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ORTHOPAEDIC ROBOTICS LABORATORY

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Vj g" Qtyj qr cgf ke" Tqdqvkeu" Ncdqtcvqt { "ku" yj g" Wpkxgtukx{ "qh" Rkxudwti j øu" eqmcdqtcvkxg" ghtqtv" dgw ggp" yj g" F gr ctvo gpv" qh" Dkqgpi kpggtkpi " cpf " F gr ctvo gpv" qh" Qtyj qr cgf ke" Uvti gt { 0' Vj g" o kuulqp" qh" yj g" QTN" ku" yj g"r tgxgpvlqp" qh" f gi gpgtcvkxg" lqkpv'f kugcugu" d { " ko r tqxkpi "f kci pquvke." tgr ckt." cpf "tgj cdkrkxcvlqp" r tqegf wtgu" hqt" o vuewnqungrgvcn" kpl wt kgu" wukpi "uvcvg/qh' yj g/ ctv' tqdq vke" vgej pqrqi { 0' Vj g" QTN" 'y qwf "rkng" vq" eqo o gpf "yj g" y qtm" qh" y g"vpf gti tcf wcvg" uvwf gpwl" f wt kpi "yj g"uvo o gt" qh" 42390" Uwf gpwl" o cf g"uki pkthecpv" ko r cewl" kp" yj g" uvwf { "qh" j cpf ."uj qwf gt." gndqy ."cpf "npgg" lqkpv'f kugcugu0" Vj g" y qtm" qh" qwt" uvwf gpwl" y kj "yj g" j gm "qh'qwt" o gpvqtu." eqpvtkdwgu" i tgcvn{" vq" y qtnf "qh" Qtyj qr cgf ke" Tgugctej "cpf "vq" cm'r cvkgpwl'y j q" dgpghko

Ci f'hYUa





T { cp'Drcem Encuu''qh'423: Dkqgpi kpggtkpi Wpkxgtukk{ "qh'Rkwudwti j



Ecyj gt lpg'Uo løj Encuu'qh'423; " Dkqgpi kpggtkpi " Wpkxgtuks{ "qh'Rksudwti j



Dgplco lp'Tqcfcto gn Ercuu'qh'423; " Dkqgpi kpggtkpi " Wpkxgtukk{ "qh'Rkwudwti j



Lco gu'l qt gphų Encuu''qh''423: O gej cplecn'Gpi kpggtkpi Wpkxgtukk{ ''qh'Rkwudwti j



Lqugr j 'I tgcxgu' Encuu'qh'423; " Dkqgpi kpggtkpi " Rgpp''Ucvg''Wpkxgtukx{

HUV Y cZW bhybhg

30'	Eqorctkuqp'qh'Uetgy 'S wcpvkv{ 'cpf 'Rncego gpv'qh'O gwcectrcnHtcewwtg'' Hlzcvkqp <c'dkqo cplecnuwwf="" gej="" th="" {<=""><th>Rci g'7/8</th></c'dkqo>	Rci g'7/8
	T{cp'Drcem'I gtcrf 'Hgttgt.''Ugr j gp'Ecpvqp.''Iqj p''Hqy rgt.''Xqmgt''O wicj n	
	Thej ctf "F gdunk	
	Fgrctvogpv'qhDkqgpikpggtkpi'cpf'Fgrctvogpv'qhQtvjqrcgfke'Uwtigt{	
40'	Dkqocygtken'Tgrekt 'qh'vjg'Tev'Uwrteurkpevwu'Vgpfqp'Gpvjguku''	Rci g'9/:
	Ecy gtkpg"Uo kj."I gtcrf "Hgttgt."Dgp"Tqy tcwhh "Xqmgt"O wucj n"Tkej ctf "F gdunk"	C
	Fgrctvogpv'qhDkqgpikpggtkpi "cpf"Fgrctvogpv'qhQtyjqrcgfke"Uwtigt{	
50'	Qt lgpvc vlqp'qh/P qp/T geqxgt cd ng'Uvt clp'lp'vj g'Ingpqj wogt cnE cruwng'F d	lgu
	P qv'E j c pi g'Hqnqy kpi 'O wnkr ng'F knqec vkqp	
	Dgplco kp'Tqcf cto gn'Vguw{ c'Vcngpci c.'O cucj kq'[quj kf c.'Ecnxkp'Ej cp."	Rci g';/32
	Xqmgt'O wucj n'Cndgtv'Nkp.'Tkej ctf 'F gdunk	
	Fgrctvo gpv'qhDkqgpi kpggtkpi 'cpf' 'Fgrctvo gpv'qhQtyjqrcgfke'Uvtigt{	
50' 60'	Fgulip'qh'cp'Gnlqy'Vguvlpi'Crrctcvwu'vq'Uowncvg'Hngzkqp'lp'Xct{lpi	
	F gi t ggu'qh'Uj qwrf gt 'Cdf wevlqp	
	Leo gu'I qtgphrq. 'Xqmgt'O wucj n'Iqj p''Hqy ngt. 'CL'Dreendwtp. 'Tqdgtv'Mcwho cpp. ' R ei Tkej ctf 'F gdunk	g'33/34"
	F grctvo gpv'qhDkqgpi kpggtkpi 'cpf 'F grctvo gpv'qhQtvj qrcgf ke'Uwti gt (
70'	Fgxgqqrogpv'qh'c'OCVNCD'Kpygthceg'Wukpi 'cp'Grgevtqocipgyke'Vtcenk	pi
	U{ uvgo 'hqt '\j g'Dkqo gej cplecnCpcn{ uku'qh'Vkdkqhgo qt cnMkpgo cvleu	
	Iqugr j 'I tgcxgu. 'Ecnxkp'Ej cp. 'Xqmgt'O wucj n'Tkej ctf 'F gdunk'	Rci g'35/36
	Fgrctw gpv'qhDkqgpi kpggtkpi "cpf"Fgrctw gpv'qhQtyjqrcgfke"Uvtigt{	

Eqorct kupp 'qh'Uetgy 'Swcpvkx{ 'cpf 'Rncegogpv'qh'OgvcectrcnHtcevvtg'Hkzcvkqp<'C'' DkqogejcpkecnUvvf{

T { cp'Dncen^{ig}='Ugr j gp'Ecpvqpⁱ⁴='Tkej ctf 'G0F gdunk'^{3.4}='Lqj p'Hqy ngt'⁴ 30' F gr ctvo gpv'qh'Dkqgpi kpggtkpi .''Wpkxgtukk{ "qh'Rkvudwti j .''Rkvudwti j .''RC.''Wpkgf ''Ucvgu 40' F gr ctvo gpv'qh'Qtyj qr cgf ke''Uwti gt { .''Wpkxgtukk{ "qh'Rkvudwti j .''Rkvudwti j .''RC.''Wpkgf ''Ucvgu

₩ VTQF ₩ VKQP <' Kp''y g''WU.''y gtg''ku''cp

guvko cvgf "vqvcn" qh" 5.68:.;; 8" wrrgt "gzvtgo kv{" kplwtkgu'r gt"{gct"]3_0Vj g'ugeqpf "o quv'eqo o qp'V{r g" qh" wr r gt" gz t go kv{ "htcewt gu" ctg" r j cncpi gcn' cpf " o gycectr cn'htcewytgu"]4_0'Vj g"o quy'r qr wrct "ej qkeg" qh'o gweetr cn'htcewetg''hkzcwlqp''ku'f qtuen'r rewlpi '']5_0' Vjg"CQ"hqwpfcvkqp"*Cuuqekcvkqp"hqt"yg"Uvvf{"qh" Kpvgtpcn/Hkzcvkqp+'tgeqo o gpfu'c'vqvcn'qh'8'dkeqtvkecn' uetgy u"r tqzko cn'cpf "f kuxcn'vq" y g"htcewtg"hqt" qpi " dqpg" htcewtgu"]6.7_0' J qy gxgt." o cp{" o gycectr cn" htcewstgu'f q"pqv"cmqy "hqt"8"uetgy u"qh"r ncvg"hkzcvkqp" f wg"vq"ukt g"nko kxcvkqpu"cpf "uwttqwpf kpi "uqhv"vkuuwgu"]8_0' Tgegpv'' uwuf kgu'' j cxg'' uj qy p'' yj cv'' uvtcvgi ke'' r ncego gpv'qh'hgy gt"uetgy u"ecp"r tqxkf g"eqo r ctcdng" hzcvkqp"uvtgpi yj "vq"8"uetgy "eqpuvt vevu"cpf "r tgugt xg" f gult gf "enkplech' qweqo gu"]8.9.: .; .32_0'KV' j cu"dggp" uj qy p"yj cv"y j gp"xct {kpi "yj g"pwo dgt"qh"uetgy u."6" mengf " cpf " 8" pqp/mengf " dleqtvlech' uetgy u" f go qputtcvgf " eqo r ctcdrg" hkzcvkqp" utgpi yj "]8_0' J qy gxgt."k/ku"pqv'mpqy p"j qy "yj g"hkzcvkqp"uvtgpi yj " y km' eqo r ctg'' dgw ggp'' htcewtg'' hkzcvkqpu'' y ky '' f khigt gpv'uet gy ''s wcp kkkgu''y j gp'wukpi ''y g'uco g'r rcvg'' cpf "uetgy "v{rg0' Vj gtghqtg." y g" qdlgevkxg" qh" y ku" uwf { "ku" vq" f gygto kpg" yj g" uvt we wtch' r tqr gt vkgu" qh" pqp/memkpi "fqtucn'r ncvg" hkzcvkqp" y kyj "6" xu0'8" dleqtvlecn'uetgy u0

