgy 'F ghgpf cpwø'Tki j vi'Vq'Kpvgtr tgvgtuø'kp''CVC. 'xqr0'KX."
  Dkpi j co vqp. 'P [ <'Uvcvg'Wpkxgtukv{ ''qh'P gy ''[ qtm0']
- Ej cw. "Uko qp"\*3; : 6+": J gto gpgwkeu "cpf" 'y g" Vtcpurcvqt < "Vj g" Qpvqmi kecn F ko gpukqp" qh" Vtcpurcvkpi ø "O wnkklpi wc < "Lqwtpcn qh Kpvgt ncpi wci g" Eqo o wpkecvkqp" 5-4. "93690
- $\hat{o} \quad \hat{o} \quad \text{``3'}; : 6+\text{''-:} Cur gew'qh''Vtcpurc wqp''Rgf ci qi { $\emptyset$ Wpr wdrkuj gf 'Rj F ''yj guku. ''Wpkxgtukw{ ''qh''Gf kpdwti j 0 } }$
- Ej cx{.'R0\*3; :: +"Vt cf wevgwt u'f  $\phi$ c wxt glqku0O q{gp'Ži g'gv'Tgpc knucpeg0F kevkqppc kt g'f gu'\t cf wevgwt u'gv'f g''\cc 'n\kw² t c wxt g'' vt cf wkg''gp''cpekgp''gv'o q{gp'ht cp±cku'\*: 6463822+"4"xqnu."Rctkx\Ej co r kqp/Urcvnkpg0
- Ej gtpqx. "I (KO\*3; 9: +"Vgqt k' c'k'rt cmkmc'ukpnj tqppqi q''r gt gxqf c'']Vj g''Vj gqt { "cpf 'Rtcevkeg'qh'Uko wnxcpgqwu'' Kpvgtr tgvkpi \_ 'O queqy <O g| j f wpctqf p { g'qvpquj gpk{ c0
- $\label{thm:continuous} $$ Vtcpurc \qp_.'O queqy < P cwnc.'736850$ E j gtp{cmj qxunc{c.'N0C0*3; 98+''Rgt gxqf 'k'uo {urqxc{c''uvt wmwt c''}}Vtcpurc \qp''cpf ''Ugo cpvke''Uvt wewtg_.'O queqy < O g| j f wpctqf p{g'qypquj gpk{c0}} $$$
- ô ô \*3; ; 5+":Htqo 'ŏKiö'\q'ŏQwi j vö<'Ncy u. 'P qto u'cpf "Utcvgi kgu'kp"Vtcpurcvkqp"Uwf kguø "Vcti gv'7"\*3+<'36420
- ô ô \*3; ; 6+"=S wcpukcukxg"Cur gewi'qh"Vtcpurcukqp"S wcrkx{ $\emptyset$ "Ngdgpf g"Ur t cej gp"5; \*6+"375 $\acute{0}$ 80
- Ej knap. 'RO\*3; : 7+"Ncpi wci g'cpf "vj g"Pwengct "Cto u'F gdcvg<"Pwngur gcmVqf c{. "Napf ap<"Htcpeku Rkpvgt0
- Ej kpgug'Nkygtcwtg'™lqwtpcn+."Dgklkpi <'Hqtgki p'Ncpi wci gu'Rtguu0
- Ej kpgug'Rgp''\*|qwtpcn+.''Vcky cp<TQE'RGP'Ej cr vgt0
- Ej kpgug'Vt cpurc vqt uø'Lqwt pcnl™lqwt pcnt."Dgklkpi <'Cuuqekcvkqp"qh'Ej kpgug'Vt cpurc vqt u0
- Ej qo um(.'P qco '\*3; 87+'Cur gew'qhh'j g'Vj gqt{''qh'Upwz.'Eco dthfig.'O C<'Vj g'O KV'Rtguu0
- Ej qr kp. ''Mcvg'\*3: ; ; 13; : 8+''Vj g'Cy cnppkpi. ''gf 0Uwucp'I kndgtv.''J cto qpf uy qtyj <Rgpi wkp0
- Ej qwkrrgv."I0\*3; : 5+":Dgrrgu."kphkf³ rgu."rckf gtqpu'hkf³ rgu."tcpur qukkqpu'dkgp'hckgu'f cpu'rc'hkw² tcwtg'htcp±ckug'f w' ZXKKKo g'uk² ergø."Vtcf wktg'338-946: 0
- Ej tkuv.'Tqpcnf "\*3; : 4+":Qp"P qv'Tgxkgy kpi "Vtcpurcvkqpu<"C"Etkskecn'Gzej cpi g.ø'Vtcpurcvkqp"Tgxkgy "; <386450
- Ej wmqxum(.''MXO\*3; 86+"X{uqnqg'kumwuxxq'']J ki j 'Ctv\_'O queqy <'Kimwuxq0
- Ej wtej .'MDY 0'cpf 'GO O qx{'\*3;;5+":I qqf 'Crrnlecvkqpu'hqt'Etwo o {'O cej kpg'Vtcpurcvkqpø' 'O cej kpg'Vtcpurcvkqp": 45;67:0
- Ej wtej ."Mgppgyj "cpf "Y kmkoo "I cmg'\*3; ; 3+"-Eqpeqtf cpegu'hqt "Rctcmgm'Vgz vø." Wukpi "Eqt rqt c <'Rt qeggf kpi u'qh'yj g"

  Ugxgpvj "Cppwcn'Eqplgt gpeg"qh'yj g"WY "Egpvt g'hqt "yj g"Pgy "QGF "cpf "Vgzv'Tgugct ej ."Qzhqtf <'Uv'Ecvj gtkpgøu'Eqmgi g0

  Ekegt q0F g"qt cvqt g1Qp"yj g"Qt cvqt "\*3; 98+." "tcpu0G0Y (Uwwqp"cpf "J 0Tcenj co ."xqn036"qh"Ekegt q"kp"Vy gpv{/gki j v"

  Xqnvo gu. "Nqpf qp<'J gkpgo cpp0
- ENCY "3; ; 8+"Rt qeggf kpi u"qh"y g"Hkt uv"Kpvgt pc vkqpcn"Y qt muj qr "qp"Eqpvt qngf "Ncpi wci g"Crrnkec vkqpu. "Ngwxgp0 Engct." Lgtgo { "3; ; 5+":Htqo "Hktyi "Rt kpekr ngu<"Eqo r wcvkqpcn" Vqqnu "hqt"y g"Uwf { "qh"Eqnqec vkqpp" "kp"O qpc "Dcngt." I kn" Htcpeku "cpf "Grgpc" Vqi pkpkDqpgnk "gf u+" Vgz v"cpf "Vgej pqnqi { «Kp" J qpqwt "qh"Lqj p"Upenckt. "Co uvgtf co "cpf" Rj krcf grr j kc "Lqj p"Dgplco kpu0
- Enw{ugpcct.'Cppg'\3; 98+'Kpvtqf wevkqp'\q'Nkvgtct{'U\frackeu.'Nqpf qp<'D0V0Dcwlqtf 0
- En{pg."W0\*3; : 9+":F kueqwtug"Uttwewtgu"cpf "F kueqwtug"Gzr gevcvkqpu<"Ko r nkecvkqpu"hqt "Cpi nq/I gto cp"Cecf go ke" Eqo o wpkecvkqp"kp"Gpi nkuj ø'kp"N060"Uo kij "\*gf 0+"F kueqwtug"Cet quu'Evnnwt gu<"Ut c vgi kgu"kp"Y qt nf "Gpi nkuj gu. "Rtgpvkeg/J cm"956: 50
- Eqg. 'O kej cgn'\*3; ; 4+"Dt gcnkpi 'Vj g'O c { c 'Eqf g. 'Nqpf qp<"Vj co gu'cpf 'J wf uqp0
- Eqj gp. "Kutcgri"3; 64+" [ kuj cmlGf wctf "Ucmkpuqj p<zc{cx'w/o kn/cnq'j c/ukht wk'] [ kuj cmlGf wctf "Ucmkpuqj p<J ku'Nkhg'cpf' Nksgtct{"Ectggt\_"VgriCxkx<O gukrc0
- Eqj gp."ILO 0\*3; 84+"*Gpi rkuj "Vt cpurc vqt u"cpf "Vt cpurc vkqpu* "Nqpf qp<"Nqpi o cpu."I tggp0
- Eqj gp. 'Iqpcyj cp' '\$3; :: +": Qs wgpf qøu' oT ckpo <"C' Ej qtcn' Tgpf gtkpi ø' "Vj g' Co gt kecp' Xqkeg' 32 <": 463340
- Eqj p. 'Twd{ ''\*3; 83+": Uco wgn'Dgengw'Ugnh'vtcpurcvqtø''*RONC* '98<8356430

```
Eqnkp. 'Lqcp'cpf 'Twj 'O qttku'*3; ; 8+'Kpvgtrt gvgt u'cpf 'Vj g'Ngi cn'Rt qeguu. 'Y kpej guvgt <'Y cvgtukf g'Rtguu0 Eqnkpi y qqf .'T(I 0*3; 84+'Vj g'Kf gc''qh'J kuvqt {.'Qzhqtf <'Enctgpf qp''Rtguu0
```

Eqpf g'Rctkrrc.'O 0C0\*3;; 6+"Nqu'r cucløgu'qduegpqu'f g'O qm("Drqqo"gp"gur c°qn"Cndcegvg<'Gf lekqpgu'f g'rc'F kr wcelsp" f g'Cndcegvg0

Eqpi tc $\sqrt{Dwn}$ ct. "U0" gf 0+"3; 9; +"Vtcpurcvkqp" cpf "Vtcpurcvqtu" cp" Vtcpurcvkqp cn Vtcpurcvkqp "Vtcpurcvkqp" cpf "Vtcpurcvkqp" c

Eqprg{."Vqo "%3;: 8+":Hpurkwwkqpcnk kpi "Vtcpurcvkqp<"Qp"Hrqtkqøu"O qpvcki pgø "F go ctecvkpi "vj g"F kuekr nkpgu<"

Rj krquqrj {0/Nkgtcwtg0/Ctv."I n{rj "Vgzwcrl"Uwfkgu"3."O kppgcrqrku<"Wpkzgtuk/{"qh"O kppguqvc"Rtguu0 Eqppqm{."Fcxkf"\*3;;5+"::Vjg"I tggmlRqgv"Qf {uugwu"Gn{vku"kp"Gpirkuj "Vtcpurcvkqp<"Etkgtkc"hqt"cp"Gxcnwcvkqpø"kp"

Ecvtkqpc'Rkemgp'\*gf 0+"Vtcpurcvkqpô Vj g'XkxcrlNkpn0Rtqeggf kpi u'qhZKKHKV'Y qtrf 'Eqpi t guu. '8635''Cwi ww/3; ; 5."

Dtki j vqp. "xqr0'4." Nqpf qp<"Kpurkwwg"qh" Vtcpurcvkqp" cpf "Kpvgtr tgvkpi 0

\*hqtyj eqo kpi +":-Vtcpurcvkpi "Rtkuo cvke"Rqgvt{<"Qf {uugwu'Gn{vku'cpf "õVj g'Qzqr gvtc'Gngi kguöø"*O qf gt p'Rqgvt{"kp"*\text{Vtcpurcvkqp0}

Eqptcf { .''MQO\*3; 76+":\(\) w'f gp'f gwuej gp''Rn: wwuÃdgtvtci wpi gp0Gkp''©dgtdrken'xqp''Cndtgej v'xqp''G{d''dku''} w'LOO0TO Ngp|  $\alpha$ ''Gwrj qtkqp''6: <'5956; 80

Eqpvo kpg. 'I gpgxk' xg' '\gf 0+'\3; : ; +'\Vt cf wevkqpu''gv'\it cf wevgwt u''c w'O q{gp/\Zi g. 'Rct\ki\ZP TU0}

 $^{\circ}$   $^{\circ}$   $^{*3}$ ;  $^{3}$ -":Kpf gvgto kpce{."Vtcpurcvkqp"cpf "vj g"Gzr gtv"Ur gcngtø"kp"Drccuej ."Ej ckz"cpf "O crco cj /Vj qo cu"\*gf u+"3496 630

Eqqm'Ucprg{ 'Cty' wt'cpf 'Ej tkrkcp'F cxkf 'I kpudwti '\*3; 33+"::Mcddcrcj  $\emptyset$  'Gpe{erqr cgf kc 'Dt kcppkec. 'P gy '[ qtm'xqr0370 Eqqr gt. 'Cty' wt'\*3; 9: +"Vj g'Et gc kqp''qh'\j g'Ej kpgug'Y tkwgp''Ej ct cevgt. 'Nqpf qp<'Vj g'Ej kpc''Uqekgv{0

Eqqr gt. "O 0"3; 96+" Tqf tki wgu''y g''Kpvgtrt gvgt <'Cp''Gctn("Lguwkv'kp''Lcrcp''cpf' 'Ej kpc." P gy "[ qtm\"Y gcyj gtj km0

Xgtpcewrt'Vgzw. 'Eco dtlf i g<Eco dtlf i g'Wpkxgtukv( 'Rtguu0

Eqtdkp.'T00 0\*3; : 2+":F gekukqpu''y cv'O ki j v'pqv'dg''O cf gø''kp"V000Y cmrvgp'\*gf 0+"Eqi pkkxg''Rt qeguugu'kp''Ej qkeg''cpf'' F gekukqp''Dgj cxkqt.''J kmrf crg.'P I.<br/>
Gtrdcwo .''696890

Eqto  $\log t$ . 'O 0\*3; : 7+": I muucktg'f g'm''y 2qtkg'kpvgtr t² wvkxg'f g'm''vtcf wevkqp''gv'f g'mkpvgtr t² wvkqpø''O gw'52\*6+0

Eqtpgc. 'R0\*3; 92+"-:ōEgtgtgö" k'ōqhgtv ö",p'f gvgto k/pctgc'r tqhknwnwk'\tcf wegtkrqt'f g'rc'lwo vcvgc'xgcewnwk'

vtgewwø"]-:Eqo o cpf ø'cpf "::Uwr r n{ø'kp'F gvgto kpcvkqp"qh'vj g'Rtqhkrg"qh''Vtcpurcvkqpu'cv'vj g'O kf f rg"qh'vj g'Ncuv'Egpwt{\_'kp'' CnF ko c."KEŒj k ko kc.'O (P qxkeqx."RŒqtpgc."UXgrgc"cpf "GRqr gcpi" "\*gf u+"Rt qdrgo g'f g'nkvgt cwt" "eqo r ct cv" k'' uqekqnqi kg'nkvgt ct ."Dwej ctguv<'Rwdrkuj kpi "I qwug"qh'vj g'Tqo cpkcp'Cecf go {0

 $Eqtvgu^{-}q.''L0''3; 89+''C''ectvc''fg''R'tq'Xc/''fg''Ecokpjc.''Nkudqp<''Rqtwi~a~kc''Gfkqtc0$ 

Equgtkw.'Gwi gpkq'\*3; 99+'Grlj qo dtg''['lw/rgpi wclg.'O cf tkf <'I tgf qu0

ô ô \*3; 9: +":Honej g'\wpf 't\lej \ki g'Hrci gu\gm\wpi gp'\kp'f gt'\@dgtug\ wpi u\yj gqt\kg\@'\\wp'\\U t\@' u.'I \text{Mqtr} p'\cpf 'D\text{D} cro dgti "
\*gf u+"\Vj gqt\{"cpf 'Rt ce\keg"qh\Vt cp\urc\kqp.'P qdgn'U\\ o r qu\kwo "5; .'Dgtp'\cpf ''Ht\cpm\wt\v'\co 'O c\kp\<'Rg\vgt'\\cpi ..'39\dds40

Equvc." I 0\*3; : 7+":Vj g'Ncvkp"Vtcpurcvkqpu'qh'Nqpi kpwuxu"  $r \P^{\text{Y-your}}$ 'kp'Tgpckuucpeg'Kcn{.'kp'T0Lej qgeni\*gf 0+'Cevc" Eqpxgpwu'pgqrcvkpk'Dqpqpkgpuku. 'Dkpi j co vqp. 'P [ <0 gf kgxcn'cpf 'Tgpckuucpeg''Vgzvu'cpf 'Uwf kgu. '446ó5: 0

Eqwrkpi ."U0\*3; 96+"Ocwj gy 'Ctpqrf 'cpf 'I ku'Etkkeu. 'Cyj gpu. 'Qj kq<'Qj kq'Wpkxgtukv{ "Rtguu0

Eqwro cu. "HD"3; ; 4+"Ncpi wci g"cpf 'Geqpqo {. "Qzhqtf < Dreeny gm0

Eqwing ctf. 'O crequo' '3; 97+"Cp' Kpvt qf wevkqp' \q'F kueqwt ug' Cpcn (uku 'Nqpf qp \le Nqpi o cp0

Etcp|."HIGf y ctf" "3;: 6+"C"Dkdrkqi tcrj { "qh'Ct kuqvrg" Gf krkqpu" "372363822+"4pf "gf p."Dcf gpDcf gp<" Mqgtpgt0

Etgur q. 'Cpi grl'cpf 'Rkrct'I qo g| 'Dgf cvg'\*3; 85+"Ukwcek» p'f g'rc''r qgukc''eqpet gvc. 'O cf tkf < Tgxkuvc'f g''ewnwtc''dtcukrgpc0 Etkem'Lq $\{eg''*3; : ; +$ ":O kutgcf kpi 'Htgwf ø''Vko gu''J ki j gt''Gf wecvkqp''Uwr ryco gpv.''37''Ugr vgo dgt.

Etkuchwrk 'Gf qctf q'\*3; ; 8+":F cpvgơu'Rwpu'lp'Gpi rkuj 'cpf 'vj g'S wgwlqp''qh'Eqo r gpuc lqpø''Vj g'Vt cpurc vqt'' $4*4+\c247$ ; 6980

Etqeg. 'Dgpgf gwq'\*3; 24+'Gurgvkec'eqo g''uekgp/c'f gmøgur t guukqpg''g''nkpi wkurkec''i gpgt cng. 'Dctk'Ncvgt| c0

Etqo dkg."Y 0\*3; : 7+"*Rt qeguu'cpf "T grc kqp" kp"F kueqwt ug"cpf "Ncpi wci g"Ngctpkpi*."Qzhqtf "Qzhqtf "Wpkxgtukv "Rt guu0 Etqpkp."O kej cgn"\*3; ; 3+"::Ngu" lgwz 'uqpv'f ² hckuc'vtcf wevkqp "gv'nwf kek²" 'ej g| 'T² lgcp'F wej cto g"gv'I ² tctf 'Dguugwgø' " *S wgdge" Uwf kgu* '35-9; ó: 70

ô ô \*3; ; 7+"::Mggr kpi 'Qpgøu'F kurcpeg<"Vtcpurcvkqp"cpf 'vj g'Rrc{ ''qh'Rquukdkrkv{ø''VVT'': \*4+<"4496650

ôô \*3;; 8+"*Vt c purc vkpi "Kt grc pf*. 'Eqtm:'Eqtm'Wpkx gtukv{ "Rt guu0

Etqpqp. "Y 03; : 5+"Ej cpi gu'kp"ig 'Ncpf < Kpf kcpu. "Eqqqpkıvu "cpf"ig 'Geqqqi {"qhPgy 'Gpi ncpf." P gy "[ qtm $\xi$ J km'cpf" Y cpi0

Etqvej ."Y (IIDO\*gf 0+"\*3; 63+"Vj g'Rt qnqi wgu'cpf 'Gr knqi wgu'qh'Y knkco 'Eczvqp. 'GGVU'QU'398.'Nqpf qp<'Qzhqtf "Wpkxgtukx{ ''Rt guu0

Et { uvcn 'F cxkf '\*3; : 7+": J qy 'O cp { 'O kndqpuA'Vj g 'Uvc\kuvkeu'qh'Gpi nkuj 'Vqf c { A\lambda 'Gpi nkuj 'Vqf c { '3<'96; 0 o cpf 'F (F cx { '\*3; 8; +"Kpxguki cvkpi 'Gpi nkuj 'U\f ng. 'Nqpf qp<'Nqpi o cp0

Ewrgt. 'IO\*3; : ; +":Nc"Nkw² tctk² ø'kp"Cpi gpqv. 'Dguuk² tg. 'Hqmmgo c"cpf 'Mwij pgt"\*gf u+'3; : ; . "536650

Ewpplpi j co .'I 0\*3; 89+"Vj g'F kxkpg'Eqo gf { 'kp'Gpi rkuj <C'Et kkecn'Dkdnkqi t c rj { '3; 2363; 88."P gy '[ qtm<Dctpgu'cpf " P qdng0

```
Ewt kwu. 'GOTO*3; 9; +"Gwt qr ®uej g 'Nkyt c wt 'wpf 'revykpkuej gu'O kwyrenyt."3; 6: ."Dgtp<Htcpemg='tcpuO'Y kmctf 'TO'Vtcum' cu''Gwt qr gcp 'Nkyt c wt g''cpf 'ij g'Nc vp' O vf rg'Ci gu''3; 75. 'tgr tO3; 9; ."Nqpf qp''cpf 'J gpgm{<'Tqwngf i g''Cpf 'Mgi vgr 'RewtO Ewij kpi ."I OHO*3; 8; +":Dqqmu''cpf 'Tgcf vgtu''kp''Z X KKij 'Egpwt{'J wpi vgr vgr
```

 $E|\ ki\ cp\{.''N0*3;:6+''Vj\ g''Qzhqtf''J\ kwqt\{''qh'J\ wpi\ ctkcp''Nkgtcwtg.''Qzhqtf<'Exctgpf\ qp0\}$ 

F & Cdrcpeqwtv. 'P (Rgttqv'\*3862+"Ngu'Cppcrgu'f g'Vcekyg0Rt go kgt g'Rct vkg0Eqpvgpcpv'nc "xkg'f g'Vkd³t g. 'Rctku<'Igcp'' Eco wucv0

 $\label{eq:control_co$ 

F ci w.'O gpcej go 'D0\*3; 93+":C'Nkpi wkurke'Cpcn(uku'qh'Uqo g'Ugo cprke'Rtqdrgo u'qh'J gdtgy/Gpi rkuj 'Vtcpurcrkqpø0' Wpr wdrkuj gf 'Rj F.'Igtwucrgo <'Vj g'J gdtgy 'Wpkxgtukx{0

ô ô \*3; 9: +"J gdt gy/Gpi rkuj "Vt c purc vkqp <"C"Nkpi wkuke "Cpcn(uku"qh"Uqo g"Ugo c pvke "Rt qdngo u."J ckhc <"Vj g"Wpkxgtukx("qh" J ckhc0

F ckej gu. 'F 0\*3; 63+'Vj g'Mpi 'Lco gu'Xgt ukqp'qhl\j g'Gpi rkuj 'Dkdrg. 'Ej keci q<'Wpkxgtukv{ ''qh'Ej keci q0

F cpcp. 'O ctvkpg'\*3; ; 3+''. F wddkpi ''cu''cp''Gzr tguukqp''qh''P cvkqpcrkuo ø''Ogw''58\*6+<'8286360

F ØCpf tcf g. "T0'cpf 'EUxtcwuu'\*gf u+"3;; 4+"*J wo cp 'O qvkxgu'cpf 'Ewnwt crlO qf gnu*. 'Eco dtkf i g<'Eco dtkf i g'Wpkxgtukv{" Rtguu0

F cpg-. 'H0\*3; 96+":Hwpevkqpcn'Ugpvgpeg'Rgtur gevkxg''cpf 'vj g''Qti cpk| cvkqp''qh''vj g''Vgz vá'kp''HrF cpg-'\*gf 0+''Rcrgtu''qp'' Hwpevkqpcn'Ugpvgpeg'Rgtur gevkxg. 'Rtci wg<'Cecf go kc0

F cpkgm 'F cxkf '\*3; ; 6+'Y knkco 'V{pf crg<'C'Dkqi tcrj {.'P gy 'J cxgp'cpf 'Nqpf qp<'[ crg'Wpkxgtukx{ 'Rtguu0

F cpmu."LØ 0\*3; ; 3+":Vj g'Ru{ej qrkpi wkuvkeu'qh'Tgcf kpi 'cpf "Vtcpurcvkqpø''kp":Hwpf co gpvcrlS wguvkqpu''kp"Vtcpurcvkqp" Vj gqt{ $\emptyset$ Wpr wdrkuj gf 'o cpwetkr v."Wpkxgtukx{"qh'Ngkr | ki 0

 $F\ cps\ wej\ ."IDO"3;\ 4:\ +"I\ \textit{qnf}\ "E\ \textit{qcustCncp''Ncy}\ u"cpf\ "E\ \textit{wunqou}\ u$ "Nqpf\ qp<"Qz\ hqtf\ "Wpkx\ gtukt{\"RtguuO}\ \"RtguuO\ \"

F cui wr vc. 'Cramgteplep'\*gf 0+'\*3; : 5+'Rt qdrgo u'qh'Vt epurc vkqp'ht qo ''WCukep'Nepi wei gu.''J gkf grdgti <'UVCuke''Kpurkwwg.''

J gkf grdgti "Wpkx gtukx OQtki kpcm ("r wdrkuj gf 'kp'3; 9: "cu'xqr09"qh" WCukcp"F ki gw'qhTgi kqpcnY t kskpi 0

F cxkf uqp. 'F qpcrf' '\*3; 89+''-: Vtwj "cpf' 'O gcpkpi ø'' *Ul pvj ³ ug*'' 39<5266450 T gr tkpvgf' 'kp' F cxkf uqp''3; : 60 ô \*3; 95+''-: Tcf kecrl 'Kpvgtr t gvcvkqpø'' *F kcrgevkec*'' 49<53564: 0 T gr t kpvgf' 'kp' F cxkf uqp''3; : 60

ô ô \*3; 96+":Qp"y g"Xgt {"Kt gc"qh"c"Eqpegr wcn"Uej go gø"Rt qeggf kpi u"cpf "Cff t guugu"qh"y g"Co gt kecp"Rj krquqr j kecn" Cuuqekcvkqp."69<"76420T gr t kpvgf "kp"F cxkf uqp"3; : 60

ô ô \*3; : 6+"Gps wkt kgu'kpvq'Vt wvj "cpf "Kpvgt r t gw vkqp." Qzhqtf <'Enctgpf qp''Rt guu0

 $\hat{o} \hat{o} *3; : 8+" \div C"P \text{ keg"} F \text{ gtcpi go gpv'qh'} Gr \text{ kcr j uø'} \text{ kp'} GONgRqtg'*gf 0+"Vt wvj "cpf "Kpvgt r t gvc vkqp < Rgt ur gevkxgu''qp''vj g'' Rj krquqrj { "qh' F qpcrf" F cxkf uqp. "Qzhqtf < Dcukri Drceny gm0 }$ 

 $F cxkg. "F 0"3; 97 + "Rqgvt { "kp" Vt cpurc vkqp}. "O kmqp" Mg { pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{ "Rt guu0 pgu < Vj g" Qr gp" Wpkxgtukv{$ 

Fcxkgu. "C0\*3;; 3+"Vjg"Pcvkxg"Urgcngt "kp"Crrnkgf"Nkpi wkukeu. "Gfkpdwtij "Wpkxgtukv{"Rtguu0

F cxkgu. "Y 0X0\*3; : 9+" $Gi \{rvkcp''J kgtqi n rju'' Dgtngrg \{< Wpkxgtukv \ "qh' Ecrkhqtpkc'' Rtguu<math>0$ 

Fcxkı."N0\*3;; 6+":Dktyj "qh"yj g"Pcvkqp<"I gpf gt "cpf "Ytkkpi "kp"yj g"Yqtm"qh"J gpt { "cpf "Ejctrqwg"Dtqqngø" Gki j vggpyj / Egpwt { "Nkg"3: 496690

 $Fc\{''Ngy ku.''E0*3; 92+''Qp''Vtcpurcvkpi''Rqgvt\{.''Cdkpifqp/qp/Vjcogu<''Cddg\{''Rtguu00\}$ 

Fc{tcu."U0\*3; ; 5+":Vj g"Mpqz"Xgtukqp"qh"vj g"Vtkenu"qh"c"Vtcpurevqt<"Vtcpurevkqp"qt"Vtcpui tguukqpø'kp"Lcur gt\*gf 0+."666

F gcpgun{.'O 0\*3; 42+"Vj g"Nqmctf"Dkdng"cpf"Qvj gt"O gf kgxcn'Dkdnkecn'Xgt ukqpu."Eco dtkf i g<"Wpkxgtukx{"Rtguu'\*tgr t0" 3; 88+0

f g'Dgcwi tcpf g.'Tqdgtv\\*3; 9: +"Hcevqtu'kp'c'Vj gqt{"qhRqgvke'Vtcpurcvkpi.'Cuugp<"xcp'I qtewo 0

ô ô cpf "Y qrhi cpi "F tguurgt" "3; : 3+"Kp vt qf wevkqp" 'vq" Vgz vrkpi wkurkeu. "Nqpf qp<"Nqpi o cp0

f g"Htcpeku." Iqj p"\*3; 86+" Vj g"Ej kpgug" Ncpi wci g<"Hcev"cpf "Hcpvcu(." I qpqnwnw<"Wpkxgtukv{"qh"I cy ckk"Rtguu0

fg'Iqpij.'GOO 0\*3;; 4+"Cp"Kpvtqf wevkqp"\q'Eqwtv"Kpvgtrtgvkpi.'Ncpjco.'OF<Wpkxgtukv{'Rtguu'qh'Cogtkec0

f g''n: 'Ewgurc.' N0C0\*3; ; 4+": \*Kp? tr tgvgu''{ "vtcf wevqtgu''gp "grlf guewdtko kgpvq"{ 'eqps wkurc'f grlpwgxq''o wpf qø'' Nkxkwu'3<476 560

f g'O cp. 'Rcwrl'\*3; : 8+'ō:Eqpenwukqpuö<'Y cnygt 'Dgplco kpøu'ōVj g''Vcum'qh''y g''Vtcpurcvqtøö. 'kp''Rcwrl'f g'O cp. ''Vj g''

Tgukwcpeg''vq''Vj gqt{.'O cpej guvgt <'O cpej guvgt 'Wpkxgtukx{ ''Rtguu0

f g'T {pem'R0'cpf 'C0Y gmgpj w{ugp'\*gf u+'\*3; ; 4+'F g'Qwf j glf 'kp'j gv'P gf gt rcpf u0T gr gt vqt kwo ''gp''dkdrkqi t chkuej g'i kf u'' xqqt ''xgt vcrhpi gp''xcp'T t kgmug''gp''Nc vklpug''c wrgwt u''gp''i guej t khrgp'']Encurkecn'Cpvks wkv{ 'kp'F wej 0T gr gt vqt { ''cpf ''
Dladari t ani la ad'' y lf g''bet ''N t any my lany ''ok''I t aged ''gn' y ly lang'' y ly lang y l''y t ly lang y l''Doot a ''Co d g0

Dkdrkqi tcr j kecriT wkf g'hqt''Vtcpurcvkqpu''qh'T tggmlcpf 'Ncvkp''Cwj qtu''cpf ''Y tkkpi u\_.''Dcctp<'Co dq0

f g'Uwc."Y 0.0\*3; 86+"F cpvg'kpvq'Gpi rkuj <'C''Uwf { ''qh'vj g'Vt cpurc vkqp''qh'vj g'Fkxkpg'Eqo gf { 'kp''Dt kvckp''cpf ''Co gt kec." Ej cr grlJ km:"Wpkxgtukv{ ''qh'P qt yj 'Ectqrkpc'Rt guu0

F gredewke. 'F ktm'\*3; :; +":\Vtcpure\kqp"cpf 'O cuu'Eqo o wpkec\kqp<\Hkm 'cpf ''VX''\Vtcpure\kqp"cu'\Gxkf gpeg''qh'E\wm\textcn'' F {pco keu\\alpha'\Dc\dgn'\57\\\643: 0

- ô ô \*3; ; 2+":-Vtcpurc kqp"cpf "yj g'O cuu'O gf kcø "kp"Dcuupgw'cpf "Nghgxgtg" "gf u+:"; 9632; 0
- ô ô \*3; ; 5+"Vj gt gợu"c 'F qwdrg 'Vqpi wg0Cp 'Kpxguki c kkqp 'kpvq 'vj g 'Vt cpurc kkqp 'qh'Uj cngur gct gợu"

- Y qtf rm{."y kj "Ur gekent Tghgt gpeg"\q" \( \) co ngvø "Co uvgt f co "cpf "Cvcpvc." I C<Tqf qr \( \)0
- ô ô cpf "NOF øj wuv'\*gf u+"\*3; ; 5+"Gwt qr gcp"Uj cmgur gct guOVt cpurc vkpi "Uj cmgur gct g"kp"\j g"T qo cpvke"Ci g. "Co uvgt f co "cpf "Rj kref grr j ke<"Lqj p"Dgpleo kpuO
- ô ô cpf 'Lqu² 'Nco dgtv'\*3; ; 8+"::Nc"Vtcf werkqp"f gu'rgz vgu"cwf kqxkuwgnn<br/>Ko qf gu'gy'gplgwz "ewnwt gnu⁄a 'kp"I co dkgt '\*gf 0+0 F greqwt v. 'O 0\*3; 47+"/ wf gu'rut 'ngu'rt cf werkqpu'f gu'rt ci ks wgu'i t geu'gv'nc rkpu'gp 'Ht cpeg'f gr wku'nc 'T gpc knuc peg."<br/>
  Dtwuugnn<br/>Nco gt rkp0
- F grkurg. 'Igcp'\*3; : 2+"NoCpcn(ug'f w'f kueqwt u'eqo o g'o 2 yi qf g'f g'\t cf wevkqp. 'Qwcy c<"Wpkxgtukv{ ''qh''Qwcy c''Rt guu0
- ô ô \*3; : 6+"Cw'eò wt 'f w'\t kerqi wg''ecpef kgp IDt kf i /kpi '\'j g'Nepi wei g'Uqrkwf gu0'J kuqt ks wg'f g'n\$ xqnwkqp'f w'Dwt gew'' hgf gt en'f gu'\t ef wevkqpu.'3; 5663; : 6."Qwey c<'O kpku³ tg'f gu'Crr tqxkukqppgo gpvu'gv'Ugtxkegu0
- ô ô \*3; : 8+":F cpu''ngu''eqwrkuugu''f g''nø''y  $^2$ - $\pi$ tcngø'''Ekt evkb''3456: 0
- $\hat{o} \quad \hat{o} \quad \text{``3'}; : 9 + \text{``Nc''} \ \text{``Vector'} \ \text{``Compartial of the pure Nap''} \ \text{``Ecpcfc.''} \ \text{``375663'}; : 6. \ \text{``Qwcy c-`Ngu''} \ \text{Rt guugu''} \ \text{``g''n} \ \text{``Mpkx gtuk?''} \ \text{``g''} \ \text{``Qwcy c0''}$
- ô ô \*3; : : +"Vt c purc skap 0 Cp" Kp vgt r t gukx g 'Crrt q c e j . '\tcpurc vkap "qh" Rct v" K'qh" Nø Cp c n( ug" f w' f kue q wt u' e q o o g 'o ² vj q f g 'f g '' vt c f we vkap . '\tcpu0 Rcvt ke kc 'Nqi cp" cp f 'O qpkec 'Etggt { . 'Qwcy c < Wpkx gtuk { 'qh' Qwcy c 'Rt guu0 }
- ô ô \*3; ; 2+"Ngu"crej ko kwgu"f gu"rcpi wguIVj g"Ncpi wci g"Crej go kww0'Uqek v² "f gu"vt cf wevgwt u"f w'S wgdge"\*3; 6263; ; 2+"
  Qwcy c<"Wpkxgtukv{ "qh"Qwcy c"Rtguu0
- ô ô \*3; ;  $3+":Rtqlgv'f \not o cvls wg'f g'rc''vtcf wevlqp o rlp''O rcf gp'Lqxcpqxle'*gf <math>0+"Vtcpurcvlqp$ . "C'Et gcvlxg" Rt qlgvullqp. "Rtqeggf lopi u'qh'Z Kj "Y qtrf 'Eqpi tguu'qh'HKV."Dgri tcf g."3; ; 2."Dgri tcf g<Rtgxqf krce. '856: 0
- $\hat{o} \hat{o} *3; ; 5+"Nc" \textit{it cf wevkqp"t c kuqpp}^2 \textit{g} \textit{'O c pwgn'f -lpkskc vkqp"c"nc"} \textit{it cf wevkqp"r t q lguukqppgng"f g"npcpi ncku"xgt u"ng" \textit{lt cp} \pm cku" } *Eqngevkqp" R^2 f ci qi kg"f g'nc" \textit{it cf wevkqp}+: "Qwcy c \mathbb{C}Rt guugu"f g"npWpkxgt uks" "f \mathbb{Q} vcy c 0 }$
- ô ô cpf 'Lwf kj "Y qqf uy qt j '\*gf u+'\*3; ; 7c+''*Vt cpurc vqt u''\j t qwi j "J kwqt {* .''Co uvgt f co ''cpf 'Rj krcf grr j kc<'Iqj p'' Dgplco kpu0
- ô ô cpf 'Lwf kj ''Y qqf uy qt yj ''\*gf u+'\*3; ; 7d+''*Ngu''st cf wevgwt u'f cpu'nøj knapkt g*. ''Qwcy c<''Ngu''Rt guugu''f g''nøWpkxgtuk?'' f øQwcy c ll f kklapu''WP GUEQ0
- F go gtuqp. 'I gpgxk' xg'\*3; : 6+":Lqcej ko 'F w'Dgmc{ '\tcf wevgwt'f g'hwk'o 'o gø'\p'I tcj co g'Ecuvqt'cpf 'Vgtgpeg'Ecxg'' \*gf u+''Pgq/Ncv\p'cpf ''\yj g'Xgtpcewrct'\p'Tgpc\nucpeg'Htcpeg. '\Qz\nqtf <\Enctgpf qp'\Rtguu.'33564: 0
- F gpj co ."Iqj p'\*3878+"Vj g'F gunt werkqp"qh'Vt q{. 'Nqpf qp<'J wo rj tg{ 'O qugrg{0}}
- F gttkf c."Lees wgu'\*3; 89 B; 98+"*QhI too o cvqnqi {*."\tcpu0I c{cvtk'Ej cmtcxqtv{ 'Ur kxcm'Dcnko qtg<'Iqj pu'J qr mkpu" Wpkxgtukx{ 'Rtguu0
- $\hat{o} \hat{o} *3; 9; + \text{``!Nkxkpi' 'Qp1Dqtf gt''Nkpguø'' 'tcpu0L0 wrdgtv.'kp''J ctqrf''Drqqo .''Lces wgu''F gttkf c.''I gqhttg{''J 0 ctvo cp.''cpf''L0 J krku''O krgt.''F geqpust wevkqp''cpf''Et kskelsso .''Nqpf qp''cpf''J gprg{<'Tqwrgf i g''cpf''Mgi cp''Rcwn''9763980 }$
- ô ô \*3; :  $7c+"Vj g'Gct"qh'Vj g'Qvj gt<'Qvqdkqi tcrj {."Vtcpulgtgpeg."Vtcpurcvkqp."*gf 0+"E00 eF qpcnf."vtcpu0R0Mco wh "Nkpeqnp."P G'cpf "Nqpf qp<'Wpkxgtukv{ "qh'P gdtcunc"Rtguu0$
- $\hat{o} \hat{o} * ] 3; : 2\_13; : 7d+":F gu'Vqwtu'f g'Dcdgm' kp'Lqugr j'I tcj co "*gf 0+"Fkhlgt gpeg'kp'Vt cpurc kqp." Kj cec<'Eqtpgm' Wpkxgtukx{ "Rtguu." 38764290}$
- $F gxcttkgwz."Emktg" \ 3;; 5+" \ 4 cmcpv \ Rctku"guv" wp" \ 1 qwgv \ "Nkdgtckqp" \ 5 qtu'u't'tkg \ 4 yu'' \ 2 ''hxtgu'' \ 2 ''hxtgu'' \ 5 q'' \ 0 ctej \ 366370$
- F gy f pg{."Ugny {p'\*3; 97+"Vj g'Ucet gf "Uct qmu'qh'Vj g'Uqwj gt p'Qlkdy c{."Vqtqpvq<"Wpkxgtukv{"qh"Vqtqpvq"Rtguu0
- Fg{gu. 'C(H0\*3; 9: +":-Vqy ctf u'c'Nkpi wkuke'Fghkpkkqp"qh'Hwpevkqpcn'Xctkgvkgu'qh'Y tkwgp'Gpi nkuj ø''KTCN'38\*6+<'53564; 0

  Føi wnv'Nkoxon'\*3: · 4+":-Vi o''Eanhdev'ah'Vtenurskan''O af om'kn''Hteneo'\*Gnf 'ah'3: vi /Doi knnkni 'ah'3: vi /Fonwtkon+ø''kn''
- Føj wnw. "Nkgxgp"\*3; : 4+":-Vj g"Eqphrkev'qh"Vtcpurcvkqp"Oqf gnu kp"Htcpeg"\*Gpf "qh"3: vj /Dgi kppkpi "qh"3; vj "Egpwtkgu+ø' kp" CONghgxgtg"cpf "MFOLcemqp"\*gf u+"Vj g"Ct v"cpf "Uekgpeg"qh"Vt cpurcvkqp. "F kur qukkq"9\*3; 643+<636740
- ô ô \*3; : ; +"::Uwt 'm'r q² ukg''\tcf wksg''gv'ugu''gplgwz ''cw'Z KZ g''uk² erg<'rg''f quukgt ''f gu'\tcf we\kqpu'htcp±ckugu''f g''nc''õNgpqtgö''f g''
  Dwti gtø''*Nkpi wkukec ''Cpvxgtr kgpukc*''35</a>36: 30
- $\hat{o} \hat{o} *3; ; 2+"Egpv'cpu'f g''y ^2qt kg''ht cp \pm ckug'f g''nc''vt cf wevkqp0F g''Dcwgwz''«''Nkwt^2''*396: 63: 69+"Nkmg<"Rt guugu" Wpkxgtukckt gu'f g''Nkmg0$
- ô ô \*3; ; 3+":Rqwts wqk'gv'eqo o gpv'² etktg''nøj kuvqktg''f gu''vj gqtkgu''f g''nc''vtcf wevkqpAø''kp''O ncf gp''Lqxcpqxke''\*gf 0+" Vtcpurcvkqp. ''c 'Et gcvkxg''Rt qhguukqp. ''Rtqeggf kpi u''qh''Z Kij ''Y qtnf 'Eqpi tguu''qh''HKV. ''Dgni tcf g.''3; ; 2. ''Dgni tcf g<'' Rtgxqf knce. ''796840
- ô ô \*3; ; 6+":Gpugki pgt 'hc''tcf wevqmi kg $\alpha$ "O gw"5; "\*3+<  $\dot{o}$ 360
- f k'Rkgvtq. 'T010\*3; 93+''Nc pi wc i g''Ut wewt gu'kp'Eqpvt cuv. 'P gy dwt { 'J qwug'Rwdrkuj gtu0
- f k'Uvghcpq''cpf 'DOHqmrctv'\*3; : 4+":-Vtcpurcvkqp''cu''Nksgtct{ 'Etkskekuo ø''O gw''49\*5+<'4636780
- Fkcxc/q. "Ur gekcn' Kuuwg ''qp' 'Vtcpurc wqp. ''pq0378. 'Cyj gpu. ''5' F gego dgt'3; : 80
- $F \ ke|\ / F \ kqectgv|\ . \ 'O \ 0*3; : 7+" \ Vt \ cpurc v \ pi \ 'Rqgv \ ke' F \ kueqwt \ ug < S \ wguv \ kqpu' \ qp' \ 'Hgo \ kp kuv' \ Ut \ cvgi \ kgu' \ kp' \ Cf \ t \ kgppg' T \ kej . \ '' Co \ uvgtf \ co < Lqj \ p' \ Dgplco \ kpu0$
- Fkmg. "Q0C0Y 0\*3; ; 3+":Ncvkp 'Kpvgtrtgvcvkqpu 'qh'Rvqngo {øu'I gqitcrjkcø 'kp'C0Fcn| gm'Ejctngu 'Hcpvc| | k'cpf 'Tkejctf'I0 Ujqgen 'gfu+'Cevc' Eqpxgpvvu'pgqrcvkpk'Vqtqpvqpgpuku "Dkpijcovqp. "P[ <0 gfkgxcn'cpf 'Tgpckuucpeg "Vgzvu'cpf" Uvwfkgu. "4; 565230
- cn'F kh e.'eCrkeCdf/Cmcj '\*3; : 613; : 7+':Kuket f 'CnVwt yj ''cn'emo "cn'eCtcdk'cn'Km o ø']C''Uwtxg{ ''qh'yj g'Kurco ke'Ctcdke'' Uekgp\khe'J gtkci g\_''Cy t s''Lcf f c'']P gy 'F qewo gpw\_.'xqni'9''cpf'': .'32; 6420
- Fkrikpi gt. 'O kng'\*3; : ; +":Eqo r qpgpv'Rtqeguugu'qh'Uko wnxcpgqwu'Kpvgtr tgvcvkqpø0'Wpr wdrkuj gf 'Rj F''

```
yj guku. "F gr ct vo gpv'qh'Gf wecvkqpcn'Ru{ej qrqi {.'OeI km'Wpkxgtukv{.'Oqpvtgcn0
```

F ko qem 'Gf y ctf 'E0\*3; 96+'Vj g'Nkgt cwt gu'qh'Kpf kc. 'Ej keci q<'Wpkxgtukv{ 'qh'Ej keci q'Rt guu0

F kpgmqx.''R0\*3; 82+"::©dgt'f kg'C whgkpi g'f gt''dwri ctknej gp''Nkvgtcwtø.''*Kpvgt pc vkqpc n'Lqwt pc n'qh'Urc xke''Nkpi wkwkeu''cpf "* Rqgvkeu.''xqn**'/K4O** 

Fkpi y cpg{.'Cpwtcf j c''cpf 'Ectqn'O ckgt'\*gf u+'\*3; ; 7+'Dgwy ggp'Ncpi wci gu''cpf 'Ewnwt gu<'Vtcpurcvkqp''cpf 'Et quw' ewnwt cn'Vgzwu.''Rkwudwti j <'Wpkxgtukv{ ''qh''Rkwudwti j ''RtguuO

Fkqr. "Ej gknj "Cpvc" "3; 77+" Pckqpu'p 3 i t gu"gv'ewnwt g. "Rctku Kt² ugpeg "Chtkeckpg0"

ô ô \*3; 96+"Vj g'Cht kecp 'Qt ki kp 'qh'Ekxkhk| cvkqp<'O { vj ''qt 'T gcnkx{A. 'P gy ''[ qtmx'NOJ km0

Fktkpi gt."Fcxkf"\3; 8: +"Vj g"Cnrj cdgvOC"Mg{"\q"\j g"J kwqt{"qhOcpnkpf."4"xqnv."Nqpf qp<"J wej kpuqp0

 $\label{eq:figure} Fqffu." Lqjp" O 0*3; : 7+" \textit{V} j \textit{gqt} \textit{V}' \textit{Cpf}' \textit{R} \textit{t} \textit{cevkeg}'' \textit{qh' Vgz v' Cpc'n'} \textit{uku''cpf}'' \textit{V} \textit{t} \textit{cpurcvkqp''Et kkekuo} . "xqn' 030' \textit{N} \textit{kgt ct {'R} t qug}." Wf lpg < Ecor cpq wq 0$ 

 $\hat{o} \quad \hat{o} \quad \hat{s};; 4+\text{":-Vtcpurcvkqp'Etkkekuo'kp'Fghgpeg'qh'vjg'Rtqhguukqp@'Tkxkuvc'Kpvgtpc/kqpcng'fk'Vgepkec'fgnc'Vtcfw/kqpg'' 3660$ 

Fqj gtv{.'O 0\*3; : 9+":-Vgzv'Eqppgevqtuô c'Tgcf kpi 'Ckf ø''Dcdgrl554346390

Fqkpc ." v'Cwi 0\*3; 87+":Fkhekn 'tkuecpv'f ct 'pw'ko r qukdknø']Fkhhewn. 'Tkun( 'dw'pqv'Ko r quukdng\_."Ugeqnwizz ''4<3796840

ô ô \*3; 94d+" pugo petkrg 'wpwk' 'tef wee vqtø'] P qvgu'qh'e 'Vtepure vqt\_.' 'kp'' v'C wi 0F qkpc '\*gf 0+"Rqg/kg'' k'o qf 'r qg/ke." Dwej etguve' Go kpguew' Rwdrkuj kpi 'J qwug. '49: 6; 30

 $\hat{o} \quad \hat{o} \quad \hat{s}'' ; :: c + \text{``Curc undf g''unpgug''hupf } co \ gpucng'' ] C \text{``Ucu''qh''Hupf } co \ gpucn'' Uqwpf u\_.'' Dwej \ ct guv \in \text{``Wpkxgtu''Rwdrkuj kpi ''J } qwug0$ 

 $^{\circ}$   $^{\circ}$   $^{\circ}$ 3; ::  $d+^{\circ}$ F gur tg''tcf wegtgc'hkf gn 'c'r qg| kgkø']Qp''y g'Hcky hwd'Vtcpurcvkqp''qh'Rqgvt {\_.'kp''} v'Cwi 0F qkpc ''Cvrcuwrlf g'' uwpgvg'hwpf co gpvcrg. 'Dwej ctguv<'Wpkxgtu'Rwdrkuj kpi ''J qwug.''75;  $^{\circ}$ 6790

Fqrgflgn'Nwdqo¶'\*3; 87+":Rtcflunî"-nqrc'c'uvcwurkenî 'vgqtkg'da upkenî j q'lc|{ncø']Vj g'Rtci wg'Uej qqn'cpf 'vj g'Uvcwurkenî' Vj gqt{''qh'Rqgwe''Ncpi wci g\_" gunî 'rkvgtcwutc''3: ≥3236350

Fqmgtwr."Ec{"cpf"Xkdgmg"Crrgnt"gfu+"\3;; 8+"Vgcej kpi "Vtcpurckqp"cpf"Kpvgtrtgvkpi "5<Pgy"Jqtk|qpu0Rcrgtu"htqo" vjg"Vjktf"Ncpi wci g"KpvgtpcvkqpcntEqphgtgpeg."Co uvgtfco "cpf"Rjkrefgrrjkc<Lqjp"Dgplco kpu0

ô ô cpf 'Cppg' Nqffgti cctf' \*gfu+'\*3;; 4+'' Vgcej kpi 'Vtcpurc kqp''cpf' Kpvgtrtg kpi <'Vtckpkpi.' Vcrgpv'cpf' Gzrgt kgpeg."

Couvgtfco' cpf' Rjkrcfgrjkc < Lqjp' Dgplcokpu0

ô ô cpfô ô \*gfu+"\*3;; 6+"*Vgcej kpi "\tcpurc kqp"cpf "Kpvgt r t gvkpi "4<"Kpuki j vu. 'Cko u. 'Xkukqpu.* 'Co uvgtf co 'cpf" Rj krcf grr j kc<"Iqj p'Dgplco kpu0

Fqpcktg. 'O 0N0'cpf 'H0Nchcti c'\*gf u+'\*3; ; 3+'Vtcf week» p''l "cf cr vcek» p"ewnwt cn<br/>C Gur C "C/Ht cpekc. 'Wpkxgtukf cf 'f g'' Qxkgf q<br/>Ugtxkekq 'f g'RwdrkecekqpguU

Fqwoc."HPnkz"\*3; 94+":Tgxkgy kpi "c"Vtcpurckqp<"C"Rtcerkecn"Rtqdngo "kp"Nkgtct{"Etkkekuo &"Ogvc"39\*4+<"; 663230 Fqy pkpi ."D0cpf "MD gno u"Vknct{"\*3; ; 4+"Rtqhguukqpcn"Vtckpkpi "hqt"Eqoowpky "Kpvgtrtgvgtu<"C"Tgrqtv'qp"Oqfgnu'qh" Kpvgtrtgvgt"Vtckpkpi "cpf" "yj g"Xcnvg"qh"Vtckpkpi ."Okppgcrqnkx"Egpvgt"hqt"Wtdcp"cpf"Tgi kqpcn"Chrcktu."Wpkxgtukx{"qh"Okppguqvc0

ô ô cpf "NUy cdg{"\$3;; 4+"C"O wnkrkpi wcn'O qf gnlhqt "Vt ckpkpi "I gcnj "Ect g"Kpvgt rt gvgt uORcr gt "r tgugpvgf "cv"P cvkqpcn" Eqphgtgpeg"qp"I gcnj "cpf 'O gpvcn'I gcnj "qh"Uqxkgv'T ghwi ggu."j gnf "kp"Ej keci q. "Knkpqku."WUC."qp"F gego dgt "32634." 3;; 30

Ftcpv:"V0\*3788+"C'O gf kekpcdng'O qtcn''sj cv'ku.''sj g'Vy q'Dqqmu''qh'J qtceg''J ku''Ucvkt gu''Gpi nkuj gf ''Ceeqtf kpi ''sq''sj g'' Rt guet kr vkqp''qh'Uv'J kgt qo g. "eksgf ''kp''Co qu'\*\*]3; 42\_''3; 95+0

Ftcumcw.'IO\*3;: 9+"Vjg'S wgw/hqt'Gs wkxcngpeg<'Qp'Vtcpurcvkpi'Xknqp.'Eqrgpj cigp<'Cyjgpgwo 0

Ftkgu."Iqugrjkpg"\*3;; 7+"Fwddkpi"cpf"Uwdvkrkpi <I wlf grkpgu'lqt"Rtqfwevkqp"cpf"Fkwtkdwkqp."FAuugrfqth<'Gwtqrgcp"
Kpurkwwg"hqt"yjg"Ogfkc0

 $Ft\{f.gp."Iqj.p"*]38: 2\_"3; 48+"+Rt.ghceg" \q''Qxkf. au'Gr. kungu'Vt.cpurc.vgf" \label{eq:control_cpf} up "kp"Y QR0Mgt" \gf 0+"Guuc. \q''qh' \ Lqj.p"Ft\{f.gp."P.gy" \qtm0Cnq<"Rt.ghceg" \q''Qxkf. au'Gr. kungu" \q''V0T Uvgkpgt" \gf 0+"3; 97. "8: 6940$ 

ô ô \*]38: 7\_'3; 84+":Rtghceg'\q"*Ul nxcg*<'qt'\yi g'Ugeqpf 'Rctv'qh'Rqg\kecn'O knegmcpkguø'\kp'I gqti g''Y cwqp'\\*gf 0+."Lqj p" Ft{fgp.":*QhFtcoc\ke'Rqgul\phi'cpf 'Qvj gt 'Etkkecn'Guuc{u* "xqn'04."Nqpf qp<'Fgp\0

Ft| gy kenc."C0\*3; 93+"\ "/ci cf pkg "vgej pknk"v6wo ce/gpkc"rqg/lk"]Qp"vj g"Vgej pks wg"qh"Rqgvke"Vtcpurcvkqp\_."Mtcmqy <"Y {f cy pkey q"Wpkxgtu{vgw"Ici kgmq unkgi q0

F wetqv.'Q0\*3; 94+"Fktg"gv'pg"rcu'fktg.'Rctkx $\forall$ J gto cpp0

 $F wf ng \{.''F 0F 0'C pf ''F 0O 0'Ncpi '''gf u+'''3; 8; +''Rgpi wkp''Eqo rcpkqp''vq''Nkytcwt g''xqn'06 <'Encuskech'cpf''D(/cpvkpg.''Qt kgpwch'' cpf''Cht kecp''Nkytcwt g.''J cto qpf uy qtyj <'Rgpi wkp0$ 

Fwhh'Crep'\*3;:; +"Vt c purc vkqp. 'Qzhqtf <'Qzhqtf 'Wpkxgtukv{ 'Rtguu0

F wmgu. 'IOY (HO\*3; 8; +":Vj g'Eqpvtkdwkqp'qh'I gvÀrkq'Xcti cu'\q'\j g'O qf gtpk cvkqp'qh'Dtc| km/'kp'GP 0'Dremepqhh'\*gf 0+" Vj g'Uj crkpi ''qh'O qf gtp'Dtc/kn''Devqp'Tqwi g. ''NUK'Nqwkukepe''Uvevg''Wpkxgtukv{ ''Rtguu. '586790

Fwpdct."J 0'cpf "XO lãtpci gt "Rgf gtugp" 3; ; 2+" Eqo r wgt 'Clf gf "Vtcpurckqpø' Vj g'Fqrrj lp'3: " tj wu+ '32; 6430

 $\hat{o} \;\; \hat{o} \;\; \text{cpf 'MOC} \; \text{pf gtugp'*3}; \; ; \; 3 + \text{''} \textit{Y RPI GT'Tcrrqtv'qo ''gv'qxgtuo} \; \textit{vsgrugu''rtqitco u''wf xkmkpi ''} \; \text{Y kpi gt'Tgrqtv'qp''yi g''}$ 

 $F gxgmr o gpv'qh'c''Vtcpumvkqp''Rtqi tco o g\_'*FCQ''4+."Eqr gpj ci gp<'Egpvtg'hqt''Vtcpumvkqp''Uwf kgu."Eqr gpj ci gp'' Wpkxgtuk<math>\{0\}$ 

F wpmgr. 'F (10 0\*3; 82+":-Vj g"Y qtm'qh' Vtcpurc wqp"cv' Vqngf qø "Dcdgn' 8\*4+<'776; 0

F wtcpvk'Tkeectf q"\*3; 9; +":Nc"f qrrkc"o gfkc| kqpg"f k'Ectecpqø"kp"Ncwtc"Ectgvk'\*gf 0+"Kilvgcvtq"f gn"

```
rgtuqpci i kq0Uj cngurgctg'luunc'luegpc'kschkcpc'f gnø'': 22. 'Tqo g<Dwn qpl0
```

F wt.kgwz.'E0\*3;::+"Hapf go gpv'f kf cevks wg'f g'hc''\tcf wevkap''\gej pks wg. 'Rctku<"F kf kgt/\text{twf kklap0}

F w w. 'C 10\*3; 92+":-Vtcf wegtg" k'o qf gretg'kp'ewnwtc'tqo ¬p 'f kp''r gtkqcf c''nwo kpkrqtø']Vtcpurcvkqp''cpf 'O qf grrkpi 'kp''y g'' Tqo cpkcp'Ewnwtg'kp''y g''Rgtkqf ''qh'Gprki j vgpo gpv\_'kp'CnF ko c. 'KEŒj k ko kc. 'O @ qxkeqx. 'RŒqtpgc. 'UXKgrgc''cpf 'G0' Rqr gcpi '\*gf u+''Rtqdrgo g'f g''hvgt c wt ''eqo r ct c v '' k'uqekqrqi kg''hvgt ct . ''Dwej ctguv<'Rwdrkuj kpi ''J qwug''qh''y g'' Tqo cpkcp'Cecf go {.''3776; 0

Gci gvqp. "V0\*3; 99+":-Vtcpurcvlqp"cpf "Vtcpulqto cvlqp@"Ucpf"3; \*5+<94690

Gdgn'IO\*3; 8; +"::Vtcpurcvkqp"cpf 'Ewnwtcn'P cvkqpcnkuo "kp"vj g'Tgki p"qh'Grk| cdgvj ø"Lqwtpcn'qh'vj g"J kwqt { "qh'If gcu'52\*6+<" 7; 568240

Geq.''W0\\*3; 84+'\N\phi Qrgtc''crgtw.''O krcp<'Dqo r kcpk0

- ô ô \*3; 98+"C"Vj gqt { "qh"Ugo kqvkeu. 'Drqqo kpi vqp."KP <"Kpf kcpc"Wpkxgtukv{ "Rtguu0
- ô ô \*3; 9; +"Vj g'Tqng"qh'vj g'Tgcf gt <"Gzrnqt c vkqpu"kp"vj g"Ugo kqvkeu"qh'Vgz vu. "Dnqqo kpi vqp."KP <"Kpf kcpc"Wpkxgtukv{" Rtguu0
- ô ô \*3; : 6+"Ugo kqvkeu"cpf "vj g"Rj krquqrj { "qh!Ncpi wci g."Drqqo kpi vqp."KP <"Kpf kcpc"Wpkxgtukv{ "Rtguu0
- ô ô \*3;; 2+"Vj g"Nko ku"qh"Kpvgt r t gw vkqp. 'Dmqo kpi vqp. "KP < Kpf kcpc "Wpkx gtukv{ "Rt guu0
- $\hat{\text{o}} \;\; \hat{\text{o}} \;\; \text{`$3$}; ; 5 + \text{`$1$} \text{'} \text{'} \text{tkegtec'} \text{f gnc''} \text{hpi wc''} \text{r gt hgwc.'} \text{Dctk-'} \text{Ncvgt} | \text{c0}$
- ô ô \*3; ; 6+"*Uz 'Y cmu'kp ''j g'Hkevkqpcn'Y qqf u*."Eco dtkf i g<"J ctxctf 'Wpkxgtukv{ ''Rtguu0

Geqpqo qw."I Oʻcpf "I OʻCpi grkpctcu"\*3; 9; +"Dkdrkqi tcrj {"qh'O qf gtp"I tggrlXgtug<"Vtcpurcvkqp"qh'Cpekgpv'I tggrlRqgvt{." Cyj gpu<"Wpkxgtukx{"qh'Cyj gpuO

Gf y ctf u. "Cnkekc" "3; ; 7+" Vj g'Rt cevkeg" qh'Eqwt v'Kpvgt rt gvkpi . "Co uvgtf co "cpf "Rj krcf grr j kc<" Iqj p"Dgplco kpu0

Gki gp. 'O 0'cpf 'T0Y kpmgt'\*3;  $97+"Pcwti gugv/g'' lugwgtp'' f gp'' \ whcm'' O wpkej <'Rkr gt="tcpu0'T0'cpf 'T0'Mko dgt''cu'' Ncy u''qh'' y g'' I co g. '3; : 5. 'J cto qpf uy qtyj <'Rgpi wkp0'$ 

Gkpctuuqp. "U0\si3; 83+" ungpunid» no gppvcuci c'] Jkunqt { "qh'lkegropf ke'! Nkugtowtg\_. 'Tg { mlcxkm: Upâ dl³/4p'L» puu» p''cpf 'Eq0 Gkpj qtp. 'J (10\si3; : 2+":: Ngctpkpi 'htqo 'Gzr gtkgpeg''cpf 'Uwdqr vko cn'T wrgu'kp'F gekukqp/o cmkpi ø'kp''UVV0Y cmrvgp'\sigf 0+" Eqi pkrkxg'Rt qeguugu'kp'Ej qkeg''cpf 'F gekukqp'Dgj cxkqt. 'Jkmuf crg. 'P L<'Ncy tgpeg' Gtmlcwo 'Cuuqekcvgu. '36420

Gku. 'I 0\*3; 93+":O kwgnj qej f gwuej g'Nkgtcwt<'Hcej r tqucø'kp'N0G0Lej o kw'\*gf 0+"Mwt/gt'I twpf tkul'f gt'i gto cpkuej gp" Rj knqnqi kg'dku'3722. 'xqn04. 'Dgtnkp<'f g'I tw{vgt. '74: 6940

Grkqv."IO\*3888+"Vj g'Kpf kcp'I tco o ct'Dgi wp. ''qt ''Cp'Guuc{ ''\q'Dt kpi ''\j g'Kpf kcp'Ncpi wci g'kpvq'Tvngu<'Hqt''\j g'I gnr''qh'' Uwej ''cu'F gukt g'\q'Ngctp''\j g'Uco g. ''hqt'\j g'Hwt vj gt cpeg''qh'\j g'I qur gn'Co qpi 'Vj go .''Eco dt kf i g.''O C<'O cto cf wng'' Iqj puqp0

Grikqv.'C0\*3;;5+"::Vtcpurcvkpi 'Rqgvke'Hqto uø."Vtcpurcvkqp'cpf'Nkvgtcvwtg'4<

 $\textit{Gnkrug} \text{``*3; } 99+\text{``*Ur gelen'} \textbf{Kuwg'} 43+\text{'':-Vj g''} \textbf{Vtcpurc} \textbf{kqp''qh''} \textbf{Rqgvt} \{ \emptyset 0 \}$ 

Gnku. 'T qi gt'\*gf0+'\*3; ; 3c+'Vj g''O gf kgxcn'Vt cpurc vqt ''4. ''Y guvhkgrf 'Rwdnkec vkqpu'kp'O gf kgxcn'Uwf kgu. 'Nqpf qp<'Egpvtg'hqt'' O gf kgxcn'Uwf kgu. 'S wggp'O ct { ''cpf ''Y guvhkgrf 'Eqngi g. 'Wpkxgtukv{ ''qh'Nqpf qp0}

- ô ô \*gf 0+"\*3; ; 3d+":-Vtcpurcvkqp"kp"\yi g"O kf f rg"Ci guợi "Pgy "Eqo rct kuqp."340
- ô ô cpf 'TOVkzkgt'\*gf u+'\*3; ; 8+''Vj g'O gf kgxcn'Vt cpurc vqt '7. ''Vwtpj qwx''Dtgr qnx0

LOY qi cp/Dtqy pg."UO gf ecrh'cpf 'ROO gtgf kj '\*gf u+'\*3; : ; +'Vj g'O gf kgxcrlVt cpurc vqt '3. 'Eco dtkf i g<F UUDtgy gt0 Grkuvqp. 'LOU 0\*3; 9; +''-Eqo r wgt/ckf gf ''Vt cpurc vkqp<'C ''Dwukpguu''Xkgy r qkpvø''kp''DOO Upgm'\*gf 0+''Vt cpurc vkpi ''cpf ''j g''  $Eqo\ rwgt$ . 'Co uvgtf co <'P qtyj ''J qmcpf 0

Gny gtv. 'Y knj gm 'Vj gqf qt'\*3; 82+':Nøgo r nqk'f g'hcpi wgu'² vtcpi ³ tgu'eqo o g'r tqe² f² 'uv{ nkuvks wgø' 'Tgxwg'f g'Nkw² tcwt g''  $Eqo\ r\ ct^2$  g'56\*5+<'62; 6590

Gn( ku. 'Q0\*3; 98+'F ghgt k'I tcrj k']Ugeqpf "Y tkkpi \_.'Cyj gpu<'Knctqu0

Gpe{engrcgf kc'Lwfckec'\*3; 94+0Ctvkerg'qp'vj g'Dkdrg.'Igtwucrgo <'Mgvgt0

 $\label{eq:continuous} \textit{Gpe}\{\textit{enqrgf ke'F kevkqpct}\{\textit{"qhTgrki kqp"*3}; 9; + \text{"gf 0'Rcwrl'Mgxkp'O gci j gt."Vj qo cu'EQQØDtkgp"cpf "Ukuvgt"Eqpuwgrq'O ctkc" Cj gtpg. "Y cuj kpi vqp. "F E<Eqtr wu'Rwdrkecvkqpu0"}$ 

ô ô \*3; ; 5+":Ugo cpvke"Ej cpi g'lp"Vtcpurcvkqp"C"Eqi pkkxg"Rgtur gevkxgø"lp"I co dkgt "cpf "Vqo o qrc" "gf u+0 
\*hqtyj eqo kpi +"::Qo knukqpu"lp"Eqpugewkxg"Ipvgtr tgvcvkqp<"Gxkf gpeg"qh"c"F gekukqp"Eqo r qpgpvø"lp"Rt qhguuqt "Cpf gtu"

U3/dgti "kp"o go qt kco." Uvqenj qro <"Ipvkxwg"qh"Urcxqpke"cpf "Dcnke"Ncpi wci gu. "Uvqenj qro "Wpkxgtukv{0

Gpi y cm'I 0\*3; ; 6+":P qv'Ej cpeg'dw'Ej qkeg<Etkgtkc'kp'Eqtr wu'Etgckqpø'kp'D0V00Cvnkpu'cpf 'C0 co r qmk'\*gf u+"

Eqo r wwckqpcn'Crrtqcej gu'vq''yj g'Ngzkeqp. 'Qzhqtf 'Qzhqtf 'Wpkxgtukx{ "Rt guu0

Gpmxkuv."P 0G0\*3; 95+"Nkpi wkuke"U/nkukeu."Vj g"J ci wg<'O qwqp0

 $\hat{o} \hat{o} *3; 9: + \text{``Eqpvtcurkxg''Vgzv''Nkpi wkurkeu'cpf''Vtcpurcvkqp@''kp''NQ tcj u.'I (Mqtn²p''cpf''D0O cmo dgti '*gf u+''Vj gqt{''cpf''} Rtcerkeg''qh'Vtcpurcvkqp.''Dgtpg<''Rgvgt''Ncpi 0$ 

Gtcuo wu. "R0 $^{*3}$ ; 98+"DwHcnq"Fc{u"cpf"Pki j wOCu"\qnf"\q"J gpt{"Vj qo r uqp0Kpvtqf wevlqp"d{"Kgpg"Urt{."Ecni ct{<' Inppdqy/Cntlgtvc"Kpurkswg0}}}

```
Gtkeuuqp. "M0'cpf "J (Uko qp'*3; : 6+"Rt qvqeqn'Cpcn' uku<"Xgt dcn'Tgr qt vu'cu'Fcvc. "Eco dtkf i g. "O C<"O KV"Rt guu0 ô ô *3; : 9+":Xgtdcn'Tgrqtvu'qp"Vj kprkpi \phi"kp'Hcgtej "cpf "Mcurgt'"gf u+0
```

Guectr kv. 'T0\*3; 84+":Nc'F² hkpkkqp'f w'\gto g''Nkw² t c wt gø''kp''Rt qeggf kpi u'qh'iyj g'Vj ktf 'Eqpi t guu'qh'iyj g'KENC. "Vj g" J ci wg<"O qwqp. '996: ; 0

Guuo cpp. 'J 0\*3; ; 4+'©dgtugv/ wpi ucpvj qrqi kgp<'Gkpg'V{rqrqi kg'wpf "gkpg'Wpvgtuwej wpi "co 'Dgkur kgrlf gt'' co gt knc pkuej gp'Xgt uf kej wpi 'kp'f gwwej urt cej ki <math>gp'Cpvj qrqi kgp. '3; 4263; 82'\*P gwg'Uwf kgp'| wt 'Cpi rkurkri\wpf'' Co gt knc pkurkri79+. 'Ht cprimat v<'Rgvgt'Ncpi 0

ô ô cpf 'Cto kp'Rcwi'Htcpm'\*3; ; 2+":Vtcpurcvkqp'Cpvj qmi kgu<'Cp'Kpxkxcvkqp''vq'vj g'Ewtkqwu''cpf 'c'Ecug'Uwf { $\emptyset$ ''Vcti g $\emptyset$ '5 \*3+C876; 20

ô ô cpf "WULej qgpkpi "\*gf u+"\*3; ; 8+"*Y gnukyt c wut "kp"f gwulej gp"Xgt uc pvj qnqi kgp"f gu"3; 0Lcj t j wpf gt wl* "\$\frac{3}{4} \text{wkpi gt"} Dgkt@g" wt "Kpvgt pcvkqpcngp"@dgtugv| wpi uhqtuej wpi "33+."Dgtnkp<"Gtkej "Uej o kf v0

 $\hat{o} \hat{o} *3; 9: c+":Vj g''Rqukkqp"qh''Vtcpurcvgf ''Nkgtcwtg''Y kj kp''vj g''Nkgtct \{ ''Rqn{u{uvgo \&''kp''J qro gu.''Nco dgtv'cpf ''xcp''f gp'' Dtqgenh''gf u+0 }$ 

ô ô \*3; 9: d+"Rcrgtu"kp"J kunqt kecrlRqgvkeu"\*Rcrgtu"qp"Rqgvkeu"cpf "Ugo kqvkeu": +:"VgrlCxkx<Rqtvgt"Kpuvkvvvg"hqt"Rqgvkeu"cpf "Ugo kqvkeu"

 $\hat{o} \hat{o} *3; ; 2+"Rqn(u) uvgo "Uwf kgu." Vgrl'Cxkx<" Vj g'Rqtvgt "Kpurkwwg'hqt" Rqgvkeu'cpf "Ugo kqvkeu="F wtj co ." P E<"F wng" Wpkxgtukv("Rtguu." 'ur gekcn'kuuvg" qh'<math>Rqgvkeu'Vqf c$ (." '33\*3+0

Gxplpg."U0\*3;; 3+"Fqpcrf"Fcxlfuqp."Qzhqtf<Rqrkv{"Rtguu0

Hcgtej ."M0cpf 'I OMcur gt'\*gf u+'\*3; : 9+'Kpvt qur gevkqp'kp'Ugeqpf 'Ncpi wci g'Tgugctej ."Ergxgf qp<'O wnkrkpi wcn'O cwgtu0 Hcpi 'I cq'\*3; 8: +'\ j qpi zk'lkcqvqpi 'uj k']J kuvqt { "qh'Kpvgttgrcvkqpu'dgwy ggp'Ej kpc"cpf 'vj g'Y guvgtp'Y qtrf \_.'7'xqnı." Vckr gk<'\ j qpi j wc'y gpj wc'ej wdcp'uj k{ g'uj g0

Hcs kj. 'O cuøwf '\*3; 98+":-Vctlqo gj ''xc''Rc{f cøk/{g"Vgøcvt''f ct''Ktcpø']Vtcpurcvkqp''cpf ''vj g''Go gti gpeg''qh''vj g''Vj gcvtg''kp'' ktcp\_.''Hctj cpi ''xc''\ gpf gi k'45<946: 70

Hetf { .'DOF 0\*3; : 6+"Lgtt{'Rqwu.'Rcref kp"qh'yj g'Rrekpu.'Nepi rg{<'O t'Rer gtdeen0

Heti j cn'O 0\*3; ; 5+" $\div$ O epci kpi 'kp''Vtepurevkqp<'C''Vj gqtgvkecn'O qf gm²''O gw''5: \*4+ $\checkmark$ 4796890

Hcwmpgt. "R0\"gf 0\"\"3; 95\"Y knkco "O qtt ku<'Vj g'Et kkecn'J gt kici g. "Nqpf qp''cpf 'Dquvqp<'Tqwrgf i g''cpf 'Mgi cp''Rcwt0 Hcy egw. "Rgvgt'\"3; ; 7+":\"Vtcpurc\qp''cpf 'Rqy gt''Rrc $\{$ \alpha''Vj g''Vtcpurc\qt''3\"4+\"399\"6; 40

 $\hat{o} \; \hat{o} \; \text{cpf ''Qy gp''J gcvj eqvg''*gf u+'*3}; \; ; \; 2+''Vt\,cpurc\,vkqp''kp''Rgt\,hqt\,o\;cpeg <'R\,cr\,gt\,u''qp''vj\;g''Vj\;gqt \{\,''cpf''Rt\,cevkeg''qh''\,Vt\,cpurc\,vkqp.\,''Dt\,cf\;hqtf <'Wpkxgtukv\{\,''qh''Dt\,cf\;hqtf\,0} \; \}$ 

Hgcyj gt."Iqj p'\*3; ; 5+":Dqqntr wdrkuj kpi 'kp'Dtksckp<'Cp'Qxgtxkgy ø''O gf kc. 'Ewnwt g'cpf 'Uqekgv\'37<'3896: 30
Hgf gtkek 'Hqtwpcvq'\*3: 4: +'F gi nk'wet kwqt k'i t gek'g'f gmg'kscnkcpg''xgt ukqpk\f gmg'nqt q''qr gt g. 'Rcf wc<'Uqe0'Vkr 'f gmc''
O kpgtxc0

Hgf gto cp. 'Tc{o qpf '\*3; : 9+":-Vj g''Y tksgt''cu''Ugrh/vtcpurcvqtø''kp''Crcp''Y cttgp''Htkgf o cp. 'Ej ctrgu'Tquuo cp''cpf 'Fkpc'' Uj gt| gt''\*gf u+"Dgengw'Vtcpurcvkpi IVtcpurcvkpi 'Dgengw'. 'Wpkxgtukx{ "Rctm''RC''cpf 'Nqpf qp<'Rgppu{rxcpkc''Uvcvg'' Wpkxgtukx{ 'Rtguu. '96380

Hgf qtqx. "C0X0"3; 75+"Xxgf gpkg"d"\sqqt kw'r gt gxqf c"] Kpvtqf wevkqp"\q'\yi g"Vj gqt { "qh"Vtcpurc\kqp\_. 'O queqy <'Nk\gtcwt { "pc" kpquvtcppkz" { c| kncz "\*5tf "gf p"3; 8: ."Qupqx{ "qduj ej gk'\sqqt kk'r gt gxqf c"] Hqwpf cvkqpu"qh"c"I gpgtcn"Vj gqt { "qh" Vtcpurc\kqp\_. 'O queqy <'X { uuj c { c"uj mqrc+0

Hgndgt.'J O'cpf 'I Owf kp'\*3;:; +'Vgto kpqnqi kg'kp'Vj gqt kg'kpf'Rtczku.'VAdkpi gp<Pctt0

Hgrf o cp. 'I 0\*3; : 8+": I qkpi 'I mdcm\( 'Rwdrkij gt u'Y ggm\( \) ."3; 'F gego dgt."42\( 60 \)

Hgnrkpgt 'I0'\*3; : 2+"Vt cpurc kpi 'Pgt wf c"Vj g"Y c{"vq"O ceej w'Rkeej w."Ucphqtf <'Ucphqtf 'Wpkxgtukv{ "Rtguu0

 $\label{eq:helicity} \verb"Hgtgp" \Pn" \verb"L" p" "3"; : 4 + "Mqpvgzvf" "rtgmcfw." "Dtcvkurexc< "Unqxgpum" "ur kuqxcvg" 0$ 

Hgttctc. 'C0\*3; : 2+":Crrtqrtkcvgpguu'Eqpfkkqpu'hqt'Gpvktg''Ugs wgpegu''qh''Ur ggej 'Cewø''Lqwtpcn'qh'Rtci o cvkeu''6<5436

Hgttctk"Nwki k\*3; 47+"Ng"/tcf w/kqpk'kscrkcpg'f grl'vgcvtq"/tci keq"/tcpegug"/pgk'ugeqrk'ZXKKg"ZXKKK"Rctks<"Nkdtcktkg" Cpekgppg"Gf qwctf "Ej co r kqp0

Hguv. 'C0\*3; 62+":O gf kgxcn'Eqpvcevu'dgw ggp'Gpi rcpf 'Cpf 'J wpi ct {ø''J wpi ct kcp'S wct vgtn('3<'4746860

ô ô \*3; 8; +":Cpi rq/J wpi ctkcp"J kuvqtkecn'cpf "Ewnwtcn'Tgrcvkqpuø" "Cpi qn'Hkrqn» i kck'Vcpwro "p{qm'3√6660

 $Hk'cn'Cf\ cd''y\ c/n'Vc\phi n'h'y\ c/n'vctleo\ c'hk'cn'tky\ \{c''cn^ctcdk\}\{c''^3;;5+''Dgktwk'cn'O\ we cucuuc''cn^ctcdk\}\{c''n'kn'Fktcu\ v'y\ c/n'P\ cui\ tO$ 

Hoppgi cp. 'T0\*3; 92+'Otcn/Nkgtcwtg'kp'Chtkec. 'Qzhqtf <Entgpf qp'Rtguu0

Hktdcu."IO\*3; 97+"::Qp"'y g"Vj go cvke"cpf "y g"P qpyj go cvke"Ugevkqp"qh"y g"Ugpvgpegø"kp"J OTkpi dqo '\*gf O+"Uv/ng"cpf "Vgzv<" Uwf kgu'Rt gugpvgf "vq"Pkw/Gt km'Gpmxkw:"Uvqenj qm <'Untkr vqt0

Hktyj ."LOTO\*3; 8: +"Ugngevgf 'Rcrgtu'qh'LOTOHktyj '3; 7463; 7; ."gf OHOTORcm gt."Nqpf qp<'Nqpi o cp0

- Hkuej gt. 'N. 'MD (Htgki cpi .'HO c{gt'cpf'WOTgkpng'\*gfu+'\*3; ; 6+''Urtcejfcvgpxgtctdgkwpi'hÃt'©dgtugv|gt'wpf" Fqno gwej gt0Cmgp'fgu'U{orqukwou'|wo'Cduejnw'fgu'UcctdtÃengt'Oqfgnxgtuweju.'4: 04; 0Ugrvgodgt'3; ; 4." J knfgujgko <I gqti'Qnou'Xgtnci0
- Hkuej gt. 'O kej cgn'O (LO'cpf 'O gj f k'Cdgf k\*3; ; 2+":-Vtcpurcvkpi 'S wtøcpke 'F kcmi keu<"Kurco ke 'Rqgvkeu 'cpf 'Rqnkskeu 'hqt" O wurko u'cpf 'hqt 'Wuø 'J gto gpgwskeu'cpf 'vj g'Rqgvke 'O qvkqp'\*\*Vtcpurcvkqp'Rgtur gevkxgu'X+:"Dkpi j co vqp. 'P [ <'Uvcvg' Wpkxgtukv{ "qh'P gy "[ qtm'cv'Dkpi j co vqp. '33364; 0
- Hkuej gt."Qvqmct'\*3; 4; +"-Q'r gm² f² pk'd² upkem ej 'f m']Qp''yj g''Vtcpurcvkqp''qh''Rqgvke''Y qtmu\_."Fw-g'c''unqxq."4856:50 HKV''Eqo o kwgg'hqt''Vtcpurcvkqp''Etkskekuo '\*3; ; 6+"O kwegncp{"qp''Vtcpurcvkqp''Etkskekuo ."Rtci wg<'Hcewn\{ 'qh''Ctvu.''Ej ctrgu'' Wpkxgtukx\{ 0}
- Hkej ."Dtkcp"V0\*3; : 5+"::Nøkpvtc/kpvgtvgzwcrkP"kpvgtrkpi wkurks wg"f g"Dgengw<"rc"r tqdrP0 cvks wg"f g"rc"vtcf wevkqp"f g"uqkø" Vgzvg"4< 763220
- $\hat{o}$   $\hat{o}$  \*3; : 7+":-Vj g"Uxxwu"qh"Ugrh/vtcpurcvkqpø"'Vgzvg"6 $\lessdot$ 336470
- ô ô \*3; :: +"Dgengw'cpf 'DcdgnOCp'Kpxguki cvkqp'kpvq'\'ij g'Ucvwu'qh'\'ij g'Dkrkpi wcn'Y qtm'"Vqtqpvq. 'Dwhcnq''cpf 'Nqpfqp<' Wpkxgtuk\' 'qh''Vqtqpvq''RtguuO
- Hkwu. 'F 0\*3; 76+'::Vj g''Vgc/Uj qr 'Cwtcø''Vj g''Pgy 'Tgrwdrke. '6''Lcpwct { . '3: 63; 0
- $\label{eq:continuous} \begin{tabular}{ll} \b$
- Hkt i gtcrf. 'G0\*3:: 2+"Vj g"F qy phemlepf"F ge yj "qhlMkpi "Qgf kr wu. 'I wkrf hqtf <'Dkrkpi "cpf" Uqpu0
- ô ô \*3; 24+"÷Ngwgt" 'vq 'GOD0'Etqy gmø'kp" Vj g'Xctkqtwo "cpf "Fgkkpkkxg' Gfkkqp" qh' vj g'Rqgvkecn'cpf 'Rtqug' Ytkkpi u. "xqn0' 8." Pgy "[qtm: Fqwdngfc {0
- Hmtgpeg."J 0\*3; 63+"Xkci go 'hwxkcnff q'Vkgv' "cq'Co c/qpcu'f g'3: 47"c'3: 4; ."U q'Rcwm<'O gnj qtco gpvqu0
- Hrqtgu."Ncwtq'\*3; : 9+":Eqpxgti kpi "Ncpi wci gu'kp"c"Y qtrf "qh'Eqphrlevk"Eqf g/uy kej kpi 'kp'Ej kecpq'Rqgvt {ø"xkukdrg" Ncpi wci g'43\*3+\"3526740
- Hnyvy ."Nwkug"xqp"\*3; ; 3+":Hgo kpkuv"Vtcpuncvkqp<Eqpvgzvu."Rtcevkegu"cpf "Vj gqtkguø""VVT<Vtcf wevkqp."Vgt o kpqnqi kg."