FGXGNQRO GPV''QH''RTQVQEQN<' Hqwtyj/ i gpgtcvkqp"eqo r qukvg"dkqo gej cpkecn'vguvkpi "i tcf g" y ktf "o gweetr cn'ucy dqpgu"*Ucy dqpgu'O qf gn'5638=" Rcekhle"T gugctej "Ncdqtcvqtkgu."Xcuj qp."Y C."WUC+" y gtg" ugngevgf " hqt" y ku" uwwf { " kpuvgcf " qh" ecf cxgtke" o gvcectr cnu"vq"o kpko k g"kpvgt/ur geko gp"xctkcdkrkv{" kp" o gej cpkecn' r tqr gt kgu" cpf " i gqo gvt { "]33_0' Vq" cuuguu'f khigt gpegu'kp'hkzcvkqp'uvt gpi yj 'dgw ggp'yj g'6' cpf "8"uetgy "eqpuvt wevu. "c"ecp krgxgt "dgpf kpi "vguv"kp" y g"cr gz"f qtucn"f ktgevkqp"y cu"ugngevgf "vq"uko wrcvg" y g"o qo gpv"i gpgtcvgf "d{ "y g"j cpf "hgzqt"vgpf qpu" qp" y g" f kncn' j gcf " qh' y g" o gvcectr cn']33.34_0' C" e{enke" mcf kpi " r tqvqeqn" y cu" ej qugp" vq" uko wrcvg" kpetgcukpi " wug" qh' y g" y tkuv' f wtkpi " y g" htcewitg" j gcrkpi "r gtkqf "cpf "tgj cdkrkxcvkqp0"Vj g"e{erke"rqcf kpi " eqpukuvu" qh" y tgg" ugvu" qh" 322" e{ergu<" 7/62P " vq" uko wncvg" cevkxg" hngzkqp" qh" y g" j cpf " y ky " o kpqt" tgukuxcpeg."7/92P"vq"uko wrcvg"c"uvtqpi "eqo r qukvg" i tcur."cpf "7/322P "vq"uko wrcvg"c"hkto "hkpi gtvkr "r kpej "

]34.35.36_0' Hqmqy kpi " e{erke" mcf kpi ." yj g" o gvcectr cni"y km"dg"mcf gf "vq"hcknvtg"vq"f gvgto kpg" yj g"uvt we wtcn"r tqr gt vkgu"qh" yj g"hkz cvkqp"eqpuvt we w0' Kp" cf f kkqp." cp" qr vkecn" vtcenkpi "u{uvgo "*Ur kecvgm" J ckmv." J K" WUC+" y km" dg" wkrkt gf " vq" f gvgto kpg" f ghrge vkqp"cmpi "vj g"hkz cvkqp"eqpuvt we v'f wt kpi "mcf/" vq/hcknvtg0

VGUVIPI 'CRRCTCVWIK'Vj g"ecpvkrgxgt"dgpf kpi " vguvu"y km'dg"r gthqto gf "wukpi "ewuvqo "enco r u"hqt"c" wpkczkcn'o cygtkcnu' yguvkpi "o cej kpg" *Kpuvtqp" O qf gn' 7; 82." P qty qqf ." O C ." WUC +" *Hki wtg" 3+"]33.34_0' Rtkqt"vq"vguvkpi."vj g"uvkhpguu"qh"vj g"ewuvqo "enco r u" y cu"cuuguugf "vq"gpuwtg"vj g"f ghrgevkqp"qh'vj g"enco r u" f wtkpi " y g" nqcf kpi " r tqvqeqn' y km' dg" pgi nki kdng" eqorctgf "vq "yg fghngevkqp qh" yg hkzcvkqp" eqpust vevu0' Vq" gpuwtg" o kpko cn' f ghrgevkqp" qh'' y g" encoru." y g" uvkhhpguu" qh" y g" encoru" o wuv" dg" crrtqzko cvgn{"w q"qtf gtu"qh"o ci pkwf g"i tgcvgt"vj cp" y g" uvkhipguu" qh" y g" o gweetr cn0' Vj g" gzr gevgf " uvkhipguu''qh''y g''o gweetr cn'hkzcvkqp''eqpuvtwev'ku''52/ 62" P lo o "]34_0' Hki wtg" 3C" f gr kewi" y g" qt ki kpcn" ewuvqo "enco r u"*Uvkhpguu"? "4; 50 P lo o +0'Hki wtg"3D" f gr kewi''y g''o qf khkgf "ewuvqo "enco r u''y kj "y g''ncti gt" dcug" dgmy " yj g" enco r 0' Vj g" o qf khkgf " enco r uø" uvkhhpguu" y cu" 337; 07" P lo o ." crrtqzko cvgn{" w q" qtf gtu" qh" o ci pkwf g" i tgcvgt" y cp" y g" hzcvkqp" eqpuxtwevu."o ggvkpi 'y g'kpkkcn'etkgtkc0



Hki wt g'' 3<' C+" Qtki kpcn' erco r u'' wugf " hqt" ecpvkrgxgt "dgpf kpi 0'D+" O qf khkgf "erco r u'' wugf " hqt"ecpvkrgxgt "dgpf kpi 0'Vj g''o qf khkgf "e{nkpf tkecn'' dcug'ku''uj qy p''y kj ''y g''drcem'cttqy u0

UVTWEVWTCN'' RTQRGTVKGU' QH' KPVCEV" O GVCECTRCN<' Rtkqt" vq" vguvkpi " cp{" hkzcvkqp" eqpuvtwevu." cp" kpvcev' o gvcectr cn' y cu" vguvgf " vq" f gvgto kpg" y g"uvtwewtcn'r tqr gtvkgu"qh' y g"ucy dqpg"



f ghngevkqp." y ky "7" dgcfu" cwcej gf" vq" dqy " y g" ucy dqpg" cpf 'r rcvg0

Hi wt g'4<Ewuvqo "

r gthqto "ecpwrgxgt"

wukpi "c"o cvgtkcnu"

vguvkpi "o cej kpg0

enco r u'wugf "vq"

dgpf kpi "vguvu"

RTGNKO KP CT ['VGUVU'Y KVJ 'HKZ CVKQP EQPUVTWEVU/Chygt'\guvkpi "cp'kpvcev'o gvcectr cn" w q"rtgnko kpct{" vguvu" y gtg" r gthqto gf " vukpi " c" 8" uetgy "cpf "6"uetgy "eqputive v0'C "o kf uj chv't cpuxgtug" htcewstg"y cu"etgcvgf "wukpi "cp"quekmcvkpi "ucy 0'Gcej " ucy dqpg"y cu"r rcvgf "y ky "c"8/j qrg"pqprqenkpi "r rcvg" *4050 0 " Utt { mgt " Rtqh{ mg" Rrcvg." Mcmco c| qq." O K" WUC+0' Chugt" htcewitg" htzcikqp." 309eo " qh" y g" r tqzko cn'gpf "y cu''y gp"r qwgf "wukpi "Dqpf q"*50." O kppgcr qrku."O P ."WUC +"kpvq"qwt "ewuvqo "drqemi'hqt" ecpvkrgxgt/dgpf kpi "]34_0'C "vqvcn'qh'32"y j kg"qr vkecn' vtcemkpi "dgcfu"y gtg"cwcej gf "vq" vj g"ucy dqpg/r ncvg" eqputivev" hqt" qr vkecn" vtcembpi " qh" y g" eqputivev"

Vj g" o gvcectr cnu" y gtg" vj gp" o qwpvgf " kp" ewuvqo "

enco r u"cpf "ecpvkrgxgt "dgpf kpi "vguvu"y gtg"eqpf wevgf "

wukpi "c"o cvgtkcnu" vguvkpi "o cej kpg" *Kpuvtqp" O qf gn"

f gygto kpgf 0

o gvcectr ch'ku''cp''qtf gt''qh''o ci pkwf g''j ki j gt ''y cp''y g'' gzr gevgf "uvkhhpguu" qh" yj g" o gvcectr cn' hkzcvkqp" eqput wev**52/62P to o +"]34_0J qy gxgt."y g f ghrgevkqp"qh"yj g"o gweetr cn"y cu"uko krct"vq"xcnwgu" tgr qt vgf " kp" r tgx kq wu" uwwf kgu"]33.34_0' Qxgtcm" yj g" r tcevkeg" vguv" y cu" uveeguuhivn' cpf " y g" uvt vevvtcn' r tqr gtvkgu" qh" y g" kpvcev" ucy dqpg" o gvcectr cn" y gtg"

nqcf gf "wukpi "yj g"r tqvqeqn'f guetkdgf "gctnkgt0 Vjg" uvkhlipguu" qh" yg" kpvcev' o gvcectrcn' ycu" f gvgto kpgf "vq"dg"36602"P lo o ."y j kng"yj g"o czko wo " f ghrgevkqp" y cu" 30 o o 0' Vj g"uvkhpguu" qh' y g" kpvcev"

o gycectr cn "cu"y gm'cu"r tceyleg "y g"qxgtcm'r tqyqeqn0' Wukpi "Dqpf q"*50."O kppgcr qnku."O P. "WUC+"309eo " qh"yjg"rtqzko cn"gpf "qh"yjg"ogvcectrcn'y cu"rqwgf " kpvq" qwt" ewuvqo " enco r u" hqt" ecpvkrgxgt/dgpf kpi " *Hki wtg"4+"]34_0'Hkxg"y j kg"qr vkecn'vtcemkpi "dgcf u" y gtg" cwcej gf " cmpi " y g" o gweetr ch' wq" wteem' f ghrgevlqp0' Vj g" o gvcectr cn' y cu'' y gp" o qwpvgf " kp" ewuvqo "enco r u"cpf "ecpvkrgxgt"dgpf kpi "vguvu" y gtg" rgthqtogf0'C"7P"rtgnqcf"ycu"crrnkgf"vq"yg" o gweetr cn' 804eo " cy c{ " htqo " y g" r tqzko cn' gpf "]34.37_0' Vj g" o gvcectr cn' y cu'' y gp" r tgeqpf kkqpgf " htqo "7/37P "hqt" 32" e{engu" cv' 42" o o lo kp0' Chygt" rtgeqpfkkqpkpi." yjg" o gvcectrcn' y cu" e{enkecm{"

> Qxgtcm" yj g" rtcevkeg" cpf " rtgrko kpct{" vguvkpi " r tqxkf gf "xcnxcdrg"kphqto cvkqp"cdqw'r tqdrgo u''y ky " y g"kpkkcn"gzrgtko gpvcn"fguki p"cpf"rtqvqeqn0'Kp"y g" hww.tg."o qtg"r tgrko kpct { "vgu.kpi "y km'dg"eqpf wevgf " y ky "cp"wrf cygf "gzr gtko gpycn'f guki p"cpf "rtqyqeqn" ur gekhkecm{ "uvkhhgt "r qvkpi "o cvgt kcn'y km'dg" wkhk gf " vq" o kpko k g" ku" ko r cev" qp" y g" o gcuwtgo gpv' qh" o gycectr cn'f ghrgeykqp0 CEMPQY NGFI GO GPVUK' Uwrrqtv'htqo ''y g Wpkxgtukv{" qh" Rkvudwtij" F gr ct vo gpv' qh" Dkqgpi kpggtkpi ." Uy cpuqp" Uej qqn" qh" Gpi kpggtkpi ."

cpf " y g" F gr ct vo gpv" qh" Qt y qr cgf ke" Uwti gt { " ku" i tcyphym{ "cempqy ngf i gf 0

TGHGTGPEGU<]3_'Qqvgu'gv'cn0J cpf "*P "[+'42340']4_"Mctn'gv'cn0'LQV0'42370']5_"Hktqq| dcmj uj "gv'cn0' LJ U0'3; ; 80']6_"J grhgv'gv'cr0'IDLU0'42250']7_"Dgtmgu" gv"cn0'ETOO0'42350']8_"Dctt"gv"cn0'J cpf "*P"[+0' 42350']9_''J cm'gv'cn0'LQV0'42320']: _''Vqtpmkkuv'gv'cn0' LQV0'3; ; 80']; _"Chuj ct" gv" cn0'LJ U*G+0'42330']32_" Qej o cp" gv" cn0' LJ U0' 42320']33_" Uqj p" gv" cn0' LJ U0' 422: 0']34_" Vcppgpdcwo " gv' cn0' LJ U0' 42390']35_" Rqy gm[']gv[']cn⁰[']LJ U^{*}G+0[']42260[']]36_"Uttlemcpf 0[']LJ V0[']]37_'F cj n'gv'cn0LJ U042340 42270

Vcdrg'3<'T guwnu''qh''w q''r tgrko kpct { ''vguvu'' r gthqto gf 'y ky '6'cpf '8'pqp/memkpi 'dkeqt kecn

uvkhpguu"qh"y g"enco r u"ctg" y q"qtf gtu"qh"o ci pkwf g"

i tgcvgt"y cp"y g"ukhhpguu'f gygto kpgf "hqt"y g"6"cpf "8"

uetgy "o gvcectr cn'hlzcvkqp" eqput wevu." o ggvkpi "yjg"

rtgxkqwun{" ugv' etkwgtkc0' J qy gxgt." kv' y cu'' cnuq"

f gvgto kpgf "htqo "r tgrko kpct { "vguvu" y cv' y g" r qvkpi "

o cvgtkcn'o c{"pqv'dg"uvkth'gpqvi j "hqt" vj g" nqcf kpi "

rtqvqeqn" y gtghqtg" eqpvtkdwkpi "vq" y g" qxgtcm"

eqpuvt wev' f ghrgevkqp0' Cu'' c'' tguwnv." y g'' o czko wo "

f ghrgevlqpu"qh" y g"6" cpf "8" uetgy "eqpust wevu" y gtg"

o wej "ncti gt" y cp" y qug" tgr qt vgf "r tgx kq wun{ "]33.34_0"

F^u**KUE**^{gy} **WU**^p**UKQP** < **H**tqo 'y g''y q'r tgrko kpct { 'yguvu. 'y g''

%qh	Uvkhpguu	Oczło wo	Winko cvg		
Uet gy u	*P 10 0 +	F ghgevkqp	Dgpf kpi		
		*0 0 +	Nqcf '*P+		
6	6209	; 07	3690		
8	8909	602	47806		

nqcf '\q'hcknwtg']34.'37_0 Htqo "yjg" w q"rtgnko kpct {"vguvu"rgthqto gf."yjg"8" uetgy "eqpust wev'f go qpust cvgf "c"j ki j gt "uvkhhpguu"cpf " wnko cvg"dgpf kpi "nqcf "y cp"y g"6"uetgy "eqpust wev0"Kp" cffkkqp." y g" 6" uetgy " eqputtwev' f go qputcvgf " c" ncti gt"o czko wo "f ghrgevkąp"ego r ctgf "vg"yj g'8"uetgy " eqputvev0'J qy gxgt."y g"f ghrgevkqpu"qdugtxgf "y gtg" j ki j gt"vj cp"vj qug"tgr qtvgf "kp"vj g"rkvgtcwtg" 33.34 0

7; 82."P qty qqf."O C."WUC+"*Hki wtg"3+"]33.34_0Vj g" o gweetr cni'y gtg"vguvgf "dqyj "kp"e{erke"mcf kpi "cpf"

Dkqo cvgt kcn'T gr ckt 'qh'vj g'T cv'Uwr t cur kpcvwu'Vgpf qp'Gpvj guku

Ecy gt/pg'C0Uo kj³=I gtcnf 'C0Hgttgt³=Iq⁻q'Pqxctgwk⁴=Dgplco kp'D0Tqy tcwht⁴=Tqem{ 'Vwcp⁴='Xqmgt'' O wucj n^{4.3}='Tkej ctf 'G0F gdunk^{3.4}

³F gr ct vo gpv'qh'Dkqgpi kpggtkpi '('⁴F gr ct vo gpv'qh'Qt yj qr cgf ke 'Uwti gt {. 'Wpkxgtukx{ ''qh'Rkwudwti j. ''Rkwudwti j. '' RC. ''Wpkxgf ''Uvcygu

KPVTQFWEVKQP<' Tqvcvqt"ewhh'kplwtkgu"ctg"c j ki j n{ "r tgxcrgpv"cpf "uki pkhecpv"enkpkecn"r tqdrgo "kp" y g"i gpgtcn'r qr wncwqp0' Vj qwi j "uwti kecn't gr ckt" qh' uo cm' vgctu" j cu" dggp" uj qy p" vq" dg" enkpkecm{" uweeguuhwn" y gtg"ku"wr "vq"c"; 6' "tg/vgct"tcvg" y ky " ncti gt"vgctu"]3_0J ki j "tg/vgct"tcvgu"o c{ "dg"c"tguwn/"qh" yj g"r qqt"kppcvg"j gcrkpi "ecr cekv{ "qh"yj g"tqvcvqt"ewhh" gpy guku"]4_." Ewttgpv" o gy qf u" qh" cwi o gpvkpi " j gcnkpi " cv' yj g" gpyj guku" kpenwf g" cmqi tchu." gz vtc/ egmwrct "o cvtkz"*GEO +. "r rcvgrgv"tkej "r rcuo c"*RTR+." itqy y " heevqtu" cpf " uvgo " egmu"]5_0' Ugxgtcn" dkqo cvgtkcnu" j cxg" dggp" kpxguvki cvgf " vq" cuuguu" yj g" uvt we w t c n'r t q r gt kgu'kp'j gc npi "t c v't q v c v q t "e whu'y ky " r tqo kukpi "tguwnu."kpenwf kpi "dqpg"o cttqy "f gtkxgf" uvgo "egmu" *O UEu+" vtcpuf vegf "y ky "uengtczku." cpf " hkdtqdrcuv" i tqy y "hcevqt" H H/4+"]6.7_0' J qy gxgt." y g'kf gcn'dkqo cvgtkcn'qt "eqo dkpcvkqp" qh'dkqo cvgtkcnu" vq"cwi o gpv"j gcrkpi "qh"tqvcvqt"ewhh"tgr ckt"uwti gt { "ku" wpnpqy p0'Vj g"qdlgevkxg"qh"yj ku"uwwf { "y cu"vq"cuuguu" y g"ghigevu"qh'f khigt gpv'dkqo cvgt kcnu"*hkdt kp. "I grOC." CFUEu"cpf "VI H +"cmpg"cpf "kp"eqo dkpcvkqp"qp"y g" vgpukng"r tqr gtvkgu"qhij gcnkpi 'tcv'tqvcvqt"ewhivgpfqpu0' **O GVJ QFU** 'Qpg"j wpf tgf "cpf "w gpv{/pkpg"htguj /" htq| gp"tcv"j wo gtk"y gtg"gxcnwcvgf "hqmqy kpi "c"hwm y kempguu" vtcpugevkqp" qh" y g" uwr tcur kpcwu" cpf" kphtcur kpcwul'vgpf qpul'chvgt "6"y ggmu''qh''j gcrkpi 0'Vj g" : " vtgcvo gpv" i tqwr u" hqt" y g" tqvcvqt" ewhh" kplwtkgu" kpenwf gf < pq" tgr ckt." tgr ckt" qpn{." hkdtkp." I grO C." hkdtkp" - " cf kr qug" f gtkxgf " uvgo " egmu" *CF UEu+." I grOC"- "CFUEu."hkdtkp"- "CFUEu"- "VI H ."cpf" I grOC"- "CFUEu"- "VI H 0'Vj g"gki j v"i tqwr u"y gtg" hwtyj gt"f kxkf gf "kpvq" w q" uwd/i tqwr u"qh"3+"Cewwg<" vgctu" etgcvgf " cpf " ko o gf kcvgn{" tgr cktgf " y kj " 6" y ggmu" qh" j gcrkpi " cpf " 4+" Ej tqpke<" vgpf qpu" y gtg" kplgevgf " y ky " dqwrkpwo " vqzkp" vq" kpf weg" hcw{" f gi gpgtcvkqp." vgct" etgcvgf." : " y ggmu" qh" eci gf " cevkxkv{."tgr ckt."cpf "6"y ggmu"qh"j gcrkpi "]8_0