  Tgf cevkqp"6\*4+<"8; 6: 60
- ô ô \*3; ; 9+"*I gpf gt "cpf "Vt cpurc kqp0Hgo kpkw"Crrt qcej gu"Gzrnc kpgf*. "O cpej guvgt <"Uv"Igtqo g"Rwdrkuj kpi 0 Hrqy gtf gy ."ID\*3; ; 4+":Cp"Gf wec kqpcn"qt"Rt qeguu"Crrt qcej ."vq" y g"Vgcej kpi "qh"Rt qhguukqpcn"I gpt guv "Gpi rkuj" Ncpi wci g"Vgcej kpi "Lqwt pcr"69" "6+<"5276390
- Hqct ." 0\*3; 95+":Hcni'\tcvc\'r gp\tw'\w| wi\tcf\ we \qt\kqt\g'\]Hcnig'\Vtgc\kug'\hqt'\y g'\Wug'\qh'\Vtcp\urc\qtu\_."\Gej\kpqz'\32\96: 0 ô \*3; 98+":Ncwt² co qp\v\\p'\v m ektg'\f\ wdn\g'\]Ncwt² co qp\v\\p'\F\ qwdig'\Vtcp\urc\qt\qp\v'\46< \\dots; 0
- Hqf qt."Knx" p"\3; 98+"Hkro" Fwddkpi <Rj qpgvke."Ugo kqvke."Cgwj gvke"cpf "Ru{ej qrqi kecrlCur gevu."I co dwti <I gro w\"
  Dwung0
- $$\label{eq:hamper:localization} \begin{split} &\text{Hqngpc."I kcphtcpeq"*3; 95+":} \\ &\hat{o} \hat{o} \text{ *3; : 5+":} \\ &\text{Ngu'lrcpi wgu'lf g''lrc''eqo $^2$ f kg''gv'lrc''eqo $^2$ f kg''f gu''lrcpi wguø''kp''Ej tkukcp''Dge''cpf''K$^3$ pg''O co e| ct| ''*gf u+"Ng'''} \end{split}$$
- $\hat{o}$   $\hat{o}$  \*3;; 3+Xqni ctk/ctg'g''ktcf wttg. "Vwtkp<"Gkpcwf k0
- Hqturgt.''Ngqpctf'\*3; 92+"Vj g'Rqgv⁄u'Vqpi wgu<'O wnkrkpi wcrkuo 'kp'Nkvgt c wt g.''Nqpf qp.''P gy '[ qtmlcpf''U{f pg{< Eco dtkf i g''Wpkxgtukx{''Rtguu0}
- $\hat{o} \quad \text{``gf 0+'*3; 7: +''} Cur \textit{gew'qh'Vt cpurc vkqp''*} Uwf \textit{kgu''kp''Eqo o wpkecvkqp''4+: 'Nqpf qp<'Ugengt''cpf ''Y ctdwti 0''}$

Vj <sup>2</sup> ¬t g'kx rkgp'gv'nøGwt qr g. 'ZXg/ZXKg'uk³ ergu. 'Rctku<'Rt guugu'Wpkxgtuksckt gu'f g'Htcpeg. '456730

- Hquuc.'N0\*3; ; 4+":Nqu'õNgpi wcuö<br/>'Kpvgtr tgvcel»p'eqpugewkxc''gp''gn'uki my'ZXKa''Dqngvkp''Cuqekcek»p''f g'Vt cf wevqt gu'' gi t gucf qu'f g'nc''Wpkxgt ukf cf''Tkectf q''Rcno c''6<36340
- Hqwecwn.'O lej grl\*3; 93+"Vj g'Qtf gt 'qllVj lpi u.'\tcpu0'cpqp0'P gy '[ qtm\Rcpyj gqp0
- Hqwej geqwt. 'Ej ctrgu/J gptk'f g'\*3; :  $8+'Oqtcrkc < Ngu'Pqvkqpu'oqtcrgu'fcpu'rc'rkw^2tcwtg'rgtucpg'fg'5^gl; g''cw'9^gB5^g"$   $uk^3erguORctku<''$  f kkqpu'T gej gtej g''uwt''rgu'EkxkrkucvkqpuO
- Hqy ngt. 'G0\*3; ; 4+":Tgpf gtlpi "Y qtf u. "Vtcxgtulpi 'Ewnwtgu<'Qp"'y g'Ctv'cpf 'Rqnkleu"qh''Vtcpurcvlpi 'O qf gtp'Lcr cpgug'' Hlevlqpø''Lqwtpcn'qhLcrcpgug''Uwf kgu'3: ♂6660
- Hqy ngt. "Tqi gt'\*3; : 7+"-Rqy gtø'kp''V0xcp'Fklm'\*gf0+J cpf dqqm'qh'F kueqwt ug'Cpcn'(uku 'xqn06.'Nqpf qp<'Cecf go ke'Rtguu0 ô ô \*3; : 8+"Npi wkuke'Et kkekuo .'Qzhqtf''Wpkxgtukv'('Rtguu0
- $\label{eq:hamiltonian} Hq|.'E0*3; :: +":Nc' vcf wevkqp/crrtqrtkcvkqp<'rg''ecu''f gu''vcf wevgwtu''vqr?f cpu''f gu''34g''gv'35g''uk?ergu\( a'''VVT<'Vtcf wevkqp.'' Vgto kpqrqi kg.''Tgf cevkqp''3*4+<'7; \delta 6860$
- ô ô cpf "J (Guuo cpp" "3; ; 2+": Vtcpurc lqp "Cpyj qrqi kgu<"C "Retef ki o cvke "O gf kwo "qh" "Kpvgtpe vkqpen" "Nkvgtet { "Vtcpulgtø" Co gt kne uwf kgp 1 "Co gt keep" Uwf kgu "57\*3+ "96420"
- TONcwgt. 'HRcwn' 'DOUej wn\| g. 'LOxqp' 'Ucengrdgti .''J OV wtm'cpf' 'Vj OY qrr gtu' \%gf u+'\%3; : 96+''+J \%wkpi gt' 'Dgkvt \& g'' | wt'' Kpvgt pc vkqpc ngp' \@dgt ugv| wpi ulqt uej wpi \\delta' ugt kgu. ''Dgt nkp<'Gt kej ''Uej o kf v0
- ô ô ."Mwt v LÃti gp'O ccuu."Htk | "Rewn'cpf" J qtuv'Vwtm'\*gf u+!\*3;; 5+!©dgt ugv| gp. "Xgt uvgj gp. "Dt Ãemgp" dc wgp <' I gkwguy kuugpuej chrkej gu'Wpf 'rkvgt ct kuej gu'©dgt ugv| gp 'ko 'kpvgt pc vkqpc ngp 'Mwnwt c wuwc wuej "¾ ¾wkpi gt 'Dgkst® g'| wt" Kpvgt pc vkqpc ngp '©dgt ugv| wpi uhqtuej wpi ": +:"Dgt nkp <'Gt kej "Uej o kf v0
- Htcpmqy unk "IO\*3; 97+"õ:Dkdrkc"V{ uk ergelcöö v@|"k"r tqdrgo cv{ mc"r t| gm@f wø"]Vj g":O krrgpkwo "

- Dkdrgø<'Dceni tqwpf "cpf "Uqo g"Vj gqtgvkecn'Kuwgu\_'kp'Rqncn'\*gf 0+0
- Htcugt."Lcpgv\*3;; 5+":Rwdrke"Ceeqwpvu<"Wukpi "Xgtdcri'Rtqvqeqru'vq"Kpxguvki cvg"Eqo o wpkx{ "Vtcpurcvkqpø"*Crrrl*vgf " *Nkpi wkukeu*"36\*6+<"5476650
- ô ô \*3;; 6+":-Vtcpurcvkpi "Rtcevkeg"kpvq"Vj gqt{<"C"Rtcevkecn"Uwf{"qh"S wcrkv{"kp"Vtcpurcvqt"Vtckpkpi ø"kp"Ecvtkqpc"Rkengp" \*gf0+"WKEqphgtgpeg"9"Rtqeggfkpiu."Nqpfqp<"Kpuvkwwg"qh"Vtcpurcvkqp"cpf"Kpvgtrtgvkpi0
- $\hat{o} \quad \hat{o} \quad \hat{s} \\ \text{?".} \forall j \text{ g'Vtcpurcvqt' Kpxguvki cvgf} \\ \text{?Ngctpkpi 'htqo ''Vtcpurcvkqp' Rtqeguu' Cpcn{uku&''Vj g'Vtcpurcvqt''4*3+48769; 0 } \\ \text{?} \end{aligned}$
- Htcy ng{."Y kmkco "%gf 04%3; : 6c4"Vtcpurcvkqp<"Nkvgtct{."Nkpi wkurke."cpf "Rj kmquqrj kecn'Rgturgevkxgu."Nqpf qp"cpf "Vqtqpvq<"Cuuqekcvgf "Wpkxgtukv{"Rtguugu0
- $\hat{o} \ \hat{o} \ ^*3; : 6d + "-Rtqngi qo gpqp" \ 'q"c" \ 'yj gqt \{ "qh" \ 'Vtcpunc \ \ 'qp \ \ ''+tcy ng \} " \ ''+tcy ng \} = (1.5)$
- Htgkj qhh 'Tqrcpf '\*3; ; 5+":©dgtrgi wpi gp"| wt 'Ewttlewnwo r rcpwpi 'wpf '/gpwy kemnwpi 'ko 'Dgtgkej 'f gt 'Vtcpurcwlqpø" VGZVeqpVGZV': 3; 964460
- $\label{thm:power} \begin{tabular}{ll} Htket."M0*3; 95+":Qp"Vtcpurc\labelqp@'\lape'Oqfgtp'I tggmlRqgvt{0Htqo'Ecxclku'\q'Gn\nku'\P'gy'\[qtm\ck{U}\laped qp'\cpf''Vej wuvgt0 Htkgu."ECE0*3; 67+"Vgcej kpi "cpf''Ngctpkpi "cu'c''Hqtgki p''Ncpi wci g."Wpkxgtuk\{"qh'O kej ki cp0 \end{tabular} \end{tabular}$
- Hi kuj dgti ."P cpe { "\*3; : 8+" Kpvgt r t gvkpi < Cp" Kpvt qf wevkqp. "T qej xkmg. "O ct { mpf < T KF "Rwdrkecvkqpu."4pf "gf p"3; : 90 H { qf qtqx. "C0X0\*3; 75+"Xxgf gpkg"x"vgqt kf w'r gt gxqf c" ] Cp" Kpvt qf wevkqp" vq" yj g"Vj gqt { "qh" Vtcpumcvkqp\_."O queqy < Kf cvgnrxq" rksgtcwt { "pc"kpquvtcpp { mj "{c| { mcmj 0}}}
- $\hat{o} \hat{o} *3; 8: + "Qupqx{"qduj ej g{"vgqt kk"r gt gxqf c"}] Hqwpf cvkqpu'qh"c"I gpgtcn"Vj gqt { "qh"Vtcpurcvkqp_..'O queqy < X { uuj c { c" uj nqrc0 } } }$
- I cej gej krcf | g. "I OTO\*3; 89+": Tgcrkuo "cpf "Fkorgevkeu"kp" vj g"Ctv'qh' "Vtcpurcvkqp." "Dcdgrl35\*4+0"
- $\hat{o} \hat{o} *3; 92+"Xxgf gpkg"x"vgqt k\{w'nj wf q/j gwxgppqi q''r gt gxqf c''] Cp"Kpvtqf wevkqp"vq"vj g''Vj gqt \{ ''qh''Nksgtct \{ ''Vtcpurcvkqp_.'' Vdkvtuk''Kf cvgnvxq''VI W0$
- I cf.'D0\*3; 96+"*Unng'Dg{gtu'dgctdglf gnug'chY knt*kco" *Uj cngur gct gu'N{unur kn*']Ukng'Dg{gtøu'Cf cr vcvkqpu'qh'Y kntkco" Uj cngur gctgøu'Eqo gf kgu\_'\*Uwsf kgt'htc'ur tqi /'qi ''qnf vkf uhqtumpkpi gp''4: 7+. ''Eqr gpj ci gp<'I cf 0
- I cf co gt. "J cpu/I gqti "\3; 8213; ; 2+"Y cj tj gkv'wpf 'O gvj qf g0I twpf /Ãi g "gkpgt" rj krquqrj kuej gp" J gto gpgwkm"
- $\hat{o} \hat{o} *gf 0+*3; : 9+"Vtcpurcvkqp"Gzegngpeg<"Cuuguu'o gpv."Cej kgxgo gpv."Ockpvgpcpeg. "Co gtkecp"Vtcpurcvqtu"Cuuqekcvkqp" Uej qrctn{ 'O qpqi tcr j "Ugtkgu."xqr0K"Dkpi j co vqp."P [ <"Wpkxgtukv{ "Egpvgt"cv"Dkpi j co vqp0}$
- ô ô \*3; ;  $7+Tgxkgy "qh"Vj g"Hco kn("Kf kqv."d{"LgcpRcwn'Uctvtg." \tcpu0d{"Ectqn'Equo cp." Eqorctcvkxg"N kvgtcwntg"69*3+<": 4660$
- $I \ \text{ckrrkctf.''} + 10\%3; :: + \text{''} + 3\%2 \text{r qrcpi wgu'} + 3\%359 + 3\%390$
- $I\ cm''X0\ 0\%3; :: + ''Vkr\ qnqi\ k\{\ c''nqp\ vgmuwcrpknj\ ''\{\ c|\ knqxknj\ ''r\ tgqdtc|\ qxcpkk''r\ tk''r\ gtgxqf\ gø'']V\{\ r\ qnqi\ \{\ ''qh''Vgz\ wcn''\ Ncpi\ wci\ g''Vtcpuhqto\ cvkqp''kp''Vtcpuhqto\ cvkqp_...'kp''CGF\ U.j\ xgkugt''\ gf\ 0+''Vgmw'k''r\ gt\ gxqf\ '']Vgzv'cpf\ ''Vtcpuhqto\ cvkqp_...'O\ queqy\ <'' P\ cwnc.'856980$
- I a n''N''3; 65+"*J wpi ct{"cpf" y g'Cpi m/Uczqp"Y qtnf*."Dwf cr guv<'Qhhlekpc0
- I crep."Htcpvk-gml\*3; :: +"*J knat ke"Ut we wit gu. "Vj g"Rt ci wg"Uej qqn'Rt qlgev'3; 4: 63; 68.*"C wurkp<"Wpkxgtukv{ "qh"Vgzcu" Rtguu0
- I cmci j gt. "V0\*3; : 3+":Rqgvt { 'lp "Vtcpurcvkqp<'Nksgtct { 'Ko r gtkcrkvo ''qt 'F ghgpf kpi ''y g'O wum'Qzø''. Rct pc uuwuô Vj g'Rqgvt { '' Tgxkgy '', \*3+<'36: 6890
- I co dkgt." [xgu'\*gf 0+\*3;:8+"VTCPU" Vwtmw Wpkxgtukv ['qh' Vwtmw." Uej qqn'qh' Vtcpurcvkqp' Uwf kgu0
- \*3; ; 4+":Cf cr vc\kqp<"wpg"co dki w\v2 "c"\kpvgttqi gt\\alpha "O gvc"59\\*5+\<643\\delta70
- ô ô \*3; ; 6+"Ncpi wci g"Vt cpulgt "cpf "Cwf kqxkuwcn'Eqo o wpkecvkqp0C"Dkdnkqi t crj {."Vwtmw<"Wpkxgtukv{ "qh"Vwtmw0
- $\hat{o} \quad \text{$^*$gf 0+$''3;; 7+$''Eqo o wpkeckqp''cvf kqxkuwgng''gv''s coulgt withpi wkuks wgulCvf kqxkuwcrl'Eqo o wpkeckqp''cpf''Ncpi wci g'' Vt coulgt 0 Kpvgt pcvkqpcvkqpcvl'Hqt wo.''Ut cudqwt i ''4464688;; 7.''ur gelcn'kuuvg''qh''Vt courc kq<'HKV''P gy urgwgt''36*566+0$
- ô ô \*gf 0+\*3;; 8+''*Ngu'\t c pulgt wi'hpi wkuks wgu'f c pu'ngu''o 2f kc u'c wf kqxkuwgnu*. ''**Nkrrg**<''Rt guugu''Wpkx gt uksckt gu''f w''
  Ugr vgpvt kqp0
- ô ô cpf 'IWqo o qnc'\*gf u+'\*3; ; 5+'Vt cpurc kqp''cpf 'Mpqy ngf i g<'Rt qeggf kpi u'qh'\yi g'3; ; 4''Uecpf kpcxkcp''U| o r qukwo ''qp'' Vt cpurc kqp''Vj gqt {.''Vwt mw<'Egpvtg'hqt''Vt cpurc kqp''cpf 'Kpvgtr tg\kpi 0
- I cte\[ gdtc.'\X0\];: 4+'Vgqt\[ "\f"rt" evkec'\fg'\nc'\tcf week\]p.'\O cftk\[ 0\]
- $\hat{o} \hat{o} *3$ ; : 5+"Gp"\qtpq"c"hc"\tcf week»p0Vgqt \\$c0Et \\$kec0U knqt kc."O cf t\f <\I tgf qu0
- I ctf kpgt. 'Cncp'\*3; 95+'Gi {rvkcp'I tcooct. 'dgkpi ''cp'Kpvtqf wevkqp''vq''y g''Uwf {''qh'J kgtqi n(rj u. 'Qzhqtf <'Qzhqtf'' Wpkxgtukx{''Rtguu0
- I cti cvci rk'Cpc'\*3; ; 4+"::Nc''tcf week»p'f g'Co²tkecø0'Wpr wdrkuj gf 'r cr gt'r tgugpvgf ''cv'':Rtko gt''eqpi t³ u''kpvgtpcekqpcn'' uqdtg''tcf week»ø''Wpkxgtukcv'Cww»pqo c'f g''Dctegmpc0
- ô ô cpf 'III (Nqrg| 'I wkz'\*3; ; 4+":Hkeekqpgu"{ '\gqt\cu'gp'rc'\tcf week\p<Iqti g'\Nwku'Dqti guø '\Nkxkwu'3\796890

- $I \; \text{cwx.kp.''Nkug'cpf''T ckpkgt'} I \; \text{two cp'*3}; \; ; \; 8 + \text{":-Ncpi wgu'gv'nkw} \; \text{tcwx.tgu} + \text{"rept or gpvu'f g''dkdrkqi tcrj kg} \; \text{"Nkw} \; \text{tcwx.tg''} \; \text{323} < : 63470 \; \text{spvu'f g''dkdrkqi tcrj kg} \; \text{"Nkw} \; \text{tcwx.tg''} \; \text{spvu'f g''dkdrkqi tcrj kg} \; \text{"Nkw} \; \text{tcwx.tg''} \; \text{spvu'f g''dkdrkqi tcrj kg} \; \text{"Nkw} \; \text{tcwx.tg''} \; \text{spvu'f g''dkdrkqi tcrj kg} \; \text{"Nkw} \; \text{tcwx.tg''} \; \text{spvu'f g''dkdrkqi tcrj kg} \; \text{spvu'f g''dkdrkqi tc$
- I cxtqpum(."U0\s3; 99+":\Vj g"Vtcpurc\qt<\Htqo "Rkg\{"\q'Ecppkdcrkuo \@"\Und\Ucpeg"\38\75\6840
- I gdj ctf v.''R0\*3; 92+''C0Y 0'Uej ngi gnu''Uj c ngur gct g©dgt ugv/ wpi 0'Wpvgt uwej wpi gp''/ w'ugkpgo ''©dgt ugv/ wpi uxgt hcj t gp''co ''

  Dgkur kgrlf gu''J co ngv.''I ¾xxkpi gp<''Xcpf gpj qgem'cpf 'Twr t gej v0
- I grd. "K pceg' IO 3; 96+ C' Uwf { "qh'Y t kkpi". Ej keci q Wpkxgtukx qh' Ej keci q' Rtguu 0
- I grigturco .'Octvlp'\*3; : 8+"÷Vtcpurcvlqpgug'lp'Uy gf kuj 'P qxgnu'Vtcpurcvgf 'htqo 'Gpi rkuj ø'lp'N0'Y qrrlp'cpf 'J ONkpf s wkuv' \*gf u+"Vtcpurcvkqp'Uwf kgu'lp'Uecpf kpcxkc.'Nwpf <EY M'I riggtwr 0
- I gpgwg. 'I 0\*3; 94+"Hki wt gu"KKK" Rctku L'Ugwkr0
- I gpvkrg. 'Cf qrhq. 'Wrf ku'Q| qrkpu'cpf 'O ct { 'Xcukrcmcmqu'\*y ky 'Ngqpi 'Mq'cpf 'Vqp/Vj cv'S w{ pj /F w+'\*3; ; 8+'Nkc kuqp'' Kpvgt r t gvkpi <C'I cpf dqqm'O grdqwtpg<O grdqwtpg'Wpkxgtukv{ 'Rt guuO
- I gpvkrg."I kqxcppK\*3; 42+":-Vqtvq"g"f ktkvq"f grrg"vtcf w kqpkø"kp"*Uet kvk"xct k010Ht co o gpvk'f k"et kkec "g"Ngwgt c wt c*."
  Ncpekcpq<"Ectcddc0
- I gpv| ngt. 'Gf y kp'\*3; ; 5+'Eqpvgo rqt ct{ 'Vt cpurc vkqp'Vj gqt kgu. 'Nqpf qp''cpf 'P gy '[ qtmc'Tqwngf i g0
- I gqti kgx.'Go kn'\*3; 77+":Uc| f cxcpgvq''pc''Rtgurcxuncvc''k'Qj tkf uncvc''Mpq| j qxpk'Uj mqrk'x''Utgf pqxgmqxpc''Dwri ctkcø'']Vj g'' Guvcdrkuj o gpv'qh''y g''Rtgurcx''cpf ''Qj tkf c''Nksgtct{''Uej qqnu''kp''O gf kgxcn''Dwri ctkc\_.''kp''y g''*Cppwcn'Dqqni'qh'Uqhkc''* Wpkxgtukvf.''Uqhkc<"F gr ctvo gpv'qh''Rj kqmi {.''P cwnc''k'K mwxxq''Rwdrkuj gtuO
- $I^2 tctf.'C0 \% 3; : 8c"cpf ''d+''Gwtqrgcp/ncpi wcig'Y tkkpi ''kp''Uwd/Ucjctcp''Chtkec.''xqni''Kcpf ''KK''Dwfcrguw''Cnxcf^2o kck'' Mkcfq0$
- I gtm/h 'R0\*3; : 8+":-Ugeqpf 'Ncpi wci g'Ngctpgtuø'Tgrqtvu'qp''y g'Kpvgtrtgvkxg'Rtqeguu<'Vcm/cmwf 'Rtqvqeqnu'qh' Vtcpurcvkqpø'kp'J qwug'cpf 'Dnvo Mvmc'\*gfu+0
- $I \ gtxgt.'F \ cxkf''*3; 98+":Go \ r \ ktleen'Uwf \ kgu''qh''Uko \ wncpgqwu''Kpvgtrtgvcvkqp<'C''Tgxkgy ''cpf''c''Oqfgnø''kp''Dtkurkp''*gf0+."\\ 38764290$
- ô ô cpf "J OY cmceg "Ukpckmq" "gf u+" "3; 9: +" "Ncpi wci g" "Kpvgt r t gw vkqp" cpf "Eqo o wpkecvkqp." "P C V Q" Eqphgt gpeg "Ugt kgu." P gy "[ qtm'cpf "Nqpf qp<" Riguw "Rt guw 0
- I gt | {o kuej / Ctdqi cuv. 'J 0\*3; ; 6+' @ dgt ugv/ wpi u/y kuugpuej chrkej gu'Rt qr @ gwkmwo . "VAdkpi gp < Htcpeng0
- I kgug. "Y knj gno "\*3; 83+": Gri'go r ngq'f g'ngpi wcu'gz vtcplgtcu'gp'nc'qdtc'rksgtctkcø."  $Uwfkc'Rjknqnikec < Jqo gpclg'c'' F^ao cuq'Cnqpuq$ . "xqr04. "O cf tkf <I tgf qu. '9; ó; 20
- I kndgtv.'I (P 0'cpf 'O 00 wmc{'\*3; : 6+"Qrgpkpi 'Rcpf qtcøu'Dqz <'C'Uqekqnqi kecn'Cpcn(uku'qh'Uekgpvkuvuø'F kueqwtug." Eco dtkf i g<'Eco dtkf i g''Wpkxgtukv{'Rtguu0
- I krg. "F cpkgrl\*3; : ; +"::Nc"eqo o wpkecvkqp"rkpi wkrvks wg"gp"t² wpkqp"o wnkrkpi wgô Ngu"f khhkewn² u"f g"rc"vtcpuo kuukqp" kphqto cvkqppgng"gp"kpvgtr t² vcvkqp"uko wncp² gø0"Wpr wdrkuj gf "Rj F "f kuugt vcvkqp. "Wpkxgtukv² "f g"rc"Uqtdqppg"P qwxgng." Rctku"KKO
- ô ô \*3;; 6+":-Qr gpkpi "wr "kp"Kpvgtr tgwcvkqp"Uwf kguø "kp"Upgm/J qtpd{."R3/ej j cengt"cpf "Mckpf n'\*gf u+: '36; 67: 0
- $\hat{o} \ \hat{o} \ ^*3;; 7c+'Tgi\ ctf\ u''uwt\ 'rc\ 't\ gej\ gtej\ g''gp\ 'kpvgt\ rt\ gvc\ vkqp\ 'f\ g''eqphgt\ gpeg. ''Nkmg<''Rt\ guugu''Wpkx\ gt\ ukxckt\ gu''f\ g''Nkmg0$
- ô ô \*3; ; 7d+"Deuke"Eqpegrw"cpf 'O qf gnu'hqt "Kovgt r t gvgt "cpf "Vt cpurc vqt "Vt ckpkpi". "Co uvgt f co "cpf "Rj kref grr j ke<"Lqj p" Dgplco kpu0
- I kmp. 'O gkt '\*3; 9; +'Mqj gngv'O wuuct 'ng/O gpf gnuuqj p''cn't gnc '\mwhc vq'']O gpf gnuuqj pøu'Mqj gngv'O wuuct 'kp 'Ku'J kuvqt kecn' Eqpvgz v\_.'Igt wucngo <'Vj g''Kut cgn'C ecf go { ''qh'Uekgpegu'cpf ''J wo cpkkgu0
- I neung. 'E { tkn'\*gf 0+'\*3; : ; +''V  $j g'Eqpekug'Gpe{enqrgf kc''qh'Kurco}$ . 'Nqpf qp<'Uvceg{ 'Kpvgtpcvkqpcn0}
- I ngcuqp."J 0C0"It"\*3; 8: +":Eqpvtcurkxg"Cpcn{uku'kp"Fkueqwtug"Uvtwewvtgø"kp"Ico gu'G0Cncvku'\*gf0+"I gqtigvqyp"

  Wpkxgtukx{'3; vj 'Cppwcn'Tqwpf'Vcdng"Oggvkpi ''qp"Nkpi wkukeu'cpf'Ncpi wci g"Uwfkgu<Eqpvtcurkxg"Nkpi wkukeu''cpf'ku''

  Rgfciqi kecn'Kornkecvkqpu'\*\*Oqpqi tcrj "Ugtkgu''qp"Ncpi wci g"cpf"Nkpi wkurkeu''43+:"Y cuj kpi vqp."FE<I gqtigvqyp"

  Wpkxgtukx{'Rtguu0
- I nquuknk'Gr kmkpqpkc''ng'Gnkpknk'I nquuc''ukp''Gxt qr c knk'Mkpqvkvc <'O gvc ht c uk ''Rt qi t c o o c''Nkpi vvc'']Nkpi vvkuske''
- Eqo o wpkeckqp"cpf "I tggmiNcpi wci g"kp"y g"Gwtqr gcp"Eqo o wpkx{<"Vtcpurckqp."Nkpi wc"Rtqi tco o g\_."Ugrgekqp"htqo " y g"Eqphgtgpeg"Rtqeggf kpi u."Cyj gpu<Eqo o kuukqp"qh"y g'Gwtqr gcp"Eqo o wpkxkgu."3; ; 30
- I qf ctf. 'Dctdctc'\*3; ; 2+":-Vj gqtk kpi 'Hgo kpkn'F kueqwtugIVtcpurckqpø'kp'Dcuupgw'cpf 'Nghgxgtg'\*gf u+:": 96; 80
- I qffgp.'O 0'cpf'O 0Ncrkfig'\*gfu+'\*3;; 3+'Vjg'Ecodtkfig'Eqorcpkqp''vq'Qnf'Gpinkuj'Nkvgtcwtg.'Ecodtkfig<'Ecodtkfig'Wpkxgtukv{'Rtguu0
- I qgyj g."Iqj cpp"Y qrhi cpi "xqp" $^{1}$ 3: 3; \_'3; 99+":Vj g"Vj tgg"Gr qej u"qh"Vtcpurc\qp\@"gzegtr \gf 'htqo "\yj g"pq\gu"\q"Y gu\/" uwhej gt 'F kxcp"cpf "\tcpurc\gf '\d{ 'Cpf t^2 'Nghgxgtg."57690}
- I qgwej ."Rcwn\"3; : 9+":Higo fur tcej gp'\kp'f gt'\Nkgtcwt0\G\kp'\{r qmi kuej gt'\@dgtdr\kenn\(\frac{n}{2}\) | \"Fkcngmg" wpf 'Ht go fur t cej gp'\kp'f gt'\Nkgtcwt.\"V\Ad\kpi gp\"P ctt.\"6568: 0
- I qrf. 'F 0N0\*3; 97+":Rrcppkpi "c"Uej qqrl\qt"Vtcpurcvqtu"cpf "Kpvgtrtgvgtuø"Dcdgrl43\*5+\"3296: 0
- I qp±crkgu'Tqf tki wgu. 'C0C0\*3; ; 4+"C"t c f w±-q"go 'Rqt wi cn'36; 7 $\delta$ 3: 5 $\delta$ 6. 'Nkudqp<'Ko r tgpuc'P cekqpcnlEcuc'f c'O qgf c0
- I qpf c. "Icp"  $\gf 0$ "  $\gf 0$ "  $\gf 3$ ;  $\gf 97$   $\gf 4$ "  $\gf$
- I qpvej ctgpmq."U0\*3; : 7+":Vj g'Rquukdrg'kp''yj g'Ko r quukdrg0'Vqy ctf u'c''V{r qnqi { 'qh'Rqgvke''Vtcpurcvkqpø'kp''J  $0D\tilde{A}$ j rgt'' \*gf 0:363680
- I qp| ang| ."Fwgou' u'Tqugcpp."Xkevqtkc"Xauswg| cpf "J qm( 'O kmmgnuqp'\*3;; 3+"Hwpf co gpwcnu"qhlEqwtv'Kpvgtrtgwvkqp<" Vj gqt{."Rqnke{"cpf"Rtcevkeg."Fwtj co ."PE<Ectqnkpc'Cecf go ke"Rtgun0

I qp|  $^a$  rg| 'Rcrgpekc.'C0\si3; 59+":P qvkekcu'uqdtg'f qp'Tcko wpf q.'ct| qdkur q'f g'Vqrgf q'\si334763374+\\(\epsi'\) 'Ur cpkuej g'' Hqtuej wpi gp'\(^3\si8+\si'\); 463580

I qqf o cp. 'I 010\*3; 89+'Vj g'F wej 'Ko r cev'qp'Icrcp''\*386263: 75+'Ngkf gp<'Dtkm0

I qqf o cp. "MOcpf "UP ktgpdwti "\*gf u+"\*3; ; 3+"Vj g"MDO V"rtqlgev<"C"Ecug"Uwf { "kp"Mpqy ngf i gDcugf "O cej kpg" Vtcpurcvkqp. "Ucp"O cvgq. "EC<"O qti cp"Mcwho cpp0

I qqftkej."NŒcttkpi vqp"cpf"Ej cq{kpi "Hcpi "\*gfu+"\*3; 98+"*Fkevkqpct{"qhOkpi "Dkqi tcrj {*."4"xqnu."Pgy "[ qtm<"Eqnwodkc" Wpkxgtukx{"Rtguu0

I qtku."Qrkxkgt"\*3; ; 5+"::Vj g'S wgurkqp"qh"Htgpej "F wddkpi <'Vqy ctf u'c"Htco g"hqt"U{ uvgo cvke "Kpxgurki cvkqpø"'Vcti gv'7\*4+<'' 38; 6; 20

I qtr² g. 'F kpf c'N0\*3; ; 5+''Ugo kqvkeu''cpf ''vj g'Rt qdrgo ''qh'Vt cpurcvkqp''y kvj ''Ur gekcriT ghgt gpeg''vq''vj g'Ugo kqvkeu''qh'Ej ct rgu''
UR ght eg. 'Co uvgtf co <Cecf go kvej 'Rtqghvej tkhv0

 $\hat{o} \hat{o} *3; : 8+":Vtcpurcvkqp"Vj gqt{"cpf "vj g"Ugo kqvkeu"qh"I co gu"cpf "F gekukqpuø"kp"Nctu"Y qrrkp"cpf "J cpu"Nkpf s wkuv" gf u+" Vtcpurcvkqp"Uwf kgu"kp"Uccpf kpcxkc. "Nwpf <math><$ I rggtwr."; 863260

ô ô \*3; : ; +"-Y kwi gpuvgkp." Vtcpurc<br/>vkqp."cpf "Ugo kqvkeuø" Vct i gv'3\*3+<'8; ó; 60

 $I \; quelpp \{ \; \text{''cpf''Wfgt} \; | \; q' \text{''}3; \; 94 + \text{''} \textit{Ngu''Ncwt} \; \textit{kgtu'fg'} \; \textit{E}^2 \textit{uct}. \; \text{'Rctku''Ngu''} \; \; f \; \text{kkqpu'Cndgtv'Tgp^2}. \; \text{''tcpuOd} \{ \; \text{'CDgm'cpf'F0} \; | \; \text{'CDgm'cpf'F0} \; \text{''tcpuOd} \} \; \text{''tcpuOd} \; \text{''tcpuOd$ 

J qentkf i g'\*cu'I quekpp{"cpf "Wf gt| q+"cu" Cuvgt kz "cpf" ij g'Ncwt gn'Y t gc ij."3; 96. "Nqpf qp < J qf f gt "F cti cwf 0

I ¾ung. 'F 0\*3; ; 2+'ō:Mkpf tgf 'Ur ktkuAö'Vj g'S wguvkqp''qh'Co gtkecøu'Nkgtct{'Kpf gr gpf gpeg''cu'Tghrgevgf 'kp''Gctn{''

I gto cp'Cpyj qrqi kgu'qh'Rqgvt { ø''Co gt kmc uwf kgp lCo gt kecp'Uwf kgu'57'\*3+<576730

I qwrlyd." J gptkm"\*3; ; 4+"::Uwdvkrlpi ô C"P gy "Wpkxgtukx{"F kuekr rlpgø"kp"F qmgtwr "cpf "Nqffgti cctf" ygf u+:"3836920

ô ô \*3; ; 6c+":Uwdvknkpi <F kci qpcn"Vtcpurcvkqpø"*Rgt ur gevkxgu. "Uwf kgu"kp"Vt cpurcvqrqi {* "4\*3+<'3236430

 $\hat{o} \ \hat{o} \ ^*3;$  ; 6d+":Rgqr ng' Vtcpurc lkpi 'Rgqr ngø 'lkp' F qmgt wr ''cpf ''Nqf f gti cctf ''\*gf u+: ''4836960

ô ô \*3; ; 6e+"*Vgmwpkpi ô Ul pmt qp"dkngf o gf kgqxgt uâ wgnug*"]Uwd\kxrkpi ô U{ pej tqpqwu''Uetggp''Vtcpurc\kqp\_''\*FCQ''7+." Eqr gpj ci gp<"Egpvtg'hqt''Vtcpurc\kqp''Uwf kgu.''Eqr gpj ci gp''Wpkxgtukx{0

I qwuej gf. 'ICE0\*3958+'Cwuhwgj t nkej g'T gf gmwpuw' 'Ngkr | ki <'pq'r wdrkuj gt0

ô ô \*395213973+"Xgt uwej "gkpgt "Et kukuej gp"F kej vmvpuv." Ngkr | ki <'Dt gkmqr h0

I ¾ .'F kgvgt "cpf "Vj qo cu'J gtduv"3; : 9+":F gt 'htÃj g'Xqi gn'htpi v'f gp"Y wto <'Gtuvg'©dgtngi wpi gp"| w'gkpgt "Vj gqtkg'f gt" U{pej tqpkucvkqp"\*Gpi nkuj F gwuej +ø"/CCCô Ctdgkvgp"cwu'Cpi nkukn'iwpf 'Co gt kncpkukn'i34\*3+<'356480

I qwcf ge. 'F 0\*fqt yi eqo kpi + 'Cuuwt cpeg''s wc $rkv^2$  ''gp''\t cf we $vkqp\hat{o}$  Rgturgevkxgu''rt qhguukqppgmgu''Ko <math>rrkecvkqpu''  $r^2f$  ci qi ks wgu0

I tcf f qn 'F 0 'IŒ j guj kt g 'cpf 'IŒ y cpp '\*3; ; 6+F guet kdkpi 'Nc pi wc i g. '4pf 'gf p. 'Dwenkpi j co 'cpf 'Dt kuvqn 'RC  $\angle$ Qr gp 'Wpkx gtukv 'Rt guu0

I too uek 'Cpvqpkq'\*3; 6913; 97+'S wcf gtpkf griect egt g. "Vwtkp<'Gkpcwf k0

I tcp. 'Ncwtc'cpf 'Iqj p'F qf f u'\*gf u+'\*3; : ; +''Vj g'Vj gqt gwecn'cpf 'Rt cewecn'Cur gew'qh'Vgcej kpi 'Eqphgt gpeg'' Kpvgt rt gwwqp. 'Wf kpg<'Eco r cpqwq0

I tcugu. "R0%3; : 3+":-Vtcf weekqpgu'f g'kpvgt² u'r qr¶kleq/ewnwtcn'gp"rc'² r qec'f g'rc'Kpf gr gpf gpekc'f g'Xgpg| wgrcø'kp" *Kpukwekqpgu'f 'pqo dt gu'f grluki rq'ZK*Z. 'Qdtcu'8. 'Dctegqpc<'Gf kqtkcn'Ugkz'Dcttcn'3576770

I towt. 'Cn0\*3; 92+"::Vtcf wegtgc"guvg"r qukdkn Aø"] Ku" Vtcpurcvkqp" Rquukdng A\_"kp" CnI towt "\*gf 0+" *Uet kgt k'f g"kgt k" k'f g"c/k*" Dwej ctguv L'Uekgp vkhe 'Rwdnkuj kpi "J qwug. "386460

I tcxgu. 'T0\*3; 87+":O qtcn'Rtkpekr ngu'kp''Vtcpurckqpø''*Gpeqwpvgt* '46\*3+<696730

I tggp. "I 0'cpf "L0O qti cp"  $^{3}$ ; :  $3+^{11}$ :Rtci o cvkeu. "I tco o ct"cpf "F kueqwtugø"  $^{1}$ kp "R0E qrg"  $^{3}$ gf  $0+^{11}$   $^{11}$ Cecf go ke "Rtguu0

I tggp. 'Lwrkgp'\*3; : 9+"Ng'hcpi ci g''gv'uqp'f qwdng'']Ncpi wci g''cpf ''kwi''Uj cf qy \_.''Rctku<'Ugwkn0

I tggpdgti ."10\*3; 77+"Uwf kgu'kp"Cht kecp"Nkpi wkuke "Encuukkeckqp."Dnqqo kpi vqp<"Kpf kcpc"Wpkxgtuk/{ "Rtguu0

I tgi qt{.'O kej cgrl\*3; 89+":Cur gevu'qh'Xctkgvkgu'F khhgtgpvkcvkqpø."Lqwtpcn'qh!Nkpi wkwkeu'5<3996; : 0

 $\hat{o}$   $\hat{o}$  \*3; : 2+":Rgtur gevkxgu"qp"Vtcpurcvkqp'htqo "vj g'Hkt vj kcp"Vtcf kkqpø"Ogw"47\*6+<6776880

ô ô cpf "UEcttqm\s3; 9: +"Ncpi wci g"cpf "Ukwcvkqp<"Ncpi wci g"Xctkgvkgu"cpf "Vj gkt "Uqekcn'Eqpvgzvu."Nqpf qp<Tqwngf i g" cpf "Mgi cp"Rcw10

I tgko cu. 'COLO\*3; 88+"*Ugo cpvks wg'lut wewt crg.* 'Rctku<'Nctqwuug0

ô ô \*3; : 5+"F w'lugpu'''''' Guuc ku''lu² o kqvks wgu. 'Ret ku<"Ugwkt0

 $\hat{o} \ \hat{o} \ \text{cpf'I} \underline{\textbf{LEqwt}} \ \textbf{u'} \ \textbf{u'} \ \textbf{3}; 9; + \underline{\textbf{U}} \ o \ \textit{kqvks wg} \ \textbf{\textit{f kevkqppc kt g't c kuqpp^2 'f g'nc'' yj ^2 qt kg'f w'ncpi ci g.'} \ \textbf{Rctku} \ \textbf{\textit{J}} \ \text{cej gwg0}$ 

I tleg. "J (R0\*3; 97+"::Nqi le "cpf "Eqpxgtucvlqpø" lp "RŒqrg" cpf "L0NOO qti cp "\*gf u+" U pvcz "cpf "Ugo cpvleu." xqr05<" Ur ggej "Cevu." P gy "[qtm: Cecf go le "Rtguu." 6367: 0

I tkhkj u. 'LO'cpf 'F (Rgctucm'\*gf u+'\*3; : ; +'Dqqm'Rt qf wevkqp''cpf 'Rwdrkuj kpi 'kp''Dt kvckp''359763697. 'Eco dtkf i g<' Eco dtkf i g''Wpkxgtukvf ''Rtguu0

I tkpf tqf .'O 0\*3; : 8+":Rqtvtck/'qh'c"Rtqhguukqp<"Vj g"Ncpi wci g'O qpvj n{ 'Uwtxg{ "qh"Vtcpurcvqtuø "Ncpi wci g'O qpvj n{ ''4; 0 I tqulgcp."H0\*3; : 2+":Ru{ ej qrkpi wkrvkeu"qh"Uki p"Ncpi wci gø "kp"Ncpg"cpf "I tqulgcp"\*gf u+:"556820

Ncpg. "J 0"T (Dcwkuqp"cpf "J 0Vgwdgt"\*3; : 3+":-Vj g"Kpxctkcpeg"qh"Ugpvgpeg"Rgthqto cpeg"Utvewtgu"cetquu"Ncpi wci g" O qf crkv{ø"Lqwtpcn'qhGzrgt ko gpvcn'Ru(ej qrqi {<"J wo cp"Rgt egr vkqp"cpf"Rgt hqt o cpeg"9\*3+<"4386520

- $I twe|c."H0" gf 0+"3; : 3+"I nqwqf \{f cm/mc"c" 'vtcpurc vqt \{mc"] Ncpi wci g"Vgcej kpi "cpf "Vtcpurc vqp" Uwf kgu_"Y ctucy <"Y \{f cy pkey q"Wpky gtu{ ygw!Y ctu| cy umkgi q0}$
- $\hat{o} \hat{o} *gf 0+*3; : 8+"Rt qdrgo { "tt cpurc vqt { nk'k'f { f cm/nk'kt cpurc vqt { e/pgl"}} Qp"Vtcpurc vkqp"Uwf kgu"cpf "vj g"Vgcej kpi "qh" Vtcpurc vkqp_..."Y ctucy <"Y { f cy pkey q"Wpky gtu{ vgw\"Y ctul cy umkgi q0 } }$
- I two cp. 'Tckpkgt'\*3; ; 2+'':Ng'dktpi wkuo g'ikw² tcktg'eqo o g'tgncvkqp'kpvgtu{u² o ks wgø''Ecpcfkcp'Tgxkgy''qh''Eqorctcvkxg''Nkytcwttg''39\*566+<3; : 64340
- ô ô \*3; ; 3+":NØ et kxckp'hroo cpf "gv'ugu'hrpi wgu0P qvg''uwt 'hr'f ki muukg'f gu'r gtkr j gt kguø' 'T gxwg'f g'høkpukww'f g'uqekqrqi kg'' 82<3764: 0
- $\hat{o}$   $\hat{o}$  \*3; ; 6+"-J qpqt2 "Dgcwi tcpf "\tcf wevgwt 'f g'\tako 'o g\alpha "Gnkr ug' 73-67\\delta 750
- ô ô \*3; ; 8+":Ghlgw'j ² v² tqrkpi wgu'f cpu'rg'tqo cp''s w² d² eqku'f w'Z KZ g''uk² ergø''Nkv² t c wt g''323<626740
- I wgpyj pgt."HDcpf 'O (I wgpyj pgt/Tgwwgt "\*gf u+"\*3; 9: +"O gcpkpi "cpf "Vt cpurc wkqp <"Rj krquqrj kecn'cpf "Nkpi wkwke" Crrtqcej gu "Nqpf qp <"F weny qtyj 0
- I wrkej 'GO'cpf "Y OT ckdrg'\*3; 97+":-Vgz wqt vgp/Rtqdrgo gø'kp"Nkpi wkwkuej g'Rtqdrgo g'f gt 'Vgz w pc n( ugO'Lcj t dwej 'f gu'' Kpukwwu'hÃt 'F gwuej g'Ur t cej g'kp'O cppj gko . "F Ãuugrf qth<R® ci qi kuej gt 'Xgtrci 'Uej y cpp0
- I wn{c."L0'cpf 'P (Nquucw\\*gf u+\\*3;; 6+\"Cpvj qnqi kg"\wpf "kpvgt mwnwt gng"Tg/gr vkqp"\\*Qr wuewrc 'HgppqWi tkec"I qwkpi gpukc" 8+."Htcpmhwt v<'Ncpi 0
- I wo dtgej v."J 0W0\*3; 98+"::Nkgtct{"Vtcpurcvkqp"cpf "ku"UqekcriEqpf kkqpkpi "kp"yj g'O kf f rg"Ci gu<"Hqwt"Ur cpkuj "Tqo cpeg" Vgz wi'qh'yj g"35 yj "Egpwt{ø"\tcpu0J Ogppgw."[ cng"Ht gpej "Uwf kgu'73<4276440

  I wcu "E ko ktk'\*3: 97+"I t ggg/Y kuf go "Nhat cwt g"kp"Ct cdle "Vt cpurcvkgp0C" I wf ("akiji g"I t cgegCt cdle" I pao gggi kc "
- I wcu. 'F ko ktk'\*3; 97+'I tggntY kuf qo 'Nksgtcwtg'kp'Ctcdke'Vtcpurcvkqp0C'Uwf { 'qht'y g'I tcgeqCtcdke'I pqo qrqi kc." Pgy 'J cxgp<'Co gtkecp'Qtkgpvcrt'Uqekgv(0
- I ww. 'Gtpuv Cwi wuv'\*3; ; 2+": C''Vj gqtgvlecn' Ceeqwpv'qh' Vtcpurcvlqpô Y kyj qw' c''Vtcpurcvlqp''Vj gqt $\{$ ø'' Vtigv't\*4+t3576
- ô ô \*3;; 3+"Vtcpurcvkqp"cpf"Tgngxcpeg<"Eqi pkkqp"cpf"Eqpvgzv."Qzhqtf<"Dcukri'Drcemy gm0
- I w o wpf unqp."D0"UV» o cunqp."VVV wrkpkwu"cpf "X0" ncuqp"\*gf u+"\*3;; 5+"" ungpunid » no gppw uc i c "KK"Tg{ nlcxkm\*\*O \* nlqi "O gppkpi 0
- I {wrck'C0\*3; 2: +"Dkdrkqi terj {"qh'Gpi rkuj "Cwvj qtu¢"Y qtmu"Vtepurevgf "kpvq"/y g"J wpi etkep"Nepi wei g<389263; 2: ."
  Dwf er guv<"Htk\ "f to kp0
- J ccu. 'Y 0\*3; 84+":Vj g'Vj gqt { "qh' Vtcpurc kqpø" *Rj kquqrj {* ''59 42: 64: 0
- ô ô \*3; 92+"*Rj qpq/i t c r j ke "Vt c purc vkqp.* 'O cpej guvgt <'O cpej guvgt "Wpkx gtukv{ "Rt guu0
- $\label{eq:continuous_section} \mbox{J cdgto cu."L\Tilde{A}ti gp"*3; 9: +"\mbox{$''$} \mbox{$''$} \$
- J cf hkgrf. 'C0\*3;; 6+"Nkgtcvwtg. 'Rqnkkeu'cpf 'Pcvkqpcn'lkf gpvkvl <Tghqtocvkqp''vq'Tgpckuucpeg. 'Eco dtkfig' Wpkxgtukvl 'Rtguu0
- J cgp\/ uej gn'I 0\\*3; 99\+"Lqj cpp"J gkpt kej "XquuOUgkpg"J qo gt/\@dgt ugv\/ wpi "cnu"ur t cej uej 3\%r hgt/kuej g"Ngkuwpi .''O wpkej <' Dgen0
- J cgugt {p. 'Tgp² '\*3; ; 6+":-Vj g'Kpvgtpcvkqpcn'Hgf gtcvkqp"qh'Vtcpurcvqtu'cpf 'kwu'Tqrg'kp'vj g'Ctcd"Y qtrf ø'kp'Tqdgtv'f g"
  Dgcwi tcpf g. 'Cdf wrnc'Uj wppcs "cpf 'O qj co gf "J Ø grkgn'\*gf u+"Ncpi wci g. 'F kueqwt ug''cpf 'Vt cpurcvkqp'kp'vj g'Y guv'cpf "
  Okf f ng'Gcux''Co uvgtf co "cpf 'Rj krcf grr j kc<'Lqj p'Dgplco kpu. '42; 63; 0
- J cmkp. "COO"3; 93+":-Vtcpurcvkqp"cpf "Vtcpurcvqtu." Ogf kgxcnø" Gpe{enqrgf kc "Luf ckec"37." 353: 64; 0
- J cmgy gm'N0\*3; :  $4+Dqqmu'kp'Dtc/kn < C'J knqt{''qh'vj g'Rwdrkuj kpi 'Vtcf g}$ . 'O gwej gp. 'P L''cpf 'Nqpf qp<'Vj g'Uectgetqy '' Rtguu0
- J cmlf c{.'O kej cgnl\*3; 95+"*Gzrmt c kqpu'kp"ij g"Hwpevkqpu'qhl'Ncpi wci g.*"Nqpf qp<'Gf y ctf 'Ctpqnf 0
- ô ô \*3; 9: +"Ncpi wci g"cu"Uqekc<br/>n'Ugo kqvke. 'Nqpf qp<'Gf y ctf 'Ctpqrf0
- ô ô \*3; : 7+"Cp"Kpvt qf wevkqp"\q"Hwpevkqpcn"Nkpi wkwkeu. 'Nqpf qp<"Gf y ctf "Ctpqrf 0
- .'CO eKovquj "cpf "RUxtgxgpu"\*3; 86+"Vj g"Nkpi wkuke"Uekgpegu"cpf "Ncpi wci g"Vgcej kpi .'Nqpf qp<'Nqpi o cp0
- J co f cj. 'Uj cy s k'\*3; : 6+'<sup>e</sup>Clggd'cn/Nwi j c'']Vj g'Y qpf gtu'qh'\*Ctcdke+'Ncpi wci g\_.'Dgktwk'P qhcn0
- J co dwti gt. 'O kej cgrl\*3; : 2+"Egrcp@u'Rqgo u 'P gy "[ qtmt'Rgtugc0
- ut cf wevgwt u'f g'høcpvks wks² 'i'ct f kxg''cw'ZKXg''uk³ eng. "Nqwxckp/nc/P gwxg''cpf 'Ecuukpq<'Dtgr qnu0

  J co knapp. 'T0\*3; 97+'Xqkegu'ht qo ''cp'Go r kt g<'C''J knapt { ''qh'Cht q/Rqt wii wgug'Nkyt c wxt g. ''O kppgcr qnku<'Wpkxgtukx{ ''qh''
  O kppguqvc''Rt guu0
- J co o qpf. 'I 0\*3; : 9+":Gpi nkuj "Vtcpurcvkqpu"qh"vj g"Dkdrgø"kp"T0Cnxgt "cpf "H0Mgto qf g"\*gf u+"Vj g"Nkvgt ct { 'I wkf g"\q"vj g" Dkdrg. "Nqpf qp<'Eqnrkpu0
- ô ô \*3; ; 5+":Vj g'Cwj qtk{ "qh''y g"Vtcpurcvgf "Y qtf "qh'T qf <"C"Tgcf kpi "qh''y g'Rtghceg''vq''y g'3833"Dkdrgø"*Vtcpurcvkqp"* cpf "Nkytcwtg'4<396580
- J cpmkuu. "IO"3; 45+"::Go kn'Cdtcp{k'cpf 'vj g'Htgpej ø'Ktqf cro vqt vgpgv'46<530
- J cpp. 'O 0'3; ; 4+"Vj g'Mg{ '\q'Vgej pkecn\Vtcpurc\kqp. 'Co uvgtf co 'cpf 'Rj krcf grr j kc<'Iqj p'Dgplco kpu0
- J cppc. 'Drcng' 'V0'\*3; 94+":Uco wgn' Dgengw' 'tcf wevgwt 'f g'hwk o ´o gø' 'O gw' '39\*6+<'442660
- Y qt mu. "Mgpv."QJ < Mgpv "Ucvg" Wpkx gtukv { "Rt guu0

- J cpuqp." J 0\*3; ; 4+":-Vj g"Vtcpurc<br/>\qp"qh"Rqgvt {\pi "Vtcpurc \qp"Tgx\kgy <"4: \ddot 6560
- J cpuuqp."U0\*3; : 4+"Chucw'r  $^{\circ}$ "Uy gpunq03822/wngwu'it {emw'\$/xgt u@vpkpi urkvgt cwvt'']Vtcpurcvgf 'kpvq'Uy gf kuj 0'Rtkpvgf'' Vtcpurcvkqp''Nkgtcwxtg'kp'39vj/egpwxt {'Uy gf gp\_.'I 3/xgdqti <'Nkvgtcwxtxgvgpuncr rki c'kpurkwxkqpgp0
- J ctcu| vk'\ 0\gf 0\pm3; 78\pm3; 78\pm2 [Tucro 'Dqqm\pm2 C'Hceuko kng'Tgrt kpv'qh'vj g'Hkt uv' Gf kkqp''qh'3862. 'Ej keci q<br/>'Wpkxgtukv{'' qh'Ej keci q'Rtguu0
- J cti tgcxgu."J 0\*3; 8; +":Vj g"Y {erkhkvg"Xgtukqpuø."kp"I 0Y 0Nco r g"\*gf 0+"Vj  $g'Eco\ dt\ kf\ i\ g"J\ kwqt\ {''qh'vj\ g'Dkdrg}$ ."xqr0'4." Eco dtkf i g"Wpkxgtukv{"Rtguu."58466370
- J ctr gt. 'M0\*3; : 5+":-Y tkkpi 'kp'Kpwmkww<'Cp'J kuvqtkecn'Rgtur gevkxgø'Kpwmkww'75-46570
- J cttcu."I kugrc"\*3; 9: +"Mqo o wpkncvkxg"J cpf nwpi umqp/grvg."qf gt <"Gkpg"O ¾ nkej ngkv."J cpf nwpi ucdhqni gp"cnu"
- \ wuco o gpj ®pi g"| w'gtm® gp. "gzgo rnctkuej "cp"Vj gcvgtvgzvgp"\*Tgkj g'I gto cpkukuej g'Nkpi wkukm'38±"VAdkpi gp<"Pctt0
- J cttku. 'Dtkcp'\*3; 99+":Vj g'Ko rqtvcpeg'qh'P cwtcn'Vtcpurcvkqpø''Y qtnkpi 'Rcrgtu'qp''Dkrkpi wcrkuo ''34<, 863360
- ô ô \*3; ; 2+": $\mathbf{P}$  qto u'kp''Kpvgtr tgvc\kqpø'' $\mathbf{V}$ cti gv'4'\\*3+ $\mathbf{C}$ 33763; 0
- $\hat{o} \quad \hat{o} \quad \text{``3; ; 5+"-`Wp'kpv'trtgvg'fkr mo'' a vkeq'kpi rfu'gp'gn'uki m'Z kZ'gp'Lcr ""pp''Lcr ""p$
- ô ô \*3; ; 6+"C"Vczqpqo ke"Uvtxg{"qh'Rtqhguukqpcn'Kpvgtrtgvkpi "Rctv'30Ftchv'hqt"\j g"Kpvgtpcvkqpcn'Eqphgtgpeg"qp" Kpvgtrtgvkpi ."Vvtmv."47648"Ugrvgo dgt"3; ; 60
- ô ô cpf 'I gqhtg{ 'Mkpi ueqw'\*3; ; 9+"Ncpi wci g'Kpvgtpcvkqpcn'Fktgevqt{ ''qh'Vtcpurcvkqp''cpf 'Kpvgtrtgvkpi 'Uej qqnu.'' Co uvgtf co ''cpf 'Rj krcf grr j kc<'Iqj p'Dgplco kpu0
- $J \ cttku."Tq{.."cpf "Vcrdqv'LOVc{qt"*3}; :; +":Vj g"Dkdrg"qp"vj g"Qtki kp"cpf "F kxgtukhlecvkqp"qh"Ncpi wci gø'Ej cr vgt"5." \\ Ncpf o \ ctmu'kp"Nkpi wkwke"Vj qwi j v."Nqpf qp"cpf "P gy "[ qtmx'Tqwrgf i g0 ]$
- J cttku."\ gmki "\3; 74+"\F kueqwtug'\Cpcn\{ uku\\\@'\Ncpi wci g'\4: \3\\\652\\cpf '\696\\\\652\\\\circ\} 1000\
- J ctv.'IAF 0\*3; 72+"Vj g'Rqrwrct'Dqqm;"C"J kwqt{"qh'Co gt kecøu'Nkgt ct{"Vcwg."Qzhqtf "\Qzhqtf"\Wpkxgtukv{"Rtguu0
- J ctvo cpp. 'TOTOMO\*3; : 2+"Eqpvt curkxg"Vgzvqrqi {."J gkf grdgti <Lvrkvu'I tqqu0
- $\label{eq:control_control_control_control} J\ ctxg\{.''Mgkj''*3;;7+'':C'F\ guetkr\ vkxg'Htco\ gy\ qtmlhqt'Eqo\ r\ gpuc\ vqp\ ''Vj\ g'Vt\ cpur\ vqt''3*3+''876:80$
- $\label{eq:local_control_cont$
- J cumpu. 'Ej ctrgu'J qo gt'\*3; 4613; 82+"*Uwf kgu'lip''ij g'J kwqt { "qh'O gf kc gxcrl'Uekgpeg.* 'P gy '[ qtm:"Htgf gtkem"Wpi ct" Rwdrkuj kpi 0
- ô ô \*3; 47+":Ctcdke" Uekgpeg" kp" Y guvgtp 'Gwtqr gø "*Kiki* '7\*4+69: 6: 70
- J cvko .''Dcukri\*3; : 8+":F kueqwtug IVgz v'Nkpi wkurkeu'kp" yi g''Vtckpkpi ''qh'Kpvgtr tgvgtuø'kp"Y kuuu'cpf ''Vj qo g'\*gf u+"
- Vt cpurc vkqp"Vj gqt {"cpf 'kw'Ko rngo gpvc vkqp'kp"\j g"Vgcej kpi "qllVt cpurc vkpi "cpf 'Kovgt rt gvkpi ."VAdkpi gp<"I wpvgt 'P ctt0
- ô ô \*3; ; 3+":Vj g'Rtci o cvkeu'qh'Cti wo gpvcvkqp''kp'Ctcdke<'Vj g'Tkug'cpf 'Hcm'qh'c''Vgzv'V $\{r \text{ g} \text{ g} \text{ w} \text{ g} \text$
- ô ô \*3; ; 9+"Eqo o wpkecvkqp"Cet quu'Ewnwt gu<"Vt cpurcvkqp"Vj gqt { "cpf "Eqpvt curkxg"Vgzv"Nkpi wurkeu. "Gzgvgt0Gzgvgt" Wpkxgtukx{ "Rt guu0
- ô ô cpf 'Kcp'O cuqp'\*3; ; 2c+"F kueqwt ug"cpf "ij g"Vt cpurc vqt. "Nqpf qp"cpf 'P gy "[ qtm:\Nqpi o cp0
- ô ô \*3; ; 2d+":I gptg. 'F kueqwtug"cpf "Vgzv"kp"yj g"Etksks wg"qh"Vtcpurcskqp.ø'kp"Hcy egw"cpf "J gcyj eqevg"\*gf u+: "36350
- $\hat{o} \ \hat{o} \ ^*3;; 9 + "Vj \ g" Vt \ c \ pur \ vqt \ "c \ u" Eqo \ o \ wpke \ c \ vqt \ . "Nqpf \ qp "cpf \ "P \ gy \ "[ \ qtm \ T \ qwngf \ i \ g0 \ ]$
- Jc{gu."LOTO'cpf"NOUHnqy gt"\*3; : 2+":Ktgp\kh{kpi "y g"Qticpk|cvkqp"qh"Y tkkpi "Rtqeguuguø"kp"NOY 0I tgi i "cpf "GOTO
- Uvgkpdgti "\*gf u+"Eqi pkkxg"Rt qeguugu"kp"Y t kkpi ."I kmuf cng. "P L<"Ncy tgpeg"Gtndcwo "Cuuqekcvgu0
- J gcr u."Y 0C0\*3; 89+"Vj g'Uqt { "qhlGnku'Kurcpf."P gy "[qtm\text{Ugcdwt} {0}]
- J gctpg."Dgvu{ "\3; ; 3+":Eqo kpi '\q'\y g'U\cvgu\z'Tgxkgy kpi "Dqqmu'htqo 'Cdtqcf ø''Vj g''J qtp'Dqqm'O ci c/kpg'\Ugr vgo dgt1 Qevqdgt+\z'7846; 0
- J glf gi i gt. 'O ctvlp'\*3; 93+'Qp''y g'Y c{''\q''Ncpi wci g. '\tcpu0R0F0J gt\| 0P gy '[ qtm\'J ctr gt''cpf 'Tqy 0
- ô ô \*3;; 3+"Vj g'Rt kpekr rg"qh'I t qwpf." (tcpu0Tgi kpcnf 'Nkm(."Dmqo kpi vqp<"Kpf kcpc" Wpkxgtukv("Rtguu0
- J glopgo cpp. "Wyg" 3; ; 6+"-õO kt k v². "c"o k"o g"i wc"gn"o gunkt clgö c'ur tcej nkej g"J gygtqi gpkw lo "ur cpkuej ur tcej ki gp"
- Tqo cp'Mcvcrqpkgpuø'kp'I cdtkgrg'Dgtngpdwiej "cpf 'Ej tkirkpg'Dkgtdcej '\*gf u+'\ wt'mcvcrcpkiej gp''Urtcej g<'j kinqtkiej g." uq/kqrkpi wkinkiej g''wpf ''rtci o cvkiej g''Cur gmg. 'Htcpnhwtv<'F qo wu''Gf kqtkc''Gwtqr cgc. '3656790
- J gpf gtuqp." J ctqnf 'I 0 3; 7: +" Cp" Kpvt qf wevkqp" \q" J cknw. "P gy" [ qtm Eqwdngf c { 0
- J gpf gtuqp.'IOC0\*3; : 9+"Rgt uqpcrlx{"cpf" 'yj g"Nkpi wkuv<'C"Eqo rct kuqp"qh'yj g'Rgt uqpcrlx{"Rt qlkngu"qh'Rt qlguukqpcrl" Vt cpurc vqt u'cpf 'Eqplgt gpeg' Kpvgt rt gvgt u 'Dtcf hqtf <"Wpkx gtukx{"qh'Dtcf hqtf 0
- J gpmgn 'P 0\*3; 9; +":O kwgrcngtrkej g'@dgtugv| wpi gp'hcvgkpkuej gt"Uej wngzvg'kpu'F gwuej g0'Dgqdcej wpi gp"| wo "
- Xgtj @mpku'xqp'Hqto v{r 'wpf 'Ngkuwpi ø'kp''X0 qpgo cpp''gv'cn0\*gf u+"Rqgukg''wpf''I gdt cwej urkvgt cwt''ko''f gwwej gp'' Okwgrcngt. 'VÅdkpi gp<br/><P kgo g{gt.'3866: 20
- J gptks wg| ."WR0\s3; 86+" J knqt kc" f g"nc" Ewnwt c"gp"nc" Co gt kec" J knr" pkec. "O gzkeq<" Hqpf q"f g"Ewnwt c"Geqp» o kec0
- J gtdgtv."J OY O\*\*tcpuO+\*\*3: 65+'O c vknf c <'qt 'vj g'O go qkt u'qh'c '[ qwpi 'Y qo cpOC'PqxgrOD{ 'Gwi ³pg'Uwg. 'P gy '[ qtm\*'LO' Y kpej guvgt 'P gy 'Y qtnf 'RtguuO
- J gtdgtv."Igcp"\*3; 74+"Ng"o cpwgnlf g"ndpvgtrt3vg."I gpgxc<"I gqti "( "Ekg0"
- ô ô \*3; 9: +":J qy 'Eqphgtgpeg'Kpvgtrtgvcvkqp'I tgy ø'kp'I gtxgt"cpf 'Ukpckmq'\*gf u+: '76320
- J gtduv."Vj qo cu' $^3$ 3; ; 6+"Nkpi wkwkuej g'Cur gmg'f gt 'U{ pej t qpkuc vkqp"xqp"Hgt pugj ugt kgp0Rj qpgvkm"Vgz vrkpi wkwkm"  $^3$ 6 gt ugv| wpi uzj gqt kg. "VÅdkpi gp $^3$ P kgo g{ gt0
- J gtf gt. "Iqj cpp" I qwhtkgf "\*3989+": Odgt "f kg" pgwgtg "f gwuej g" Nkgtcwt "\*Htci o gpvg+ø "kp" DUvgr j cp"

- \*gf 0+"\*3; 89+"URo vkej g"Y gt ng"]Eqngevgf "Y qt mu\_."J krf guj gko 0
- $\hat{o} = 398869\_3; 99+"Ht\,ci\,o\,gpvg.$ "gzegtr vgf "cpf "\tcpur0'd { "Cpf t² "Nghgxgtg "kp" Nghgxgtg. "52660" | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100
- $^{\circ}$   $^{\circ}$   $^{\circ}$ 3;  $^{\circ}$ 7d+":Ko ci gu'qh"Vtcpurcvkqp<"O gvcr j qt "cpf "Ko ci gt { 'kp" y g'T gpckuucpeg 'F kueqwtug"qp "Vtcpurcvkqp.ø'kp" J gto cpu'\*gf  $^{\circ}$ 9;  $^{\circ}$ 7c. "3276570
- ô ô \*3; : 8+"::Nkgtct{ "Vtcpurc\kqp0"Vj g'Dktyj "qh'C"Eqpegr\va''Pgy 'Eqo\ rct\kuqp''3-4: \ddot640
- $\hat{o} \ \hat{o} \ ^*3; :: + "-Xcp" \\ \tilde{o} \ gddcp" \\ qmc" \\ xqi \ cm\ddot{o}" \\ \ qv' \\ Gtpuv' \\ xcp" \\ Cngpc \\ ON \\ kgtcktg" \\ xgt vcnkpi "gp" \\ P \ gf \ gtmpf \ ug" \\ \\$
- rksgtcwwti guej kgf gpkuø"]Htqo "J gddcp"qmc"xqi cmø'vq"Gtpuv"xcp"CngpcONksgtct{"Vtcpurcvkqp"cpf "F wej "Nksgtct{" J kuvqt{ $_{-}$ "kp"xcp"f gp"Dtqgem"gfO+"S3; :: d+."S36470
- $\hat{o} \quad \hat{o} \quad \text{``3'}; ; 3c + \text{``-Vtcpurc'-Ngwxgp/} \ y \ ctv'cpf \ \text{'P ccklngpu''-sgf u+0}$
- ô ô \*3; ; 3d+"::Vtcpurcvkpi "õTj gvqtklengrklenö"qt "õi j gvtqwy grklenö0Uqo g"Eqpvgzvu"qh"F wej "Tgpckuucpeg"Crrtqcej gu" vq"Vtcpurcvkqpø"kp"L0Hgpqwj gv"cpf "V0I gto cpu"\*gf u+"*Ucpf kpi "Engct 0Hguwej t khv"lqt "T0R0O gkl gt*. "Nqpf qp<"Egpvtg"hqt" Nqy "Eqwpvtkgu"Uwf kgu0
- ô ô \*3; ; 3e+"*Uwf kgu"qxgt "P gf gt rc pf ug"xgt vc rkpi gp. "Ggp"dkdrkqi t c hkuej g"rkluv*"] Uwf kgu"kp"F wej "Vtcpurc kqpu0C" Dkdrkqi tcr j kecn"Nkuv\_."Vj g"J ci wg<"Dkdrkqi tcr j kec0
- $\hat{o} \quad \hat{o} \quad \text{``3'}; \\ \text{`5+"-`Qp'O qf gmkpi ''Vtcpurc'kqp$<'O qf gm.'P qto u'cpf''y g'Hkgnf''qh''Vtcpurc'kqp$<''Nkxkwu''6$<'\8; \\ \text{$\circ:: 0$}$
- ô ô \*3; ; 7+":-Vqwt {øu'Go r kt ke ku<br/>o "Xgtukqp''Qpgø''Vj $g''Vt\ cpurc\ vqt$ ''3\*4+<'4376450
- ô ô \*3; ; 8+"::P qto u'cpf ''y g'F gvgto kpcvkqp''qh''Vtcpurcvkqpø''kp'TCnxctg| ''cpf 'E0C0Xkf cn'\*gf u+"*Vtcpurcvkqp."Rqy gt." Undxgt ukqp.* 'Engxgf qp<'O wnkthpi wcn'O cwgtu.''476730
- J gtqf qwu'\*3; 7613; 94+"Vj g"J knqt kgu "tcpu0Cwdtg{"f g"Ugrkpeqwtv="tgxkugf". "y ky "cp"kpvtqf wevkqp"cpf "pqvgu."d{"C0T0 Dwtpu."J cto qpf uy qtyj <"Rgpi wkp0
- J gttgp. 'T0\*3; ; 4+"*Kpf kqu"ect cr" nkf cu* "Dctegmpc<'Rmpgw0
- ô ô \*3; ; 4+" $Fq^{o}c''Octkpc$ . "hc''Ocnkpej g. "Dctegmpc<"Recpge0
- J gtxg{."U pf qt "cpf "Kcp" J ki i kpu"\*3;; 4+"Vj kpnkpi "Vt cpurc vkqp <"C "Eqwt ug "kp" Vt cpurc vkqp "O gvj qf <"Ht gpej "vq "Gpi rkuj." Nqpf qp"cpf "P gy "[qtm <"Tqwngf i g0
- J gudqku. "N0\*3; : 8+: "Ngu'lgwz'f g'hcpi ci g. "Qwcy c<" f kklqpu'f g'høwpkxgtuk? "f ø'Qwcy c0
- $\label{eq:continuous_power_state} \begin{tabular}{l} $J$ gy uqp. "Ncpeg"cpf "Lcem( 'O ctvlp'*3; ; 3+'T gf ghlphpi 'Vt cpurcvlap<'Vj g'Xct kcvlapcn'Crrt qcej . 'Nqpf qp"cpf 'P gy '[ qtm<' Tqwngf i g0 ] \end{tabular}$
- J g{ngp.'Tqo {"\3;;5+\"Vtcpurc\kqp.'Rqg\keu\"cpf\"\j\g\"U\ci\i\g\\Uz\"Htgpej\"J co\ngw.\"Nqpfqp\"cpf\"Pgy\"[\qtm\\Tq\wngfig0
- J kpgu. "Dctt { "\3; 8; +"Mgu." J cto qpf uy qtyj < Rgpi wkp="\tcpu0\nqrc" Vtcpge/F wdrgf." 3; : 4. "Rctku<" I crrko ctf 0
- J kwk 'Rj krkr '3; 5913; 92+'J kwqt { ''qh'\j g'Ct c du ''Dcukpi uvqng''cpf ''Nqpf qp0 ceo krcp0
- J lgm /O kre| {p."I 0\*3; : 5+": xgtu®wctpcô mwnwth¾o gf rctpcø"] Vj g"Vtcpurcvqtuô Kpvgto gf kctkgu"qh<br/>'Ewnwtg\_."kp"J (L®x" \*gf 0+"F gp"lwgpunc"dqngp'722"° t"] Vj g"Uy gf kuj "Dqqnikp"722"{ gctu\_"Uvqenj qro <"Nkdgt."37: 6:60
- J lgno urgx. 'N0\*3; 6513; 8313; 85+"*Rt qrgi qo gpc "\q"c "Vj gqt { "qh!Ncpi wc i g.*" \tcpu0'H00Y j khkgrf . 'O cf kuqp<"Wpkxgtukx{ "qh" Y kueqpukp'Rtguu0
- $\label{eq:localization} J \ lqtv.'C00\ 0*3; ; 2+"-Vtcpurcvkqp"cpf "vj g"Eqpugs wgpegu"qh"Uegr vkekuo \& "kp"Dcuupgw"cpf "Nghgxgtg" "gf u+. '5: \dot670$
- J lqtyj ."G0\*3; : 9+"F guet kr vkxg"Vqqnu"hqt "Grgevt qpke"Rt qeguukpi "qh"F kevkqpct { "F c vc" "Ngzkeqi tcr j kec"ugtkgu"o ckqt"42+." VÄdkpi gp<P kgo g{gt0
- J qej gn'Dtc q'\*3; ; 2+"Rtgmcf"cnq'nqo wpkntekc. 'Dtcvkurcxc<'Unqxgpum 'ur kuqxcvg 0
- J qf i g. 'Dqd.'I OMtguu'cpf 'I (Iqpgu'\signal 3; 9; +":\Vj g'K gqmi { ''qh'O kf f ng'O cpci go gpvø' kp'T0Hqy ngt.'Dqd'J qf i g.'I OMtguu' cpf "Vqp{ "Vtgy "\gf u+"Ncpi wci g'cpf 'Eqpvtqn' Nqpf qp<'Tqwngf i g'cpf 'Mgi cp'Rcwr0
- J qho cpp. 'P 0\*3; : 2+'T gf wpf cp/ 'wpf '£ s wkxcrgp/ 'kp'f gt 'rkvgt ct kuej gp' ©dgt ugv/ wpi <'f ct i guvgrw'cp'hĀphf gwuej gp'' ©dgt ugv/ wpi gp'f gu''J co rgv. ''VĀdkpi gp<'P kgo g{gt0
- J qrcpf c."UD0f g'\*3; :; +'Tc¶ gu'f q'Dt culm'43uv'gf p. 'Tkq'f g'Icpgktq<'Qn(o r kq0
- J qm gu. 'Ico gu''U'\*3; 92+"::Hqto u''qh''Xgtug''Vtcpurc\kqp"cpf ''y g''Vtcpurc\kqp"qh''Xgtug''Hqto ø'kp''J qm gu. 'f g''J ccp''cpf '' Rqr qxk '\*gf u+0
- ô ô \*3; 94c+"*Vj g'Pco g'cpf 'Pcwt g'qh'Vt cpurc vkqp''Uwf kgu0*"Wpr wdrkuj gf 'o cpwuetkr v. 'Co uvgtf co <"Vtcpurc vkqp''Uwf kgu'' Ugevkqp. "F gr ct vo gpv'qh'I gpgtcn''Uwf kgu0T gr t kpvgf 'kp'I kf gqp"Vqwt { "\*gf 0+"*Vt cpurc vkqp''Cet quu'Ewnwt gu.* "3; : 9. "P gy " F grj k<"Dcj t k'Rwdrkec vkqpu. "cpf 'kp''J qro gu''3; : : . '886: 20
- ô ô \*3; 94d+":Tgdvkrf kpi ''y g'Dtkf i g'cv'Dqo o gnt'P qvgu''qp''y g'Nko ku''qh''Vtcpurcvcdkrkv{ø''kp'J qro gu''3; ::.'666740
- ô ô \*3; 9: +"∹F guetkdkpi 'Nksgtct{"Vtcpurcvkqpu<'O qf gnu'cpf 'O gyj qf uø 'kp'J qro gu'3; : : .": 26; 30
- $\hat{o} \ \hat{o} \ ^*\!3; :: + "Vtcpurcvgf \# Rcrgtu" qp "Nkvgtct \{ "Vtcpurcvkqp" cpf "Vtcpurcvkqp" Uwfkgu" Co uvgtf co < Tqf qr k0 \}$
- ô ô ."HIT g"J ccp"cpf 'CCRqr qxk "\*gf u+"\*3; 92+"Vj g"P c wt g"qh"Vt c purc vkqp0"Guuc { u"qp" vj g"Vj gqt { "cpf "Rt cevkeg" qh" Nkyt ct { "Vt c purc vkqp"."Vj g"J ci wg<"O qwqp0
- ."ILNco dgtv'cpf 'T0xcp'f gp'Dtqgem'\*gf u+'\*3; 9: +'Nkytcwtg''cpf 'Vtcpurcvkqp<'Pgy 'Rgturgevkxgu'kp'Nkytct{'Uwfkgu."
  Ngwxgp<'Ceeq0
- J ¾nuej gt. 'C0'cpf 'F 00 ¾ ng' 3; : 9+" Eqi pkkxg 'Rrcpu'kp 'Vtcpurcvkqpø'kp 'Hcgtej 'cpf 'Mcur gt' gf u+0
- Vj g"J qn('S wt/p<Gpi nkuj 'Vt cpurc kqp"qh'vj g"O gcpkpi u"cpf 'Eqo o gpvct {"\*p(f 0: "Vj g"Rt gukf gpe { "qh'Kurco ke"
- Tgugctej gu. "Knc Ecm'cpf" I wlf cpeg'\*pq'\tcpurcvqt" cempqy rgf i gf +0
- J qn /O @pw@k 'Lwurc'\*3; : 6+''Vt c pur v q t kue j gu''J c pf gnp <'Vj gqt kg 'wpf 'O gvj qf g. '\*C ppc rgu'C ecf go kâ 'Uekgp kct wo "Hgppkeâ 'D'448+'

- J gnikpnke Uwqo crckpgp 'Vkgf gcncvgo kc IHkppkuj 'Cecf go { ''qhl'Uekgpeg0
- ô ô \*3; : 8+":-Vtcpurcvqtkuej gu'I cpf grpô vj gqt g'\kuej 'hwpf kgt vg'Dgt whur tqhkrgø 'kp'O ct { 'UpgmI qtpd { '\*gf 0+'' } O cd O choosing 'P gwqt kgpvkgt wpi .''VÂdkpi gp<'Htcpmg.'56: 6960
- $\hat{o} \quad \hat{o} \quad \hat{'}3; :: + \text{"$$\dot{'}$} Vtcpurc \dp'' \dp''$
- ô I twpf rc i gp'wpf 'Uccpf qt vg'\*\*Uwf kc''\tcpurc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upunc\upuni kc''\upunc\upunc\upuni kc''\upunc\upuni kc''\upuni kc''\upuni
- ô ô \*3; ; 4+":Gpw kemwpi gp'kp'f gt'Vj gqtkgpdkrf wpi "Ādgt'r tqhguukqpgmgp"Vgzvdcw;'xqo 'KpuvtwmkqpucwuhĀj tgpf gp'| wo "Rtqlgmo cpci gtø'kp"J gkf go ctkg"Ucngxum("\*gf 0+"Y knugpuej chrkej g'I twpf nci gp'f gt'Ur t cej o kwwpi ."Htcpmhwt v:"Ncpi ." 33; 64: 0
- ô ô \*3; ; 5+"::Dkrf wpi uuxt wmwt gp 'wpf "P gv| y gt mg 'hÃt 'gkp 'V®ki mgksgphgrf "Vgz vf guki pø "VGZVeqpVGZV": 47; ó; 50
- $J \text{ qpki .''G0*gf 0+'*3; : 7+''} \textit{Vj g'Rqgv/yu''Qvj gt'Xqkeg0Eqpxgtucvkqpu''qp''Nkvgtct{''Vtcpurcvkqp.''Coj gtuv<''Vj g''Wpkxgtukv{''qh'' O cuucej wugwu''Rtguu0} }$
- J 3/pki. 'J cpu'cpf 'Rcwrl'Mwuuo cwrl\*3; : 4+"Ut c vgi kg'f gt 'Odgt ugv/ wpi. "VAdkpi gp<P ctt0
- J qqh "J (xcp" "3; : 8+" Rgvky" j kuqkt g"f g"n: "\t cf wevkqp" gp" Qeekf gpv. "Nqwxckp/n:/P gwxg<" Ecdc {0}
- $\label{eq:control_state} \mbox{$J$ qqny c{.'E0*3; :: +"$S wkpg<\neq vcpi wcig.'Gzrgtkgpeg"cpf'Tgcnky{.'Qzhqtf<\neq Rqnky{'Rtguu0}$} }$
- J qtceg."S wkpwu"J qtc\kwu"Hrceewu"\3; 93+"\:\Vj g"Ctv"qh"Rqg\t{\phi"\tcpu0'GE0'Y kenj co ."kp"J c| ctf "Cf co u'\gf0\"Etk\kecn" \Vj gqt{"Upeg"Rn:\uq."P gy "[ qtm\'J cteq\tv\"Dtceg"Iqxcpqx\kej ."8: \ddot 6970
- J qti wgrkp. 'R0\*3; : 3+'Cpyj qrqi kg'f g'hc''o cpk² t g'f g'\tcf wkt g. 'O qpvtgcn\'Nkpi wcygej 0
- J ¾ o cpp. "Rcvtlekc" cpf 'O (KucdgriF kgi wg| '\*gf u+'\*3; : : +"Uqdtg'rc" vtcf week p"tkgtctkc" vtcf vtcf
- J qtp. 'Cpf ta' u'\*3; : 3+"±£ uvj gvkuej g'Hvvpmkqpgp'f gt''Ur tcej o kuej vpi 'kp'f gt''Nksgtcwtø''Ctecf kc''38<'4476630
- J qtpgt."Y (D0\*3; 97+":-Vgzv'Cev'Vj gqt{<'C"Uwf{"qh'Pqp/hkevkqp"Vgzwø0'Wprwdrkuj gf"Rj F"vj guku."Wpkxgtukv{"qh" O lej ki cp0
- J qtuvo cpp. 'E0\*gf 0+3:; 5+Vj g'Ndg'qd'WMcvj ct kpg'qd'Cngzcpf tkc''d{'Lqj p'Ecri tcxg}. 'GGVU'QU'322. 'Nqpf qp<'Mgi cp'' Rcwn''Vtgpej . 'Vtwdpgt''cpf 'Eq0
- J qt vqp. "T0cpf "T0Hppgi cp" "gf u+" "3; 95+" Oqf gu"qhVj qwi j v<" Guuc {u"qp" Vj kpmkpi "kp" Y guvgt p" cpf "Pqp/Y guvgt p" Uqekgvkgu. "Nqpf qp<" Hcdgt0
- J qwckuu. C0\*3; : 7+Q'rqtwiw'u'pq'Dtcukn'Tkq'fg'Lcpgktq<WPGUEQ0
- $\label{eq:condition} J \ qwtcpk' Cmgtv''3; 84B; : 5+'' \textit{Ctcdke'V} j \ qwi \ j \ v'kp'' \ j \ g'' \textit{Nkdgtcn'Ci g.''} 39; : \textit{63}; 5; . 'Eco \ dtkfi \ g'' \textit{Eco \ dtkfi \ g''} \textit{Wpkxgtukv} \ '' \textit{Rtguu0} \ )$
- J qwug. "Lwrkepg" "3; : 3+"C"O qf grllqt "Vt cpure vkqp" S werky "Cuuguuo gpv. "VAdkpi gp «I wpvgt" P ctt 0
- ô ô \*3; : : +":-Vcmkpi "\q"Qpgugrh"qt"Vj kpnkpi "y ky "Qyj gtuA'Qp"Wukpi "Fkhhgtgpv"Vj kpnkpi "Crqwf "Ogyj qf u"kp" Vtcpurcvkqpø"*Htgof ur t cej gp"hgj t gp"wpf "hgt pgp*"39< 66; : 0
- ô ô \*3; ; 5+":-Vj g'Gxcnwcvlqp"qh'Vtcpurcvlqpuø"lp"*Gpe{enqrgf kc"qhlNcpi wci g"cpf "Nkpi wkukeu* "Qzhqtf <'Rgti co qp0
- ô ô \*3;; 8+"-Eqpytcuykxg"F kueqwtug"Cpcn(uku"cpf 'O kuwpf gtuycpf kpi <"Vj g"Ecug"qh"I gto cp"cpf "Gpi rkuj ø"kp"O 0
- J gmkpi gt"cpf "WCo o qp" gf u+" Eqpvt cukxg" Uqekqrkpi wkukeu. "Dgtnkp<" O qwqp" f g" I tw{ vgt. "5676830"
- ô ô \*3; ; 9+"Vt c purc vkqp 'S we rkv{ 'Cuuguuo gpv<'C'O qf grlT gxkukyf . 'VÄdkpi gp<'P ctt0
- ô ô \*hqtyj eqo kpi +"Etquu/ewnwtcn'Rtci o cvkeu"cpf "Vtcpurcvkqp0"
- ô ô cpf 'Uj quj cpc 'Dnwo /Mwmc'\*gf u+'\*3; : 8+'Kpvgt nkpi wcn'cpf 'Kpvgt ewnwt cn'Eqo o wpkecvkqp <F kueqwt ug''cpf 'Eqi pkkqp'' kp'Vt cpurcvkqp''cpf 'Ugeqpf 'Ncpi wci g'Ces wkukkqp''Uwf kgu.''VÄdkpi gp<I wpvgt'P ctt0
- $\label{eq:continuity} \begin{tabular}{l} $J$ qy ctf.'Tq{'I0*3;: 4+"V$j$ tgg"Hcegu"qh"J$ gto gpgwwleu<'Cp"Kpvtqf wevkqp"Vq'Ewttgpv'V$j$ gqtkgu"qh"Wpf gtuwcpf kpi." \\ Dgtngng{<'Wplkxgtukx{'qh"Ecrkhqtpkc'Rtguu0} \end{tabular}$
- $\label{eq:cw-cont} \mbox{$J$ qy cw.'CCROT0*3;: 6+''C'$J$ kwqt{$''Qh'Gpi$ rkuj "Ncpi$ wci$ g'Vgcej$ kpi$.'Qzhqtf<'Qzhqtf''Wpkxgtukx{''Rtguu0}$}$
- J wdgt. 'I (NO'cpf 'J (O) cpf n'\*gf u+'\*3; : 4+'Xgt dcng'F cvgp < Gkpg'GkphÃj twpi 'kp'f kg'I twpf nci gp''wpf 'O gvj qf gp'f gt'' Gtj gdwpi 'wpf 'Cwuy gt wpi . 'Y gkpj gko ''cpf ''Dcung < Dgn\ 0
- J wf uqp. "C0"gf 0+"3; 9: +"Ugrgevkqpu"ht qo "Gpi rkuj "Y {erklkg"Y t kkpi u "Eco dtkf i g<Eco dtkf i g"Wpkxgtukx{"Rtguu0
- ô ô \*3; : 7+"Nanctf u'cpf "vj gkt "Daqmu." Napf ap <'J co dregt ap "Rtguu0
- $\hat{o} \hat{o} *3; :: +"Vj g'Rt go cwt g'T glqt o cvkqp."$  \text{Qzhqtf \left Enctgpf qp'Rt guu0}
- J wgwww. "R0\s38: 5+"Fg"kpvgtrt gvcvkqpg"hkdt k"f wq. "r qtvkqpu"eksgf "cpf "vtcpu0d{"C0Nghgxgtg"kp"3; ; 40
- $\label{eq:continuous} J \text{ wi j gu."Vj qo cu'Rcvtken'*3; } 98 + F \text{kevkqpct { "qh'Kurco."} P gy "F gnj kc'Qtkgpvcn'Dqqm'T gr tkpv'Eqtr qtcvkqp0}$
- J wi q."X0\*3: 87+":Rtghceg"f g"hc"pqwxgmg"\tcf we\kqp"f g"Uj cmgur gctgø" n wxtgu"eqo rngvgu'f g"Y 0Uj cmgur gctg."\tcpu0HDX0 J wi q."xqn03."Rctku<"IOJ g\forall gn'S wcp\kp0
- J wk kpi c."10\*3; 6; +"J qo q'Nwf gpu "Nqpf qp<Tqwrgf i g"cpf "Mgi cp"Rcwr0
- J wo dqnf v."Y knj gno "xqp"\*39; 813: 8: +":Dtkgh"cp"COY (Lej ngi gn"xqo "450Lwrk"39; 8ø"kp"Cpvqp"Mrgwg"Xgt/gkej pku"f gt "xqp" COY (XOUej ngi gn"pcej i gncuugpgp"Dtkghuco o nwpi <"Pgduw"O kwj gknwpi "cwui gy ®j ngt "Rt qdgp"f gu"Dtkghy gej ugnu"o kv"f gp" I gdt Āf gtp"xqp"J wo dqnf v."HOUej ngkgt o cej gt. "DOI (Pkgdwj t"wOLA t ko o ."Dqpp<"\*pq"r wdrkuj gt+."xóxklo
- ô ô \*3: 38+"::Kpvtqf wevkqp"\q'Cguej {nwuø'Ci co go pqpø "gzegtr vgf "cpf "\tcpu0'd { 'Cpf t² 'Nghgxgtg' kp'Nghgxgtg'3; 99-62670
- ô ô \*3: 3813; 8513; 95+":Glopnykwpi '| w'Ci co go pqp@'lo'I (IOU)/4ki '\*gf ()+"F cu'Rt qdrgo 'f gu'@dgt ugv/gpu. 'F cto uvcf v.'
- Y kuugpuej chwkej g'Dwej i gugmuej chw'936; 80