Gcej "ur gelo gp"y cu"y cy gf "cv"tqqo "vgo r gtcwtg" cpf " y g" j wo gtcn" j gcf " y cu" egtenci gf " vq" r tgxgpv" j wo gtcn"j gcf "cxwnlqp0"Uwr tcur lpcwul"vgpf qpu"y gtg" ngr v" j {ftcvgf " y kj " r j {ulqnqi le" ucnlpg" uqnwlqp." i tkr r gf " wulpi " ewurqo " enco r u" cpf " o qwpvgf " lp" c" o cvgt kcni" vguvlpi " o cej lpg" *Kpurtqp." O qf gn" 7; 87." P qty qqf." O C. "WUC+" gs wkr r gf " y kj " c" 72P " mcf " egm0'Vj g"gzr gtko gpvcn'r tqvqeqn'eqpukuvgf "qh"c"204P " rtgnqcf." rtgeqpf kkqpkpi " dgw ggp" 204/3P " hqt" 32" e{ergu." cpf " c" mcf/vq/hcknvtg" vguv0' Cm' vguvu" y gtg" r gthqto gf "cv"cp" gnqpi cvkqp" tcvg" qh" 70 o lo kp0'Vj g" uvtwewtch' rtqrgtvkgu'' *wnko cvg'' nqcf.'' wnko cvg'' grapi cvkqp." uvkhipguu" cpf "gpgti {" cduqtr vkqp" vq" hcknwtg+"y gtg"f gwgto kpgf "htqo "y g"mcf/gmpi cwqp" ewtxg0'C "ej k/us wctg" vguv" y cu"r gthqto gf "vq" gxcnwc vg" y g"ghigev'qh'y g"dkqo cvgtkcni"qp"y g"hcknwtg"o qf g0C" w q/vckrgf " kpf gr gpf gpv" v/vguv" y cu" r gthqto gf " vq" eqo r ctg"ej tqpke"cpf "cewg"vgct"i tqwr u"*eqo dkpkpi " cml' vtgcvo gpv" i tqwr u" vqi gyj gt+" qp" gcej " uvtwewstcn" r tqr gtv{0' C" qpg/y c{" CP QXC" y ky " c" r quvj qe" Dqphgttqpk"vguv"y cu"r gthqto gf "vq"cuuguu"y g"ghhgev" qh"yj g"f khigt gpv"vt gcvo gpv"i tqwr u"qp"gcej "uvt wewt cn" 20270 r tqr gtv{0'Uki pkhecpeg''y cu'ugv'cv'r '>" TGUWNVUK' Vj g" o quv" eqo o qp" hcknwtg" o qf gu" co qpi "cm'i tqwru" y gtg" gkj gt" cv' y g" gpy guku" qt" o kf uwduvcpeg0'Vtgcvo gpvu"kpxqnxkpi "I grO C"hckrgf" cv'y g"gpy guku'cv'c"j ki j gt h gs wgpe { "y cp"vtgcvo gpvu" kpxqnxkpi "hkdtkp"*r ">"2027+0'Vtgcvo gpv'i tqwru"y cv" wknk gf "I gnOC"j cf "c"hcknwtg"tcvg"cv'vj g"gpvj guku"qh" 6504' "yjkng" i tqwr u" wukpi "hkdtkp" hckngf "cv" yjg" gpy guku''qpn{ "4506' "qh''y g''vko g0'P q''kpvcev''eqpvtqnu" hckrgf "cv'y g"gpy guku0'Y j gp"eqo dkpkpi "cm't gcvo gpv" i tqwru" vqi gyj gt." ej tqpke" vgctu" j cf "uki pkhkecpvn{" nyy gt"wn ko cvg"n cf "*48' +"cpf "gpgti { "cduqtr vkqp"vq" hcknwtg"*58' +"eqo r ctgf "vq" cewg" vgctu" *r ">"2027+0' P q"f khigtgpeg"dgw ggp"vtgcvo gpv"i tqwr u"y cu"hqwpf" hqt"wnko cvg"nqcf."wnko cvg"gnqpi cvkqp."uvkhpguu"qt" gpgti {"cduqtr vkqp"vq"hcknvtg"*r "@'2027+0'J qy gxgt." kpvcev"eqpvtqnu"y gtg"hqwpf "vq"j cxg"c"uki pkhecpvn(" i tgcvgt "wnko cvg"nqcf "cpf "uvkhipguu" y cp"cm'vtgcvo gpv" i tqwr u0 Whylo cvg"mqcf "hqt"kpvcev'eqpvtqnu'y gtg"46: '" i tgcvgt"y cp"y g"vtgcvo gpv"i tqwr u"hqt"ej tqpke"vgctu" "Hki wtg" 3+0' Uko krctn{." uvkhipguu" hqt" kpvcev" eqpvtqnu" y gtg"7; 9' "i tgcvgt" y cp" y g" tgcvo gpv'i tqwr u"hqt" ej tqpke"vgctu"*Hki wtg"4+0'P q"f khhgtgpeg"y cu"hqwpf" dgw ggp"y g"vtgcvo gpv'i tqwr u"cpf "kpvcev"eqpvtqnu"hqt" wnko cvg" grqpi cvkqp" cpf " gpgti {" cduqtr vkqp" vq" hcknwtg0



Hi wtg'3<'Whilo cvg'Nqcf 'hqt"cm'vtgcvo gpv" i tqwr u'y kj 'ej tqpke'vgctu0', 'Eqpvtqn'i tqwr " uki pkhlecpvn{ 'i tgcvgt''y cp''cm'vtgcvo gpv'' i tqwr u'*r '>'2027+0



Hki wt g'4<'U\khipguu'hqt"cm'\tgcvo gpv'i tqwr u" y kyi "ej tqpke'\gctu0', "Eqp\tqn'i tqwr " uki pkhecp\n{ 'i tgc\gt"\yi cp"cm'\tgcvo gpv'i tqwr u" *r '>'2027+0

F KUE WUUKQP <' Vj g'hkpf kpi 'ý cv'I grO C "ecwugu ý g" vgpf qpu" vq" hckri cv" ý g" gpyj guku" o quv" qhvgp" kpf kecvgu" ý cv" uqo g" dkqo cvgt kcnu" o ki j v" dgvgt" uvtgpi ý gp" ý g" gpyj guku" ý cp" qý gtu."kg."hkdt kp" o c{" uvtgpi ý gp" ý g" gpyj guku" dgvgt" ý cp" I grO C0' Eqpukuvgpv'y kj "r tgx kqwu"uwwf kgu."ý g"'ej tqp ke"vgctu"

y gtg"y gcngt"y cp"cewg"vgctu"kp"vgto u"qh"j cxkpi "c" ny gt"wnko cvg"ncf."uwr r qtvkpi "y g"xchf kv{ "qh"y g" tcv'o qf gn'wugf "]8.9_0'Vj g'tguwnu''uj qy "pq''uvcvkuvkecn' f khigtgpeg" dgw ggp" y g" vtgcvo gpv' i tqwr u" hqt" cm' uvt we wt cn'r tqr gt vlgu. "kpf kec vlxg 'vj cv'vj g"dlqo cvgt lcnu" wugf "ctg"cdrg"vq"tguvqtg"vj g"ukvg"qh"kplwt { "vq"c"uko krct" f gi tgg0'F khigtgpegu"dgw ggp"vj ku"uwf { "cpf "qvj gtu" o c{"dg"cwtkdwgf "vq"y g"ur geko gp"r tgr ctcvkqp."vguv" ugwr." j gcrkpi " vko g" cpf " kplwt { " o qf grl" wugf 0' Hqt" gzco r ng. 'uwti kecn'tgr ckt 'qh'c' 'w q/vgpf qp''ewhh'vgct 'kp'' c" tcv' cpf " uvdlgevkxg" f grkpgcvkqp" qh' y g" j gcrkpi " uwr tcur kpcwu" cpf " kphtcur kpcwu" vgpf qp " o c{" kpvtqf weg" xctkcdkrkv{ " kp" yj g" tguwnu" qh' uvtwewtcn' rtqrgtvkgu" qh" yjg" jgcnkpi "eqorngz0' Fgurkvg" xctkcdkrkv{ "kp"yj g"tguwnu."r tgxkqwu'uwvf kgu'yj cv'wugf "c" ej tqpke"o cuukxg"ewhi'vgct"tcv'o qf gn'cpf "kpxguvki cvgf" y g"uxt we wat ch'r tar gt wgu" qh'' y g"j gchpi "ta wat "ewhh" cnuq"hqwpf "rcti g"xctkcdkrkv{ "cpf "j cf "uko krct"hkpf kpi u"]8.9_0'Vj gtghqtg."vq"ko r tqxg"wr qp"vj g"ewttgpv'uwf {." hwwtg" uwf kgu" y km' kpxguki cvg" y g" o gej cpkecn' r tqr gtvkgu"qh'vj g"vgpf qpu'vq"dgwgt "cuuguu"vj g"s wcrkv{" qh" y g" j gcrkpi " vkuuvg0' Ukpeg" y g" ewttgpv' cpko cn' o qf gn'o c{ "dg"vqq"uo cm'vq"f gygev"f khigt gpegu"hqt"c" ej tqpke"o cuukxg"ewhi'vgct."hwwtg"y qtm'y km'cnuq"wug" c"rcti gt"cpko cn'o qf gn"*g0 0'uj ggr +"vq"kpetgcug" y g" nkngnkj qqf" qh" f gygevkpi "f khigt gpegu" dgw ggp" vtgcvo gpvu0

UN PIHKE CPEG Vj g"dkqo cvgtkcnu"eqpukf gtgf "kp" y ku" uvwf { "ctg" gs wcm{ "xkcdng" qr vkqpu" vq" cwi o gpv" vgpf qp" j gcnkpi ." y qwi j " hkdtkp" uvtgpi y gpgf " y g" gpyj guku"o qtg"y cp"I gnO C0

 TGHGTGPEGU<']3_"I crcy "gv'cn0'IDIL0'4226"]4_"</td>

 Cpi grkpg"("Tqf gq0Erkp"Ur qtui'O gf 0'4234"4236"]5_"

 O qpvi qo gt { "gv'cn0'Ewtt"Tgx"O wwe"O gf 0'4233"]6_"

 I wrqwc"gv'cn0'CILO 0'4233"]7_"Kf g"gv'cn0'ILGU0'422; "

]8_'Mkrtkcp"gv'cn0'CILO 0'4237"]9_'Mkrtkcp"gv'cn0'ILQT0'

 CEMPQY NGFI GO GP VU<' Uwr r qtv'htqo 'vj g</td>

 Wpkxgtuk{" qh" Rkwudwti j "Uy cpuqp" Uej qqn" qh"

Gpi kpggtkpi ." F gr ct vo gpv' qh' Dkqgpi kpggtkpi ." F gr ct vo gpv' qh' Qt y qr cgf ke" Uwti gt { ." cpf " P UH" Hgmqy uj kr " I tcpv' P q0' 3469: 64" ku" i tcvghwm{" cempqy ngf i gf 0

Qt kgp vc vkqp 'qh'P qp/T geqxgt cdng'Uvt ckp 'kp 'tj g'Ingpqj wogt chEcruwng'F qgu'P qv'E j cpig' Hqnqy kpi 'Ownkrng'F kunqec vkqp

Dgplco kp'Tqcf cto gn^{3.'5}. "Vguw{ c'Vcngpci c^{3.'4}. 'O cucj kq'[quj kf c^{3.'4}. 'Ecnklp'C0Ej cp^{3.'4}

Xqmgt 'O wucj n34."5. 'T kej ctf 'GOF gdunk3."4."5. 'Cndgt v'Nkp3."4

3'Qtyj qr cgf ke'Tqdqvkeu'Ncdqtcvqt {.'Wpkxgtukv{ "qhi'Rkvudvti j.'Rkvudvti j.'RC'WUC='4'F gr ctvo gpv'qh'

Qtyj qr cgf ke"Uwti gt {. "Wpkxgtukv{ "qh'Rkvudwti j. "Rkvudwti j. "RC"WUC=5"F gr ct vo gpv"qh"Dkqgpi kpggt kpi."

Wpkxgtukv{ ''qh'Rkvudwti j .''Rkvudwti j .''RC ''WUC

i gpgtcm{ "vj g"htuv"ej qkeg"hqt"uwti gt{ "vq"vtgcv"cpvgtkqt" uj qwrf gt" kpuvcdkrkv{"]3_" j qy gxgt." Dcprrctv" tgr ckt" uvkm"hcknu"vq"rtgxgpv"tgqeewttgpeg"kp"wr "vq"44' "qh" r cvkgpvu"]4_0' Kp" cf f kvkqp" vq" Dcpmctv" mgukqpu." vj g" ecr uwrg" gzr gtkgpegu" pqp/tgeqxgtcdrg" uvtckp" chygt" uwdnwzcykąp" qt"f kungecykąp" qh"yj g"i ngpąj wo gteniląkov"]5_0' Ecr uwret "r nkecwlqp" ecp" dg" r gthqto gf "f wtkpi " cty tqueqr ke "Dcpmctv"tgr ckt "vq"tgf weg "y g"xqnwo g"qh" y g" i ngpqj wo gtch' ecr uwng" cpf " j grr " f getgcug" y g" ej cpeg" qh' tgqeewttkpi " uj qwrf gt" kpuvcdkrkv{0' J qy gxgt."r nkecvkqp"ku"i gpgtcm{ "r tghqto gf "dcugf "qp" y g"uwti gqpøu"gzr gtkgpeg"y kj "rkwg"kphqto cvkqp"qp" y g"qr vko cn'f ktgevkqp"hqt "r nkecvkqp0'Vj g"qdlgevkxg"qh" y ku" uwuf { " ku" vq" f gygto kpg" y g" f ktgevkqp" qh" pqp/" tgeqxgtcdng" uvtckp" kp" gcej " tgi kqp" qh" y g" i ngpqj wo gtcnlecr uwng"chygt"o wnkr ng"f kungecvkqpu0 OGVJQFUK' Gki j vhtguj /htq| gp"ecf cxgtke uj qwrf gtu"*ci g"tcpi g"6; /7; "{tu+"y gtg"f kuugevgf "htgg" qh"cm"uqhv" vkuuwg "gzegr v" y g"i ngpqj wo gtcn"ecr uwrg0' C"9"z"33"i tkf "qh'uxtckp"o ctmgtu"y cu"chhkzgf "vq"y g" cpvgtkqt" cpf" rquvgtkqt" dcpf" qh" yjg" kphgtkqt" i ngpqj wo gtch' nki co gpv'' *KI J N+." cpf " yj g" czkmct {" r qwej 0' Vj g" r qukkkqp" qh' yj g" o ctngtu" y j kng" yj g" ecr uwrg"y cu"kphrcygf "y ky "o kpko cn'r tguuwtg"ugtxgf " cu" y g" tghgtgpeg" uvcvg0' Vj g" j wo gtwu" cpf " uecr wrc" y gtg"y gp"o qwpygf "kp"c"8"f gi tgg"qh"htggf qo "tqdqyke" vguvkpi "u{uvgo 0'Cv'82"f gi tggu"qh"cdf wevkqp"cpf "82" f gi tggu" qh" gz vgtpcn' tqvcvkqp" qh' vj g" i ngpqj wo gtcn' lqkpv." cp" cpvgtkqt" rqcf " y cu" cr r rkgf " vq" tgcej " cp" cpvgtkqt"vtcpurcvkqp"qh"qpg"j chi"vj g"o czko wo "CR" y kf yj "qh'yj g''i ngpqkf "r nxu''32"o o 0'Vj ku''f ghkpkkqp"qh'' f kungecvkqp"tguwngf "kp"pqp/tgeqxgtcdrg"uvtckp"cpf "c" tgr tqf weldng"Dcpnctv"ngulqp0'Hqnrqy kpi "3."4."5."6."7" cpf " 32" f kunqecvkqpu." yj g" r qukskqpu" qh" yj g" uvtckp" o ctngtu" y gtg" ci ckp" tgeqtf gf " y kj " y g" ecr uwrg" kphrcvgf 0'Vj g'f khigtgpeg'kp''y gug'r qukvkqpu'eqo r ctgf " vq"yjg"tghgtgpeg"uvcvg"fghkpgf"yjg"pqp/tgeqxgtcdng" uvtckp."tgrtgugpvgf "d{"vjg"oczkowo"rtkpekrcn'uvtckp" ecnewncvgf " wukpi " CDCS WU' *CDCS WUIECG" Uwf gpv'Xgtukqp'806="Uko wrkc.'Rtqxkf gpeg'TK0 Cp{" o czko wo " r tkpekr ng" uvtckp" xgevqtu" y kj " c" o ci pkwf g"rguu"y cp"5' "y gtg"tgo qxgf "htqo "hwty gt"

KP VTQF WE VKQP < Ctyj tqueqr ke "Dcpmctv'tgr ckt "ku"

cpcn{ uku" cu" yj cv' ku" yj g" tgr gcvcdkrkv{ " qh" yj g" gpvktg" r tqeguu'']6_0'Vj g''kphgtkqt''i ngpqj wo gtch'ecr uwng''y cu'' f kxkf gf "kpvq" cp" cpvgtkqt" cpf "r quvgtkqt" tgi kqp" d{" wukpi 'y g'eqnwo p''qh'o ctngtu'r ncegf ''cv'y g'8''qøenqem' r qukkqp"qh"yj g"i ngpqkf 0'C"4/F"r tqlgevkqp"qh"gcej" cpvgtkqt"cpf "r quvgtkqt"uvtckp"o cr "y cu"vj gp"i gpgtcvgf " d{" qtkgpvkpi " yj g" o qf gn' vq" o ko ke" yj g" xkgy " qh' c" uwti gqp" r tghqto kpi " Ctyj tqueqr ke" Dcpmctv" tgr ckt0' Vj g" cpi ng" qh" f gxkcvkqp" dgw ggp" gcej " qh" yj g" o czko wo "r tkpekr ng'uvtckp"xgevqtu"cpf "vj g'CD/K J N" qt"RD/KI J N"hqt"y g"cpvgtkqt"cpf "r quvgtkqt"tgi kqpu" qh" y g"ecr uwrg" tgur gevkxgn{."y gtg" o gcuwtgf "wukpi " Ko ci gL" uqhiy ctg" *P cvkqpcn' Kpuvkwyg" qh' J gcnj." Dgy guf c." O F." WUC +0' Vj g"ecr uwng" y cu" ur rkv" kpvq" hqwt"uwd/tgi kqpu."yj g"cpvgtkqt"dcpf "qh"K J N"*CD+." cpvgtkqt" czkmct{" r qwej " *CC+," r quvgtkqt" czkmct{" r qwej "*RC+,"cpf "y g"r quygtkqt"dcpf "qh"K J N"*RD+0" Ektewret" uvevkuvkeu" eqo r etgf " y g" f ktgevkqp" qh' y g" o czko wo "rtkpekrch' utckp" dgw ggp" i tqwru" cpf" f kungecvkqpu0'Vq"dg"kpenwf gf "kp"c"uvcvkuvkecn'vguv." y g" uwd/tgi kqp"o wuv'j cxg"cv'ngcuv'hkxg"cpi wrct "xcnwgu"cu" y gm/cu/dg/pqp/wpkhqto "cpf "hqmqy "c"Xqp"O kugu" f kuvt kdwk ap0'Tc { mgki j øu"vguv"cpf "Mwkr gtøu"vguv"y gtg" wugf " vq" f gygto kpg" pqp/wpkhqto kv{ " cpf " pqto crkv{ ." tgur gevkxgn{0C"Y cvuqp/Y kmkco u"vguv'y cu'y gp"vugf" vq" f gvgev" f khigt gpegu" kp" vj g" o gcp" cpi ng" dgw ggp" f kungecvkgpu." uwd/tgi kqpu." cpf " ur geko gpu0' Uki pkhkecpeg"y cu'ugv'vq"r '>"20270'R/xcnwgu"htqo "vj g" Y cwqp/Y km/co u"vguv"y gtg"eqttgevgf "hqt"o wn/kr ng" eqo r ctkuqpu'wukpi ''y g'hcnug'f kueqxgt { 'tcvg''o gy qf 0' **TGUWNVU**KF ktgevkqp"qh"o czko wo "r tkpekr cn'uvtckp" y cu" uko krct" chigt" cm' f kurqecikqpu" y kj kp" gcej " ur geko gp" *Hki "3+0' Vjg" o gcp" cpi ngu" qh" c" tgrtgugpvcvkxg" ur geko gp" hqt" y g" cpvgtkqt" czkmct{" r qwej "uwd/tgi kqp"y gtg"gs wcn'vq"38."49."4; ."42."49." cpf "57"f gi tggu"hqt "y g"htuv."ugeqpf ."y ktf ."hqwty ." hkhyj." cpf "vgpyj "fkungecvkqp." tgur gevkxgn{0' Vj gug" o gcpu'f kf "pqv'uki pkhkecpvn{ "f khhgt "*r "@2027+"cpf "yj ku" tguwn/'y cu''v{r kecn'' kp'' 97' "qh'' y g'' eqo r ct kuqpu'' gzco kpgf 0' J qy gxgt." y g" o gcp" cpi ngu" y gtg" uki pkhkecpvn{" f khhgtgpv' y j gp" eqo r ctkpi " dgw ggp" uwd/tgi kqpu" y ky kp" c" ur geko gp" cu" y gm' cu" y j gp" eqo r ctkpi "dgw ggp" ur geko gpu0' Vj g" o gcp" cpi ngu"