- J wo rj tg{u. 'Ej tkuvo cu' $^{1}$ 3; 73+'Dwffjkwo. 'J cto qpf uy qtyj <Rgpi wkp0
- J wpi .'Gxc'\*3; ; 8+":-Vtcpurcvkqp'Ewttkewrc'Fgxgrqrogpv'kp'Ej kpgug'Eqoowpkkguø'kp'Fqrngtwr'cpf'Crrgrl\*gfu+0
- J wpvgo cpp. "Y kmk"3; ; 6+": WpÃdgtugv| dctmgkv<br/>-Xqo "P wv| gp'\wpf "P cej vgkn'gkpgu' "Vqr quø' '©<br/>ôykg' '©dgtugv| gp'6\*34+<br/>-<br/>76 470
- $\label{eq:continuous_prop_state} J \text{ wp uo cp.'InH0*gf 0+*3; 9: +'} Crgz cpf gt 'V \{ \textit{urgt} <' \textit{Guuc} \{ \textit{''qp''yj g''Rt kpekr rgu''qh'V t c purc vkqp.'} \text{Co uvgtf co } <' \text{Lqj p''Dgplco kpu0} \}$
- J wuckp. "UT cuj kf " $^3$ 3; : 3+":-Uqo g'P qwdrg "Vtcpurc kqpu'T gpf gt gf 'kpvq'Rgtukcp''f wtkpi 'Cndctøu'Vko gø "*Kurco ke 'Ewnwt g*." xqn $^0$ NX $^6$ + $^2$ 43;  $^6$ 5;  $^0$
- J wej kpu. "Y OO\*3; : 8+"Ocej kpg"Vtcpurcvkqp<"Rcux "Rtgugpv."Hwwtg. "Ej kej guvgt<"Griku"J qty qqf 0
- ô ô \*3; :: +":Tgegpv'Fgxgrqr o gpwl'kp'O cej kpg"Vtcpurcvkqp<'C'Tgxkgy "qh'vj g"Ncuv'Hkxg"[gctuø'kp"F0O czy gm'M0 Uej wdgtv'cpf "V0Y kmco '\*gfu+"Pgy 'Fktgevkqpu'kp'O cej kpg"Vtcpurcvkqp. "Fqtftgej v<'Hqtku0
- ô ô \*3; ; 5+"::Ncvguv'F gxgmr o gpvu'kp'O cej kpg'Vtcpurcvkqp"Vgej pqmi {<Dgi kppkpi "c'P gy 'Gtc'kp'O V'T gugctej ø'' Rt qeggf kpi u'qh'vj g'Hqwt vj 'O cej kpg'Vtcpurcvkqp'Uwo o kv. "Mqdg. 'I.cr cp0
- ô ô \*3; ; 8+"::CNRCE<"Vj g"\*Kp+lrco qwu'Tgr qt vø "O V"P gy u"Kpvgt pc vkqpc n'36\*Lwpg+<"; 6340
- ô ô cpf 'J ONOUqo gtu'\*3; ; 4+"Cp"Kpvt qf wevkqp"\q"O cej kpg"Vt cpurc kqp. "Nqpf qp"cpf "Ucp"F kgi q<"Cecf go ke "Rtguu0
- J wej kpuqp. 'R0\*3; : 5+'I co gu'Cwj qtu'Rnc $\{$ . 'Nqpf qp<'O gyj wgp0
- $\label{eq:condition} J xcmqh "U0*3; : 7+" \ \textit{wf g'eqo r c t c vkxg'f gu'f qpp^2 gu'vgt o kpqrqi ks wgu'f gu'dc ps wgu'f g'vgt o kpqrqi kg'F CPVGTO. "D0V0S 0" \\ \textit{GWTQF KE CWVQO}. "PQTO CVGTO". "QHN"gv'Ugo gpu". "Eqr gpj ci gp<" J cpf gnij qlumqrgp0$
- $\label{eq:logu} J \ \{o \ gu. \ 'F \ gm' \ '3; 9313; 94+" \ Qp' \ Eqo \ o \ wpkeckxg' \ Eqo \ r \ gwgpegø' \ 'kp' \ LR t \ kf \ g'' \ cpf'' \ LQ \ qm \ gu' \ 'gf \ u+" \ Uqekqnkpi \ wkwkeu" \ '' \ u'' \ Uqekqnkpi \ wkwkeu'' \ '' \ Uqekqnkpi \ wkwkeu''' \ '' \ Ugekqnkpi \ wkwkeu'''' \ '' \ Ugekqnkpi \ wkwkeu'''' \ '' \ Ugekqnkpi \ wkwkeu'''' \ '' \ Ugekqnkpi \ ''$
- J cto qpf uy qt y <\Rgpi vkp0
- J {wp."Vj 0\*Iqtyj eqo kpi +"Ej cpi kpi "kj g"Uet kr v<"Vt cpurc vkqp"cpf "Ewnwt crlVt cpulqt o cvkqp"kp"Mqt gc0Eqpi t guu'Vqt qpvq" Lwpg'3;;60
- $\hat{o} \quad \hat{o} \quad \text{cpf 'IONco dgtv'*gf u+''*3}; \\ 7+''Vt\,cpurc\,vkqp''cpf''O\,qf\,gt\,pk/\,c\,vkqp. \\ \text{'Xhukqp0Rt}\,qeggf\,kpi\,\,u''qh''y\,g''Z\,M\!K\!y\,\,''E\,qpi\,\,t\,guu''qh'\,M\!E\,N\!C. \\ \text{'Vqm(q'Wpkxgtukv('qh'ypkxgtukv('qh'yp$
- KNgzk 'Ur gelcn'Knuwg'qp''Vtcpurcvkqp. 'pq078. 'Cyj gpu. 'Lwn( óCwi wuv'3; : 80
- $\hat{o} \quad \hat{o} \quad \hat{s} : : + \text{"} \exists \quad \text{qy "ecp''Vtcpurc} \\ \text{"kp''Rrc} \\ \text{"kw''Tqrg''Ghge} \\ \text{kxgn} \\ \text{"kp''Y guv''Cht} \\ \text{kec} \\ \text{A} \text{a''kp''P gmgo cp'''gf} \\ \text{0+0}$
- Ki .'I ² tctf '\*3; 7; +.''-:Nøgpugki pgo gpv'f g'høkpvgtr t² vcvkqp''c'høl eqng''f økfpvgtr t³ vgu'f g'I gp³ x gø.''Nøkpvgtr t³ vg''3.''Wpkxgtukv{ ''qh'I gpgxc0
- $\hat{o} \hat{o} *3; 9: + \text{"} \text{-} \text{F} \text{ g''nxenzo cpf''xgtu''ng''htep} \text{-} \text{ckk-''nxer/r tgp\kuuci g''f g''nxkp\vgtrt^2\vc\kqp''uko \wncp^2\ga''\mathre{R}ctcn^3\ngu''\pq03-8; \dots; ." } \\ \text{Ecj kgtu''f g''nxGVK''Wpkxgtuk\{''qh''I \gpgxc0}}$
- eVo tc. 'O wj co o cf '\*3; :: +'Tkh  $^e$ c''cn'Vcj v y k''Ecktq<'F ct''cn'Uj wt s0
- Kpi cmu. 'F cpkgn'J OJ 0\*3; 87+'Cp'Cpvj qrqi { ''qhl'Ucpumtkv'Eqwtv'Rqgvt { ''\*J ctxctf ''Qtkgpvcn'Ugtkgu'66+. 'Eco dtkf i g. 'O C <'' J ctxctf ''Wpkxgtukv'{ ''Rtguu0}
- Kpi ctf gp. 'T0\*3; 94+":Q''v&o ce| gpkcej ø']Qp''Vtcpurcvkqp\_''kp'\ *"vgqt kk' <sup>jezyka</sup> 'k'hqrq| qhke| p{ej ''r qf uwcy 'hqi knk'*']Qp''y g'' Vj gqt { ''qh'Ncpi wci g''cpf ''Rj krquqr j kecn'Hqwpf cvkqpu''qh'Nqi ke<'Eqrigevgf ''Rcr gtu''qh'T0'Kpi ctf gp\_. ''Y ctucy <'Rc uwy qy g'' Y {f cy pkewy q'P cwnqy g0
- Kpi q. "T0\*3; ;  $2+"N@j \sqrt[3]{mkgnguv@mqj} f$  gnkgnggp $0Lqjfcwuvc''n@pp^3/wkgvgguggp'']$ Htqo "Uqwteg'Ncpi wci g'\q''Vcti gv'' Ncpi wci g0Cp'Kpvtqf wevkqp'\q''Vtcpurcvkqp''Uwf kgu\_''Rqtxqq<'Y UQ[0
- Kownkwv'\*3; : 5+"-Y tkkpi "U{uvgo u'cpf "Vtcpurcvkqpuø'\*ur gekcn'kuuvg'75+."Qvcy c<'O kpkuvgt "qh'Kof kcp'Chrcktu'cpf" Pqtvj gtp'Fgxgqqr o gpv0
- Kxkpi ."Vj qo cu'D0\*Cn'J cll''Vcørko ":Crk+"\*3; ; 4+"Vj g'Pqdgn'S wt \phi p. "Ct cdke "Vgzv'cpf 'Gpi nkuj "Vt cpurc vkqp. "Co o cp." Lqtf cp<"F ct "O clf crcy k0
- Kucdgrng. 'RO''O (F {o gvo cp''cpf 'GOO cennqxkej '\*3; : : +"÷ETKVVGT<'C "Vtcpurcvkqp''U{uvgo 'hqt 'Ci tkewnwtcn'O ctngv'' Tgr qtvuø' kp'F (Kcti j c'\*gf 0+"EQNKPI 'Dwf cr guv<'Rt qeggf kpi u''qh'y g''34yj 'Kpvgt pc vkqpcn'Eqphgt gpeg''qp''Eqo r wwcvkqpcn'' Nkpi wkukeu. 'Dwf cr guv<'Lqj p''xqp''P gwo cpp''Uqekgv{ 'hqt 'Eqo r wkpi 'Uekgpegu. '483680
- Kigt. "Y qrhi cpi "\*3; 9: +"Vj g'Cev'qhTgcf kpi <'C'Vj gqt { "qhCguvj gske Tgur qpug." Nqpf qp<'Tqwrgf i g"cpf "Mgi cp"Rcwr0
- ô ô \*3;; 7+"::Qp"Vtcpurcvcdkkv{ <"Xctkcdrgu"qh"Kpvgtrtgvcvkqpø"Vj g'Gwtqrgcp'Gpi rkuj 'O guugpi gt '6\*3+<"526: 0 Kuj co ."Y (R0\*3; : 8+"::Vj g'Tqrg"qh"O guuci g'Cpcn{ uku"kp"Kpvgtrtgvcvkqpø"kp"O (N00 eKpvktg"\*gf 0+"Rtqeggf kpi u"qh"vj g"Pkpvj "
- Pcvkqpcn'Eqpxgpvkqp"qh'vjg"Tgi kunt { "qh'Kpvgt rt gvgt u'hqt 'vjg"Fgch"Ukrxgt"Urtkpi. 'OF < TKF "Rvdnkecvkqpu."3736880
- ô ô \*3; ; 6+": O go qt { 'hqt "Ugpvgpeg 'Hqto "chvgt "Uko wwcpgqwu "Kpvgtrtgvcvkqp<'Gxkf gpeg 'dqvj 'hqt "cpf 'ci ckpuv' F gxgtdcrkt cvkqpø 'kp "UNco dgtv'cpf "DO qugt/O gtegt "\*gf u+."3; 364340
- ô ô \*3; ; 7+"::Qp"\yi g"Tgrgxcpeg"\qh"Uki pgf "Ncpi wci gu"\q"Tgugctej "kp"Kp\ytr tg\c\kqp\@"\Vcti g\v"\9"\%35766; 0
- ô ô cpf 'J (Ncpg'\*3; ; 5+":Uko wncpgqwu'Kpvgtr tgvcvkqp"cpf 'ý g'T gecm'qh'Uqwteg/ncpi wci g'Ugpvgpeguø''*Ncpi wci g''cpf '' Eqi pkkxg'Rt qeguugu*'': \*5+<'4636860
- $\label{eq:local_power_substitution} \begin{tabular}{ll} KUQ'926''*3; : 9+"Rt kpekr rgu'cpf''O gyj qf u''qh'Vgto kpqrqi {."I gpgxc<"Kpvgtpcvkqpcn"Uvcpf ctf u''Qti cpk cvkqp0 } \end{tabular}$

- $\hat{o} \quad \hat{o} \quad \hat{s} : : + \text{"} \textit{J} \ \textit{cpf} \ \textit{dqqm'} \textit{3} < \text{\textit{Kphqt}} \ \textit{o} \ \textit{ch} \textit{qp'} \textit{cpf'} \ \textit{F} \ \textit{qewo} \ \textit{gpvch} \textit{qp}. \\ \text{"} \text{I} \ \text{gpgxc} < \text{\textit{Kpvgtpchqpcn'}} \text{Ucpf ctf u'Qti cpk chqp0}$
- Kgttcpvg."EŒ0\*gf 0; 3; 99; Wcpf ctf kucvkqp"qhlVgej pkecnlVgto kpqnqi {<Kphqto cvkqp"Vtcpuhgt."Rj krcf grr j kc<CUVO 0 Ksctuuqp."Icp"\3; ; 4; Uvdvkvhpi "hqt" yj g'O gf kc<'C" J cpf dqqm"qhl'cp"Ctv."Uvqenj qro <Vtcpugf k0
- Ksc ew."I 0\*3; 8; +"Knapt kc" Hwgt cwnt kk't qo ¬pg"] J knapt { "qh'Tqo cpkcp" Nkgtcwstg\_."Dwej ctguv<" Uekgp\khe "Rwdrkuj kpi "J qwug0 L@@ngn@ppg."O 0\*gf 0+'\*3; : ; +"Unqo gppqunkt lc" innqo crckpgp" nkt lc0Tcco cwnpn@pp3/ungp" lc' inc pucpnkgngp" o gt nk\/ mugun@' nkt lcnknwwf guuco o g"] Vtcpurc\sqr "Dqqn\overline" Happkij "Dqqn\overline" g"Uki pkhecpeg" qh'Dkdng" Vtcpurc\sqr "yj g"Xgtpcewrct" kp" Happkij "Nkgtcwstg\_." L{ x@m{ n@'L} x@m{ n@'L} x@m{ n@'L} x@m{ properties for knapp" nkt lcnknwwf gp" rckqmugp" o qpkuyg" pq0620
- ô ô \*3; ; 2+":Hgcwtgu"qh"Uweeguuhwn"Vtcpurcvlqp"Rtqeguugu<"C"Vj kpm/crqwf "Rtqvqeqn"Uwf {ø0Wpr wdrkuj gf "hegpvlcvg" yj guku."Ucxqprlppc"Uej qqn"qh"Vtcpurcvlqp"Uwf kgu."Wpkxgtukv{ "qh"Lqgpuvw0
- Leeqdugp. 'Gtke'\*3; 7: +"Vtcpurcvkqp<'C'VtcfkkqpcrlEtchv.'Eqrgpj ci gp<'I n(fgpf crg0

- ô ô \*3; ; 6+"*Vt c purc vkpi "NUR"Vgz wi<"Uqo g"Vj gqt gvkec rlEqpulf gt c vkqpu*"\*Eqr gpj ci gp"Uwf kgu"kp"Ncpi wci g"38+." Eqr gpj ci gp<"Eqr gpj ci gp"Dwukpguu"Uej qqr0
- Lcmqduqp. 'Tqo cp'\*3; 45+''Q''ej guj mqo "tuknj g'']Qp'E| gej ''Xgtug\_'Dgtrkp<'pq''r wdrkuj gt''ekgf = '\tcpu0cu'\ "mcf { " guni j q" xgt-g'']Vj g''Hqwpf c\kqpu''qh'E| gej ''Xgtug\_''3; 48. 'Rtci wg<'pq''r wdrkuj gt''ekgf 0
- ô ô \*3; 52+":Q'r gmcf w'xgt- ø'] Qp''Xgtug''Vtcpurc\kqp\_."Rn''p''4< 6330
- ô ô \*3; 5566+":Eq'lg'r qg| kgAø'\tcpu0O 0J gkp''cu'':Y j cv'ku'Rqg\t{Aø''kp''N0O cvglmc''cpf 'K0T0'Vkwpkn\\*gf u+"Ugo kqvkeu''qh'' Ctv<'Rtci wg''Uej qqn'Eqp\tkd\wkqpu.''3; 98.'Eco dtkf i g.''O C<'O KV''Rtguu0
- ô ô \*3; 7; +":-Qp"Nkpi wku<br/>ke 'Cur gevu''qh" Vtcpurc klqpø 'kp 'Dtqy gt '\*gf 0+'4546; 0
- $\hat{\text{o}}$   $\hat{\text{o}}$  \*3; 82+":Empukpi "Ucvgo gpv<'Nkpi wkuvkeu'cpf 'Rqgvkeuø'kp" V<br/>Ugdgqmi\*gf 0+" Ukp''Ncpi wcig. 'Eco dtkf i<br/> g. 'O C <'O KV" Rtguu. '5726990
- ô ô \*3; 7; 13; 93+"::Qp"Nkpi wkuke"Cur gewi'qh"Vtcpurcvkqpø"kp"Lcmqduqp"*Ugngevgf "Y t kkpi u"KK:Y qtf "cpf "Ncpi wci g.* "Vj g" J ci wg"cpf "Rctku:'O qwqp."482680
- Ico gu. 'Ectn'\*3; : 2+"Eqpvt curkxg"Cpcn(uku. 'Nqpf qp<'Nqpi o cp0
- Lcpf n'Gtpuv'\*3; 88+"Ncw/wpf 'Nwkug."Qngp0
- L@ku. 'O 0\*3; ; 3+"Mkt lcmknumc" lc" 'vgc wgt kvgmnkOV wmko wu'p@ vgno kgp"n@pv@o kugun@'guko gt mmkckpgknappc 'Cpvqp" Vugj qxkp"Mqno gp"ukuct gp"uwqo gppqmugv"]Nkytcwtg"cpf "Vj gcvtg"VgzvOC"Uwf { "qh"F tco c"Vtcpurcvkqp." y kj "Tghgtgpeg" vq"Hlppkij "Vtcpurcvkqpu"qh"Ej gnj qxøu"Vj t gg"Unngt u\_"\*[ nkqr knqp"j wo cpknkukc"Iwmcknwlc"pq034+."Lqgpuww\*Lqgpuwwp0 Lcpugp. "Rgvgt"\*gf 0+"\*3; ; 7+"Vtcpurcvkqp"cpf "vj g'Ocpkr wrcvkqp"qh"F kneqwt ug0Ungevgf "Rcr gt u"qh"vj g"EGTC"T gugct ej "Ugo kpct u"kp"Vtcpurcvkqp"Uwf kgu"3; ; 463; ; 5. "Ngwxgp<"EGVTCô Vj g"Ngwxgp"T gugct ej "Egpvgt 'hqt "Vtcpurcvkqp." Eqo o wpkecvkqp"cpf "Ewnwtgu0
- Lcs wkgt."J 0\*3; 87+":Dcdgn"o k/'xkw/JDcdgn"Nkxkpi 'O { yj \_."Ugeqnwi42\*3+<3736820
- Leur gt. 'F 0 gf 0 '3; ; 5 + Vtcpurc vkpi 'T grki kqwu'V gz w Vtcpurc vkqp. 'Vtcpui t guukqp. 'cpf 'Kpvgt r t gvc vkqp. 'Nqpf qp 'O ceo kmcp0
- Lgpugp. 'O 0\*3; ; 7+"::Uko r n{ 'Tgcf kpi 'y g'I gpgxc'Dkdrg<'Vj g'I gpgxc'Dkdrg'cpf 'kw'Tgcf gtuø'.'Nkgt c wt g''cpf 'Vj gqrqi { ''; \*3+<"526670
- Igtqo g. 'Gwugdkwu'J kgtqp $\{o wu'^3; 7: +": Qp''y g'Dguv'Mkpf''qh'Vtcpurcvqtø'^Ngwgt''79''vq''Rco o cej kwu+: ''tcpu0'Rcwn'Ecttqm'' kp''Vj g''Ucvkt kecrl'Ngwgt u''qh'Uv'Lgt qo g. 'Ej keci q<1 cvgy c<math>\{.$ ''3546730
- Iguwf cucp. "E0'cpf "J gr | kdcj "Iguwf cucp" "3; 83+" C"J kwqt { "qhlVco krllNkgt cwrt g. "Ecrewxc<" [OEC "Rwdrkuj kpi "J qwug0 Ikcpi "Y gpj cp" "3; : 9+" O kpi "S kpi "Ikcp" | ck' J wc "f g" kcpuj wlkcq" { guwj wk" ] Iguwku "kp" Ej kpc "kp" y g" O kpi "cpf 'S kpi " F { pcukgu\_"Uj cpi j ck \ j kuj k'Rwdrkuj kpi "Eq0
- Lkta v."Xqlv ej "\*3; 52+"Fxc"r gmcf { "Hcwwc"]Vy q"Vtcpurc\qpu"qh"Hcww\_."Rtci wg<"Ht0Dqtqx 0
- Lqj cpuuqp. "Uki '\*3; ; 7+": O gpu'ucpc 'kp''eqtr qtg''ucpq<Qp''yj g'Tqrg''qh'Eqtr qtc''kp''Nkpi wkuke 'Tgugctej  $\emptyset$  ''Vj g''Gwtqrgcp'' Gpi rkuj 'O guugpi gt ''0'\*4+<'3; 0470
- ô ô cpf "MD qhrcpf" "3; ; 6+" Vqy ctf u'cp 'Gpi nkuj Pqty gi kcp 'r ctcmgn'eqtr wux 'kp "WHtkgu. 'I OVqwkg' cpf 'ROLej pgkf gt "\*gf u+" Et gc kpi "cpf "Wukpi 'Gpi nkuj "Ncpi wci g'Eqtrqtc. 'Rcr gtu'htqo "vj g'Hqwt vggpvj "Kpvgtpc kqpcn'Eqphgtgpeg" qp 'Gpi nkuj "Ncpi wci g'Tgugctej "qp 'Eqo r wygtk gf 'Eqtrqtc." \ wtkej "3; ; 50
- LOGdgrkpi "cpf "MOJ qhrcpf "\*3; ; 8+":Eqf kpi "cpf "Crki pkpi "vj g"Gpi rkuj /P qty gi kcp"RctcmgrlEqtr wuø "kp"MoCklo gt. "DO Cnvgpdgti "cpf "O OIqj cpuuqp" "gf u+"Ncpi wci gu'kp 'Eqpvt cuv: "Rcr gtu'htqo "c"U{or qukwo "qp" Vgz v dcugf "Etquu/nkpi wkuvke" Uwwf kgu. "Nwpf "667" Octej "3; ; 6. "Nwpf <"Nwpf "Wpkxgtukv{"Rtguu0
- Iqj pu. "HCO\*3;: 5+":O cpkhguvcvkqpu'qh'Ctyj wt"

```
Y crg{<Uqo g'Dkdrkqi ter j kecn'epf 'Qvj gt'P qvguø'Dt kskuj 'Nkdt et { 'Lqwt pen'; 3936: 60
```

Lqj puvqp. 'F 0\*3; ; 8+'\*gf 0+''Uci gu'qhVtcpurcvkqp. 'Dcyj <'Cduqnwg'Rtguu0

Lqpgu."F 0'cpf "LNOVuvlkk"3; ; 2+":-J ki j "S wcrkx{ 'O cej kpg/f tkxgp"Vgzv"Vtcpurcvkqpø."Rcr gt"uvdo kvxgf "cv'vj g"Vj ktf" Kpvgtpcvkqpcn"Eqphgtgpeg"qp"Vj gqtgvkecn'cpf "O gvj qf qrqi kecn"Knuvgu"kp"O cej kpg"Vtcpurcvkqp"qh"P cwtcn"Ncpi wci gu" \*Cwurkp."VZ+0

Iqpgu. 'TOHO\*3; 88+"Vj g'Vt kwo rj "qhl\j g'Gpi nkuj "Ncpi wci g. 'Ecnkqtpkc<'Ucphqtf "Wpkxgtuk\{ "Rtguu0

Lqpi nggu. "C(1 0\*3; 89+":-Vtcpurc\kq"\uwf\k\cdot'ngu\cxcvctu\f\\pwp\'\y\ go g\'o gf\kgxcn\pa\'\kp\'O\ go\ qt\kco'' \left\ Lcp''Ht\ gf\ gt\kentPkgt\ o\ g\{\ gt\.''I\ tqp\pi\ gp\c\'Y\ qn\gt\ u\'o\ f\ 3\\\o 730\ \end{argunity}

Iqqu. 'O 0\*3; 89+"Vj g"Hkxg"Erqemu. '5tf "gf p. "Drqqo kpi vqp<"Kof kcpc "Wpkxgtukv{ "Rtguu0

Iqwtf clp. 'Co cdrg'\*3: 65'tgr t03; 82+'Tgej gtej gu'etkks wgu'lwt 'nø-i g'gv'nø'qtki kpg'f gu'itcf wevkqpu'ncvkpgu'f øCtkwqvg''gv'' uwt 'ngu'eqo o gpvckt gu'i t geu'qw'ctcdgu'go rrq{2'u'rct'ngu'f qevgwt u'weqrcusks wgu. 'P gy '[ qtm: Htcpmtp0

ô ô \*3: 95+'T gej gt ej gu'et kks wgu'uwt 'nø−i g''gv'n-qt ki kpg'f gu'\t cf wevkqpu'nc vkpgu'f øCt kwqvg. 'P qwxgmg''gf kkqp''t gxwg''gv'' cwi o gpv² g''r ct 'E0Iqwtf ckp. ''Rctkı≮Iqwdgtv0

Mcej tw. "D00"3; : 3+"::Mcuj o ktk"Nksgtcwtgø "xqr0"XKKK"6+"qh"Icp"I qpf c'\*gf0"J knqt{"qh"Kpf kcp"Nksgt c wt g. "Y kgudcf gp<" Qwq"J cttcuuqy k $\downarrow$ 0

 $Mcf g.'Q0\%3; 8: +'\ whc \textit{mlwpf'I} \ \textit{gugv/o} \ \& \ \textit{ki mgki/kp'f gt'} \ \textit{Gdgt ugv/wpi} \ .'' \ \textit{Ngkr} \ | \ \textit{ki <'XGD''} \ \textit{Xgtnci'} \ \textit{Gp} | \ \{ mmqr \ @ \ kg0 \ | \ \textit{Ngkr} \ | \ \textit{ki <'XGD''} \ \textit{Ngtnci'} \ | \ \textit{Mglgr} \ | \ \textit{Ngkr} \ | \ \textit$ 

Mclko c."U0\*3; ; 6+"::Mcpuj k'y c{cmv'm ø']Qp"Vtcpurcvkpi "Ej kpgug"Rqgvt{"kpvq"Icr cpgug\_."kp"Mco gk"\*gf 0+0

 $\label{eq:localization} \mbox{Mcmthf ku."K0*3; } 58 + \mbox{"} \mbox{$Vq'O gwrj t c unknq'Rt qxnko $c''$} \mbox{$Vj$ g''Vtcpurc kqp''Rt qdrgo $\_''C yi gpu<''pq''r wdrkuj gt0}$ 

ô ô \*3; 93+":KCtej ckk'Gmkpgu'ng'KZgpgu'I muuguø']Vj g'Cpekgpv'I tggmu'cpf 'Hqtgki p''Ncpi wci gu\_.''O gngvgu'ng'Ct vj t c'' ]Uwf kgu'cpf 'Ct vkengu\_0'Vj guucmpkml0

Mcrg. 'O OT 0\*3; 8; +'Vj g'Cdj klpcpcucmvpvcrco "qhlMcnlf cuc. '32vj "gf p. 'F grj k<'O qvkrcn'Depetukt cuu0

 $\label{eq:local_model} \begin{tabular}{ll} Mco~gk''U0\%gf~0+\%3;~;~6+\%Mpf~ck'Pkj~qp''pq''J~qp{cmw'Dwpmc''}] Vtcpurc\dqp''Ewnwtg''kp''O~qf~gtp''Lcr~cp_.''Vqm{q<Ej} & ''M~tqp/Uj~c0 \\ \begin{tabular}{ll} Uj~c0~display=1.5cm (a) & (a) & (b) & ($ 

Mcr rep. 'Gf y ctf 'M0\*3; ; 2+"Vj g'Rctkukcp'Rtqy rgt. 'Cyj gpu. 'I C<'Wpkxgtukx{ "qh'I gqti kc0

Mcr rcp. 'TOO'\*3; 88+":Ewnwtch'Vj qwi j v'Rcwgtpu'lp''Kpvgt/ewnwtch'Cf weckqpø''Ncpi wci g'Ngctpkpi '38'\*566+<'36420 ô ô \*3; :: +":Eqpvtcukxg'Tj gvqtke''cpf 'Ugeqpf 'Ncpi wci g'Ngctpkpi <'P qvgu'vqy ctf u'c''Vj gqt { ''qh''Eqpvtcukxg'Tj gvqtkeø'' kp''CE(Rwtxgu''8gf 0+"Y tkkpi ''Cet quu''Ncpi wci gu''cpf 'Ewnwt gu<'Kuwgu'kp'Eqpvtcukxg'Tj gvqtke."P gy dwt { ''Rctmx'Uci g0 Mctcpvc { ."Uwcv'\*3; ; 3+":-Vj g''Vtcpurcvkqp''Qhhkeg''qh''y g''3; 62u<'P qto u''cpf 'Hwpevkqpuø''kp''F qwy g''Hqnmgo c'\*gf 0+" Rt qeggf kpi u''qh'y g''Zkkkj 'Eqpi t guu''qh'y g''Kpvgtpcvkqpcn'Eqo rctcvkxg''Nkytcwt g''Cuuqekcvkqp. "xqr07<''Ur ceg''cpf 'Dqwpf/ctkgu''O wplej <'Kwf lekwo 'Xgtrci .'622670

Mctko k/J cmmcm'Cj o cf "\*3;; 7+":Htqo "Vtcpurcvkqp"\q'Crrtqrtkcvkqp<'Rqgvke'Etquu/dtggf kpi 'kp'Gctn{ "Vy gpvkgyj / egpwt{ "Kcpø"*Eqo rctcvkxg"Nkytcwtg*."69\*3+<'7569: 0

 $\label{thm:local_model} $$ Mculpku.''M0*3; ; 7+''Nqi\ qvgej\ pkmk'O\ gvcrj\ t\ cuk<'Ej\ ctvqi\ t\ crj\ kuk'vqp'Tgxo\ cvqp'mg'Vcugqp''vqw'3; 'mg''42'Ck']$ Nkvgtct{''Vtepurcvkqp<'C'O\ crr kpi ''qh'vj\ g'Ewttgpvu'cpf''Vtgpf u'kp''vj\ g'3; vj ''cpf''42vj ''Egpwtkgu_0'Wpr wdrkuj\ gf''r\ cr\ gt''r\ tgugpvgf''cv''vj\ g''I\ qwcpf\ tku/J\ qtp''Hqwpf\ cvkqp.''Cvj\ gpu'*7'O\ c{''3; ; 7+0}$ 

Mcvci ktk''M0\*3; : 7+'Qtcpfc''Vu lk'pq''Mgpml '']C''Uwf { ''qh''y g'F wej ''Kpvgtr tgvgtu\_.''Vqml q<[ quj kncy c''M dwpncp0 Mcv .''U0\*3; 9; +''C''J kwqt { ''qh'Lcrcpgug''Nkgtcwtg.''xqn'03.''Nqpf qp<'O ceo kncp0

ô ô \*3; : 5c+"C"J kwqt { "qhLcrcpgug"Nwgtcwtg. "xqr04<"Vj g"[ gctu"qhKuqrcvkqp. "Nqpf qp<"O ceo kmcp0

ô ô \*3; : 5d+"C"I kwqt { "qh'Lcrcpgug"Nkgtcwtg. "xqn05<"Vjg"Oqfgtp"[gctu."Vqm(q<"Mqfcpujc"Kpvgtpcvkqpcn"Nvf0

ô ô cpf 'O 0'O ctw{ co c'\*3; ; 3+"J  $qp\{cmw'pq'Uj$  ku ']Vtcpurcvgf 'Vj qwi j v\_''kp"Pkj qp'Mkpf ck'Uj ku 'Vckmgk'37']O qf gtp" Ler cpgug''Vj qwi j v'U{ uvgo u.''xqrf)'37\_''Vqm{q<"Ky} cpco k'Uj qvgp0

Mcv|."Igttqrf 'I0\*3; 9: +":Ghcdkrkv{ "cpf "Vtcpurcvkqpø 'kp'I wgpvj pgt "cpf 'I wgpvj pgt/Tgwwgt "\*gf u+'3; 364560

Mey co qtk"[ 0\*3; 83+"J  $qp\{cmw'Dwpi\ cmw']$ Vtcpurcygf "Nkgtcwtg\_."lp" $Mpf\ ck'Dwpi\ cmw'Mcpuj$  " $M\ /c''43$ "]O qf gtp" Nkgtcwtg'Crrtgelcylqp'Ugtlgu."xqr0'43.."Vqm $q<"Mcf\ qmcy\ c''Uj\ qvgp0$ 

Mey co wtc."I0\*3; : 3+"Pkj qpi q"pq"Ugmck'37"J qp{cmw'pq"Pkj qpi q"]Vtcpurcvkpi "Icr cpgug."kp"Vj g"Y qtrf "qh'vj g"Icr cpgug" Ncpi wci g."xqr037\_."Vqm(q<"Ej "M tqpuj c0

 $\label{eq:local_control_cont$ 

Mc{c.'Ocjow'\*3;; 4+"÷Uqog'Hkpfkpiu'qp"Vtcpurckqpu'Ocfg'kp''yg'3: yj'Egpwt{'htqo''I tggn'lcpf''Guøcf''Ghgpfkøu'' Vtcpurckqp''qh''yg''*Rj{ukecø*''kp''

```
Gno graf f kp"K ucpq nw\sgr 0\"Vtcpulgt"qhOqf gtp"Uekgpeg"cpf "Vgej pqrqi { "\q"\j g"O wurko "Y qtrf". "Krucpdwr\"KTEKEC." 5: 76; 40
```

Mggrg{.'G0\*3;; 2+":Vj g'Eqo o gteg'qh'Vtcpurcvkqpø''RGP''Co gt kecp'Egpvgt'Pgy urgwgt'95"\*Hcm-<326340

Mggpcp. 'Gf y ctf 'N0\*3; 9: +'': Uqo g'Nqi kecn'Rtqdrgo u'kp''Vtcpurc\kqp $\phi$ 'kp'I wgpyj pgt 'cpf 'I wgpyj pgt Tgwwgt'\* gf u+: '3796 : ; 0

 $\label{eq:local_$ 

ô ô cpf "Kcp"O cuqp" gfu+"3; : 9+"Vtcpurc kqp" kp" ij g'O qf gtp" Ncpi wci gu" F gi t gg. "Nqpf qp Egpvtg' hqt' kphqto cvkqp" qp" Ncpi wci g"Vgcej kpi "cpf 'T gugctej 0

Mgngt."I ct{"F0\*3;:6+":J qy "Ej kecpq"Cwj qtu'wug'Dkrkpi wcn'Vgej pks wgu'hqt"Nksgtct{"Grhgeva"kp'Gwi gpg'GI cte\chi." Htcpekueq'C0Nqo grk'cpf "Kukf tq"F Qtvk "\*gf u+"Ej kecpq"Uwf kgu<'C'O wnkf kuekrnkpct{"Crrtqcej."P gy "[ qtm\chi'Vgcej gtu" Eqngi g'Rtguu."3936; 20

Mgm{."F qwi rcu"\*3; 9: +":-Vt cpurc vkq"uwf kk<"Vtcpurc vkqp."Cf cr vcvkqp"cpf "Crrgi qt { "kp"O gf kgxcn"Htgpej "Nksgtcwtgø" Rj krqrqi kecn'S wct vgt n("79<"4: 965320

Mgm{."ILP (F 0\*3; 97+"Lgt qo g<"J ku"Nklg."Y t kklpi u"cpf "Eqpvt qxgt ukgu."Nqpf qp<"F wemy qt yi 0

 $\label{eq:localization} $$ Mgm{.''Nqwku'I 0}^3; 8; +$^47'Egpwt\,kgu''qh!Ncpi\,wci\,g'Vgcej\,kpi\,.''Tqy\,ng{.''OC\ ^2P\,gy\,dwt{\ ''J\,qwug0}}$ 

ô ô \*3; 9; +"Vj g'Vt wg'Kpvgt r t gvgt <'C'J kwqt { "qh'Vt cpurc vkqp"Vj gqt { "cpf 'Rt cevkeg'kp"Vj g'Y guv. "P gy "[ qtm<'UV'O ctvkpøu" Rt guu0

 $\label{eq:mapp} $$ Mgppgf { 'GF 0'T0Y crf tqp''cpf 'LUUY kwki '*gf u+'*3; :: +'O gf kgxcn'Gpi nkuj 'Uwf kgu'Rt gugpvgf ''vq'I gqt i g'Mcpg.'' Y qqf dtkf i g<F UUDtgy gt0}$ 

Mgppgt."J wij "\*3; 92+"Vj g"Vt c purc kappu"qh"G/t c "Rqwpf."Napf ap<"Hedgt0

Mgpp{.'Fqtqyi {"\*hqtyi eqo kpi +":-Vj go g'cpf 'Tj go g'kp'Kkuj 'cpf 'Gpi rkuj <'C'Eqtr wu/dcugf 'Uwf {ø''*UCNKU'Y qt mkpi "* Rcr gt u'kp'Ncpi wci g'cpf 'Uqekgv/.'F wdrkp<'F wdrkp'Ekx{'Wpkxgtukx{0}

 $\label{eq:localization} \textit{Mgtuj cy .'IO*3}; 88 + \textit{'Vj g'Rt gugpv'Uci g <'Pgy 'F kt gevkqpu'kp'Vj gc vt g'Vqf c {. 'Nqpf qp <'Eqm\pu0}}$ 

en'Mj t{Shihāda.'\*3;:: +"Cn'Vetleo e'S ef o ep''y e Hadithan"]Vtepurevkqp'Reuv'epf 'Rtgugpv\_''Uqwue."Vwpkuke<Fet'en'Oce tkt0

Mkgnct.'D0\*3;::+"V€woce/gpkg'k'mqpegrelg"\tcpurcvqt{e/pg"]Vtcpuncvkqp<'Rtcevkeg''cpf''Vjgqtgvkecn'Eqpegrwu\_''Ytqe€y<'Quuqnkpgwo0

Mko wtc."M0\*3; 94+":P kj qp"J qp{cmw'uj k'I cknepø']Cp"Qxgtxkgy "qh'vj g"J knvqt{"qh"Vtcpurcvkqp"kp"Icr cp\_\_"kp"O gklk'' J qp{cmw'Dwpi cmwij "O gklk'Dwpi cmw'\ gpuj "9"\*Vtcpurcvgf "Nkvgtcwtg'kp"vj g"O gklk''Rgtkqf ."kp"Nkvgtcwtg'kp"vj g"O gklk'' Rgtkqf ."xqr09+:"Vqm{q<Ej kmvo c"Uj qd 0

 $\label{eq:loss} \mbox{Mpi .'I0*3}; : 4 + \mbox{"} \mbox{$Gp$ is they 'Telepto $c$ when $c$ with $g$ 'V in $q$ t' $Q$ this $kpu''qh' is $g'' R$ they are $g'' V' is $g'' V' is $kpu''qh' is $g'' R$ they are $g'' V' is $$ 

Mktcn(.'F qpcnf'\*3;; 7+"Rcyj y c{u'\q'Vtcpurc\kqp.'Mgpv.'QJ <'Mgpv'Ucvg''Wpkxgtuk\{''Rtguu0

 $\textbf{Mktmqx.'F ko kgt'*3}; :: + \text{"} \pm \text{tkgtkc'hqt''y} \text{ g'Crrtckucn'qh'} \\ \textit{Dgngw'ngwt gu''kp''Vtcpurckqp} \text{ "} \\ \textit{Dcdgn'56*6+-4946530}$ 

Mkci cnk 'O 0\*3; : 3+''Rt kpekr ngu''cpf 'Rt qdngo u'qh'\Vt cpunc \kqp'\kp''\Ugxgpvggpvj / egpwt { 'Gpi ncpf . 'M{ qvq<'[ co ci wej k' Uj qvgp0 }

ô ô \*gf 0+"\*3; ; 4+"*I guej kej vg. "Ul uvgo . 'Nkvgt ct kuej g'* © *dgt ugv| wpi 11 kuvqt kgu. "Ul uvgo u. 'Nkvgt ct { 'Vt c purc vkqp u'* \*1 3/4wkpi gt" Dgkvt® g'| wt "Kpvgt pcvkqpcngp" © dgt ugv| wpi uhqt uej wpi '7+. 'Dgt nkp<'Gt kej "Uej o kf v0

ô ô \*gf 0+"\*3;; 7+"*Kpvgt pc vkape rl Cpvj qraj kgu"qh!Nkvgt c vvvt g"kp"Vt c purc vkap*" \*1 3/4vkpi gt "Dgkxt® g"| vxt "Kpvgt pc vkape rgp" ©dgt ugv| vpi uhqt uej vpi "; +."Dgt rkp<"Gt lej "Uej o kf v0

ô ô cpf 'Cto kp''Rcwn'Htcpm'\*gf u+'\*3;; 3+''*Kpvgt ewnwt crkv{ "cpf "vj g"J kwqt kecn'Umf { "qh'Nkvgt ct { "Vt cpurc vkqpu'\*1 3/wkpi gt" Dgkst® g"| wt''Kpvgtpcvkqpcrgp'©dgtugv| wpi uhqtuej wpi '6+.''Dgtnkp<'Gtlej 'Uej o kf v0* 

Mkwtgf i g. 'T0'cpf 'L0Ngj tdgti gt'\*3; : 4+"*Undrcpi wci g<'Umf kgu'qh!Ncpi wci g'kp'Tgunt kevgf 'Ugo cpvke'F qo ckpu*. 'Dgtrlp<'f g" I tw{ vgt0

Mircwf {."MD\si3;;5+\subseteq p"J {r qyj gukuø "kp" MDM ircwf {"cpf" LDMqj p"\signf u+\subseteq p'upgeguug" guwi "Ewtt gpv" Kuuwgu'qh'Vt cpuur kapp'Vj gqt {O'Rt qeggf kpi u'qh'c"U{or qukwo "kp"j qpqwt" qh'I {3/4 i {"Tcf > "qp"j ku":2 yj "dkt yj fc{." U qodcyj gn{<"F cpkgn'Dgt| ugp{k'Eqngi g0}

ô ô \*3;; 6+"-:C'hqtf ¶" u'gro ² rgvg'² u'i {cmqtrc vc 0'Cpi qn''p² o gv.'htcpekc. "qt qu/ 'hqtf ¶" uvgej pknck'r² f cv" ttcnø"]Vj gqt {"cpf" Rtcevkeg"qh'Vtcpurcvkqp0'Y kyj "Knwurtcvkqpu'kp'Gpi rkuj."I gto cp. "Htgpej "cpf "Twurkcp\_, "Dwf cr guv-'Uej qrcuvkec0

Mirgkp/Nevewf."Ej tkurkpg"cpf "Ci p³ u'Y j khkgrf "\*gf u+"\*3; ; 8+"::Ng"hgurkp"f g"DedgnIDedgnøu"hgeuv<"nc "eqr t² ugpeg"f gu'ncpi wgu" f cpu'ngu'yzyguø 'ur geken'kunwg"qh"VVT<Vt cf wevkqp. 'Vgt o kpqrqi kg. 'T gf cevkqp"; \*3+0

Mrgo gpukgy ke| .'\ 0\%3; 83+":Rt| gm\(\epsilon\) f "lcmq"| ci cf pkgpkg" l | {mq| pcy e| g\\0'] Vtcpurc\kqp"cu"c"Nkpi wku\ke"Kuwg\_."kp" Y "mt gi w" iezyka "nkgt cenkgi q'k'ct v\(\text{uv}\) e/pgi q'] Qp'\yi g'\Nkgtct {"cpf "Rqg\\ke'\Ncpi wci g\'\epsilon\) Eqmevgf "Rcr gtu'\qh\\ 0\Mrgo gpukgy ke| \_."

Y ctucy <\(\mathbb{R}\)c uw qy g'\(\mathbb{Y}\) \{f cy pkey q'\(\mathbb{P}\) cwnqy g\(0\)

Mngr hgt. 'T0\*3; 89+"F kg"Vj gqt kg"f gt "klugt ct knej gp"©dgt ugv| wpi 0T qo cpknej /f gwnej gt "Urt cej dgt gkej" "Ht gkdwti gt" Uej tklugp" | wt 't qo cpknej gp"Rj knynji kg"34+: 'O wpkej <"Y knj gno "Hlynn0"

Mpcrr/Rqvj qhh 'C0'cpf 'M0Mpcrr'\*3; : 9+":Vj g'O cp'\*qt'Y qo cp+'kp''yj g'O kf f ng<F kueqwtucn'Cur gevu"

```
qh'Pqp/rtqhguulqpcn'Ixpvgtrtgvlpiø'lxp'IMOMpcrr.'Y 0Y kppkpigt'cpf'C0Mpcrr/Rqwjqhh'*gfu+"Cpcn(|kpi'|Kpvgtewnwtcn'' Eqo o wpkecvkqp.'Dgtnkp<"O qwqp'fg'I tw{vgt0
```

Mpqy rgu. 'O wttc{"cpf 'Mktuvgp'O cro mlâ t'\*3; : ; +":Ncpi wci g. 'Rqy gt 'cpf ''y g'Y qtrf ''qh''y g'Vkp''Uqrf kgtø''*GNT ''Lqwt pcrl*' 5-427663. ''Dkto kpi j co <"Wpkxgtukx{ ''qh''Dkto kpi j co 0

 $\label{localization} $$ Mpqy nqp.'L0*gf 0+'*3; 9: +'J crr{'Fc{ulQj'Ngu'Dgcwz'Lqwtu''d{'Uco wgn'Dgengw.'Nqpf qp<'Hcdgt0}} $$$ 

Mpqz."T0\*3; 6; +"Vt kenu'qh'e 'Vt epune vqt."P gy "[ qtm:"Uj ggf "cpf "Y ctf 0\*Dtkkuj "\krg<"Qp 'Gpi nkuj kpi "\j g'Dkdng."Nqpf qp<" Dwtpu'cpf 'Qcvgu0+

Mqej qn''Xkmqt''\*3; 8: +''-:Rtgmcf''c''xgt-ø.''*Uqxgpun't 'hkgtcv\Atc*''37\*5+<'4986:: 0

Mqj p. "L" pqu'\*3; : 2+":O qo gpvg'ugo pkhecvkxg'kp'kuvqtkc''tgrc kkrqt''ewnwtcrg''tqo -pqo ci j kctgø'] Ko r qtvcpv'O qo gpwi'kp'' y g''J kuvqt { "qh''y g'Tqo cpkcp/J wpi ctkcp'EwnwtcriTgrcvkqpuj kr\_.''kp''X (Eqo cp'\*gf 0+''Vgusko qpkgu''cpf''Gxqecvkqpu.'' Qtcf gc<'Rwdrkij kpi ''J qwug''qh''y g''Qtvj qf qz''Dkuj qr tke0

- ô ô \*3; : 5+"Xkt ww kng"eqo r gpuc vqt kk"c ng"nko dkk"t qo ¬pg"kp"vt cf wegt g"]Eqo r gpuc vqt { "Xkt wwgu"qh"Tqo cpkcp"kp" Vtcpurc vkqp\_..."Vko k qctc<"Hcenc 'Rwdrkuj kpi "J qwug0
- ô ô \*3; : 9+"::Uwi guvkk'r gpvt w'x cmt khect gc 'vtcf wegt kmt 'nc ''qt gng 'f g ''nko dk'o qf gt pgø'] Uwi i guvkqpu 'hqt ''Wukpi ''Vtcpunc vkqpu'' kp ''HNV\_.' 'kp 'T UU-t dw.' [ 0'Nwew c. 'O 0 gpej gc. ''V Dg wcp ''cpf ''X O qnf qxcp '\*gf u+"Uwf kgu''kp ''O qf gt p ''Ncpi wc i gu''cpf '' Nkyt c wt gu.''V ko k qct c<''Wpkxgt ukv{ ''Rt guu.''4746: 0
- ô ô \*3; :: +"::Kpvgthgtgp g"vtcf wegtg/etgc kg"nc"O kj ck'Go kpguew@Kpugo p tk'r g"o cti kpgc"vpgk'vtcf wegtk' vko r wtkko"] Kpvgthgtgpeg"cpf "Etgcvkxg" Vtcpuncvkqp"kp"Go kpguew@u"Y qtm0Tgo ctmu"qp"cp"Gctn("Vtcpuncvkqp\_."*Ncpi wci g" cpf "Nkgt c wit g*"5. '7865840
- ô ô cpf "Mkpi c"Mrcwf {"\*gf u+"\*3; ; 5+":-\text{Vt cpuhgt t g'pgeguug''guví \ \phi'Ewt t gpv'Kuuwgu''qh\text{Vt cpunc vkqp'\text{Vj gqt {. \"r t qeggf kpi u''qh'c" u {o r qukwo 'kp''j qpqwt''qh'I {3/4 i {"Tcf ». 'U qo dcyj gn{< F cpkgn'Dgt| ugp{k'Eqnrgi g0}

Mqmgt."Y gtpgt'\*3; 9; 13; ; 4+'Gkph $\tilde{h}$ j t wpi 'kp'f kg'©dgt ugv| wpi uy kuugpuej chv.'6 $\gamma$ ' gf p.'I gkf gmlgti 'cpf 'Y kgudcf gp<'S wgmg'' wpf 'O g{ gt0

- ô ô \*3; : ; +"∹Gs wkxcrgpeg'kp''Vtcpurcvkqp''Vj gqt{ø'kp'Ej guvgto cp'\*gf 0+0
- ô ô \*3;; 5+":\u00e4 wo 'Dgi tkh'l' gt'`õgki gpvkej gpö'©dgtugv| wpi ø'kp'Lwuvc'J qn /O @pw@k'cpf 'Ej tkurkcpg'P qtf '\*gf u+" Vtcf wegt g'Pcxgo O'Hguwej tkh'l' Mcvj ctkpc'Tgk' '/ wo '920I gdwt unci .''Vco r gtg0
- ô ô \*3; ; 7+"::Vj g'Eqpegr v'qh'Gs wkxcrgpeg''cpf ''yj g''Qdlgev'qh''Vtcpurcvkqp''Uwf kguø''*Vcti gv*''3\*4+<''3; 364440

Mgo kuuctqx. 'XOP 0\*3; 8; +"::Gmr rkuktqxcpk{ g'mcm'r tqdrgo c''r gtgxqf cø']Gzr rkeckqp''cu''c 'Rtqdrgo ''qh''Vtcpurckqp.."

\*Rtqdrgo k'r t kmcf pq{ ''nkpi xku.kmk']Rtqdrgo u''qh'Cr r rkgf ''Nkpi wku.keu..'O queqy <'VF XMO

- $\hat{o} \quad \hat{o} \quad \text{``3'}; 95 + \text{``Uqxq''q''r} \ gt \ gxqf \ g''] C''Y \ qtf \ \text{``Cdqw''Vtcpurc wqp\_''O} \ queqy < O \ g| \ j \ f \ wpctqf \ p \{ \ g''qvpquj \ gpk \{ \ cO \ g \ | \ f \ wpctqf \ p \} \}$
- ô ô \*3; : 2+"Nhpi xhuhm "r gt gxqf c"]Vj g"Nhpi whuheu"qh"Vtcpurchqp\_."O queqy <O g| j f wpctqf p { g"qvpquj gpk{ c0
- $\hat{o} \ \hat{o} \ ^*\!3; ; 2 + "V g q t \ k' \ c \ 'r \ g t \ g x q f \ c \ ''] V t c p u r c \ k q p \ '"V j \ g q t \ \{\_. "O \ q u e q y < "X \{ u u j \ c \ \{ c \ 'u j \ mq r c \ 0 \} \}$

Mqpf .'O 0 $^{1}$ 3; ; 4+": $^{1}$ 6Ecuugwg'Ghgevö'kp'Icr cpgug'Vtcpurcvkqp''Y qtf uø''Vj g'Kpvgt r t gvgt uø'P gy urgwgt.''ur gekcn'kuuwg''pq0' 3.'466560

MP/pki .'HO'cpf 'Xgtpqp.'P 0\*3; : 4+'':Vtcpurc\kqp'Y qtmıj qr ='Cp'Cn\gtpc\kxg'\q'F gxgmr kpi 'Nk\gtct { 'Kpuki j \\%''Ecpcf kcp'' O qf gtp'Ncpi \\wi i g'Tgxkgy '5; \*3+<856; 0

Mqr cpgx"R0K0\*3; 94+"Xqrtqu{"\sqtkkkmqtkk'nj wf q/j guxxgppqi q"rgtgxqfc"]Knuwgu"qh"\j g"Vj gqt{"cpf"J knqt{"qh" Nkgtct{"Vtcpurc\kqp\_."O kpunc\Kfcvgnvxq"DI W0

 $\hat{o} \ \hat{o} \ cpf \ 'HDg\{gt''3; : 8+''Vgqtk\ c''k'rtcmkmc''wwpqi\ q''rgtgxqf\ c'']Vj\ g''Vj\ gqt\{''cpf''Rtcevkeg''qh''Kpvgtrtgvkpi\ \_''O\ kpum''\ X\{uuj\ c\{c''uj\ mqrc0\$ 

. 'CO cphy wtegn 'GOMctume' cpf 'NOT {y kp'\*gf u+'\*3; : 3+'Vj g'O kuukqp''qh'vj g'Vt cpure vqt 'Vqf c { ''cpf 'Vqo qtt qy <'' Rt qeggf kpi u''qh'vj g'KZvj 'Y qtrf 'Eqpi t guu''qh'vj g'Kpvgt pc vkqpcn'Hgf gt c vkqp''qh'Vt cpure vqt u. 'Y ctucy <'HKVO Mqtr gn 'Nwe'\*3; ; 4+''Qxgt 'j gv'pwv'gp'f g''y kl/g'f gt 'xgt wrkpi gp0P gf gt repf ug''xgt went ghrge vkg''\*397263: 42+'kp''ggp'' Y guvgwt qr ggu''nef gt '']Qp''y g''Wughwrpguu''cpf ''y g'O cppgt 'qh''Vt cpure vkqpu0F wej 'F kueqwt ugu''qp''Vt cpure vkqp''\*39726

3: 42+'kp'c''Y guvgtp'Gwtqr gcp'Htco gy qtm.'Co uvgtf co <Tqf qr k0

ô ô \*3; ; 5c+":-Tj gvqtke "cpf "F wej "Vtcpurc<br/>vkqp "Vj gqt { "\*398263: 42+ø "Vc $ti\ gv$ '7\*3+<'776920

ô ô \*gf 0+\*3;; 5d+'Kp'P gf gtf wkwej 'i gy ccf 0P gf gt rcpf ug'dguej qwy kpi gp''qxgt 'xgt vcngp''398263: 42''] Kp'F wej 'I ctd0' F wej 'F kueqwtugu''qp''Vtcpurcvkqp''398263: 42\_.''Vj g'J ci wg<'Dkdrkqi tcr j kc'P ggtrcpf kec0

Micuj gp. "UF 0%3; : 4+"Rt kpekr ngu'cpf "Rt cevkeg"kp "Ugeqpf "Ncpi wci g'Ces wkukkqp." Qzhqtf <'Rgti co qp''Rt guu0 Micv| ."F 0%3; : 8+": Cp''Kpvgtxkgy "y kj "P qto cp''Uj cr ktqø''Vt cpurcvkqp''Tgxkgy "3; 496: 0

Młguu. 'I wpy gt'\*3; : 7+"*Nkpi wkuke 'Rt qe guugu' kp 'Uqekqewnwt cn' Rt cevkeg*. "Xkevqt kc<"F gcmkp "Wpkx gtukv{ "Rt guu0

- ô ô cpf 'Tqi gt 'Hqy rgt ' $^{*}$ 3; 9; +":Kpvgtxkgy uặ 'kp'Tqi gt 'Hqy rgt. 'Dqd'J qf i g. 'I wpy gt 'Mtguu'cpf 'Vqp{ 'Vtgy ." $^{\prime}$ 0 cpf ' $^{\prime}$ 1 cpf ' $^{\prime}$ 2 qru qn 'Nqpf qp<'Tqwrgf i g'cpf 'Mgi cp'Rcwr0
- Mtkpi u."J (R0\*3; : 8+"Y cu'kp'f gp'M/r hgp'xqp'©dgt/ugv|gtp'xqti gj v0Gkpg'go rkt kuej g'Wpvgt uwej wpi ''| wt 'Ut wmwt 'f gu'' ©dgt ugv|wpi urt q|guugu'cp'hqt vi guej t kvgpgp'Htcp|¾ukuej ngtpgtp."VÃdkpi gp<"P ctt0
- $\hat{o} \ \hat{o} \ ^*3; : 9 + ":Vj g" Wug" qh" V topurc V qur gev V topurc V qp "V topurc V qp "V$
- ô ô \*3; :: +":Drkem'kp"f kg"öDrcem'Dqzöô Gkpg"Hcmuwf kg"| wo "©dgtugv| wpi ur tq| gË'dgk'Dgt whuAdgtugv| gtpø "kp"T0Ctpv| "
  \*gf 0+"Vgzvkpi wkukm'wpf "Hcej ur t cej g0Cmgp"f gu"Kpvgt pc kapc ngp "Adgt ugv| wpi uy kuugpuej chnkej gp "CKNC/U{ o r qukapu."

  J knf guj gko . "356380Crt kn/3; : 9." J knf guj gko <"Qno u0
- Mtkngxc.'IO\*3; 92+'Ng'Vgzvg'f w't qo cp.'Vj g'J ci wg<'O qwqp0
- $\label{lem:lows} \mbox{Mtk} | \mbox{gem'L0*3}; 86 + \mbox{"} \mbox{$R$ gvgt'$ ij $g'$ $X gpgt $cdrg'' cpf''$ \mbox{$Kurco$}$ . \mbox{"} \mbox{$R$ tkpegvqp.'$ P L \mbox{$
- Mtqp\ktku."Vkpc"\3; :: +":Dtgcmkpi 'Dcttkgtu'qh'I gptg'cpf 'I gpf gt<'O cti ctgv'V{ngtøu'Vtcpurc\kqp''qh'\y g"Oktqwt''qh''

  Mpki j yi qqf ø'Gpi rkuj 'Nksgtct{'Tgpckuucpeg''3: \3; \65; 0
- ô ô \*3; ; 4+"*Qrrqukkqpcn'Xqkegu<'Y qo gp"cu'Y tkgtu'cpf "Vtcpurcvqtu'qh'Nkgtcwtg'kp"ij g'Gpi rkuj 'Tgpckuucpeg.*" Nqpf qp<'Tqwrgf i g0
- $\label{eq:linear_state} \begin{tabular}{ll} Mtwi~gt."C0$"gf 0+"3;; 6+"$Pgy "Rgturgevkxgu"qp" Vgcej~kpi "Vtcpurcvqtu"cpf "Kpvgtrt~gvgtu"kp" Uqwij "Cht~kec." F~gr~ctvo~gpv"qh" Nkpi wkuvkeu." Wpkxgtukv{"qh"Uqwij "Cht~kec0} \\ \end{tabular}$
- Mt| gu| qy unk "V(R0\*3; 96+":Eqpvtcurkxg"I gpgtcvkxg"I too o ctø "Uwf kc"Cpi nkec "Rqupcpkgpukc"7<3276340
- ô ô \*3; : 7+":Vj g"Uq/ecmgf "õUki p"Vj gqt {ö'cu'\y g'Hktuv'O gy qf 'kp'Eqpvtcuvkxg'Nkpi wkuvkeuø' kp'W0Rkgr gt 'cpf 'C0Ukemgn' \*gf u+"Uwf kc 'Nkpi wkuvkec 'F kcej t qpkec 'gv'U pej t qpkec. 'Dgt nkp<'O qwqp'f g'I tw{ vgt. '6: 767230
- ô ô \*3; ; 2+"Eqpvt cuskpi 'Ncpi wci gu<'Vj g'Ueqr g'qh'Eqpvt cuskxg'Nkpi wkuskeu. 'Vj g'I ci wg<'O qwqp'f g'I tw{ vgt0
- $\label{eq:linear_model} \begin{tabular}{ll} Mwhpgtqx^a.'\ mc.'O \ krgpc''Rqr^a mqx^a.'Lctqo \ $^tRqxgl-kn'\ fgpc''Unqwo \ cmx^a''cpf''Xrcuvc''Utcmqx^a''^3; ; 6+''R \ gmt' f''p \ g'' \ g-kpc'']Qp''Vtcpurckpi ''cpf''E| gej _.'Rtci wg<'J J 0 \end{tabular}$
- Mwj ky e| cm'R0 $^{*}3$ ; ; 2+":-Vtcpurc\kqp''cu''Crrtqrt\kc\kqp<'Vj g'Ecug''qh''O krcp''Mwpf gtcøu''Vj g''Lqngø''\kp''Dcuupgw''cpf'' Nghgxgtg'\\*gf u+:'33: 6520
- $\label{eq:linear_model} $$ M_k T0^3; : 7+":Uwqo gppqmigv'pwqtkiqnktlcmkiwwgo o g'ngj k{ miguu@']Vj g'Kphrwgpeg'qh'Vtcpurcvkqpu'qp" $$ Hppkij 'Lwxgpkg'Nkgtcwtg_''p'CQmknckpgp'*gf $$ $$$

- Mwtcp. "P gf tgv"\*3; ; 3+":-Vj g'Hktuv'I qgvj g'Vtcpurcvkqpu'kp"Vwtmkuj ø'kp'F qwy g'Hqmmgo c'\*\*gf 0+"Rt qeggf kpi u'qh'vj g'Zkkkj "Eqpi tguu'qh'vj g'KpvgtpcvkqpcvlEqo rctcvkxg'Nkvgtcvwt g'Cuuqekcvkqp. "xqr07<"Urceg"cpf "Dqwpf ct kgu. "O wpkej <"Kwf kekwo" Xgtrci."5; 66; 0
- Mwtg/Lgpugp."Nkug'\s3;; 5+":Kucm'F kpgugp'kp'Gpi rkuj. 'F cpkuj. 'cpf "Vtcpurcvkqp<'Ctg''Y g'Tgcf kpi 'vj g'Uco g''VgzvAø'kp" Qri c/Cpcurcukc''Rgrgpum('\sqf 0+"Kucm'F kpgugp<'Et kkecrl'Xkgy u.'Cvj gpu.'QJ <'Qj kq''Wpkxgtukx{'Rtguu.'5366430
- MÃt v¾uk "Mcvcrlp"\*3; ; 5+"::Rqgvu"qh"Dkhwtecvgf "Vqpi wgu."qt"qp"vj g"Rnwtkrlpi wcrkuo "qh"Ecpcf kcpJ wpi ctkcp"r qgvuø "VVT<" Vtcf wevkqp. "Vgt o kpqrqi kg. "Tgf cevkqp"8\*4+<"3256520
- $\label{thm:limit} $$ \operatorname{Mwtwe}_{\cdot} : T = \operatorname{Ocpf}_{\cdot} \operatorname{NOU}_{\cdot} \operatorname{qtgp}_{\cdot} \operatorname{Ksgf}_{\cdot} \operatorname{uO}_{\cdot} : T + \operatorname{U}_{\cdot} \operatorname{upi}_{\cdot} \operatorname{ctkc}_{\cdot} \operatorname{Ngwgtctkc}_{\cdot} : \operatorname{Gwt}_{\cdot} \operatorname{qrcg'} \operatorname{Nwhc'}_{\cdot} \operatorname{Nkgtct}_{\cdot} : T + \operatorname{U}_{\cdot} \operatorname{upi}_{\cdot} \operatorname{ctkc'} \operatorname{Ngwgtctkc}_{\cdot} : \operatorname{Gwt}_{\cdot} \operatorname{qrcg'} \operatorname{Nkgtct}_{\cdot} : T + \operatorname{U}_{\cdot} \operatorname{upi}_{\cdot} \operatorname{ctkc'} \operatorname{Ngwgtctkc}_{\cdot} : T + \operatorname{U}_{\cdot} \operatorname{upi}_{\cdot} \operatorname{upi}_{\cdot} : T + \operatorname{U}_{\cdot} :$
- $\label{eq:matter} $$ Mwt|.''Kpittkf''*3;:7+'':Vjg''Tqem'Vqodu''qh''yg''Rtkpegu''qh''Gngrjcpvkpg<''Gctnkguv''Tghgtgpegu''vq''Kpvgtrtgvcvkqp''kp''' Rjctcqpke''Gi{rvx''}Dcdgn'53*6+<'43563:0$
- $^{\circ}$   $^{\circ}$   $^{*3}$ ;  $^{*+}$ Vj g'Kpvgtr tgvgt'Hgrkr kmq''cpf 'j ku'Tqng'kp''y g''Vtkcn'qh''y g''Kpec'Twrgt'Cvcj wcrr cø''*Vj g''Lgt qo g'S wct vgt n*(." Y cuj kpi vqp.'8\*6+<566.'330
- ô ô cpf 'Htcp| 'R¾ej j cengt'\*3; ; 7+":S wcrkv{ 'kp'Kþygtr tgvkpi ø''*Vt cpurc vkq*'36\*566+<5726: 0
- Mwuo cwn 'Rcwn'\*3; ; 3+":Etgcwkxkv{ 'lp''y g''Vtcpurcwlqp''Rtqeguu<'Go r ktkecn'Crrtqcej guø''lp''xcp''Ngwxgp/\ y ctv'cpf'' P ccklmgpu'\*gf u+:"; 363230
- ô ô \*3; ; 7+"Vt ckpkpi "ý g"Vt cpurc vqt. 'Co uvgtf co "cpf "Rj kref grr j kc<"Lqj p"Dgplco kpu0
- Mw.'I wpc{'\*3; : 8+":380xg'390[ w| {kn'Vwtm'Gf gdk{cvkpc''Vqr nw'Dcmkuø'cpf '':3: 0[ w| {kn'Vwtm'Gf gdk{cvkpc''Vqr nw'} Dcmkuø']Uvtxg{''qh'38y| /.'39y| /'cpf ''3: y| /egpwt{ ''Vwtmkuj ''Nksgtcwtg\_'kp''Quo cpmrctf c''xg''Cxt wr cof c''Eci f cu'Mwnwt wp'' Qnumo w'3863: 0[ w| {knct'']Vj g'Gxqnwkqp''qh'O qf gtp'Ewnwtg'kp'Gwtqr g''cpf ''y g''Qwqo cp'Go r ktg'kp''y g''38y| /3: y| '' Egpwtkgu\_''Kncpdwrk'O gyku'[ c{kprctk''34; 66; .''4856980
- Nc'Dquul&tg'\gf 0+\sqrt{3}; : 5+\Vtcpurcvkqp'\kp'Ecpcf kcp'\Nkvgt cwt g. 'Qwcy c\Wpkxgtuk\{ ''qh'Qwcy c'\Rtguu0 Ncf o ktcn'\L0\T0\sqrt{3}; 9; +\Vtcf wkt g\'\y'^2 qt^3 o gu'r qwt 'hc '\ttcf wevkqp. '\Rctku\\Rc{qv0}

- Ncf q. 'T0\*3; 79+'Nkpi wkukeu'cet quu'Ewnwt gu 'Cpp'Ctdqt<'Wpkxgtukk( ''qh'O kej ki cp''Rtguu0
- Ncheti c."HD\*3; : 5+"Ncu'\tef weekqpgu'gurc° qrcu'f grl\gc\teq q'ltcpe² u'\*392263: 57+\drkqi tclfc'f g'ko rtguqu."Dctegrqpc\drk\grupceq Rwdrkeckqpu'K'Gf kekqpu'f g'nc'Wpkxgtukcv\f g'Dctegrqpc0
- Ncmqhh'I Oʻcpf 'OʻCqj puqp'\*3; : 2+'Oʻgwcrj qtu'y g'Nkxg'd{. 'Ej keci q'cpf 'Nqpf qp<'Wpkxgtuk\{ ''qh'Ej keci q''Rtguu0 Ncmgo cpf . 'Rcwn'\*3: : : +''F g'Rctpcuuq'Qtcvqtkcpq. ''Rctkx''Vj qtkp0
- ô ô \*3; :  $6+\text{":-V}j^2$ qtkg''rkw² tcktg. "J kurqktg''rkw² tcktg. "2 wxf g''f gu''\tcf we\kqpuø''\kp''GOM\twij pgt'\\*gf  $0+\text{''}Tgpqwxgmgo\ gpw''f\ cpu''nc''$   $yj^2qtkg''f\ g''n\phi j\ kurqkt\ g''hkw² tckt\ g$ . "O qp\tgcn\text{Nc''Uqek' \( 2'\) Tq{cng'f\ w'Ecpcf\ c.''33; 6520
- ô ô \*3; : 7+"!-Nc'tcf wevkqp." 'gu'i gpt gu'gv'n $\theta$  xqnwkqp" f g'nc''nkw² tcwst g<'r tqr qukkqpu''o ² yi qf qmi ks wguø." 'Rt qeggf kpi u''qh'' yi g'Zyj 'KENC'E qpi t guu. 'P gy '[qtm: 1 ctrcpf 0]
- ô ô \*3; : 8+"-Ngu'T grcvkqpu'rkw² tcktgu'kpvgtpcvkq/pcrgu'eqo o g''r tqdr² o g''f g''t gegr vkqpø'kp''I0T kgu| . 'RODqgtpgt 'cpf 'D0 Uej qr| '\*gf u+"Ugpuwu'eqo o wpku0Hguwej t khv'hÃt "J gpt { "J 0J 0T go cm" VÃd kpi gp<"I wpvgt "P ctt."6; ó850C nuq'kp" Qgwxt gu'' cpf''Et kks wgu'3; : 8''Z K $^4+$ C $^3$ 956: ; 0
- ô ô \*3; :: +":-Vy gpv{ "[gctu"qh"Tgugctej "qp"Nkygtct{ "Vtcpurcvkqp"cv"yj g"Mcyj qrkgrng"Wpkxgtukvykv"Ngwxgpø"kp"Cto kp"Rcwrl" Htcpm"\*gf 0+"Fkg"Nkygtctkvej g"©dgtugv/wpi "\*1 3/4vkpi gt"Dgkxt® g"|wt"Kpvgtpcvkqpcrgp"©dgtugv/wpi uhqtuej wpi "4+:"Dgtrkp<" Gtkej "Uej o kf v0
- $\hat{o}$   $\hat{o}$  \*3; : ; +"::Nc"Vtcf wevkqp."rgu'rcpi wgu'gv'rc"eqo o wpkecvkqp"f g"o cuugø"Vcti gv'3\*4+<'4376590
- ô ô \*3;; 3+":Kp"S wguv'qh"Nksgtct{"Y qtrf 'O cr uø 'kp"Mksvgn'cpf "Htcpm'\*gf u+"Kpvgtewnsut crkv{"cpf "Vj g"J kusqt kecn'Usuf {"qh" Nksgtct{"Vtcpurcvkqpu'\*1 3/xxkpi gt"Dgkst® g"| wt"Kpvgtpcvkqpcrgp"©dgtugv| wpi uhqtuej wpi "6+:"3556660
- ô ô \*3;; 5c+":Cwh'f gt "Uwej g"pcej "rkwgtctkuej gp"wpf "Adgtugv| gtkuej gp"Y gnwnctvgpø "kp"Hicpm"Occuu. "Rcwrl'cpf "Vwtm" \*gf u+": 763270
- ô ô \*3; ; 5d+":Cpyj qmi kgu"gv"J kuvqtkqi tcr j kguø "Vct i gv'7\*3+<"; ; 6; 80
- $\hat{o}$   $\hat{o}$  \*3; ;  $5e+"\exists$  kuvqt {."J kuvqt kqi tcr j {"cpf 'vj g"F kuekr rkpg0C"Rtqi tco o gø'kp"I co dkgt "cpf "Vqo o qrc'\*gf u+."5ó470
- ô ô \*3; ; 7+"::Nkgtcwtgu."Vtcpurcvkqp"cpf "\*F g+Eqmpk| cvkqpø''kp"Vj Ø {wp"cpf 'InNco dgtv'\*gf u+"Vtcpurcvkqp"cpf" Oqf gtpk| cvkqp."xqr0'KX"qh'G00 kpgt"cpf "J Wqtw'\*gf u+"Vj g"Hqteg"qh'Xkvkqp0Rtqeggf kpi u"qh'vj g'ZKKKj "Eqpi t guu'qh' KENC."Vqm(q<"Wpkxgtukx{"qh"Vqm(q"Rtguu0)
- $\hat{o} \ \hat{o} \ cpf "J \ gpf tkm'xcp" I \ qtr "*3; : 7+": Qp" F \ guetkdkpi "Vtcpurc kqpuø" kp" J \ gto \ cpu" *gf 0+"3; : 7c0$
- ô ô cpf 'CoNghgxgtg'\*gf u+'\*3; ; 5+'Vt cpurc vkqp'kp''y g'F gxgrqr o gpv'qh'Nkgt cwt guORt qeggf kpi u'qh'y g'ZKj 'Eqpi t guu''qh'' yj g'KENC.''Dgtp<'Ncpi 0
- Nco dgtv."U{ nxkg"cpf "Dctdctc"O qugt/O gtegt" $^3$ 3; ; 6+"Dt kf i kpi "ij g"I cr <Go rkt kecn'T gugct ej "kp"Uko wncp gqwu" Kp vgt rt gw vkqp. "Co uvgtf co "cpf "Rj krcf grr j kc<"Lqj p"Dgplco kpu0
- Nco r kpi .'F kgygt'\\$3; ; 4+''-F kg'hkgtctkuej g'\©dgtugv\ wpi ''cnu'f g/\ gpytcng''Utwnwt<'F cu'Rctcf ki o c'f gt''Ugnduv\Adgtugv\ wpi \@'' kp''J ctcnf ''Mkwgn'cpf ''J qtuv''Vwtn\\$gf u+''I guej kej vg. ''U\ uvgo .'hkgtctkuej g'\©dgtugv\ wpi .''Dgtnkp<'Gtkej ''Uej o kf v.''4346490 Ncpg.''J 0\\$3; : 6+''Y j gp''ij g''Okpf ''J gctu<''C''J kwqt {''qh'vj g''F gch''P gy ''f'' g'' g''
- ô ô cpf "HI tqulgcp" "gf u+" "3; : 2+" Tgegpv' Rgt ur gevkxgu' qp" Co gt kecp" Uti p" Ncpi wci g. "J kmuf cng. "P L<" Gtndcwo 0 Ncpi g. "Y qn/ F kgygt" "3; 95+" : Ukno cpkgt "wpf "Rctqf kgô \ wo "Y cpf gn' f gt" o gj tur tcej ki gp" F kej wpi "f gu' O kwgncngtuø" "kp"
- Cm'Qppgthqtu. 'Iqj cppgu'Tcyj qhgt "cpf 'Htk\' "Y ci pgt "\gf u+"Nkgtcwt 'wpf 'Urtcej g'ko 'gwtqr \@uej gp'O kwgrcngt 0'

Hguwej tkh/hÃt 'Mctn/Ncpi quej .'F cto uvcf v<'Y kuugpuej chwej i gugmæj chv.'5; : 66380

Nor week 'Ectm' '3; : 5+" F crixqri ctk / co gpwq'cnc 'vtcf w/kqpg. "Hrqtgpeg<" Xcm ctwpc0

 $\label{eq:controller} \mbox{Nctdcwf.'X0*3; } 68 + \mbox{$^{\prime\prime}$} \mbox{$^{\prime\prime}$}$ 

Nctqug.'T0\*3;:; +"Vj gqt kgu'eqpvgo rqt ckpgu'f g'hc "kt cf wevkqp."4pf "gf p."S wgdge<Rt guugu"f g'høWpkxgtuk? "f w'S w² dge0 Nctuqp."M060cpf "J 0T0Lej gmg'\*gf u+"\*3;:; +"Vj g'T gegr vkqp"qh'Uj cmgur gct g'kp'Gki j vggpvj/egpwt{'Ht cpeg'cpf'I gto cp{." ur gekchkuwg"qh"O kej ki cp'I gto cpke'Uwf kgu'37\*4+\"32364480

Nctuqp. 'O krf tgf '\*3; 97+'C'O cpwcrilqt 'Rt qdrgo 'Uqrxkpi 'kp'Dkdrg'Vt cpurcvkqp. 'O kej ki cp<\ qpf gtxcp''Rwdrkuj kpi 0 ô \*3; : 6+'O gcpkpi /dcugf 'Vt cpurcvkqp<'C'I wkf g'\q'Et quw'rcpi wci g'Gs wkxcrgpeg. 'Ncpj co . 'P gy '[ qtmlcpf 'Nqpf qp<' Wpkx gtukx{ ''Rt guu'qh''Co gtkec0

 $\hat{o} \hat{o} *gf 0+\%3; ; 3+\text{"$Vt c purc $V_{i}$ } gqt \{ \text{"$cpf ''Rt cevkeg.''V gpukqp''cpf ''Kpvgtf gr gpf gpeg.''CVC''Uej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp.''P [ <\Ucvg''Wpkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Uej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ugtkgu.'' xqr0\'x.''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ucvg''Wpkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ucvg''Wpkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Ucvg''Wpkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Qpt'' ypkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Qpt'' ypkxgtukv{''qh''P gy ''[ qtm''cv''Dkpi j co vqp0' } ...''Vej qrctn{''O qpqi tcr j ''Qpt'' ypkxgtukv{''qh''P gy ''Qpt'' ypkxgtukv{''qh'' ypkxgtukv{''qh'' ypkxgtukv{''qh'' ypkxgtukv{''qh'' ypkxgtukv{''qh'' ypkxgtuk$ 

Ncty km'RO 0\forall 3;  $56 + \frac{1}{N}c''$  if  $\frac{2}{qt}$  kg'f g'hc'' it cf wevkqp''cw'f  $\frac{2}{dw}$  f g'hc'Tgpckuucpeg. 'O wpkej <'Y qnh0

Ncv{uj gx."NOMO\*3; :: +"Rgt gxqf <"rt qdngo {"\sqt kk"rt cm\kn\k'k'o gvqf \kn\k'rt grqf cxcpk{c"}\Vtcpuncv\kqp<\Rtqdngo u'qh\"Vj gqt{." Rtcev\keg"cpf "Vgcej kpi 'O gyj qf qnqi {\_."O queqy <\Rtquxguj ej gp\kg0

Newgt. "Cpi grkne." J gkf twp" I gt | {o kuej / Ctdqi cuv." Iqj cpp" J cngt "cpf" 'Gtkej "Uvgkpgt" \*gf u+" \*3; ; 8+"

Odgt ugv/ wpi uy kuugpuej chi/ko 'Wo dt wej O'Hguruej t khi/hAt 'Y knuu'/ wo '920I gdwt uuxi .''VAdkpi gp<I wpvgt 'P ctt0

Ncwmrcpgp."I0\*3;; 5+"::Tqwkpg"xu0Pqp/tqwkpg"Rtqeguugu"kp"Vtcpurcvkqp<"C"Vj kpm/cmwf "Rtqvqeqri'Uwf {ø0'Wpr wdrkuj gf" i tcf wcvg" y guku."Ucxqprkppc"Uej qqri'qh"Vtcpurcvkqp"Uwf kgu."Wpkxgtukv{ ''qh'Iqgpuww0

Ncxkquc/Dtckj y ckg."Uctc"\*3; ; 8+":-Vj g"Gpi rkuj "Eqo r ctcdrg"Eqtr wu<'C "Tguqwteg"cpf "c'O gyj qf qrqi { 'hqt 'vj g'Go r ktlecn' Uwf { "qh"Vtcpurcvkqpø0Rcr gt"r tgugpvgf "cv":-Wpkx{ "kp"F kxgtukx{ ø "kpvgtpcvkqpcn"Vtcpurcvkqp"Uwf kgu"Eqphgtgpeg."F wdrkp" Ekx{ "Wpkxgtukx{ ."; 633"O c { '3; } 80

Ncy gpf qy unk "DORO\*3; 9: +":-Qp"Ugo kqvke"Cur gewi'qh"Vtcpurcvkqpø"kp"VUgdgqm'\*gf 0+"Ui j v. "Uqwpf ."Ugpug."
Dmqo kpi vqp. "RP <"Kpf kcpc"Wpkxgtukv{ "Rtguw0

Ncy tgpeg. 'F 0 0\*3; 43 13; 82+'Y qo gp'kp'Nqxg. 'J cto qpf uy qtyj < Rgpi <math>wkp0

ô ô \*3; 96+"*Nqxg"\*Hgo o gu"co qwt gwugu*+"/tcpu0O cwtleg"Tcpe³ u"cpf "I gqti gu"Nko dqwt. "Rctku<"I cmko ctf 0

Ncy uqp. "X0\*3; 9; +":-Vki gtu"cpf "Rqrct"Dgctu. "qt<"Vtcpurcvkpi "cpf "vj g"Eqo r wytø" "Vj g"Kpeqt r qt c vgf "Nkpi wkw'3: < 3670 Ngcn"K0\*3; 9; +"Nkdt qu"{ "dkdrkqvgecu"gp" Xgpg/wgrc "eqrqpkcrô 385563989. "Ectcecu<"Gf 0f g"rc" Hce0f g"J wo cpkf cf gu"{ "Gf wecek» p. "WEX0

Ngeqo vg'f w'P qÃ{ .'R0\*3; ; 3+":-Vtcpurcvkqp''cv'vj g'Wpksgf 'P cvkqpuø'lp'Ecvtkqpc'Rkengp'\*gf 0+"KVKEqphgtgpeg'7. 'Y kpfqyu''qp''yjg'Yqtnf<Rtqeggf kpi u'Nqpf qp<Curkd0

 $\label{eq:control_norm} \mbox{Ngf gtgt.'O ctkcppg'*3; : 3+"Nc'' tcf wevkqp'' uko wncp^2 gô \ gzrgt kgpeg'' gv'' yj ^2 qt kg. ''Rctku<'' Ngwtgu'' O qf gtpgu O qf gt$ 