Hi wt g'' 40' C+" Ektewart" r mv' uj qy kpi " cpi rg" f kutkdwkqp"cpf "o gcp"cpi mu"qh"pqp/tgeqxgtcdm" uvtckp" hqt" Cpvgtkqt" Dcpf" *us wctg+." Cpvgtkqt" Czkmct{"Rqwej "*f kco qpf+"cpf "Rquvgtkqt"Dcpf" *ekterg+"uvd/tgi kqpu"qh"ur geko gp"6"chvgt"vj g"hktuv" fkungecvkqp0' D+" Ektewact" r mqv" uj qy kpi " cpi mg" f kuxtkdwkqp" cpf " o gcp" cpi ngu" hqt" y g" cpygtkqt" czkmct { "r qwej "tgi kqp"hqt"gcej "ur geko gp0'F cvc" r qkpul"tgr tgugpv"f kutkdwkqp"qp"gcej "ekterg"hqt"c" ur geko gp."ur geko gp'8"cpf ": "ctg"pqv"kpenwf gf "f wg" vq''memiqhif cvc0

90° 90° 0º180 1800 270°

270°

qh"y g"kphgtkqt"i ngpqj vo gtch'ecr uwng"hqt"c"v(r kech" ur geko gp"chygt"y g"C+"hktuv."D+"hkty ."cpf "E+"vgpy " f kurgecvkgp0'CD/KI J N"*Cpvgtkgt "Dcpf "gh"Kohgtkgt" i ngpqj wo gtcn'hi co gpv+'C'*Cpvgtkqt+'R'*Rquvgtkqt+' I '*I ngpqkf+'J '*J wo gtcn+



Hi wt g'30'Ht kpi g"r mw"qh"f ktgevkqp"qh'o czko wo "

r tkpekr cn'uvtckp" i gpgtcvgf "hqt" vj g" cpvgtkqt" tgi kqp"

eqo r ctkuqpu'gzco kpgf 'kp'dqyj 'ecugu0

38: ." : 7."cpf '354"f gi tggu'*Hki '4/D+0Dqvj eqo r ctkuqpu'y gtg'uki pkhecpvn{ "f khigtgpv"*r '>'2027+." y j kej "y cu" v{r kecn' qh" o qtg" y cp" 92' " qh"

htqo "y tgg"uwd/tgi kqpu"qh"c"tgr tgugpvcvkxg"ur geko gp" y j gtg"gs wcn'vq": ."38: ."cpf "344"f gi tggu"*Hki "4/C+." y j krg" y g" o gcp" cpi rgu" hqt" y g" cpvgtkqt" czkrrct {" r qwej "htqo "ukz "ur geko gpu"y cu"gs wcn'vq "95."49."3: ."

FKUEWUUKQP<' Vj g'f ktgevkqp''qh'o czko wo rtkpekrmg"pqp/tgeqxgtcdmg"uvtckp"tgo ckpu"vj g"uco g" chyst" o wnkr ng" f kunqecykqpu" o gcpkpi " y cv' c" r cykgpv' gzr gtkgpegf "tgqeewttgpeg" j cu" j cxkpi " pqv" uki pkhkecpvn{" cnvgtgf " yj g" qr vko cn' fktgevkqp" hqt" r nkecvkqp0' J qy gxgt." uki pkhkecpv' f khhgtgpegu'' gzkuv' dgw ggp" y g" f khigt gpv" uwd/tgi kqpu" uwi i guvkpi " y cv" pqv" qpn{" uj qwf " vj g" czkmct { " r qwej " tgi kqpu" dg" r nlecvgf."dww"gcej "tgi kqp"o c{"j cxg"vq"dg"cfftguugf" ugr ctcvgn{0'O cp{"uki pkhecpv"f khigtgpegu"y gtg"cnug" hqwpf "dgw ggp"ur geko gpu"o gcpkpi "vj cv"f gvgto kpkpi " y g" qr vko cn' f ktgevkqp" hqt" ecr uwrct" r nkecvkqp" o c{" tgs wktg"kpf kxkf workt gf "tgr ckt0"Vj ku"noti g"xotkowgp"ku" eqpukuvgpv''y ky "c"r tgxkqwu"uwf { "f qpg"vq "f gvgto kpg" pqp/tgeqxgtcdmg"uvtckp"kp"yj g"i mppqj wo gtch'ecr uwng" hqnrqy kpi "uwdnwz cykqp"]5_0'Kp" y g"hwwtg."kpf kxkf wcn" r ctco gvgtu" vj cv" o c{" chhgev" vj g" f ktgevkqp" qh" pqp/" tgeqxgtcdng" uvtckp" uj qwrf " dg" f gvgto kpgf " cpf " c" enkpkecn' gxcnwcykqp" y cv'ecp" dg" r gthqto gf " yq" j gm " enkplekcpu" fgygto kpg" y g" qr vko cn" fktgevkqp" hqt" ecr uwret 'r nlecylap 'uj qwrf 'dg'f gxgrqr gf 0

UK PKHKECPEG Vi g''qr vko cn'f ktgevkqp''hqt i ngpqj wo gtch'ecr uwrct"r nlecvkqp"hqt"c"r cvkgpv"f qgu" pqv' ej cpi g'' f wg'' vq'' tg/f kungecvkqp0' J qy gxgt." vj g'' qrvkocn" fktgevkqp" y km' fkhigt" itgcvn{" dgw ggp" r cvkgpvu"cpf "y ký "vý g"cpvgtkqt"cpf "r quvgtkqt"tgi kqpu" qh" y g" ecr uwrg" tgs wkt kpi " c" o qtg" kpf kx kf wcrkt gf " uwti gt $\{0$

TGHGTGPEGUK

13 "Cp'IUGU'4238 14 "Dguukgtg'EQTT'4236]5 "O cnłem{ "LDG"4223]6_"O qqtg'IQT'422:

Fguli p'qh'cp'Gnlqy 'Vgulqpi 'Crrctcwul'q'Uko wncwg'Hngzkqp'kp'Xct{kpi 'Fgitggu'qh' Uj qwnfgt'Cdfwevkqp

Ico gu'I qtgphrq.'Iqj p'Hqy rgt.'CL'Drcentdwtp.'Tqdgtv'Mcwho cpp.'Tkej ctf 'G0F gdunk Qtyj qr cgf ke'Tqdqvkeu'Ncdqtcvqt {.'F gr ctvo gpv'qh'Dkqgpi kpggtkpi .'Wpkxgtukv{ ''qh'Rkwudwti j .'RC.''WUC

Kovt qf wevlqp<'*Kp/xkt q*" lqkpv''uko wrcvqtu" j cxg" dggp" fgxgnqrgf" kp" qtfgt" vq" tgrtqfweg" yjg" cevkxg" mkpgo cvkeu" cpf " f { pco ke" mcf u" qh" y g" wr r gt " cpf " ny gt" gz t go kkgu0' Vj g" uko wrc kqp" qh" ce kx g" lqkpv" o qvkqp" ku" wughwn' vq" gxcnvcvg" uwti kecn'r tqegf wtgu." kortqxg" tgjcd" rtqvqeqnu" cpf "vq" hvtyjgt" vjg" wpf gtuvcpf kpi " qh" r j {ukqmji kecn' o qxgo gpv0' Y kyj " tgur gev"vq"yj g"gndqy "lqkpv."ugxgtcn"uwxf kgu"cntgcf {" tgrkcdn{" tgrtqf wegf " cevkxg" hrgzkqp0' Rtgxkqwu" nkystcwstg"j cu"o ckpn{ "hqewugf "qp" y g"xctwu." xcni wu" cpf " xgt kech' mcf kpi " ghigewi" qp" yj g" gndqy " lqkpv0' J qy gxgt."y gtg"j cxg"dggp"pq"uwf kgu"qh"y g"gndqy " lqkpv" y j kng" cnuq" cdf wevkpi " y g" uj qwrf gt0' Vj g" dkqo gej cpkeu"qh"y g"gndqy "ctg"cnygtgf "y j gp"tqycygf " yj tqwi j "uj qwaf gt "cdf wevkqp "fwg "vq "fkhhgt gpv" qtkgpvcvkqpu" qh" i tcxkxcvkqpcn' hqteg0' Vj gtghqtg." vj g" f {pco ke"mcf kpi "tgs wktgf "vq"r tqf weg"gndqy "hrgz kqp" y km' ej cpi g'' cu'' yj g'' uj qwrf gt'' r tqi tguugu'' yj tqwi j '' f khigt gpv'r qukkqpu0' Vj g'Uj qwrf gt 'Vguvkpi Crrctcwu"Tgxkukqp"KX"*UVCT"KX+"y cu"qtki kpcm{" dwkn/'vq''uko wrcvg''lqkpv'mkpgo cvkeu''qh''yj g''uj qwrf gt''dwi'' pqy "k/"j cu"y g"cdktkv{ "vq"vguv"y g"tkpgo cvkeu"qh"y g" mpgg" lqkpv0' Wkrk kpi " ukz" cewcvqtu" cpf " c" r wmg{" u{uvgo ." y g" UVCT" KX" ku" ecr cdrg" qh" f { pco kecm{" eqpytqmkpi "ecdngu" yj cv' ctg" cwcej gf " vq" o wueng" vgpf qpu"qh" vj g"uj qwrf gt "qt "mpgg"lqkpv0'Y ky "uqo g" o qf khkecvkqpu." kv" ku" r quukdng" vq" wug" yi ku" f gxkeg" vq" uko wncvg" xct { kpi "f gi tggu" qh" uj qwnf gt "r qukkqpu" y j krg" cevkxgn{" hrgz kpi " y g" grdqy " lqkpv0' Vj g" qdlgevkxg"qh'yj ku'r tqlgev'ku'vq'f guki p"cp"crrctcwu'vq" cmy "uko wrcwlap" qh"o wueng" hategu" cdaw' y g"gnday " cpf "f gygto kpg"tgs wktgf "hqteg"r ctco gygtu"vq"ugtxg"cu" kpr w0