- $\hat{o} \ \hat{o} \ \ ^*\!gf 0 + ^*\!\!\!/3; ; 2 + ^*\!\!\!/ \ \textit{wf gu''} \textit{t cf we vqrqi ks wgu. ''gp''j qo o ci g''c ''F cpkec ''Ugrgurqxkej . ''Rctku<''Ngwtgu''O qf gtpgu''O kpctf 0$
- ô ô \*3; ; 5+":Hqpf go gpvu'f g''rc''y ² qtkg'kpvgtr tgvcvkxg'f g''rc''vtcf wevkqpø'kp''Ecvtkqpc''Rkengp''\*gf 0+"Vtcpurcvkqp."'y g''Xkvcn'' Nkpm''r tqeggf kpi u''qh''y g''Z KKKj ''HKV''Y qtrf ''Eqpi tguu."xqr03."Nqpf qp<"Kpuvkwwg''qh''Vtcpurcvkqp''cpf ''Kpvgtr tgvkpi 0 ô 3; ; 6+"Nc''vtcf wevkqp''cwlqwtf ø'j wk' Rctku<"J cej gwg0
- ô ô cpf "HKNttcgrl\*gf u+!\*3; ; 3+"*Nc 'hdgt v² 'gp" t cf werkqp*. "r tqeggf kpi u'qh'y g"KpygtpcvkqpcrlEqrrqs wkwo "j grf 'cv'GUKV." Rctku. 'Lwpg'3; ; 2. 'eqrrgevkqp''Vtcf wevqrqi kg'pq09. "Rctku.'F kf kgt; twf kkkqp0

Ngg. 'F 0\*3; ; 4+"Eqo r gvkpi 'F kueqwt ugu<'Rgt ur gevkxg''cpf 'Kf gqrqi { 'kp'Ncpi wci g. 'Nqpf qp<'Nqpi o cp0

Nggej .'I 0\%3; : 5+\Rt kpekrngu'\qh\Rt ci o c\keu \'Nqpf qp\\Nqpi o cp0

- ô ô \*3; ; 3+":-Vj g''Ucvg''qh''yj g''Ctv'lkp''Eqtr wu''Nkpi wkurkeuø''kp''M0Cklo gt''cpf ''D0Cnvgpdgti '\*gf u+''*Gpi rkuj 'Eqtr wu'' Nkpi wkukeu* ''Nqpf qp''cpf ''P gy ''[ qtm:'Nqpi o cp0
- $\hat{o} \hat{o} *3; ; 4+\text{"-Rtci o cvke'} Rt \text{kpekr rgu'kp''} Uj \text{ cy } \text{øu'} [\textit{qw'P gxgt 'Ecp'V gm$a'' kp''} O \text{Wqqrcp''*gf } 0+\text{"Ncpi wci g.''} Vgzv'cpf 'Eqpvgzv'' \\ \textit{Guuc {u'kp''} Uh rkukeu.''} \text{Nqpf qp<T qwrgf i g0}$
- Nghgxgtg. "Cpf t² "\*3; 97+"*Vt cpurc vkpi "Rqgvt { <'Ugxgp"Ut c vgi kgu"cpf "c"Drwgr t kpv.* "Cuugp"cpf "Co uvgtf co <'xcp"I qtewo 0 ô ô \*3; 99+"*Vt cpurc vkpi "Nkvgt c wrt g <'Vj g"I gto cp 'Vt cf kkqp"h qo "Nwj gt "vq"Tqugp/y gki .* "Cuugp"cpf "Co uvgtf co <'xcp" I qtewo 0
- ô ô \*3; : 2+":-Vtcpurcvkpi 'Nksgtcwtg1Vtcpurcvgf 'Nksgtcwtgô yj g''Uvcvg''qh''yj g''Ctvø' 'kp'\ wdgt'\*\*gf 0+0
- ô ô \*3; : 3c+":Rtqi tco o cvke"Ugeqpf "Vj qwi j wi'qp"*Nkytct {* "cpf "*Vt cpurc kqp*"qt<"Y j gtg"f q'y g'I q'htqo "J gtgø"*Rqgvkeu" Vqf c {* ''4\*6+<"5; 6720
- $\hat{o} \quad \hat{o} \quad \hat{s}'' : 3d + \text{``Ling} \{qpf \text{''y} \text{ g'Rt} qeguu \text{''Nkgtct} \{\text{'`Vt} cpurc \text{'kqp'' lp''Nkgtcwtg''} cpf \text{''Nkgtct} \{\text{''Vj} \text{ gqt} \{\text{\emptyset'' lp''I} \text{ cffku'Tqug'' spf} \text{0+0} \text{ of } \text{0+0} \text{0+0} \text{ of } \text{0+0} \text{0+0} \text{ of } \text{0+0} \text{ of }$
- $\hat{o} \hat{o} *3; : 5d+"+Rqgvkeu"*Vqfc{+"cpf"Vtcpurcvkqp"*Uwfkgu+\( \alpha \) "kp"Fcpkgn"Ygkuudqtv"*gf0+"Oqfgtp'Rqgvt{'kp'Vtcpurcvkqp<'' 3; : 5. "Nqpfqp"cpf"Ocpejguvgt<'ORV"cpf"Ectecpgv0$
- ô ô \*3; : 5e+"::Nkgtcwtg. 'Eqo r ctcvkxg''cpf "Vtcpurcvgf ø ''Dcdgn3; : 5\*4+<'92670
- $\hat{o} \hat{o} *3; ; 3+\text{":-Vtcpurcvkqp"cpf" Eqorctcvkxg" Nkgtcwtg<Vj~g"Ugctej~'hqt''yj~g'Egpvgtø'' $VVT<Vt~cf~wevkqp. "Vgt~o~kpqnqi~kg." \\ Tgf~cevkqp''6*3+\colored{3}4; \\ \hat{o}660$
- ô ô \*3; ; 4c+"Vt c purc vkqp. "T gy t kkpi ."cpf "vj g"O c pkr wrc vkqp"qh!Nkyt c t { "Hcog." Nqpf qp"cpf "P gy "[qtm: Tqwrgf i g0
- ô ô \*gf 0'cpf '\tcpu0+'\3;; 4d+'\Vtcpurc\kqp II kwqt { l'Ewnwt g<'C'Uqwt egdqqm'P gy '[ qtm'cpf '\Nqpf qp<'T qwngf i g0
- ô ô \*3; ; 4e+"*Vt cpurc vkpi "Nkagt c wit g0Rt c evkeg"cpf "Vj gqt { 'kp"c 'Eqo r c t c vkxg'Nkagt c wit g 'Eqp vgz v.* 'P gy "[ qtm<"O qf gtp" Ncpi wci g'Cuuqekcvkqp0
- ô ô \*3; ; 5+":F kueqwtugu"qp"Vtcpurcvkqp<"Tgegpv."Nguu'Tgegpv'cpf "vq"Eqo gø"Vcti gv'7\*4+<"44; ó630
- ôô \*3;; 6+"::Kpvtqf wevkqp<'Eqoretevkxg'Nkvgtewstg''epf "Vtepunevkqpø". Eqoretevkxg'Nkvgtevvstg''69\*3+<'36320
- ô ô cpf "Uwucp"Dcuupgw'\*3;; 2+":Kpvtqf wevkqp<'Rtqwuvøu'I tcpf o qyj gt "cpf "yj g"Vj qwucpf "cpf "Qpg'P ki j vu<'Vj g"õEwnwtcn' Vwtpö "kp"Vtcpurcvkqp"Uwrf kguvø "kp"Dcuupgw'cpf "Nghgxgtg"\*gf u+0
- Ngi i g. 'O (F qo kpkec'\*3; 85+'Cpi nq/Pqto cp'Nkgtcwtg''cpf''Ku'Dceni tqwpf. 'Qzhqtf''Wpkxgtuk{ 'Rtguu'\*tgrt0' 3; 9: . 'Y guvrqtv.'EV<I tggpy qqf''Rtguu+0
- Ngj tdgti gt."IO'cpf "NDqwtdgcw"\*3; :: +"O cej kpg"Vt cpurc kqp0"Nkpi wkuke "Ej ct cevgt kukeu"qh"O V"U uvgo u"cpf "I gpgt ch" O gvj qf qrqi { "qhGxcrwc kqp." Co uvgt f co "cpf "Rj krcf grr j kc<"Iqj p"Dgplco kpu0
- Ngj vq. 'N0\*3; : 8+":-Vj g'Hopkuj 'Nkogtowtg'Hopf '\*3; 2: /+ø''Rtci vg<''Cevc' Wpkxgtukv vku'Ect qrlopc gô Rj krqrqi kec''3654: 76 5350
- Ngki j vqp. 'Newtgp'\*3; ; 3+"Vy q'Y qtrf u ''Qpg''Ctv<'Nkytct{''Vtcpurcvkqp'kp'Twuukc''cpf''Co gtkec.'F gncnd<'P qtvj gtp''Krkpqku'' Rtguu0
- Ngo c $\{$ ."T0\*3; 85+":F cpu'nøGur ci pg'f w'Z Kkg'uk' eng0'Ngu''tcf wevkqpu''f g'nøctcdg''cw'ncvkpø''Cppcngu'' $^{\prime\prime}$  eqp/qo kgu ''Uqek' v' u." Ekkhlucvkqpu''3: \*6+<'85; 6870

- Ngrrkj cno g. "T0\*3; ; 6+"Ewnwtg"Dwo ru0Qp"/jg"Vtcpurcvkqp"qh"Cmwukqpu. "J gnukpnk<"Wpkxgtukv{ "qh"J gnukpnk "F grctvo gpv" qh"Gpi rkuj "Uwvf kgu"40
- Ngunkgp. 'C0\*3; 25+":F gt 'Odgt| gnqp { unwpuv'f gu'Gzctej gp'Lqj cppguø''. Ct ej kx'hÃt 'urcxkuej g'Rj kqnqi kg. 'xqn0470
- Nguugt. 'T0\*3; ; 6+":RGP 'I gwi'y g''Nkdtct { 'qh'Eqpi tguu'vq''Ecvcmi wg''d { ''Vtcpurcvqtuø'P co guø'. 'Vj g''RGP''P gy urgwgt'': 7\*3+(44650)
- Ngxk'R0\*3; 96+"Vj g'Gpi rkuj 'Dkdrg'ht qo 'Y {erkh'\q'Y knkco 'Dctpgu'375663: 7; .'Nqpf qp<Eqpucdrg0
- Ngxkcpv.'Ewtv'\*3; 8; +'Mkpi 'Ctwu<'C'I gdt gy 'Ct yj wt kcp'Tqo cpeg'qll349; .'P gy '[ qtm\'Mcx0
- Ngxkpg."ILO 0\s3;; 3+"Vj g'Dcwrg"qh'vj g'Dqqmu<"J kuqt{"cpf "Nkgtcwtg'kp"vj g'Cwi wuxcp"Ci g. "Nqpf qp<"Eqtpgmi\wpkxgtukv{" Rtguu0
- Ngxkpg. 'Uw| cppg'Ikm'\*3; : 5+":-Vtcpurcvkqp''cu'\*\*Uwd+Xgtukqp<'Qp''Vtcpurcvkpi '*Kplrpvgøu'Kplgtpq*ø''*UwdUcpeg*''64< 76; 60' Tgr tkpvgf 'kp'Xgpwk'\*gf 0+"3; ; 40
- ô ô \*3; ; 3+"Vj g"Undxgtukxg"Uetkdg<"Vtcpurcvkpi "Ncvkp"Cogtkecp"Hkevkqp."Okppgcrqrku<"I tg{yqrh"Rtguu0
- Ngxkej k'\n0\s3; 97+\noting two ct''r gpvt w'\nt cf we \nqt k\noting kp'gpi ng/\"o 't qo  $\neg p$ '']C'\I \wkf g'\hqt''\Vtcpurc\qtu'\htqo '\Gpi nkuj '\hp\q'' \Tqo \cpkcp\_\"Dwej \ctguv\\Ue\kgp\hke''\cpf '\Gpe{\emp gf ke'\R\wdnkuj kpi ''J \qwug0}
- Ngx{.'EOO\*3;; 3+":-Vj g'I tqy kpi 'I gn/kp''Qyj gtuø''Y qtf uø''Vj g'Pgy 'I qtm'Vko gu ''42''Qevqdgt.''H70
- $\label{eq:lik-model} \operatorname{Ngx}\{.\text{'Ik}\,\P^*3;79+\text{''}\,\operatorname{\mathit{gunf}}\,\text{''}\operatorname{\mathit{vgqt}}\,\operatorname{\mathit{kg'r}}\,\operatorname{\mathit{gmcf}}\,\operatorname{\mathit{w'}}]E|\,\operatorname{gej}\,\text{''Vj}\,\operatorname{gqt}\,\operatorname{\mathit{kgu'}}\operatorname{\mathit{qh''}}\operatorname{Vtcpurc}\operatorname{\mathit{kqp}}_-\text{''Rtci}\,\operatorname{\mathit{wg}}\!\!<\!\!\operatorname{UP}\operatorname{MNO}$
- ô ô \*3; 89+":-Vtcpurcvkqp"cu"c"F gekukqp"O cnkpi "Rtqeguwa"kp"*Vq"J qpqt"T qo cp"Lcmqduqp*."xqrt04"Vj g"J ci wg<'O qwqp." 33936: 40
- ô ô \*3; 93+"Dwf g"hkgt" pk'x f c "gzcmpk'x f qwA"]Y km'y g"Vj gqt { "qh'Nkgtcwtg"dg"cp'Gzcev'Uelgpeg\_."Rtci wg<" gumqumqxgpum 'ur kuqxcvgn0
- ô ô \*3; 98+":-Vj g''Vtcpurcvkqp''qh''Xgtdcrl'Ctvø''kp''N00 cvglmc''cpf "KOF OVkwpkm'\*gf u+"Ugo kqvkeu''qh'Ctv<'Rtci wg''Uej qqn'' Eqpvtkdwvkqpu. 'Eco dtkf i g. 'O C<'O KV''Rtguu0
- Ngy ku. "Dgtpctf " $^3$ 3; 84+" $^7$ 9 g'Go gt i gpeg'qll'O qf gt p'Vwt ng{. "Nqpf qp "cpf "P gy "[ qtm $^4$ Qzhqtf "Wpkxgtuk\{ "Rt guu0 Ngy ku. "Rj krkr " $^3$ 3; : 3+" $^4$ Xgtu 'rc 'tcf wevkqp "cdwukxgø "kp 'RONceqwg/Ncdct yj g'cpf "LONP cpe { " $^8$ gf u+" $^8$ 9 g'nyj qo o g $^4$ C"
- ô ô \*3; : 7+"::Vj g'O gcuwtg'qh'Vtcpurcvkqp'Ghhgevuø'kp'I.qugr j 'I tcj co '\*gf 0+"*F khtgt gpeg'kp'Vt cpurcvkqp*. 'Kj cec.'P [ <' Eqtpgm'Wpkxgtukv{ ''Rtguu0
- Nk "P cps kw"\*3; ; 5+"\ j qpi "I wq"Me"Zwg"Y gp"Zkcp"Hcp"[k"Uj k'I cq"]Vj g"J kuvqt { "qh"Uekgpeg"F qewo gpv"Vtcpurcvkqp"kp" Ej kpc\_."J ghgk:"Wpkxgtukv{ "qh"Uekgpeg"cpf "Vgej pqmi { "qh"Ej kpc"Rtguu0
- Nkpf dgti .'F cxkf 'E0\*3; 9: +":-Vj g"Vtcpuo kuukqp"qh"I tggmlcpf 'Ctcdke''Ngctpkpi '\q'\j g'Y guvø 'kp''Nkpf dgti '\*gf 0+"Uekgpeg'' kp''j g''O kf ng''Ci gu 'Ej keci q'cpf 'Nqpf qp<'Vj g''Wpkxgtukv{ 'qh''Ej keci q''Rtguu.'746; 20
- Nkpgm'R0'E0Y cf gpul¾cpf 'N0I¾punqp'\*3; ; 4+":Guvcdrkuj kpi 'Eqo o wpkecvkxg'Eqpvcev'vj tqwi j 'c'Fkcnqi wg'Kpvgtr tgvgtø'' kp'C0 tkpf uvgf 'cpf 'L0Y ci pgt'\*gf u0+"Eqo o wpkecvkqp'hqt'Ur gekhæ'Rwtr quguô Hcej ur t cej nkej g'Mqo o wpkncvkqp." VÃdkpi gp<'I wpvgt'Pctt.'3476640
- Nkpi u."MDM0\*3; : : + $'*gf 0+'F \{pco kuni'npkpi '']F \{pco ke''Kpvgtrtgvkpi _.'Eqrgpj ci gp<'Ur gekcnRgf ci qi kunihqtrci 0 Nkwcw."<math>M0*3$ ; ; 5+ $'':Kpvgtvgzwcrkv{''cpf ''Vtcpurcvkqp<'Vj g'Y cuvg''Ncpf ''kp''Htgpej ''cpf ''I gto cpø''kp''Ecvtkqpc''Rkengp'*gf 0+''$
- Vt cpurc vkqpô Vj g'Xkvc n'Nkpn0'xqn0'3. ''r tqeggf kpi u'qh'Z KKKHKV''Y qtrf 'Eqpi tguu. '8635''C wi wuv'3; ; 5. ''Dtki j vqp<'KVK
- Nqo j gko . "U{ n'guv'\*3; : ; +"Qo ugulkpi uvgqt k'\*\*Vtcpurc\kqp"Vj gqt { + "Qurq<'Wpkxgtukgwi'hqtrei 0
- Nqtgpwgp. 'C0'N0O qi gpugp"cpf 'C0Hcwwkpi '\*3; : 7+"*Qxgtuò wgnug"qi 'p{ 'vgnpqrqi k'*]Vtcpurcvkqp"cpf 'P gy "Vgej pqrqi {\_." ¤ rdqti <'¤ rdqti 'Wpkxgtukxgwl'hqtrci 0
- N¾uej gt."Y qrhi cpi '\*3; ; 3c+"Vtcpurcvkqp"Rgthqtocpeg."Vtcpurcvkqp"Rtqeguu'cpf "Vtcpurcvkqp"Utcvgi kgu<'C" Ru{ej qrkpi wkuke "Kpxguki cvkqp."VAdkpi gp<'I wpvgt"Pctt0
- $\hat{o} \hat{o} *3;; 3d+":Vj kpmkpi/cmwf'cu'c'Ogvj qf'hqt'Eqmgevkpi'Fcvc'qp''Vtcpurcvkqp'Rtqeguuguø'kp''Vktmmqpgp/Eqpf k/*gf 0..." \\ 896990$
- ô ô \*3; ; 4+":Rtqeguu/qtkgpvgf "Tgugctej 'kpvq" Vtcpurcvkqp" cpf "Korrkecvkqpu 'hqt" Vtcpurcvkqp "Vgcej kpi ø "VVT < Vtcf wevkqp." Vgto kpqrqi kg. 'Tgf cevkqp' 7\*3+< 3676830
- ô ô \*3;; 5+":-Vtcpurc-kqp"Rtqeguu'Cpcn( ukuø'kp"I со dkgt "cpf "Vqo o qrc'\*gf u+0
- Nqvdlplåtg/J cty qqf ."Uwucppg'f g'\\$3;;  $3+Tg/dgmg'gv'lphlf^3ngONc''vtcf$  wevlqp''eqo o g''r t cvks wg'f g't^2² et kwt g''cw'lł o lphp1 Vj g'Dqf {'Dkrlpi wcr0Vtcpurcvlqp''cu''c'Tg/y t krlpi 'lrp''vj g'Hgo kpkpg. "S wgdge<'Ngu'\\$2 f krlqpu''f w'tgo wg/o ² pci gIVj g'' Y qo gpøu''RtguuO
- Nqvo cp. 'IOO 0\*3; 97+":Vj gugu'qp''yj g''Ugo kqvke''Uwf { "qh'Ewnwtgu'\*cu'Crrrkgf "\q''Urcxke''Vgzvu+ø'kp''Vj 0'CUgdgqm'\*gf 0+" Vj g''Vgm/vcrp''Uti p<'C''Untxg{ "qh'Ugo kqvkeu." Nkuug<'f g'Tkf f gt''Rtguu.''796: 60
- ô ô \*3; ;  $4+"=Ng"r j^2 pqo^3 pg"f g"rc"ewnwt gø"O gw"59"*3+\cdot'3: 64: 0$

rctvkt 'f w'\tcxckvlf g'Lces wgu'F gttkf c.'Rctkv\' f kkqpu'I cnkn g0

- Nqy gm 'T0\sq; 83+\text{"Ko kevkqpu." Pgy "[qtm\text{"Hettet" Utewu'cpf "I ktqwz0
- Nwf umcpqx. 'C0\*3; 97+":C'Ugo kqvke'Crrtqcej 'vq'vj g'Vj gqt{ ''qh''Vtcpurcvkqpø''Ncpi wci g'Uekgpegu'57'\*Crtkn+<'76: 0
- Nw(ngp.'I gqti/O kej cgn'Vj qo cu'I gtduv.'Iq'Ncpi j co/Dtqy p.'I grgpg'Tgkf "cpf "I gto cp''Ur kpj qh'\*3; ; 3+"Qxgteqo kpi "
  Ncpi wci g'Dcttkgtu"

```
kp'Gwtqrgcp'Vgngxkukqp.'O cpej guvgt <'Vj g'Gwtqrgcp'Kpurkwwg'hqt'yj g'O gf kc0
```

N{qpu. 'Lqj p'\*3; 99+''Uso cpvkeu'xqr03. 'Eco dtkf i g<'Eco dtkf i g'Wpkxgtukv{ ''Rtguu0

 $\hat{o} \quad \hat{o} \quad \hat{s} : 2 + \text{"--Rtqpqwpu"qh"Cfftguu"kp"Cppc"} \\ \textit{Mctgpkpc} < \text{Vj g"Uv{ rkuvkeu"qh"Dkrkpi wcrkuo "cpf" vj g"Ko rquukdkrkv{ "qh" rqh" vcrkuo "cpf" vj g"Ko rquukdkrkv{ "qh" vcrkuo "cpf" vj g" vcrkuo "cpf" vcrku$ 

Vtcpurcvkqpø"kp"Ulf pg{ "I tggpdcwo."I gqhtg{ "Nggej "cpf "Icp"Uxctvxkm" gf u+"*Uwf kgu'kp "Gpi nkuj "Nkpi wkwkeu'hqt" Tcpf qnrj "S wktm*"Nqpf qp<"Nqpi o cp."45766; 0

 $N{\text{qvctf.''} \textbf{I}\text{gcp/Htcp} \pm \textbf{qku'} \text{$^3$}; :: + \text{$^1$}\textbf{$^1$} \textbf{$^1$} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{$^1$}} \textbf{{{}^1$}} \textbf{{{}^1$}}} \textbf{{{}^1$}} \textbf{{{}^1$}} \textbf{{{}^1$}} \textbf{{{}^1$}} \textbf{{{}^1$}} \textbf{{{}^1$}} \textbf{$ 

 $Oc' \ w\{k''3; : 6+' \ j\ qpi\ i\ wq''kcp{k'lkcpuj\ k'}]C'Dtkgh' J\ knqt\{''qh''Vtcpurckqp''kp''Ej\ kpc\_''Dgklkpi <' \ j\ qpi\ i\ wq''f\ wky\ ck'Rwd0'Eq0$   $\circ \ \circ \ *3; ; 6+''-J\ knqt\{''qh''Vtcpurckqp''kp''Ej\ kpcø''kp''Ej\ cp''cpf''Rqmctf''*gf\ u+.''5956: 90$ 

O eCrkuyt.'I 0\*3; ; 4+":Vgcej kpi "Vtcpurcvkqp"kpvq"c"Hqtgki p"Ncpi wci gô Uvcwu."Ueqr g"cpf "Cko uø "kp"F qmgtwr "cpf" Nqf f gti cctf "\*gf u+0

O eEcropp. 'D0\*3; : ; +'Gpi rkvj <'C'Y qt rf 'Eqo o qf k\langle'. 'Nqpf qp<'Vj g'Geqpqo kuv'Kpvgnki gpeg''Wpkv'Nvf 0

O eF qpcnf. "RO"hqtyj eqo kpi +":-Vj g'I tggmu'kp'Kgncpf <Kkuj 'Rqgw'cpf 'I tggm'Vtci gf {ø''Vtcpurcvkqp'cpf'Nkgtcwtg'60

O cef qppgm'Ctyj wt'C0\*3; 49+"C"Ucpuntk/I tco o ct'hqt"Uwf gpuu."5tf "gf p. 'Qzhqtf <'Qzhqtf 'Wpkxgtukv{ 'Rtguu0

O eF qy gm 'G0\*3; : 5+":Rwdrkuj kpi <P qvgu'htqo 'Htcpmhwt vø''Vj g'Pgy '[qtmVko gu''43'Qevqdgt. 'E540

 $O\ eI\ gtt.'TCR0*3; :: +": Gf\ kkpi\ ''j\ g'Ugrh/eqpuekqwu'O\ gf\ kgxcri'Vtcpurcvqt<'Uqo\ g''Kuwgu'cpf\ 'Gzco\ r\ rguø''Vgzv'6<3696830$ 

O eI wktg. 'Ico gu'\*3; ; 2+":Dgengw. 'yj g''Vtcpurcvqt. 'cpf 'yj g'O gvcr qgo ø''Y qt rf 'Nkyt cwt g'Vqf c{ '86'\*4+<'47: 6850

O cej cp. "VOY 0\*3; : 6+"Ej cwegt øu'Dqgeg." P qto cp. "Crcdco c<"Rkri tko "Dqqmu0

O centlef i g. 'R0\\*3; : 7+''Vj g'O qf gtp'I t ggm!Ncpi wci g<C''F guet kr vkxg'Cpcm! uku'qh'Ucpf ctf 'O qf gtp'I t ggm'Qzhqtf <'Qzhqtf 'Wpkxgtukv! 'Rtguu0

O eY kmco .'I O 0\*tcpu0+'\*3; 94+'Dqeeceekq<'Vj g'F geco gt qp.''J cto qpf uy qt y <'Rgpi wkp0

O cf j xcpcpf c. "Uy co k"\*3; 92+"Xkxgmcej wf co cpk'qh'Ucpnctcect{c."Ecrewvc<"Cf xckc"Cuj tco c0

O chigk "Uekr kqpg"\*3942+"Vtcf wwqtk'kvchkcpk"q"ukc"pqvk| kc"f gø"xqni ctk| / co gpvk'f øcpvkej k'uetkwqtk'ncvkpk'g"i tgek "Xgpkeg<" Ugdcurkcp"Eqngvk0

O ci i kpk "Hrcpegueq" 3; 55+" Kil Dqeeceekq" ktcf wwqtg" f gk'encuukek "Ecurghkqtgprkpq 4 kqxcppgmk" g" Ectr kygmk0

 $\hat{o} \ \hat{o} \ *3;74 + \texttt{"Krtko k'xqni ctk'/co gpvk'f gk'encuskek'n vkpk'} \\ \text{H} \\ \text{mtgpeg} \\ \text{Ng'O qppkgt0}$ 

O ckgt. 'Ectqrl\*3; : 7+":C"Y qo cp"kp"Vtcpurcvkqp. 'Tghrgevkpi ø'"Vtcpurcvkqp'Tgxkgy '39-66: 0

O clco cc.'T0\*3; ; 3+":Tgwpco gtnkpv4gp"j kurqtkcc"grk'n®pv® kugp"j kurqtkc"3: 22/nwxwnc"n® vkgpø"jPqvgu"qp"Hlppkuj "
Vtcpurcvkqp"J kurqt{'htqo 'vj g'Pkpgvggpvj 'Egpwt{\_.'kp"KUqtxcrk'\*gf 0+."M®pp3/nwwnko wnugp"nwwppkwgnwô lc"
pgwxqwgnwr®x®x"Qwnw'768658; ; 3"]Vtcpurcvkqp"Tgugctej 'Rrcppkpi 'Ugo kpct.'Qwnw.'768'Octej '3; ; 3\_.'Qwnw'Qwnwp"
[rkqr kurq.'Rqj lqkno ckuvgp"nkgnyp'rckqu0

O crcej k'\ xk'\*gf 0+'\*3; : 3+'Co cf ku'f g'I cwrc <'I gdt gy 'Vt cpurc vkqp''d{ ''y g'Rj {ukekcp'Lceqd'f q'Cri cdc.'Hkt uv'Rwdrkuj gf '' kp'Eqpuscpvkpqrrg.''e03763.''Vgrl'Cxkx''Wpkxgtukx{0

O cmlmpe. C0\*3; 83+W nkuks  $wg'eqo\ rct^2g'f\ w'ht\ cp\pm cku'gv'f\ g'nxmgo\ cpf$ . Rctku F lf lgt0

O crg{."[ 0\signights]; ; 6+":\text{Vj g"Ncpi wci g"qh"vj g"Ncp \( \phi\) "Kp \( \phi\) "Kdqpu"\signights \( \phi\) "Ncpi wci g"cpf "\( y\) g"Ncy .\"U{fpg{\circ} \( \pri\) \( \pri\) qpi o cp0

O cm mlâ t. "Mktuvgp"\*3; ; 4+":T gxkgy "qh"\*Vtcpurc vkqp"cpf "T grgxcpeg"d{ "GCCI wwa" "O kpf "cpf "Ncpi wci g"3\*5+<"4; : 652; 0 ô ô \*3; ; 5c+":Wpf gtr kppkpi "Vtcpurc vkqp"Vj gqt {\alpha} "Vcti gv'7\*4+<"35566: 0

ô ô \*3; ; 5d+":Y j q'Ecp'O cng" Pkeg" c'Dgwgt "Y qtf "vj cp" Rt gw{Aô Eqnqecvkqp. "Vtcpurcvkqp." cpf "Ru{ej qrkpi wkuvkeuø'kp" O qpc 'Dcngt. 'I km'Htcpeku'cpf 'Grgpc' Vqi pkpk/Dqpgnk'\*gf u+" Vgzv'cpf "Vgej pqrqi { < "Kp" J qpqwt "qh'Lqj p" Uperckt." Co uvgtf co "cpf 'Rj kref grr j kc< Lqj p'Dgplco kpu0

ô ô \*hqtyj eqo kpi +"::Nqxg''yj { 'P gki j dqwt<"Y km'Rctcmgn'Eqtrqtc'Gpfgct'Nkpi wkuvu''\q''Vtcpunc\qtuApO

O cmpg."ION0\*3; :: +"Vj g"Uekgpeg"qh"Nkpi wkakeu"kp"vj g"Ct v"qh"Vt cpurc vkqp<"Uqo g"Vqqnu"ht qo "Nkpi wkakeu"hqt "vj g"Cpcn( uku" cpf "Rt cevkeg"qh"Vt cpurc vkqp. "Cndcp{<"Uccvg"Wpkxgtukx{"qh"P gy "[ qtm"Rt guu0

O cm cu. 'L060\*3; : ; +":-Vj g'Kpvgt vtcpurc vkdkrkv{ "qh'P cwtcn'Ncpi wci guø' "*Ul pvj ³ ug* '9: \*5+<'4556860

 $O^apgm'Dqj wurcx'*3;; 213;; 3+"+Rt\{p\P' gunf' r gmcf \{'D\{tqpqx\{'rqgulgg']Vj g'Hktuv'E| gej 'Vtcpurcvkqpu''qh''D\{tqpøu'' Rqgvt\{\_''CwE''*Cevc''Wplxgtulxcvku''Ectqrkpcg+''Rj krqrqi lec/O qpqi tcr j lec''34.''Rtci wg<'Ej ctrgu''Wplxgtulxc{0}$ 

O cppj gko .'MO\*3; 76+" Kgqqqi {"cpf" Wyqrkc. 'Nqpf qp<'Tqwqqf i g"cpf "Mgi cp" Rcwr0

```
Qwqo\ cp'Vj\ qwi\ j\ w^\circ\ C'Uwf\ \{\ 'kp'Vj\ g'O\ qf\ gtpk\ c\ vkqp''qh'Vwt\ mkuj\ ''Rqnkkecn'lf\ gcu. ''Rt\ kpegvqp.''P\ L\ ''Rt\ kpegvqp.''Ypk\ gtukv\ ''Rt\ guu0\ O\ cti\ qnku.''O\ 0*3;\ 39+''Vj\ g'Uqt\ \{\ ''qh'Dkdng'Vt\ cpunc\ vkqpu.''Rj\ krc\ grr\ j\ kc\ ''Lgy\ kuj\ ''Rwdnkecvkqp''Uqekgv\ ''qh'Co\ gt\ kec0\
```

Octi t{.'\R0\\gf 0+\sign4\sign3::  $5+\F^2$  eqwxgt vgu'gv'^2 vc drkuug/o gpvu'f gu'Ht cp\pc ku'f cpu'nø'qwguv'gv'f cpu'ng''uwf 'f g'nøCo\perp t ks wg'' ugr vgpvt kqpc ng'\sign3836\ddo3976+\'xqn07.\'\Rct\ku\F\0\Lq\wc\un0

O ctkpck 'G0'E0Rgvgtu'cpf 'G0Rkeej k\*3;; 4+"+Dkrkpi wcn'T ghgtgpeg 'Eqtrqtc<'Etgcvkqp.'S wgt { kpi. 'Crrrkecvkqpuø'kp'H0 Mkghgt.'I 0Mkuu'cpf 'I0'Rc1| u'\*gf u+''Rcrgtu'kp'Eqorwcvkqpcn'Ngzkeqi tcrj { 'Eqorngz''+ 4. 'Dwf crguv<'Nkpi wkuvkeu'Kpuvkwwg." J wpi ctkcp'Cecf go { 'qh'Uekgpegu0

O ctvkp. 'LOF0\*3; : 7+''HcewcrlY tkkpi <'Gzrnqtkpi ''cpf 'Ej cmgpi kpi ''UqekcrlTgcrk\{.''Xkevqtkc<'F gcmkp''Wpkxgtukv\{''Rtguu0 O ctvkpf crg.'LO\*3; : 7+''Gpi nkuj ''J wo cpkuo <'Y {cw'\q'Eqy ng{.''Nqpf qp<'Etqqo ''J gro 0}

Oct lipu."Y 0\*3; 9: 6; +"J kn»t kc"f c"kpvgrki 'pekc"dt cukrgkt c. '9"xqnı. "U q"Rcwq<"Gf kqtc"Ewntkz0

Octvap."Y 0\*3; 8: +":Gs wkxcrepeg"cpf 'Eqpi twepeg"lip"Vtcpulqto cvkqpcn'Eqpvtcuvkxg"Uwf kguø"'Uwf kc''Cpi nkec" Rqupcpkgpukc''3<56840

O cuectq. 'Lwcp'\*3; 84+'Vj g'Dj ci cxcf 'I kx.' I cto qpf uy qtyj <'Rgpi wkp0

ô ô \*3; 87+"Vj g'Wr c pkij cf u 'J cto qpf uy <math>qt yiiqp0

O cuqp. 'Kep''cpf 'Ej tkukpg'Rei pqwng''\*gf u+'\*3; ; 7+'Et quw'y qtf u<'Kuwgu''cpf 'F gdc vgu'kp'Nkvgt ct { ''cpf 'P qp/nkvgt ct { ''V cpurc vkqp. ''Nk' i g<'Gpi nkuj 'F gr ctvo gpv. 'Wpkxgtukx{ ''qh'Nk' i g0

O cvglnc."Nef kurex"cpf "Mt {uv{ pc'Rqo qtunc'\*3; 93+'T gcf kpi u'kp'T wukep'Rqgvkeu<'Hqto crkw'cpf 'Untwerwt crkw'Xkgy u." Eco dtkf i g. 'O C<'O KV"Rt guu0

O cyj gukwu. "Xkn² o "\*3; 34135+"::Q'r tqdn² o gej "gunn² j q'r gmrcf cygnux ¶ø"] Qp'Rtqdngo u'qh'E | gej "Vtcpuncykqp\_." R gj ngf "33< 296: 0

O cvkrcn 'D0M0\*3; ; 2+"Vj g'Y qtf "cpf "vj g'Y qtrf "Kpf kcøu"Eqpvt kdwrkqp "vq "vj g"Uwrf { "qhl'Ncpi wci g. "F grj kc"Qzhqtf " Wpkxgtukx{ ''Rt guu0

O cvtcv. E000%3; 7+"Kpxguski cvkpi "ij g'Vtcpurcvkqp"Rtqeguu<'Vj kpmkpi 'Cnqwf ''xgtusuu'Lqkpv'Cevkxks{. "Cpp"Ctdqt<' Wpkxgtuks{ 'O ketqhkro u'Kpvgtpcvkqpcn0

O cwgtp'I0\%3;; 6+":Rwdrkuj kpi "Vtcpurcvkqpu'kp'Htcpegø''Kp'Qvj gt'Y qtfu'6'\%P qxgo dgt+:"Nqpf qp<'Iqwtpcrl'qh''y g" Vtcpurcvqtu'Cuuqekcvkqp0

O cwj kguugp. 'HQQ0\*3; 53+'Vtcpurcvkqp='Cp'Grk/cdgvjcp'Ctv.'Eco dtkfig.'O C<'Jctxctf' Wpkxgtukv{ 'Rtguu0

Oc{."J (HO\*3; 98+"Vj g'Gprki j vgpo gpv'kp'Cogtkec."Qzhqtf ''Qzhqtf ''Wpkxgtukx{''Rtguu0

Oc{.'Tcej gnl\*3; ; 6+"Vj g'Vtcpurcvqt'kp"vj g'Vgzv<'Qp'Tgcfkpi 'Twukcp'Nkvgtcwtg'kp'Gpi rkuj .'Gxcpuvqp.'KN<'Pqtvj y guvgtp''Wpkxgtukv{'Rtguu0

Ogf k 'Dqrkq.'Cpvqpkq'\*3; 5213; 95+"Grlihdt q'f g'Ej kro 'Dcroo 'f g'Ej wo c{gn'Ogzkeq<"Wpkxgtukf cf 'Cwvqpqo c'f g'' Ogzkeq0

O gj cppc. 'Cj o cf 'Kitcj o '\*3; 9: +'Fkt uc'j cy n'\ctlco cv'cn'S wtø p''cn'Mct o '']Qp''Vtcpurc\kpi ''y g'Pqdrg''S wtø p\_.''
Ecktq<'Cn'Uj cød''Rwdrkec\kqpu0

O grd { ."C0\*3; : 4+":O wruk ngxgrl Vtcpurcvkqp "Ckf u'kp"c"F kunkkdwgf "U { uvgo ø "kp" III qtgem ( "\*gf 0+"EQNKPI ": 40Rt qeggf kpi u" qll'y g"Pkpyj "Kpvgt pcvkqpcn'Eqphgt gpeg" qp "Eqo rwxvkqpcn'Nkpi wkukeu. "Rt ci wg. "Lwn ( "7632."3; : 4. "Rt ci wg < Cecf go kc0

ô ô \*3; : 5+":Tgekr g'hqt"c"Vtcpurcvqt"Y qtmrxcvkqpø0Wpr wdrkuj gf "r cr gt."Dtki j co "[ qwpi "Wpkxgtukx{."Rtqxq."Wcj 0 ô 3; : 9+":Qp"J wo cp/O cej kpg"Kpvgtcevkqp"kp"Vtcpurcvkqpø"kp"UP ktgpdwti "\*gf 0+"O cej kpg"Vtcpurcvkqp<"Vj gqt gvkecn" cpf "O gvj qf qrqi kecrl"Kunwgu. "Eco dtkf i g<"Eco dtkf i g"Wpkxgtukx{"Rtguu."3676760

ô ô \*3; ; 4+":-Vj g"Vtcpurcvqt"Y qtmrcvkqpø"kp"P gy vqp"\*gf 0+0

O gp² pf g| "{ "Rgrc { q. "O 0\*3; 7465+"Dkdrkqvgec "f g"\t cf wevqt gu"gur c° qngu. "xqnu07669"qh"Qdt cu"eqo r ngvc u. "Ucpvcpf gt <" Eqpuglq "Uwr gt kqt "f g"Kpxguvki cekqpgu"Ekgpv¶hecu0

Ogtkpq.'T0\*3;; 4+"::Rtqhguk»p<'cf cr vcf qtø''. *Nkxkvu*'3<': 76; 90

O gt vgpu. "V0\*gf 0+3; ; 5+Dqgmgp'xqqt'fg'ggwy ki j glf 0I ggwyrklng'rkyt c wwt'kp'fg'o kff grggwy gp'']Dqqmu'hqt'Gvgtpkx $\{0'$  Ur ktkwcn'Nkyt cwtg'kp''j g'O kff rg'Ci gu\_'Co wytf co <'Rtqo gyj gwu0

Ogw '\*3; 99+"Ur gelenkunwg '44"\*3+":-Vj g 'J kuvqt { ''qh' Vtcpurc vkqp 'kp 'Ecpcf cø0

 $\hat{o} \ \hat{o} \ ^*3;$ ; 2+"ur geken'kuuwg"57"\*5+"qp"<br/>vtcpurcvkqp"kp"vj g"Ur cpkuj "cpf "Rqtwi wgug"y qtrf0

O g{ gt. "N'Dqy ngt "cpf "MOGem" $^*3$ ; ;  $4+^*Eqi$  pkyt o <Cp 'Gz r gt ko gpv'kp 'Dwkrf kpi "c "Vgt o kpqrqi kecrl'Mpqy ngf i g'Dcug0' Rt qeggf kpi u'qh'Gwt cngz. "Vco r gtg0

O g{ gtj qh 'O cz'\*3; 59+":Qp''y g'Vtcpuo kuukqp''qh'I tggm'cpf 'Kpf kcp''Uekgpeg''vq''y g''Ctcduø''Kurco ke''Evnwtg''7\*Lcpwct{+''3964; 0

O g| gk "Mcyj { "\si3; : : +"::Ur gcmkpi "Y j kvg<"Nkvytct { "Vtcpurcvkqp"cu"c"Xgj kerg"qh"Cuuko krcvkqp"kp"S wydgeø"*Ecpcf kcp"* Nkvyt c w t g"339<336450

O j kpc."I 0C0\*3; 92+"::Vj g'Rrceg''qh''Mkry cj krk'kp''yj g''Hkgrf ''qh''Vtcpurcvkqpø'''*Dcdgr*i38\*6+<'3:: 6; 80

O ki pg."IIRO"3: 9: +"Rc t qrqi kc" I t c gec" 443" xqn+: "Rc ku< IIROO ki pg0

O kmq. "Htcpvk-gml\*3; 8; +"Guvgvkmc"x tc/w0Vg\*vtkc" $x{tc/w'c}$ " $-v{}$ . "Dtcvkumcxc<"Vcvtcp0

ô ô \*3; 92+"::Nc"yj ² qtkg"f g"3øgzr tguukqp"gv'rc"\tcf wevkqpø"kp"J qm gu. "f g"J ccp"cpf "Rqr qxk "\*gf u+. "836990

ô ô \*3; : 4+"*J qf pqv{"c"hkgtctp{"rtqegu.*"Dtc\kurcxc<"Vc\tcp0

ô ô cpf 'CORqr qxk '\*3; 98+'Vxqt dc 'c 't gegr ekc <'Gwydent 'nqo o wplat ekc 'c 'o gw nqo wplat ekc.''Dtcvkurcxc='Vcvtcp0 O knt u'Xcmetquc.'IOO 0\*3; 6; +'Gwyf kqu'uqdt g'j kwqt kc 'f g'nc 'ekgpekc ''gur c o qnc.''Dctegmpc <'Eqpuglq''Uwr gt kqt 'f g'' Koxgurki cekqpgu'Ekgpv¶hecu0

```
O kngt. 'I 0'GI cncpvgt "cpf 'MJ (Rtkdtco '*3; 82+"Rncpu"cpf "vj g"Ut wewt g"qh"Dgj cxkqt. "P gy "[ qtm:"J qnv
```

O kpø{ ct/Dgrqt wej gx. 'T0M0\*3; 8; +''Rqurgf qxc vgrp{ "r gt gxqf" ]Eqpugewkx g'Kpvgtr tgvkpi \_.'O queqy <'Xqgpk f cv

ô ô \*3; :  $2+'Qduj\ ej\ c\ c\ ''\ gqt\ k'\ c\ ''r\ gt\ gxqf\ c\ ''k'\ wwp\ ''r\ gt\ gxqf\ '']$ I gpgtcn''Vtcpurc\kqp''Vj gqt { ''cpf ''Kp\ gtr\ tg\ kpi \_..''O\ queqy <''Xqgp\ f\ c\ 0

O qj cpv{ .'P ktcplcp'\*3; ; 6+":Cp'Kpf kcp'Gzr gtkgpegø''Ncpi wci g'Kpvgtpcvkqpcn'8\*3+"; 6320

O qmj vct. "O qj co gf" "3; : 2+" Mkv d"cn'Vcy hs v'cn'Kj o kl {c"lk'O ws tcpcv'cn'Vcy t mj" cn'J kltkl {c"dk/nukpggp" cn'

 $\textit{Ktcplk}\{c''y\ c/n'S\ kdvk\}\{c''\}J\ ktc'F\ cvgu''cpf\ ''j\ gkt''Gs\ vkxcrgpvu''kp''I\ tgi\ qtkcp''cpf\ ''Eqr\ vke''[\ gctu\_''gf\ 0'O\ qj\ co\ gf\ ''eCo\ tc.''4''\ xqnu.''Dgkt vvx''cn'O\ vycucuc''cn'eCtcdk\{ \{c''nk'n'F\ kt\ u\ v'y\ c3/P\ cuj\ t0\ vk''cn'O\ vycucuc''cn'eCtcdk\} \}$ 

O ãmgt 'P kgnugp. 'M0\*3; 99+"J qo gt qxgt uâ wgnugt ''qi ''j gmuco gvgt f ki vg'']J qo gt "Vtcpurc kqpu''cpf ''J gzco gvgt 'Rqgo u\_." Eqr gpj ci gp0

O qpceq. 'O 0\si3; 96+"Uj cmgur gct g"qp"\j g"Ht gpej "Ux i g"kp"\j g"ZXKKj "Egpwt {. "Rct ku<F kf kgt 0

O qpgt. "O kej gnl\*3; ; 2+"-Egtxcpvgu" { 'hc''tcf week» p.ø' P wgxc 'T gxkux 'f g'Hkrqrqi \( \frac{1}{2} \) Hkrqrqi \( \frac{1}{2} \) Kur \( \frac{1}{2} \

O qqngtlk'Tcfjc''Mwo wf'\*3; 83+''I nko rugu'qh'Cpekgpv'Kpfkc.''Dqo dc{<'Djctcvk{c''Xkf{c''Djcxcp0}}

O qqp. "Rgpf gtgrl\*3; 69+"Y cttgp" J cukpi u'cpf 'Dtkkuj 'Kpf kc. "Nqpf qp<" J qf f gt "cpf "Uqwi j vqp0

O qqtg. 'O 0\*\tcpu0+\\*3; 76+'\\*Vj g'Hcdrgu'qh'Nc'Hqpvckpg. 'P gy '[ qtm<'Xkm\pi 0

Vj qo cu'O Œ ONcy ngt."I gto ckp'O cteøj cf qwt "cpf "Tkej ctf "E OO ctkwu."P gy "J cxgp. "E V<[ cng' Wpkxgtukv[ "RtguuO

O qti cp. 'G0\*gf 0+'\*3; 86+''Vj g'Hqwpf kpi 'qh'O cuuc ej wugwu. 'Kpf kcpcr qrku. 'KP <'Dqddu/O gt0

O qti gpuvgtp. 'Q0'cpf 'I $\Omega$ kqp'P gwo cpp'\*3; 85+'Vj gqt{ ''qh'I co gu''cpf 'Geqpqo ke'Dgj cxkqwt. 'Rtkpegvqp'' Wpkxgtuky4 ''Rtgu

O qttku."E0\*3; 5: +"Hqwpf c vkqpu"qh"yj g"Vj gqt { "qh"Uki pu."Ej keci q<"Ej keci q"Wpkxgtukx{ "Rtguu0

O qttku. 'Twj '\*3; ; 7+''-:Vj g'O qtcrl<br/>F krgo o cu''qh'Eqwtv'Kpvgtr tgvkpi ø''Vj g''Vt cpurc vqt ''3\*3+<'47ó680

O qugt. "Detdete"  $^{1}$ 3; 9:  $+^{11}$ Uko wnepgqwu 'Kpvgtr tgvevkqp<C"  $^{1}$ 4 r qvj gwleen O qf gn'epf 'kwu 'Rteevkeen 'Crrnleevkqp $^{6}$ 1 gtxgt" epf 'Ukpeknq'\*gf u $^{1}$ 57568: 0

ô ô \*3;; 3+":Tgugctej 'Eqo o kwggô Retefki o u'I ekpgf ''qt ''yi g''Ctv''qh''Rtqf wevkxg''F kuci tggo gpvø ''*Dwngvkp'f g''n¢CKKE*''3; \*4+<'336370

O quyetkc. 'Iguwu'\*3; ; 5+''Vgqtkc'fg'nc''guetkwtc. 'Dctegmpc<'Kectkc0

O qwplp. 'I gqti gu'\*3; 77 B; ; 6+"*Ngu'Dgngu'Kplhf ³ ngu* "4pf "gf p. 'Nkng<'Rtguugu'Wplxgtukcktgu'f g'Nkng0

ô ô \*3; 85+"Ngu'Rt qdn³ o gu''y ² qt ks wgu'f g'nc 'Vt cf wevkqp. "Rctku<"I cmko ctf 0

O qw| cv. "10" gf 0+"3; 87+"  $Ngu'Rq^3o gu'f g'I cwegno "Hclf kv. "Rctkv." CO 0"P kg gv0$ 

O wnc qxum ."Icp"\*3; 63 B; 6: +"Mcrkqn("|" gun?"rqgvkn("]Ej crvgtu"htqo "E| gej "Rqgvkeu\_."Rtci wg."Tgx0'gf p"kp"4"xqnı."
Rtci wg"3; 6: 0

O wnj gtlgg."Uwlki\*3; : 3+"Vtcpurcvkqp"cu'Fkueqxgt{<"Kpf kcp"Nkytcvvtg"kp"Vtcpurcvkqp."Fgnj k:"Cnkgf "Rwdrkuj gtu="3; ; 6" gf kkqp<"Nqpf qp<"Ucpi co "Dqqmu0"

 $O wngt. "V0"3; ; 5+" \textit{Ko o ki tcpw"cpf "Vj g"Co gt kecp"Ekv{.}" P gy "[ qtm"CP gy "[ qtm"Vpkxgtukv{ "Rtguu0 pt word pt word$ 

Ownkewnwt crkuo "cpf" 'y g'Ncy "\*3;; 3+'Tgr qtv'qh' y g'Gy pke "Chhcktu' Eqo o kuukqp" qh' Pgy 'Uqwj "Y crgu." U{fpg{0

O wpej /Rgvgtugp. 'G0\*3; 98+''*Rt quc llankqp0Qxgt uò wgnugt '\krlf c punl3: 22ó3; 22*'']Rtqug'Hevkqp0'Vtcpurcvkqp'kpvq'F cpkuj \_.'' Eqr gpj ci gp<'Tqugpnkrf g''qi 'Dci i gt0

O wpf/F qr ej kg. 'O 0\*3; : 6+''Nc 'Unt xkg'f  $\phi$ 'Guej { rg'c 'nc 'T gpc knuc peg <'gf kskqp. '\t cf wevkqp. 'eqo o gpvc kt gu'gv'ko kvc vkqp'' \*Cecf² o kg'tq { crg'f g'Dgri ks wg0'Encuug''ngwt gu0'Hqpf u'T gp² 'F t ci wgv'3+. 'Nqwx ckp<'Rgg wgt u0'

O wtcmco k"V0\*3; ; 7+":Qp"yi g"Eqpegr w"qh"kpf kxkf wcn"Uqekgvf"cpf "Nqxg"kp"O qf gtp"Icr cpø"kp"J {wp"cpf "Nco dgtv\*\*gf u+0

O w.c. "Mco gri'cpf "eCrk"F cj twi "\*3; ;  $4+"Mc\{hc"Pchj co"cn'S wt \phi p"]$ J qy "y g"Wpf gtuvcpf "vj g"S wt  $\phi$  p\_\_."Dgkt ww<"cn'O cj twxc0 O w{ regtv."Y kngo ."Lqj cp"P qqvgpu."F cpkgri'Rqguo cpu"cpf "COMRwi j "\*3; : 5+":F guki p"cpf "Wkrkucvkqp"qh"Uwdvkngu"qp"

Hqtgki p'Ncpi wci g'Vgrgxkukqp'Rtqi tco o guø'kp'RO OP grf g'\*gf 0+"Vj gqt kg. 'O gvj qf gp''wpf 'O qf gng'f gt 'Mqpw:mnkpi wkwkm'' Dqpp<"FÃo o rgt. '4236360

O xgpi .'G0\*3; : 2+"Nøct v'gv'nøct vkucpc v'cht keckpu.'[ cqwpf 2 < f kskqpu'En ? 0

O {gtu."U0\*3; ; 3+"Vj g'Dnwguwqemkpi 'Ekteng<'Y qo gp. 'Htkgpf uj kr "cpf "vj g"Nklg"qh'vj g'O kpf 'kp'Gki j vggpvj /egpwxt { "Gpi rcpf."\Qzhqtf <\Enctgpf qp'\Rtguu0

P cdqmqx. "Xref ko kt'\*3; 77+":Rtqdrgo u'qh''Vtcpurc\kqp $\langle Qpgi kp'kp'Gpi rkuj \& "Rct vkucp'Tgxkgy "44'*6+<math>\langle 6; 867340Tgr tkpvgf" kp'Uej wng'cpf'Dki wgpgv'*3; ; 4+:"3496650$ 

Pci cq. 'O 0\*3; : 6+"-C"Htco gy qtm'qh'O gej cpkecn'Vtcpurcvkqp"dgw ggp"Icr cpgug"cpf 'Gpi rkuj "d{ 'Cpcrqi { 'Rtkpekr rgø "kp" C0Grksj qtp"cpf 'T0Dcpgkk'\*gf u+"Ct vklkekcn'cpf "I wo cp"Kpvgnki gpeg. 'Co uvgtf co <'Grugxkgt."3956: 20

 $\hat{o} \hat{o} *3; : ; + "Ocej kpg" Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf < "Qzhqtf" "Wpkxgtukv" | "Rtguu0" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp < "J qy "Hct" Ecp" KVI qA. " vtcpuOP (F 0 Eqqm" Qzhqtf" | Vtcpurc kqp" |$ 

Pckq. 'O kkq'\*3; ; 5+":Gkpki g'Dgo gtmwpi gp'| w'i twpf ucv| nkej gp'Rtqdngo gp''dgko ''©dgtugv| gp''n(tkuej gt''Vgzvgø''kp''Htcpm'' gv''cn0\*gf u+: '386460

P co c. "Ej ctrgu'C0\*3; ; 2+":C'J krvqt { "qh'Vtcpurcvkqp"cpf 'Køvgtr tgvcvkqp'kp'Eco gtqqp'htqo 'Rtgeqrqpkcn'Vko gu'vq'' Rtgugpv $\alpha$ ''O gvc'57\*4+ $\alpha$ '478658;  $\alpha$ 

ô ô \*3; ; 5+": J kuvqtkecn" Vj gqtgvkecn'cpf "Vgto kpqmi kecn'Rgtur gevkxgu" qh'" Vtcpurc kqp" kp" Chtkecø "Ogvc" 55\*5+<6366470

```
P cuwo g. "U0*3; 74+"Mqnqtq. "Vqm(q<'Uj kpej quj c='tcpu0G00 eEngmcpf 'cu''Mqnqtq. '3; 79. "Vqm(q<'Ej ctngu'G0Vwwrg" Eqo r cp{0
```

P cxcttq. 'Hgtpcpf q'\*3; ; 8+'O cpwcnff g''dkdnkqi tchffc''gur c° qnc'ff g''\tcf week» p''g''Kpvgt r t gwcek» p''3; : 763; ; 7. 'Cnlecpvg<'' Rwdnkecekqpgu'f g''nc''Wpkxgtukf cf''f g''Cnlecpvg0

P cxxcdk "F cxwf "\*3; : 6+"*Vctknj ej gj /{ g'Vctlqo gj "c/ "Hctcpugj "dgj "Hctukf ct"Kcp"c/ "Ci j c/ "\c "Mqpwp"*]J kuvqt { "qh" Vtcpurcvkqp"htqo "Htgpej "kpvq"Rgtukcp"htqo "yj g"Dgi kppkpi "\q'yj g"Rtgugpv\_."Vgj tcp<"Mcxkcp0

P gf gti cctf/Nctugp."Dkti kl\*3; ; 5+":Ewnwtcn'Hcevqtu'kp"Uwdvkrkpi ø"*Rgt ur gevkxgu."Umf kgu'kp"Vt cpurc vqrqi {*"3\*4+<"4296630 P ggf j co ."Iqugr j "\*3; 7: +":-Vj g"Vtcpurc vkqp"qh'Qrf 'Ej kpgug"Uekgpvkhke"cpf "Vgej plecn'Vgz wø"kp"C(F (Dqqyj "gv'cn')\*gf u+" *Cur gewi'qh'Vt cpurc vkqp*."Nqpf qp<"Ugengt "cpf "Y ctdwti 0

P gj tw'Icy cj ctrcn'\*3; 83+"Vj g'F kveqxgt { "qh'Kpf kc."Nqpf qp<'O gtkf kcp'Dqqmv0

P gngo cp. 'Rcwrl\*gf 0+'\*3; :: +'Vt cpurc kap. 'Qwt 'Hwwt g<'ZKj 'Y qt rf 'Eqpi t guu'qh'HKV.'O ccurtlej v'Gwtqwgto 0

P gwdgtv. 'Crdtgej v'\*3; : 7+"Vgzv'cpf 'Vtcpurcvkqp. '\*©dgtugv wpi 'y kuugpuej chwkej g'Dgkxt@ g'': +:'Ngkr | ki <'XGD'Xgtrci "Gp| { mqr @ kg0}

ôô \*3;;6d+"õ÷C"Jqwug"qh"Ocp{"Tqqouö<"Vjg"Tcpig"qh"Vtcpuncvkqp"Uwxfkguø/"kp"Mcfkuj"cpf'Ocuuctfkgt/Mgppg{" \*gfu+0

ô ô cpf 'I tgi qt{'O 0'Uj tgxg'\*3;; 4+"*Vt cpurc vkqp"cu"Vgz v.* 'Mgpv.'QJ <'Mgpv'Uvcvg'Wpkxgtukv{'Rtguu0

*Pgy 'Gpi rkuj 'Dkdrg<'vj g'Qrf 'Vguwco gpv*'\*3; 92+:'Kpvtqf wevkqp.''Qzhqtf 'cpf 'Eco dtkf i g<'Qzhqtf 'cpf 'Eco dtkf i g' Wpkxgtuk√{ 'Rtguugu0

Pgy o cp. 'Ct{gj '\*3; : 2+"*Ocrrkpi 'Vtcpurckqp'Gswkxcngpeg*. 'Ngwxgp<'Ceeq0

ô ô \*3; ;  $6+":Vtcpurc vkqp'Gs wkxcrgpeg<Pcwtgø'kp'T0G0Cuj gt'cpf'I0OQ Olko ruqp'*gfu+''Vj g'Gpe{enqr gf kc''qhl'Ncpi wci g'' cpf''Nkpi wkwkeu.''Qzhqtf''cpf'Pgy'[qtmx'Rgti co qp''Rtguu0]$ 

P gy o cp. 'HO\*3: 78+'Vj g'KAcf ''qh'J qo gt. 'Nqpf qp<'Y cnqp'cpf 'O cdgtn{0

Pgyocp. 'R0G0\*3;:9+":CVCøu'Eqookogpv'vq'Gzegngpegø'kp'O(I 0Tqug'\*gf0+0

P gy o ctm'Rgygt'\*3; : 4+"Crrt qcej gu'\q'Vt cpurc \kqp."\Qzhqtf <'Rgti co qp''Rtguu0

 $\hat{o} \hat{o} *3; :: + C'Vgzvdqqm'qh'Vtcpurcvkqp.$  Rtgpvkeg'J cm0

ô ô \*3; ; 3c+"Cdqw/Vtcpurcvkqp. 'Engxgf qp<'O wnkthpi wcn'O cwgtu0

ô ô \*3; ; 3d+":-Vj g'Ewtug''qh'F qi o c''kp'"Vtcpurc\kqp''Uwf kguø'''Ngdgpf g''Urtcej gp''58\*5+<'3276: 0

ô ô \*3; ; 5+*'Rctcitcrj u''qp''Vtcpurcvkqp*. 'Engxgf qp<'O wnkrkpi wcn'O cwgtu0

P kewrguew. 'Cri'\*3; 9: +":-Ctvc''vtcf wegtkkø'] Vj g'Ctv'qh''Vtcpurcvkqp\_.' $Tqo \neg pkc''hkytct$  '8<  $\acute{o}$ ; 0

Pkf c. 'GOCO\*3; 86+"Vqy ctf "c" \*Uekgpeg"qh"Vt cpurc v/kpi . "Ngkf gp<"GOLO'Dtkm"

\*3; 8; +":Uelgpeg"qh"Vtcpurcvkqpø"Ncpi wci g"67<6: 56; : 0

 $\hat{o} \ \hat{o} \ \ ^*\!gf 0 + "3"; 94 + "Vj \ g' Dqqm'qh'c \ 'Vj \ qwucpf \ 'Vqpi \ wgu' "4pf "gf p+ "Nqpf qp<"Wpkgf "Dkdrg" Uqekgvkgu 0 + 10 properties of the control of t$ 

ô ô \*3; 97c+"Ncpi wci g"Ut wewt g"cpf "Vt cpurc vkqp." "Uncphytf <"Uncphytf "Wpkxgtukv{"Rtguu0

ô ô \*3; 97d+"Gzrnqt kpi 'Ugo cpvke 'Ut wewt gu. 'O wpkej <'Y knj gno 'Hkpn10

ô ô cpf 'Ej t0T0/cdgt' '3; 8; +"Vj g'Vj gqt{'cpf 'Rt cevkeg' qh'Vt cpurc vkqp. 'Ngkf gp<'GU0'Dtkm0

ô ô \*3; 86+"Vj g'Eqo r ngvg'Y qt mư'qh'Ht kgf t kej 'P kgv/ uej g. "xqn032."Vj g'Lq{hwi'Mpqy ngf i g. "P gy '[ qt m<'T wuugm'cpf " Twuugm0

ô ô \*3; 96+"*Vj g'I c{ "Uekgpeg.*" (tcpu0Y cnygt" Mcwho cpp. "P gy "[ qtm: Tcpf qo "J qwug0"

P knj krepepf c. 'Uy co k'3; 96+'Xgf cpwwctc. 'Ecrewwc'Cf xckc'Cuj teo c0

Pkt. "Tchcgri\*3; : 6+":Nkpi wkurke "cpf "Uqekqrkpi wkurke "Rtqdrgo u'lp" 'y g''Vtcpurcvkqp" qh''Korqtvgf "VX''Hkro u'lp "Kutcgrø" Køvgt pc vkqpc n'Lqwt pc n'qh''y g''Uqekqrqi { ''qh'Ncpi wci g'6: < 36; 90

P ktcplcpc."V0\*3; ; 4+"*Uskpi "Vtcpurc kqp<"J knqt {. 'Rqunt newnt crhuo . "cpf "vj g"EqrqpkcrlEqpvgz v.*"Dgtmgrg {<"Wpkx gtukv{"qh" Ecrkhqtpkc"Rtguu0

Pktgpdwti ."UO'J ONOUqo gtu"cpf "[ OCOY kmu"\*hqtvj eqo kpi +'Tgcf kpi u'kp'O cej kpg'Vtcpurcvkqp."Eco dtkf i g."O C<'O KV" RtguuO

P kudgw. 'T060'cpf "V0F 0Y kuqp'\*3; 99+":-Vgnkpi 'O qtg'\'j cp'\'y g'ecp'\'Mpqy <'Xgtdcn'Tgr qt\'u'\'qp'\'O gp\'cn'\'Rtqeguugu\'a'' Rulej qnqi kecn'Tgxkgy'': 6\*5+45367; 0

P kunc. 'J 0\*3; ; 3+"-C 'P gy 'Dtggf 'qh'Kpvgtrtgvgt'hqt'Ko o ki tcpvu. 'Eqo o wpkv{ 'Kpvgtrtgvkpi 'kp'Uy gf gpø'kp'Ecvtkqpc'' Rkengp'\*gf 0+"KVKEqphgt gpeg'4: 161; 20Rt qeggf kpi u 'Nqpf qp<'Curkd'\*\*Vj g'Cuuqekcvkqp'hqt'Kphqto cvkqp'O cpci go gpv+''; 66 3260

ô ô \*3; ; 8+"Vj g"Uqekqrkpi wkukeu"qh"Kpvgtrkpi wcrlEqo o wpkecvkqp."Dtwuugnx'Ngu"; f kkqpu"f w'J c| ctf 0

ô ô \*3; : 9d+": Odgtugv| wpi ur tqdrgo g'Odgtugv| wpi uej y kgtki ngksgp0Y cu'kp'f gp'M/4r hgp'xqp'Odgtugv| gtp'xqti gj gp'' uqmsgø'' O kwgkmpi udrc w'hAt 'F qro gwej gt''wpf 'Odgtugv| gt''55\*4+<'76: 0

ô ô \*3; : : = 4pf "gf p"3; ; 3+" Vgzwpcn (ug" wpf "

- ©dgt ugv| gp0Vj gqt gvkuej g'I twpf nc i gp. 'O gvj qf g'wpf 'f kf cmkuej g'Cpy gpf wpi 'gkpgt 'Ãdgt ugv| wpi /ut gngxcpvgp'' Vgzvcpcn(ug. 'I gkf gmlgti <'IOI tqqu0
- $\hat{o} \hat{o} *3; ; 263+ \hat{o}dgtugv/gp'hgtpgp \hat{o} ngkej v'i go cej vOGkp'Mmtu''/wt'GkphÃj twpi'kp'f cu'rtqhguukqpgng' \hat{o}dgtugv/gp''cwu'f go'' Ur cphuej gp'kpu'F gwuej g. '4'xqnı.'* Vtcpuncvqtkıej gu'J cpf gm''7+.''J gkf gndgti <10I tqqu0$
- $\hat{o} \ \hat{o} \ ^*\!3; ; 3c + "Vgzv'Cpcn' uku'kp''Vtcpurc kqp. 'Co uvgtf co "cpf 'Cvcpvc.'I C < Tqf qr k0$
- ô ô \*3; ; 3d+": Ueqr qu. 'Nq { cn</br>. ''Cpf ''Vtcpurc<br/>kqp'Eqpxgpkqpuø''Vct i gv'5\*3+<'; 3ó32; 0
- ô ô \*3; ; 5+'GkphÃj twpi 'kp'f cu'hwpmkqpcng'©dgtugv/gp.''VÃdkpi gp<'Htcpeng0
- ô ô \*3; ; 9+"Vt cpurc vkpi "cu"c "Rwt r qughwd Cevkxkvf". "O cpej guvgt <"Uv" Igtqo g"Rwdrkuj kpi 0
- P qtf cn'I 0"UV»o cuuqp"cpf "X0" rcuqp"\*gf u+"\*3; ; 4+""urgpunid»no gppvcuci c"K"Tg{mcxkmx'O a n'qi 'O gppkpi 0
- Pqtfog{gt."I 0\*3; 7: +":-Qp"yj g"QJ I "Kukfqt"cpf "kwu"Uki pkhkecpeg"hqt"Gctn{ "I gtocp"Rtqug"Y tkkpi ø"RONC"95456570
- Pqtvqp. 'F 0\*3; ; 5+'C'J kwqt { ''qll'yj g'Dkdrg''c u'Nkvgt c wt g. ''4''xqnu. 'Eco dtlsf i g<'Eco dtlsf i g'Wpkxgtukv{ ''Rt guu0
- Pqtvqp."I (R0\*3;: 6+"Vjg"Kgqrqi {"cpf"Ncpi wci g"qhlVtcpurcvkqp"kp"Tgpckuucpeg"Htcpeg"cpf 'vjgkt"J wo cpkw" Cpvgegf gpw."I gpgxc<Ftq| 0
- $P.qw.''IO*'gf\ O'cpf\ ''tcpuO+'*39;\ 7+''Vj\ g'Rqgo\ u'qhEckwu'Xcngtkwu'Ecwmwu.''kp''Gpi\ nkuj\ ''Xgtug.''y\ kj\ ''vj\ g'Ncvkp''Vgzv't\ gxkugf\ .''\ cpf\ ''Encunkecn'Pqvgu.''Nqpf\ qp<''Iqugr\ j\ ''Iqj\ puqpO$
- P qxkem'R0\*3; :: +"Vj cv'P qdrg'F t gco 0Vj g"-Qdlgevkxk\{"S wgurkqp\p\"cpf "vj g"Co gt kecp"J kurqt kecrlRt qhgurkqp."Eco dtkf i g<"
  Eco dtkf i g"Wpkxgtuk\{"Rtguu0
- P qy qvp { .''Mctrl'C0\*3; 83+"Vrc ewkeqrik<"F kg"o gz knic pkuej gp"Dkif gtj cpf uej t khugp. "Ukrl'vnpf "Kpj cni."Dgtrlip<"I gdt0O cpp0
  P {uvtcpf .'O 0\*gf 0+"\*3; : 4+"Y j cv"Y t kugt u"Mpqy <"Vj g"Ncpi wci g. "Rt qeguu"cpf "Ut wewit g"qh"Y t kwgp"F kueqwit ug. "Nqpf qp<"
  Cecf go ke "Rt guu0
- Qcvgu.'Iq{eg'Ectqn'\*3; ; 2+":Vj g'Y tkgt'cu'Tgxkgy gtø''Co gtkecp'DqqmTgxkgy 'P qxgo dgtF gego dgt<'50
- $Qduv.'J 0 cpf 'T0 (Erlpg'*3; ; 2+":Uwo o ct { 'I kuvqt { 'lqh'Ncpi wci g'Ugtxlegu'lp''y g'WU0F gr ctvo gpv'qh'Uvcvgø'lp'F0 cpf 'O 0 Dqy gp'*gf u+0 }$
- QøHrcj gtv{ ."Y gpf { "F qpki gt "\$3; 8: +"::Vj g'RquvXgf ke"J kuvqt { "qh'vj g'Uqo c'Rrcpvø'kp"T0I qtf qp"Y cuuqp" $Uqo \ c < F kxkpg''$  O wij t qqo "qh'Ko o qt vc rkv{ ."Gvj pq/o { eqrqi kecn'Uwf kgu'\*3+."P gy "[ qt m\*J cteqwt v'Dtceg'Iqxcpqxkej 0
- ô ô \*3; 97+"*J kpf w'O { vj u.* 'J cto qpf uy qt vj <'Rgpi wkp0
- ô ô \*3; : 3+Vj g'Tki 'Xgf c.'Cp'Cpyj qrqi {. 'I cto qpf uy qtyj <Rgpi V
- Qi cw. "V0\*3; 93+"*Tcpi cmw'\q'Pkj qp'Dwpnc*"]F wej "Ngctpkpi "cpf 'Lcr cpgug'Ewnwtg\_. "Vqm{ q<"Vqm{ q'Fcki cmw' Uj wr rcpnck0
- Qkncy c."U0\%3;; 6+":\Uj kpvckuj k'pq"M{cmvkpø']Tj {o g'kp"P gy "Uv{ng"Xgtug\_."kp"Mco gk\%gf 0\tild
- Qkwkpgp. 'T0\*3; ; 5+'Kco 'O gô Kco 'Qy gt Qp''y g'F kcrqi keu'qhlVt cpurc kpi 'hqt 'Ej krf t gp. 'Vco r gt gWpkx gt ukv'qh' Vco r gt g0
- Qmr gy j q."K0\*3;; 4+"Cht kecp"Qt cn'Nkyt c wut g<Dceni t qwpf u. 'Ej ct cevgt 'cpf 'Eqpvkpwk\{. ''Dnqqo kpi vqp<Kpf kcpc'' Wpkxgtuk\{'Rtguu0}
- Qnknckpgp. "C0" gf 0" gf 0" gf 0: "gf 0
- $\hat{o} \quad \hat{o} \quad \text{cpf 'O (Rwicmic''*gf u+'*3)}; : 9+''M@pv@@'/mmwwwt.kxc.kmwwc.lkpc''] Ewiwitch''Kphrwgpeg''qh''Vtcpurcvqtu''kpvq''Hopkij _.'' \\ L{x@im{n@'L}x@im{n@'L}x@im{n@'Rhqr.kivqp''nktlcmkivwf gp''ickqmigp''o qpkivg''pq0'570}$
- Qnqp. 'Ej ctrgu'\*3; 75 B; 8: +'Oc{cp'Ngwgtu.'Nqpf qp<'Ecr g0
- Qpi ."Y (10)\*3; 7; +":Ncvkp"Ncpi wci g"Uwf {"cu'Tgpckucpeg"Rwdgtv{"Tkygø"*Uwf kgu'kp'Rj kqqqi {*"78\*4+<"3256330
- Qqk "X0\*3; : 2+":-Vtcpurc\lpi "Ewnwtg<'C 'Ecp\qpgug' Vtcpurc\lqp "cpf 'Rtqf we\lqp "qh' QøP gkmøu' "Nqpi 'F c { øu' Lqwt pg{ 'kp\q'' Pki j \widenty a' \lqp \widenty \widenty \qquad \widenty \wid
- Qquvtqo ."H0xcp"gv"cn0\%3;; 3+"O kuugrkng"\qpi j g0F g"O kf f gnpgf gt ncpf ug"ngwgt nwpf g"kp"kpvgt f kuekr nkpc kt "xgt dcpf" ]O kf f ng/F wej "Nkgtcwtg"\p"cp"Kpvgt f kuekr nkpct {"Eqpvgzv."Co uvgt f co <Rt qo gvj gwu0
- Qtj qpnw."Egpi k "\*3; 96+":-Vgtewo cpø"]Vtcpurcvqt\_."*Kurco "Cpulumqr gf kul*k"]Gpe{erqr gf kc"qh"Kurco "Gzr cpf gf "Vwtnkuj "Xgtulqp\_."xqr0/3413."Kuvcpdwrk"O krrk'Gi kwlo "Dcmcprki k"[c{kprctk"3976: 30
- Qtrkpum(."J 0\*3; 74+":Vj g'J gdtgy "Vgzv'cpf "ý g'Cpekgpv'Xgtukqpu'qh'ý g'Qrf "Vguvco gpvø'kp"*Cp"Kpvt qf wevkqp"\q"i g"* Tgxkugf "Ucpf ctf 'Xgtukqp"qh'ý g'Qrf "Vguvco gpv."Nqpf qp"cpf 'Gf kpdwti j <"Vj qo cu'P gnuqp"cpf "Uqpu0
- ô ô \*gf 0+'\*3; 8; +'Pqvgu'qp''y g'Pgy 'Vtcpurcvkqp''qh'y g'Vqtcj.''Rj krcf grr j kc<Lgy kuj 'Rwdrkecvkqp''Uqekgv{ 'qh'Co gtkec0 Qto krvqp.'I c{rg'N0cpf 'Crcp'F (Uej tkhv'\*gf u+'\*3; ; 2+'Vj g'J gto gpgwke''Vtcf krkqp<'Htqo 'Cuv'vq'Tkeqgwt.''Crdcp{.'P[ < UWP[ 'Rtguu0
- Qugtu. 'Gy crf '\*3; ; 5+":Cp''ōWpvtcpurcvcdrgö'I qgyj g'Rqgo ø'kp''Rgvgt''Rcdkvej ''cpf ''Kpi q''TUvqgt''\*gf u+"F ko gpukqpu<'C0' Ngurkg'Y kuqp''cpf 'Eqpvgo rqtct{'I gto cp''Ctw''cpf ''Ngwgtu. ''Mtghgrf <'xcp''Cengp.''3; 764230
- Quvrg. 'Tqdkp'\*gf0+'\*3; ; 3+''Oqfgtp''Nkgtcwtg''kp''ij g''Pgct''cpf''Okffng''Gcuv<'3: 7263; 92. 'Nqpfqp''cpf''Pgy''[qtm<''Tqwngfig0
- QøVqqn'O 0\*3; ; 6c+":Ncy { gtøu'T gur qpug''\q'Ncpi wci g'Eqpuvt wevkpi 'Ncy ø'kp'III kddqpu'\*gf 0+"Ncpi wci g''cpf "Ncpi wci g''\ncy ." U{ f pg{<\Nqpi o cp0}
- ô ô \*3;; 6d+":-ôEqo o wpłeckqpö'kp''y g'Eqwtytqqo <'Vj g''Ko r cev'qh''Ncy { gtuø''Vj gqtkgu''qh''Kpvgtr tgykpi IVtcpurcykqp''\*KIV+" wr qp''y g''Cf o kpkntcykqp''qh''Lwuykeg'kp''Cwuytcykog''kp''Rt qeggf kpi u''qh''NLGV'6. ''Dtkudcpg<'Wpkxgtukv{ ''qh''S wggpurcpf 0 Qzhqtf 'Ercunkecy'F keykqpct { ''\*3; 92+"4pf ''gf p. 'P (I ONO co o qpf ''cpf ''J (I Wewnetf ''\*gf u+: 'Qzhqtf ''Wpkxgtukv{ ''RtguuO

```
Q| mktko rk''Cvkmc'*3; : 4+"Vwt m'Gf gdk| cvk'Cpukmqr gf kuk'']Gpe{emqr gf kc''qh''Vwt mkuj ''Nksgt cwttg_.''Krvcpd wrk'Ego ''[ c{kpgxk0 Rceeci pgmc.''Kscpq'*3; : 5+":Rnwt krkpi wkuo q''ngwgt ct kq<'rkpi wg.''f kcngwk''rkpi wci i kø''kp''Cndgt vq''Cuqt''T quc''*gf 0+"

Ngwgt c wrt c''kvcnkcpc.''xqn'04.''Rt qf w| kqpg''g''eqpuwo q.''Vwt kp<'Gkpcwf k''3256890
```

Rcf f gp. "E0"3; : 2+":Vj g'F gch'Eqo o wpk\{ "cpf" 'yj g'Ewnwtg"qh'F gch'Rgqr ngø "kp"Dcngt "cpf "Dcwkuqp" "gf u+.": ; 63260

 $\text{Regu.'IIR0*3}; ; 2 + \text{`$Vtcfw$$\pm$^-q.''C''rqpvg''pgeguu^{\theta}$} tkc < \text{`$Curgevqu''g''rtqdrgo} \ cu''fc''ctvg''fg''\text{t}tcfw/kt.''U`q''\text{Rewrq} < \text{`$Gf$ kqtc''f $$vec0$}$ 

Rci pqwrg. "Ej tkrkpg"\*3; ; 4+":-Vtcpurckpi "Rqgo u<"C "Rtgectkqwu"Dcrepeg. "Vcti gv"5: \*5+<"35; ó6: 0

Rckngf c{."V00 0\*3; : 7+"÷0 c{"KMkm'yi g"P cvkx g"Ur gengtø" "VGUQN'S wet vgt n(."3; 5; 2670

Rckqpk 'O ctlc'I0\*398869+"Dkdrkqvgec'f gi rk'cwqt k'cpvkej k'i t gek'g'ncvkpk'xqri ctk/cvk'"Xgpleg<'Ulo qpl0

Rcngt."Ucnkj c"\*3; : 8+":Ej cpi kpi "P qto u"qh"vj g"Vcti gv"U{ uvgo <"Vwtmkuj "Vtcpurcvkqpu"qh"I tggm"Ercuukeu"kp"I kuvqtkecn" Rgtur gevkxgø "kp"*Uwf kgu"kp"I t ggm"Nkpi wkukeuô Rt qeggf kpi u"qh"vj g"9vj "Nkpi wkukeu"Eqphgt gpeg.* "Vj guucrqpkmk"Vj g" Ctkuvqvgrkcp"Wpkxgtukv{ "qh"Vj guucrqpkmk"6336480

 $\hat{o} \hat{o} *3; ; 3+ ": Vj g'Ci g'qh'Vtcpurc vkqp''cpf''Cfcr w vkqp''kp''Vwtng \{ \emptyset'' kp''Tqdkp''Quvrg'' *gf 0+ "Oqf gtp''Nkyt c wtt g''kp'' Vj g''Pgct'' cpf''Okff ng''Gcuw. "Nqpf qp< Tqwrgf i g. "396540$ 

ô ô ."Kkp"Dgpi k"P gf tgv"Rkpct/Mwtcp"cpf "Uwcv"Mctcpvc{"\3;;3+"\3; yj "Egpwt{"Cf cr vcvkqpu"qh"O qrk tgø"\vert yj g"

Grqs wgpv'O gf kcvqt <Cj o gf 'O kf j cv'Ghgpf kø":-Vj g'Hktuv'I qgvj g''Vtcpurcvkqpu'kp''Vvtmkuj ø":-Vj g''Vtcpurcvkqp'Qhhkeg''qh''y g'' 3; 62u<P qto u''cpf 'Hwpevkqpuø'kp'F qwy g'Hqmmgo c'\*gf 0::'Rt qeggf kpi u''qh'vj g'ZKKKj 'E qpi t guu''qh'vj g'Kpvgt pc vkqpc n'' Eqo rctcvkxg'Nkvgtcvwtg'Cuuqekcvkqp.''xqn07''Ur ceg''cpf 'Dqwpf ct kgu.''O wplej <Kxf kekwo ''Xgtrci .''5: 466270

ô ô cpf '\ gj tc''Vqunc''\*hqtyj eqo kpi +":-Qp''MwrlO guwf øu'36yj /egpwt { ''Vtcpurc'vlqp''*Mgrlwg''xg'F ko pg* <'C''Ecml'qh'

F guet kr vkx g''Vt cpurc vkqp''Uwf kgu''qp''y g''Vwt nkuj ''Vt cf kkqp''qh'Tgy t ksguø''kp'O Upgm'J qtpd{.'\ (Igwo ctqxc''cpf ''MMckpf n' \*gf u+''Rt qeggf kpi u''qh'y g''GUV'Eqpi t guu. ''Rt ci wg'3; ; 7<'Vt cpurc vkqp''c u''Kpvgt ewnwt cn'Eqo o wpkec vkqp. ''Co uvgtf co ''cpf'' Rj krcf grr j kc<'Iqj p''Dgplco kpu0

 $Rcncekq. "Igcp"fg"*3; 97+" : Uj gng{ ''tcf wevgwt"fg''uqko \'o g\'a" T gxwg'f gu''uekgpegu''j wo ckpgu''37: <'445\'o660$ 

Rcm gt. 'Tkej ctf 'G0\*3; 8; +"*J gto gpgwkeu<Kpvgtrt gvcvkqp"Vj gqt ("kp"Uej ngkgto cej gt. "F knj g(. "J glf gi i gt. "cpf" I cf co gt.* 'Gxcpuvqp. 'KN<P qtyj y guvgtp 'Wpkxgtukv("Rtguu0

R<sup>a</sup> muqp."J 0\*3; 9: +"*Ut cwo ct "qi "lwglpwt "k" furgpunwo "d» no gppwo "ht a "3772*"]Vgpf gpekgu"cpf "Rgtkqf u"kp"Kegrcpf ke" Nkgtcwtg"htqo "3772\_,"Tg{mlcxkm\*K wpp0

Rcpgyj .'Gxc'\*3; 79+":Cp"Kpxguvki cvkqp"kpvq"Eqphgtgpeg"Kpvgtrtgvcvkqpø0OC"vj guku."Wpkxgtukv{ ''qh'Nqpf qp0

Rcppy kd .'T0\*3; 39+"F kg'Mt kuku'f gt "gwt qr c luej gp'Mmmwt."P wtgo dgti <'J 0'Ectr0

 $Rcr \ gi \ cckl. "Dctv'cpf "Mrcwu' "Uej \ wdgtv'*3; :: + "Vgzv'Eqj \ gt \ gpeg'kp' Vt \ cpurc \ kqp. "F \ qtf \ tgej \ v'Hqt \ ku0$ 

 $Rctm''Y km'co 'O 0*3; ; 5+"Vt c punc vqt "cpf "Kpvgt rt gvkpi "Vt ckpkpi "kp" ij g'WUC < C"Uvt xg{. 'Ctrkpi vqp. ''XC < Co gtkecp" Vt cpunc vqt u'Cuuqekcvkqp0}$ 

Rctmgt.'Rcvtkekc'\*3; : 9+"Nkgtct{'Hcv'Ncfkgu<Tj gvqtke.'I gpf gt.'Rtqrgtv{.'Nqpf qp''cpf 'P gy '[ qtm'<0 gyj wgp0 Rctvlpi vqp.'IDT0\*3; 83692+"C''J kwqt{'qh'Ej go kwt{.''6'xqn.'Nqpf qp<0 ceo kmcp0

Rctvtkf i g. 'Gtke'\*3;  $88+'Qtki \; kpu < C'Uj \; qtv'Gv (o \; qnqi \; kecn'F kevkqpct { ''qh'O qf gtp'Gpi rkuj } . ''6vj ''tgx0'gpn0'gf p. ''Nqpf qp<''Tqwngf i g''cpf ''Mgi cp''Rcwn0$ 

Rctvlkf i g. 'Gtke''cpf "Y (F wtc'\*3;; 6+":Rcwn'T»pck''tcf wqt "g'o guvtg"f g''tcf wqt guø "Vtcf vgt o "3<"436520

Rc{pg.'IO\*3;;5+'Eqps wgw'qh'ijg'Pgy 'Yqtf <Gzrgt kogpvcn'Hkevkqp''cpf 'Vtcpurcvkqp'kp''ijg'Cogt kecu.''Cwurkp.''VZ<'
Wpkxgtukv{'qh''Vgzcu'Rtguu0

Rc|."Qevcxkq"\*3; 88+"Rqgukc"gp"o qxko kgpvq."O gzkeq<"Uki my"ZZK0

ô ô \*3; 93+"*Vt cf week»p0!Nkgt c wit g"[ 'hkgt c hf cf* . 'Dctegmpc<'Vwus wgw0

ô ô \*3; : 8+"::Qp"Vtcpurcvkqpø'C"Ugrgevkqp"htqo "vj g"WPGUEQ"Eqwtkgt."760

Rc| wnj kp. 'T0\*3; : 9+"+C"Eqpvtkdwkqp"\q"c"I gpgtcn"Vj gqt { "qh"O qf gnuø" "Ugo kqvkec" 89\*364+<836: 40

Rgctuqp.'Igppkhgt'\*hqtvj eqo kpi +":Grgevtqpke'Vgzvu'cpf 'Eqpeqtf cpegtu'kp''vj g''Vtcpurcvkqp'Encuutqqo ø''Rcr gt''uwdo kwgf "vq''Vgcpi c.''vj g''Kkuj '[gctdqqm'qh'Crrnkgf''Nkpi wkwkeu0

Rgej ct. "Ik $\P^*3$ ; :  $8+"Qv^a/m'$  "thugt "  $tp\Pq'r \ gmcfw'$ "]S wgwkqpu''qh''Nkgtct { "Vtcpurcvkqp\_.''Rtci wg<" gunqurqxgpum " ur kuqxcvgr0

 $Rgf gp. "O cti ctgv" Uc \{gtu" "3; : 4+" : Vj g" Uc f wqwu" Uqwtpg \{ \emptyset "kp" Y gpf gm" O C \{eqem" "gf 0+" Vj g" Vgngt "cpf " ij g" Vcng < Cur gew" qh' vj g" Uj qt v' Uqt \{. "Nwddqem" VZ < "Vgzcu" Vgej "Rtguu. "856: 70$ 

Rgf gtugp. "Xki i q'J lãtpci gt'3; : 9+2xgtuò wgnu/guvgqtk'] Vtcpurcqp''Vj gqt2.2Eqr gpj ci gp0

ô ô \*3; :: +'Guuc{u''qp''Vt c purc vkqp. 'Eqr gpj ci gp<'Gtj xgtxuã mqpqo kum'Hqtrei 0

ô ô cpf 'P qto cp''Uj kpg'\*3; 9; +":Datpgrkwgtcwt'k'Gpi rcpf qi 'F cpo ctmhtc'o kf vgp''ch'f gv'3: 0° tj wpf gtgf g'\kriec0'

3:  $52\phi'$ ]Ej krf tgpøu'Nkgtcwtg'kp'Gpi rcpf 'F gpo ctmlhtqo ''ý g'O kf f rg''qh''ý g'3: ý 'Egpwt { ''q''cdqw''3: 52\_.'KK'' $D\tilde{a}tp''$  qi ' $D\tilde{a}i$  gt '7444652.''cpf '84926: 50

Rgkteg. 'EOU0\*3; 5367+'Eqmgevgf 'Rcr gtu'qh'Ej ctngu'Ucpf gtu'Rgkteg. 'gf 0'EO ctwj qtpg. 'ROY gkuu'cpf 'COY (Dwtmr.'': 'xqnr.'' Eco dtkf i g. 'O C<'Dgmpcr 'Rtgur.'' ctxctf 'Wpkxgtukk ('Rtgur0

```
\label{eq:localization}  Rgptqf.'N{pp'M0*3;;5+":-Vtcpurcvkpi 'J ^2 n^3 pg'Ekzqwu<'Htgpej 'Hgo kpkno *u+'cpf 'Cpi m/Co gtk/ecp'Hgo kpkno'Vj gqt{$\emptyset''$}  VVT<'Vtcf wevkqp.'Vgto kpqrqi kg.'Tgf cevkqp'8*4+0 }
```

Rgti pkgt. "O cwtkeg"\*3; 95+":-Vtcf werkqp"gv"y ² qtkg"rkpi wkurks wgø" "kp"/ wrf gu"f g"rkpi wkurks wg"c r r rks w² g"34. "Rctku<"F kf kgt0 ô ô \*3; 9: 13; ; 5+"Ngu"hqpf go gpw"uqekqrkpi wkurks wgu"f g"rc "vt cf werkqp. "Nkmg<"Rt guugu" Wpkx gtuksckt gu"f g"Nkmg0

Rgtnkpu. "F 0\*3; : 9+"C"J kvqt { "qhlO qf gtp 'Rqgvt { <'O qf gtpkvo "cpf 'Chyt."Eco dtkf i g. 'O C <'J ctxctf "Wpkxgtukv{ "Rtguu0 Rgtno wwgt."F 0\*3; ; 3+":-Vj g'Ncpi wci g'qh'vj g'F gch'\*T gxkgy "qh'Uggkpi "Xqkegu'd { "Q0Ucemu+ø"Pgy "[ qtm'T gxkgy "qh'Dqqmu" 5: \*8+<'876940

Rgtt {. 'O gpcnj go '\*3; : 3+'':Vj go cvke 'cpf 'Uvtwewtch'Uj khui'kp'Cwqvtcpurcvkqpu'd { ''Dkrkpi wch'J gdtgy / [ kf f kıj ''Y tkıgtu<'' Vj g'Ecug'qh'O gpf grg'O qnj gt'Uqtko  $\alpha''Rqgvkeu'Vqf$  c { '4\*6+<'3: 36; 40

 $Rgvgtu.'E0'cpf'GRkeej~k'*3;~;~8+"+Dkrkpi~vcn'Tghgtgpeg'Eqtr~qtc'hqt''Vtcpurcvqtu'cpf~'Vtcpurcvkqp''Uwf~kguØRcr~gt''r~tgugpvgf''~cv'+Wpkv{~kp'F~kxgtukv{~'kp'F~kxgtukv{~'';~633'O~c{''3};~;~80}}$ 

 $Rgvgtu''M0''3;; 7+":Vy q''Vtcpurcvkqpu''qh''Vt kneg''d \{ 'E^2 uct''Xcnglq \emptyset''Vt cpurcvkqp'Tgxkgy''69 < 58 66 50 \}$ 

Rgv¾k'IOU0\*3; : 4+":-Ugo kqvkec"xgtdcrg."\gqtkc"f grl'vguvq."\gqtkc"f grr"\tcf w\ kqpgø"\kp"UEki cf c"gv'cr0\\*gf u+"Rt qeguuk" vt cf wvkxk<\qqt kg"gf "crrnkec/kqpk"Cvk"f grl'ugo kpctkq"uw":-Nc"\tcf w\ kqpgø"Dtguekc."3; ó42"pqxgo dtg"3; : 3."Dtguekc<'Nc" Uewqrc0

Rgxgct.'T0'cpf 'N0Xqrqni qpum{ '\*tcpu0+\sigma3; ; 2+\H0F quvqgxum{ ." $Vj\ g'Dt\ qvj\ gtu'Mct\ co\ c/qx$ . 'Dgtngrg{ <P qtvj 'Rqkpv'Rtguu0 Rg| | kpk 'F 0\sigma3; ; 3+\H2Dtki kwkpg'\Vtcevu'qh'\Ur\ ktkwcn'\I\ wkf\ cpeg'\kp'\Hknggpvj\ /egpwt{ 'Gpi\ rcpf <C 'Uwf { 'kp'\Vtcpurc\kqp\\0p'\T0 Gnku'\sigmaf 0+\sigma3; ; 3c+\H39764290}

Rj km' Lwf cgwu'  $^{1}$ 3; 57+ $^{1}$ F g''xkxc' O qukulO qugu ''\tcpu0HD 0Eqnuqp.'  $^{1}$ Qp''Cdt cj co .' Qp''Lqugrj .' O qugu ''49567; 7. ''xqn'08''qh'' Rj km'  $^{1}$ kp''Pkpg''Xqrwo gu ''Nqpf qp $^{2}$ J glogo cpp0

Rkci gv. "10"3; 94+" $Rtqdn^3o$  gu'f g'r ul ej qrqi kg'i  $^2p^2$  vks wg. "\*eqmgevkqp'O  $^2$  f kcvkqpu'pq0; 7+0

Rkectf.'O 0\*3;: 8+."Nc"ngewt g"eqo o g"lgw."Rctku.'O kpwks0

Rkeej kq. "T0\*3; 94+"::S wgurkqpg'f gmc'hkpi wc''urexke''g'Ektkmqo gvqf kepeø''kp"*Uwf k'iwme''s wgurkqpg'f gmc''hkpi we''r t guuq'i nk'' Urexk0* 

 $\hat{o}$   $\hat{o}$  \*gf 0+\*3; : 8+"Vt c pur vkpi "c pf "vj g'E qo r wyt '9. 'Nqpf qp<'C urkd0

ô ô \*gf 0+'\*3; : ; +''Vj g'Vt c purc vqt  $\phi u'J$  c pf dqqm''Nqpf qp < Curled 0

Rkemj cm'O cto cf wng'\*3; 52 B; ;  $4+"Vj g'O gcpkpi "qh'vj g'I nqt kqwu'Mqt cp."Cp'Gzr rcpc vqt { "Vt cpurc vkqp." Eco r dgm" Nqpf qp<'Gxgt { o cpøu'Nkdtct { 0}}$ 

ô ô \*3; 53+"::Ctcdu'cpf 'P qp/Ctcdu'cpf ''y g'S wgu''dqp''qh''Vtcpurcdpi ''y g'S wtøcpø''*Kurc o ke 'E wnwt g*. 'Lwn{ <6446550 Rki i qw. 'Uwctv'\*3; 83+"*Rt gj kwqt ke ''Kpf kc ''uq ''3222''DE*. ''J cto qpf uy qy <'Rgpi wlp0

Rkng."M0\si3; 766; 13; 89+"Ncpi wci g"kp"T grc vkqp"\q"c"Wpkkgf "Vj gqt { "qh\sij g"Ut wewt g"qhJ wo cp"Dgj cxkqwt."4pf "tgx0\gf p." Vj g'J ci wg<0 qwqp0

ô ô cpf 'GU (Rkng'\3; 99+"*I too o cvkecn'Cpcn(uku*."F cmcu."VZ<'UKN'Rwdnkecvkqpu'kp'Nkpi wkurkeu'cpf 'Tgncvgf 'Hkgnf u'P q0' 75 IVj g'Wpkxgtukv{ ''qh''Vgzcu''cv'Ctnkpi vqp0

Rkpej wem'Kucf qtg'\*3; 99+"*Uekgpvklke'cpf 'Vgej pkecn'Vt cpurc kqp*. 'Nqpf qp<'Cpf t² 'F gwuej 0

Rkpvgt. "Kpi tkf" "3; 8; +":F gt "Gkphrwuu'f gt "©dwpi "wpf "Mqp| gpvtcvkqp" cwh "Uko wncpgu "Ur tgej gp" wpf "J $^3$ 4 gp $^0$  Wpr wdrkuj gf" f qevqtcrif kuugtvcvkqp. "Wpkxgtuk $^1$  "qh' Xkgppc $^0$ 

Rkuctume. 'C0\*3; ; 2+'Etgevkxkv{ "qhVtepurevqtu0Vj g"Vtepurevkqp"qhO gverj qtkeen'Gzrtguukqpu'kp"Pqpnkvgtet{ "Vgzvu." Rq| pe <'Wpky gtu{ vgv'ko 0Cf co c'O kenkgy ke| c0

Rkg. "T0"3; ; 6+"Vj g'Ekterg'qll'qwt "Xkukqp<"Fcpvgøu'Rt gugpeg'kp''Gpi rkuj "Tqo cpvke''Rqgvt {. ''Qzhqtf <'Erctgpf qp''Rtguu0 Rrcvq''\*3; 83."3; : 2+"Vj g'Tgr wdrke. "\tcpu0'Rcwrl'Uj qtg {. ''kp''Gf ksj "J co knqp''cpf "J wpvkpi vqp''Ecktpu'\*gf u+"Vj g'Eqmgevgf" Fkcrqi wgu''qh'Rrcvq. "Rtkpegvqp''Wpkxgtukx{ ''Rtguu. ''7976: 660

R³/ej j cemgt. "Htcp| "\*3;; 6+"Uko wncpf qno gwej gp"cnu'mqo rngzgu"J cpf gnp. "VAdkpi gp<"I wpvgt "P ctt0"

Rqej o cpp."J  $0C0*3;79+"I\ gto\ cp"Ewnwtg"kp"Co\ gtkec<"Rj\ knquqrj\ kecn'cpf"Nkgtct{"Kphnwgpegu."}382263;22.$ "O cf kuqp<" Wpkxgtukx{"qh"Y kueqpukp"Rtguu0

R³/em "Y qrhi cpi "\*gf 0+"\*3; : 3+"Gwt qr ®uej g'O gj t urt c ej ki mg k0Hguwej t k0'hĀt 'O ct kq'Y c ej t wu/mc."VĀdkpi gp<"P k90 g9 g1 gt0 g2 gt0 gf3 gt3 gt4 gt3 gt4 gt4 gt5 gt6 gt6 gt6 gt9 gt9

Rqrkku."N0\*3; 95+"C"J kuqt{"qhlOqfgtp"I tggmlNkgtcwtg."Qzhqtf<Enctgpfqp"Rtguu0

Rqmcm''U0\*gf 0+'\*3; 97+''Rt/gm€cf''ctv{uv{e/p{0Q''u/weg''nwoce/gpkc(\*\*siesea''ftwic'']Nkgtct{''Vtcpurcvkqp0Qp''vjg''Ctv''qh'' Vtcpurcvkqi0'Dqqm'Vyq\_''Ytqe€y<'Quuqrkpgwo0

Rqngto cpp. 'Cpf tgcu'\*gf 0+'\*3;; 6+'Fkg''©dgtugv/wpi 'cnu'O gf kwo 'f gt 'Ht go f gt hcj t wpi 0Mcpqpkugt wpi ur t q/guug0' Y kuugpuej chrkej gu'Mqnqs wkwo 'I ¾wkpi gp'3;; 4."VÃdkpi gp<P kgo g{gt0

ô ô \*gf 0+'\*3;; 7+''Nkvgt c wut mc pqpô O gf kgpgt gki pkuô Mwnwt gngt 'Vgz v<'Hqt o gp 'kpvgt mwnwt gngt 'Mqo o wpknc vkqp 'wpf '' ©dgt ugv/ wpi '\*1 ¾ xkpi gt 'Dgkst @ g'Kpvgt pc vkqp cngp '©dgt ugv/ wpi uhqt uej wpi '32+.''Dgt nkp <'Gt kej 'Uej o kf v0

Rqpvkgtq.'I kqxcppk'\*3; ; 4+":Vj g"Vcum'qh'vj g'Nksgtct { "Vtcpurcvqtø"kp"F qmgtwr "cpf "Nqf f gti cctf "\*gf u+"4; ; 65280 Rqr g. 'C0\*]  $3937_{3}$ ; 89+":Rtghceg"vq"Vj g"Kkcf "qh'J qo gtø" \p'O cem'\*gf M

 $Rqr\ qxk\ ."Cpvqp"^3;\ 92+":Vj\ g"Eqpegr\ v'\"oUj\ khv'qh'Gzr\ tguukqp\"o"kp"Vtcpurcvkqp"Cpcn(ukuø'kp"J\ qro\ gu."f\ g"J\ ccp"cpf\ "Rqr\ qxk\ "\ "gf\ u+O\ "$ 

- ô ô \*3; 93+"*Rqgvkmc' wo gngent j q'r t gnncf w.* 'Dtc**vku**rcxc<"Vcvtcp0
- ô ô \*3; 96+"Wo grgem "r t grmcf "x" UUT"]Nksgtct { "Vtcpurcvkqp"kp"E| gej qurqxcmkc\_."O ctvkp<"pq"r wdrkuj gt"eksgf 0
- $\hat{o} \ \hat{o} \ ^*3; 97 + "Vg * tkc" wo \ \textit{grgen} i \ q'rt \ \textit{gmcfw'}] \ Vj \ gqt \{ \ ''qh' \ Nksgtct \{ \ ''Vtcpurc \ kqp\_' \ 'Dtc \ kurcxc < 'Vc \ vtcp0 \} \}$
- ô ô \*3; 98+"Fkevkapet { 'hat 'vj g'Cpen{uku'qh!Nkvgtet { 'Vtepurevkap. 'Gf o qpvqp<"Wpkxgtukv{ 'qh!Cndgtvc0
- ô ô \*gf 0+'\*3; : 6+'' $Qtkikp^anRtgmcf$ . 'Kpvgtrt gw:  $p^a$ ''vgt o kpqn» i kc. 'Dtcvkurexe<'Vevtep0

Rqtvgt. 'F gppku'\*3; ; 3+"-Ru{ej qcpcn{uku'cpf ''y g''Vcuni'qh''y g''Vtcpurcvqtø''lp''Crgzcpf tg''Ngwr kp''\*gf 0+"Ncecp''cpf''y g'' J wo cp''Uelgpegu. 'Nkpeqrp<'Wpkxgtukx{ ''qh'P gdtcunc''Rtguu0

Rqupgt. 'O (KO\*3; :: +"::Kpvtqf wevkqp<'Y j cv'ku'kv'Nkng'\q'dg'cp'Gzr gtvA\(\delta\) 'lp'O (VO) (Ej k'T0) rcugt'cpf 'O (LOHctt'\*gf u+'Vj g'' Pcwtg'qhGzrgtvkug." J kmf cng. 'P L<'Ncy tgpeg'Gtmlcwo 'CuuqekcvguO

Rqwpf.'G| tc'\*3; 73+'CDE'qltTgcfkpi.'Nqpfqp<'Hcdgt'cpf'Hcdgt0

- $\hat{o} \ \hat{o} \ ^*\!3; 76 + Nkgtct{'Guuc{u.'Nqpf qp<'Hcdgt0}}$
- $\hat{o} \ \hat{o} \ ^*3; 7: + "Vj \ g"Vt \ c \ puir \ kqpu"qhG/t \ c"Rqwpf. "P \ gy "[ \ qtm \ P \ gy "F \ kt \ ge \ kqpu"0 ]$
- ô ô \*3; 85+"*Vt c purc skapu.* 'P gy "[ qtm:'P gy 'F ktgeskapu0
- ô ô \*3; 5813; 8; +\"\gf 0+\"Hgpgmquc0Vj g'\"Ej \logug'Y t\kngp'\"Ej ctcevgt''cu''c''O gf \kno '\"\qt'\"Rqgvt {. '\Ucp'\"Htcpe\kneq<\"Ekx\{ '\Nki j vu0 Rqy gt. \"\V0\\"38; 3+\"Rctcf \knuk'\"Co \knuk'\"Eco \dt\f i g<\"\Vt\p\k\{ 'Eqmgi g0}

Rtcdj wr cf c. 'CŒDj cmkxgf cpvc'Uy co k\*3; 97+"Vj g'P gevct "qh'Kpunt wevkqp. 'Nqpf qp<'Dj cmkxgf cpvc'Dqqm'Vtww0

Rtcgv. 'Ectqrlpg. 'Mctrl'Xgthckrlg. 'Rgvgt'f g'I tcgh'Iqj cp'xcp'Tgpudgti gp'cpf 'I ²t{'føl f gy cmg'\*3; ; 2+":C'Qpg'Nlpg'Vgzv' ku'pqv'I cm'c''Vy q'Nlpg'Vgzvø'lp'T(I tqpgt. 'I oføl f gy cmg'cpf 'T(Rctj co '\*gf u+"Htqo 'G{g'\q'Olpf < Nphqto cvkqp'' Ces whikklap'lp'Rgtegrvkqp. 'Ugctej 'cpf 'Tgcf kpi .''Qzhqtf < Grugxkgt'Uelgpeg'Rwdrkuj gtu0

Rt gxqf w/k/Dwi ct unc w 'Mwnwtc'] Vtcpurcvkqp''cpf 'Dwi ctkcp'Ewnwtg\_'\*3; : 3+. 'Uqhkc<'P ctqf pc'Mwnwtc'Rwdrkuj gtu0 Rtqevqt.'G0U0\*3; 73+'Crhqpuq'Z''qhEcuskrg0Rcvtqp''qh!Nkytcwtg''cpf 'Ngctpkpi .'Qzhqtf<'Enctgpf qp''Rtguu0

Vj g'Rucro u."I {o pu'cpf 'Urkt kwcrl'Uqpi u'qhl'vj g'Qrf 'cpf 'Pgy 'Vguaco gpv'Hcky hwrd 'Vt cpurcvgf 'kpvq'Gpi rkuj 'O ggvgt'' \*38; 9+."Nqpf qp<'UY 0

Rul el q=q umc."N0cpf 'LIRwl {pkpc'\*3; 76+":V=0 cel g'Qf tqf | gpkc'q'uy qkej 'r t| gm=6 cej =9"]Vj g'Vtcpurcvqtu'qh'y g'' Tgpckucpeg'qp''y gkt 'Y qtm."=1 qt cf pkn =1 (366480)

Rwukcpq. 'RO'cpf 'MOY qrh'\*3;; 5+"\*gf u+"O gf kgxcn'Uecpf kpcxkcp<'Cp'Gpe{erqr gf kc. 'P gy '[ qtm'.'I ctrcpf 0

Rwuj nkp. 'C0\*3: 59+":Qp'O knqp'cpf "qp'Ej cycwdtkcpf øu'Vtcpurcykqp"qh'Rctcf kug'Nquvø "*Uqxt go gppkn*"pq080 Rwpco. "U0\*3; 6: +"Octxgrqwu'Lqwtpg{<'C'Uwtxg{"qh'Hqwt 'Egpwtkgu'qh'Dtc/krkcp'Y tkkpi."P gy "[ qtmt'Mpqrh0

Rwwt.\kpgp."Vkkpc'\*3;; 5+"::Rgtur ge.\kxgu''qp''y g''Vtcpurc.\kqp''qh'Ej krf tgpøu''Nkgtcwtgø''kp''VktmqpgpEqpf kv''cpf ''Nchrkpi ''
\*gf u+:''4765: 0

- ô ô \*3; ; 7+"Nhpi whuke 'Ceegr vc dhrhof 'hp' Vt c purc vgf 'Ej hrf t gp#u' Nhvgt c wrt g. "Iqgpurwv." Wpkx gt ukof 'qh' Iqgpurwv' Rt guu0
- R{o.'Cpyj qp{'\sigma3;; 4c+\"Vt cpurc \kap"cpf 'Vgz\"Vt cpulgt.\"Htcpmbwt \ck"Rg\gt\"Ncpi 0
- ô ô \*3; ; 4d+":Uj qt veqo kpi u'kp''yj g''J kuvqtkqi tcrj { "qh''Vtcpurc vkqpø''*Dcdgn*'5: \*6+<'4436570
- ô ô \*3; ; 4e+":Kp"Ugctej "qh"c"P gy "Tcvkqpcng"hqt"vj g"Rtqug"Vtcpuncvkqp"Encuu"cv"Wpkxgtukv("Ngxgnø"Kpvgthceg<"Lqwtpcn'qh" Crrnkgf "Nkpi wkukeu '8\*4+<'956: 40
- ô ô \*3; ; 5+"Gr kwgo qrqi kecri'Rt qdrgo u'kp"Vt cpurc wqp"cpf 'kwi'Vgcej kpi <'C"Ugo kpct 'hqt 'Vj kprikpi 'Uwf gpvu."Vgtwgn" Ur ckp<'Gf kekqpu'Eco kpcf g0
- $\hat{o} \quad \hat{o} \quad \hat{*3}; ; 6+\text{"$\overline{''}$} \\ \text{Vy grhy /egpwt { "Vqrgf q"cpf "Utcvgi kgu"qh"y g"Nkvgtcrkuv"Vtqlcp"J qtug$\alpha$ "Vcti gv"8*3+$\alpha$65\dot{6880} }$
- $\hat{o} \hat{o} *3; ; 7+\text{``Gwtqr gcp''Vtcpurcvkqp''Uwf kgu.''wpg''uekgpeg''s wk'f^2tcpi g. ''cpf ''Y j { ''Gs wkxcrgpeg'P ggf pøv''dg''c'F ktv{ ''Y qtf ø'' } \\ VVT < Vtcf wevkqp. ''Vgt o kpqrqi kg. 'Tgf cevkqp'': *3+<''3756980$

S włpg."Y krictf 'xcp'Qto cp'\*3; 796: +":Ur gcnłipi 'qh'Qdlgewø'"Rt qeggf lipi u'cpf 'Cff t guugu'qh'y g'Co gt kecp" Rj kriquqrj kecn'Cuuqekcykqp'53⊲6440

- ô ô \*3; 7; +":O gcpkpi "cpf "Vtcpurc\kqpø "kp"Dtqy gt "\gf 000
- ô ô \*3; 82+"Y qtf "cpf "Qdlgev. Eco dtkf i g. "O C<"O KV"Rt guu0
- ô ô \*3; 8; +"Qpvqnqi kecn'Tgrcvkxk\{"cpf"Qyj gt"Guuc\{u\"P gy "[\qtm\Eqnwo\dkc0

S wkp\krkcp'\\*3: 98+''Kpunkwngu''qh'Qt c\u001qt {=''qt.'Gf\u001evc\u001kqp''qh'cp''Qt c\u001evqt.''4\u001kqn.\u001kqi\u001p'\u001kqi\u001kqi\u001p'\u001kqn\u001kqi\u001p'\u001kqn\u001kqi\u001p'\u001kqn\u001kqi\u001p'\u001kqn\u001kqi\u001p'\u001kqn\u001kqi\u001p'\u001kqn\u001kqi\u001kq\u001k\u001kq\u

S wktm'T0cpf 'J (I 0Y kf f qy uqp'\*gf u+|\*3; : 7+|'Gpi rkij 'kp'ij g'Y qtrf <\Vgcej kpi 'cpf 'Ngctpkpi 'ij g'Ncpi wci g'cpf ''

Nkgtcwtgu. 'Eco dtkfig'Eco dtkfig'Wpkxgtuk/{ 'Rtguu'hqt''y g'Dtkkuj 'Eqwpekt0

S xcrg. 'Rgt'\*gf 0+'\*3; ; 3+'F gv'wo wrki gu'Mwpw']Vj g'Ctv'qh'vj g'Ko r quukdrg\_.'Qurq0

Ta dc. "I  $\{0\%3; 8; +"U/2r"j \text{ } \textit{uspgni}]D\textit{gngu'kphf} \textit{3}\textit{ngu}$ . "Dwf cr guv." Cncf 2 o kclo

Tedeuuc."I tgi qt{"\*3;:;+":-Pq"Vyq"Upqy hrengu"ctg"Crkng<"Vtcpurcvkqp"cu"Ogverjqtø"kp"Iqjp"Dki wgpgv"cpf "Tekpgt" Uej wng"\*gfu+"Vjg"Etchv'qh'Vtcpurcvkqp."Ej keciq<"Wpkxgtukv{"qh"Ej keciq"Rtguu."36340

 $\label{thm:constraint} Tcdkp. "Ej cko" "3; 7: +": Vj g'Nkpi wkukeu" qh'Vtcpurc kqp@'kp'' Uto kj "*gf 0+" Cur gew'qh'Vtcpurc kqp<'Uwf kgu'kp'' Eqo o wpkec kqp. "Nqpf qp0$ 

Tcej rkp. "J 0'COY ONqi g. "IA kddqp"cpf "O O'Htcpngrl\*3; : 8+":Eqi pkkqp"cpf "Dgj cxkqt"kp"

```
Uwf kgu"qh"Ej qkegø"Ru(ej qnqi kecnTgxkgy "; 5<556670
```

 $Tcf ». "C0"3:: 5+"C"o\ ci\ \{ct"o\ hqtf \cdot v"u"v"/4v^2pgvg < 399463: 53"] C"J\ kmqt \{"qh"Nkgtct {"Vtcpurcvkqp"kp"J\ wpi\ ctkcp < 399463: 53_."Dwf\ cr\ guv < T^2\ xck0}$ 

ô ô \*3; 2; +''C'lqtf  $\P^au'$ o  $x^2u/gvg'$ ']Vj g''Ctv'qh''Vtcpurcvkqp\_\_''Dwf cr guv<'Htcpmlp0

Tcf». 'I  $\{0\%3; 93+\text{''}\text{-}U\text{j cmgur gctg.''}V\text{gcej gt''qh''}\text{y g'J wpi ctkcp''}\text{Rqguv@''}Ogw''$ 64376430

ô ô \*3; : 8+":-Vj g'Dkdrg'kp'J wpi ctkcpø''Vj g'Dkdrg'Vt cpurc vqt <br/> <Vgej pkecrlRcr gt u'3<br/> <366670

Tchcgn''Xkegpvg''N0\*3; :: +"Eqpvt cevkpi 'Eqrapkcrkuo <"Vt cpurc kap"cpf 'Ej t kurkep'Eqpxgt ukap''Kp''Vc i craj ''Uqekgv\' 'Wpf gt'' Gct n\' 'Ur cpkij 'Twrg.''Kij cec.'P [ <Eqtpgm'Wpkxgtukv\' 'Rt guu0

Tchhan 'Dwt vqp'\*3; 93+"Vj g'Hqt naf 'Vqpi wgOC'Uwf { "qhl\j g'Vt cpurc \kqp'Rt qeguu."Vj g'J ci wg<'O qwqp0

 $\hat{o} \quad \hat{o} \quad \hat{s}; :: d+ \text{``L'Qo g''} D \text{cuke''} Rt \text{kpekr ngu''} qh'' \text{Vtcpurc kqp''} C'' \text{`Uttwewtg''} Gtgevgf ''qp'' c'' Hqwpf cvkqp\( \text{''} Vtcpurc kqp'' T gxkgy '' 49 \text{-} 44669 \) } ; 0$ 

ô ô \*3; ; 3+":-Vj g''Vtcpurc\kqp"qh'Rqgvt { ø''kp'O (Nctuqp''\gf 0+0 )

ô ô \*3; ; 4+":-Vtcpurc<br/>-Vtcpurc\pi 'Egtxcpvgu<br/>-Wpc'xg/ 'o " vø 'Egtxcpvgu'35\*3+<br/>-76520

Tclpg. 'M0\*3; 92+'Y knkco 'Drcng. 'Nqpf qp<'Vj co gu'cpf 'J wf uqp0

Tck ku. 'O 0D0\*3; : 3+1/I t ggmlRqgvt { 'Vt c purc vkqpu. 'C yj gpuk'Ghuvc yj kcf ku0

Tclci qr creej ctk 'E0\*3; : 8+'Ocjcdjctcw.  $'Dqodc{<Djctcvk{c''Xkf{c''Djcxcp0}}}$ 

ô ô \*3; : 9+'*Tco c{cpc*. 'Dqo dc{<'Dj ctc\k{c''Xkf {c''Dj cxcp0}

T\* mqu. "U0\*gf 0+\*3; 97+"Vcpwo " $p\{qm'c$ " o  $lqtf \cdot v''$   $ut \cdot m'$ ] Uwf lgu'lp'Nkgtct { "Vtcpurclqp+." Dwf cr guv'Wplqp''qh'J wpi ctlcp''Y tkgtu. "Nkgtct { "Vtcpurclqp'Ugelqp0

Tco cpwlcp. 'COMO'\*3; 95+"Ur gc mlpi "qh'Uxc." I cto qpf uy qt yj <'Rgpi wlp0

Tco dgti .'D0V0\*3; : ; +"Fqpcrf 'Fcxkf uqpøu'Rj krquqrj { "qhl'Ncpi wci g<"Cp"Kpvt qf wevkqp. 'Qzhqtf <'Dcukrl'Drceny gm0

Tggf.''K0''3; : 2+''-J c| ctfu'qh'Cfcrvcvkqp<'Cpqvknj &u''Cpvki qpg'kp''Gpi nkuj &''kp'' wdgt'''gf0+0

Tgkf. "J grappg" IDO\*3; ; 2+": Nkgtcwtg" qp" y g" Uetggp "Uwd kng" Vtcpurc lipi "hqt" Rwdrke "Dtqcf eculipi ø" lip' Dctv" Y guvgty ggri cpf "Vj gq" Føj cgp" gf u+" Uqo gyj kpi "Wpf gt unqqf OUwf kgu'kp 'Cpi rq/F wej 'Nkgt ct { "Vt cpurc lkqp". 'Co uvgt f co IC vrcpvc " Tqf qr k"; 963290

Tgkuu. "Mcvctkpc"\*3; 9313; 9: + $"O^3/i$  nkej mgksp" wpf 'I t gp/gp" f gt '"Odgt ugv/ wpi um tkknt0Mc vgi qt kgp 'wpf 'Mt ksgt kgp 'ht1" gkpg" uc ej t2 gt gej vg'Dgwt vgkwpi 't2 qp't0 dgt ugv/ wpi t3. Adgt 0

ô ô \*3; 98+"Vgzw{r"wpf '©dgtugv| wpi uo gyj qf g0F gt 'Qr gt c vkxg"Vgzv."Mtqpdgti <'Uetkr vqt0

ô ô \*3; : 6+"÷O gyj qf kuej g'Htci gp"f gt "Âdgtugv| wpi u/tgrgxcpvgp"Vgzvcpcn(ug0F kg'Tgkej y gkvg"f gt "Ncuuy gm/Hqto gnø" Ngdgpf g'Urtcej gp"3-96; 0

ô ô \*3; : 8+": Odgtugy wpi uy gqtkgp" wpf 'kj tg'Tgrgxcp| 'hAt'f kg'Rtczkuø' 'Ngdgpf g'Urtcej gp'53\*3+3670

ô ô \*3; : : +":F gt 'Vgz v'kpf 'f gt '©dgtug\| gtø'\|p'Tgkpgt 'Ctp\| '\\*gf 0+''Vgz v'kpi wkukm\| wpf 'Hcej ur tcej g. 'I knf guj gko <'Qm u.'' 896970

ô ô \*3; ; 2+":F cu'O kËxgtuv@of pku'xqo "gki gpvkej gp"©dgtugv| gpø"kp"Ctpv| "cpf"Vj qo g'\*gf u+: "626750

ô o cpf "J cpu" LOX gto ggt "\*3; : 613; ; 3+" I twpf ngi wpi "gkpgt "cmi go gkpgp" Vt cpurc klapuvj gqt kg "\*Nkpi wkukuej g"Ctdgksgp" 369+."4pf "gf p." VÃdkpi gp<P kgo g{gt0

Tgpf kkqpu'\qutpcn\:'J qpi 'Mqpi <Tgugctej 'Egpvtg'hqt'Vtcpurcvkqp.'Ej kpgug'Wpkxgtukv{ ''qh'J qpi 'Mqpi 0

Tgpgt."Htgf gtkenf0.0%3; : ; +"Kpvgtrt gvcvkq<Ncpi wci g"cpf "Vtcpurcvkqp"It qo "Ekegt q"vq"V{vrgt."Co uvgtf co "cpf "Cvrcpvc." I C<Tqf qr k0

Tgumgt."[ c0**K0**\*3; 96+"Vgqtk[c"rgtgxqfc"krgtgxqfkejgumc[c"rtcmkmc"]Vjgqt["cpf"Vtcpumckqpcn'Rtcekeg\_."Oqueqy <" Og| j fwpctqfp{g"qvpqujgpk[c0

 $Tgx| \text{ kp.'KKO'} cpf 'XQ wOTq| gpwxg{i '*3; 86+''Qupqx{''qduj ej gi q'k'o cuj kppqi q'r gt gxqf c'']} Hwpf co gpwnu''qh'T gpgtcn'cpf ''O cej kpg''Vtcpurcvkqp_..'O queqy <'X{uuj c{c'uj mqnc0}}$ 

Tg{.'C0\*3; 9; +"Nc'Vgto kpqnqi kg."Rctku<'Rtguugu'Wpkxgtukscktgu'f g'Htcpeg0

Tg{gu."Tqi grkq'\*3; ; 3+":-Vj g'Vtcpurcvkqp"qh''Kpvgtrkpi wcn''Vgzvu<'C''Ej kecpq''Gzco r rgø''Vtcpurcvkqp''Rgtur gevkxgu''8<5236: 0
Tkej ctf u. 'KCC0\*3; 75+":-Vqy ctf u'c''Vj gqt{"qh''Vtcpurcvkpi ø''kp''Ctvj wt''HOY tki j v'\*gf 0+"Uwf kgu'kp''Ej kpgug''Vj qwi j v."
Ej keci q<'Wpkxgtukv{"qh'Ej keci q''Rtguu0

Tkej ctf u. 'ILEO'cpf 'VOUOTqf i gtu'3; : 8+'Crrt qcej gu'cpf 'O gvj qf u'kp'Ncpi wci g'Vgcej kpi . 'Eco dtkf i g' Wpkxgtuk4'Rt guu0

Tkemı. "E0\*gf0+\*3; 8; +" $Vjg'Rqgou''qh'Vgpp{uqp}$ . "Nqpf qp<"Nqpi o cp="P gy '[ qtm<"P qt vqp0

Theò wt. "Rewn" 3; 9: +" Nc " $O^2 wrj qtg$ " xkxg. "Rethred Ugwkn" 3; 97=" 3; 91=" 3

Nqpf qp"cpf "J gprg{<Tqwrgf i g"cpf 'Mgi cp"Rcwr0
Tkhcvgttg. "O 0\*3; : 7+":-Vtcpur qukpi "Rtguwr r qukkqpu"qp"vj g"Ugo kqvkeu"qh"Nkvgtct{"Vtcpurcvkqpø"kp"Uej wrvg"cpf "Dki wgpgv" \*gf u+0

Tkpr qej g. "Uqi {cn'\signa; ; 4+"Vj g"Vkdg\cp"Dqqm'qh'Nkxkpi "cpf 'F {kpi . "Nqpf qp<Tkf gt0

Tkr ng{."I 0\*gf 0'cpf "\tcpu0+\*3: 5: +"Rj knquqrj kecn'O knegncpkgu "xqn0Kqh"Ur geko gpu"qh"Hqt gki p"Uxpf ctf "Nkgt cwt g."
Dquvqp<"J knkctf."I tc{."cpf 'Eqo r cp{0

Tkuugv. 'Lees wgrkpg'\*3; : 6+":Lq{eg''Vtcpurcvgu'Lq{eg@''vtcpuOFcpkgrl'Rkem''Eqorctcvkxg'Etkkekuo''8<"56430

Tqdgtvu. 'Tqf c'\*3; : 7+":-Vtcpurcvkqp"cpf "Eqo o wpkecvkqpø" PWENGQ'335; 6980

ô ô \*3; ; 4+":-Vj g'Eqpegr v'qh'Hwpevkqp'kp"Vtcpurcvkqp"cpf 'kwu'Cr r nkecvkqp"vq'Nkxgtct { "Vgz vuø"'Vcti gv'6\*3+<36380

```
ô ô cpf 'O OVc { rgt '*3; ; 2+":F gxgrqr o gpv'qh'Ngi crl'Kpvgtr tgvgt 'Gf wecvkqp' kp'P gy 'Lgtug { ø'kp'F O'cpf 'O ODqy gp'*gf u+0 Tqdgt w/Uo kj. 'NOY 0*3; : ; +":Eqo o wpkecvkqp'Dtgcrnf qy pø''Ncy 'Uqekgv{'Lqwt pcn'49*9+<92660}
```

Tqdkpuqp. 'F qwi rcu'\*3; ; 3+"Vj g'Vt cpurc vqt øu'Vwtp. 'Donko qtg'cpf 'Nqpf qp<'Iqj pu'J qr nkpu'Wpkxgtukv{ 'Rtguu0

- ô ô \*3; ; 5+":F geq<br/>mpk kpi "Vtcpurcvkqpø". Vtcpurcvkqp"cpf "Nkgtcvvtg"<br/>4<335ó460
- ô ô \*3; ; 7+"::Vj gqtk kpi "Vtcpurcvkqp"kp"c"Y qo cpøu"Xqkegø"*Vj g"Vtcpurcvqt* "3\*4+<"3756970
- ô ô \*3; ; 8+"*Vt c purc skqp"cpf "Vc dqq.* "Kirkpqkıx"P qt vj gtp" Kirkpqkı: "Wpkx gt ukv{ "Rt guu0
- ô ô \*3; ; 9+"Y guvgt p'Vt c purc vkqp"Vj gqt { "Ht qo "I gt qf qwu" \q'Pkgv| uej g. "O cpej guvgt <"Uv" Igt qo g'Rwdrkuj kpi 0

 $Tqd{pu."Ergo "*3;; 6+":-Vtcpurc\cdot kqp"cpf"F kvewtukxg"Kf gpvkv{<math>\emptyset$ " $Rqgvkeu"Vqfc{("37*5+c'62764:0)}$ 

Tqej gt. 'Crckp'\*3; ; 5+":Nc"\tcj kuqp"et² cvtkeg<'cpcvqo kg'f w'\tcpuhgtv'pq\kqppgn'f cpu'ngu'ewnwtgu'cukc\ks wguø''\text{VVT<''}\text{Vtcf wevkqp.'Vgt o kpqrqi kg.'Tgf cevkqp'8\*4+0}

Tqej gwg. 'D0\*3; ; 7+":F w'i tge 'cw'ncwp 'gv'f w'ncwp 'cw'i tge <'ngu'r tqdn² o gu'f g'nc 'vtcf wewqp 'f cpu'nøcpvks wk² 'i t² eq/ncwpgø'' Ncwqo wu'76\*4+<'4676830

Tqf kk'G0\*3; : 4+"*Kpvgt r t gvkpi <'Ku'J kuqt { 'kp''c 'P wuj gm* "Y cuj kpi vqp."F E<"I gqti gvqy p"Wpkxgtukv{."P cvkqpcn'T guqwteg" Egpvgt 'hqt "Vtcpurcvkqp"cpf "Kpvgtr t gvcvkqp"Qwtgcej "Rcr gt0

Tqf tki wgu. 'Nqwku'  $10^{*3}$ ; : ; +":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. ' $10^{*3}$ ; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. ' $10^{*3}$ ; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc 'Wpkxgtukv qh' Dctegmpc Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 F qevqtcn' f kuugt wkqp. 'Dctegmpc Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '1 $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 0 '3; : 7+":Cpi m/Uczqp' Xgtug' Twpgu $_0$ 0 Tqf tki wgu. 'I $_0$ 1 Tqf tki wgu

 $Tqfygm'LOO0*3;2;B;;4+'Vjg'Mqtcp.'Nqpfqp<Gxgt{ocpou'Nkdtct}{0}$ 

Tqngo ."Htgf f kg'\*3; : 4+"*Uecpf kpcxkcp"Nkyt cwt gu'kp"J gdt gy "Vt cpurc kqp."3: ; 663; : 2.*"VgrlCxkx<"Vj g'O @gtpurgkp" Ej ckt"qh"Vtcpurc kqp"Vj gqt { ."VgrlCxkx"Wpkxgtukr{0}

Tqmpf.'T0C0\*3;: 4+"Vtcpurcvkpi 'Y qtrf' 'Chkktu' 'Ighhgtuqp.'P E<'O eHctmpf 0

T»pck'R0'\*3; 92+"Dcdgn'g"cpvkdcdgn''U q'Rcwrq<'Rgtur gevkxc0

 $\hat{o} \quad \hat{o} \quad \text{``3'}; : 3 + \text{''}C'' \text{'} t \text{'} c f \text{''} w \pm \text{'} q'' x k x k f \text{'} c. \text{''4pf "gf p"gpn0''3uv''r wd0'd} \{ \text{''Gf weqo .''3}; 98. \text{'Tkq''f g''Icpgktq} \neq \text{'P qxc''Htqpvgktc0} \}$ 

ô ô \*3; : 9+"Gueqrc 'f g'Vt cf wyt gu. "7 yi "gf p"tgx0'cpf "gpr0"3uv'r wd0kp"3; 98"d{ "Gf weqo ."Tkq"f g"Lcpgktq<"P qxc"Htqpvgktc0 Tqpcp."Ej ctrgu"G0'cpf "Dqppkg"T0E0Qj "\*gf u+"\*3; : : +"Gc uv'0 ggw"Y guv<"Vj g"Lguwku'kp"Ej kpc '3; 7463995. "Ej keci q<" Nq{qrc"Wpkxgtukv{ "Rtguu0

T»pc{."I  $\{0^*3; 8: +"Hqtf \cdot v''u'n'/4dgp''\}Y j krg'"Vtcpurcvkpi _."Dwf cr guvc'O ci xgv 0$ 

Tqpfc."ID\*3;: 6+"Ngy ku'cpf 'Enctnico qpi 'vj g'Kofkcpu."Nkpeqnp<"Wpkxgtukv{ "qh'P gdtcunc"Rtguu0

Tqpf gcw.'I 0\*3; : 3+"Kpvt qf wevkqp" w'r "Vgt o kpqnqi kg. 'O qpvt gcn Egpvt g" f wec kh' gv'ewnwt gn'kpe0

 $\hat{o} \ \hat{o} \ \text{cpf 'J (Hgndgt'*gf u+'*3)} : 3 + \text{'} \textit{Vgz vgu'Ej qkuku'f g'Vgt o kpqrqi kg.'} \textbf{S wgdge} < \textbf{I ktuvgto } 0$ 

Tqueqo o qp. 'Gctn'qh'\*]38: 7\_'3; 97+":Cp'Guuc { "qp"Vtcpurcvgf "Xgtuga "kp"V0T (Uvgkpgt '\*gf+0)

Tqug. "X0\*3: 96+":Rvqrgo cgwu'wpf 'f kg''Uej wrg'xqp''Vqrgf qø''*J gt o gu*'': \*5+<54966; 0

Tqugpdrcv. 'C0\*3; ; 2+'':Nqu'eqps wkuvcf qtgu''{ 'uw'rgpi wcø' 'kp''Dkdrkqvgec' 'Cpi grlTqugpdrcv. 'xqr0'5. ''Guwf kqu'uqdt g''grl' gur  $c^o$  qrlf g''Co gt kec. ''Ectcecu<'O qpvg''Cxkrc''Gf kqtgu. ''363440

Tqugpvj cn"Htcp| "\*3; 9713; ; 4+"Vj g"ErcunkecrlJ gt ksc i g"kp"Kurco." 'tcpu0'd { 'Go krg"cpf "Lgpp { 'O cto qtuvgkp" \*Gpi rkuj "xgtukqp"qh" y g"I gto cp"qt ki kpcn" F cu" Hqt wgdgp" f gt 'Cpwkng" ko "Kurco. 'hkt uv" r wdrkuj gf '3; 87+"Nqpf qp"cpf "P gy "[qtm \text{Tqwngf i g0}

Tqugwc.'O 000\*3;; 6+"Eqo rqukkqpcn'Vtcpurckqp.'Fqtftgej v<"Mnwy gt'Cecf go ke'Rwdrkuj gtu0

Tqugwk'Cn0\*3;: 8+"Knqt kc'ho dkk't qo -pg'K0F g'nc"qt ki kpk'r,p 'nc",pegrwwnlugeqnwwk'cnlZXKk'ngc"]C'J knqt { "qh'vj g" Tqo cpkcp"Ncpi wci gu'htqo "vj g'Dgi kppkpi u'vq"vj g'Ugxgpvggpvj "Egpwt { \_.'Dwej ctguvc'Uekgpvkhke"cpf 'Gpe { empr gf ke" Rwdnkuj kpi "J qwug0

Tquugwk'F (I 0 1 3; 33+"Vj g'Y qt mi'qhF cpvg'I cdt kgnTquugwk'Y (O 0 Tquugwk' gf 0+."Nqpf qp <"Grku0

ô ô \*3; 93 B; : 8+"*Uj cmkpi "tj g"Rwo rmkp*." Pgy "[qtm: C0xcp"fgt" Octem0

Tqwpf."P 0\*3; ; 5+"-*Nkdtq'mcocfq"Hgft »pø0Rncvqøu"-Rjcgfqø'\tcpurcvgf"d{"Rgtq'F \lfloor /fg"Vqngfq.*"Nqpfqp<"Vco guku0 Tq{u."Tcrrj"N0\*3; 5513; 89+"*Vjg"Dqqm'qh'Ej krco "Dcnco"qh'Ej wocfgn*"P qtocp<"Wpkxgtukv{"qh'Qmrcjqoc"Rtguu0

Tell us 1 to 3, 33 b, 63 + vj g Degenegie j we oblive que j we el gui i que ep vipasgius qui que j q

Tq| cp. "Igcp/Htcp±qku"\*3; 78+"Nc"rt kug" fg"pqvgu"gp"kpvgtrt gvc vkqp"eqpugewvkxg. "Igpgxc<Igqti 0 Twdqy. "R(X0\*3; 4; +"Qt ki kpcrgt"qi "qxgt uò wgnugt"]Qt ki kpcnı"cpf "Vtcpurcvkqp\_."Eqr gpj ci gp0

Twukpgm'O 0\*gf 0+'\*3; 77+'U wmc 'r t / gm€f w']Vj g'Ctv'qh'Vtcpurc kqp\_.''Y tqe€y <'Quuqrkpgwo 0

Twungm 'E0\*3; ; 6+":Uki p'Ncpi wci g'Kpygtr tgylpi 'kp'Ecpcf cø0Rcr gt''r tgugpygf ''vq''yi g''Vj ktf ''P cylqpcn'Eqpi tguu''qh''yi g''
Ecpcf kcp''Vtcpurcyqtu''cpf ''Kpygtr tgygtu'Eqwpekn ''Dcphh ''Crdgtyc.''Ecpcf c0

 $Twuugm'R0\%3; : 7+"Vtcf weekqpgu''{''ttcf wevqt gu''gp''nc''r gpkpuwnc'kd^2t kec''\%362263772+"Dgmcvgttc<"Ugtxlekq''f g'''}$ 

Rwdrkecekqpgu'f g'rc''Wpkxgtukf cf 'Cwwpqo c'f g'Dctegmpc0

 $T{g.'I 0}^3; 6; +'Vj g'Eqpegrv'qh'O kpf.'Nqpf qp<'J wej kpuqp0$ 

 $T\{r\,\text{mc.''Icp'*3};\,8: + "J\,\textit{knqt}\{''qh'' \textit{Kcpkcp''} N \textit{kngt}\,\textit{cwt}\,\textit{g}.' \text{F}\,\textit{qtf}\,\textit{tgej}\,\textit{v}' \text{F}\,\textit{0}\\ \text{Tgkf}\,\textit{gn''} \text{Rwdrkuj}\,\textit{kpi}\,' \text{Eqo}\,\textit{r}\,\textit{cp}\{0\}\}$ 

 $\begin{tabular}{l} $\text{Uc} \not = f f kp. "O 0C0" 3; : ; +" \div Vgzv" F gxgnqr o gpv" cpf "Ctcdke/Gpi nkuj" "P gi cvkxg" Kpvgthgtgpegø" "Crrnkgf" "Nkpi wkwkeu" 32" 3+-" 586730$ 

Ucf i tqxg. 'RCE0\*3; 88+"Vj g'Gi {rvkcp'Vj gcvtg'kp''vj g'Pkpgvggpvj 'Egpwt{'\*39; ; 63: : 4+"Tgcf kpi <1 ctpgv0

```
Ucf ngt."X0*3;:; +"Y qt nkpi "y kıj "Cpcnqi kecn"Ugo cpvkeu<"F kuco dki wcvkqp"Vgej pks wgu"kp"FNV."F qtf tgej v<"Hqtku0 Uci gt."Lwcp"E0*3;; 2+"C"Rt cevkecn"E qwt ug "kp"Vgt o kpqnqi {"Rt qeguukpi."Co uvgtf co "cpf "Rj krcf grr j kc<"Iqj p"Dgplco kpu0 ô *3;; 5+"Ncpi wci g"Gpi kpggt kpi "cpf" Vt cpurc vkqp0E qpugs wgpegu"qh"Cwvqo cvkqp."Co uvgtf co "cpf" Rj krcf grr j kc<"Iqj p"Dgplco kpu0
```

- $\hat{o} \quad \hat{o} \quad . \text{'F (F wpi y qtyj "cpf "RCHOO eF qpcnf .'*3; } : 2 + \text{'}\textit{Gpi nluj ''Ur gekcn'Ncpi wci gu.''Y kgudcf gp <'Dtcpf uvgwgt0'}$
- ô ô cpf 'Lqj p'O eP cwi j v'\*3; : 3c+"*Ugrgevkxg"Unt xg{ "qhVgt o kpqrqi kecrlF cw "Dcpmt0*T"cpf 'F 'Tgr qtv'P q07863."Nqpf qp<" Dtkkuj "Nkdtct{0
- $\hat{o} \hat{o} *3; : 3d + "Ur gekkkecvkqp" qh'c' Dt kkuj'' Nkpi wkuke" F cvc' Dcpm0 T "cpf' F' Tgr qtv' Pq07865. "Nqpf qp<' Dt kkuj'' Nkdtct {0 Uckf. "Gf y ctf'*3; 9: +"Qt kgpvc rkuo. "Nqpf qp" cpf' Pgy' [qtm<' Tqwrgf i g'cpf' 'Mgi cp' Rcwr0$
- ô ô \*3; ; 3+"Vj g"Y qt rf ."Vj g"Vgzv"cpf "Vj g"Et kke."Nqpf qp<"Xkpvci g0

Uckq."J 0'cpf 'O 0Vqo kc"\*3; : 8+":Qp"Cwqo cvke"Eqo r qukkqp"qh"Uvgtgqv{r ke"F qewo gpvu"kp"Hqtgki p"Ncpi wci gu¢0'Rcr gt" r tgugpvgf "cv'3uv"Kpvgtpcvkqpcn"Eqphgtgpeg"qp"Cr r nkecvkqpu"qh"Ctvkhkekcn"Kpvgnki gpeg"vq"Gpi kpggtkpi "Rtqdngo u" \*Uqwj co r vqp. "Gpi ncpf +0Tgugctej "Tgr qtv"EO W/EU: 86329. "Rkwudwti j <"F gr ctvo gpv"qh"Eqo r wgt "Uekgpeg. "Ectpgi kg/

Ogmp''Wpkxgtukv{0

 $\hat{o} \ \hat{o} \ ^*3; ; 8+"-Vj g"J \ \text{kuvqt} \{ \text{"qh"Vtcpurcvkqpø0"Wpr wdrkuj gf "o cpwuetkr v."Wpkxgtukv{ "qh"Ucrhqtf 0 } \}$ 

Ucmkg. 'Ter j egn'\*3; ; 7+'':Kpvgtugev<'C'Retempn'Eqtr wu'Rtqlgev'ev'Dtki j vqp''Wpkxgtukv{  $\emptyset$  ''Eqo r wygt u'epf 'Vgz wi'; 6670 Uco r uqp. 'I gqhtg{ '\*3; : 2+'Uej qqnu'qh'Nkpi wkwkeu ''Nqpf qp<'J wej kpuqp0

ô ô \*3; : 9+":Rtqdcdkrkurke"O qf gnu"qh"Cpcn(ukuø"kp"T0 ctukf g."I ONggej "cpf"I OCo r uqp"\*gf u+"Vj g"Eqo r wwc vkqpcn" Cpcn(uku/qh|Gpi rkuj ."Nqpf qp<"Nqpi o cp0

Uco r uqp. 'I gqti g'\*gf0+'\*3; 63+''Vj g'Eqpekug'Eco dtkf i g''J kwqt $\{$ "qh'Gpi nkuj 'Nkvgtc wutg. 'Eco dtkf i g'' Wpkxgtuk $\{$  'Rtguu0

Ucpf gtu. 'O 0\*3; ; 4+":-Vtckpkpi 'hqt'Eqo o wpkx{ 'Kpvgtr tgvgtuø'. "KVKE qphgt gpeg'8'Rt qeggf kpi u. 'kp'E (Rkengp'\*gf 0+. 'Nqpf qp<' Curkd. '676720

Ucpwcpi grq. "I UU'cpf 'E0Xkp\k'\3; : 3+"Ng"\tcfw|kqpk'k\crkcpg'f grl\gc\tq eqo keq"htcpegug'f gk'ugeqrk'ZXKKg"ZXKK\"Tqo g<" Gf k|kqpk'f k'U\qt\c\"g"\Ng\wgtcwtc0

- ô ô \*3; : 9+"Vgqt \( \mathbb{R}'' \) "t et \( \mathbb{R}\) kec 'f g''n: "\( \text{t} \text{ week} \) p <"c p vqrqi \( \mathbb{R} \). "Dgmc vgttc <"Ugtxgk'f g"Rvvdrkecek pu'f g''n: "\( \mathbb{W}\) pkx gtukcv'' Cvw>pqo c'f g'Dctegmpc0
- $\hat{o}$   $\hat{o}$  \*3; :; +":-Vtcf weekqpgu"{ "cf cr vcekqpgu"\gcvtcrgu<\gpuc\qpuc\q"f g"\wpc"\wr qmi \psi wpc"\wr qmi \psi wpc"\wr qmi \psi wpc"\wr gtpqu'f g"\vgcvtq'Ent ukeq"6<, 863290
- ô ô \*3;; 8+"Dkdrkqi tchffc'f g'hc''\tcf week»p'"\gp"gur c°qn''ec wrt p. 'i cmgi q''['xcueq+'Ng»p<"Wpkxgtukf cf 'f g'Ng»p0
- ô ô ."T0Tcdcfªp."VI w o a p"cpf 'L0N0Ej co quc'\*gf u+'\*3; : ; +"Hkf wu'kpvgtrt gu<'cevcu'f g'ncu'Rt ko gt cu'Lqt pcf cu'' Pcekqpcngu'f g"J kwqt kc'f g'nc'Vt cf week»p."Ng»p<'Uget gvct kcf q'f g"Rvvdnkecekqpgu'f g'nc'Wpkxgt ukf cf'f g'Ng»p0

Ucr kt. 'Gf y ctf '\*3; 6; +"Ncpi wci g. "P gy "[ qtmcJ cteqwtv'Dtceg0
Uctnqpcm"Tcrr j 'cpf 'Tkej ctf 'I 0 qf i uqp'\*3; ; 5+":Uggkpi 'kp'F gr yj <"Vj g'Rtcevkeg''qh'Dkrkpi wcn'Y tkskpi ø''Xkukdrg''

Ncpi wci g'49\*364+<865; 0

Uctvkrkqv. 'Encwf gwg'\*3; :: +":Tgcf kpi 'y ky 'Cpqvj gt'Gct<F gttkf cøu'I ncu'kp'Gpi rkuj Aø 'Pgy 'Qtngcpu'Tgxkgy '37\*5+<3: 64; 0

Uctvcpcpf c. 'Uy co k\*3; 95c+'Rt cupqr cpkucf. 'O cf tcu<Utk'Tco cmtkuj pc'O cvj 0

- ô ô \*3; 95d+'Mcyj qrcpkucf.'O cf tcu<'Utk'Tco cmtkuj pc'O cyj 0
- ô ô \*3; 95e+" $Vckwkt\{qrcpkucf.$  'O cf tcu<"Utk'Tco cmtkuj pc 'O cyj 0

Ucuntk"M0C0P kromopyc"\*3; 77+"C"J kwqt{"qhlUqwj" Kpf ko"hqto" Rt gj kwqt ke"Vko gu"vq" vj g"Hond'qhlXklo{cpci ct."Qzhqtf < Qzhqtf "Wpkxgtukv{"Rt guu0

Ucv .'T0\*3; :  $9+Jqp\{cmw'Uf\ mk'\}C''Vko\ g''qh'Wr\ j\ gexenl'kp''Vtcpurcvkqp_.''Vqm{q<'Ugnck'}\ tckuj\ c0$ 

Ucy . 'T0\*3; 96+"Co gt kecp 'Kpf kcp 'Rqnke{ 'kp' 'yj g' Lcenuqpkcp' Gt c. 'Nkpeqrp<'Wpkxgtukx{ "qh' P gdt cunc' Rt guu0

Ucwuwtg. "H0\3; 44+"Eqwtu'f g'nkpi wkuks wg'i 2p2t cng. "gf 0EOcm("cpf 'Cmlgtv'Ugej gj c{g. 'Rctku< f kkqpu'Rc{qv0}

 $Uexqt\{.''VOJ 0\frac{1}{3}; 79+''Vj g''Ctv'qh'Vt cpurc vkqp.''Nqpf qp<'Eer gO''}$ 

Vctlco cø']Vqy ctf u'c'P cwqpcn'Ctcd''Rrcp''qh''Vtcpurcwqp\_.''kp''Hk'cn'Cf cd''y c/n'Vcønh'y c/nVctlco c0

Uej cdgtv.''K0\*gf 0+'\*3; ; 4.''5tf ''gf p+''Uj cngur gct g''J cpf dwej 0F kg'\ gkv.'f gt ''O gpuej .'f cu'Y gtm'f kg'Pcej y gnv.''Uwwi ctv.'' M13/pgt0

Lej cf gy crf v."Y 0\%3; 49+":F cu'Rtqdrgo "f gu'\@dgt/ug\| gpu\(\rho\) "LV3/4 ki "\gf 0\"3; 85 B; 8; ."445\(\rho\)630

Uej @hpgt."Ej tkukpc"cpf "J grgp"Mgm{/J qro gu'\*gf u+"\*3;; 7+"Ewnwt cnl'Hwpevkqpu"qhl'Vt cpurcvkqp. "Ergxgf qp<"O wnkrkpi wcn' O cwgtuO

 $\label{thm:continuous} \mbox{ Lej gng.''Nkpf c''cpf 'O ct {'Gngp'O kngt'\signals}: 8+'Dnqqf''qh'Mpi u <'F {pcus ''cpf''Tkwcn'kp'O c {c''Ctv.'P gy '[ qtnx'Dtc| kngt0 Uej gpngxgnf/Xcp''f gt''F wuugp.'O 0C0\signalsgf 0+'\signalsg;; 5+'P gf gt ncpf ug''rksgt cwwt."ggp''i guej kgf gpku']F wej 'Nksgt cwtg<'C'' J kuvqt {_.''I tqpkpi gp<'P klj qht0}$ 

```
Uej kem''MD'*3; 94+"::Kpf gvgto kpce{"qh"Vtcpurcvkqpø."\"Vj g"Lqwtpcn'qh'Rj krquqrj {"8; *44+<": 3: 6540
```

Uej lqnf ci gt. 'C0\*3; ; 7+'':Cp'Gzr mtcvqt { 'Uwf { 'qh'Vtcpurcvkqpcn'P qto u'kp'Uko wncpgqwu'Kpvgtr tgvkpi <'O gyj qf qmi kecn' Tghrgevkqpuø'kp'Icpugp'\*gf 0+.'4496650

Uej ngi gn''C wi wuv''Y knj gmo ''xqp'\*3; 99+'xctkqwu''gzegtr wi'htqo ''j ku''y qtm''\tcpu0'd{ ''Cpf t² ''Nghgxgtg'\*3; 99+''696790 Uej ngkgto cej gt. ''Htkgf tkej ''\*3: 3513; 8513; 8913; 99+'': $\bigcirc$ dgt''f kg''xgtuej kgf gpgp''O gyj qf gp''f gu' $\bigcirc$ dgtugy| wpi uø''kp''U $\checkmark$ 4ki '' \*gf 0+'3; 85.'5: 692='\tcpu0'd{ ''Cpf t² ''Nghgxgtg'\*3; 99+''cu'': $\bigcirc$ Qp''yj g'F khgtgpv''O gyj qf u'qh''Vtcpunc\kpi ø'kp''Vtcpunc\kpi '' Nkgtcwtg.''896: ; 0

ô ô \*3: 35+":•Odgt 'f kg'xgtuej kgf gpgp 'O gyj qf gp 'f gu' 'Odgtugy gpuø 'kp 'U\*/4ki '\*gf 0+'3; 8513; 8; .'5: 6920

Uej o kf v.'F gppku'L0\*3; ; 2+":J gto gpgwkeu'cpf 'vj g'Rqgvke''O qvkqpø'kp''Uej o kf v'\*gf 0+'J gto gpgwkeu'cpf 'vj g'Rqgvke'' Oqvkqp.''36; .'\*Vtcpurcvkqp'Rgtur gevkxgu'7+.'Dkpi j co vqp.'P[ <Egpvgt'hqt'Tgugctej 'kp''Vtcpurcvkqp0

Uej o kgf. 'IO'cpf 'J Uej @hrgt '\3;; 6+":\Vtcpurc\kqp"cpf 'Eqi pkkkg"\Utwewtguø''\J gto gu<\Iqwtpcn'\qh\Nkpi wkukeu'\35<\38; 6: 30 ô \3;; 8+":\Crrtqcej kpi "\Vtcpurc\kqpgug'\yi tqwi j "\Rctcmgn'\cpf "\Vtcpurc\kqp"\Eqtrqtcø"\kp'\K\Ncpecuj ktg. "E\Rgte\{"cpf 'E0} Og\{gt'\gf u+\"Umf kgu'\kp'\Upej tqpke'\Eqtr\uninder\Nkpi wkukeu.'\Co uvgtf co "cpf 'Cvcpvc.'\I C\\Tqf\qr\l0

Uej o kł . "MIF 0\%3; ; 2+":-T gej pgti guvÃ\v vg''Vgto kpqmi kgxgty cnwpi "co "©dgtug\v gtctdgku\r nc\v \\ \phi''Vgto kpqmi kg''gv'' Vtcf wevkqp"5-96450

Uej tgkdgt. "O 0\*3; ; 5+" © dgt ugv/ wpi 'wpf 'Dgct dgkwpi. "VAdkpi gp<" P ctt0

Uej tgko Ängt. 'Cpf tgcu'\*3; ; 6+"::Kpvgtnkpi wcng'Tgncvkqpgpø''Ngdgpf g''Ur t cej gp'5; \*5+<326680

Uej t¾drgt."KO\*3; 75+"Pqvngt"KKOxqp"UvI cngp"cnu"©dgtugv|gt"vpf "Mqo o gpvcvqt"xqp"Dqgvj kvuø"÷F g"Eqpuqrcvkqpg" Rj krquqrj kcgø0J gt o gc"P0H0xqr040"VÃdkpi gp<P kgo g{ gt0

Uej wng. 'Tckpgt'\*3; ; 2+"÷Vtcpurcvkqp"cpf 'vj g'Rwdrkuj kpi 'Y qtrfø''Vtcpurcvkqp'Tgxkgy. '5667-3640

Uej y ctyl. "Dgplco kp"\*3; 98+"*Kp"Ugctej "qh"Y gcnj "cpf "Rqy gt <"[ gp"Hw"cpf "vj g"Y guw.*" J ctxctf <"J ctxctf "Wpkxgtukx{ "Rtguu0 Uej y ctyl." Y gtpgt"\*3; 66+":Vj g"O gcpkpi "qh"*Hkf wu"Kpvgt rt gu*"kp"O gf kgxcn"Vtcpurcvkqpø." *Lqwt pcn'qhVj gqrqi kecn'Uwf kgu*" 67-956: 0

Uej y ct| .''C0\*3; 97+"F gt "Urt cej dgi t khtlkp"Qvht kf u'Gxcpi grkgpdwej .''Dco dgti <'pq"r wdrkuj gt0

Uej y ct| ."Y 0\*3; 77+"*Rt kpekr ngu'cpf "Rt qdngo u'qh'Dkdng"Vt cpunc vkqp*. "Eco dtkf i g<Eco dtkf i g'Wpkxgtukv{ "Rt guu0 ô ô \*3; 85+":-Vj g'J kuvqt { 'qh'y g'Rt kpekr ngu'qh'Dkdng"Vt cpunc vkqp 'kp 'y g'Y guvgtp'Y qtnf ø''*Dcdgn*'; 0

 $\begin{tabular}{ll} $\textbf{Uej y ct} & \textbf{y cnf "*Tqf tki wg+"Qtc"*3; ; 5+"$$:$O$ & \textbf{kzgf "Vtcpurcvkqp"Rcwgtpu<"Vj g"Ncf kpq"Vtcpurcvkqp"qh"Dkdrlecn'cpf 'O kuj pcke" } \\ \textbf{J gdtgy "Xgtduø"} & \textbf{Vcti gv'7"} & \textbf{3}+ \textbf{4}936: : 0 \\ \end{tabular}$ 

Uej y gf c/P kej qnuqp. "P 0"3; ; 6+": Eqo o wpk\f" "Kpvgtr tgvgt" Vtckpkpi "kp" y g" Wpksgf "Ucvgu" cpf "y g" Wpksgf "Mkpi f qo <"Cp" Qxgtxkgy "qh" Ugrgevgf "Kpkkcvkxgu\\\"kp" J gt o gu "Lqwt pcn" qh' Nkpi wkwkeu' 34-34965; 0

Ueqw.'O kej cgrl\*3;; 8+"Y qtf Ub kj "Vqqnu."Qzhqtf <"Qzhqtf "Wpkxgtukv{ "Rtguu0

Ugctrg. 'Iqj p'\*3; 8; +''Ur ggej 'Cevu<'Cp'Guuc{'kp''y g'Rj krquqrj {''qhl'Ncpi wci g. 'Nqpf qp<'Eco dtkf i g'Wpkxgtukv{ 'Rtguu0 Uggrqy .''J 0\*3; : ; +''F kg''kur@pf kuej gp''©dgt ugv/ wpi gp'f gt'f gwwej gp''XqrmudÃej gt. 'Tg{mlcxkm<'Uqhpwp''f tpc'' O ci pÀuuqpct0

Ughgtku. 'I 0\*3; 873; 2+Ogwitcrjgu'] Vtcpuetkr  $vkqpulEqrkgu_. 'Cvjgpu<Ngunk0$ 

Ugi tg. 'Eguctg'\*3; 9; +":Nc'\tcf\k\ kqpg''o cectqpkec'f c'Hqrgpi q''c'I cff cø'\kp'Gwqtg'Dqpqtc''cpf 'O ctkq'Ej kguc''\*gf u+" Ewnwtc' 'rgwgtctkc''g'\tcf\k\ kqpg''r qr qrct g'\kp'Vgqh\wq'Hqrgpi q. 'O krcpq<'Hgnxt\pgnk'846960

U'i wkpqv. "Ecpf ceg" 3; : 7+" Vtcpurc kpi "Kornkekc kqpø" Ogw S24; 76: 0

ô ô \*3; :: +":Rtci o cvkeu"cpf "yj g"Gzr rhekscvkqp" I {r qyj gukux "VVT < Vtcf wevkqp. "Vgt o kpqrqi kg. "Tgf cevkqp" 3\*4+<"3286360

ô ô \*3;:; +":-Vj g"Vtcpurcvkqp"Rtqeguu<'Cp"Gzr gtko gpvcn"Uwf {ø'kp"U'i wkpqv'\*gf 0+"Vj g'Vtcpurcvkqp"Rtqeguu."Vqtqpvq<' J I "Rwdrkecvkqpu0

- ô ô \*3;; 3+":C"Uwf {"qh"Uwf gpv"Vtcpurcvkqp"Uvtcvgi kguø "kp"Vktmmqppgp/Eqpf kv"\*gf 0+0
- Ugrgunqxkej . 'F cpkec'\*3; 8: 13; : 5+''NøKøvgt  $rt^3$  vg'f cpu'rgu'eqphgt gpegu'kpvgt pc vkqpcngu.''r t qdn³ o gu'f g'ncpi ci g''gv'f g'' eqo o wpkec vkqp. 'Rctkı<'Ngwtgu'O qf gtpguO
- ô ô \*3; 9613; : 5+"+ wt "Vj gqt kg"f gu'F qno gwej gpuø'kp "X0Mcr r '\*gf 0+"0dgt ugv/ gt 'wpf 'F qno gwej gt. "J gkf gndgt i <'S wgng" wpf 'O g{ gt0
- ô ô \*3; 97+"Ncpi ci g'hcpi wgu'gv'o ² o qkt g."² wyf g'f g'hc"rt kug'f g'pqvgu'gp"kpvgt rt gwcvkqp"eqpugewxkxg. "Rctku<"Ngwt gu" O qf gtpgu0
- ô ô \*3; 98+"::Kpvgtrtgvcvkqp."c"Ru{ej qmi kecn|Crrtqcej "vq"Vtcpurcvkqpøkp"Dtkurkp"\*gf 0+0
- ô ô \*3; 99+":-Vcng'Ectg''qh''y g''Ugpug''cpf ''y g''Uqwpf u'y km''Vcng'Ectg''qh''Vj go ugnxgu''qt'''Y j { ''Kpvgtr tgvkpi ''ku''pqv'' Vcpvco qwpv''vq''Vtcpurcvkpi ''Ncpi wci guø''*Vj g''Kpeqtr qt cvgf ''Nkpi wkw*''38<''496550
- ô ô \*3; 9: c+":Ncpi wci g'cpf "Eqi pkkqpø"kp"I gtxgt"cpf "Ukpckmq"\*gf u+0
- ô ô \*3; 9: d+"Kpvgt r t gvkpi "hqt "Kpvgt pc vkqpcnlEqphgt gpegu." Rctku "O kpctf ="Y cuj kpi vqp" F E < Rgp" cpf "Dqqvj 0
- $\hat{o} \quad \hat{o} \quad \hat{v} : 9 + \text{``+Nc''} \text{Vtcf we klqp'kpvgtr tgvc\cdot kxg} \\ \hat{v} = \frac{1}{2} \text{``Rc''} \text{'Nc''} \text{`Vtcf we klqp'kpvgtr tgvc\cdot kxg} \\ \hat{v} = \frac{1}{2} \text{``Rc''} \text{``Rc''} \text{``Rc''} \text{``Rc''} \\ \hat{v} = \frac{1}{2} \text{``Rc''} \text{``Lqtdqppg''Pqwxgmg0} \\ \hat{v} = \frac{1}{2} \text{``Lqtdqppg''Pq$
- ô ô \*3; :: +":-Vgej plecn'cpf "Nksgtct { "Vtcpurckqp."c"Wpkh{kpi "Xkgy ø"kp"Ecvtkqpc"Rkengp"\*gf 0+"KVKEqphgtgpeg"4." Nqpf qp<"Curkd0
- ô ô \*3; : ; +":-Vgcej kpi 'Eqphgtgpeg'Kpvgtrtgvkpi ø'kp'Mtcy wwej ng'\*gf 0+"Vtcpurcvqt"cpf 'Kpvgtrtgvgt'Vtckpkpi "cpf" Hqtgki p'Ncpi wci g'Rgf ci qi {.'Cnlcp{.'P[ <Uwp{0
- $\hat{o} \ \hat{o} \ cpf \ "O \ ct \ kcppg" \ Ngf \ gt \ gt \ "*3; : 613; : 8+" \ \textit{Kpvgtrt gvgt "rqwt" tt cf wht g.} \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Vtcf wevqnqi kg" pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" F \ kf \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{kqp" Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eqngev \ \text{Ngf \ pq03. "Rct \ kc" \ kgt0 \ "Eq$
- $\hat{o} \hat{o} *3; :; + R^2 f c i q i kg't c kuqpp^2 g'f g'mppygt/rt^2 w w w p. ''Rctku<''Qhhleg'f gu''Rwdrkecwqpu'f gu'Eqo o wpcw² u''gwtqr² gppgu'' cpf 'F kf kgt| twf kwqp0$
- Ugo gpgvu. 'QQ g0'cpf 'CQP (Rcpcuøgx '\s3; : ; +''Knqt k\f c ''r gt gxqf c ''] Vj g'J knqt { ''qh''Vtcpurcvkqp\_. ''Mkgx<'K f cvgnrxq ''MI W0 Ugp. ''MQO 0\s3; 83='tgr t03; : 3+'J kpf vkuo . ''J cto qpf uy qt vj <'Rgpi vkp0
- Ugpi gt. "C0"3; 93+"F gwwej g'"Odgtugv wpi wj gqt kg'ko '3: OLcj tj wpf gt v'"395663968+"Dqpp < Dqwx kgt "Xgtrci "J gtdgtv" I twpf o cpp0
- Ugpi wr vc. 'O cj cuy gvc'\*3; ; 2+":-Vtcpurcvkqp. 'Eqrqpkcrkuo "cpf 'Rqgvkeu<'Tcdkpf tcpcyj "Vci qtg'kp" Vy q'Y qtrf uø 'kp" Dcuupgw'cpf 'Nghgxgtg'\*\*gf u+: '786850
- ô ô \*3; ; 7+":-Vtcpurc kap 'cu'O cpkr wrc kap <'Vj g'Ray gt 'qh'Ko ci gu'cpf 'Ko ci g'qh'Ray gtø'kp'F kpi y cpg{ 'cpf 'O ckgt '\*gf u+0 Uj cemo cp. 'LO\*3; : 6+"Vj g'Tki j v'\q'dg'Wpf gt uvqqf OC"J cpf daqm'ap 'Y qt nkpi 'y kj . 'Go rnq{kpi 'cpf 'Vt ckpkpi 'Eqo o wpkv{ '' Kpvgt rt gvgt u 'Eco dtkf i g<'P cvkqpcn'Gz vgpukqp'Eqngi g0
- Uj cf f { ."Xkti kpkc"O 0\*3; : 6+":Lqj p'F t { f gp"cpf 'F  $\emptyset$ Cdrcpeqwt  $\emptyset$ u"Dgngu'Kpllf  $^3$ ngu $\emptyset$  'Ugxgpygygy' 'Egpwt { 'Tgxkygy '48\*3+<' 5768. '5: 0
- Uj engur get g'Vt epure skap 0'Cppwerl'Rwdrkee skap "ap "Uj engur get g'Vt epure skap" "3; : 8"t gpco gf "Uj engur get g" Y qt rf y sf g0Vt epure skap "epf "Cf er ve skap + "Vqm q< wij qf q"Uj qvgp0
- Uj co c¢c."P clcj '\*3; 9: +":C"Nkpi wkuke"Cpcn{ uku"qh"Uqo g"Rtqdrgo u"qh"Ctcdke"vq"Gpi rkuj "Vtcpurcvkqp¢0F Rj kr0'vj guku." Qzhqtf "Wpkxgtukv{ 0
- Uj cr ktq."P 0\*\*tcpu0+"\*3; 84+"I (Hckf køu."+C"Mpki j v'Y cu'y kj "J ku'Ncf { "Hqpf n{ "N{kpi ø "kp"C(Hqtgu" \*gf 0+"Cp"Cpvj qqqi { "qh" Ogf kgxcn!N{t keu." P gy "[ qtmxTcpf qo "J qwug0
- Uj cxkx."\ qj ct"\*3; : 8+":F gt"Cphcpi "f gt"j gdt@uej gp"Mkpf gtrkxgtcwxt"co "Gpf g"f gu"3: 0'wpf "| w"Dgi kpp"f gu"3; 0' Lcj tj wpf gtvu"kp"F gwuej ncpf ø"'Uj kghgt wchgn"; \*3+<"563; 0
- ô ô \*3; ; 4+":Kpvgthgtgpeg'Tgrcvkqpu'dgw ggp'I gto cp"cpf 'Igy kuj /J gdtgy 'Ej krf tgpøu'Nksgtcwtg'kp''y g'Gprki j vgpo gpv'' Vj g'Ecug''qh'Eco r gø''Rqgvkeu'Vqf c{"35\*3+<636830
- ô ô cpf '[ ccmqx 'Uj cxk/\*3; 99+":Ng/o cng 'gv'j c/ctgvu 'uhctko <'ukhtwo' o gmqtk/ng/wo cv'ukhtwo' o gwti go gv'dg/vcj cnkz "{ gvuktcvq 'uj gn'j c/o gtmc| "j c/ukhtwk'dgGtgvu'[ kutcgnø']Vtcpuncvgf 'xu0Qtki kpcn'Nkgtcwtg 'kp 'vj g 'Etgcvkqp 'qh'vj g 'Nkgtct { "Egpvgt 'kp 'Gtg| 'Kutcgn\_." J c/ukhtwwlNkgtcwtg '47-676: 80
- $cn'Ujc\{\{n''Lco\ n'cn'F\ p''*3; 72+''V\ t\ nj\ ''cn'Vctlco\ c''lk'O\ kut''lk'^eCj\ f'\ al-Hamla\ ''cn'Hkt\ kpuk'\{c'']\ Vj\ g''J\ kuvqt\{''qh''Vtcpurcvkqp''\ kp''Gi\ \{r\ v'f\ wtkpi\ ''vj\ g''Htgpej\ ''Kpxcukqp_''Ecktq<'Fct''cn'Hknt''cn'eCtcdkO$
- ô ô \*3; 73+"V t mj al-Haraka "cmVj cs kkl {c'kk^ecjf "O wj co o cf "eCnk"]Vj g"J kuvqt { "qh' vj g'E www.tcn'O qxgo gpv'wpf gt"O wj co o cf "Cnk."Ecktq<F ct "cn'Hvi"eCtcdtO
- Uj gp"Hwy gk $^{k}$ 3; : 7+ $^{l}$   $^{l$
- Uj kgrf u. "Meyi rggp" "3; ; 7+" F gtgm" o cj qpøu P gtxcnø "Vtcpurc klap" cpf "Nkgt cwt g" 6 & 36960
- Uj kt $\{cgx.'COHO*3; 9; +"Upnj tqpp\{'rgtgxqf'']$ Uko wncpgqwu'Kpvgtrtgvkpi \_.''O queqy <XqgpkfcvO
- $\label{eq:conditional_condition} \begin{tabular}{ll} $U_j \ kr \ ng\{.''P \ 0^*3; \ 88+''V \ j \ g'Lc \ o \ gu'Gxcpu'Uqt\{.''Vqtqpvq<'Vj \ g'T\{gtuqp''Rtguu0\}\} \end{tabular} .$
- Uj  $\ker g\{...V0C0^*3; 94+Ugf'Gpi rkij'Xgtug."Nqpf qp < U wej kpuqp0$
- Uj mqxum{."Xkmqt"Dqtkuqxkej "\*]3; 39\_"3; 88+"::Kumxuuxxq"mcmir tkgo ø"\tcpu0N0Ngo qp"cpf "O 0Tgku"cu"::Ctv'cu"
- Vgej pls wgø "kp" NONgo qp"cpf 'O OTgku '\*gf u+" Twurkcp" Hqt o crkw Et krkekno < Hqwt 'Gruc { u. 'Nkpeqrp < Wpkxgtukv{ "qh" P gdt cumc | Rt guu. '46460
- Uj ngukpi gt. 'O ktkco '\*3; : ; c+":O qpkqtkpi ''y g'Eqwtvtqqo 'Kpvgtrtgvgtø''*Rctcni*' ngu<'Ecj kgtu'f g'nø' eqng'f g'Vtcf wevkqp''gv'' f ø'Kpvgtrt² vcvkqp''33. 'C wi wuv<'4; 6580
- ôô\*3;:;d+":Uko wnxcpgqwu"Kpvgtrtgvcvkqp"cu"c"Hcevqt"kp"Ghhgevkpi "Ujkhwu"kp"yjg"Rqukvkqp"qh"Vgzwu"qp"yjg"Qtcn/Nkvgtcvg" Eqpvkpwwoø0Wprwdnkujgf"OC"yjguku."Vgn"Cxkx<"Vgn"Cxkx"Wpkxgtukv{0
- $\hat{o} \hat{o} *3; : ; e+": Gz vgpf kpi "vj g"Vj gqt{"qh"Vtcpurcvkqp"vq"Kpvgtr tgvcvkqp<"P qto u"cu"c"Ecug"kp"Rqkpvø"<math>Vcti gv$ "3\*3+C3336370

- ô ô \*3; ; 3+"::Kpvgtr tgvgt"Ncvkwf g"xu0F wg"Rtqeguu<"Uko wncpgqwu"cpf "Eqpugewkxg"Kpvgtr tgvcvkqp"kp"O wnkrkpi wcn" Vtkcnuø "kp"Vktmmqpgp/Eqpf kv"\*gf 0+:"3696770
- ô ô \*3; ; 7+":Uj khư'kp'Eqj gukqp'kp''Uko wncpgqwu'Kpvgtr tg<br/>kpi ø''Vj g''Vt cpurc vqt ''3\*4+<''3; 5ó4360
- Uj qo crk 'S 0\*3; ; 5+'::Vj g''Vtcpurc \dp''qh''Rqgvt { 'ltqo 'Gpi rkuj '\q'Ctcdke''cpf ''Xkeg/Xgtucø'\lp''Ecvt\dpc''Rkengp''\gf 0+'' \Vtcpurc \dp\@ y g''Xkcrl\N\pm''\xqr0'3.''Dtki j \dp\'KVK\D
- Uj qt vgt 'Gpe{enqrcgf kc ''qhl'Kurco '\*3; 96+''gf 0J 0C0T0I kdd''cpf ''IOJ 0Mtco gtu.''Ngkf gp<'Dtkm0
- Uj tgxg. 'I tgi qt{ 'O . 'Ej tknkpc''Uej @hpgt. 'Iqugr j 'J 0F cpmu''cpf 'Igppkhgt''I tkhkp'\*3; ; 5+":Ki'Vj gtg''c''Ur gekcn'Mpf 'qh'' õTgcf kpi ö'hqt''VtcpurckqpA''Cp'Go r ktkecn'Kpxgurki ckqp''qh'Tgcf kpi ''kp''y g''Vtcpurckqp''Rtqeguuø ''Vct i gv'7\*3+<'43ó630 Uj xgkugt. 'CCF 0\*3; 95+''Rgt gxqf 'Khpi xkurkmc'']Vtcpurckqp''cpf ''Nkpi vkurkeu\_'O queqy <'Xqgpk f cv="tcpu0cu'|©dgt ugv| wpi ''
- wpf 'Nkpi wkwkm'3; : 9. 'Dgtnkp<'Cncf go kg'Xgtnci 0
- $\hat{o}$   $\hat{o}$  \*3; :: +" $Vgqtk'_1c''rgtgxqfc'$ "]  $Vtcpurcvkqp''Vjgqt\{\_.'Oqueqy < Pcwnc0\}$
- Ukf ktqr qwrqw."O 0\si3;; 6+"Xct kc \kqp"\kp"\Vt cpurc \kqp.\"C \yi gpu\"pq\"r wdrkuj gt0
- Ukgdwtyj .'Tkej ctf '\*3; : 6+"*J 3/4f gt nkp/au"J {o pu"cpf "Ht ci o gpw.* "Rtkpegvqp."P L<"Rtkpegvqp "Wpkxgtukv{ "Rt guu0
- UKWô Ugtxkekq'Kigtqco gtkecpq'f g'Kphqto cek»p'uqdtg'rc''Vtcf week»p''\3;; 5+'Tgrgtvqtkq'f g'kpurkwekqpgu't grcekqpcf cu'' eqp'rc''ktcf week»p''['rc'kpvgtrt gvcek»p''gp'nqu'rc flugu'f g'j cdnc'j kurcpc''['rqt wii wguc.''Dgeect'\Cti gp\kpc+\UKWO
- Uko c''S kcp'\*3; ; 5+Tgeqtfu''qh'yjg'Ttcpf''Jkwqtkcp.'5'xqnı.'vtcpu0Dwtvqp''Ycwqp.'Jqpi''Mqpi''cpf''Pgy''[qtmx''Tgpfkkqpu''('Eqnwodkc''Wpkxgtukx{'Rtguu0}
- Uko qp. "Uj gtt { "\*3; : 9+":F2 rkxtgt "hc" Dkdng<"Nc" 'yj 2 qtkg" f :Gwi gpg "P kf cø" 'O gw "54\*6+"652690