F guli p'' Et lægt lc <' Vj g" ewttgpv' UVCT" KX" j cu" c" o qwpvkpi 'u{uvgo 'vj cv'ecp'hkz"cpf 'tqvcvg"yj g"j wo gtwu" vq" uko wrcvg" uj qwrf gt" cdf wevkqp" *Hki wtg" 3+0' Ukz" cewcvqtu" y km'dg" wugf "vq" f {pco kecm{ "eqpvtqn" yj g" dkegr u." dtcej kcnku." dtcej kqtcf kcnku." vtkegr u." hrgzqt" r tqpcvqt" o cuu." cpf " yj g" gz vgpuqt" vgpf qpu0' Vj g" o wuengu" htqo " yj g" hrgzqt" r tqpcvqt" o cuu" cpf " yj g" gz vgpuqt"vgpf qpu"y km'gcej "dg"vtgcvgf "cu"qpg"i tqwr " ukpeg"cm'qhi'yj g"o wuengu"qtki kpcvg"htqo "yj g" o gf kcn" cpf " ncvgtcn" gr keqpf {ng" tgur gevksgn{0' Ewuvqo kj gf" r kgegu"o wuv'dg"tki kf n{ "hkzgf "qpvq"yj g"o qwpv'cpf "dg" ecr cdng" qh" uj qwrf gt" cdf wevkqp0' Kp" cff kkqp" vq" o ckpvckpkpi " vj g" r tqr gt " f ktgevkqpu." vj g" eqttgev" eqpvtkdwkqpu"qh"gcej "o wueng"o wuv"dg"eqpukf gtgf "vq" ceewtcvgn{ 'tgr tqf weg"cevkxg"hngzkqp0' Vj g eqphki wtcvkqp"qh" vj g" crki po gpv"cpf "r wng{ "u{ uvgo " o wuv" pqv" eqpuvtckp" vj g" o qvkqp" qh" vj g" gndqy 0' Kp" cf f kkqp." vj g" wr r gt "gz vtgo kx{ "uj qwrf "pqv"j cxg"cp{ " gz vgtpcn¹hqtegu"qt"vqts wgu"cevkpi "qp"kv'vq"r tgxgpv'cp{ " wpf guktgf "uvtguu"qt"o qvkqp"kp"vj g"cto 0



Hi wt g'3<Grdqy "Hıgzkqp'y kın'qeewt''cdqwi'y g"{/" czku''cpf 'y g'f gxkeg'y kın'tqvcvg''cdqwi'y g''z/czku''vq uko wrcvg''uj qwrf gt''cdf wevkqp0

HlpcnF guli p<Vj g"cni po gpv'u{uvgo "eqpukuvu"qh'y g" wr r gt" cpf " my gt" crki po gpv" r wng{" u{uvgo u0' Cm" rctwu" ctg" o cfg" u{o o gwtkecm{" y j kej " i tcpwu" y g" cdkrkv{ "vq" wug" c" tki j v" qt" rghv" cto "kp" yj g" vguvkpi " u{uvgo 0'Kp"yj g"wr r gt"crki po gpv"u{uvgo ."hqwt"dcug" r novgu" otg" dqnvgf " kpvq" yj g" e{nkpf tkeon' o qwpv' yj ov' j cxg"j qrgu"kp"vj g"ukf g"hqt"r wrg{"tqf u"cpf "j qrgu"kp" y g"vqr "hqt"y g"cvcej o gpv"qh"y g"nqy gt"cnki po gpv" u{uvgo 0' Vj g" eqpecxg" uj cr g" qh" vj g" dcug" r ncvgu" etgcvgu" c" tki kf " uvtwewvtg" y j gp" o cvgf " y ky " y g" e{nkpf tkecn'j wo gtwu'o qwpv0'Vj gp."yj g"vki j vgpkpi "qh" j gz" pwu" qp" y g" r wng{" tqf u" r tqxkf gu" cff kkapcn" enco r kpi " hqteg" hqt" gz vtc" tki kf kv{0' Vj ku" r wng{" eqphki wtcvkqp" cmqy u" hqt" y g" pcttqy kpi " qh" ecdngu" vqy ctf u''y g''j wo gtwu0'Ki'cnuq 'r gto ku''y g''cf lwuvo gpv'' qh" yj g" gndqy " yj tqwi j " uj qwrf gt" cdf wevkqp" y j kng" rtgugtxkpi "yjg"hkpgu"qh"cevkqp"qh"gcej "owueng0



Hki wt g'4<C+"Wr r gt 'Crki po gpv'U{ uvgo "ÁDcug" Rrcvgu0 D+'Nqy gt 'Crki po gpv'U{ uvgo "ÁGz vgpukqp" Dtcengvu0

Vj g" ny gt" crki po gpv" u{uvgo "ku" eqo r qugf "qh" w q" gz vgpukqp" dtcengwu" cpf " o wnkr rg" g{ gdqnu" uetgy gf " kpvq" yj g" dqpg" vq" o ckpvckp" r j {ukqmj kecn' rkpgu" qh" cevkqp0' Vj g" gz vgpukqp" dtcengvu" ctg" ugewtgf " kp" dgw ggp" yj g" w q" dcug" r ncvgu" qp" yj g" cpvgtkqt" cpf " r quvgtkqt" ukf gu" qh' yj g" grdqy ." y j kej "eqttgur qpf u" vq" yj g" ecdngu" eqppgevgf " vq" yj g" Dkegr u" cpf " Vtkegr u" vgpf qp" tgur gevkzgn{0' Umvu" ewv' kpvq" yj g" gz vgpukqp" dtcengv'cmy "hqt" yj g" ji wo gtwu0' Vj ku" ecp" ceeqwpv' hqt" cp{ "kpvgtur geko gp" f khigtgpegu" kp" yj g" ukj g" qh' yj g" j wo gtwu" yj cv' y qwrf "cngt" yj g" nkpg" qh" cevkqp" qh'' y g" dkegr u"qt" vtkegr u0'Vj gtg" y km'dg" g{ gdqnu" ncegf "kpvq" y g" qtki kpu" qh" yj g" dtcej kcrku." dtcej kqtcf kcrku." gz vgpuqt" vgpf qpu."cpf "hrgzqt" tqpcvqt" o cuu0



Hii wtg'5<Rtqvqv{rg'qh'Gndqy " Vguvkpi 'Crrctcwu

Rt qwqv{ r g<'Vq"vguv''y g"f guki p"dghqtg"hcdtkecvkqp."c" ucy dqpgu" o qf gn' qh" yj g" gndqy " y cu" r qwgf " wukpi "

dqpfq"cpf"hzgf"kpvq"yjg"e{nkpftkecn'oqwpv0'Hqwt" r wng{"dtcengw"tgr tgugpv"y g"wr r gt"cnki po gpv"cpf" y g"ny gt"cnki po gpv"ku"tgr tgugpvgf "d{ "w q"g{ gdqnu" ugewtgf " cpvgtkqtn{ " cpf " r quvgtkqtn{ " kp" yj g" r qvkpi " o cvgtkcn0'Vj ktv{/r qwpf "hkuj kpi "nkpg"ku"wugf "vq"o ko ke" y g" uvckprguu/uvggn' ecdrg" cpf " wugf " vq" cewcvg" y g" grdqy 0' Vj g" ecdrg" y km' dg" eqcvgf " kp" p{mp" vq" o kpko k g"htkevkqp0'Cffkkqpcn'g{gdqnu''ctg"kpugtvgf" kpvq"yj g"kpugtvkqp"ukvgu"qh"yj g"dkegr u."dtcej kcnku."cpf" dtcej kqtcf kcnku"vq"ugewtg"vj g"hkuj kpi "nkpg"vq"vj g"cto 0' Vj ku" y km" uko wrcvg" vj g" cwcej o gpv" vq" gcej " vgpf qp" cpf "tcpukkqp"kpvq"yj g"ecdrg0'Qpeg"yj g"ecdrgu"ctg" rtqrgtn{ "eqppgevgf." y g"cewcvqtu" y km'f { pco kecm{" eqpvtqn'y g'hqteg''qp''gcej ''ecdrg''wukpi ''NcdXKGY \hat{I} 0 O wueng'' Nqcf lpi <' Ceeqtf kpi " vq" yj g" hkpf kpi u" qh" F wppkpi " gv' cn0']3_." y g" o wueng" nqcf kpi " y cu" f gvgto kpgf "wukpi "Gngevtqo {qi tcrj {"*GOI +"]4_"cpf " rj {ukqmqi kecn'etquu/ugevkqpcn'ctgc"]5_"*rEUC+"fcvc0' Vj gug" o wueng" hqtegu" ctg" f ktgevgf " cmpi " c" r cy " r qkpvkpi 'htqo ''y g''kpugtvkqp''ukvg''vq''y g''qtki kp0

Vcdng'3<Nqcf kpi "Hcevqtu'liqt"Grdqy 'kp"P gwtcn" Rqukkqp"cv"; 2Å'Hngzkqp0*DK? "Dkegr u. "DTC"?" Dtcej kcnku. "DTF"? "Dtcej kqtcf kcnku."HRO "? "Hngzqt" Rtqpcvqt"O cuu. "GV"? 'Gzvgpuqt"Vgpf qpu+

O werg	DK	DTC	DTF	VTK	HRO	GV
O wneng" Eqpvt kdwykqp" * 'Vqycn' Nqcf +	5505	5;04	33œ	3805	Z	Z
Nqcf 'Hcevqt	5022	5075	3022	3069	Z	Z
Nqcf 'Xcnvg" *P+	6305	6: 08	3509	4204	52	52

Ui plłłecpeg<'Y kj "o { "f guki p"cpf "r tqvqv{r g. "Kj cxg" f go qpuvtcvgf " yj g" cdktx{ " vq" hrgz " yj g" grdqy " kp" f kłłgtgpv' cpi rgu" qh"uj qwrf gt" cdf wevkqp0' Wukpi " yj ku" cr r ctcwu'y kn'gpcdrg' yj g"ej ctcevgtk cvkqp" qh'o wuerg" eqpvtkdwkqp" vq" yj g"f { pco ke"uvcdktx{ "qh'yj g"grdqy 0' Vj gp" qpeg" yj g"kpf kxkf wcn'o wuerg" eqpvtkdwkqpu" ctg" mpqy p." yj g" rki co gpvqwu" eqpvtkdwkqp" vq" uvcvke" uvcdktx{ " ecp" dg" f gygto kpgf 0' Hwty gto qtg." yj g" f kłłgtgpv' v{r gu" qh' uwti kecn'' r tqegf wtgu'' cpf " yj gkt" głłgev' qp"uvcdktk{ "ecp" dg" kpxguvki cvgf "kp" xkstq"r tkqt" vq'yj gkt "wug"kp"erkpkecn'cr r rkecvkqpu0