- ô ô \*gf 0+\*3; ; 7+"Ewnwt g"kp"Vt c pukv<"Vt c purc vkpi "Vj g"Nkgt c wt g"qhS wgdge. 'O qpvt gcn<"X2 j kewrg 'Rt guu0
- ô ô \*3;; 8+"*I gpf gt "lip"Vt cpurc vlqp*. 'Nqpf qp"cpf 'P gy "[ qtm\'Tqwrgf i g0
- Uko r uqp. 'Gmvpf c $\{q'*3; 97+":O gvj qf qnqi \{'kp''Vtcpurcvkqp''Etkkekuo <math>\emptyset''O gvc''42 \triangleleft 4736840$
- $\hat{o} \quad \hat{o} \quad \hat{s}''; 9: + \text{``$Uco wgn'Dgengw''it } cf \text{ we vgwt'} fg'' \text{nwko''o} g < \text{``} cur gew''fg'' \text{dwkpi wkuo} g'' \text{hw}^2 t c \text{kt} g. 'S \text{ wgdge} < \text{``} fg \text{vgtpcwkqpcn''Egpvtg''hqt''} \\ \text{Tgugctej ''qp''Dktkpi wcrkuo} 0$
- ô ô \*3; : 7+":-Vtcpurc kap 'Rtqdrgo u'ah'Chtkecp 'Eawp vtkguø'kp 'J (DÃ) rgt '\*gf ()+"Vgp vj 'Y qt rf 'Eapi t guu'ah'HKV < Vtcpurc vqt u'' cpf 'Vj gkt 'Raukkap 'kp 'Uqekgv\'. 'Xkgppc < Dtcwo Ãngt ()
- ô ô cpf 'O creqno 'Eqwnj ctf '\*3; 97+''Vqy ctf u'cp''Cpcn(uku''qh'F kueqwtug. 'Qzhqtf <'Qzhqtf 'Wpkzgtukv{ 'Rtguu0
- Unkppgt. 'D(H0\*3; 75+"*Uekgpeg"cpf "I wo cp"Dgj cxkqt*. 'P gy "[ qtmc"Vj g"Htgg"Rtguu0
- Uo kj ."Dctdctc"J gttpuvgkp"\*3; : 913; ; 2+"::Xcnwg1"Gxcnwcvkqpø"kp"HtcpntNgvtkeej kc"cpf "Vj qo cu'O eNcwi j nkp"\*gf u+" Et kkecn'Vgt o u'hqt "Nkgt ct { 'Uwf { .'Ej keci q<"Wpkxgtukv{ 'qh'Ej keci q"Rtguu0
- Uo kij .'O creqo 'E0\*3; : : +":Ncvkp"Vtcpurcvkqpu"qh"Tqpuctfø"kp"Uvgmc"R0Tgxctf."Hkfgn"T® rg"cpf "O ctkq"C0Fk"Eguctg" \*gfu+"Cevc 'Eqpxgpwu"pgqNcvkpk"I wgnrj gtd{wpk"Dkpi j co vqp."P[ <O gfkgxcn"cpf "Tgpckuucpeg"Vgzvu"cpf "Uwxfkgu."5536 : 0
- Uo kij . "V(D0\*3; : 5+": T gur qpug''\q'Dctdctc''O qugtO gtegt''qp''Uko wncpgqwu''Kpvgtr t gvkpi ø''\p''O (N0O e Kpvkt g''\gf 0+'' Rt qeggf kpi u''qh'\j g''Hqwt vj ''P c vkqpc n'E qphgt gpeg''qh''Kpvgt r t gvgt 'V t c kpgt u''E qpxgpvkqp''Ukrx gt''Ur t kpi . 'O F <'T KF'' Rwdrkec vkqpu. '93670
- $\label{localization} $$ \operatorname{Upgm'J qtpd} ."Oct{"}3; :: +"Vtcpurcvkqp"Uwfkgu<"Cp"Kpvgitcvgf"Crrtqcej."Couvgtfco"cpf"Rjkrcfgrrjkc<"Lqjp" Dgplcokpu0$
- $\hat{o} \hat{o} *3;; 2+"+Nkpi wkuvke" Vtcpueqf kpi "qt" Ewnwtcn" Vtcpuhgt A'C "Etkks wg" qh" Vtcpurc kqp" Vj gqt { 'kp" I gto cp { $\alpha$ "kp" Dcuupgw' cpf "Nghgxgtg" \gf u+. '9; \dots : 80 }$
- ."HR% ej j cengt "cpf "MMckpf n' "gf u+' "3; ; 6+ " $Vt\ c\ purc\ kqp$ "  $Uwf\ kgu < Cp$ "  $Vt\ c\ purc\ kqp$ "  $Uwf\ kgu < Cp$ "  $Vt\ c\ purc\ kqp$ "  $Uwf\ kgu < Cp$ "  $Vt\ c\ purc\ kqp$ "  $Uwf\ kgu < Cp$ "  $Vt\ c\ purc\ kqp$ "  $Uwf\ kgu < Cp$ "  $Vt\ c\ purc\ kqp$ "  $Vt\ c\$
- $\label{thm:local-control} \mbox{Up} \{ \mbox{f gt.'GF 0*3}; 45 + \mbox{''}\mbox{$V$j g'Egnke'} \mbox{$T$gxkxcn'kp''Gpi nluj''} \mbox{'Nlvgt $c$ wut $g'398263$: 22.'Eco dtkf i $g${\mbox{$J$}$ ctxctf''} \mbox{$W$pkxgtukv} \mbox{''Rtguu0} \mbox{$T$gxkxcn'kp''Gpi nluj''} \mbox{$T$gxkxcn'kp'''Gpi nluj''} \mbox{$T$gxkxcn'kp'''Gpi nluj''} \mbox{$T$gxkxcn'kp'''Gpi nluj''} \mbox{$T$gxk$
- Uqf  $t^2$ . "P OY 0\*3; 88+"C" j ku» t kc 'f c 'ko rt gpuc 'pq'Dt c ukn'Tkq'f g'Icpgktq<"Gf ksqtc'Ekxkrk  $c\pm \bar{q}$ "Dt cukrgktc0
- Uqhrle. "U0"3;; 5+":Eqo o wplecrkqp"kp"yj g"Eqwtrtqqo ø"Lwf kekcn'Qllkegt u"Dwngrkp. "7"5+<"3: "cpf "450"
- $\label{eq:continuity} \mbox{Uqkrg."} \mbox{Uqkrg."} \mbox{$0$$"$3$} ; : 2 + \mbox{$"$$ Rt qvqv{$rq''ng''O gvcht culk"}$} \mbox{Qtki kpcn'cpf "Vtcpurcvkqp_-'Eqphgtgpeg'} \mbox{$Rt qeggf kpi u.'C yi gpu<"pq" $r$ vvdrkuj gt0 }$
- Uqrcpq."Hff g'\*3; 97+":Grikpv² tr tgvg<"wpq'f g'inqu'glgu'f g'irc''cewnwtcek»pø'lop"Guwf kqu'uqdt g'r qrffkec'kpf ki gpkuc''gur c° qrc'' gp'Co gt kec."Wpksgtukf cf 'f g'Xcrrcf qrkf 0
- Uqrk unk "Y 0\*3;:9+"*Rt/gm&f "ctv{uv{e/p{"c"mwnwtc"hkvgtcenc*"]Nkvgtct{"Vtcpuncvkqp"cpf"Nkvgtct{"Ewnwtg\_."Ytqe-€y <"Quuqnkpgwo0
- $U^4$ m 'Nwf y ki '\*3; 93+":-Vtcf wkukdktk² "gv'kpvtcf wkukdktk² ø "Ogw"38\*364+<"476520
- Uqmo qw.'E0\*3; ; 5+":-Vtckpkpi ''qh'Rtqhguukqpcni'kp''c''O wnkewnwtcn'Gpxktqpo gpv<''Vj g''Xkevqtkcp.''Cwntcnkc.''Rgtur gevkxgø''
  Ecytkqpc''Rkengp''\*gf 0+.''Z*KKHKV'Y qtnf 'Eqpi t guu.''Rt qeggf kpi u0*
- Uqo cn(.'Cngzcpf gt'\*3;;6+":Ki'Vcti wo ke'Ctco cke"

- Tcddkple'J gdtgy A'C'Tghrgevkqp''qp''Okftcuj ke''cpf''Vcti wo ke''Tgy qtfkpi ''qh''Uetkr wtgø''Lqwtpcn'qh'Lgy kuj ''Uwfkgu''67\*\*3+4'', 463220
- Uqo gnj .''Ucuuqp'\s3;; 7+":Dkdrkecn'Gej qgu'kp'O qf gtp'Ctcdke''Nkgtcwtgø''Lqwtpcn'qh'Ctcdke''Nkgtcwtg''48<3: 864220 Uqo gtu.''J ctqrf ''N0'cpf 'F (Lqpgu'\s3;; 5+":O cej kpg''Vtcpurc\kqp''Uggp''cu''Kpvgtce\kxg'O wnkrkpi wcn''Vgzv'I gpgtc\kqpø''kp'' Vtcpurc\kpi ''cpf ''Vj g'Eqo rwgt''35<'Vj g'Vj gqt{''cpf ''Rtcevkeg''qh'O cej kpg'Vtcpurc\kqpô c'Octtkci g''qh'EqpxgpkgpegA.'' Nqpf qp<'Curkd0
- ô ô .''KO eNgcp''cpf 'F (Iqpgu'\*3; ; 6+"::Gzr gtko gpw'kp'O wnkrkpi wcn'Gzco r ng/dcugf 'I gpgtckqpø'kp'C(KEO qpci j cp'' \*gf 0+'EUPNR'3; ; 6<5tf 'Eqphqt gpeg''qp''kj g'Eqi pkkxg'Uekgpeg''qh'Pcwtcn'Ncpi wci g'Rt qeguukpi .'F wdrkp<'F wdrkp'Ekx{'' Wpkxgtukx{0
- ô ô .'ION uwlki'cpf "F (Iqpgu'\*3;; 2+"÷O cej kpg" Vtcpurckqp" y ký qwi'c "Uqwteg" Vgz vá "kp" J ("Mctri tgp" \*gf 0+" E QNNP I /; 2<" Rcr gt u'Rt gugpvgf "vq" y g" 35 y "Novet pc vkqpc n'E qphgt gpeg" qp" E qor wwc vkqpc n'Nhpi wkukeu. "J gnukpnki" [nkqr kuxqr ckpq 0 Uqpf gtgi i gt. "U0\*3; 9; +"÷I guej kej vg" f gwuej ur tcej ki gt "DkdgnÃdgtugv wpi gp" kp" I twpf | Ãi gpá "kp" Y (Dguej . "Q0 Tgkej o cpp. "UU4qpf gtgi i gt" \*gf u+" Ur tcej i guej kej vg 0 Gkp" J cpf dwej "/ wt "I guej kej vg" f gt "f gwwej gp" Ur tcej g" wpf "kj t gt" Gthqtuej wpi . "Dgtnkp" cpf "P gy" [qtm²f g" I tw{ vgt. "34; 6: 70
- Uqppgxgrf."J (D0'cpf "M0Nqgpkpi "\*gf u+'\*3;; 5+"Vgt o kpqnqi { <"Crrnkecvkqpu'hp"Kpvgtf kuekrnlpct { "Eqo o wpkecvkqp." Co uvgtf co "cpf 'Rj krcf grr j kc<"Iqj p"Dgplco kpu0
- $\label{eq:continuity} $$ \operatorname{Uqtxcrk''} N^*3; : 7+^* \operatorname{xgtu@wcpf} \operatorname{gw'422''} \operatorname{t'k'Hkprcpf''} Vy q''J \ \operatorname{wpftgf''} \operatorname{gctu''qh''Vtcpurc\cdot kqp''kp''Hkprcpf_.''Wrg^dqti <' Kpurkwkqpgp''hqt''pqtf kuri'hkqqqi k'xkf''Wrg^dqti u''wpkxgtukgv0$$
- ô ô \*3;; 2+"*Umf kgt 'k"/xgt u\Bupkpi uxgvgpumc r* "] Uwf kgu'kp"Vtcpumcvkqp"Uekgpeg\_."Wng°dqti <**'Kp**uvkwwkqpgp'hqt"pqtf kumc" ur t°n'lxkf "Wng°dqti u'wpkxgtuksgv0
- Uqw $\mid$  c. 'O 0\*3; ; 2+'Kpvgtxkgy 'd{ 'I Oktkeg.'kp'Rtkeg'\*gf 0+'Ncvkp'Co gtkec <'Vj g'Y tkvgt  $\not$  u'Lqwtpg{.'Nqpf qp<'I co kuj " J co knqp.'3456550
- Ur gct. 'Rgtekxcn'\*3; 92+'C'J knqt{'qhlKpf kc.'xqn04.'Nqpf qp<'Rgpi wkp0
- $\label{thm:condition} \mbox{Ur gtdgt.'F 0'cpf 'F 0'Y knuqp'*3}; : 8 + \mbox{'} T grgxcpeg < \mbox{'Eqo o wpkecvkqp''cpf 'Eqo pkkqp}.' \mbox{'Qzhqtf < 'Dcukri'Drceny gm0} \\ \mbox{(a)} \mbox{(b)} \mbox{(c)} \m$
- Ur gtdgti /O eS wggp. 'O 0'cpf "NDwtpctf "\*3;; 6+"*I wlf grlpgu'hqt 'Grgevt qpke 'Vgz v'Gpeqf kpi "cpf "Kpvgt ej cpi g0VGKR5.*" Ej leci q'cpf 'Qzhqtf <CEJ ICENICNNE0
- Ur kxcm'I c{cvtk'Ej cntcxqtv{ "\*3; ; 4c+":Cevkpi "Dkul"Kf gpvkx{ "Vcmxi" Et kkecn'Kps wkt { "3: \*6+<'9926: 250
- ô ô \*3; ; 4d+":-Vj g'Rqrkkeu"qh"Vtcpurckqp.ø'kp"O kej ³ rg"Dcttgw"cpf "Cppg"Rj krikr u"\*gf u+"F guvcdkrk/kpi "Vj gqt {<" Eqpvgo rqtct{"Hgo kpkw"F gdcvgu."Uvcphqtf". "EC<"Uvcphqtf" "Wpkxgtukv{"Rtguu0
- Ur tkpi gt."Q0\s3; 69+":Q\rtkf "xqp"Y gknugpdwti <Dctdctkno wu"gv"Uqr\rd ekno wu0'Uwf kgu"kp"\yi g'O gf kgxcn"Vj gqt { "cpf" Rtce\reg"qh"Vtcpurc\rd p\reg"U\lo r\rqukwo "3\rightarrow 66: 30
- Ucej qy kcm'J 0\*3; 87+":I gf cpngp"| w'gkpgt "cmi go gkpgp"Vj gqtkg"f gt "O qf gngø" "Uwf kwo "I gpgt cng"3: <6546850 Ucengndgti ."LÃti gp"xqp"\*3; 93+":F cu'Gpf g"f gt"dgngu'kplkf ³ rguø" "kp"M0TOcwnej "cpf "J 0O (I gki gt"\*gf u+" Køvgt rkpi wkukec <'Ur t cej xgti rgkej "wpf "©dgt ugv| wpi ."Hguwej t khv"| wo "82øI gdwt waci "xqp"Octkq"Y cpf t wu| mc."
- VAdkpi gp<'O cz'P kgo g{gt0
- ô ô \*3; :  $6+|\nabla dgtugv|$  wpi gp''cwu'| y gkygt''J cpf < Tg/gr klqpuxqt i @pi <math>g'kp'f gt 'gwt qr @kuej gp'Nkygt cwut''xqo '360'dku'| wo '3: 0' Lcpj tj wpf gtv.'Dgtkp'cpf 'P gy '[ qtm'f g'I tw{ vgt0
- Ucrpcngt.'TŒ0\*3; 94+":Rtci o cvleuø'kp"FŒ cxkf uqp"cpf"I Ø cto cp'\*gf u+"Ugo cpvkeu"qhPcvvtcrlNcpi wci g."Fqtf tgej v."
  Tgkf gr0
- Ucphqtf.'O 0\sq;: 9+\sqrt{Vj g'Pcwtg'qh'J kwqtkecn'Mpqy ngf i g.'P gy '[ qtm\sqrt{Dcukn'Dnceny gn0}
- Ucphqtf.'T0'cpf''L0Y cwgtu'\*3; ; 5+"::Vj g'Tqrg''qh'ECFC''kp''Vtcpurcvkqp''Rtqi tco u''kp''y g''Chtkec''Ctgcø''Pqvgu''qp'' Vtcpurcvkqp''9\*3+''; 6370
- Ucp{qp."O0%3; ; 2+":Grk cdgy "Ectygt <"C"Y qo cp"qh" gt"Vko gø." Y qo gpøu" Uwf kgu "Qeecukapcal'Rcrgtu" 39. "Ecpygtdwt { <" Wpkxgtukx "qh" Mgpv0
- Ucte 'Dwi etune 'Nkgtewte' ] Qrf 'Dwi etkep' Nkgtewtg\_'\*3; : 26; + '9' xqnu. "Uqhke 'Dwi etunk' Rkucyn' Rwdrkuj gtu0
  Uvgeeqpk 'Wdenf q'\* hqtyj eqo kpi +": Ugo kqweu' kp' Vtepurewkqp' Vgeej kpi Ø Rer gt'r tgugpvgf 'vq' y g'eqphgtgpeg' Rtqdrgo u'epf''
  Vt gpf u'kp' y g' Vgeej kpi 'qh' Kpvgtrt gwpi 'epf' Vtepurewkqp. "Egpvtq' Kpvgtpe| kqpeng' f k' Uwwf k'uwn Kpvgtrt gwe| kqpg''g' ne''
  Vtef w| kqpg. 'O kucpq' Cftkewkeq. "Ugr vgo dgt' 4: 652." 3; ; 60
- Usgi go cp. "Igng" "3; ; 3+" ©dgt ugv/ wpi "wpf "Ngugt <" Wpvgt uwej wpi gp" | wt " ©dgt ugv/ wpi u® wkxcrgp | ." f ct i guvgmv'cp" f gt " Tg/gr vkqp" 'V wnc wwku" "O cz" J cxgrc ct ø' wpf "ugkpgp" f gwwej gp ' ©dgt ugv/ wpi gp. "Dgt rkp" cpf "P gy "[ qt mc" f g" I tw{ vgt 0 Uvgki gt. "Mrcwu' Rgvgt" "3; : 9+" F kg" I guej kej vg" f gt "Uj crngur gct g/Tg/gr vkqp." Uvwwi ct vc" Mqj nj co o gt 0
- Uglpgt."I gqti g'\s3; 9713; ; 4+"Chgt 'Dcdgn<'Cur gevu'qh'Ncpi wci g'cpf 'Vtcpurc wqp. 'Nqpf qp. 'Qzhqtf 'Cpf 'P gy '[ qtm\s' Qzhqtf 'Wplxgtulx\frac{1}{2} 'Rtguu0
- Uvgkpgt."V0T0\*gf 0+"3; 97+"Gpi rkuj "Vt cpurc vkqp"Vj gqt { <387263: 22. 'Cuugp"cpf 'Co uvgtf co <"xcp"I qtewo 0
- Uvgkpuej pgkf gt. 'O qtkk/ ''3: ; 5+"F kg'j gdt c gkuej gp'Wgdgt ugv/ wpi gp'f gu'O kwgrc ngt u'wpf 'f kg'Lwf gp''c nu'F qno gwej gt <'Gkp''
  Dgkt ci ''/ wt 'Nkvgt c wt i guej kej vg'f gu'O kwgrc ngt u ''o gkw'pc ej 'j cpf uej t khrkej gp'S wgngp. 'Dgt nkp<'Mqo o kuukqpux gtrci ''
  f gu'Dkdrkqi tcr j kuej gp'Dwt gcwu0
- Ugo o gt." 1 0 3; : 3 + ":: Mqj @ukqp ko 'i gur tqej gpgp F kumwtu'f gwwej gt Ngtpgt f gu'Gpi rkuej gpø 'Dqej wo < Ugo kpct 'h At" Ur tcej ngj thqtuej wpi 0
- Uv r kg .'O 0'cpf 'COY kmq '\*gf u+'\*3; : 5+'J knqt kc''nkgt c wt { ''r qnnnkgl'y ''| ct { ukg'']Cp'Qwrkpg''qh''y g''J knqt { ''qh'Rqrkuj '' Nkgtcwtg\_''xqni'364.''Y ctucy <'Rc uw qy g'Y { f cy pkey q'P cwnqy g0

```
 \label{thm:continuous}  \mbox{Uvgtp."J O 0$^3; $; 4+"\it Kuuvgu'cpf"\ Qrvkqpu'kp''Ncpi wci g'Vgcej kpi ."gf 0R0Cmpp"cpf "DO ctmg{."Qzhqtf '\ Qzhqtf '\ Qzhqtf '\ Qzhqtf '\ Rtguu0 }  \mbox{Reguu0}
```

Ukej ."UIT"\*3; 94+":I tco o ct. "Ru{ej qmi {."cpf "Kpf gvgto kpce{ø"Vj g"LqwtpcrlqhlRj krquqrj {"8; "\*44+<"9; ; ó: 3: 0

 $\label{eq:control_local_control_con$ 

 $\label{thm:continuous} \begin{tabular}{l} $$ Uqem'Dtkcp'*3; 9: +":Uekgpeg."Vgej pqmi { "cpf 'Geqpqo ke'Rtqi tguu'kp''y g'Gctn{ 'O kf f ng'Ci guø'kp'F cxkf 'E0Nkpf dgti " *gf 0+"Uekgpeg'kp''y g'Okf f ng'Ci gu'Ej keci q'cpf 'Nqpf qp<'Wpkxgtukv{ "qh'Ej keci q'Rtguu.'36730 } $$$ 

Uvqn g. 'T0\*3; ; 4+"*J gt o gpgwkuej gu*"©*dgt ugv/ gp*. "VÃdkpi gp<P ctt0

Uqtg{."E0C0\*3; 9264+"*Rgt ukcp'Nkgt c wit g*<*C'Dkqdkdrkqi t crj kecrl'Uxt xg{*."4"xqni."Nqpf qp<'Vj g'Tq{crl'Cukcvke"Uqekgv{"qh" I tgcv'Dtkckp"cpf "Nqpf qp0

U¾ki .'J cpu'Iqcej ko '\*gf 0+'\*3; 8513; 8; +'F cu'Rt qdrgo 'f gu'©dgt ugv/gpu.'F cto uvcf v<Y kuugpuej chrhej g''
Dwej i gugmej chr0

ô ô \*gf 0+"\*3; 89+"<br/> F cu'Rt qd<br/>rgo 'f gu'©dgt ugv/gpu "Uwwi ctv<br/>'J gpt { 'I qxgt vu0

Utc\hqtf."R0\s3; 99+"Dkdrkqi tcrj {"qh'Ecpcf kcp"Dqqmu"kp"Vtcpurc\kqp<'Htgpej "\q'Gpi rkuj "cpf 'Gpi rkuj "\q'Htgpej." Qwcy c<'J TEE0

Utcwu." Iqj cpp'\*3; ; 6+"- $Tqo\ cprct$ ."  $Cj\#Q'Tqo\ cprct\#Ngu'F^2$ dwu'f g'hc'hgewtg'o qf gtpg'f cpu'hg $Go\ r\ ktg'Qwqo\ cp'*3$ : 726 3; 22+%"  $Vwt\ ekec$ ."  $Tgxwg'f\ \phi''$   $wf\ gu'Vwt\ s\ wgu$  ''XqtD48."  $f\ kkqpu'Rggvgtu$ ." 3476850

ô ô \*3; ; 7+":-Vj g"*O kngul*'cpf "vj g"Qwqo cp"Ncpi wci g<"Vj g"Eqpvtkdwkqp"qh"Qwqo cp"I tggmu"vq"Qwqo cp"Ngwgtu"\*3; yj / 42 yj "Egpwtkgu+ø" "F kg"Y gnv"f gu"Kurco u"57\*4+<"3: ; 646; 0

Utkgf vgt."[ wtk["\*3;:;+"/Nkgtct["Utwewtg."Gxqnwkqp."cpf"Xcnvg."Eco dtkfig."O C
Uwddu. "O kej cgn"\*3;; 5+":Dtkktij "Vtcf kkqpu"kp"Vgzv'Cpcn[ukuô htqo "Hktyj "vq"Ukpencktø"kp"O qpc"Dcngt."I kni'Htcpeku"cpf "Grgpc"Vqi pkpk/Dqpgnk'\*gf u+"Vgzv'cpf"Vgej pqrqi {<"Kp"J qpqwt"qh/Lqj p"Ukpenckt."Co uvgtf co "cpf "Rj kncf gnr j kc<"Lqj p" Dgplco kpu0</p>

 $\circ \circ *3; ; 7+": Eqmqecvkqpu''cpf ''Ugo cpvke''Rtqhkrgu<''Qp''y g''Ecwug''qh''y g''Vtqwdrg''Y ky ''S wcpvkxcvkxg''Uwf kguø'' ''Hwpevkqpu'' qh''Ncpi wci g''4*3+<'456770$ 

ô ô \*3;; 8+"Vgzv'cpf 'Eqtrwu'Cpcn uku 'Qzhqtf "cpf 'Eco dtkf i g. 'O C <'Dreeny gm0

Uwi ko qvq. "V0\s3; ; 2+"Pci cucnk'Vu lk'Oqpqi cvctk"]Cp"Ceeqwpv'qh"yj g"Pci cucnk'Kpvgtrtgvgtu\_. "Vqm{q<'U vcmwij c0 Uwnkxcp. 'ILR0\s3; 87+"G/tc"Rqwpf "cpf" 'Ugzwwi'Rtqrgtvkwu<'C"Uwf { 'kp"Etgcvkxg"Vtcpurcvkqp. "Nqpf qp0

Uwo ksc. 'G0'cpf 'J (Kkf c'\*3; ; 3+":Gzr gtko gpw'cpf 'Rtqur gew'qh'Gzco r ng/dcugf 'O cej kpg''Vtcpurckqpø''Rtqeggf kpi u'qh'vj g'' 4; vj 'Cppwcn'O ggvkpi ''qh'vj g''Cuuqekcvkqp'hqt 'Eqo rwwckqpcn'Nkpi wkukeu'\*Dgtmgng{+:'3: 76; 40

 $\label{thm:linear_local_loc$ 

Uy cpp. 'Dtkcp'\*3; ; 4+'Qp''y g'Vtcpurc kqp''qh'Pc kxg'Co gt kecp'Nkyt cwt gu 'Y cuj kpi vqp'F E <'Uo kyj uqpkcp0

Uy cpvqp. 'O 0\*tcpu0+'\*3; ; 5+'Cpi rq/Uczqp'Rt qug. 'Nqpf qp<100 0F gpv='Xgto qpv<Ej ctrgu'G0'Vwvrg0

 $\label{eq:control_c$ 

U{ ngu. 'O 0\*3; : 7+":F kuetko kpcvkqp"kp"F kueqwtugø"kp"V0xcp"F klmi\*gf 0+" *J cpf dqqmiqhiF kueqwt ug"Cpcn( uku.* "xqn06." Nqpf qp<" Cecf go ke 'Rtguu0

U cd». 'G0\*3; 8: +' $C''o lqtf \cdot v^q u'$ ] Nksgtct { "Vtcpurcvkqp\_.'Dwf cr guv $^{\prime}$ I qpf qrc $^{\prime}$ 0

Vcdcmqy umc. "G0\*3; ; 5+"Eqi pkkxg"Nkpi wkwkeu"cpf "vj g"Rqgvkeu"qhVtcpurcvkqp. "VAdkpi gp<"I wpvgt "P ctt0

Vcktc. 'O 0\*3; ; 8+":Eqpvtcuvkxg"Uwf kgu'qh'O qf crkx{ 'kp'Gpi rkuj 'cpf 'Ugpvgpeg'HkpcrlRctvkergu'kp'Icr cpgugø'Rj F." Wpkxgtukx{ 'qh'Eco dtkf i g0

 $\label{eq:condition} $$ Vengf c.'M0\%3; : 5+":Y guvgtp'Nkgtewtg'kp'Lerepgug''Vtepure kqp@''kp''Mqf epuj c''Gpe{enqrgf ke''qh'Lerep.''xqn0': .''Vqm(q<''Mqf epuj c''Nvf 0)} $$$ 

Vcppgp. 'F 0\*3; : 6+"Eqj gt gpeg'kp"Ur qngp"cpf "Y t kwgp"F kueqwt ug. 'P qty qqf. 'P L<Cdrgz0

Vcpr kpct. 'Cj o gv'J co f k'\*3; : 4+"3; wpew'Cukt 'Vwt m'Gf gdk/cvk'Vct kj k"]J knqt { "qh'3; yj /egpwt { "Vwt mkuj "Nkgtcwtg\_." Eci rc { cp''Mkcdgxk "Kncpdwt0

 $Vcti\ gv$ \\$3;; 7+\ur\ ge\ur\ knuwg'\qp'\ur\ kp\ytr\ t\ g\\pi\pi'\ \text{T}\ gugctej\ .''gf\ 0\ur\ cp\\ytext{kgn'}\ur\ kng.\ur\ x\qn\09\\$3+0

 $Vct lqo gj \ 'f \ ct \ 'P \ lo \ /S \ ct \ p/g' \ Cnj \ kt \ '] \ Vtcpurc \ lqp' \ lq' \ 'g \ 'Rcuv' \ cnj' \ egpwt \ {_'*3}; 98+. \ 'c' \ tgr \ qt \ 'r \ tgr \ ctgf \ 'd \ ''y \ g' \ Gf \ wec \ lqpcn' \ F \ kx \ lqp' \ 'qh' \ g' \ Egp \ ''h \ t' \ Ewn \ tcn' \ Uwf \ lqu' \ lqp \ ''h \ lqp' \$ 

Vctunk 'Crhtgf' '\*3; 78+":-Vj g'Eqpegr v'qh' 'Vtwj 'kp' 'Hqto crk gf' 'Ncpi wci guø' 'kp' 'Vctunk' Nqi ke. 'Ugo cpvkeu' cpf''

Ogwo cyj go cykeu<Rcrgtu'lt qo '3; 45'\q'3; 5: .'\tcpu0LO OY qqf i gt.'\Qzhqtf \Entgpf qp'\Rtguu.'374649: 0

Vctvci nc. 'P keeqn'/4\*3787+'Grgo gpvk'f k'Gwerkf g. "Xgpkeg<Ewtvkq"Vtqkcpq0

Vcxcpk'I kwugr r g'\*3; 8; +"Dkrlpi wkuo q'g'r nwt krlpi wkuo q't qo cp/q'f crlZKKcrlZXKugeqnq."Tqo g<F g"Ucpvku0 Vc{mt."D0\*tcpu0+"3: 93+"Iqj cpp"Y qrhi cpi "xqp"

```
I qgyj g."Hcww."C"Vtci gf {."Dquvqp."Ico gu"T0Qui qqf "cpf "Eqo r cp{0
```

Vgddgn'Iqj p'\*3; : 9+'Dgvy ggp'Eqxgtu0Vj g'Tkug'cpf'Vt cpulqt o cvkqp'qllCo gt kecp'Rwdrkuj kpi .''Qzlqtf'' Wpkxgtukv{'Rtguu0

Vgddrg. 'J 0\*3; ; 4+":C 'F kneqwtug'O qf grlhqt 'F kcmi wg'Kpvgtr tgvkpi ø'kp''CWUN''Rt qeggf kpi u''qh'y g'Hkt uv'Rt cevkskqpgt uø'' Ugo kpct. 'Ecpdgttc<'Cwwtcnkcp' Kpurkwwg'qh' Kprystr tgrygtu'cpf 'Vtcpurcryqtu' KpeOP crkqpcn'QhhlegO

Vgf rqem'Fgppku'\*3; :; +":-Vjg''Vtcpurcvqt="qt."Yj{'vjg'Etqeqfkrg'ycu'pqv'Fkukmvukqpgf<"C''Rrc{'kp'Qpg'Cevø'kp'Ycttgp'' \*gf 0+0

Vggrg. 'Tq{ 'Gctrg'\*3; 6; +"Vj tqwi j "c'I ncuu'FctmqOC'Uwf{"qhGpi nkuj "Vtcpurcvkqpu"qhEj kpgug'Rqgvt{. 'Cpp'Ctdqt<' Wpkxgtukv{ ''qh''O kej ki cp''Rtguu0

Vgmkp.'I ¾pÃn'C0¼3;; 4+'¥gpi pco gô Cj o gf/k'Fck<'Etkkecn'Gfkkqp'cpf'Vgzwcn'Cpcn(uku']Vj g'Dqqm'qh'Egpi ô Cj o gf/k'Fck\_."Uqwtegu'qh'Qtkgpvcn'Ncpi wci gu'cpf 'Nkgtcwtgu'38."Vwtnkuj "Uqwtegu'Z KX."Eco dtkf i g. "O C < J ctxctf" Wpkxgtukv{ 'Rtguu0

Vgttcekpk 'Dgpxgpwq'\*3; : 5+'KV'rtqdrgo c'f grrc''vtcf w/kqpg. 'O krcp<'Ugttc'g'Tkxc0

Vgtt{."R0\*3;:6+":-Vjg"Kpxkukdrg"Fkthgtgpeg<"Pqvgu"qp"vjg"Vtcpurcvkqp"qh"Rqgvt{ø"kp"Htcy rg{'\*gf0+'3;:6c0

Vg{uukgt."R0\*3; : 2+" *J kuqkt g'f g'rc 'rc pi wg'r qt wii c kug*. "Rctku<"Rt guugu" Wpkx gt uksckt gu'f g'Ht cpeg="tcpu0E0E wpj c"cu" J kun the "f c" infpi we" r qt wii wgue. "3; ; 2. "Nkudqp<"Nkxtetke" Ut "f c" Equve "Gf kqte0

Vg| m. 'C0\*3; 86+'Cp'Kpvt qf wevqt { 'Dkdrkqi t crj { 'kp'\j g'Uwf { ''qh'J wpi ct kcp'Nkgt cwt g0'Eco dt\fi g. 'O C<'J ctxctf'' Wpkxgtukv{ 'Rtguu0

ô ô \*3; 92+"*J wpi ct kcp 'Cwyj qt u.* 'Eco dtkf i g. 'O C<'J ctxctf 'Wpkxgtukv{ 'Rtguu0

Vj cr ct. 'Tqo kmc'\*3; 88+"C"J knaqt { 'qhlTkpf kc. 'xqn03. 'J cto qpf uy qtyj < Rgpi wkp0

Vj grgp. 'O ctegri'cpf 'Dctdctc' Ngy cpf qy unc Vqo cu| e| {ml\*gf u+l\*3; ; 2+l'Vt cpurc vkqp''cpf 'O gcpkpi . 'Rct v'3. 'O ccuxtkej vk' Gwtqvgto 0

ô ô \*gf u+'\*3; ; 4+"Vt cpurc vkqp"cpf "O gcpkpi . "Rct v'4." O ccuxtkej v<"Tklmuj qi guej qqn"O ccuxtkej v0

Vj kluugp/Uej qwg. 'EONO\*3; 89+'Wk/f g't grwdrkgriff gt 'ngwgt gp0Grll'uwf kgu''qr 'j gv'i gdkgf 'xcp'f g'kf ggµpi guej kgf gpku''xcp'' fg'I qwfgp'Ggwy']Htqo''y g'Tgrwdrle''qh'Ngwgtu0Grgxgp'Uwfkgu''kp''y g'Hkgrf''qh'y g'I kuvqt{''qh'Kfgcu''qh''y g'I qrfgp'' Ci g\_."Vj g"J ci wg<"P klj qhh0

Vj qo cu. "P qgn'cpf 'Tkej ctf "Vqy gml\*gf u+"\*3; : 7+"Kpvgt r t gvkpi "cu"c "Ncpi wci g"Vgcej kpi "Vgej pks wg. "Nqpf qp<Egpvtg"hqt" Kohqto cvkqp"qp"Ncpi wci g"Vgcej kpi "cpf "Tgugctej 0

Vj qo cu. "U0\*3; ; 6+":T grgxcpeg"cpf "Vtcpurc kqpø "kp" Vgzv'Nkpi wkukeu'cpf "Vtcpurc kqp."c"ur gekcn'kuuwg"qh" Vwt lwo cp" \* eqng''Uwr gtkgwtg'Tqk'Hcj f 'f g''Vtcf wevkqpô Vcpi gt+.''5\*4+<'5966; 0

Vj qtpf kng. 'N{pp'\*3; 4567: +"C"J knqt{"qhOci ke"cpf 'Gzrgt ko gpwn'Uekgpeg.": 'xqnı."P gy '[ qtm\"Eqnvo dkc0

Vj tcr. 'F 0N0\*3; :: +"Gpe{f qr gf kc "qh'Ht qpvkgt "Dkqi t crj {."5"xqnu."I ngpf cng. 'EC < Ctyj wt "J 0'Enctm'Eqo r cp{0}

Vkmmqpgp/Eqpf kx."Uqplc"\sig: 8+"\signifygz\v"V{rg"Octmgtu"cpf "Vtcpurc\kqp"Gs wkxcrgpegø'\kp"Jqwug'cpf "Dnwo/Mwmc'\gf u+0 ô ô \*3; : ; +"::Rtqhguulqpcn'xgtuwu'Pqp/rtqhguulqpcn'Vtcpurcvlqp<"C"Vj kpm/crqwf"Rtqvqeqn'Uwf{ø"kp"Ecpfceg"Ui wkpqv" \*gf 0+'Vj g'Vt cpurc vkqp'Rt qeguu.''Vqtqpvq<'J I 'Rwdrkecvkqpu0

ô ô \*3; ; 2+"::Rtqhguulqpcn'xu0P qp/r tqhguulqpcn'Vtcpurcvlqp<"C"Vj kpm/crqwf 'Rtqvqeqn'Uwf {ø'kp'O 0C0M0 cmlf c{.'I0 I kddqpu'cpf 'J (P kej qrcu'\*gf u+"Ngctpkpi .'Mggrkpi 'cpf 'Wukpi 'Ncpi wci g0Ugrgevgf 'Rcrgtu'htqo 'vj g'Gki j vj 'Y qtrf '' Eqpi t guu'qh'Crrnkgf 'Nkpi wkwkeu0Uf pg{.'38643'Cwi ww'3;:9.'Co uvgtf co 'cpf 'Rj krcf grr j kc<'Iqj p'Dgplco kpu0

ô ô \*gf 0+\*3; ; 3+'Go r kt kecrlT gugct ej 'kp'Vt cpurc vkqp'cpf 'Kpvgt ewnwt crl'Uwf kgu<'Ugrgevgf 'Rcrgt u'qh'vj g'VTCP U'UNH'' Ugo kpct. "Ucxqprkppc'3; ::: "VAdkpi gp<I wpvgt" P ctt0

ô ô \*3; ; 4+"::C"Vj gqtgvkecn'Ceeqwpv'qh''Vtcpurcvkqpô y ky qwv''Vtcpurcvkqp"Vj gqt{ø''Vcti gv'6\*4+<'4596670

ô ô \*3; ; 5+":Ej qkeg'kp''Vtcpurckqp<"C''Ej crigpi g'\q''Vj gqt { ''cpf ''Rtcevkegø' 'kp''Vktmrqpgp/Eqpf kv'cpf ''Nchrkpi '\*gf u+:'76; 0 ô ô cpf "UEqpf k/\*gf u+'\*3; : ; +'Go r kt kecn'Umf kgu'kp"Vt cpurc vkqp"cpf 'Nkpi wkukeu. "Iqgpuww." "Uhkxgt ukv{ "qh'Iqgpuww."

Heewn/{ 'qh'Ctw0 ô ô cpf 'INchrkpi '\*gf u+'\*3;; 5+'T gegpv'Vt gpf u'kp'Go r kt kec n'Vt c purc vkqp'T gugct ej .'Iqgpuww.''Wpkxgt ukv{ ''qh'Iqgpuww.'' Heewnv{ 'qh'Ctvu0

VO K\*3; ; 4+"Hqwt vj "Kpvgt pcvkqpcn'Eqphgt gpeg"qp"Vj gqt gvkecn'cpf "O gvj qf qnqi kecn'Kuuwgu'kp"O cej kpg"Vt cpuncvkqp." Rt qeggf kpi u.'Ncxcn'S wgdge EETKV0

Vqf qtqx."V0\*3; 9: +"Ngu'i gpt gu'f w'f kneqwt u. "Rctku<"Ugwkn0

Vqo nkpuqp. 'Ej ctrgu'\*3; 9; +'Tgpi c0C'Ej ckp'qh'Rqgo u 'J cto qpf uy qtyj <'Rgpi wkp0

 $\hat{o}$   $\hat{o}$  \*gf 0+'\*3; : 2+''Vj g'Qzlqtf 'DqqmlqllGpi nkuj 'Xgt ug'lp'Vt cpunc vkqp. 'Qzlqtf 'Qzlqtf 'Wplx gt ukv{ 'Rt guu0

Vqo o qm: "Iqto c'\*gf 0+"*Vqr keu'kp 'Kovgt r t gvkpi "T gugc t e j* ."Vwtmv<'Wpkx gtukv{ ''qh'Vwtmv0

Vqti gtuqp."U0\*3; : 4+" xgtu@xpkpi ct "\knd\xgpunc"cx"\und\prkxyt@"rtquc"3: 8863: 92."3: ; 863; 22."3; 4863; 52"

 $] Vtcpurc vkqpu''qh'Rtqug''Hevkqp''kpvq''Uy \ gf \ kij \ '3: 8863: 92. \ '3: \ ; 863; 22. \ '3; 4863; 52. \ 'I \ '4 kgdqti <'Nkvgtcwt x gvgpurc r ki c'' kgdqti <'Nkvgtcwt x gvgpurc r kgdqti <'N$ kpurkwkqpgp0

Vqunc.'\ gj tc'\*3;; 3+"::Mgrkrg'xg'F ko pg\(\rho\)pkp''Vwtneg''Egxktkrgtk\(\rho'\)]Vwtnkuj "Vtcpurc\kqpu'qh''Mgrkrg''cpf 'F ko pg\_.''Lqwtpcn'qh' Vwt mkuj 'Uwf kgu'37. 'Hcj kt 'K' Hguwej t khv'KK'gf 01 wpc { 'Mw'cpf 'I qpwrlC0Vgmkp. '5776: 20

Vqv| gxc. "Uqr j kc" "3; ; 7+" F cu'vj gcvt cng' Rqvgpvkcn'f gu'f t co cvkuej gp' Vgzvgu < Gkp' Dgkvt ci "/ wt 'Vj gqt kg' xqp' F t co c'wpf" Ftco gpAdgtugy/wpi "\*Hqtwo "O qf gtpgu"Vj gcvgt"3; +: "VAdkpi gp<"I wpvgt "P ctt0

Vqwt{."I lf gqp"\3; 98+"\Pqto qv'uj gn'\ti wo "ukhtwk'ng/kxtkx"3; 52\63; 67\\009d"]Pqto u'qh'\Nkgtct{"Vtcpunc\kqp"kpvq"J gdtgy." 3; 5263; 67\_0Wpr wdrkuj gf 'Rj F 'vj guku.''VgrlCxkx''Wpkxgtukv{0

ô ô \*3; 99+"Pqto qv'uj grl\kt i wo "xg/j c/\kt i wo "j c/ukt wk'hg/kxt k\v'dc/uj cpko "3; 5263; 67"

- ] Vtcpurc kapcn'P qto u'cpf 'Nkgtct { ''Vtcpurc kap'kpvq'J gdtgy .'3; 5263; 67\_.''Vgn'Cxkx<'Vj g'Rqtvgt 'Kpurkwwg'hqt'Rqgvkeu' cpf 'Ugo kqvkeu.''Vgn'Cxkx''Wpkxgtukv $\{0\}$
- $\hat{o}$   $\hat{o}$  \*3; 9: +":-Vj g'P cwtg'cpf 'Tqrg'qh'P qto u'lp'Nkgtct { "Vtcpurc\kqpø'lp'J qro gu. 'Nco dgtv.''cpf 'xcp'f gp'Dtqgem'\gf u+." : 563220
- ô ô \*3; : 2c+"*Kp"Ugct ej "qh'c"Vj gqt { "qh'Vt c purc kqp.* "Vgn'Cxkx<'Rqt vgt "Kpurkwwg0
- $\hat{o} \ \hat{o} \ ^*\!\!3; : 2d + "Eqo o \ wpkeckqp" kp" Vtcpurcvgf "Vgzvu0C" Ugo \ kqvke' Crrtqcej \ \emptyset' kp" Y 0 Y \ kmu' \ ^*\!\!gf 0 + 0 \ ^*\!\!$
- $\hat{o} \hat{o} *3; : 3c + ":Vtcpurcvgf" Nkgtcwtg < U (uvgo . "Pqto u." Rgthqto cpeg < Vqy ctf" c"VV/qtkgpvgf" Crrtqcej "vq" Nkgtct { "Vtcpurcvkqpø" Rqgvkeu' Vqf c { '4*6+ "; 6490} }$
- ô ô \*3; : 3d+":Eqpvtcuvkxg"Nkpi wkuvkeu'cpf "Vtcpurcvkqp"Uwvfkgu<"Vqy ctf 'c"Vtkr ctvkxg"O qf gnø 'kp"Y qnhi cpi 'MAj ny gkp."
- I kugrc''Vj qo g''cpf ''Y qrhtco ''Y knuu'\*gf u+"*Mapvt cukxg'Nkpi xkuknthypf* '©*dgt ugv| wpi uy kuugpuej chv*-'Crwgp''f gu'' *Kpvgt pc vkapc ngp'Manas xkwo u'Vt kgt IUcct dt Ãengp'470520 08; 9:* .'O wpkej <'Y knj gro ''Hkpm'4736830

- ô ô \*3; : 8c+";O qpkqtkpi 'F kueqwtug''Vtcpuhgt<'C''Vguv/ecug'hqt''c'F gxgnqr o gpvcn'O qf gn'qh''Vtcpuncvkqpø'kp''J qwug''cpf ''
  Dnwo /Mwmc''\*gf u+.'9; ó; 60
- $\hat{o} \hat{o} *3; : 8d+": Vtcpurc vkqp0C" E wnwt cn' Ugo kqvke "Rgtur gevkxgø" kp' V0C (Ugdgqmi*gf 0+" Gpe{enqr gf ke' F kevkqpct { ''qh' Ugo kqvkeu ''xqn'04. 'Dgtnkp. 'P gy ''[ qtm'cpf 'Co uvgtf co <'O qwqp'f g' I tw{vgt0}$
- ô ô \*3; : : +":-Vtcpurc\kpi ''Gpi rkuj ''Nk\gtc\wtg''\xkc''I gto cpô cpf ''X\kg''X\gtuc\c''C''U\{o r \qo c\ke'\Tgx\gtucrl\kp''\y g''J \ku\qt\{ ''qh'' O qf gtp''J gdtgy ''N\k\gtc\wtg\alpha''\kp''M\k\y\gr\\gt\\gt\.''35; \delta790
- ô ô \*3; ; 2+":-Vj g'Eqwr ngf 'Rckt 'qh'ōUqnwkqp"- 'Rtqdngo ö'kp"Vtcpuncvkqp"Uwf kguø 'kp'RP Œj chhg{. 'CCHDT {f pkpi 'cpf 'UUU Witkmugp'\*gf u+"Vtcpuncvkqp'Vj gqt {'kp'Uccpf kpcxkc. 'Qunq. '36450 ô \*3; ; 3c+":-Y j cv'ctg'F guetkr vkxg"Uwf kgu'kpvq"Vtcpuncvkqp"Nkngn{ 'vq"[kgnf 'cr ctv'htqo 'Kuqncvgf 'F guetkr vkqpuø 'kp'xcp"
- Ngwxgp/\ y ctv'cpf "P cckingpu" \*gf u+0

  ô ô \*3: : 3d+"-Gzr otko gnycykan "kn" Vtcnurykan "I kwf kouk" Cei kox go gnyu "Rtaur geyu" cnf "I ho g"Rkhemig "kn" Vtcnurykan vtcn
- ô ô \*3; ; 3d+":-Gzr gt ko gpvcvkqp'kp"Vtcpurcvkqp"Uwf kgu<'Cej kgxgo gpvu. ''Rtqur gevu'cpf "Uqo g''Rkvhcmuø'kp"Vktmmqpgp/ Eqpf kv'\*gf 0+. '676880
- ô ô \*3;; 5+"÷õVtcpurcvkqp"qh"Nkvgtct{"Vgzvuö"xu0°õNkvgtct{"Vtcpurcvkqpö<"C"Fkuvkpevkqp"Tgeqpukfgtgfø"kp"Vktmmqpgp/Eqpfkv"cpf"Nchhrkpi "\*gfu+:"326460
- Vt cpurc vkq'\*3; ; 7+"ur gekcn'kuuwg<"Cwf kqxkuwcn'Eqo o wpkecvkqp"cpf "Ncpi wci g'Vt cpulgt."xqr036."\*566+0
- $\label{thm:condition} $$ Vtqkcpqu'U0cpf'KKgrkuuctqr qwqw'Mctcmquvc'*3; ; 5+"Kwqtkc'T kmckqw']J kuvqt{"qh'Ncy_.'Cyi gpu.'Mqo qvkpk'Ucmmqwrcu0} $$ Vtquv.''Mrcwu'*3; 9: +":-Wpvgtuwej wpi gp'hÃt''Odgtgmqp{uvj gqtkg''wpf'Rtczku''f gu''ur @gtgp''mktej gpurcxkuej gpø''Hqtwo'' $$ Ucxkewo''650$$
- Vwtm'J qtuv'\s3;:; +":Rtqdrgo g'f gt'\@dgtug\ wpi u/cpcn{ug'\wpf 'f gt'\@dgtug\ wpi uy gqtkgø''\Lcj t dwej 'h\tilde{A}t'\Wpvgt pc vkqpcng'' I gt o cpkukn'\d3\s4+\c': \do: 40
- ô ô \*3; ; 4+":©dgtugv| wpi "qj pg'Mqo o gpvct0'Mwnwtgmg''Uej nAuugmlgi tkhhg'wpf "mqpvtqxgtugt''Mwnwtdgi tkhh'co "Dgkur kgn' xqp''I q{ vkuqmu''ŏTgkxkpf kecek»p''f gn'Eqpf g''f qp''Lwrk pöø''kp''Htgf ''N¾pmgt''\*gf 0+"F kg''nkvgt ct kuej g''©dgt ugv| wpi "cnu" Ogf kwo "f gt "Ht go f gt hcj t wpi "\*1 ¾wkpi gt 'Dgkxt® g'| wt''Kpvgtpcvkqpcrgp'©dgtugv| wpi u/hqtuej wpi "8+:"Dgtrkp<"Gtkej "Uej o kf v.'56620
- ô ô \*3;; 6+"::Qr gtcvkxg'Ugo cpvkmgp0\ wo 'Rtqdngo 'Mwnwtgngt''Kf gpvkx®'ko 'Cpuej nw 'cp''Gtpuv'Ecuuktgtø''Kpvgtpcvkqpcng'' \ gkvuej t khv'hÃt 'Rj knquqrj kg'3;; 6''4-45; 6760
- Vwtxkrrg/Rgvtg'\*3; 97+"Qtki kpu"qhl'Kegrcpf ke'Nksgt cwtg."Qzhqtf <Erctgpf qp''Rtguu0
- Vwy ko ."I0\*3; 72+"::Vtcf wwqtgô vtcf kqtgø 'kp" $Rgi\ c$ /' deba "e/{nk'r cpqr vkewo "rqgv/emkg"]Vj g'Rgi cuwu'Tgctkpi ."qt"c" Rqgvlecn'Rcpqr vkewo \_"Y ctucy <'E| {vgrpkn0}
- Vy kpg. 'P 0\si3; ; 3+\notin vc i g'cpf '\notin g'O qf gtp'\notin vc y<\notin j g'Tghqto '\notin hit through \notin Lcrcpgug. \notin nqpf qp \rightarrow Tqwngf i g0
- V{ci kucpcpf c. "Uy co k"3; 93+"Uxgwuxcwtqrcpkucf. "O cf tcu \"UtkTco cmtkuj pc"O cyj 0
- V{pf crg. "Y krrkco "\*]3758\_"3; 8: +"Cp"Cpuy gt "vq"Uk"Vj qo cu"O qt gøu"F kcrqi wg. 'hceuko krg"gf p. "P gy "[ qtmc"Iqj puqp" Tgr tkpv"Eqtr qtcvkqp0
- V{plcpqx."Lwtli"P 0\*3; 4; +"Ctnj chw\"lk'pqxcvqt\"]Ctej chwi"cpf "Kppqxcvqtu\_."O queqy <"Cmcf go kc="tgr tkpvgf"3; 89."
  O wplej <"Y knj gm "Hkpn0"
- $\hat{o} \quad \hat{o} \quad \hat{*3}; 93+\text{"$^*$Qp'Nkgtct} \\ \text{"Gxqnwkqp$\emptyset" "tcpu0E0C0Nwr nqy." "kp'Ncf kurcx" O cvglnc" cpf "Mt {uv{pc'Rqo qtunc'*gf u+'}Tgcf kpi u"kp'Twukcp'Rqgkeu<'Hqto crkw'Cpf''Ut wewt crkw'Xkgy u. "Eco dtkf i g. 'O C<'O KV''Rtguu0$
- V{vrgt. 'Crgzcpf gt'Htcugt' Nqtf 'Y qqf j qwugrgg'\*]39; 2\_'3: 35+'Guuc{''qp''yj g'Rtkpekrrgu''qh'Vtcpu/rckqp.''5tf ''gf p.''
- Gf kpdwti j <"Ctej kdcrf "Eqpuvcdrg"cpf "Eqo r cp{="3; 23." Nqpf qp<"LOO 0F gpv"cpf "Uqpu="P gy "[ qtm;"F wwqp="tgr tkpvgf" y kj "cp"

- kpvtqf wevkqp''d{ 'Ightg{ 'I wpvuo cp.'3; 9: .'Co uvgtf co < Iqj p'Dgplco kpu="cnuq"kp'Nghgxgtg'\*gf 0'cpf '\tcpu0+'3; ; 4d0 WP GUE Q"Eqwtkgt'\*3; : 5+'xqn09.''÷Vj g'Kpf kcp'Ncpi wci gu'qh'Ncvkp'Co gtkecø''346360
- Wpi gt. "Vj qtuvgp. "Dtki kwg" Uej wn $\$  g"cpf "J qtuv" Vwt m' $\$  gf u+ $\$  " $\$ 3; ; 7+ $\$  l $\$  l $\$  gpvg' Nc ej mwnwt gpA' Ht go f g' Mqo km' wpf 'kj t g''  $\$  ©  $\$  dgt ugv/ wpi ' $\$  Hqtwo 'O qf gtpgu" Vj gcvgt '3: +: "V $\$  dkpi gp<'I wpvgt 'P ctt0
- Xckmcpv.'C0\*3; 6: +":Nc'r tghceg'f g'n\$\text{y} xcpi 2nkcktg'xkgwz/urcxg\text{g}'Tgxwg'f gu'2wf gu'urcxgu'46\( \frac{1}{2} \) 6420
- xcp"f gp"Dtqgem"Tc{o qpf "\*3; : 667+":-Xgtuej wkxkpi gp"kp"f g'unkrkunkgm'xcp"xgt vccnf g"rksgtckt g"vgmnygp<"ggp"ugo kqukuej g" dgpcf gtkpi ø"]Uj khnu'kp"yj g"Uv{nkunkeu"qh"Vtcpuncvgf "Nksgtct{"Vgzvu<"C"Ugo kquke'Crrtqcej\_."*Nkpi wkunkec "Cpvxgt r kgpuke*"3: 63; \$336670
- $\hat{o}$   $\hat{o}$  \*3; : 7+":-Ugeqpf "Vj qwi j wi'qp"Vtcpurc\kqp'Etk\ke\kvo <'C'O qf gn'qh'Cpcn{ \ke''Hwpe\kqp\@'\kp''J gto cpu'\%gf 0+'3; : 7c0
- ô ô \*3; : 8d+":Qr xcwlpi gp"qxgt"j gv'xgtvcrgp"lp"P gf gtrcpf "xcp"3: 22"\qv'3: 72 $\phi$ "]Qr lplqpu"cdqw\"Vtcpurc\lqp"lp"J qrcpf " ltqo "3: 22"\q'3: 72 $\_$ "F g'I \lf u'36; \*8+\(\delta6; 967350
- ô ô \*3; :: c+":-Vtcpurcvkpi 'hqt 'vj g'Vj gcvtgø'kp"L0V0[ f uvkg'\*gf 0+"Kp" J qpqwt 'qhl'Rc vt keml'P ki gnl'Ej chlg{ 'qp'vj g'Qeecukqp''qhl' j ku'72 vj 'Dkt vj f c{.'44"Ugr vgo dgt '3; :: 'y kvj 'Eqpvt kdwskqpu'ht qo 'Ht kgpf u'cpf 'Eqmgc i wgu. 'Qurq<'Egpvtg'hqt'Cr r nkgf "
  Nkpi wkurkeu. 'Wpkxgtukv{ 'qh'Qurq0
- ô ô \*gf 0+'\*3; :: d+''Nkyt c wwt ''xcp''grf gt u0 Qxgt 'j gv'xgt w rgp''gp'f g''uwf kg''xcp''xgt w crf g''rkyt c wwt 'kp''j gv'P gf gt rcpf u'' ]Nkyt cwt g'ht qo ''Grugy j gt g0 Cdqw''y j g''Vt cpurc kqp''cpf ''y g''Uwf { "qh''Vt cpurc vgf ''Nkyt cwt g''kp''F wej \_.''Ngwx gp''cpf '' Co gt uhqqt v<'Ceeq0
- ô ô cpf 'Cpf t² 'Nghgxgtg'\*3; 9; +'Wk.pqf ki kpi '\qv'f g'xgt vccny gvgpuej cr'']Cp'Kpxkxcvkqp'\q''Vtcpuncvkqp''Uwf kgu\_.''
  O wkf gtdgti <'Eqwokpj q0
- xcp'I qtr ."J 0\%3; 9: +":Nc"Vtcf wevkqp"rkw2 tcktg"r cto k'ngu"cwxtgu"o 2 vcvgz vguø"kp"J qm gu. 'Nco dgtv'cpf 'xcp"f gp"Dtqgem' \%gf u+. '3236380
- $xcp'J qqh'J gptk'*3; 84+'Vj^2qtkg''gv'rtcvkswg'fg'ndkpvgtrt^2vcvkqp.'O wpkej <O cz'J wgdgt'Xgtmi 0$
- ô ô \*3;; 3+"*J kunqkt g"f g"nc "vt cf wevkqp"gp"qeekf gpv*"Ht cpeg. "I tcpf g/Dt gvci pg. "Cngo ci pg. "Twuukg. "Rc{w/Dcu."Rctku"cpf" Nqwxckp/nc/P gwxg<"F wewnqv0</td>
- xcp"Mguvgtgp."Cm{ukwu'\3; 9: +"::Gs wkxcrgpeg"Tgrcvkqpuj kr u'dgwy ggp"Uqwteg"Vgzv'cpf "Vcti gv"Vgzv'Vqy ctf u'c" V{r qmj {"qp"yj g"Dcuku'qh'Ugo kqvkeuø'kp"J qro gu."Nco dgtv'cpf "xcp"f gp'Dtqgem'\gf u+0
- xcp'Ngwxgp/\ y ctv.'Mkw{ 'O 0\*3; : 6+"Xgt wchpi "gp"qt ki kpggn<'Ggp"xgt i grklngpf g"dguej t klxkpi uo gvj qf g"xqqt "kpvgi t cng" xgt wchpi gp. "qpvy knngrf "ccp"f g'j cpf "xcp"Pgf gt ncpf ug"xgt wchpi gp"xcp"Ur ccpug"pct t cvkgxg"\gmuxgp"]Vtcpuncvkqp"cpf "Qt ki kpcn0C"Eqo r ctcvkxg'F guet kr vkxg'O qf gn'hqt "kpvgi t cn'Vtcpuncvkqpu. 'F gxgnqr gf "qp"vj g'Dcuku"qh'F wej "Vtcpuncvkqpu" qh'Ur cpkuj 'P cttcvkxg'Vgzvu\_'F qtf tgej v<'Hqtku'Rwdn'ecvkqpu0
- ô ô \*3; : ; +":-Vtcpurcvkqp"cpf "Qtki kpcn<"Uko kretkskgu"cpf "F kuuko kretkskgu. "Kø "Vcti gv"3\*4+<"3736: 30
- ô ô \*3; ; 2c+":-Vtcpurcvkqp"cpf "Qtki kpcn<"Uko krctkkgu"cpf "F kuuko krctkkgu. "KKá "Vcti gv"4\*3+<"8; ó; 70
- $\hat{o}$   $\hat{o}$  \*3; ;  $2d+":U_j$  khvu'qh'O gcpkpi 'kp''Vtcpurcvkqp<'F qøu'qt'F qpøvuAø'kp''Vj grgp''cpf 'Ngy cpf qy umcVqo cu| {m'\*gf u+: ''4486 560
- ô ô \*3;; 3+":-Vtcpurcvkqp"cpf "Vtcpurcvkqp"Uwfkgu<"Fkveqtf "qt"Wpkx{Axi"kp"Vktmmqpgp/Eqpfkv"\*gf0+0
- xcp"Tqqvgp."Nvku"f  $\emptyset$ Cpvkp"\*3; 89+"Oqw"f  $\emptyset$ "J gwt gu<1 qwuugu "Tco gu "Nqpf qp"cpf "U{ f pg{<Cpi wu"cpf "Tqdgt vuqp0 xcp"Uh{ r g. 'I 0\*3; 9; +":U{ uvtcpô Gxcnwcvkqp"qh"vj g"3; 9: "Xgtukqp"qh"vj g"U{ uvtcp'Gpi nkuj /Htgpej "Cwvqo cvke"U{ uvgo "qh" vj g"Eqo o kuukqp"qh"vj g"Gwtqr gcp"Eqo o wpkkguø"Vj g"Kpeqt r qt cvgf "Nkpi wkw"3: < 86; 0
- Xcpf gtcwy gtc."Tkc"\*3; : 7+"F wej "Paxgnu"Vtcpurcvgf "kpvq"Gpi rkuj <"Vj g"Vtcpuhqto cvkqp"qhlc"÷O kpqtkx{\psi\nv}\nkvgtcwutg."

  Co uvgtf co <Tqf qr k0
- $\label{eq:cuiv} Xcpulpc.'I0*3;: 7+'Qtcn'Vtcfkkqp''cu''Jkuvqt\{.'Ocfkuqp<'Wpkxgtukv\{''qh'Ykueqpulp''Rtguu0}$
- Xcueqpegmqu.'O 0\*gf 0+\*3; :: +"Vgej pqnqi {"cu'Vt cpurc vkqp"Ut c vgi {"\*Cogt kecp"Vt cpurc vqt u'Cuuqe kc vkqp"Uej qnct n{"O qpqi tcr j 'Ugt kgu.'xqn') Kk.: 'Dkpi j co vqp.'P [ < 'Ucvg' Wpkx gt ukx{ 'qh'P gy '[qt m'\* UWP [ +0]
- $X cugxc." \textbf{K0} \% 3; : 2 + "V g q t k l c 'k' r t c m k n c 'r g t g x q f c ''] V j g q t \{ "cpf 'R t ce k e g ''qh' V t cpurc k q p _. "U q h c < P c w n c 'k' k u m w x q 0 X c w w q k u ''D g t p c t f '' \%] 3; 8: _'3; : : + "\% C ''U w t x g \{ "q h' H q t o c n' I t c o o c t u '' c p f ''C n' q t k j o u 'h q t 'T g e q i p k k q p '' c p f ''$
- Vtcpulqto cvkqp'kp'O cej kpg''Vtcpurcvkqpø."*kHiR'Eqpi t guul* 8: "\*Gf kpdwti j ±tgr tkpvgf 'kp''*Dgt pct f 'Xcws wqku'gv'nc 'VCQ<'' xkpi v'ekps ''cpu'f g''vtcf wevkqp''cwvqo cvks wgô cpc ngevgu±'Dgt pct f 'Xcws wqku''cpf 'O V<'Vy gpv{//kxg'[ gct u''qh'O cej kpg'' Vtcpurcvkqpô Ugngevgf 'Y tkkpi u."gf 0Ej 0Dqkgv."I tgpqdng<'Cuuqekcvkqp'Ej co r qmkqp."4236350*
- Xc{gpcu."P0\*3;:; +"Rqkguk'ng"Ogwrjtcuk"]Rqgvt{"cpf""Vtcpurcvkqp\_."Cyjgpu<"Ukiok0
- $\label{eq:continuity} \textbf{Xgi c.'O 0C0*gf 0+*3; ; 6+$'Vgzvqu''en'' ukequ'f g''vgqt \Pc'f g''nc'' vcf week»p.'O cf tkf <\!E^a vgf tc0}$
- $\label{eq:continuous} \textbf{Xgj o cu/Ngj vq.''K0*3}; :; + \textbf{'S} \textit{wcuk/eqtt gevpguu0C''Et kkecn'Uwf {''qh'Hkppkuj ''Vt cpurc kqpu''qh'T wuukcp''Lqwt pcrkuke''Vgz uu.''} \\ \textbf{J gnikpnk''P gwxquvqrkwqkpuvkwwwk0}$
- Xgppgdgti ."W0\*3; : 2+":Rtqdrgo u'lp"Vtcpurc\kpi 'Ugcp"QøEcug{øu'Ftco c'*Lwpq"cpf 'vj g'Rc{eqem*ø'lp"\ wdgt'\*gf 0+0 Xgpwk'Ncy tgpeg'\*3; : 8+":Vj g'Vtcpurc\qtøu'Kpxkuldrk\f\ ø''Etkkekwo '4: \*4+\capprox 39; 64340
- $\hat{\text{o}} \; \hat{\text{o}} \; \text{`$3$}; ; 3+\text{"--I} \; \text{gpgcmi} \; \text{kgu''qh''Vtcpurc\cdot kqp''Vj} \; \text{gqt} \{ \text{--Cej rgkgto cej gt} \text{\'e}'' \text{--Vtcf} \; \text{wevkqp.''Vgto kpqrqi kg.''Tgf cevkqp''6*4+-Cej rgkgto cej gt} \; \text{`$4$} \;$
- ô ô \*gf 0+"\*3;; 4+"*Tgvj kpmkpi "Vt cpurc vkqp<F kueqwt ug. "Undl gevkxk\f. "If gqrqi {.* "Nqpf qp"cpf 'P gy '[ qtm<Tqwrgf i g0

- ô ô \*3; ; 5c+":-Vj g'F gurt we vlap "qh''Vtq{<'Vtcpurc vlap "cpf 'Tq{crkuv'E wnwtcrl'Rqrkskeu'f wtkpi ''vj g'Kpvgttgi pwo ø''Lqwt pcrl'qh'' Ogf kgxcrl'cpf 'Tgpckuucpeg''Uwf kgu'45\*4+<'3; 9643; 0
- ô ô \*3; ; 5d+":-Vtcpurcvkqp"cu"Ewnwtcn'Rqnkskeu<Tgi ko gu"qh"F qo guskecvkqp"kp"Gpi nkuj ø"Vgzwcn'Rt cevkeg'9\*4+<'42: 6450
- ô ô \*3; ; 7c+"*Vj g"Vt c purc vqt øu"Kpxkuldkrl*w{. 'Nqpf qp"cpf 'P gy '[ qtm\'Tqwrgf i g0
- ô ô \*3; ; 7d+":-Vtcpurcvkqp.'Cwj qtuj kr."Eqr {tki j vá "Vj g"Vtcpurcvqt"3\*3+<36460
- ô ô \*3; ; 8+":-Vtcpurc.kqp." J gygtqi gpgkv{."Nkpi wkurkeuø" "VVT <Vtcf wevkqp." Vgt o kpqrqi kg. "Tgf cevkqp"; \*3+<"; 563390

Xgto ggt."J cpu'I0\*3; 9: +":Gkp'Tcj o gp'hAt 'gkpg''cmi go gkpg''Vtcpurc\kqpuvj gqtkgø''*Ngdgpf g''Urtcej gp*''45\*5+<; ; 63240

- ô ô \*3; : 4+":-Vtcpurcvkqp"cnu"õ<br/>K<br/>phqto cvkqpucpi gdqvöø" Ngdgpf g'Urtcej gp"49\*5+<"; 9<br/>ó3230
- ô ô \*3; : 5+'Cwhu®/g'/wt'Vtcpurcvkqpunj gqtkg.'J gkf grdgti <I tqqu0
- ô ô \*3; : ; c+"::Umqr qu'cpf "Eqo o kuukqp"kp"Vtcpurcvkqpcn'Cevkqpø"\tcpu0Cpf tgy "Ej guvgto cp."kp"Ej guvgto cp'\*gf 0+3956 : 90
- ô ô \*3; ; 4c+":Ku"Vtcpurcvkqp"c"Nkpi wkurke "qt"c"Ewnwtcrl'RtqeguuAx"kp"O creqro "Eqwry ctf" \*gf 0+"Uwf kgu'kp"Vtcpurcvkqp1 Guwf qu'kp"Vtcf w± q. "Kij c"f q"F guwgt tq"4: <5966; 0
- ô ô \*3; ; 4d+"*Unk*//*gp"*| wt "*gkpgt"* I *guej kej vg"f gt "Vt c purc vkqp*. "xqnu"3"cpf "4."Ht c pnhwt v**. KMQ** X gt rici "h**At "K**pvgt mwnwt gmg" Mqo o wpkne vkqp0

Xgtpgv."I0\*3; 9: +"Nc "ewnwtc" j kur cpq" t cdg"gp"qt kgpvg"g"qeekf gpvg. "Dctegnpc<"Ctkgn0

Xkcpw."V0\*3; 85+":Egxc"f gur tg"ctvc"vtcf wegtkkø"]Uqo gyj kpi "cdqwl'yj g"Ctv'qh"Vtcpurcvkqp\_.."kp"Xkcpw!\*gf 0+"Uwf kk'f g" nlwgt cwnt "wplxgt ucn" k'eqo rct cv. 'Dwej ctguv<'Rwdrkij kpi "J qwug"qh'yj g'Tqo cpkcp'Cecf go { .'8556; 0}

ô ô \*3; ; 6+":-Vqy ctf u'c "Rgf ci qi { "qh" õV tepure kqp "kp "Ukwe kqp öø "Rgtur gevkxgu" 3 $\checkmark$ 36; 0

Xkrknqxum .'Lap'\*3; : 6+"Rt gmcf "cmq"\xqt dc. "Dtc\kurcxc<"Urqxgpum '\ur kuqxc\g 0

ô ô \*3; : : +":-Vtcpurcvkqp"cpf "Vtcpurcvkqp"Etkskekuo ô yi g"Gnwukxg"Etksgtkcø"kp"P gmgo cp"\*gf 0+0

Xkpc{.'IORO\*3; 79+":Rgw/qp"gpugki pgt"rc"\tcf we\kqpA\(\text{a}\)"\tcp\urc\u\delta\text{Upurc\u\delta}\tex

 $\hat{o} \quad \hat{o} \quad \hat{s}'' ; 97 + \text{``-T gi ctf u'uwt''n} \textit{?} \text{ xqnwkqp''f gu''y'} \quad \text{``qtkgu''f g''nc''vtcf wevkqp''f gr wku''xkpi v'cpux''} \\ Ogw'' + 2*3 + 496490$ 

ô ô cpf 'LiF ctdgrpgv'\*]3; 7: \_'3; 99+"U\f nkuks wg"eqo rct2g"f w'htcp±cku"gv'f g"nøcpi ncku0'02 vj qf g"f g"vtcf wevkqp. "Rctku<" Fkf kgt. "\tcpur0'Lwcp"Uci gt "cpf "O 010I co grl'cu"Eqo rctcvkxg"U\f nkukeu"qh'Htgpej "cpf 'Gpi nkuj <'C'O gvj qf qrqi { 'hqt'' Vtcpurcvkqp. "Co uvgtf co "cpf "Rj krcf grr j kc<'Lqj p"Dgplco kpu."3; ; 70

Xkuuce. [1000]3: 84\_[3; 93+]F g'nc  $[rq^2ukg'ncvkpg'gp']$ Ht cpeg. [1] gpgxc<[0,0]Uncvnkpg[0,0]

Xqki vu. "NOGO\*3; : ; +": Uekgp \the "cpf "O gf kecn'Dqqm\\\\alpha "kp"I tkhhkij u'cpf "Rgctucm' \text{"gf u+: "56766240}

Xqrf gpi .'Gxgn(pg'\*3; : 6+":-Vtcpu'Ncw'Ncwuø''\tcpu0'Htcpegu'O qti cp.''Vguugt c'': \*6+<': 46; 80

Xqnxckg'\*]3956\_'3; 68+"Ngwt gu'r j knquqr j ks wgu 'kp'C(HV)c{mt'\*gf 0+. 'Qzhqtf <'Dcukn'Drceny gn()

 $Y \ cctf . \ ''Lcp''f g''cpf ''Gwi \ gpg''CP \ kf \ c''*3; : 8+''Ht \ qo \ ''Qpg''Ncpi \ wci \ g''\ q''Cpqvj \ gt 0'Hwpevkqpcn'Gs \ wkxcngpeg''kp''Dkdng'' \ Vt \ cpurc \ vkpi . \ ''P \ cuj \ xkng. \ ''Eco \ f \ gp''cpf ''P \ gy \ ''[ \ qtm \ k'P \ gnuqp0 \$ 

Y cf gpul³¼'E0\*3; ; 4+":Kpvgtrtgvkpi "cu"Kpvgtcevkqp"Qp"Fkcmi wg"Kpvgtrtgvkpi "kp"Ko o ki tcvkqp"J gctkpi u"cpf 'O gf kecn' Gpeqwpvgtu¢0Fkuugtvcvkqp. 'Nkpn³¼ kpi "Wpkxgtukv{."Fgrctvo gpv"qh"Eqo o wpkecvkqp"Uwfkgu0

ô ô \*3;; 7+":Fkcnqi wg"Kpvgtrtgvkpi "cpf" vj g"Fkuvtkdwkqp" qh" Tgurqpukdkrkv{ø"kp" *J gto gu. "Lqwtpcn" qh" Nkpi wkukeu* "36<Y cnftqr." T0\*3;: 6+":Vj g" Lq{"qh" vj g" Fgo kwti gø" kp" Hicy ng{" "%gf 0+0

 $Y\ cng\{.'Ctyj\ wt'*3; 74+''Vj\ g'Tgcn'Vtkrkcnc''cpf''Qvj\ gt''Rkgegu.''Nqpf\ qp<'Cngp''cpf''Wpy\ kp0$ 

Y cmgt. "UI 0\si3: 67+" O kuukqp "kp" Y guvgt p" Cht kec. "F wdrkp<" pq"r wdrkuj gt0

Y cmrvgp.''V0U0\*3; : 2 + "-Rtghceg 'lp''V0U0Y cmrvgp'\*gf 0 + 'Eqi pkkxg'Rt qeguugu'kp'Ej qkeg'cpf'F gekukqp'Dgj cxkqt. "

J kmf crg. 'P L<'Gtrdcwo.' kzózxk0

Y cnigto cpp. 'F 0\*3; ; 5+":F ko gpukqpu'qh'Ugo cpikeu'cpf 'U{ pvcz 'kp''Vtcpurcvkpi 'Rqgvt {<'Ukz''Vtcpurcvkqpu'qh'Y qrhi cpi '' J krdki øu'Rqgo 'öCdy gugpj gköø'kp'Rgvgt'Rcdkiej ''cpf ''Kpi q'T0'Uqgt'\*gf u+"F ko gpukqpu<'C0'Ngurkg'Y kruqp''cpf''

Eqpvgo rqtct{'I gto cp'Ctw'cpf'Ngwgtu.''Mtghgrf<'Xgtrci''xcp'Cengp.''4246430

Y ctf. "IO\*3; : 6+":Ej gem'Qw' { qwt 'Ugzkno ø" Y qo gp" cpf 'Ncpi wci g'9-63650

Y ctf o cp. 'Crcp'\*3;  $98+Tqo g\phi u'F gdv'u'T t ggeg$ . 'Nqpf qp<'R0'Grgm0

Y cttgp. 'Tqucppc' \*gf 0+'\*3; : ; +'Vj g'Ctv'qh'Vtcpurc/vkqp. 'Dquvqp<'P qtvj gcuvgtp' Wpkxgtukv{ 'Rtguu0

 $Y\ cty\ kem'U0*3; : 9+":Cp'Qxgtxkgy\ ''qh'Rquv'CNRCE'F\ gxgrqr\ o\ gpvvø''kp''O\ 0Mkpi\ '*gf\ 0+''O\ cej\ kpg''Vt\ cpurc\ vkqp''Vqf\ c\ (<Vj\ g''\ Uc\ vg''qh''j\ g''Ct\ v'''Gf\ kpdwti\ j\ ''Wpkxgtukv'\ ''Rtguu0$ 

Y cw."Y 000%;;  $6+Eqo rcpkqp"Vq"Vj g"S wt \phi p$ ."Qzhqtf Qpgy qtnf Rwdnkecvkqpu0

ô ô cpf 'Tægm'\*3; 92+''Kput qf weukqp''uq''yjg'S ut  $\phi$ p. 'Gf kpdwti j<'Wpkxgtukv{ ''Rtguu0

Y cy t| {pkcm'\ 0\si3;; 3+\notin krom\{e/pg''curgm\{'\tcpurcelk'n\text{hyptcenkgl'pc''rt/\{m\f}cf/kg\\disp\\dinp\disp\\disp\\disp\\disp\\disp\\dinp\disp\disp\\dinp\disp\\disp\\disp\\disp\\disp\\disp\\disp

Y gcxgt. "Y kmkco" "3; 6; 13; 77+"::Vtcpurcvkqpø' 'tgr t0kp" Y (P (Nqeng" cpf 'C(F (Dqqvj '\*gf u+" O cej kpg" Vtcpurcvkqp" qh'' Ncpi wci gu 'Eco dtkf i g. 'O C < O KV" Rtguu0

ô ô \*3; : ; +":-Vj g''Rtqeguu''qh''Vtcpurcvkqpø''kp''LDki wgpgv'cpf 'TOLej wng'\*gf u+"Vj g''Etchv'qh'Vtcpurcvkqp."Ej keci q''cpf "Nqpf qp<''Vj g''Wpkxgtukv{ ''qh'Ej keci q''Rtguu0

- $Y gdd. "V0*3; 98+"Vj \ g'Xkqngv'kp" \ 'ij \ g'Etwekdng < Uj \ gng \{ \ 'cpf \ 'Vt \ cpurc \ kqp. \ 'Qzhqtf < Enctgpf \ qp''Rtguu0 \}$
- Y glodgti .'D0\*3; 72+":-Vtcpurcvkqpu'cpf 'Eqo o gpvctkgu'qh'Nqpi kpwuø'Qp''y g'Undrko g''vq'38220C''Dkdrkqi tcr j {ø''O qf gtp'' Rj krqrqi {'6: <3676730}
- $Y \hspace{0.1cm} \texttt{gkptgkej.'} \hspace{0.1cm} \texttt{.'} \hspace{0.1cm} \texttt{0.0''} \hspace{0.1cm} \texttt{3;} \hspace{0.1cm} \texttt{75+''} \hspace{0.1cm} \texttt{Ncpi} \hspace{0.1cm} w i \hspace{0.1cm} \texttt{gu'kp'Eqpwev'P} \hspace{0.1cm} \texttt{gy} \hspace{0.1cm} \texttt{'[} \hspace{0.1cm} \hspace{0.1cm} \texttt{qtm'} \hspace{0.1cm} \texttt{Nkpi} \hspace{0.1cm} \texttt{wkukeu'Ekteng'qh'P} \hspace{0.1cm} \texttt{gy} \hspace{0.1cm} \texttt{'[} \hspace{0.1cm} \hspace{0.1cm} \hspace{0.1cm} \texttt{qtm'} \hspace{0.1cm} \texttt{0} \hspace{0.1cm} \texttt{vkukeu'Ekteng'qh'P} \hspace{0.1cm} \texttt{gy} \hspace{0.1cm} \texttt{''[} \hspace{0.1cm} \hspace{0.1cm} \hspace{0.1cm} \texttt{qtm'} \hspace{0.1cm} \texttt{0.0''} \hspace{0.1cm} \texttt{0.0$
- Y gkuu. 'Tqdgtvq'\*3; 72+''÷Vtcpurcvqtu'htqo ''y g'I tggm'qh''y g'Cpi gxkp'Eqwtv'qh'P cr nguø''*Tkpcueko gpvq*''3<; 664480
- $Y gkuudqtv.'F cpkgn'*gf 0+*3; :; +"Vt cpurc vkpi 'Rqgvt {<'Vj g'F qwdrg'Ncd{tkpvj}}."Nqpf qp<'O ceo kmcp0$
- Y gn/'Vtcj cp.''G0\*3; :: +":-Vj g'Tgcf gt "cu''U{ pvj guk gt<"Cp''Crrtqcej "\q''Rqgvt { "Vtcpurc $\sqrt{q}$ p'' $\sqrt{q}$ p'' $\sqrt{q}$ p''Vtcpurc $\sqrt{q}$ p'' $\sqrt{q}$ p'''Vtcpurc $\sqrt{q}$ p'''Vtcpurc $\sqrt{q}$ p'''Vtcpurc $\sqrt{q}$ p''''' + 5680
- Y gtrlej .'G0\*3; 98+"C"Vgzv'I too o ct"qh'Gpi rhuj ."J gkf grdgti <'S wgmg'cpf 'O g{gt0
- Y j kg."J 0\*3; 95+"O gw.j knaqt { <'Vj g"J knaqt kecrl'Ko ci kpc kapp"kp"P kpgvggpvj/egpwt { 'Gwt qr g."Dcnko qtg<'Iqj pu"J qr nkpu" Wpkxgtukx{ "Rtguu0
- Y j ksgukf g."V0\*3; : 3+"Vj g'Drqendwwyt 'Eqo r ngz <Eqpi nqo gt c vgu."Uj qy 'Dwwlpguu."cpf 'DqqnlRwdrkuj kpi."O kf f ngvqy p." EV<"Y gung{cp"Wpkxgtukx{"Rt gun0}
- Y j qth 'Dgplco kp'Ngg'\*3; 63+"+Ncpi wci g'cpf 'Nqi keø''*Vgej pqrqi { 'Tgxkgy .* 'O KV.'tgr tkpvgf 'kp'LD0'Ecttqm'\*gf 0+\*3; 78+" *Ncpi wci g.'Vj qwi j v'cpf 'Tgcrk*v{ .'Eco dtkf i g.'O C<O KV'Rtguu0
- ô ô \*3; 78+"Ncpi wci g. "Vj qwi j v'cpf "Tgcnky". "Eco dtkf i g. "O C <'O KV" Rt guu0
- Y kengtk 'Lcpkeg'\*3; ; 7+":-Vj g'Wpkqp'Xgtukqp''qh''y g'Dkdrg''cpf ''y g'P gy ''Nkgtcwtg'kp'Ej kpcø''*Vj g'Vt cpurc vqt* ''3\*4+<''34; ó 740
- Y kffqy uqp. "J (1 0\*3; 9; +":-Vj g'Fggr 'Uxtwewtg'qh'Fkueqwtug'cpf 'vj g'Wug'qh'Vtcpurcvkqpø'kp''*Gzrnqtcvkqpu'kp''Crrnkgf''*Nkpi wkukeu. "Qzhqtf 'Qzhqtf "Wpkxgtukk{ ''Rtguu."3236340
- Y kroo qy k\| /O \[ 3\]angpf qthh '\[ W0\]xqp '\[ 3: ; 3\_'\]3: ; 47+\[ Y \]cu'\[ kuv'\[ 0\]dgtug\| gp A\[ a'\] '\[ p''Y kroo qy k\| O \[ 3\]angpf qthh '\[ Tgf gp'\]wpf'' \[ Xqtvt \[ \] \[ g \] '\[ xqr0\] 3. '\[ Dgtr\[ p'\]p''r wdrkuj gt. '\[ 36580 \]
- Y kmkpuqp. 'G0\*3; ; 2+"Lcrcp"xgtuwu" y g"Y guv<"Ko ci g"cpf "Tgcnkv". "I cto qpf uy qtyj < Rgpi wkp "Dqqmu0
- Y kmkco ."U0\*3; ; 2+"Uj cngur gct g"qp"/j g'I gto cp"Uci g."xqr03."Eco dtkf i g<Eco dtkf i g'Wpkxgtuk/{ "Rtguu0
- $Y \text{ kmkco u.'Ectqn} \text{ p'F 0*3; }; 5+\text{''}Rqrg.\text{''}J \text{ qo gt.''}cpf \text{''}O cprkpguu<\text{''}Uqo g'\text{'Cur gevu''}qh'\text{Gki j vggpvj}/Egpwt{''ErcuskecriNgctpkpi.''} \\ P \text{ gy ''}[ \text{ qtm$'$T$qwrgf i g0} \\$
- Y knkco u. 'T0\*3; 95+'C'Mg{ 'kpvq''vj g'Ncpi wci g'qh'Co gt kec. 'F gvtqkx'Y c{pg''Uvcvg'Wpkxgtukv{ 'Rtguu0
- Y knap. 'F 0\*3; 98+"Vj g'Rgqrng"cpf"ij g'Dqqmk'Vj g'Tgxqnwkqpct{ 'Ko rcev'qh'ij g'Gpi nhuj 'Dkdng'35: 263833. 'Nqpf qpk'Dcttkg"cpf 'Igpmkpu0
- Y knuu."Y qrhtco "\*3; 99+"©dgt ugv/ wpi uy knugpuej ch0Rt qdrgo g"wpf "O gvj qf gp."Uwwi ctv<"Gtpuv"Mrgw."\tcpu03; : 4"cu"Vj g" Uekgpeg"qhVt cpurc vkqp<"Rt qdrgo u"cpf "O gvj qf u "VÄdkpi gp<"I wpvgt "P ctt0
- ô ô \*3;:::#Mqi pkkqp"wpf '©dgt ugv| gp<\\ w'Vj gqt kg"wpf 'Rt czku'f gt 'o gpuej rkej gp"wpf 'f gt 'o cuej kpgn/ngp'©dgt ugv| wpi ."
  VÄdkpi gp<P kgo g{gt0
- ô ô \*3; ; 4+'©dgt ug√wpi uhgt vki mgkı0Cpp®j gt wpi gp"cp"gkpgp"mqo r ngzgp"Adgt ug√wpi ur t cmkuej gp"Dgi t khh\*VAdkpi gt" Dgkst® g"| wt "Nkpi wkukni598+."VÄdkpi gp<P ctt0
- ô ô \*3;; 8+"Mpqy ngf i g"cpf "Unhmu"kp"Vt cpurc vqt "Dgj cxkqt". 'Co uvgt f co "cpf "Rj krcf grr j kc<"Iqj p"Dgplco kpu0
- $\hat{o}$   $\hat{o}$  \*gf 0+'\*3; : 2+''Ugo kqvkmlvpf 'Qode tugv/gp.''VAdkpi gp < I Apvgt'P ctt Qode tugv/gp.''VAdkpi gp < I Apvgt'P ctt Qode tugv/gp.
- $\hat{o} \; \hat{o} \; \text{cpf "I kugnc"Vj qo g'*gf u+"*3}; : 6 + \text{"$Vt c purc $vkqp'$Vj gqt {"$cpf "Ku'Ko rngo gpvc $vkqp'$kp'\j g'Vgcej $kpi "qh'Vt c purc $vkpi "cpf" \\ \textit{Kpvgt rt gvkpi ."V$Adkpi gp<"I wpvgt"P ctt0 }$
- Y kppgt. "Vj qo cu'\s3; 94+"::Guvgvkmc'k'r qgvkmc'r tc-mqi 'rkpi xkuvk mqi 'mtwi cø'] Vj g'Cguvj gvkeu'cpf 'Rqgvkeu'qh'vj g'Rtci wg'' Nkpi wkuvke'Ekterg\_. "Wo lgvpquv't klg k'38'\s415+\z'3696760
- ô ô \*3; 95+":-Vj g'Cgurj gwleu'cpf 'Rqgwleu'qh'vj g'Rtci wg'Nkpi wkurke 'Ektergø' 'Rqgwleu': <996; 80
- ô ô \*3; 98+"*Rqgvkmc'rtc-mql"-mqn('K'uwxt go gpc''ugo kqvkmc*"]Vj g'Rqgvkeu''qh''yj g'Rtci wg''Uej qqn'cpf 'Eqpvgo rqtct{" Ugo kqvkeu\_'Pqxk'Ucf<Ocvkec''utrumc0
- ô ô \*3; : 613; :  $7+"\div V$ j g''Rtci o cvkeu 'qh''Nksgtct { "Vgz vu''cpf "vj g''Rtci wg''Nkpi wkurke 'Ektengø'' *Ugo kquku*''ur gekcn'kuuwg<''0cz'' *Dgpug''*| wo '9701 gdwt wwci . "gf 0'Grk cdgvj "Y cnvj gt."; \*6+"\*3; : 6+"cpf "\*3 14+"\*3; : 7+0
- Y kppkeqw'F 0\*3;  $: 2+"Rrc\{kpi "cpf "Tgcrk\lambda"."$ J cto qpf uy qt yj  $\mbox{\ensuremath{\mbox{$<$}}} Rgpi wkp0$
- Y kwg."J gkf twp'\*3; : 9c+":F kg"Mwnwtnqo r gvgp| "f gu"Vtcpurcvqtuô Vj gqtgvkuej "cduvtcmgt"Dgi tkhh'qf gt 'tgcrkukgtdctgu" Mqp| gr vAx "VGZVeqpVGZV"4<32; 6580
- $\hat{o} \hat{o} *3; : 9d+":Vtcpurcvqtcwudkrf wpi < "Vgz vcpcn{ ug'wpf ''Vgz vr tqf wmkqp<math>\hat{o}$  @dwpi gp'| wo ''vtcpurcvkqpudg| qi gpgp''Wo i cpi '' o kb''Vgz vgp''co ''Dgkur kgn'lf gt''I twpf ur tcej g''\*j kgt < F gwuej + $\alpha$ ''VGZVeqpVGZV''44496630
- ô ô \*3; : ; +":\ wt"f kf cmknej gp"Xgto kwnwpi "\tcpurc\qtknej gt"Mwnwtô wpf "Urtcej mqo r gvgp| ô Gkp"mqp\tcuvkxgu" O qf gmx"VGZVeqpVGZV'6<4276530
- Y kwi gpuvgkp. 'Nwf y ki '\*3; 8; +'Vj g'Drwg''cpf 'Dt qy p'Dqqmu. 'Nqpf qp<'DcukriDrcemy gm0
- Y qf cm'T0\*3; : 7+":-Vj g'Kpvgtcevkqp''dgwy ggp''Lwf i g''cpf 'F ghgpf cpva' kp''V0xcp'F klm'\*gf 0+"*J cpf dqqm'qhlF kueqwt ug''*Cpcn{uku.''xqn06.''Nqpf qp<'Cecf go ke''Rt guu0
- Y qnkp. "Nctu'\*3; ; 3c+":-Vx° 'ur t° m'qej 'hngtc'unkm<"wr r gpdctgnugtpcu'\gzwtcf kkqpø']Vy q''Ncpi wci gu'cpf 'Ugxgtcn'Nc{gtu<'Vj g''Vgzv''Vtcf kkqp''qh''y g'Tgxgncvkqpu\_.'kp''VtP {dgti '\*gf 0+"Dkti kwc.'j gpf gu''xâtm'qi 'j gpf gu''mquxtg'k'Pqtf gp'']Dkti kwc.'' J gt''Y qtm'cpf 'Eqpxgpvu'kp''Uecpf kpcxkc\_.''Qf gpug'\Vpkxgtukgvu\qtmi.''6296560
- $\hat{o}$   $\hat{o}$  \*3; ; 3d+":Mtkpi "f gv'uxgpunc"dkdgnur t°ngvu"j kuvqtkcø"]Qp"vj g"J kuvqt { "qh'Dkdrkecn'Uy gf kuj \_.'kp"Uxgpunc" dkdgnu@nuncr gv'\*gf 0+"F gp'uxgpunc"

- dkdgrp0Gw'672/°tu'lwdkrgwo ']Vj g'Uy gf kuj 'Dkdrg0C'672yj 'Cppkxgtuct{\_."Uqenj qro <'Rtqr tkwu."4476630
- ô ô \*3; ; 3e+":-Vj g'O qpcuvgt { "qh'Xcf uvgpc0'Kpxguvki cvkpi 'vj g'I tgcv''Vtcpurcvkqp"Y qtmuj qr 'kp'O gf kgxcn'Uecpf kpcxkcø" kp'T0Gnku'\*gf 0+3; ; 3c.'876: : 0
- ô ô \*hqtyj eqo kpi +"*H*/4*hcwctpc*."%xgtu®xctpc"qej "urt ° mgv0Vgzw{rgt"qej "lut ° muxtwmwt "k'pwuxgpuml/kmkqpurt quc"]Vj g" Cwj qtu."'yj g"Vtcpurcvqtu"cpf "yj g"Ncpi wci g0V{rgu"qh"Vgzv"cpf "Utvwewtg"qh"Ncpi wci g"kp"O qf gtp"Uy gf kuj "Rtqug" Hevkqp\_0
- Y qpf gtrg{."Y kmkco "N0\*3; 8: +"Dkdrg"Vt c purc vkqp"lqt "Rqr wrct" Wug. "Nqpf qp<"Wpkgf "Dkdrg"Uqekgvkgu0
- Y qqf uy qtyj .'Lwf kj '\*3; ; 8+"÷Vgcej kpi ''y g'J kuvqt { "qh'Vtcpurcvkqpø' kp'F qmgtwr ''cpf ''Crrgn'\*gf u+0
- Y qqrh 'Ngqpctf '\*3; 5; +":P qvgø'kp'X0Y qqrh0
- Y qqrh "Xkti kpkc"\*3; 5; +'Tgxkgy kpi. "Nqpf qp<"Vj g"J qi ctyj "Rtguu0
- Y qqnpgt. "Crhtgf" E0\*3; 97+"Kpvt qf wevkqp" \q'Rt cmt kv. "F grj k<'O qvkrcn' Depetukf cuu0
- Y tczcm'N0\*tcpu0+'\*3: 84+'Xlevqt'J wi qøu'Ngu'O kv² t c dngu.'Nqpf qp<'J wtuv'cpf 'Dncengw0
- Y tgpp. "E0N0\*3; 8: +"Vj g'If gc''qhEqo r ct cvIxg'Nhgt cv hg. "Ej leci q"cpf "Nqpf qp<"O qf gtp"J wo cpkhgu'T gugctej "Cuuqehchqp0
- Y tki j v'D0\s'3; ; 5+":Cpi m/Co gtkecp'Cvkwf guø''Kp''Qvj gt'Y qtf u'3\326350
- Y Ãuvgt.'G0\*3; 92+"*Kpvgtpcvkqpcrg"Urtcej pqto wpi 'kp'f gt 'Vgej pkm*"Dqpp<'Dqwxkgt0
- Y wgpqy .'T0\*3; 8; +"Fcu'ht gof g'Mwpuwy gt n0Cur gmg'f gt 'hlwgt ct kuej gp'©dgt ugv| wpi .'I ¾wkpi gp<"Xcpf gpj qgenlicpf "Twrtgej v0
- $Y \{ \text{rg.''P 0xqp.''kqp''Y } \{ \text{rg.''Vt } cpurv \text{kqpgp''xqp''P kerc u'xqp'Y } \{ \text{rg.''Uwwi ctv'Xgtgkp''pq0790} \} \}$
- $Y \{ \text{ngt.''N0*3}; ; 5+\text{''-Rwdrke''Rgtegr klqp''qh''Vtcpurcklqp''kp''Dtc} | \text{km''kp''Ecvtkqpc''Rkengp''*gf 0+''Vtcpurcklqp''Vj g''Xkxr''Nkpm''} \\ Rt qeggf kpi u''qh''y g''35yj ''HW''Y qtrf ''Eqpi t guu. ''Nqpf qp<''Kpurkwwg''qh''Vtcpurcklqp''cpf ''Kpvgtr tgkpi .''772650$
- Zkqpi '[ wg| j k'\*3; ; 6+'Zkzwg'f qpi klcp''[w'y cp/S kpi ''uj gj wk']Vj g''Kpvtqf wevkqp''qh''Y guvgtp''Ngctpkpi ''cpf ''Ncvg/S kpi ''Uqekgv{\_.''Uj cpi j ck<Tgpo kp''Rwdrkuj kpi ''Eq0
- [ cp"Hw"\*3; 95+"-I gpgtcn'Tgo ctm<br/>u'qp" Vtcpurc\qp\@'\tcpu0EQ 0J uw.'Tgpf k<br/>kqpu''3<br/>6\ó80
- $[ \ cpcdw.'C0*3; : 5+"J\ qp{cmw'i\ cmwo\ qp''j\ kj\ cp'']C''Etksks\ wg''qh''Vtcpurcvkqp''Uwvf\ kgu\_.''Vqm{q<'P\ kj\ qp''J\ qp{cmwnc''[\quad ugk'' Egpvtg0]} }$
- ô ô \*3; : 8+"*I qffq"\q"L vgkô Tgnkuj k'pq"Pcnc"pq"J qp{cmvuj c*"]I qf "cpf" 'y g"Uwrtgo g"Dgkpi ô Vj g"Vtcpurcvqt" kp" J kuvqt{\_."Vqm{q<Ej kmvo c"Uj qd 0
- ô ô \*3; : ; +"J  $qp\{cmwi\ q''ugkt\ kuw'lkl'\ '']$ Vj g'Go gti gpeg''qh'c''Ncpi wci g''qh''Vtcpurc\kqp\_.''Vqm{q<'Ky cpco k'Uj kpuj q0 [ ctuj cvgt.''Gj ucp'\*3; : : +" $Rgt\ ukcp''Nkgt\ cwwt\ g$ .''P gy '[ qtmk'Dkdrkqvj gec''Rgtukec0
- føl f gy cmg."I <sup>2</sup>t{.'Ectqrlpg'Rtcgv.''Mctrl'Xgthckrlg''cpf ''Iqj cp'xcp'Tgpudgti gp'\*3; : 9+"Ej qqukpi ''dgw ggp'Tgf wpf cpv' Kphto cvkqp'Ej cppgnx'Ur ggej ''cpf ''Vgz vø' kp'I ONÃgt''cpf ''WNccu'\*gf u+"Hqwt vj 'Gwt qr gcp'Eqphgt gpeg''qp'Gl g'' Oqxgo gpvu.''xqr03.''Vqtqpvq<'J qi pghg.'796; 0
- ô ô ."Y ctnqr ."Nwn'cpf "Lqj cp"xcp"Tgpudgti gp"\3; :; +":\Vgrgxkukqp"cpf "Cwgpvkqp0Fkhhgtgpegu"dgwy ggp"[ qwpi "cpf "Qnf gt 'Cf wnw'kp"\y g"Fkxkukqp"qh'Cwgpvkqp"qxgt "Fkhhgtgpv\'Uqwtegu"qh'VX"Kphqto cvkqpø"\O gf kgpru{ej qnqi kg. "Qr ncf gp<"Y guvf gwwej gt "Xgtnci ."3-646790
- ô ô .''Ectqrlpg''Rtcgv.''Mctrl'Xgthckrrlg''cpf 'Iqj cp''Xcp'Tgpudgti gp'\*3; ; 3+'':Y cvej kpi ''Uwdvkrrgf ''Vgrgxkukqp<'Cwqo cvke'' Tgcf kpi ''Dgj cxkqtø''*Eqo o wpkecvkqp'Tgugctej* ''3: \*7+<'8726880
- [ kr ."Y ck"Nko "\*3; 8; +"G/tc"Rqwpf  $\phi u$ "Ecvj c{."Rtkpegvqp."P L<"Rtkpegvqp"Wpkxgtukv{ "Rtguu0
- [ pi xg."X0 0\*3; 79+":C"Htco gy qtml $^{1}$ U{pvcevke"Vtcpurcvkqp $^{0}$ 0 gej cpkecn $^{1}$ Vtcpurcvkqp $^{0}$ 6\*5+ $^{0}$ 7; 6870
- [ quj kcng.'[ 0\*3; 7; +'O gklkOVc kuj ''pq'J qp{cmw'uj k']C'J knqt{"qh'Vtcpurc kqp'kp''yj g'O gklk'cpf ''Vc kuj ''Rgt kqf u\_.'' Vqm{q<'Mgpm{uj c0}}
- [ wwh'Crk 'Cdf wrej '\*3; 56+'Vj g'O gcpkpi 'qh'vj g'I rqt kqwu'S wt $\phi$  p. 'Vgzv. 'Vt cpurc kqp''cpf 'Eqo o gpvct {. 'Ecktq<'F ct 'cn' Mkcd'cn'O kut {='Dgkt wx<'F ct 'cn' Mkcd'cn'Nwdpccp {0}
- [ wcpi .'Nkp'\*3; 77+'Vj g'Y kuf qo 'qh'Kpf kc.'Dqo dc{</Lcleq'Rwdrkuj kpi 'J qwug0
- $[\ xcpg."Lgcp"*3;; 8+"\pm Ng"f\ qwdmi\ g"hkm\ ks\ wg<'hqpf\ go\ gpw"gv"ghhgw@"lp"I\ co\ dkgt"*gf\ 0+"3556650$
- \ cdcrdgcueqc. 'Rcvtkemi\*3;; 8+"Vtcpurcvkpi 'Iqngu'hqt'F wddgf 'Vgngxkukqp'Ukwcvkqp'Eqo gf kguø''Vj g'Vtcpurcvqt''4\*4+<"4576
- \ cdwi."Ej cpvcn\\*3; ; 2+":Qyj gtkpi "\yj g''Hqtgki p''Ncpi wci g''kp''\yj g''Y guv''Chtkecp''Gwtqr j qpg''P qxgn\xi"Ecpcf kcp''Tgxkgy "qh'' Eqo rctcvkxg''Nkgtcwitg''39\\*566+\c'56: \ddot880
- cn/ ch/ h'O wj co o cf "3; : 6+"Cn/Vcet Hdk/hs wt \( \phi \) p' \( \mathred = \frac{1}{2} \) How qf wekpi "yj g'S wt \( \phi \) p' \( \mathred = \frac{1}{2} \) O cmcdcv \( \mathred = \frac{1}{2} \) Logo o cf "3; : 6+"Cn/Vcet Hdk/hs \( \mathred \) p' \( \mathred = \frac{1}{2} \) How qf wekpi "yj g'S wt \( \phi \) p' \( \mathred = \frac{1}{2} \) O cmcdcv \( \mathred = \frac{1}{2} \) Logo o cf "3; : 6+"Cn/Vcet Hdk/hs \( \mathred \) p' \( \mathred = \frac{1}{2} \) How qf wekpi "yj g'S wt \( \phi \) p' \( \mathred = \frac{1}{2} \) O cmcdcv \( \mathred = \frac{1}{2} \) Logo o cf "3; : 6+"Cn/Vcet Hdk/hs \( \mathred \) n' \( \mathred = \frac{1}{2} \) How qf wekpi "yj g'S wt \( \phi \) p' \( \mathred = \frac{1}{2} \) Cn/Vcet Hdk/hs \( \mathred \) n' \( \mathred = \frac{1}{2} \) How ck \( \mathred = \frac{1}{2} \) N' w ck \( \mathred = \frac{1}{2} \) n' \( \ma
- \ co dqp. 'O OF quc'\*3; 84+" $Dkdrkqi\ t\ c\ rj\ kg'f\ w't\ qo\ c\ p''t\ c\ p\pm c\ ku''gp''Kc\ rkg$ . 'Hingt gpeg<'Gf k\ kqpk'Ucpuqpk'Cp\ swctkc\ vq='Rctku\'' Nkdtckt\ kg'O ctegn'F kf \ kgtO
- \cxktcu.'I 0\si3; 94+\Pgc'\Gncu'\qt'\J gnkpknqp'\Vj gc\tqp.'\C\yj gpu\Gocegf qpkcp'\U\wf kgu'\Cuuqekc\kqp0
- \ k vctunc."LO\*3; 8; +"U wnc'rt/gn&f w'y 'rqi ncf cej 'rkvgt cenkej 'rqnunkgi q'Q y kgegpkc'']Vj g'Ctv'qh'Vtcpuncvkqp''kp''y g'' Nkvgtct{"Vj gqt{"qh'vj g'Rqrkuj ''Gprki j vgpo gpv\_."Y tqe€y <'Quuqrkpgwo 0

- \ \langle \quad gm'\frac{\text{ID}\*3}{\text{:}}3;95+\frac{\text{T}gpgucpu'}{\text{T}gpgucpu'}\]\text{T}gpckuucpeg\_.'\text{Y} ctucy <\text{Rc} uw qy g'\text{Y} \{f cy pkey q'\text{P} cwnqy g0}
- \ wdgt."T0\si3; 8: +"Ngu"-Dgmgu'kphf3ngu\pi'gv'nc'hqtoc/vkqp'f w'i qÂv'encuuks wg<Rgttqv'f\pCdncpeqwtv'gv'I wg/'f g'Dcn/ce."
  Retku<Eqn\p0

```
\label{eq:control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_co
```

## Kpf gz

```
Ccugp.'Kxct'<u>5:;</u>
Cdf qn'C \mid k \mid P wtk'F gj rexk' 739
Cdfqn'S fgt'Dcf ewpk'<u>739</u>
Cdtq''Ucj cm'Ghgpf k'799
Cdw'J cp hc'<u>423</u>
Ceque.'I qp| cm'f g'729
cevkqp''yi gqt {<
    umqrqu' y gqt \{ '457 = 
    vtcpurcvqtkcnl<u>5</u>ó<u>7</u>. '<u>55</u>
cf cr vcvkqp'<u>7</u>6:.'<u>627</u>=
    Htgpej "Ngu'Dgmgu'Kphlf ³ ngu'<u>633</u>634.'<u>635</u>=
   rkgtct { ''tcpurckqp''352=
    mech'xgtuwu'i mdch'9=
    o qf gu. "eqpf kkqpu"cpf "tguvtkevkqpu"86:_=
   r qgvt \{ "397 = 
    Uj cmgur gctg'\frac{444}{65}=
    umqrqu''yj gqt { ''459} =
    Vgtgpegøu'htgg'dqttqy kpi u'<u>6; 7</u>=
    vtcf cr vcvkqp":
cf gs wce { '344
Cf gs wcvg''Vtcpurcvkqp''*CV+'<u>452</u>
Ò tht le'32: .'558
Chtkecp'tcfkkqp<
    eqrqpkcn'gtc'\frac{4}{5}; =
   f two 'rcpi wci g'<u>4; 8</u>=
   r qgvkeu'<u>38;</u> =
   r quv/eqrqpkcn'<u>4;</u>; 6<u>523</u>=
   rtg/eqmpkcn'4; 768=
   tqrg'qh'\tcpurc\qtu'\zx=
    vtcpurcvqt "tckpkpi "cpf "kpurkvvvkqpu" <u>523</u>65=
    v{rgu'qh'tcpurckqp'zxkk
C tkdq| k'Cj o gf '<u>799</u>
Ci tkeqnc. 'O kncgn'<u>624</u>. <u>62:</u>
Ci tkeqrc'*O kncgn+'Rtk g'<u>629</u>
Ci wkrct.'Igt»pko q'f g'<u>728</u>
CKE "ugg" Cuuqekckqp" kpvgtpckqpcng" f gu"kpvgtr t3 vgu f g"eqph3 tgpeg
Crdtgej v.'L3/4p'<u>342</u>
Crdtgej v'xqp'G{d'<u>642</u>
Crech 'f g'J gpctgu'492
Crgzcpf gt. 'O kej cgrl<u>435</u>
Crhqpuq'Z'qh'Ecurkrg'<u>775</u>.'<u>782</u>
Crk'[ wwh'425
Crk'C | k 'Ghgpf k'798
Cnk/Hqtwsk'Oqj co o cf '742
Cnxctgu.'F kqi q'<u>549</u>
Co cf qw.'Cppc/Nkuc'<u>5:</u>; 6; 2
Co\ gt \texttt{kecp'} \textbf{N} \textbf{k} \textbf{g} \textbf{t} \textbf{c} \textbf{t} \{ \texttt{''} \textbf{V} \textbf{t} \textbf{c} \textbf{p} \textbf{u} \textbf{c} \textbf{v} \textbf{q} \textbf{t} \textbf{u} \textbf{'} \textbf{C} \textbf{u} \textbf{u} \textbf{q} \textbf{e} \textbf{k} \textbf{c} \textbf{v} \textbf{q} \textbf{p} \textbf{'} \underline{\textbf{535}}
Co gtkecp''Uki p''Ncpi wci g'<u>'453</u>.'<u>'454</u>65
Co gtlecp"\tcf kkqp<
    dwkrf kpi 'c'pcvkqpcn'ewrwtg'<u>52:</u> 632=
   eqrapk c \cdot kqp \cdot cpf \cdot ko o ki t c \cdot kqp \cdot \frac{528}{528} \circ :=
   ewnwtcn'cpf 'hpi wknke'f kxgtukv{ '52768=
    Gpi rkuj 'Qpn{ 'o qxgo gpv'<u>44</u>=
   j gi go qp{'ukpeg''Y Y KK<u>532</u>634=
   kpygtr tgygt "tckpkpi "<u>57</u>=
   P cvkxg'Co gtkecp'kpvgtr tgvgtu'<u>528</u>6: =
   r ugwf qvtcpurcvkqp"cpf"J kcy cvj c"3:6=
   r wdrkuj kpi '3; 264.'3; 566.'532633=
    vtcpurcvqtuø'kpuvkvvvkqpu'cpf '\tckpkpi '\frac{4: 7}{534}637
Co gtkecp''Vtcpurcvqtu''Cuuqekcvkqp''<u>535</u>
Co ktwnku.'I gqti kqu'<u>797</u>
Co q''qh'I j cpc''<u>4; 9</u>
Co qu. 'H0'32:
Co {qv.'Ices wgu'<u>55:</u>.'<u>632</u>.'<u>634</u>.'<u>637</u>
cpcmi wg'utcwgi kgu<
    o qf gnu'<u>376</u>.'<u>377</u>ó8=
   r qgvt { "vtcpurcvkqp" 396
cpcmi {'<u>344</u>
cpcn(uku<
   eqpvtcukxg\frac{67}{6}6; =
   ru{ej qrkpi wkurke"crrtqcej gu"<u>3:9</u>=
   tgi kuvgt"<u>484</u>ó50
cpcn( wheen'r j knquqr j { '443
Cpcuvcukwu'Dkdrkqyj gectkwu'<u>6; :</u>
Cpej kgvc. 'Hey gt' Iqu' 'f g' 549
Cpf tcf g. 'Quy cnf 'f g<
    -Ecppedenkuv'O cpkhguvqø'<u>554</u>
Cpf tqpkewu.''Nkxkwu''<u>6; 7</u>
Cpi gm'\( \text{Qrcx} \) \( \frac{5}{2} \)
Cpi qrc''4; 9
Cpqwknj. 'Igcp' 95 66
cpyj qrqi kgu'<u>35</u>6<u>38</u>.'<u>646</u>
Cr qmkpcktg.'I wkmcwo g'<u>434</u>.'<u>437</u>639
Cs wknc'48;
Ctcdle''tcf klqp''<u>325</u>.''<u>538</u>639=
    kphrwgpeg''qh''qyj gt''rcpi wci gu''<u>539</u>63: =
   kphrwgpeg'qp'Chtkec'<u>4; 8</u>=
    Kunco ke'Go r ktg'<u>539</u>643=
    cpf 'Ncvkp'<u>6; :</u> 6; =
    Qwqo cp'Go r ktg'<u>539</u>.'<u>543</u>66=
    cpf 'Rgtukcp'<u>736</u>.'<u>738</u>=
    Ur \, ckp' \, \frac{774}{65} =
    Vj qwucpf 'cpf 'Qpg'Pki j wi'53; .'<u>542</u>=
    ttckpkpi '<u>546</u>=
```

w gpwgy 'egpwt { '<u>546</u>=

ugg"cnuq"S wtø p

CtcÀlq.'Cpv/pkq'f g'549

Ctco cke"<u>65;</u> = *Vqtcj* "<u>48;</u>

```
Ctdgtt{.'Ctyj wt'I0425
ctej ktcpugo gu'*CVT+'<u>452</u>ó3
Cti gpvkpc'<u>72;</u> 632
cti wo gpvcvkqp'486
Ctkryqvg'87.'542.'6; =
             Kurco ke''Ur ckp''<u>775</u>=
            qp'o gvcrj qt'<u>372</u>=
            r qgvkeu'<u>389</u>
Ctpqrf.'O cwj gy "<u>428</u>.'<u>52;</u>=
            r qgvleu"qh"vtcpurcvlqp"389=
             Qp'Vt cpurc \kpi ''J qo gt' <u>'465</u>.'<u>'564</u>
Cttci gn'Tcddk'O qugu'<u>492</u>
Ctvutqwpk'I gqti gu'<u>362</u>
Cucej k'I j gqti j g'<u>758</u>.'<u>762</u>
Cuej co .'Tqi gt'<u>376</u>.'<u>387</u>
f ui gktuuqp. 'O ci pwu'685
Cuo k'Ghgpf k'799
Cuuqekc \label{cuuqekc liquid} Cuuqekc \label{cuuqekc liquide} Cuuqekc \label{cuuqekc liqui
Custope 'O ct p. 'Nwku' 77:
Cuy of "on/F won( "422"
Cvc±'P wtwncj '<u>7: 2</u>
cwf kqxkuwcn'tcpurcvkqp"ugg"f wddkpi =
             uwd kwkpi "
```

```
Cwi wuxkpg''qh'J krrq.''Uckpv'<u>348</u>
Cwwkp.'Iqj p'<u>39;</u> .'<u>3: 2</u>
Cwutcrkc<
   vtckpkpi '<u>56</u>.'<u>4: 7</u>
cwj qtu<
   cwq/tcpurckqp''39642=
   eqmcdqtcvkqp"qp"rkvgtct { 'y qtmu'34;
cwq/tcpurcvkqp''39642=
   uko wncpgqwu'cpf 'f grc{gf '42
Cwqo cvke 'Ncpi wci g'Rtqeguukpi 'Cf xkuqt { 'Eqo o kwgg' *CNRCE+'36263.'364.'367
Cxkegppc'<u>738</u>
Dcctkpi .'K0'<u>5: :</u>
Dede''Uel t '<u>6: 9</u>6: .'<u>6; 5</u>66
Dcdgn''Vqy gt''qh'<u>43</u>''/4=
   Dgplco kpøu'r wtg'hepi wei g'3; 6."3; 8
Dcdgn'*|qwtpcn+': 8
Dedku.''O kj a n( '<u>674</u>.'<u>676</u>
Dceek'Cpvqpkq'<u>725</u>
Dcf kcpq. 'Lwcp' 72;
Dcngt.'O qpc'\underline{6};=
   eqo r gpucvkqp'<u>5;</u>=
   eqtr qtc'<u>73</u>64=
   gs wkxcrgpeg'99=
   wpkxgtucnu'<u>4::</u>.'<u>4:;</u>.'<u>4;3</u>
Deredepqx.'Crgzepf gt'<u>575</u>.'<u>576</u>
Deregt | cp. 'Gf y ctf '32: .'752
Demetf.'O kej gri<u>326</u>.'<u>636</u>
Depf ke. 'Rewn'H0'333
Dct/J kmgn"[ gj quj wc"362.363.366
Dctc e cm'Ucpku€y '<u>752</u>
Dctkkw.'I 0<u>758</u>69
Dctmj wf ctqx. 'NOUO': 3
Da t » e | k "Ua pf qt "66:
Dctvqmo gq'f c'Ucp'Eqpeqtf kq'697.'6: 566
Deuupgw."Uwucp"324."325
Deunpgw/O eI wktg."Uwucp"

95
   ewnwtg'cpf 'kf gqrqi { '4: 2
Dcukep'r tk g'<u>5; 2</u>
Dcy i cvg. 'TO 0384
Dew<sup>a</sup> p{k'L<sup>a</sup> pqu'<u>673</u>.'<u>676</u>
Dewgewz.'Ej etrgu'<u>635</u>
Dgcwi tcpf g. 'Tqdgtv'F g<
   etkkekuo '<u>429</u>=
   vtcpurcvkpi 'r qgvt { '394
Dgcwlqwt. 'Grk cdgy 'Mrquv ('3963: .'3;
Dgengt.'Tj gkpj qrf 'xqp'625
Dgengw."Uco wgn<
   ugrh/vtcpurcvkqp"3:.3; ."42."62
Dgj p. 'Cr j tc'<u>562</u>
dgrkghu'cpf 'kpvgpvkqpu'32
Dgm'Tqi gt'<u>342</u>.'<u>425</u>
Dgmc{.'Iqcej ko 'f w'3: .'633
Dgnq. "Cpf \, t^2 \, u " \underline{732}." \underline{733}." \underline{734}
Dgpgf gm'O ctegm'674.'676
Dgplco kp."Y cnygt"\frac{464}{}=
   crkgpcvkqp'<u>646</u>=
   ewnwtch'tcpuhgtgpeg'37364=
   hqtgki pk kpi '349=
   o guukcpke 'r gthgevkqp'; : ó; =
   o qf g'qh'kpvgpvkqp'<u>496</u>=
   r quy wo qwupguu'<u>329</u>=
   r wtg'hcpi wci g'<u>3; 6</u>68.443.'<u>498</u>=
   tcf kecn'nkvgtcnkuo '392=
   vqy gt 'qh'Dcdgn'43
Dgto cp. 'Cpvqkpg'329. '636. '637=
   cf cr wwkqp'8=
   ewnwtg'cpf 'kf gqrqi { '332=
   hqtgki pk kpi '349.'464=
   j kwqt { "qh' tcpurc kqp" 322 = }
   o wnkrkpi wcrkuo '382=
   pqto cwxg"o qf gri384
Dgtpqn m'Cpvqp'772
Dgtqp.'Rgvgt'<u>574</u>.'<u>576</u>
Dguugp{gk'I {3/4i { '<u>66:</u>
Dgy .'O cwt keg'<u>382</u>
Dg{gt."Ukmg"<u>5: 8</u>."<u>5: :</u>
D<sup>3</sup> | g. "Vj gqf qtg"f g"<u>723</u>
Dj cdj c.'J qo k'<u>36;</u> .'<u>374</u>
Dj ci cxcf 'I kc<
   j kuvqt { "qh" \tcpurc vkqp" \frac{325}{}
Dkdrg'\tcpurc\kqp<
   cu'cp'cpy qmi { '<u>37</u>=
   ekr j gtgf "xcnwg"qh'J gdtgy "\gzv\"\434\635=
   eqpvgpvu'<u>44</u>65=
   j kryqt { ''qh' 'tcpurc yqp'' <u>45</u>66.' <u>324</u>=
   kp'Chtkecp'hcpi wci gu'<u>4; : .4; ; = </u>
   kp'Ctcdke'<u>545</u>66=
   kp'Ecukrkcp'<u>777</u>68.'<u>779</u>=
   kp'Ej kpgug'<u>58;</u>=
   kp'E| gej '<u>59:</u>=
   kp'f go q\ke'I tggm'<u>64;</u> 652=
   kp'F wej '<u>5; 7</u>ó8=
   kp'Gpi rkuj '<u>557</u>.'<u>559</u>6: .'<u>55:</u>=
   kp'Hkppkij '<u>624</u>=
```

kp'Htgpej '<u>634</u>=

kp'Rqrkıj '<u>748</u>69= kp'Tqo cpkcp'<u>756</u>=

kpf ktgev'tcpurckqp'38:=

kpvgtvgo r qtcn'vtcpurcvkqp''337=

kp"I gto cp"<u>5; 7</u>."<u>643</u>= kp"J wpi ctkcp"<u>66:</u> = kp"Kcrkcp"<u>697</u>= kp"Icr cpgug"<u>6; 2</u>= kp"Ncvkp"<u>5; ;</u>."<u>722</u>63=

kp'P qtf ke''rcpi wci gu'<u>5: 7</u>."<u>5: ;</u>."<u>623</u>."<u>682</u>."<u>787</u>=

```
kuwgu'kp''\tcpurc\kqp''\46\69=
   rksgtcrl'x gtuwu'kpur ktgf '\tcpurc\kqpu'\347\68=
   Qtyj qf qz "Urcxqpke" \frac{469}{6} 6: =
   r ctcr j tcug'lkp"Vj g'Nkxkpi 'Dkdrg''<u>388</u>=
   r tkpekr ngu'cpf 'r tqegf wtgu'qh'\tcpurc\kqp'\\\ 496: =
   uvqt { ''qh' y g' vqy gt ''qh' Dcdgn' 4364=
   Vqtcj '<u>48;</u> 695=
   Y {erkthgøu'<u>557</u>.'<u>558</u>69
Dkgj n'Ej ctmwc'F qtqvj gc'5; 3
Dkgrunk 'O ctekp' 747
Dkgtpcv'qh'Nwdrkp'747
dkrkpi wcrkuo <
   kpegpvkxg'hqt'vtcpurcvkqp'zxk/zxk=
   ugrh/"tcpurcvkqp"39642
Dkqr.'Dktci q'<u>522</u>
Dktmqy umk''U {o qp'<u>747</u>
Dreemdwtp. 'Rcwn'46566
Drcw.'C0356
Drqqo .'C0'68
Dnwo / Mwmc. "Uj quj cpc": 364.": 5."4::. "4:;
Dqf o gt.'Iqj cpp'Icmqd'643.648
Dqgyj kwu. 'Cpkekwu'O cprkwu'Ugxgtkpwu'<u>: 9</u>. '<u>6; 9</u>. '<u>725</u>66=
   nkgtcn'tcpurcvkqp'348
Dqkugp. 'O qi gpu'<u>5: 9</u>. '<u>5; 3</u>
Dqpej gx. 'P guj q'<u>575</u>. '<u>576</u>
Dqtej ctf v.'Twf qrh'337
Dqti gu.'Lqti g'Nvku'3: 7.'42: .'733
Dqtqy {."Y ce€y "<u>752</u>."<u>753</u>64
Dque<sup>a</sup> p. 'Lxcp' 777
Dq{gt.'Cdgn'<u>556</u>.'<u>557</u>.'<u>566</u>
Dtcf hqtf."Y kmco "528
Dtc| krkep"vtcf krkqp<
   gctn("j kuvqt{"cpf 'hktuv'vtcpurcvqtu'<u>548</u>ó: =
   pc \sqrt{\frac{548}{2}} (\frac{549}{2}) \frac{549}{2}
   tgegpv'j kryqt { "cpf 'rkygtcwtg'<u>54:</u> 652=
   vtcpurcvqtuø'qti cpk cvkqp''cpf ''vtckpkpi ''<u>553</u>64
Dtgkkpi gt. 'Iqj cpp'Icmqd'643.648
Dtkuugv.'Cppkg'8.'324
Dtkkuj 'P cykqpen'Eqtr wu'72
Dtkkuj 'Uki p'Ncpi wci g'<u>453</u>.'<u>455</u>
Dtkkuj 'tcf kkqp'<u>555</u>67=
   Chtlecp'eqrqpk cwqp'4;:=
   Cpi m/Uczqp'twpgu'<u>435</u>=
   cpyj qrqi kgu'<u>38</u>=
   Dkdrg'\tcpurc\kqp'\\\ <u>45</u>\\ \66.'\\\ <u>47</u>=
   f qo gurkecrkqp"qh"Htgpej "463=
   gzr nkekcvkqp'': 4.'': 5=
   kpygtpcykqpcn'repi wei g'87=
   kpygtygo r qtcn'ytcpurcykqp''<u>336</u>637=
   Olf f rg'Ci gu'<u>557</u>69=
   o wnkrkpi wcrkuo "3796: =
   r wdrkuj kpi '3; 264.'3; 566=
   Tghqto cwqp'cpf 'Tgpckucpeg'<u>559</u>6; =
   39 y ''\q''42 y ''egpwt\kgu''<u>55;</u> 665=
   vtcpurcvqtuø'kpuvkvvvkqpu'cpf 'vtckpkpi '57.'4: 7.'565=
   y qtrf 'wug'qh'Gpi rkuj 'rcpi wci g'3; 263
```

```
Dtqem'Ugdcukcp'348
Dtqf um(."Iqugr j "395
Dtqqng. 'Ej ctrqwg'<u>563</u>
Dtqy p.'T0<u>96</u>
Dtqy pkpi .'Tqdgtv'393
Dtwpk'Ngqpctf q'698.'699.'6: 6.'6;;.'722.'776
Dtwu. 'Grk cdgy '; 4
Dt{cpv."Y knkco 'Ewngp'<u>52;</u>
Dwf f g.'L»pu'<u>623</u>.'<u>78;</u> 692
Dwf f j kuo '694=
   Ej kpgug'\tcpurc\kqpu'\\\588\69=
   o kuukqpct { 'uej qrctu'<u>688</u>=
   urtgcf 'htqo 'Kpfkc'<u>68:</u> ó;
DÄj ngt. 'J knf gi wpf '3;:
DÃj ngt. 'Mctn'4; . '54. '48566
Dwn ctkcp"tcf kkqp<
   3: yj "egpwt{"tgpckuucpeg"\q"o qf gtp"\frac{573}{66}=
   gzr nkekkcvkqp": 3=
   o gf kgxcn'r gtkqf "\q'3: yj "egpwt { "<u>569</u>673=
   vtcpurcvqtuø'kpuvkvvvkqpu'cpf ''vtckpkpi ''<u>576</u>
Dwti g. 'V{ngt'496
Dwti guu. 'Cpyj qp{ '37:
Dwti qu. 'Lexkgt'f g'779
Dwti wpf kq''qh''Rkuc''348
Dwtpuj cy .''Ucprg{ ''395
Dwtvqp. 'Ukt'Tkej ctf'Htcpeku'564. '566
Ecdtgtc'Kphcpvg.'I wkngto q'; 8
E<sup>a</sup> egt gu. 'Crqpuq'f g'<u>728</u>
Eckn?.''Rkgttg/Htcp±qku'': 7.''637638
Eckn? "*Rkgttg/Htcp±qk+"Rtkz": 9."636
Eckmqku.'Tqi gt'; 5
Eclepf gt. 'Recxq' Go kn' 62:
Eco gtqqp'<u>523</u>.'<u>524</u>.'<u>525</u>
Eco kpj c.'Rgtq'Xc| 'f g'<u>548</u>
Eco r qu. 'Cwi wuxq''cpf 'J ctqnf q'f g'554
Ecpcf c'Eqwpekn'r tk gu'<u>585</u>
Ecpcf kcp'Cuuqekckqp'hqt''Vtcpurckqp''Uwf kgu'\*ECVU+'<u>582</u>.'<u>583</u>
Ecpcf kp"tcf kkqp"zk=
   wpf gt 'Gpi nkuj 'twng' \frac{579}{6}; =
   wpf gt 'Htgpej 'twrg' \frac{578}{6} 69=
   nkytct{''tcpurcvkqp''584}65=
   P cvkxg'Co gtleep'hepi wei gu'<u>578</u>69.'<u>586</u>67=
   r wdrkuj kpi '<u>3; 5</u>ó6=
   vtcpurcvqtu'kp''yi g''dkrkpi wcn'eqphgf gtcvkqp''<u>57;</u> 683=
   vtcpurcvqtuø'kpuvkvvkqpu'cpf ''vtckpkpi ''<u>56</u>67.''<u>583</u>64
Ecpcrg. 'O 053
  cr gm'Mctn'<u>5: 2</u>
Ecrtkqrq. 'Gwqt' 6: 4
Ectf gpcn'Gtpguvq'<u>437</u>
Ectg{."Y kmkco "693."695
Ectn(rg."Vj qo cu'<u>556</u>."<u>563</u>."<u>566</u>
Ectq. 'Cppkdcn'69: .'69;
Ecttqm'LD03;:
Ectvei gpc. 'Crqpuq'f g'<u>776</u>. '<u>782</u>63
Ectygt. 'Grk cdgy '<u>562</u>63.'<u>566</u>
Ect{.'Gf o qpf <
   No "it of weakap" for pu'ng "o app g" o af gt pg" 324=
   y tkwgp'xgtuwu'qtcn'335
Ect {.'J gpt { 'Htcpeku' <u>563</u>.'<u>566</u>
Ecuulqf qtwu'<u>6; 9</u>ó:
Eculptf.'IDE<
   gs wkxcrgpeg'<u>9:</u>.'<u>9;</u>=
   nkpi wkuke "crrtqcej" 343 64=
   C'Nkpi wkuke'Vj gqt{'qh'Vtcpurcvkqp'342=
   nkygten'tepunekqp'<u>347</u>=
   tcpm/'dqwpf 'cpf 'wpdqwpf gf 'vtcpurcwqp':;=
   tgi kuvgt "cpcn{ uku" 484=
   uj khu'44;
Eczyp."Y kmco "556."557."559."566
¥ grgdk 'M⊢vkr '<u>798</u>
Egnke 'rkgtcwtg'<u>563</u>
Egtxcpvgu''Uccxgf tc.'O ki wgnlf g'3: 667.'428.'778
Eguctqwk'O grej kqttg'<u>69;</u>.'<u>6: 6</u>
Egwk'F qo gpkeq'<u>6: 2</u>
Egxf gv.'Cdf wrcj '<u>79:</u> .'<u>7: 2</u>
Ej cr o cp.'I gqti g'<u>562</u>.'<u>566</u>
Ej ctdqppgcw."Vqvkuuckpv!<u>529</u>
Ej cwegt.'I gqhtg{'337.'558.'566
Ej guvgto cp. 'Cpf tgy '326=
   pqto u'<u>386</u>67=
   umqrqu'yj gqt{'<u>459</u>
Ej g{hk\| .''Gtke''<u>36;</u> .''<u>372</u>.''<u>373</u>.''<u>374</u>
Ej kro 'Dereo 'dqqmı'<u>435</u>636
ej krf tgpøu'rkvgtcwtg'8
Ej krg'<u>732</u>
Ej krgpf ct. 'Rcku{ k'qh'<u>573</u>
Ej kpgug'tcf kkqp'<u>434</u>=
   Dwf f j kuv'uetkr wtgu'\frac{588}{69}. \frac{68}{6}: \frac{6}{6}:
   ej ctcevgt "cpf "j kuvqt { "qh'hcpi wci g" 587 68=
   Ej tkukep'o kuukqpetkgu'<u>58:</u> ó; =
   f ktgevkqp'qh'tcpurcvkqp'87=
   kf gqi tco u'<u>433</u>=
   rcvg''go rktg''<u>58;</u> 694=
   rkgtct { 'f gxkegu'38; =
   O cpf ctkp'\frac{594}{}=
   tqrg'qh'\tcpurc\qtu'\zx.'\zxk=
   vtcpurcvqtuø'kpuvkvvvkqpu'cpf '\tckpkpi '\frac{4: 3}{595}66=
   42yj 'egpwt { '<u>594</u>65=
   v{rgu'qh'tcpurckqp'zxkk
```

Ej qo um(.'P qco <

ecw.kqp'kp'hkpi wkuke'crrtqcej '342=

rcpi wci g''ycej kpi '<u>33: .33;</u> = o cej kpg'\tcpurc\kqp''<u>362.366</u>=

eqo o wpłecykzg'eqo r gygpeg'4; .'53.'386=

Vtcpulqto cylqpcn'I gpgtcylxg'I tco o ct'39;

```
Ej qr kp. 'Mcvg'<u>37;</u>
Ej tkukcpkv{<
   Ctcdle''vtcfkkqp''<u>544</u>65=
   Dtkkuj 'tcf kkqp'558=
   eqpegr w'pgy ''q' 'Lcr cpgug' 6:8=
   f kxgtukv{ 'kp'Tqo cpkc'<u>755</u>ó6=
   Kegrepf ke''vtcf kkqp''<u>679</u>682=
   Kurco ke''Ur ckp''<u>774</u>66=
   Newp'qh'getn('Ej wtej 'cpf'Okffng'Ci gu'6; 86; =
   o kuukqpctkgu'\q'Ej kpc'<u>58:</u> 6; =
   P gy "Y qtrf "o kuukqpctkgu" <u>549</u>." <u>72:</u> =
   Tqo cp'Ecyj qrke'Ej wtej 'xkgy u'Ncvkp'cu'pqto '55566=
   39yj 'egpwt { 'Ncvkp'<u>724</u>=
   Uy gf kuj 'o qpcuske'r gt kqf '786667=
   ugg"cnug"Dkdng"\tcpurc\kqp=
   Qtyj qf qz 'Ej wtej
Ej t { uqrqtcu. 'O cpwgn'6; ;
ej wej qvci g'*y j kur gtgf 'kpvgtr tgvkpi +'63
Elegtq.'Octewi'Vwrkwi'6; 768=
   cf cr vc vc qp' 7=
   dkqi tcr j \{ ''_{726} =
   htgg"\tcpurc\kqp"\:9=
   ko kscvkqp'<u>333</u>634=
   kpvq'Krcrkcp'xgtpcewct'697=
   nkgtcn'tcpurckqp'347.'383
Entrng. 'Uco wgn'723
Ercxkwu. 'Ej tkuvqr j g'<u>722</u>
Engting. 'Detyj qiqo gy '722
En{pg."W0<u>'6:</u>
Eqdwkrf 'Depm'qh'Gpi rkuj '72
eqf g/etcemkpi "ugg"uetkr v
eqi pkkxg"eqpvgzv"<u>335</u>
eqj gtgpeg'twrg'458
Eqngtlf i g. "Uco wgrl"Vc { mt '556. '566667
Eqnkpu. 'F cpkgn'5: 7
Eqo o cpf kpq. 'Hgf gtkeq' 722
eqo o wpłecykxg llypeykqpcrkuy'cr r tqcej gu'<u>4;</u> ó<u>55</u>=
   eqo o wpłecykxg"gxgpv"5264=
   repi wei g. 'vgz v'epf '\tepure \kqp'\hwpe \kqp'\54\65
eqo o wpkx{ 'kpvgtrtgvkpi '454=
   f ghkpkkqp"cpf 'tqrg'<u>55</u>ó6.'<u>59</u>=
   Uqwj 'Chtkec'<u>524</u>=
   Uy gf gp'<u>78</u>;
```

```
eqo o wcwqp'9;
eqo r gpuc\sqrt{59}ó62=
   eqo o wpleculxg"gxgpv"52=
   nkpi wkuke "crrtqcej" <u>345</u>=
   r ctcmgn 'eqpvki wqwu'qt 'f kur ncegf '5;
eqo r gygpeg'386
eqo r wgtu'ugg'o cej kpg'tcpurckqp
eqphgtgpeg'cpf 'uko wacpgqwu'kpygtrtgykpi '6267=
   rtqeguukpi 'ecr cekx{ 'cpf 'ghhqtv'o qf gnu'<u>65</u>67=
   ru{ej qrkpi wkuke"cpf "eqi pkkxg"crrtqcej "3:8."3::=
   Uy gf gp'\frac{78}{}=
   yj gqt { "<u>65</u>
Eqph? tgpeg''Kpygtpcvkqpcrg''f gu''Kpurkwuu''Wpkxgtukscktgu''f g''Vtcf wevgwtu''gv''Kpygtr t³ vgu''* EKWVK+'4: 4. '4: 5
eqphi wtcvgf 'eqtr qtc'35
eqphi wtchqpu'qh'cenqpu'6
Eqprg{."Vqo "<u>42:</u>
eqppqvcvkxg"o gcpkpi ".'99
Eqptcf.'Lqugrj''<u>74:</u>
eqpvgpv<
   hqto "cpf "uwduvcpeg" 43: 63;
eqpvtcuvkxg"cpcn{ uku"cpf "vtcpurcvkqp"676;
eqpxgpvkqpu'4;8=
   wpkxgtucni'qh'\tcpurc\kqp'\u224:: \( \) \( \) \( \) \( \)
Eqqr gtcvkxg'Rtkpekr rg'3: 364
Eqqtpj gtv.'Fkm'Xqmgtwl qqp'5; 7
Eqr grepf .'Tkc'<u>348</u>.'<u>372</u>.'<u>3: 7</u>
Eqtdkp.'T00 082
Eqtf gktq'f c'O cwc.''Iqcs wko 'F kcu'<u>4; 9</u>.'<u>526</u>
Eqtguk'F gceqp'<u>756</u>
Eqtpctkwu.'Iqcppgu'*Iqj cpp'J ci gpdw+'722.'726
eqtr qtc'cpf 'eqtr wu'hpi wkukeu'<u>72</u>65=
   eqo r ctcdrg'\frac{74}{}=
   eqphki wtcvgf "35=
   o cej kpg'\tcpurc\kqp'\\\ 365=
   o wnkrkpi wcn\frac{74}{}=
   r ctcmgnl73
Eqtrqtcvkqp'Rtqhguukqppgmg'f gu'Vtcf wevgwtu'gv'Kpvgtrt³vgu'Ci t²²u'f w'S wgdge'*ERVKCS +'<u>582</u>.'<u>583</u>
eqttgur qpf gpeg<
   f gekukqp"o cmkpi "7:
Eqt\sqrt[4] ct. 'Lwrkq' \frac{42}{2};
Eq dwe.'I gqti g'<u>759</u>6: .'<u>75:</u> .'<u>762</u>
Equgtkw.'Gwi gpkq'<u>8</u>.'<u>496</u>
Equxlp. 'P leqrcg' 756
Eqwqp.'Iqj p'<u>52:</u>
eqwtvtqqo 'kpvgtrtgvkpi '<u>55</u>.'<u>56</u>.'<u>75</u>68=
   f kueqwtug''cpcn\{uku'' 82692 =
   o gej cpleu'<u>77</u>ó8
Eqxgtf crg. 'O krgu'<u>559</u>. '<u>567</u>
Eqy mg{.'Cdtcj co '<u>562</u>
Eqy r gt. "Y kmkco '<u>567</u>
Etkem'Iq{eg'92
etkkekuo '427632
Etqpkp. 'O kej cgn'324
Etqy yi gt. 'Dkuj qr ''Uco wgn'Clcplk'4;;
Euwnc.'\ qn^a p'' 675
Ewdc''732
Ewi pgv.'Htcp±qku/Lqugr j '57:
ewnwtg<
   eqo r gygpeg'84=
   eqputckpu'qp'f wddkpi '98=
   hqtgki pk kpi '34869=
   kf gqrqi { '332.4: 2=
   kpeqo r cvkdkrkvkgu'344=
   nkpi wkukske 'o qf gnu' 4: 2=
   o gver j qt 'qh'\tepure\kqp'<u>36;</u> 675=
   r quveqqpkcrkuo '37465
E{tkn''Uckpv'<u>469</u>6: .'<u>572</u>.'<u>576</u>67.'<u>745</u>.'<u>763</u>
E | gej 'tcf kkqp<
   gctn("r gtkqf" 'vq" 42 yi" 'egpwt {"5986; = }
   kpvgtr tgvgtu'<u>5: 4</u>=
   Rtci wg''Uej qqn'cpf ''42yj ''egpwt { ''<u>59</u>; 6: 4=
   ugg"cnuq"Unqxcm\tcfkkqp
F \( \text{C} d\( \text{rcpeqwtv.'} \text{P keqrcu'} \text{Rgttqv'} \( \frac{463.633.638}{463.633.638} \)
F cekgt. 'Cppg'O ctkg'<u>562</u>. '<u>634</u>. '<u>638</u>
F cf & . 'Dgtpctf' <u>522</u>
F ci w.'O gpcej go '<u>669</u>
Fck'Cj o gf/<u>k'796</u>.'<u>797</u>
FøCrgo dgtv."Igcp"rg"Tqpf "634635
F co cuegpg. 'Lqj p'56;
F cpkuj ''tcf kkqp''\underline{5:6}ó: =
   vtcpurcvqtuø'kpuvkvvvkqpu'cpf ''tckpkpi ''4: 3. '5: 96;
F cpm.'IO 03: 76; 2.'3: ;
F cps wcj. 'LDO'4; 7
F cpvg'Crki j kgtk'<u>337</u>.'<u>563</u>ó4.'<u>698</u>
F ctdgrpgv." Lgcp" NO8.": 2." 583." 585 66=
   nkpi wkuke "crrtqcej" <u>345</u>=
   vtcpur qukskqp"cpf "o qf wrcskqp"44:
Fexcp | cvk 'Dgtpctfq'69:
F cxkcww.'Rkgttg'<u>57;</u>.'<u>583</u>.'<u>586</u>
F cxkf uqp. 'F qpcnf'; 635
Fc{'Ngy ku.'Egekn<
   r qgwleu'qh'vtcpurcwlqp'389
f g'O cp. 'Rcwi'<u>373</u>64. '<u>3; 8</u>
f gekukqp"o cmkpi <
   f genetekxg"cpf "r tqegf wten mpqy ngf i g"79
f gekukqp/o cmkpi '\frac{79}{682}=
   o qf gnu'cpf 'pqto u'37869
f gheo krketk evkqp'38:
f ghkpkkqpu'48263
F grgcpw.''KD0757
F grkurg. "Igcp" 322. "324. "325. "335=
   Vtcpurcvqtu'Vj tqwi j ''J kwqt{''327
```

F grrkrg. 'Lees wgu'<u>635</u>

F gttlf c.'Les wgu'498=

F gpj co .''Ukt''Iqj p''<u>463</u>.''<u>562</u>.''<u>567</u>

```
i gpf gt 'o gvcr j qt keu'; 8=
   rtglwf keg"ci ckpuv'pqp/rj qpgvke"uetkr v'<u>433</u>
f guet kr vkx g"vt cpurc vkqp"uwwf kgu"ugg"rkvgt ct { "vt cpurc vkqp=
   pqto u=
   r qgvkeu=
   rqn\{u\{uvgo "vj gqt\{=
   uj khw
F gxgeugtk'I * dqt'<u>672</u>.'<u>676</u>
Fg{gu.'C0H0<u>487</u>
Føj wuv.''Nkgxgp''<u>326</u>.''<u>636</u>
f k'Rkgvtq.'T010<u>68</u>
f kengew<
   ftco c'tcpurctqp'<u>93</u>=
   rkpi wkukeu'<u>342</u>63=
   v{r gu'qh'f khhgt gpeg'<u>47</u>ó8
f kcmi wg'kpvgtr tgvkpi "ugg"eqo o wpkv( 'kpvgtr tgvkpi
f kf cevkeu 'qh' vtcpurc vkqp' 82 65
Fkf gtqv.'Fgpku'37:
F kmkpi gt. 'O kmg'<u>65</u>
F kn j g\{."Y kn j gno ": 9
f ko gpukapen'epf 'pap/f ko gpukapen'o kuo evej gu'3;
cn/F p'Mcmwtcxk'Pclo '739
Fkqp{ukwu'Gzki wwu'<u>6;:</u>
F kqr ."Ej gknj "Cpvc"<u>4; 9</u>."<u>526</u>
f kr mo ce { 'zx
f ktgev'qt'kpxgtug''\tcpurc\kqp'\86
f ktgevkqp''qh''vtcpurcvkqp''8569=
   r ctcmgn'eqtr wu'<u>75</u>=
   r tqeguukpi 'ecr cekv{ '67=
   ugrh/vtcpurcvkqp'3:
f kueqwtug''444
f kueqwtug'cpcn{ uku'89693=
   i gptg"cpf "vgzv"8: ó92
Fo qej qy umk 'Htcpeku | gm'Mucy gt { '749
Fqdtqxmu .'Iqugh'59;
Fqffu.'Iqjp'O0<u>429</u>
Fqkpc ." v'Cwi 0<u>762</u>
F qreg.''Nqf qxleq''69:
Fqrgv.'Glgppg'632.'638.'778
F qo gpkeq'Ecxcrec.'Htc'<u>697</u>"
```

```
Fqtkqp.'Gwi <sup>3</sup>pg/Rj krkr r g'<u>57;</u>.'<u>586</u>
F quqhışk'O gytqr qrkep'qh'O qrf exke'<u>756</u>.'<u>762</u>
ftco c'\tcpurc\tqp'\frac{93}{6}=
   cf cr vcvkqp'8=
   gzr nkekkcvkqp": 4
Ftcpv."Vj qo cu"; 7
Ft\{fgp.''Lqjp''_{567}=
   Cgpgkf''\underline{562}=
   ko kvckqp"<u>333</u>=
   o gver j teug'<u>375</u>.'<u>376</u>=
   r ctcr j tcug'<u>387</u>=
   r qgwleu'qh'vtcpurcwlqp'389
f wddkpi '<u>96</u>ó8.'<u>467</u>=
   gzr gpug'<u>46:</u> =
   tgxqlelpi '<u>97</u>.'<u>468</u>=
   ugg"cnuq"uwd\kurkpi
F wprcr.'Y krrkco '52;
F wt<sup>a</sup> p. 'Htc'F kgi q'f g'<u>72;</u>
F wej 'tcf kkqp<
   Chtkecp'eqnqpk cvkqp''4; 9=
   j kwqt \{ ''qh''rcpi wci g'' \underline{5; 4} =
   kphrwgpeg'kp''Lcr cp''<u>6: 8</u>69=
   o gf kgxcn'cpf 'tgpckucpeg'r gtkqf u'5; 469=
   o qf gtp'r gtkqf \frac{5}{9}; =
   ugrh/vtcpurcvkqp"3: 63;
f {pco ke'gs wkxcngpeg<
   cuuguukpi 's werkv{ '3; 9=
   kf gqrqi {'<u>332</u>=
   cpf 'hkpi wkukeu'<u>343</u>=
   tgegr vqt"tgur qpug"qxgt"uqwteg"o guuci g"44:
Gci ngvqp.''Vgtt{'<u>565</u>
Gdgtudgti ."Y kmktco 'xqp'63: 63;
Gdp'CdwVcrgd.'Crk'739
Gdp"cn'O qs chce. "eCdf qm j '<u>736</u>. '<u>743</u>64
Geq. "Wo dgtvq"; 4."; 5=
   Vj g'Pco g'qh'vj g'Tqug'<u>37:</u> .'<u>463</u>
eqrg"Uwr2tkgwtg"f øKpvgtrt3vgu"gv"f g"Vtcf wevkqp"*GUKV+"334."4:4."4:5
Geqpqo qu. 'Eqpuvcpvkpqu' 652
ghqtv'o qf gnu'<u>66</u>67
Gi knuqp. "Uxgkpdl¾tp"<u>683</u>. '<u>684</u>. '<u>685</u>66
Gi {r v'cpf 'Gi {r v'cp' 2kx." 433634." 4; 8." 546=
   j kuvqt { ''qh' 'tckpkpi ''<u>4: 3</u>=
   ugg"cnuq"Ctcdle"\tcf klkqp
Glnj gpdcwo .'Dqtku'398
Gmtgo: 'Tgeck cf g'79:
Grhgn/'*M0+'Rtk g'<u>5:9</u>
Grkqv.''Lqj p'\'\'<u>528</u>.''<u>537</u>
Grk cdgyj 'Kqh'Gpi rcpf '<u>557</u>.'<u>559</u>.'<u>555</u>.'<u>'567</u>
Gn{ vku. 'Qf { uugwu'<u>653</u>. '<u>656</u>. '<u>658</u>
Go kpguew.'O kj ck'<u>759</u>
Gpi rkuj "Ncpi wci g"Vgcej kpi "*GNV+"33:
Gppkwu.'S wkpwwu'<u>6; 7</u>
Gp| kpcu."Htcpekueq"f g"778."783
Gs den'Cuj vkepk'Cddeu'<u>742</u>
gs wkxcrgpeg'<u>99</u>6<u>: 2</u>=
   eqppqvcvkxg'99=
   f kf cevkeu' 83 =
   hqto ch'eqttgur qpf gpeg'99.'9:=
   hwpevkqpcn<sup>1</sup>/<sub>99</sub>=
   kpvgtrtgvkxg'ugo kqvkeu'<u>43;</u>=
   nkpi wkuske "crrtqcej" <u>344</u>65=
   nkygtct { 'tcpurcvkqp'354=
   pqto u'<u>354</u>=
   qpg/vq/qpg''9:=
   r qg t \{ '396 = 
   r \text{ quwic vg''} = 2
   rtci o cwelf {pco ke'99=
   tghgtgpvkcnlfgpqvcvkxg'99=
   tgr rcegf 'd{ 'pqto u'387=
   uj khw'<u>449</u>=
   ukwcvkqpcn'9=
   umqrqu' y gqt { ''54=
   vcti gv'vgzv'hqto u'83=
   vgzvlpqto cvkxg'99=
   wzwcd<u>99</u>.'<u>9:</u>.'<u>9;</u>.'<u>343</u>=
   wpk/'qh'tcpurctkqp'4:9
Gtcuo wu. 'F gulf gtkwu' 559. '5; : .'722
Gtcuo wu. 'Rgvgt'<u>57:</u>. '<u>586</u>67
Gtj cv.'C| tc'<u>7: 3</u>
Gt keuuqp. "M0<u>488</u>. "<u>489</u>
Otkwi gpc. 'Iqj p''Ueqwu'': 9. '348
Guhej pk'Okt 'J cdkd' '73; .'744
Guvqpkcp'<u>673</u>
Gevgo f 'cn/Ucncpgj '73:
Gevgu o "cn'O qrm"[ wuqh'<u>742</u>."<u>744</u>65
gwle 'xgtuwu'go ke'<u>69</u>ó:
Gwtqr gcp'Eqo o kuukqp'4: 6
Gxcpu.'Lco gu'<u>57:</u>.'<u>586</u>
Gxgp/\ qj ct.'Kco ct'94.'669=
   f guet kr \sqrt{354}65=
   r qg keu' 38:.38: =
   r qn{ u{ uvgo ''yj gqt { ''<u>385</u>.''<u>398</u>6;
Gzctej .'Lqj p'<u>56;</u> .'<u>577</u>
gzr nlecvkqp<
   cf f k k qpu'' : 3 =
   co r nkhkecvkqp": 3=
   qr \sqrt{qpcn' \cdot 5} =
   rtci o cvke"<u>: 5</u>=
   vtcpurcvkqp/kpj gtgpv'<u>: 5</u>=
   wpkxgtucnu'4:;
gzr nlekscykqp": 266=
   j {r q y guku'<u>: 3</u>64
gzr qukkqp'<u>486</u>
```

gzr tguukqp<

hqto 'cpf 'uwducpeg'<u>43:</u> 63;

G{Adq nw."Ucdcj cwlp"7:3

```
Hckf kv.'I cwegno '465'66
Hemi t. 'Deukrk'545
Henwf { .'I {3/4i { '674}
Hcy egw. 'Rgvgt'98
cn/Hc{{ o k''Uce f''<u>542</u>
Hf2tcvkqp'Kpvgtpcvkqpcrg'f gu'Vtcf wevgwtu'*HKV+": 769. '327. '4: 4
Hgf gtqx. 'C0X0'32: 632
Hgrkr kmq'qh'Rwpa ''729
Hgv.'C0C0<u>767</u>
Hkekpq.'O ctukrkq'<u>698</u>.'<u>6; ;</u>.'<u>726</u>
hld grkv{ 'twrg'<u>458</u>
hkro u'ugg'uwd vkvrkpi
Hkprc{.'Kcp''J co knqp''<u>433</u>
Hopkij 'tcf kkqp<
   f ktgevkqp'qh'vtcpurcvkqp'8768=
   r ugwf qvtcpurcvkqp"cpf 'yj g"Mcrgxcrc"3: 6=
   tgrcvkqpu'y ky 'Hkppq/Wi tke'rcpi wci gu'<u>673</u>=
   tgugetej 'cpf 'r wdrkecvkqp'<u>629</u>6: =
   Twukep'r gtkqf 'cpf 'kpf gr gpf gpeg'62567=
   Uy gf kuj 'r gt kqf '62365=
   vtcpurcvqtuø'qti cpk cvkqp'cpf ''vtckpkpi ''4: 3. '62769
Hkty .'LOTO<u>4;</u>
Hkuej gt. 'Qvqmct'<u>5: 2</u>
Hkuej o cp. "Uj gkrc" <u>584</u>. "<u>585</u>
HKV/ugg"HPf2tcvkqp"Kpvgtpcvkqpcrg"fgu"Vtcfwevgwtu
HKV/P cy j qtuv'Rtk g'<u>675</u>
Hkej .'Dtkcp'3;
Hkwu.'F wf rg{ '532.'537
Hky i gtcnf. 'Gf y ctf '392.'557.'564.'567
Hrqvqy .''Nvkug'xqp''325
Hqrgpc.'I kcphtcpeq'373.'6:364
hqtgki pk kpi "333."42; ."56465=
   I gto cp''46364 =
   rksgtcn'\tcpurc\kqp'\348\\\ 69.'\532=
   utcvgi kgu'46366
hqto cn'eqttgur qpf gpeg'9: .'343=
   uj khu'44;
hqto crkuo <
   f genetekkg"cpf 'r tqegf wten 369
Hqtu<sup>2</sup> p. 'Uco wgrl'624
Hqueqrq."Wi q"<u>6: 3</u>
Htcugt.'Icpgv'3:;
htcwf u'ugg'r ugwf qvtcpurcvkqp
Htcy rg{."Y kmkco "9:
htgg''tcpurcvkqp'': 96; 2.''46: 6; .''643=
   o gver j qt "qh'ugz wen'hkf grkv{ "; 667=
   U/Lgtqo g''<u>: 9</u>6: .''; : .'34768
Htgi g.'I qwqd'33
Htgpej 'ttcf kkqp<
   Cecf<sup>2</sup>o kg'htcp±ckug'<u>325</u>=
   cf cr vc vkqp' 7 68 =
   Chtkecp'eqrqpk cvkqp'4; :=
   dgngu'kphf^3ngu''=
   encualecn'kphrwgpeg''cpf 'Htgpej ''vq''39yj ''egpwt{ ''62; 633=
   ercuulekuo '355=
```

```
eqmpk cvkqp"qh"Ctcd"rcpf u"<u>544</u>65."<u>547</u>=
   eqpvkpi gpv'ewnwtgu'<u>37;</u>=
   f qo guvlecvkqp"qh"Gpi rkuj "463=
   gzr nkekscukqp"<u>: 4</u>=
   kphrwgpeg'qp'Co gtkec'<u>52:</u>.'<u>533</u>634=
   kphrwgpeg'qp'Dtc| kr<u>|54:</u> .'<u>54;</u> =
   kphrwgpeg'qp'F wej '<u>5; 9</u>=
   kphrwgpeg'qp'I gto cp'<u>63;</u> 642.<u>644</u>=
   kphrwgpeg'qp'Kcrkcp'<u>69:</u> 6; =
   kphrwgpeg'qp'Tqo cpkcp'<u>757</u>=
   o gver j qt 'qh'ugz wen'hkf grkv\{ \frac{1}{5} 6 67 =
   o wnkrkpi wcrkuo '37; =
   r ugwf qvtcpuncvkqp'\frac{3:6}{6}7=
   r wdrkuj kpi '<u>3; 2</u>63=
   39yj 'egpwt{ ''vq''r tgugpv'<u>632</u>ó36=
   Uj cmgur gctg'<u>446</u>.'<u>447</u>=
   Uj engur getgøu'\tepurevqtu'\.\.\.\.\446=
   vtcpurcvqtuø'kpuvkvvvkqpu''cpf ''vtckpkpi ''<u>4: 3</u>. '<u>4: 4</u>65. '<u>636</u>637=
   ugg"cnuq"Ecpcf kcp"tcf kkqp
Htkgu. 'Ej ctrgu'E0'68
Htquv.'Tqdgtv'392
Hwmw cy c'[ wmkej k'<u>6: :</u>
hwpe lqpcn'cr r tqcej gu'4; 655
Hwcdcygk'Uj ko gk'<u>6:</u>; 6; 2
I cej gej krcf | g. 'I OTO332
I cnigtwu'f g'Ecurgmlqpg'67:
I co dkgt."[ xgu":
i co g'\(\delta\) gqt \{ \frac{79}{9}, \frac{3}{5} =
   f ghlpkklqpcn'cpf 'ugrgevkxg'kpuvt wevkqpu'; 364=
   o kpko cz'yj gqtgo "<u>; 3</u>=
   rctcf ki o \frac{3}{6}4=
   rc{qhh'o cvtkz''; 3}=
   uvtcvgi {"<u>; 4</u>ó5
I ctdqti .'Ctpg'<u>5: ;</u>
I cte¶c''Uwgnq.''Vqo a u''<u>779</u>
I cte\[c'\[ gdtc.\]Xcrgp\[p'\]782
I ctpgw.'Eqpucpeg'<u>428</u>
I ctpgw.'O kej gn':
I extqpmu{."Ugti g"; 7
I grgpkwi'*\ kno wpf 'J wtd '\ 'Igrgp\#'<u>59:</u>
i gpf gt<
   j kuvqt { ''qh'\tcpurc\kqp''<u>325</u>=
   kf gqrqi {"<u>329</u>."<u>332</u>=
   o gver j qt "qh" ugz ven 'hkf grkv\{ "; 667=
   o gvcr j qtkeu"<u>; 5</u>ó8=
   y qo gp'cu'o kpqtkv{ 'i tqwr 'zx
i gptgu'<u>8</u>.'<u>8:</u>
I gpwrg.'I kqxcppk'6: 3
I gpv/ ngt. 'Gf y kp'9; . '332. '39;
I <sup>2</sup>tctf.'C0'4; 9
I gtctf 'qh'Etgo qpc'<u>6; ; .'775.'783</u>
I gto cp'tcf kkqp<
   cf cr vcvkqp'<u>8</u>=
   Chtkecp'eqqpk cvkqp'4; 9=
   cpyj qrqi kgu'<u>37</u>638=
   f ktgevkqp'qh'vtcpurcvkqp'87=
   hqtgki pk kpi 'tıxtcvgi { '46364=
   htgg"\tcpurc\kqp"\8=
   I <sup>3</sup>/<sub>4</sub>wkpi gp'j kuvqtkecn'uwf kgu'<u>326</u>67=
   j gto gpgwkeu"; : ó; =
   kphrwgpeg''qp''Dtkkuj ''<u>45</u>.''<u>47</u>.''<u>563</u>=
   kphnwgpeg''qp''F wej'' 5; 96: =
   rkgtcri'tcpurckqp'348=
   O qf gtp'J ki j 'I gto cp'\frac{643}{6}67=
   Qrf 'cpf 'O kf f rg'J ki j 'I gto cp'<u>63:</u> 642=
   r qg w e'u \{u w go' \underline{38}; =
   r wdrkuj kpi '<u>3; 2</u>63=
   Uj cmgur gctg'<u>446</u>.'<u>447</u>=
   Uj engur getgøu'tepurevqtu'<u>446</u>."<u>447</u>=
   y gqtgwecn'o qf gnu'355=
   vtcpurcvqtuø'kpuvkvvvkqpu'cpf '\tckpkpi '\<u>57</u>.'<u>4: 4</u>65.'<u>4: 7</u>.'<u>647</u>68
I gtxgt. 'F cxlf' '65
I j c | | crk'<u>796</u>
I krg. 'F cpkgrl'66
I km cp. 'C0<u>96</u>
I ktv{."Uko qp"<u>529</u>
I nc | go cngt. 'Lcp' J gpf tkmu | "5; 8." 622
i nquuctkgu'<u>479</u>
I pgf kej .'P (KO<u>767</u>
I qf ctf. 'Dctdctc' 332
I qgyj g."Iqj cpp"Y qrhi cpi "xqp"; : 6; ."52; ."556
I qi c.''Qevcxkcp''<u>75:</u>.''<u>762</u>63
I qrf kpi .''Qrkxgt''<u>55:</u>
I 3/pe|."f tr a f "675
I qp| a rg| .'F wgo gu'Tqugcpp'<u>75</u>66
I qtku.''Qrkxkgt'<u>97</u>
I »tplenk"/ wncu '<u>748</u>.'<u>754</u>
I qwej gf. 'Iqj cpp'Ej tknqr j '<u>643</u>64. '<u>645</u>. '<u>648</u>69
I tcek p. 'F kgi q' 778
itco o ct<
   tgxgtukdrg'<u>369</u>69=
   ugg"cnuq"hkpi wkurke"crrtqcej gu
i too o ct/vtcpurcvkqp"o gyj qf "339
I tco uek 'Cpvqpkq'<u>6: 3</u>
I tggml\tcfkkqp<
   Dkdrg''\tcpurc\kqp''\frac{44}{6}:=
   D\{| \text{cpvkpg'Ej wtej '} \frac{569}{673.'} = 
   kp'Ej kpgug'<u>58:</u>=
   f go qvle 'kuuvg'<u>64;</u> ó52=
   f ktgevkqp'qh'vtcpurcvkqp'87=
```

f qo guvlecvgf ''d $\{$ 'Tqo cpu' $\underline{463}$ =

Gpi rkuj "trepurevkqpu"<u>557</u>= hqtgki pkj kpi "urtevgi kgu"<u>464</u>65=

```
I tggm'\tcpurc\qtu'cdtqcf '\zx.'\zxk=
   ko kıcıkaplo ko guku'333634=
   kpegpvkxg'hqt'\tcpurcvkqp'\zxk=
   kphrwgpeg''qp''Ctcdke''<u>539</u>642.''<u>546</u>67=
   kphrwgpeg''qp''Dtkkuj ''<u>55:</u> ó; .''<u>564</u>ó5=
   kphrwgpeg"qp"Htgpej "623633=
   kphrwgpeg'qp'Kurco ke''Ur ckp''<u>775</u>66=
   kphrwgpeg''qp''Kkcrkcp''<u>698</u>.''<u>698</u>.''<u>695</u>. ó: 2=
   kphrwgpeg'qp'Tqo cpkc'757=
   kphnwgpeg'qp'Twukc'<u>764</u>=
   kpvgtvgo r qtcn'vtcpurcvkqp'337=
   cpf 'Nc\p'<u>64; .6; :</u> \(\delta\); .\(\frac{722}{723} =
   mpi "j kuvqt { "64: 6; = }
   my "tcpurctkqp"cetkxkt{ "64; =
   r wdrkuj kpi ''ttgpf u''<u>652</u>63=
   tgugctej "cpf 'r wdrlecvkqpu" 65667=
   yj gqt { "cpf "o gyj qf u"qh" \tcpurc \tqp" \frac{653}{6}6=
   Vqtcj "tcpurckqp" 48;
   vtepurevqtuø'tckpkpi 'epf 'qti epk evkqp'<u>657</u>68=
   cpf ''Vwtng{ ''<u>797</u>ó8
I tgi qt {.'O kej cgn'4; 652
I tleg.'J (R0345.'346.'3:3
i tkqw'<u>4; 7</u>.'<u>4; :</u> 6; .'<u>526</u>
I t³/pf cn'y g'Grf gt. 'Dgpgf km'683
I tquugvguvg. "Tqdgtv"567. "6;;
I twpf wki .'P keqrck'Htgf gtkm'Ugxgtkp'5:8.'5:3
I tw{ vgt."Y cnvgt"f g"327
I wctguej k'I kqxcppk'<u>463</u>
I wktgc.'L075:
I wn gj tk'<u>796</u>
I ww.'Gtpuv/Cwi wuv<u>'52</u>.'<u>54</u>.'<u>5;</u> 662.'<u>3: 4</u>65
J cdgto cu. 'LÃti gp'45:
J ci dgti .'Ectn'Cwi ww'<u>792</u>
J cmlgtuvcf v.'Cmltgej v'xqp'<u>63;</u>
J cmi t\p uuqp. 'L>pcu'\683
J cmf c{.'O lej cgn'4; .'54.'6; .'484
J cppc{.'O 0325
J cpugp.'J cpu'<u>5:</u>;
Al-Ḥarizi .''Lwf cj ''663
J cttku."\ grki "89
J cttkuqp."Vqp{ '<u>565</u>
J ctwp/cn/Tcuj kf '689
J ctxg{.'Mgkj '5:.'5;
```

J cukpi u."Y cttgp"693"

```
J \text{ cylo} . 'Dculn' \underline{52} =
      eqo r gpucvkqp'<u>59</u>.'<u>5;</u>=
      eqpvtcuvkxg"cpcn{ uku": =
      etkkekuo '429=
     nkpi wkuske"crrtqcej "343.346
J gdtgy 'tcf kkqp<
     cpvks wkv{ ''cpf 'O kf f rg'Ci gu'<u>65;</u> 664=
      y g'Dkdrg'<u>44</u>6: =
      Gprki j vgpo gpv!*J cumenc+'r gtkqf '6646=
      kphrwgpeg'qh'crr j cdgv'<u>434</u>635=
      y g'hcpi wci g'<u>65;</u>=
     Tgxkxcn'r gtkqf 'cpf 'Kutcgn'<u>666</u>ó8=
      Ut'Lgtqo g'uggmı'tcddkøu'cf xkeg'6; 9=
      Vqtcj "tcpurckqp" 48; 695=
      vtcpurcvqtuø'qti cpk cvkqp"cpf "vtckpkpi "66869=
      wpk/'qh'\tcpurc\kqp'\underset 8=
      wpkxgtucnu'qh'\tcpurc\kqp'\undersetq:=
      cpf' [ kf f kuj '<u>667</u>=
      ugg"cnuq"Vqtcj "tcpurckqp
J gkf gi i gt. 'O ctvkp' 349
J gtdgtv'J gpt{''Y kmkco '52;
J gtduv.''Vj qo cu'<u>97</u>
J gtf gt. 'Iqj cpp'I qwhtkgf 'xqp'86. '348. '644. '645
J gtgf kc. 'Hgtpa pf g| 'f g' 775
J gto cpp"qh"Ectkpy kc"6; ; ."726
J gto cpu. "Vj gq"<u>38:</u>
j gto gpgwke"o qvkqp"; 96; =
     hywt'uvci gu'qh'\twuv.'ci i tguukqp.'kpeqtrqtc\kqp''cpf 'tguvkwvkqp''; 9
J gtqf qwu'383
J gtxg{."U pf qt"5: ó;
J g{ngp.'Tqo { '94.'96
J ki i kpu. 'Kp'<u>5:</u> ó;
J kpcww'M/pquwng'<u>6; 3</u>
J kpf wkuo \frac{694}{}
      encuulecn'gr leu'<u>688</u>69
j kuvqtkqi tcr j {'<u>323</u>
j kuvqt { "qh" \tepure \tepur
     f ghlpkkqpu."o qf gnu"cpf "o gyj qf u"32263=
     kf gqnqi kecn'r gtur gevkxg'32: 633=
     nkgtcn'tcpurctkqp'348
J \nmid kt. 'Egrengf f \( kp \)'\frac{797}{}
J lgm urgx.''N0<u>43:</u> 63; .''<u>442</u>.''<u>497</u>
J qddgu."Vj qo cu'<u>567</u>ó8
J qhrcpf."M073."75
J qrdgti .''Nwf xki '<u>5: 7</u>
J 3/4f gtrkp. 'Htkgf tkej '4/64
J qmcpf.'Rj krgo qp'<u>55:</u>
J qmq. 'Lwj q'Cwi wuv'627. '62:
J qmq'*Lwj q'Cwi wuv+'Rtk g'<u>629</u>
J qm .'L' p'<u>772</u>
J qm gu.'Lco gu'U.'<u>72</u>.'<u>389</u>.'<u>396</u>=
      :Vj g'P co g'cpf 'P cwtg'qh'Vtcpurcvkqp''Uwf kguø'4996;
J q \eta / O @pw@k'Lwuvc'' <u>55</u>.' <u>648</u>=
      u{uvgo u'o qf gn'<u>384</u>=
      vgcej kpi 'tcpurcvkqp'<u>83</u>=
      J qo gt<
     f go qwe'I tggml652=
     kp'F wej '<u>5; 5</u>=
     kp'Gpi rkuj '<u>337</u>.'<u>52;</u>.'<u>562</u>.'<u>564</u>=
     kp'Htgpej '<u>634</u>.'<u>635</u>=
     kp'I gto cp'<u>464</u>=
     kp'Kcrkcp'<u>69;</u> .'<u>6: 3</u>=
     kp'Ncvkp'<u>6; 7</u>=
     kp'Rqrkij '<u>749</u>.'<u>74:</u>=
     kp'Tqo cpkcp'<u>759</u>ó:
J qtceg'<u>66:</u> ó; =
      cf cr w kqp' 7=
     htgg"tcpurckqp": 9=
      nkgtcn'tcpurckqp'347.'383
J qti wgrkp. 'Rcwrl'322.'325.'389
J qtki wej k'F cki cmw'6; 263
J qwug. 'Lwrkcpg<
     nkpi wkuke "crrtqcej" <u>343</u>. "<u>345</u>66=
     o qf grilhqt "s wcrkv{ "cuuguuo gpv'3; ; =
     qxgtv'tcpurcvkqp'98=
     tgi kuvgt "cpcn (uku" 52
J qy ctf. 'Tkej ctf' 533
J wgv. 'Rkgttg/F cpkgrl'; 6. '322. '376. '387. '634
J wi j gu. "Vgf "<u>565</u>
J wi q. "Xkevqt" 392
j wo cp'tki j w'<u>76</u>
j wo qwt<
      eqo r gpucvkqp'<u>59</u>ó:
J wo rj tg{.'Ncy tgpeg'376.'387
J wpi ctkep'tef kkqp<
      Ej tkukcp'\gzw\'<u>66:</u>=
      gctn("{gctu'\q'3; yj 'egpwt{'\66: 673=
      gzr nkekcvkqp": 5=
     Hkppq/Wi tke'tgrcvkqp''cpf 'hqmmqtg''<u>673</u>=
     kphrwgpeg'kp'Tqo cpkc'<u>75:</u>=
      3; y 'cpf '42y 'egpwtkgu'<u>673</u>65=
      vtcpurcvqtuø'qti cpk cvkqp''cpf ''vtckpkpi ''675
J wu. 'Lcp' 599. '66:
J xkg f qurex. 'Rexqn'Qtu| a i j '772
j { dtkf kv{ "ugg"o wnkrkpi wcrkuo
J {o gu.'F gml4; .'53
Klp"cn/Dcvtks."[wj cppc"543
kdp"J cuf ck"Cdtcj co "663
Kdp'Octcy p."eCdf "cn/Ocnkmi539
Kdp'O cucy c{i. Yuhanna '542
```

Kdp'Oc{o p.'O uc"\*Ocko qpkf gu+'<u>543</u>.'<u>662</u>

Kdp'P cølo c''cn'J ko uk'<u>543</u> Kdp'S wttcj.''Vj dk'<u>542</u>

```
Kdp'Kdtcj ko 'cn'Hc| ctk'O wj co o cf '542
Kegrepf ke''vtcf kkqp''<u>788</u>=
   3: y 'egpwt{ ''vq'o qf gtp'\do gu'683'\/5=
   O kf f rg'Ci gu'<u>678</u>ó82
lf gqrqi {"3286: .32: 633
K gpcej q. 'C0<u>524</u>
Ki .'I 2 tctf '65
ko kkckqp"<u>333</u>634."<u>397</u>=
   o ko gyke 'uytcygi { 'kp'r qgyt { ''ytcpurcykqp' 396
lo r necwtg'346
ko r nlekcvkap"ugg"gzr nlekcvkap
ko r nkekpguu'cpf "gzr nkekpguu'<u>335</u>
kpf gvgto kpce{":_ó;_."33
Kpf kcp"tcf kkqp<
   cpekgpv'cpf 'encualecn'r gtkqf u'<u>686</u>ó; =
  f kxgtukv{ "qh'repi wei gu'686=
  f qo guvlecvkqp"cpf "eqrqplcrkuo" "463=
  cpf 'Kcp'<u>739</u>=
   o gf kgxcn'\q'o qf gtp'\68; \694=
  tgxkgy kpi "cpf "etkkekuo "42; =
   vtcpurcvqtuø'qti cpk cvkqp''cpf ''vtckpkpi ''69465
Kpf q/Gwtqr gcp'hcpi wci gu'<u>43</u>64
Koukww!'Uwr 2 tkgwt "f øKovgtr t3 vgu "gv!f g"Vtcf wevgwtu "*KUKV+"4: 4
kpurt werkqp"486
kpvgpvkqp"3; 7
kpvgthgtgpeg'4; 3
kpygtrkpi wc"crrtqcej "363."367
Kpvgtpcvkqpcn'Hgf gtcvkqp'qh'Vtcpurcvqtu''ugg'HPf2tcvkqp'Kpvgtpcvkqpcng'f gu''Vtcf wevgwtu
Kpvgtpcvkqpcn'Qti cpk cvkqp'hqt''Uvcpf ctf k cvkqp''*KUQ+'<u>476</u>67.'<u>478</u>69.'<u>47</u>;
Kpvgtpcvkqpcn'Vtcpurcvkqp'Fc{":8
kpvgtrtgvcpv<sup>1</sup>43;
kpvgtrtgvkpi 'rtqhguukqpu≺
   CKE''38639 =
   eqo o wpkx{ 'kpygtrtgykpi '5569=
   eqphgtgpeg'cpf 'uko wncpgqwu'<u>62</u>67=
   eqwtv'kpvgtrtgvkpi '7568=
  f khhgtgpegu'dgw ggp'\tcpurc\kqp"cpf 'kpvgtrtg\kpi '6364=
   uki pgf 'hcpi wci g'<u>455</u>ó6=
   vtckpkpi '78
kpygtrtgvkxg"crrtqcej "334636=
   eqo rtgj gpukqp. "tghqto wrckqp"cpf "xgtkhleckqp"335636=
  ko r nkekpguu'xgtuwu'gzr nkekpguu'<u>334</u>635=
  rtcevkukpi "eqphgtgpeg"kpvgtrtgvcvkqp"<u>64</u>65
kpvgtrtgvkxg"wug"<u>54</u>
kpygtygo r qtcn'ytcpurcykqp"336638"
```

Kap'Twij f '<u>543</u>

```
kpvko ce{ ''yj gqt { '92
kpvtcnkpi wcn¹¾kpvtcnkpi wkuvke+"vtcpurcvkqp1tgy qtf kpi "442
kpxctkcpeg"4496; "ugg"uj kmu
kpxgtug"tcpurcvkqp"86
Kketvg."Vqo a u'f g'778
Kkıj 'I cgrke' 75
Kugt. "Y qrhi cpi "375
Kuhej epk 'Gdw'P cko 'J chk /k'796
Kurco <
      Qwqo cp'Go r ktg'<u>543</u>66=
     Rgtukep'rj cug'kp''Vwtng{''79567=
     Rgtukep'\gzw\'<u>739</u>=
      ugg"cnuq"Ctcdle"ttcfklkqpu=
      S wtø p'tcpurcskqp
Kicrkep"ttcf kklqp<
     Dctqs wg''vq''3; yj ''egpwt { ''<u>69</u>: 6: 3=
     f wddkpi 'kpf wuxt { '<u>6: 4</u>=
     j wo cpkno "cpf" i g'tgpcknucpeg' 6986: =
     kpygtygo r qtcn'ytcpurcykqp'337=
      o wnkrkpi wcrkuo '37; =
     tkug''qh''y g''xgtpcewrct''<u>696</u>ó8=
      vtcpurcvqtuø'qti cpk cvkqp''cpf '\tckpkpi '\begin{align*} \frac{6}{2} \displace{4} \displace{5} = \frac{1}{2} \displace{6} \displace{1}{2} \displace{1} \displace{1} \displace
     42yj 'egpwt { '6: 364
Kv ''Ugk'<u>6; 4</u>
Kactuuqp. 'Icp' 78:
Ky cpq'J o gk'<u>6</u>; 2
L®Rungn®kpgp. 'TO 048:
Lcdwk'Rtk g'553
Lceqdugp.'Gtle'<u>5::</u>
cn/L j k '<u>543</u>
Lenqduqp.'Tqo cp<
     f {pco ke''tcpurcvcdkrkv{''497=
     hqto crkuo "398=
     r qgvkeu'<u>38:</u> =
     Rtci wg''Uej qqrl'<u>5: 2</u>=
      uetkr \sqrt{433} =
     unt wewsterliepf 'kpvgtr tgvkxg'ugo kqvkeu'<u>43;</u> 642=
      wpvtcpurcvcdrg"r qgvt { "393"
Lco gu. 'Ectn'<u>6</u>:
Lco gu. "Y knkco "39;
Lcp''qh''Mqu| {e| nk''<u>747</u>
Lcr cpgug'\tcf kkqp<
     Co gtkecp'ej qkeg'qh'rkvgtcwtg'<u>533</u>=
     cpf 'Ej kpgug'<u>zxkk</u>'<u>592</u>.'<u>6: 7</u>ó8=
      kphrwgpeg'qh'uetkr v'<u>434</u>=
      Mqtgcp'kphrwgpeg'<u>6: 7</u>=
      O gkłk'r gtkqf \frac{6}{5}: 6; 3=
      y gqt { "cpf "tgugctej "<u>6; 4</u>65=
      vtcpurcvqtuø'kpuvkwvkqpu'cpf ''vtckpkpi ''zx.''6; 5=
     y ct"{ gctu'\q'r tgugp\sqrt[6]{6}; \sqrt[3]{6}
      Y guvgtp'eqpvcev'<u>6:8</u>ó:
Lc{.'Rgvgt'394
Igtqo g."Uckpv"45."47=
      cwcemu'rksgtcn'vtcpurcvkqp'<u>347</u>68=
      dkqi tcr j { \frac{726}{}
     htgg''tcpurc kqp'': 96: =
      I qf 'qp' yi g'ukf g'qh' yi g'uej qrct' 6; 9=
     rksgtcn'tcpurckqp'383=
     o qf gtpk kpi "\tcpurc\kqpu" \frac{337}{}=
      Qrf "Vguvco gpv"\tcpurc\tqp"\(\frac{48}{28}\) \cdot 692=
      venkpi 'y g'qtki kpen'eer vkxg';:
Lgy u<
      Kurco ke''Ur ckp''<u>774</u>.''<u>775</u>.''<u>776</u>
Lqej wo uuqp. 'O cwj \( \text{cu} \) \( \frac{683}{\text{}} \)
Lqj cpuuqp. "Uki "<u>73</u>." <u>75</u>
Lqj puqp. 'O 0<u>33</u>
Lqj puqp. 'Uco wgn'322
Lqpgu. 'H0Г0394
Iqpgu."Ukt"Y kmco "42; ."463."563."568."693."695
Lqtf cp. 'Entgpeg' 337
Lq{eg.'Lco gu'3;
L» | ugh 'Cwknc' | 674
Lwpi o cpp. 'Iqugh' 59:
Mcf g. 'Q0'99
Mcmtkf ku. 'Kqcppku'652. '653. '656. '658
Ment kt. 'Rj cpku' 652
M nf k 'I {3/4i { '66:
Mco kri'Rcuj c.''[ wwh'<u>799</u>.''<u>79:</u>
Mcr rcp.'T0D0<u>'68</u>.<u>6:</u>
Metco | kp. 'P knqrek' 766
Matqrk'I aurat'66:
Mcvcty ku. 'F ko kstkqu'<u>654</u>. '<u>658</u>
Mcv .'Igttqnf 'IO'<u>497</u>68
Mcy cdcvc'[ cuwpctk'<u>6</u>; 4
Mcy cuj ko c'Ej Apquwng'<u>6:</u>;
Mc{.'Octvkp'35:
Mc| cpv| cmku. 'P kmqu'<u>652</u>. '<u>653</u>
Mc| kpe| {."Hgtgpe"<u>672</u>."<u>676</u>
gn/Mc| xkpk' \ gngtk(c''797)
Mggpcp. 'Gf y ctf 'N0498
Mgm\{.''Nqwku'I \ 086.''322 =
     lf gqrqi {'<u>32:</u>=
     rcpi wci g'ycej kpi '<u>33:</u> .<u>33;</u> 6<u>342</u>=
      Vj g'Vtwg'Kpvgtrt gvgt''324
Mgo ch'C vcvAtm'424
ngtpgnu'<u>345</u>
cn/Mj cnn'kdp'Cj o cf '422
Mkpf ckej k'M{ uwng'<u>6</u>; 3
Mkpi 'Hcj f' 'Uej qqn'qh' Vtcpurcvkqp' <u>546</u>
Mktmqx.'F ko kygt'<u>429</u>
Mkcdgxk'Tgo | k'79: ó;
Mlâ t.'P kgnu'<u>5: ;</u>
```

Migo gpukgy ke | .'\ gpqp''752

Mpcrr/Rqwj qhh'C08;

Mpcr r . 'M08;

Mrqr uvqem 'Htkgf tkej 'I qwrkgd' 644

```
Mpkc pkp. 'Htcpeku gm'F kqpk { '74:
Mpqrh'Crhtgf'L03; 3
mpqy ngf i g/dcugf 'u{ uvgo u'369
Mpqy n.qp. '10'62
Mqej cpqy unk'Icp'<u>748</u>.'<u>748</u>.
Mqej cpqy umk 'Rkqvt' 749
Mageng. 'UVY 04;;
Mqngt."Y gtpgt"99."9:.": 2
Mgo kuuctqx."X(P 0: 3
Mqtcku. 'Cf co cpf kqu'<u>654</u>65. '<u>658</u>69
Mqtcp'\tcpurc\lqp'\ugg'S \text{ wt\phi} p'\tcpurc\lqp
Mqtgcp'<u>6: 7</u>
\label{eq:matching} Mqtpgn'|\ g''X-gj\ tf\ .''Xkmqtkp''\underline{59}:
Mqu| vqr^{2}p\{k'|Fg|u\rangle'\frac{674}{676}
Mtcukenk'K pce{'753
Mtkugpugp."Vqo '5:9
Mtqp\tku."Vkpc"325
Mt | gu | qy umk "VORO"68. "69
Mwo ctclkxc'<u>589</u>.'<u>58:</u>.'<u>596</u>.'<u>695</u>
Mwt|.'Kpi tkf''*Rkpvgt+'64
Nc'I wetfke.'Haqtgmq'52:
Nef o kten'Lgep/Tgp^2'86.'345.'636
Ncheti c. 'Htcpekueq' 782
Nci gtr³⁄h 'Gtrcpf '792
Ncmqth'I 0'33
Nco dgtv.'Iqu² '323
Ncpg.'J grgp'<u>533</u>
nepi wei gu<
   C.'D'cpf 'E'ecvgi qtkgu'<u>63</u>=
   hqto cn'uko kretkv{ 'xgtuwu'wuci g'69=
   o qf gtpk ckqp"qh'uco g"rcpi wci g"\gzvu"336638=
   vgcej kpi '<u>339</u>ó42
Nerr "ttef kkqp"<u>57</u>
```

Nctdcwf ."Xcrgt { "<u>635</u>636."<u>638</u> Ncttc.'O ctkcpq"*Lqu*² "<u>779</u>"

```
Neuuy gm'J (F 0<u>52</u>63
Ncvkp'Co gtlecp'tcfkkqp<
   eqrapicn'r gtiqf '\frac{729}{6}; =
   f kewcyt ''y go gu'r qr wrct 'kp'Tqo cpkc''<u>75;</u> =
   f kueqxgt { "cpf "eqps wguv"qh" P gy "Y qtrf "72769=
   kpf gr gpf gpeg'\q'r tgugp\v'\frac{72;}{634=}
   pcvkxg'kpvgtr tgvgtu'<u>727</u>.''<u>728</u>69=
   vtckpkpi 'cpf 'tgugctej '733634=
   hqt'WU'o ctngv'<u>533</u>
Nc \sqrt{9} = Nc \sqrt{9}
   cf cr vc vc qp' 7=
   Ci g'qh'Tgcuqp'\q'r tgugp\sqrt{723}65=
   kp'Ej kpgug'<u>58;</u>=
   Ej tkrkcpk\{ 'cpf 'O kf f ng 'Ci gu'\underline{6}; \underline{8}6; =
   encualecn'Tqo g'<u>6</u>; <u>7</u>ó8=
   f ktgevkqp''qh''vtcpurcvkqp''8667=
   f qo guvlecvgu'I tggmu'<u>463</u>=
   htgg''tcpurcvkqp'': 9\acute{o}: =
   kf gqqqi {'<u>32:</u>=
   ko kcvkqp'<u>333</u>634=
   kphrwgpeg''qp''Dtkkuj ''<u>55:</u> ó; =
   kphrwgpeg''qp''F wej '<u>5; 8</u>69=
   kphrwgpeg"qp"I gto cp"<u>63:</u> 642=
   kphnwgpeg'qp'J wpi ct { '66: 6; = 
   kphrwgpeg"qp"Kegrcpf "679." (67; =
   kphrwgpeg'qp'Kurco ke''Ur ckp'<u>774</u>66=
   kphrwgpeg"qp"Tqo cpkcp"<u>755</u>=
   kphrwgpeg'qp''Uy gf kuj ''788=
   nkgtcn'tcpurckqp'<u>347</u>=
   r ctcr j tcug'<u>388</u>69=
   Tgpckucpeg'<u>6;</u>; <u>6723</u>=
   ugrh/vtcpurcvkqp''3:=
   Vqtcj '\tcpurc\qp'\(\frac{48}{28}\)=
   wug'kp'o wnkrkpi wcn'\gzw'<u>37;</u>=
   ugg"cnuq"Kicnkep"\tefkkqp
Ncvkpq.'Lwcp'<u>4; 9</u>.'<u>526</u>ó7
Ncy tgpeg. 'F 0 0382
Nczct { .'Igcp'<u>632</u>
Nczpguu.''J cmf »t''Mkrlcp''<u>684</u>
Ngcxkı. 'H0Γ0'3; 5
Ngf gtgt.'O ctkcppg'334.'336.636
Nghgxgtg.'Cpf t^2'325.'326=
   dkqi tcr j { '<u>622</u>=
   ewnwtg"cpf "kf gqrqi { "4: 2=
   ftco c'<u>96</u>=
   kf gqqqi {'<u>328</u>=
   r qgvleu'<u>389</u>.'<u>38:</u>.'<u>38;</u>.'<u>392</u>=
   r qgvt { "tcpurcvkqp" 394." 395." 396 = }
   r qn{ u{ uvgo ''yi gqt { ''39;
Ngi i g.'Lco gu'<u>596</u>
Ngj vqpgp. 'Iqgn'626
Ngo deng. 'Ej tkrkcp''Nwf xki 'Gf xctf '5::.'5; 3
Ng \gg p. \text{''Htc} \{ \text{''Nwku'f g'} \\ \frac{778}{2} \}
Ngqr ctf k'I kceqo q'<u>6: 2</u>
Ngtqwz.'I cuvqp'<u>534</u>
Ngxgpuvqp. 'Gf f kg'C0'4::
Ngxkpg. 'Uw cppg'Ikm'; 8. '392
Ngx{.'Lk} \frac{79}{6} : .'5: 465 =
   Vj g'Ctv'qh'Vtcpurcvkqp'\frac{5}{2}.263=
   i co g'yj gqt \{ ": 3 \acute{0} \acute{4} = 
   P ktc''Uej qqrl'<u>772</u>=
   r qgvkeu'38:
ngzkecn'f gpukv{ '73
Nkcpi 'S kej cq'<u>592</u>
Nkcpi 'Uj ks wk'<u>595</u>.'<u>596</u>
Nkp''Uj w'<u>593</u>64.'<u>596</u>67
Nkp"[ wcpi '<u>594</u>
N_p' gzw'_{\underline{58};}
Nkpcetg.'Vj qo cu'<u>722</u>
nkpi wkuke "crrtqcej <
   vgpqt."o qf g"cpf 'f qo ckp" 485
nkpi wkuke 'crrtqcej gu'<u>342</u>64=
   crrnleckqp"qh"hpi wkukeu"\q"\tcpurckqp"<u>344</u>66=
   eqj gtgpeg"cpf "eqj gukqp"346=
   ewnwtg'cpf 'kf gqnqi { '4: 2=
   kf gcvkqpcn'cpf 'kpvgtr gtuqpcn'34566=
   ko r nkecwtg'\frac{346}{}=
   mgtpgnu'<u>345</u>=
   o cej kpg"tcpurctqp"\frac{365}{6}6; =
   o qf gn'y gqt { '<u>377</u>=
   r u{ ej qrkpi wkuke leqi pkkxg'<u>3: 7</u>6; 2=
   ur ggej 'cewi'<u>347</u>=
   vgpqt. 'o qfg'cpf'fqockp'346=
   vgzv'<u>484</u>ó7=
   y gqtgo u'345
Nkurg. 'Ngeqpvg'f g'<u>635</u>
rkgtcri'tcpurcvkqp"::;."34769=
   hqtgki pk kpi '34869.532=
   Nwj gtøu'Dkdrg'<u>643</u>=
   r qg t \{ '395 = 
   ur gewrc wkx g"crrt qcej gu" 45;
rkvgtct{"\tcpurcvkqp<
   eqmcdqtcwqp'y ky 'cwy qt'34; =
   etkkekuo '<u>427</u>632=
   f guet kr vkx g''uwvf kgu''35465=
   r qgvkeu'<u>389</u>692=
   r qgvt \{ "392 \acute{0} \acute{0} 8 =
   rtcevlegu'<u>349</u>ó52=
   tgugctej 'kuuwgu'<u>352</u>ó5=
   uwdukf kgu'<u>3; 5</u>66=
   ugg"cnuq"r wdrkuj kpi "uvtevgi kgu
```

rkvgtcwtg<

ecpqpu'<u>37</u>=

cpyj qrqi kgu'<u>35</u>6<u>38</u>=

```
ftco c'<u>93</u>ó6=
   kpygtr tgykxg"cr r tqcej "334636=
   ugg"cnuq"hkgtct{"ttcpurcvkqp
Nkxkwu'Cpf tqpkewu'<u>726</u>
mewkqp."kmewkqp"cpf 'r gtmewkqp"3: 2
Nqo j gko ."U\{\text{rhguv}'_{5;3}
Nqo qpquqx. 'O knj ckn' Xcukrkgxkgej '765. '766. '76:
Napi hgmqy .''J gpt{''Y cf uy qtyj ''3: 6.''437
N<sup>3</sup>/pptqv.'Grkcu'<u>3: 6</u>.'<u>625</u>.'<u>62:</u>
Nqr g| 'f g'C {cm. 'Rgtq'<u>775</u>. '<u>783</u>
N³/4uej gt."Y qrhi cpi '3:; ."489
Nqy gm'Tqdgtv'<u>397</u>
Nwj gt. 'O ct \(\p\)'45. '\(\frac{624}{2}\). '\(\frac{642}{2}\). '\(\frac{643}{2}\). '\(\frac{649}{2}\)=
   f ktgevkqp'qh'vtcpurcvkqp'87=
   Ub cnl'Ecvgej kuo '<u>625</u>
Nwj gtcpu<
   kp'Tqo cpkc'<u>755</u>66
Nw{ngp.'I gqti/O kej cgrl9768
N{ wgnqp.'I gqti g'<u>725</u>
O c''Lkcp| j qpi '<u>592</u>
O eCrkuygt.'I 087.'88
O ceCtyj wt'Hqwpf cwlqp'<u>535</u>
O eErgmcp. 'G0'4: 8'69" o cej kpg 'tcpurckqp<
   Ecpcf kcp'tgugctej '<u>57;</u> =
   F gpo ctm'<u>5::</u>=
   gf kkpi '<u>35:</u> =
   gzco r ng/dcugf 'u{ uvgo u'<u>36:</u> =
   Hprcpf '<u>629</u>ó: =
   i kuvqt { '362 \acute{0} 65 = }
   kpvgtcevkxg''35: ó; =
   kpygtrkpi wc''cr r tqcej '363.'367=
   o cej kpg/ckf gf '<u>356</u>ó8=
   o gyj qf qrqi \{ \frac{365}{6} : =
   tgutkevgf'kprw'3596: =
   uvcvkuvkeu/dcugf '36: =
   uwdrepi wci g'<u>359</u>=
   \text{vcumu}' \frac{357}{68} = 0
   vgto 'dcpmı'<u>46;</u> 673=
   vgto kpqrqi {"<u>474</u>."<u>476</u>67=
   vtcpuhgt '363.'367.'474
O eKpvquj .'C0<u>484</u>
O eP cwi j v.'Lqj p'<u>472</u>63
O cer j gtuqp. 'Lco gu'3: 566
Ocftkf.'Cmpuq'Hgtpapfg|'fg'<u>777</u>
O cf tki cn'Crhqpuq'f g'<u>776</u>.'<u>777</u>.'<u>783</u>64
O cf uj wu. 'Qrcx'5:;
O ci pÀuuqp." f tpk <u>684</u>
O cko qpkf gu'\"O wuc'Kdp'O c{o wp+\"\sum_543}.\"\"662
O ckqtguew.''Vkw':759
O crgto k'P keeqrl/4'697
O crkpej g'*O crkpcrrk''Vgp²r cn+'zx.''727.''728.''734
O cm mlâ t.'Mktuvgp'<u>73</u>.'<u>75</u>
O cmpg. 'ION0'345
O crqt { ."Vj qo cu"<u>559</u>
O co qwpcu.'P keqwukqu'<u>794</u>
cn/O coo p'<u>689</u>
O cpj gko ."Tcrr j "<u>533</u>."<u>535</u>
O cpp. "Vj qo cu"382
O cppkpgp. 'Qwq'<u>627</u>. '<u>62:</u> ó;
cn'O cpuqwt. 'Ecrkr j' '689
O cpuwt.'O qj co o cf 'd0'\\ cttkpf cuv+'<u>738</u>
O cqtk'repi wei g'<u>56</u>
cn'O ctci j k''Uj gknj 'O wwchc''424
Octv[pg| 'f g'hc'Tquc.'Htcpekueq'779
Octz'Cxgrkpi .'Grgcpqt'564.'568
```

```
O ctzkuo '<u>32:</u> 632
O cuqp. 'Kp'<u>52</u>=
   eqo r gpucvkqp'<u>59</u>.'<u>5;</u>=
   eqpvtcuvkxg'cpcn(uku'<u>6:</u>=
   etkkekuo '<u>429</u>=
   nkpi wkuke "crrtqcej" 343.346
O cyj gukwu. "Xkn² o '<u>5: 2</u>
O cwwk'Cnktc'<u>6; 3</u>
O cwt \{ .'Lwcp'O ct \creat{ct}\creat{r}' \creat{779}
O cxkrku.''Nqtgp| qu'<u>655</u>
Oczko ''y g'I tggm'*Oknj ckn'Vtgxqrgu+'<u>764</u>.'<u>765</u>.
Oc{.'Tcej gn'428
O c{cp'j kgtqi n{rj u'<u>435</u>637
o gcpkpi <
   cpcn{ whech'r j knquqr j { "\frac{1}{2} 6\frac{35}{35}=
   ko r nkgf "3:364=
   usko wnwu/o gcpkpi '497=
   wpk/'qh'\tcpurc\kqp'\u20e4: 8\\dots:
O gpf gnuqj p.'O qugu'<u>492</u>.'<u>494</u>.'<u>665</u>66
Ogteko gmlCj o gf '797
O gty kp. "Y 0.00393
O guej qppke.'J gptk'<u>332</u>.<u>636</u>
o guuci g'\tcpuo kwgt'\u00e9
   O guwf .'Mwi'<u>796</u>67
o gwrepi wei g'8
o gvenkpi wkuske 'pewtg'8
o gvcr j qt<
   f kueqwtug'cpcn(uku'9263=
   gyj ple'cpf 'ewnwtcn'\tcpulgt'\frac{36}{36}; \dot{675}=
   i gpf gt"<u>; 5</u>ó8
o gver j teug'<u>375</u>ó6
O gyj qf kwu. "Uckpv!<u>469</u>6: . '<u>572</u>. '<u>576</u>67=
   Mkgxcp'Twu'\frac{763}{}=
   Urcxqple'Dkdrg'<u>745</u>
O gz keq''\underline{zx} =
   j kgtqi n(r j u'<u>435</u>637
O g| gk''Mcyj { '<u>382</u>
O kew. 'Uco wkn' 757
O kf j cv'Ghgpf k'Cj o gf '<u>79:</u> .'<u>7: 3</u>
O kmq. 'Htcpvk-gml'38:
O knguew.''Ur cyj ctwu''756
O krgx.'I gq'<u>575</u>.'<u>577</u>
O km'Iqj p''Uwctv'<u>556</u>
O kmgt.'I 07:
O knqp. 'Iqj p'87. '724
o ko guku''ugg''ko kscvkqp
o kpko cz"yj gqtgo "<u>3</u>
o qf gnu'cpf 'o qf gn'y gqt { '37769=
   cpcmi wg'<u>376</u>.'<u>377</u>ó8=
   f ghkpkkqp'<u>376</u>67=
   pqto cvkxg'o qfgn'38365=
   pqto u'<u>378</u>69=
   yj gqtgwlecn'377
O qj cpv{.'P ktcplcp'<u>694</u>
O amgt.'Mck'Htkku'5:9
O amgt 'P kgrugp.' MO'5::
O qpetlghh "Y 0'Ueqw'<u>565</u>."<u>568</u>
O qpvcki pg. 'O kej gn'f g'633
O qpvcng. 'Gwi gpkq'6: 3
O qpvgktq'Nqdcvq.'Iqu²'Dgpvq'<u>552</u>
O qpygpi »p.'Rgf tq''778
O qpvk 'Xkpegp| q'6: 3
Oqtc.'Iqu2''Iqcswp'fg'<u>779</u>
O qti gpuvgtp. 'Qumct'; 3
Oqtk' i ck'<u>6; 2</u>.'<u>6; 4</u>.'<u>6; 6</u>
Oqtkc''Uj kngp''6; 2
O qttkı.'Twj '<u>76</u>.'<u>78</u>
O qtu| v{p.'Icp'Cpf t| gl''748
O qugt. 'Dctdctc' 65
O qvqnk'T{ k'\underline{6:9}
O qvqnk'[ quj kpci c'<u>6: 9</u>.'<u>6; 6</u>
O qwg'J qwf ct. 'Cpvqkpg'f g'hc'634
O qwplp.'I gqti gu'<u>636</u>.'<u>638</u>ó39
O wj co o cf "ugg"S wtø p"tcpurckqp
O wj co o cf 'Crk'<u>544</u>66
o wnkrkpi wcrkuo "<u>42</u>."<u>379</u>682=
   Ecpcf kcp'dkrkpi wcrkuo '57; 684=
   o {ukecn'r qy gt 'qh' \tcpurc \kqp' \htqo 'Dcdgn' \frac{43}{64} =
   ru{ej qrkpi wkuke"crrtqcej "3:;
O \tilde{A}o \text{ kp.'}O \text{ wmdkm'} | \text{cf g''} \frac{797}{}
Owpej .'Lqj cp''Uqto '5:;
O wpej /Rgvgtugp.'G0'<u>5::</u>
O Ãpkh'Rcuj c'<u>799</u>
O wtnetqxum(.'Lcp'<u>5: 2</u>
O wtpw.'I 075:
O Ävghgttkme. 'Kiltej ko '798
O Ãvgteko 'Cuko '7:3
O xgpi .'G0'4; 8
P cdqmqx."X mf lo kt"; : ."347."393 =
   ugrh/vtcpurcvkqp"3:.3;
Pcgxkwu.'I pcgwu'<u>6; 7</u>
P chkuk "Ucøkf" 1742
P ci ck'Mch '6; 2
Pcmcg'Ej o kp'6:;
Penej co e'O eplkt '6::
P cmco wtc''Mgkw''<u>6:</u> : ó;
Pctt.'I wpvgt'648
P cuwo g. "U04: 869
P cxcttq.'Heyj gt'C| r kewgnc'<u>549</u>
P gtwf c.'Rcdm'732
P gutq{."Lqj cpp"95
P gwdgtv.'Cmtgej v'<u>: 2</u>.'<u>429</u>.'<u>537</u>
P gwo cp. 'Lqj p'xqp'': 3
```

Pgy '\ gcncpf '57

P gy o cp. 'Ct { gj '99. '9;

```
P gy o cp. 'Hrcpeku'337. '428. '465. '564
P gy o ctm'Rgvgt'<u>5</u>.'<u>459</u>=
   cf cr vcvkqp'8=
   eqo r gpuckqp'<u>5:</u>.'<u>5;</u>=
   fkgevkqp"qh"vtcpurcvkqp"86."88=
   kpygtrtgykxg"crrtqcej "336
Pkf c.'Gwi gpg'C0<u>52</u>=
   eqo r gpuckqp'<u>5:</u>=
   f qo guvlecvkqp'qh'Dkdrg'<u>463</u>=
   f {pco ke"gs wkxcrgpeg"332."343."3; 9=
   gzr nlekscykqp": 263=
   ngtpgnu'kp'nkpi wkuke''crrtqcej ''345=
   tgegr vqt "tgur qpug"qxgt "uqwteg"o guuci g"44: =
   vtcpurcvkpi 'r qgvt { '394
P kgo egy ke | .'Icp'Wtu{p''74:
Pkgv uej g. 'Htkgf tkej '463
P ki gtkc''<u>523</u>.''<u>524</u>.''<u>525</u>
Pklj qhh'*Octvkpwu+'Rtk g'5;;
P ktcplcpc. "Vglcuy kpk'<u>36</u>;."<u>373</u>."<u>374</u>=
   lf gqnqi {"<u>328</u>=
   pqto cvkxg"o qf grl384
P lq \{c. "Uwncp" \underline{4; 9} \acute{o}: ." \underline{527} 
P qi co k''Vq {qkej kt½'<u>6; 4</u>
pqp/xgtdcn'ugpug'334
P qtf. "Ej tkukcpg" <u>52</u>. "<u>55</u>. "<u>329</u>
pqto crk cvkqp<
   wpkxgtucni'qh'\tcpurc\kqp'\u20e4:; \( \dot{o}; \)2
pqto u'<u>354</u>.'<u>385</u>67=
   eqo r gygpeg'386=
   eqpukwkxg"cpf 'tgi wrckxg"38667=
   gs wkxcrgpeg'354=
   gzr gevcpe\{ '387=
   kpkkcn'<u>386</u>=
   o cytlekcii386=
   o qf gnu'<u>378</u>69=
   pqto cvkxg'o qf gri38365=
   qr gtcvkqpcn'386=
   r gthqto cpeg'<u>386</u>=
   r qn\{u\{uvgo ''39: =
   rtgrko kpct\{''386=
   rtqhguukqpcn'387
Pqtyj. 'Ukt''Vj qo cu'<u>568</u>. '<u>689</u>
P qt vqp. 'I (R032:
Pqty gi kcp"tcf kkqp<
   gctn( 'tgrcvkqpuj kr 'vq'F gpo ctm'<u>5: 6</u>68=
   o qf go 'y qtm'<u>5:</u>; ó; 2=
   r ctcmgn'eqtr wu'<u>75</u>=
```

```
vtckpkpi '<u>57</u>=
   vtcpurcvqtuø'qti cpk cvkqp''cpf 'tgugctej '5; 263
Pqty lf.'Mco kn'74:
P qvngt "Ncdgq"qh"Uv"I cmgp"63; ."649
P qw.'F t'Lqj p'<u>464</u>
P { gtgtg. 'Lwrkwu' 522
QøEcug{."Ugcp"94
QøP gkm 'Gwi gpg'<u>93</u>.'<u>94</u>
QøVqqn'O 076.'78
Qfc'*Pkyc+'Lwpøkejkt '6:;
Qi krd{.'Lqj p'<u>568</u>
Qi {w'Uqtck'<u>6: 8</u>
Qj tlf c. 'Erko gpv'qh'<u>56;</u>
Qqk'X0<u>94</u>
Qr ky .'O ctvkp'<u>642</u>.'<u>643</u>.'<u>649</u>
qtcn'vtcf kwqp<
   Chtlecp'rkgtcwtg'<u>4; 7</u>.'<u>4; ; 6522</u>=
   Tqo cpvkekuo "cpf "kpvgtguv"kp"hqmmqtg"4;;
Qtguo g. "P keqncu" 62; . "639
qti cple"utcvgi { "396"
Qtvgi c"{ 'I cuugw.'Iqu² '77: .'784
Qtyj qf qz 'Ej wtej <
   ej wtej 'Urcxqpke'<u>755</u>ó6=
   Rcvketej 'I gppcf kqu'f gdevgu'y kyj ''yj g''Uwncp''<u>798</u>=
   Twukcp'cpf 'ej wtej 'Urcxqpke'<u>763</u>64=
   Uu'E {tki'cpf 'O gyj qf kwu'<u>469</u>6: .'<u>572</u>.'<u>576</u>67.'<u>745</u>.'<u>763</u>
Qtvk'I ktqrco q'6:2
Qtvk .'Lwcp'<u>728</u>
Ouvd{g. 'R0'<u>5:</u>;
qxgtv'cpf 'eqxgtv'vtcpurcvkqp'343.3;;
qxgtv'tcpurckqp'98
Rcewxkwu'<u>6; 7</u>
Rcgu.'Lqu²'Rcwq'54;
Rereo cu. 'Equsku' 655
Rcmku. 'Crgzcpf tqu'<u>652</u>. '<u>659</u>
Rcpgyj .'Gxc'<u>64</u>
Rcppy ky .'Twf qrh'3; 8.'464
r ctcmgn'vgz w<
   r ctcr j tcug'<u>387</u>ó8
Rctku''Uej qqn'<u>334</u>.''<u>336</u>=
   ugg"cnuq"kpvgtrtgvkxg"crrtqcej
Rexgug. 'Eguetg' 6: 3
Rc| .'Qevcxkq'<u>397</u>
R<sup>a</sup> | o <sup>a</sup> p{.'Ectf kpcn'Rgvgt'<u>673</u>.'<u>676</u>67
RøDkygm'Qmqv'<u>522</u>
Rgf gtugp. 'Xki i q'J lãtpci gt'5::
Rgkteg. 'Ej ctrgu' Ucpf gtu' 43;
Rgrgvkgt 'f w'O cpu. 'Lees wgu'32;
Rgppcpgp. 'Gkrc' 628
Rgptqf .'N{ppg'M0329
R<sup>2</sup>tg| 'f g'Qnkxc.'Hgtp<sup>a</sup> p'<u>777</u>
R² tkqp. 'Iqcej ko '32:
Rgtt { .'O gpcnj go '3:
Rgtukep'ttcf kkqp<
   cpekgpv'cpf 'o gf kgxcn'<u>735</u>639=
   cpf 'Ctcdle'<u>539</u>63; .'<u>736</u>.'<u>738</u>=
   kphrwgpeg''qp''Vwtnkuj ''<u>795</u>67=
   o qf gtp'Kcp'<u>73:</u> 643=
   r quvO qpi qn'73963 =
   cpf ''y g'S wtø p'<u>737</u>=
   Vj qwucpf "cpf" Qpg" Pki j wi "<u>53;</u>." <u>542</u>=
   vtcpurcvqtuø'vtckpkpi "cpf 'kpuvkvvvkqpu'<u>742</u>63
Rgvgt''y g''Xgpgtcdrg''<u>775</u>
Rgv3/4k"U pf qt"<u>75:</u>
Rgvtguew.'Eg| ct'<u>75</u>;
Rgvtqx."Xcrgtk'576
Rgvt { e{."Ugdcuvkcp"<u>747</u>."<u>754</u>
R<sup>2</sup> wtuuqp.''J cmi t\( \bar{9} \) wt'\( \bar{684} \)
Rgxgct.'Tlej ctf '<u>534</u>
R^2 \mid o^2 p\{.''R^2 \text{ ygt'} | \underline{66:} 
Rg| | kpk'F qo gpkeq'324
Rj krrkr u. 'LIDO<u>'45</u>66
Rj km' Lwf cgwu' 333.' 375
rjkmquqrj{<
   o gcpkpi "cpf" cpcn ( wecn'r j krquqr j gtu": 635=
   rtci o cvke";
r j qpqnqi kech'tcpurcvkqp'343
Rkci gv. 'Igcp' 334
Rkemj cm'O cto cf wrg'<u>423</u>.<u>424</u>
Rkgvetkpr qkmc. 'Leemmq' 624
Rkng.'M0<u>69</u>
Rkpf go qpvg. 'Kr qrkvq' 6: 3
Rkpvgt.'J ctqnf'94
Rkpvgt.'Kpi tkf ''*rcvgt''Mvt| +'64
Rrcvq<
   Vj g'Cr qrqi {"<u>395</u>
Rrcwwu'<u>6; 7</u>
r qgvkeu'<u>389</u>692=
   wpkxgtucni'qh'\tcpurc\kqp'\undersetq: 6; 2=
   ugg"cnuq"hkgtct { "\tcpunc\kqp=
   rqgvt{
r qgvt \{ "392 \acute{0} \acute{0} 4 = 
   eqpetgyg'\frac{437}{63}:=
   J qno guøu'uvtevgi kgu'<u>396</u>=
   ko ksevkqp"epf "ef er vevkqp"<u>397</u>=
   kphrwgpeg'qh'uetkr v'<u>434</u>=
   pcwtg'qh'y g'\cum\39467=
   Xkxcu'qp'<u>655</u>
r qgvt { "vtcpurcvkqp<
   o ko gyke."cpcmi kecn"qti cpke"cpf "f gxkcpy"uvtcvgi kgu"396=
   vtcpuhgt 'o gej cpkuo '394
Rqktqv.'R0N0f g'<u>58;</u>
```

Rqrcpf <

r wdrkuj kpi "<u>3; 5</u> Rqrkuj "tcf kkqp<

```
y g'Dkdrg'<u>748</u>69=
        j kuvqtkecn'dcemi tqwpf '74566=
        Ncvkp'kphrwgpeg'<u>746</u>=
        Olf f rg'Ci gu'\q'38\dot{y} 'egpwt { '\frac{746}{6}68=
        39y'' = y'' + (y'' + y'' + y
        y gqtkgu'cpf 'o qf gnu'<u>752</u>ó3=
        vtcpurcvqtuø'lsf gpvlx/{ "cpf "uvcvxu".753
r qrkkeu<
        o wnkrkpi wcrkuo '379682
Rqn{rcu. 'Kenqxqu'<u>659</u>
r qn\{u\{uvgo "38; =
        o cpkr wrckqp"qh"rkvgtcwtg"39;=
        vcti g√qtkgpvgf "crrtqcej "39:
r qn\{u\{uvgo "vj gqt\{"3986; =
        nkgtct{"tcpurckqp"353}64=
        r qgvkeu'38;
Rqr g. 'Crgzcpf gt'389. '428. '724=
        KRcf''562 =
        Ko kscskqpu''qh'J qtceg''<u>556</u>
Rqr qxk .'Cpvqp'3: 5.'773.'774=
        r qgvkeu'<u>38:</u>=
        uj khw'<u>44:</u> .'<u>44;</u> 652
Rqtn muqp. L»p'683
Rqtwi wgug'tcfkkqp<
        Chtkecp'eqrqpk cvkqp'4; 869.'4; :=
        kphrwgpeg'kp'Icrcp'<u>6:8</u>=
        r wdrkuj kpi '3; 2=
        ugg"cnuq"Dtc| krkep"ttcf krkqp
r quveqrqpkchuo "ugg"o gvcr j qt=
        o wnkrkpi wcrkuo
Rqvqenk'Lcp'74:
Rqwu. 'Lgtt { '57: . '587
Rqwpf.'G| tc'<u>38;</u>.'<u>397</u>.'<u>52;</u>632.'<u>557</u>.'<u>565</u>=
        dkqi tcr j { '537638=
        Ecpvqu'<u>392</u>=
        Ej kpgug'uetkr v'<u>434</u>
Rqy gm'LOGpqej '8: ó;
rtci o cvkeu'<u>39;</u> ó: 5=
        f tco c'<u>96</u>=
        ko r nkgf "o gcpkpi "cpf "Eqqr gtckxg"Rtkpekr ng'\underline{3:3}64=
        nkpi wkuke 'crrtqcej gu'346=
        o qf gn'hqt 's wcrkv{ 'cuuuguuo gpv'3;;
rtguetkr vkxgpguu''ugg''pqto u
Rt^2 xquv.'Cdd^2'32;
r tqeguu/qtkgpvgf "uwwf kgu"ugg "r u{ ej qnkpi wknke1"eqi pkxkxg"cr r tqcej =
```

y kpm/cmwf "r tqvqeqnı"

```
rtqf wev'cpf 'rtqeguu/dcugf 'uwwf kgu'3:;
rtqf wev'ur gekhkecvkqp'7
r ugwf qvtcpurcvlqp"353."378."3: 567."563."778
ru{ej qcpcn{uku≺
   qgf kr cn'o qf gn'qh' tcpurc vqt øu't qrg'; 7
r u{ ej qrkpi wkuke leqi pkkxg"cr r tqcej gu"<u>3: 7</u>6; 2=
   eqpvtcuvkxg"cpcn{ uku'6:
r wdrke 'lugtxkeg' kpvgtr tgvkpi "ugg" eqo o wpkv{ 'kpvgtr tgvkpi
r wdrkuj kpi "uvtcvgi kgu<
   i gpgtcn'cpf 'ur gekenk gf 'r wdrkuj gtu'3; 365=
   rkgtct { ''tcpurcvkqp''34: =
   tcvg. "ecvgi qt { "cpf "hqy "3; 263=
   uwdukf kgu'<u>3; 5</u>66=
   yj gqt { ''qh''\tcpurc\qt\kcn'ce\kqp'\667
Rwgt vq. 'Htcpekueq'f gri*Rcs wkmq+'729
r wtg"hcpi wci g"3; 668.443."498
Rwuj mkp. 'Cngzcpf gt'32; .'767
Rwwgpj co .'I gqti g'<u>36;</u> 672
Rwwt skpgp. "Vkkpc"8
R{o.'Cpyj qp{'99.'9: 6: 2
cn/S qdcxk'Cdw/P cut'Cj o cf '738
s wcrkv{<
   cuuguuo gpv<sup>1</sup>3; 96422=
   hwpevkqpcrkuv'tcf kskqp'52
S wkpg."Y kretf 'xcp'Qto cp": 635. "442."497
S wkpwkrkcp'<u>333</u>.'<u>376</u>.'<u>387</u>
S wtø p'tcpurcvkqp'42266=
   Chtlecp'hcpi wci gu'<u>4; : = </u>
   kp'Htgpej '<u>634</u>=
   j kuvqt { ''qh' 'vtcpurcvkqpu' '324=
   Rgtukcp'\gzw\'<u>737</u>.\'<u>795</u>\66=
   kp''Vwtng{'<u>795</u>66.'<u>79;</u>=
   wpvtcpurcvcdkrkv{ "42364=
   ugg"cnuq"Ctcdle"\tcf klkqp
S xcrg. 'Rgt' 5; 3
Tcdcf a p. 'Tquc' 782
Tedeuuc.'I tgi qt { '36;
Tedgreku. 'Htep±qku'37:
Tcdkp.'Ej cko '<u>668</u>69
tceg"cpf "gyj plekv{ "zlxozx
Tcej nkp.'J 07:
tcf kech'tcpurckqp": ."32
Tcf p»vk'O km»u'<u>674</u>
Tcf». 'Cpvcn'673
Tcf ».'I {3/4i { '675.'677
T<sup>a</sup> f wrguew.'J grkcf g'<u>758</u>
Tchcgn''Xkegpvg''N036; .'373
Tco cŋ q. 'Lq q' <u>549</u>
Teo wukq''qh''Vtgxkuq.''I kqxcppk'Dcwkuc''<u>69:</u>
tcpm/dqwpf "cpf "wpdqwpf gf "\tcpurc\kqp": ; ."343."347
Tcrj kn''R³tg''Cpv p''<u>544</u>.''<u>547</u>
T®{.'Cpwk'<u>626</u>
Tc{o qpf. 'Ctej dkij qr 'qh' Vqrgf q'6; : .'775.'784
tgi kuygt "cpcn{ uku'<u>52</u>.'<u>484</u>ó5
Tgkf.''J grgpg''D0<u>95</u>66
Tgkpc. 'Ecukqf qtq'f g'<u>778</u>. '<u>784</u>
Tgkuu.''Mcvctkpc''<u>54</u>.''<u>3;:</u>=
   umqrqu'yj gqt { '\frac{457}{6}: =
   uqekcn'eqo o wpkeckqp'52
tgrgxcpeg'<u>54</u>.'<u>3: 3</u>.'<u>3: 4</u>
tgrki kqp<
   cpyj qqqi kgu'<u>38</u>=
   Dwf f j kuv'uetkr wtgu'<u>588</u>69=
   gctn( 'Co gtlecp'y tkkpi u'<u>52:</u>.'<u>537</u>=
   ghhgev'qp'Ctcd'r gqr ngu'<u>539</u>=
   kf gqnqi \{ '32: \acute{o}; = 
   cu'kpegpvkxg'hqt''vtcpurcvkqp''zxk=
   rkgtcri'tcpurckqp'34768=
   Qtyj qf qz'r tkpekr ng'qh'\tcpurc\kqp'\frac{469}{6}6: =
   Rgtukep"cpf "\ qtqcuxtkepkuo "735=
   y gqmi kecn'vgto kpqmi { '48=
   vtcpurcvqtu'cu'o go dgtu'qh'o kpqtkkgu'<u>zkx</u>.'<u>zx</u>=
   ugg"cnuq"Dkdrg"tcpurcvkqp=
   Ej tkrkcpk/=
   J gdtgy 'tcf kkqp=
   Kirco =
   S wtø p'tcpurctkqp
Tgpgt. 'Htkgf tkem'326
tgr gt vqtgo g'4; 2
tguvtkevgf "vtcpurcvkqp"343
Tgwngt."[ (KO)34465
tgxkgy kpi "cpf "etkkekuo "427632
tgxkıkqp'<u>3:9</u>
Tj q. 'Lceqdwu' 58:
Tkdgktq. 'Chqpuq'<u>548</u>
Tkeek'O cwgq'<u>58:</u>.'<u>58;</u>.'<u>597</u>
Tleqgwt.'Rcwi374
Tkgw.'G0X0<u>565</u>
Tki cu''Rj gttckqu'<u>'655</u>.''<u>659</u>
Tkr ng{.'I gqti g'<u>52:</u> 6; .'<u>538</u>
Tkuugv. 'Lees wgrkpg'3;
Tkuxkm'Mctk'cpf 'Mgm'<u>5</u>; 2
Tqdgtv'qh'Ej guvgt'425
Tqdgtw.'Tqfc'54
Tqdgtw/Uo kj .''NOY 07667
Tqdkpuqp. 'F qwi rcu'325. '326. '329
Tqd{pu.'Ergo '375
Tqf gv.'Cwi wwwp'<u>545</u>
Tqf tki wgu. 'Lqcq'6: 8
Tqf y gm'LOO 0<u>425</u>
Tqi gtu.'Lqj p'<u>559</u>
Tqkf ku. 'Go o cpwgn'655
Tqmg.'Tkej ctf '558.'559
Tqmkp.'Ej ctrgu'<u>724</u>.'<u>726</u>67
```

Tqo cpkcp'tcf kkqp<

gctn("{gctu'cpf 'Gprki j vgpo gpv'<u>755</u>ó8=

```
3; \dot{y} 'cpf '42\dot{y} 'egpwtkgu' 758\dot{o}; =
   ur geken't grevkqpuj kr 'y kj 'J wpi et { '75: =
   vtcpurcvqtu'cpf 'vj gqt { 'vqf c { '75; 662
Tqpck'Rcwq'<u>554</u>ó5
Tqueqo o qp. 'Gctn'qh'*Y gpw qty 'F kmqp+'; 6. '568
Tqug.'O ctkn(p'I cffku'<u>537</u>
Tqugphgrf v.'P knu'<u>5:;</u>
Tqugwk'E0C0<u>759</u>
Tquugwk'Fcpvg'I cdtlgrl<u>568</u>
Tq{.'Tco 'O qj cp'<u>693</u>.'<u>695</u>ó6
Tq{u.'Tcrrj '<u>436</u>
Twdqy.'Rcwrl<u>5::</u>
Twij f kg. "Ucm cp"32; .6: 4
Twugm "Y km{ '95
Twukep'tefkkqp'zkx=
   gzr nkekkcvkqp"<u>: 3</u>."<u>: 5</u>=
   kphrwgpeg''qp''J gdtgy ''6666'67=
   Mkgxcp'Twi'\q'3; y 'egpwt { '<u>763</u>66=
   3; yj 'egpwt{'<u>766</u>67=
   Uqxkgv'r gtkqf'vq'r tgugpv'76768=
   yi gqt \{ '\frac{768}{69} = 
   vtcpurcvqtuø'qti cpk cvkqp"cpf "vtckpkpi "4: 4. "765. "76869=
   hqt'WU'o ctngv'<u>533</u>.'<u>534</u>
Uccf kc''492
Ucctknqunk 'Rgpvk'627.'62;
Ucctkuc. 'Rgpvk'627
Uce{.'Ngo chutg'f g'634
Uci gt.'Lwcp'E047263
Ucj ci Àp. 'Htc'Dgtpctf kpq'f g'72;
Uckf. 'Gf y ctf' 3: 3
UVRkgttg. 'Rcwn'329
Ucng.'I gqti g'<u>563</u>
Ucngxum(.'J gkf go ctkg'<u>327</u>
Ucmkpuqj p."[ kuj cml*Gf wctf +"668."669"
```

```
Uco k" go ugf f kp'<u>79:</u>.'<u>7: 3</u>64
U pej g 'f g'Xkcpc.'Rgtq'778
Ucpunt k<
   cpekgpv'kpf kc'<u>687</u>ó: =
   Dwf f j kuv'uetkr wtgu'<u>87</u>.'<u>589</u>=
   Gwtqr gcpu'rgctp'693=
   o gf kgxcn'Kof kc'<u>68;</u> 692=
   cpf 'Rgtukcp'<u>739</u>
Ucpskrepc. 'O cts wku'f g'<u>776</u>. '<u>784</u>
Ucpvq\{q.'Lwkq/E^2uct'\underline{8}.'\underline{782}
Ucp | 'f griTkq.'Lwrk' p'<u>779</u>
Ucr kt. 'Gf y ctf '68
Uctdkgy unk 'O cekgl' Mc ko kgt | '74:
Ucv 'J ctwq'<u>6; 3</u>
Ucwuwtg. 'Hgtf kpcpf 'f g'386
Ucxqt{."Vj gqf qtg<
   Vj g'Ctv'qh'Vtcpurcvkqp''<u>324</u>
Ueci nkqpg'*Cnf q'cpf 'Igcppg+'Rtk g'<u>535</u>
Uej cm'xqp'Dgm'Iqj cpp'Cf co '<u>58:</u>.'<u>597</u>
Uej gtt.'I038
Uej rgi gn'Cwi wuv'Y knj gno '38; .'644.'645.'6496:
Uej ngkej gt. 'Cwi wuv'<u>43</u>
Uej ngkgto cej gt. 'Htkgf tkej '64: =
   hqtgki pk kpi '333.'464=
   i gpf gt 'o gwr j qtkeu'; 6=
   j gto gpgwkeu"; 9=
   r qy gt 't grc \dqpu' \frac{329}{22} =
   r tkpekr rgu'qh'\tcpurc\kqp'\645\66=
   vtcpurcvcdkrkv{ "496
Uej pk ngt. 'Ct y wt' 95
Uej qi v.'J gpt { '382
Uej qp. 'L(H()4; ;
Uej qqretchv.'J gpt { 'Tqy g'cpf 'Icpg'Iqj puqp'3: 6
Uej qwgn'I gqti '643
Uej qwwu. 'Cpf tgcu' 376
Uej tqf gtwu. 'Gtkm'<u>788</u>. '<u>792</u>
Uej wng. 'Tckpgt'3; 4. '3; 5
Uej y ctyl. "Y gtpgt" 348
Ueqw."Ukt"Y cnvgt<
   o wnkrkpi wcrkuo '<u>37:</u>.'<u>37;</u>
uetggp'tcpurckqp"ugg'f wddkpi =
   uwdvkwkpi
Uetkdg. 'Gwi ³ pg'<u>5: 8</u>
uetkr v'kp''\tcpurc\kqp''\frac{433}{2}=
   cr j cdgw'cpf 'j kgtqi n\{r j u' \frac{433}{637} =
   eqpetgyg'r qgyt { '43763:
Ugdcukepq. 'Hewnq'376.'387
ugeqpf "repi wei g"ces wkukkqp" yj gqt { "*UNC+"33: 63;
Ughgtku.'I gqti g'<u>653</u>.'<u>655</u>66.'<u>659</u>
U'i wkpqv."Ecpf ceg": 4.": 5
Ugndgti .''Qng''O kej cgn'<u>5; 2</u>
Ugrgunqxkej ."F cpkec"334."335."336."4: 4."636
ugnh/tcpurckqp"ugg"cwq/tcpurckqp
Ugrx gt. 'Rcwrl'389
Ugo gtmcpf k'Gdwan'Ng{u/k'796
ugo kqvke"crrtqcej gu<
   uvtwewtcn'cpf 'kpvgtrtgvkxg'<u>43:</u> 642=
   vgz√ugo kqvkeu'<u>443</u>ó4=
   vtcpurcvcdkrkv{ "<u>442</u>63."<u>497</u>
ugo kqvkeu<
   eqpvgzv'443=
   kpygtrkpi wcn'*kpygtrkpi wkuke+l'tcpurcvkqp'r tqr gt'<u>442</u>=
   kpvgtrtgvcpv'43; =
   kpygtrkpi wcrl*kpytcrkpi wkryke+ltgy qtf kpi "442=
   kpvtcugo kqvke"cpf "kpvgtugo kqvke"442=
   uwd kwhpi '467.'468
Ugpgi crl<u>524</u>
ugpug<
   cpcn{ whech'r j knquqr j { '33=
   qtkgpvcvkqp"3:;=
   ur ggej 'cew'39;
ugpug/hqt/ugpug' \verb|\tcpurc| \verb|\tqp"| \underline{:9}. "\underline{347} 68." \underline{388}
ugtxkeg"tcpurckqp"86
ugzwcrkv{<
   o gwr j qt"<u>; 6</u>ó7=
   ugg"cnuq"i gpf gt
Ug{uugn'Encwf g'f g'<u>632</u>
Uj cemo cp.'L0<u>57</u>
Uj cmgur gctg."Y kmkco '94."44468=
   kp'Htgpej '<u>635</u>=
   kp'I gto cp'<u>645</u>=
   kp'J gdtgy '<u>666</u>=
   j kuvqt { ''qh'\tcpurc\kqpu''<u>324</u>=
   kp'J wpi ctkcp'<u>672</u>=
   P qtf ke'hcpi wci gu'<u>5: 8.</u>'<u>5: ;</u> =
   r qgvkeu'<u>38;</u>=
   kp'Rqrkij '<u>74:</u>=
   kp'Tqo cpkcp'<u>75:</u>
Uj co cøc. 'P clcj '4; 3
Uj cr ktq. 'P qto cp' <u>465</u> 66
Uj cvd{.'Ko co '423
Uj cy .'I gqti g'Dgtpctf '3: 4
uj khw≪
   ecvgi qtkcn'<u>44:</u> .44; =
   eqpurkwkxg"cpf "kpf kxkf wcn" 44; 652=
   f ghlpkkqp"cpf "ercuulthecvkqp"44869."44;653=
   i gpgtke'<u>452</u>=
   kpvtcu{uvgo '44;}=
   kpxctkcpeg''449'6; =
   ngxgn'44; =
   o qf wrcvkqp."o qf khlecvkqp"cpf "o wcvkqp"453=
   qdrki cvqt { "cpf "qr vkqpcn" 44: =
```

ygzygo g'<u>453</u>=

wpk/cpf 'encuu'44;

wgzwcn'gs wkxcngpeg'44; =

vtcpugo gu'cpf 'ctej ktcpugo gu'<u>452</u>63=

```
Uj k wnk'Vcf cq'*ncvgt'P cncpq'T { j q+'\underline{6:9}.'\underline{6:6}
Uj ngukpi gt. 'O kt kco '<u>76</u>. '<u>78</u>. '<u>4: ; . '4; 2</u>
Uj nqpum(.'Cxtcj co '669
Uj tgxg.'I tgi qt{'O 0429.'537
Uj xgkugt. 'C(F 0342.343. '345
Ukf pg{.'O ct { '55; .'568
uki j v'tcpurcvkqp"ugg"eqphgtgpeg"cpf "uko wncpgqwu kpvgtrtgvkpi
uki p/qtkgpvcvkqp"3:;
uki p''yj gqt { '<u>68</u>
uki pgf 'hcpi wci g<
   kp''uwd vkurkpi ''469
uki pgf "rcpi wci g"kpvgtr tgvkpi "45364=
   Dtkkuj 'cpf 'Co gtkecp'453'/4=
   eqphgtgpegu'<u>63</u>=
   eqwtv'lpvgtrtgvkpi '76=
   pggf u'<u>454</u>=
   rtqhguukqp"cpf "tckpkpi "45567=
   Uy gf gp'\frac{78}{}=
   vtckpkpi '<u>56</u>=
   vtcpurkygtcvkpi 'xgtuwu'kpvgtrtgvkpi '<u>454</u>65
Uko qp.'J €
   y kpm/cmwf 'r tqvqeqnı'<u>488</u>.'<u>489</u>
Uko qp. 'Uj gtt { '324. '37;
 kpcuk 'Kdtcj ko '<u>799</u>ó:
Unetrevqu. 'P kmqrequ' 794 65
umqr qu''y gqt \{ ''54.''457 \acute{o} : = 
   cf cr vcvkqp":_."459=
   cf gs wce \{ \frac{458}{458} =
   cuuguukpi 's werkv{ '3; : 6; =
   eqj gtgpeg'twrg'<u>458</u>=
   etkkekuo 'qh'\frac{459}{6}: =
   hlf grkv{ "twrg" \frac{458}{}=
   hwpevkqp'<u>458</u>=
   j kuvqt { ''qh''vtcpurcvkqp''<u>326</u>=
   qhhgt 'qh'kphqto cvkqp'458=
   rtci o cweu'3: 5=
   tcpurcwo 'cpf 'tcpurcv'<u>457</u>
Umqt { pc. 'Htcpeku | gm'748
Un f gm'Iqugh'H059;
Unexgkmqx.'ROT0574.'577
Umxcmitcf kkqp'77263=
   ugg"cnuq"E| gej "ttcf kkqp
Uo ktpqx/Vtq{cpunkk'Rgvt'362
Uo kij .'Cf co '<u>87</u>
Uo kyj .'Grk'<u>545</u>
Upgm/J qtpd{.'Oct{'9:.'<u>:</u>2=
   etkkekuo '<u>429</u>=
   tgvtqur gevkxg'\tcpurcvkqp'\frac{332}{332}633=
   Upgmo cp. 'Lqj cp''Xknj gmo '62566
Uqek v 'htcp±ckug'f gu'\tcf wevgwtu'\*UHV+'636\637
Uqhcpqu.'P kmqrcqu'<u>653</u>64.'<u>659</u>6:
Uqtgpugp.'Mpwf'5::
Uqwj 'Chtkec'524
Ur cpkij "tcf kkqp"325=
   f kt gevkqp'qh'\tcpurcvkqp'\<u>86</u>=
   f kxgtuk/{ "qh'hcpi wci gu'wpf gt "Ecuvkrkcp"f qo kpcpeg" 776 6: =
   o wnkrkpi wcrkuo ''qh''Co gtkecp''cwj qtu''<u>379</u>ó: =
   r ugwf qvtcpurcvkqp'3: 667=
   r wdrkuj kpi '<u>3; 2</u>=
   y g'T geqps wkuvc'<u>774</u>66=
   vtcpurcvqtuø'qti cpk cvkqp"cpf '\tckpkpi '\frac{4: 3. '\frac{4: 5}{2: 5. '\frac{4: 7}{2: 7. '\frac{77;}{682}}
   ugg"cnuq"Ncvkp"Co gtkecp"tcfkkqp"
```

```
ur gewickxg"cr r tqcej gu"<u>45:</u> 662
ur ggej 'cew'<u>346</u>=
   rtci o cvke"cpcn(uku"<u>39;</u> ó: 3=
   ugpug. 'hqteg'cpf 'ghhgev'39;
Uvcµn'O cf co g'f g'<u>635</u>.'<u>69</u>; ó: 2
Ucul ke. "Ucpku€y '<u>749</u>
Ughep. 'O gytqr qrksep' Uko kqp' 756
Uvgkpgt.'I gqti g<
   Chyst 'Dcdgn'; 9.'324=
   cm'eqo o wpkeckqp'ku'\tcpurckqp'\frac{3; 2}{}=
   hqtgki pk kpi '349=
   i gpf gt 'o gwr j qtkeu'; 7=
   j gto gpgwke"o qvkqp"; 96; =
   yj gqt { ''qh''o gcpkpi '';=
   vqy gt 'qh'Dcdgn'43
Uvgkpgt."V0\(\Gamma\)0\(\frac{325}{25}\)."\(\frac{389}{25}\)
Uvgkpj qgy gn'J gkptkej '642
Uvgtpg.'Ncwtgpeg'37:
usko wnxu'o gcpkpi '32
TV[p '| g'TV[p<sup>2</sup>j q."Vqo a -'<u>599</u>
Uvqn g. 'T03; 9
Uvqrrctf.''Vqo '<u>95</u>
uvtcvgi kgu<
   f qo guvlecvkpi '<u>9</u>.'<u>462</u>63=
   hqtgki pk kpi '46366
Utgxgpu.'R0<u>484</u>
Uwf kv.'F co cuegpg'<u>572</u>
TWAt. 'Nwf qx¶\frac{1}{772}
uv{ rg''ugg'hkvgtct { ''\tcpurc\kqp=
   wpkxgtucni'qh'\tcpurc\kqp
uwd kwłpi '<u>469</u>6: .'<u>78:</u>=
   cf cr vcvkqp'8=
   ecr \(\forall qpu'\) \(\frac{466}{67} = \)
   f kukpevkxg'hgcwtgu'qh'tcpurcvkqp'46769=
   kpytchpi wch'cpf 'kpygthpi wch'<u>469</u>=
   qr gpgf "cpf "enqugf" 469=
   r gtuqpcn'46:=
   r kq v' 469 \acute{o} :=
   tgxqlelpi '468=
   ugo kqvkeu'<u>467</u>.'<u>468</u>=
   v{r gu'cpf 'r tqeguu'<u>466</u>67.'<u>469</u>=
   ugg"cnuq"f wddkpi
Uxgpmgtwf.'I gtdgtv'<u>5; 3</u>
Uy cj krk'<u>522</u>.'<u>525</u>
Uy gf kuj 'ttcf kkqp'325=
   ej kxcrt { ."o qpcuvkekuo "cpf "trcpurcvkqp" \q'3: yj "egpwt { "785 \delta 8=
   f ktgevkqp"qh"vtcpurcvkqp"8768=
   3: \dot{y} 'egpwt { '\q'r tgugpv\'\frac{788}{6} :=
   j krvqt { ''qh' repi wei g' <u>785</u>=
   kphrwgpeg'kp'Hkprcpf'62365=
   vtcpurcvqtuø'qti cpk cvkqp''cpf ''vtckpkpi '<u>57</u>. '<u>4: 6</u>67. '<u>78:</u> 6;
Uy ggv.'J gpt { '339
U{ mgu. 'O 0<u>8:</u> ó;
U{o o cej wu'<u>48;</u>
u{pyj guku'<u>3: 9</u>
U{ tkc'zkx
U cd».'F a xkf 'Dct» vk'66:
U a u .'M tqn{ '673
U m u{.'Mrt tc'<u>677</u>
Vcdgt. 'Ε0Γ0'<u>5:</u>.'<u>3; 9</u>
Vcdrke. 'Dqj wurcx' 772
Vci qtg. 'Tcdkpf tcpcy' '694.'696
cn/Vcj v y k'Tkh ec'T hke'<u>545</u>.'<u>547</u>
Vcrkchgttq.'Ncy tgpeg'529
Vco kd<u>689</u>ó:
Vcpk cnk'Lwpøkej kt '<u>6</u>; 4
Vcp| cpkc'<u>525</u>
VCR''ugg''y kpm/crqwf 'r tqvqeqnı
vcti g√qtkgpvgf "crrtqcej "<u>39:</u>
Vctp3/e | k'N3/4° pf '675
Vctunk'Cntgf'33634.'497
Vctvci nkc. 'P keeqnl/4" Hqpvcpc+'699
Vexgtpgt.'Tkej ctf '<u>559</u>
Vc{mt.'Dc{ctf '<u>52;</u>
Vgtgpeg'<u>6; 7</u>
vgto 'dcpm'<u>46</u>; 673=
   Ecpcf kcp'tgugctej '57; =
   o cej kpg'\tcpurc\kqp'\\\ 356
vgto kpqrqi {<
   eqpegr vu. "f ghkpkkqpu"cpf "vgto u"47; 64=
   i gpgtckqp''474=
   i muuctkgu'<u>479</u>=
   uvcpf ctf k cvkqp"4776: ."483=
   u{uvgo u'qh'pqo gpencwtg'<u>474</u>=
   vgto 'dcpm'<u>46</u>; 673=
   vgto 'etgcvkqp'<u>474</u>67=
   yj gqt { '<u>47:</u> ó84=
   vtcpurcvkqp"xgtuwu"cr r rkgf "47364
Vgttcekpk'Dgpxgpwq'<u>6: 3</u>"/4
vgt vkwo "eqo r c t c vkqpku" <u>68</u>." <u>69</u>
Vgwtdg''Vqrqp.'O ki wgrl'733
wgz v<
   cev<u>3: 2</u>63=
   ctej ktcpugo gu'<u>452</u>63=
   f ghkpkpi '<u>72</u>=
   f kueqwtug'8:=
   gs wkxcrgpeg'<u>99</u>.'<u>9:</u> 6; .'<u>343</u>=
   hwpevkqp''5465=
   rtqf wevkqp'<u>6</u>ó<u>7</u>=
   ru{ej qrkpi wkurke"crrtqcej gu"<u>3:8</u>=
   s \text{ wcrkv}\{ '\frac{3}{3}; : \acute{o}; =
   ugo cpvke 'wpkv'6; =
   ugo kqvkeu'<u>443</u>64=
   vtcpuetkr vkqp'9=
   vtcpurcvqtkcn'cevkqp'<u>6</u>ó<u>7</u>
```

vgzv'hlpi wkuvleu<

```
hgvkij k cvkqp":_=
   tgi kuvgt "cpcn{ uku" 484 ó5=
   unt we wit g' \underline{486} =
   vgzv'\{ r qrqi kgu'\frac{485}{66}=
   wgzwtg'<u>486</u>67
wgzwgo g'<u>453</u>.'<u>4; 2</u>
y gevtg"tepurevkqp"ugg"f teo e"tepurevkqp
yi go g<
   cpf 'tj go g'cpcn{ uku'487
yi 3 o g'<u>86</u>
Vj gqf q\kqp'<u>48;</u>
yi <sup>2</sup> qt kg'f w'ugpu'<u>64</u>.'<u>65</u>.'<u>67</u>.'<u>4: 4</u>=
   ugg"cnuq"kpvgtrtgvkxg"crrtqcej
f cvc 'eqmgevlqp' 488 69=
   f gekukqp/o cmkpi '<u>7;</u>=
   o gpvcn'eqpvgpv'488=
   r tqeguu'<u>488</u>=
   wpk/qh/tcpurcvkqp/4:8=
   xgtdcn'tgr qtv'r tqegf wtgu'488
Vj kqpi øq. 'P i wi k'Y c'<u>522</u>
Vj qtctgpugp. 'Dlctpk' 683
Vj qtuvgkpuuqp. 'Uvgkpi t\p wt'\) wt'\) 683.686
Vkddqpkf 'hco kn{ '<u>664</u>.'<u>669</u>
Vkdgv'<u>68:</u> ó;
Vktmqpgp/Eqpf kv."Uqplc"3: 5."48:
Vkuuctf.'Rkgttg'<u>724</u>
Vqf qtcnk'Ghgpf k'799
Vqrf { .''Hgtgpe''<u>673</u>
Vqmkgp. 'L0Γ0Τ0'37:
Vqo c.'Rgvgt'363
j kuvqt { ''qh''\tcpurc\kqpu''<u>324</u>=
   Lgy kuj "cpf 'Ej tkukcp''kpvgtr tgvcvkqpu'<u>493</u>65
Vqtdqx."Vugmq"<u>576</u>."<u>577</u>
Vqtf a uk 'Dkuj qr 'O 0<u>756</u>
Vqttgu'Co cv'Hgrkz''779
V»yj ."f tr a f "674."677
Vqwtu. 'O kej gn'f g'<u>632</u>633
Vqwt { .''I \text{ \text{ gqp'}\frac{3}{3}; \text{ .''\frac{669}{}}=
   cecf go ke 'tcpurcvkqp' uwf kgu' 49; =
   eqtr wu'nkpi wkukeu'<u>72</u>=
   etkkekuo '<u>42:</u>=
   gs wkxcngpeg'<u>9:</u> <u>6: 2</u>=
   pqto u'<u>385</u>ó6=
   r qgvleu'<u>38:</u>.'<u>38;</u>.'<u>392</u>=
   r qn\{u\{uvgo \ 'vj \ gqt\{''35364.''39:.''39:=
   uj khu'cpf 'cf gs wcvg'\tcpurcvkqp''452=
   wpk/qh/tcpurc/kqp/4:8=
   wpkxgtucni'qh'tcpurcvkqp''4::..'4:;.4;263
vtckpkpi 'r tqi tco o gu'cpf 'kpuvkwvkqpu<
   cecf go le'cpf 'xqecvlqpcn'etkgtlc'<u>4: 5</u>67=
   eqo o wpkv{ 'kpvgtrtgvkpi '<u>56</u>ó9=
   f kf cevkeu''qh''vtcpurcvkqp''8265=
   j krytkecn'dcemi tqwpf "4: 265=
   rkgtct{"\tcpurcvqtu"\85
   uki pgf 'hcpi wci gu'<u>56</u>.'<u>456</u>67=
   ugg"cnuq"wpf gt"kpf kxkf wcn'j kuvqtkecn'tcf kkqpu
V cpqxum ."Ik¶'<u>59:</u>"
```

```
vtcpuetkr vkqp'
vtcpugo gu'<u>452</u>ó3
vtcpuhgt<
   ewnwtch'<u>36</u>; 675=
   f kueqwtug'\frac{4}{2}63=
   o cej kpg"\tcpurc\kqp"<u>363</u>."<u>367</u>."<u>474</u>=
   o gej cpkuo '394
vtcpuhgt 'crrtqcej <
   o cej kpg"rcpi wci g"<u>363</u>."<u>367</u>
vtcpuhgt 'o gej cpkuo '394
vtcpurcvcdkrkv{ '<u>495</u>68=
   mi kecn'eqppgevkxgu'<u>497</u>=
   qeecukqp. "uvcpf kpi "cpf "qdugtxcvkqp" ugpvgpegu "497=
   r wtg'hcpi wci g'<u>3; 6</u>=
   Vj g'S wtø p'\frac{423}{}=
   ugo kqvke''cr r tqcej gu'\frac{442}{63}=
   uj khwi'<u>449</u>=
   usko wnsu/o gcpkpi '497
Vt cpurc vkq/HKV'P gy urgwgt'': 8
vtcpurcvkqp<
   eqo r ctgf '\q'\kp\gtrtg\kpi '\<u>63</u>64=
   gv{o qrqi {"cpf"o gvcrj qt"<u>372</u>63=
   hwm'r ctvkcn'cpf 'tguvtkevgf '343=
   kpegpvkxgu'hqt'cevkxkv{'zxk/zxkk=
   kpygtrkpi wcrl*kpygtrkpi wkuke+'442=
   v{rgu'qh'zxkk
Vt cpurc kqp'Rgt ur gevkxgu'*gf 0Tqug+'<u>537</u>
vtcpurcvkqp'twrg'9;
vtcpurcvkqp"uvwf kgu<
   Co gtkecp"ctgcu"qh"tgugctej "<u>536</u>637=
   cu'cp'cecf go ke'f kuekr nkpg'\frac{499}{6}; =
   f guet kr \sqrt{x} g'\frac{499}{}=
   I tggm'dgi kppkpi u'<u>653</u>66=
   cpf 'qyj gt 'f kuckr rkpgu'<u>49;</u> ó: 2=
   rtqf wevqtkgpvgf "cpf "rtqeguu/qtkgpvgf" 499=
   r wtg''cpf''crrnkgf''499\acute{o}: =
   tguvtkevkqpu'<u>499</u>ó:
vtcpurcvqt<
   ru{ej qrkpi wkuske"crrtqcej gu"3:8
vtcpurcvqtkcn'cevkqp'567
vtcpurcvqtu<
   etkkekuo '<u>42;</u> =
   o kpqtk\sqrt{\frac{z}{x}}
   r tqhguukqpcn'pqto u'<u>387</u>=
   tqrg"cpf 'uwwu'zx
vtcpurkvgtcvkqp"<u>454</u>."<u>455</u>
Vtgf kcmqxum(."Xcukn("Mktkmqxkej" | 1765."| 1766." | 1766."
Vtgxkuc. 'Iqj p'qh'<u>557</u>. '<u>568</u>69
Vtkcpf ch{ mkf ku. 'O cpqrku'<u>652</u>. '<u>65:</u>
vtki i gtu'<u>66</u>
Vuej gtpkj qxunk 'Ucwn'<u>669</u>6:
Vuej gtpkj qxunk'**Ucwn+'Rtk g''668
Vuwdqwej k'Uj { '<u>6: ;</u>
Vwtmkuj 'ttcfkkkqp<
   Gwtqr gcp"uqwtegu"cpf "vj g"Gprki j vgpo gpv\frac{798}{6}: =
   j kuytkecn'qxgtxkgy '<u>793</u>65=
   Kurco ke 'Rgtukep'r j cug'<u>795</u>67=
   tqrg'qh'\tcpurc\qtu'\zkx.'\zxk.'\zxk
   vtcpurcvqtuø'qti cpk cvkqp''cpf 'vtckpkpi '79; ó: 2
Vwtpqxq. 'Gwj ko kpu' 56; 672
Vwtxkmg/Rgvtg'<u>679</u>
Vwuk'cn/F kp. 'P cukt' '738.' '745
Vwwqrc. 'Co qu'<u>522</u>
Vwy ko .'Lwrkep''74;
V{ rgt. 'O cti ctgv'<u>55</u>;
V{pf crg. "Y kmkco" 45. "559. "569
V{plcpqx.'Lxtld'398
v(rg/vqmgp'tcvkq'\frac{73}{2})
v{rqitcrj {<
   eqpetgyg'r qgo u'<u>437</u>ó3:
V{ vrgt. 'Crgzcpf gt'Htcugt' 569=
   Guuc { ''qp''\yi g''Rt \kpe\kr \ngu''\qh\'\Vt c pu\rc \kqp\'\\\\ \frac{563}{}=
   r qgwleu'qh'vtcpurcwlqp'389
Wgf c'Dkp'<u>6; 2</u>.'<u>6; 6</u>
WP GUE Q<
   uwr r qt v'hqt 'HKV''<u>: 8</u>69
wpk'qh'\tcpurc\qp'\6.4:86: =
   eqo r gpuckqp'<u>62</u>=
   ru{ej qrkpi wkurke"cpf "eqi pkkxg"crrtqcej "3::
Wpkgf 'Ucvgu'ugg'Co gtkecp'tcfkkqp
wpkxgtucni'qh'\tcpurc\kqp<
   eqtr qtc'\frac{74}{}=
   f kueqwtug"tcpuhgt"cpf "hcy "qh"lkpvgthgtgpeg"4; 263=
   f kırkpe \sqrt{\frac{4}{3}} f kırk kd \sqrt{\frac{4}{3}}
   gzr nkekcvkqp''4: ; =
   ncy 'qh'i tqy kpi 'uvcpf ctf k cvkqp''4; 2=
   pqto cnk cvkqp'4:; ó; 2=
   tgr gtvqtgo g'' 4; 2=
   uko r nkhlecvkqp"cpf "cxqkf cpeg"qh"tgr gvkkkqp"4:: ó;
Wts wklq. 'O ctkcpq' Nwku'f g' 778 69
Wus wg. 'Cdtcj co '<u>492</u>. '<u>494</u>65
eWj o p'Klpe'Chh p'<u>422</u>.'<u>425</u>
Xergte. 'Ekr tkepq'f g'494
Xcmc.'Nqtgp| q'<u>722</u>.'<u>727</u>
Xcrxku. 'UF 0'655
Xco xcu.'P gqr j { vqu'<u>652</u>
xcp'f gp'Dtqgem'Tc{o qpf '429
xcp'f gp'Xqpf gn'Iqquv'<u>5; 8</u>69.'<u>622</u>
xcp'f gt'P qqv.'Lcp'3:
xcp'f gt'P qqv."Vj qo cu'<u>5; 7</u>
xcp'F {em'Eqtpgrkwu'<u>545</u>
xcp'Ghgp.'Lwwwi'5;:
xcp'I j kuvgrg. 'Eqtpgrku'<u>5; 7</u>. '<u>5; ;</u> 6<u>622</u>
xcp'J qqh'J gptk'326
xcp'Ngwxgp'\ y ctv.'Mkw{ 'O 0392.'45263
xcp'O cgtrcpv'Iceqd'5; 6. '622
```

xcp'Xgrfgng.'Jgptke'5; 5

```
Xcpf gtcw gtc. 'Tkc<
   wpkxgtucnu'qh'\tcpurc\kqp'\undersetch\cdot 2
Xcugxc. 'KO': 3
Xcws wqku. 'Dgtpctf' 363.'367
Xgf gn'C0'Uat gpugp'5::
Xghkm'Rcuj c.'Cj o gf '<u>79:</u>.'<u>7: 4</u>
Xgj o cu/Ngj vq. 'K0': 4
Xgpg| wgrc'732
Xgpwk'Ncy tgpeg<
   cdwukxg'hkf grkv{'392}=
  cecf go ke'r wdrkuj gtu'<u>3; 4</u>=
   qp'Ctpqrf'<u>428</u>=
  hqtgki pk kpi "349."42; =
   qp'O cwj gy 'Ctpqrf '<u>564</u>=
  pqto cvkxg"o qf gri384
xgtdcn'tgr qtv'r tqegf wtgu'488
Xgt¶uuko q." tkeq"<u>552</u>
Xgto ggt.'J cpu'I054.'4: 4.648=
   umqrqu''yj gqt { "326." 4576: =
  u{uvgo u'o qf gri384
xgtpcewct<
  f go qwe'I tggm'<u>64;</u> ó52=
  f w'Dgmc{"cti wgu"ci ckpuv'\tcpurc\kqp"633=
   Kcrkcp'<u>696</u>ó8=
   ugg"cnuq"UV"E{tkn=
   U/O gyj qf kwu
Xgtugi j {."Hgtgpe"673."677
xgtukqpu'<u>86</u>.'<u>95</u>=
   ugg"cnuq"cf cr vcvkqp=
   htgg"tcpurckqp
Xkrctcu."[ cppku'65:
Xkrkmqxum(."Icp"429
Xkngi cu. 'Rgtq'Hgtpa pf g| 'f g'777
Xkpc{.''Lgcp/Rcwi': 2.''583=
   cf cr vcvkqp'8=
  nkpi wkuske"crrtqcej "345=
   vtcpur qukskqp"cpf "o qf wrcskqp"44:
Xkpqv.'O qf guvg'<u>724</u>
Xkwqtkpk'Grkq'<u>6: 3</u>
Xkxgu. 'Lwcp' Nwku' 777. '778. '784 65
Xqrqrij qpur (.''Netkuuc''<u>534</u>
Xqnxcktg'32;
Xquu. 'Iqj cpp'J gkptkej '38; .'464.644
Xtcuc. 'Uqr j tqpkwu'qh'<u>573</u>
Xtej rkem ."Ictqurcx"59;
Xwn ctku. 'Gxi gpkqu'<u>654</u>. '<u>65:</u>. '<u>757</u>
Xxgf gpum(.'Kkpctmj '766667
X\{c | go um\{."R0C0767
```

```
Y crg{.'Ctyj wt'<u>597</u>
Y crk'Crcj 'F kj rcy k''Uj cj '<u>692</u>.'<u>696</u>
Y cmrvgp."V0U07;
Y gcxgt."Y cttgp"362
Węgierski .'Melgycp''749
Y gkugt. 'Eqptcf' '529
Y gkuugpdwti .'Qvhtkf 'xqp'<u>63:</u>
Y j qth 'Dgplco kp'<u>68</u>
Y knkco 'qh'O qgtdgng'6;;.'727
Y kmkco u. 'Ectqn(p''428
Y kmkco u. 'Tqi gt' 528
Y knuu."Y qrhtco "3:; .3; :=
    eqo r gpuckqp'<u>5:</u>=
    etkwekuo '<u>429</u>=
    xqecvkqpcn'ukf g'qh'rkpi wkurkeu'4:4
Y kn.vgt. 'Ej tk.vkcp'Htgf gtkm'<u>5: 9</u>.'<u>5: :</u>.'<u>5; 3</u>64
Y kppgo weec. "Uctcj "<u>529</u>." <u>538</u>
Y kwg."J gkf twp"<u>83</u>
Y qlvcukgy ke | . 'Qri kgtf' '75263
Y qrth 'Dgvlg'5;:
Y qmkp. 'Nctu' 325
Y qqf uy qtyj ."Lwf kyj "325."582=
    Vt cpurc vqt u'Vj t qwi j ''J kwqt {''327
Y tczcm'\N0\'564
Y {enkhg." [qj p'<u>557</u>." <u>558</u>69
Y {ng. 'P kmcu'xqp'f gt'32: .642
ZwI wcpi sk'<u>58:</u>
Zwcp'\ cpi '<u>589</u>.'<u>58:</u>.'<u>597</u>68
[ cj {c'Ghgpf k'<u>795</u>
[ cp'Hw'<u>592</u>ó3.'<u>598</u>
[ cpcdw'Cnktc'<u>6; 4</u>
[ cpi .'I rcf {u'<u>595</u>
[ cpi 'J ukgp/\{k'*Z kcp\{k+'595\}
[ ctuj cvgt. 'Gj ucp'<u>742</u>
cn'[ | klk''Kat j o ''545']
[kffkuj'<u>667</u>
[ pi xg. 'X0 0<u>368</u>
[ qwpi .'Gf y ctf '<u>645</u>
[ Aegn'J cucp'Žnk'<u>79;</u>
[ wpwu'Dg{'<u>794</u>
\ a dtcpc.'\( \text{Lcp'} \frac{5: 3}{}
\ cej ctkcu.'Rqr g'<u>6; :</u>
\ cttkpf cuv'*O qj co o cf 'd0O cpuwt+'<u>738</u>
  grg unk 'Vcf gwu '74: ó;
\setminus g\{gt.'Lwrkwu'59;
\ j w'Uj gpi j cq'<u>595</u>.'<u>598</u>
\ j wmqxum(.''Xcukn(''Cpf tggxkej ''<u>766</u>.''<u>76:</u>6;
```

\ \kf cp. \Cj o cf \cpf \ \kf cp. \F \kpc \frac{424}{224}.

\ wnqxum{.'Nqwku'cpf 'Egrkc':::ó;

'A true blockbuster; an unprecedented, unique encyclopedia comprehensively surveying what has clearly become a major academic discipline.'

## Reference Reviews

'This is a landmark publication in the history of translation studies . . . it is impossible to do justice to this encyclopedia's many merits.'

## Language Today

'Interest in translation studies as an academic discipline has never been greater, and this excellent volume is to be commended for bringing together some of its most recent research . . . '

The Times Higher Education Supplement

'up-to-date, open-minded and authoritative'

Published in paperback for the first time, the acclaimed Routledge Encyclopedia of Translation Studies is the ideal reference work for anyone with an academic or professional interest in translation.

Drawing on the expertise of over 90 contributors from more than 30 countries, the *Encyclopedia* offers a detailed overview of translation studies.

Part I covers the conceptual framework of the discipline, with topics including:

- drama, literary and poetry translation
- machine translation
- terminology and term banks

Part II presents over 30 entries on the history of translation in major cultural and linguistic communities worldwide.

As user-friendly as it is comprehensive, the Routledge Encyclopedia of Translation Studies is a ground-breaking work that has proved invaluable to students, teachers and professional linguists.

Mona Baker is Professor of Translation Studies and Director of the Centre for Translation and Intercultural Studies at UMIST, UK. Her publications include In Other Words (1992) and she edits the international journal The Translator.