Tghgt gpegu<']3_"F wppkpi "gv'cn'/L0'Dkqo gej 0'4223=" 56.'325; /326: 0]4_'Hwpm'gv'cn/L0Qtvj qr 0'Tgu0'3; : 9= 7.''74; /75: 0']5_''Co ku"gv'cn'/Gpi 0'O gf 0'3; 9; =": .''63/ 6: 0

F gxgnpr o gpv'qh'c 'O CVNCD'Kpvgt hceg'Wukpi 'cp'Grgevt qo ci pgvke'Vt cemlpi 'U{ uvgo 'hqt 'vj g'' Dkgo gej cplecnCpcn uku'qh'Vkdkqhgo qt cnMkpgo cvleu

Lqugr j 'I tgcxgu. 'Ecnxkp'Ej cp. 'Xqmgt'O wucj n'Tkej ctf 'F gdunk F gr ct vo gpv'qh'Dkqgpi kpggtkpi .'Wpkxgtukv{ "qh'Rkvudwti j .'Rkvudwti j .'RC.'Wpkgf 'Ucvgu0F gr ct vo gpv'qh' Qtyj qr cgf ke "Uwti gt {. "Wpkxgtukv{ "qh"Rkvudwti j. "Rkvudwti j. "RC. "Wpkygf "Uvcvgu0

Kovt qf wevkqp<"Y kf g"xctkgvkgu"qh"enkpkecn"gzco u"ctg" wugf "vq"gxcnwcvg"mpgg"lqkpv"kplwtkgu0'O quv'qh"yj gug" gzco u'kpxqnxg''c''enkplekcp''crrn{kpi 'xctkqwu'hqtegu'\q'' y g"mpgg"cpf "i tcf kpi "y g"mpgg"r qukkxg"qt"pgi cvkxg" hqt" kplwt {0' Vj g" uwdlgevkxg" pcwtg" qh" yj g" enkplecn" gzco u'cpf "j ki j 'xctkcdkkkv{ ''dgw ggp"enkpkekcpu'r tqxg'' vq"dg"r tqdrgo cvle0'Vj wu."c"pggf "gz kuvu"vq"gx cnvcvg" enkplecn' gzco u'' s wcpvkxcvkxgn{" d{" cpcn{| kpi " yj g" 8" f gi tggu"qh"htggf qo "*F QH+"o qvkqp"qh"y g"mpgg"lqkpv" kp" qtf gt" vq" qdvckp" cp" ceewtcvg" qdlgevkxg" o gcuwtgo gpv'qp''ecf cxgt ''ur geko gpu0

Ewttgpvn{." cp" gngevtqo ci pgvke" vtcemkpi " u{uvgo " *Rqnj go wu" HCUVTCMÌ. "Eqnej guvgt." Xgto qpv+" ku" wugf "vq"s wcpvkh{ "mpgg"o qvkqp"f wtkpi "vj g"r kxqv'uj khv" gzco 0' Vj g" ewttgpv' uqhwy ctg" tgeqtf u" y g" cpvgtkqt" vtcpurcvkqp"qh"yj g"rcvgtcn"mpgg"eqo r ctvo gpv"cu"y gm" cu"yj g"8"FQH"mkpgo cvkeu"qh"yj g"vkdkc"tgncvkxg"vq"yj g" hgo wt0'HCUVTCMI "j cu"ceewtcekgu"qh"20 o o "cpf" 2037 'f gi tggu0'Vj g''uco r nkpi 'tcvg''ku''tgr qtvgf ''vq''dg'82'' J | 0'J qy gxgt."y g"uqhy ctg"wugf "vq"eqngev'y g"f cvc" j cu"r tqxgp"vq"dg"gz vtgo gn{"kpghhgevkxg0'KV'tgs vktgu" y g" wug" qh" 5" ugr ctcvg" r tqi tco u" vq" eqmgev" y g" pgeguuct { "f cvc0'Vj ku"j cu"ngf "vq"c"vgf kqwu"r tqvqeqn" cpf "o go qt { "etcuj gu0'Vj g"qdlgevkxg"qh"yj ku"r tqlgev" y cu"vq"f gxgrqr "c"ukpi rg"O C VNCD"I WK y cv"ecp" eqmgev" y g" vkdkqhgo qtcn" mkpgo cvkeu" qh" y g" mpgg" f wtkpi ''y g''r kxqv''uj khv'gzco ''wukpi ''y g''HCUVTCMI 0

F guli p'Eqput clput Vj g'o clp'eqput clpv'ku'y cv'y g'' eqphki wtcvkqp" qh" yj g" u{uvgo " ugwkpi u." yj g" f cvc" eqmgevkqp." cpf " y g" f cvc" cpcn{uku" o wuv' cm' dg" r gthqto gf "y tqwi j "O CVNCD" *O cy y qtmu." 4237d"

Qpeg"ucvkuhkgf "y ky "y g"ceewtce{"qh"y g"uv{nwu."y g" wugt "pggf u"vq"f ki kkk g"vj g"mpgg"kp"qtf gt "vq"ugv"wr "c" eqqtf kpcvg"u{uvgo "vq"cpcn{| g"yj g"mpgg"mkpgo cvkeu0' Vj g" eqqtf kpcvg" u{uvgo " ku" etgcvgf " d{ " f ki kkk kpi " ur gekhke"dqp{"ncpf o ctmu"yj cv"etgcvg"cpcvqo kecn"czgu" hqt" y g" vkdkc" cpf " y g" hgo wt0' Ugpuqtu" ctg" wugf " vq" tgeqtf "y g"f {pco ke"f cvc"f wtkpi "y g"r gthqto cpeg"qh" y g'enkplecn'gzco u0Vj g'ugwkpi u'hqt'y g'ugpuqtu'o wuv' dg"eqphi wtgf "dghqtg"f cvc"ecp"dg"eqngevgf 0

C"uvcvke"upcruj qv"o wuv"dg"eqmgevgf "kp"qtf gt"vq"i gv"

y g"kpkkcn'r qukkqp"qh"y g"dqp{ "rcpf o ctmu"*f ki kkt g"

r qkpu+"y ky "tgur gev"vq"y g"ugpuqtu0'Hkpcm{."f cvc"ku"

cpf "cevkxcvgu"yj g"uv{ nvu"ugvkpi u0"Vj g"uv{ nvu"ku"c"r gp/ rkng"f gxkeg"wugf "vq"etgcvg"f ki kcn'r qkpvu"kp"ur ceg0'C" uwd/" r tqi tco " y cu" etgcvgf " vq" f gvgto kpg" y cv' y g" uv{ nwu''y cu''qr gtcvkpi ''r tqr gtn{0

u{uvgo "cpf "O C VNCD0'Vj gp."vj g"u{uvgo "eqphi wtgu"



Hki wtg'3<'O cr "qh'Rtqi tco

tgcf { "vq"dg"eqngevgf "cpf "cpcn{ | gf 0 D{" enkemkpi " õkpkskcnk gö" qp" yj g" O C VNCD" I WK *Hki wtg"4+."c"eqppgevkqp"ku"guvcdrkuj gf "cpf "dqyj "yjg" ugwkpi u" hqt" yj g" uv{nwu" cpf " yj g" ugpuqtu" ctg" eqphki wtgf 0'Vj g"wugt "ecp" y gp"dgi kp"f ki kkk kpi "y g" mpgg"vq"ugv"wr "c"dqp{"eqqtf kpcvg"u{uvgo ."y j kej "ku" wugf "vq"cpcn{| g"mkpgo cvkeu0'Y j gp"vj g"wugt "ku"t gcf { " vq"eqngev"f cvc." yj g{"r tguu"õUvctv"F cvc06" Vj g" wugt" gpf u" yj g" f cvc" eqngevkqp" d{ "enkemkpi "õGpf "F cvc0ö" Vj g" f cvc" ku" tgcf { " vq" dg" cpcn{| gf " d{ " r tguukpi " õCpcn{| g"F cvc0;"Vj ku"i gpgtcvgu"i tcr j u"qh"r qukkqp" xgtugu" vko g" hqt" gcej " qh" y g" 8" F QH" cu" y gm' cu" vtcpurcvkqp"hqt" y g"rcvgtcn" npgg" eqo r ctvo gpv0' Vj g"

yjg" vkdkqhgo qtcn" mkpgo cvkeu" qh" yjg" mpgg0' Vjg" r tqvqeqn' ku" o wej " uj qtvgt" y j gp" eqo r ctgf " vq" qnf " u{uvgo 0

Vj g"hnqy ej ctv"qh"y g"r tqi tco "*Hki wtg"3+"uj qy u"y g"

tgs wktgf " cevkqpu" qh" yj g" r tqi tco 0' Vj g" hktuv" uvgr "

guvcdrkuj gu" eqo o wpkecvkqp" dgwy ggp" y g" vtcemkpi "

P cvkem "O C."WUC+0'Vj g"uco g"ceewtce{"y cv"gzkuvgf" y ky ''y g rtgxkqwu" u{uvgo " o wuv" dg" o ckpvckpgf 0' O go qt{" etcuj gu'o c{ "pqv'qeewt0F cvc"uj qwrf "dg"eqpvkpwqwun{ " ucxgf "chvgt "gcej "vtkch' vq"r tgxgpv'o go qt { "etcuj gu0' Ewttgpv'Fguli p<C''ukpi ng'OCVNCD'I WKy cu'wugf " vq"etgcvg"c"r tqi tco "yj cv"j cu"yj g"cdktkv{ "vq"cpcn{| g"

Hii wt g'4<P gy 'O CVNCD'I WK



F kæwukqp<' Vj g" r tqvqeqn' j cu'' dggp" uki pkhecpvn{" uj qtvgpgf "d{ 'f gx grqr kpi 'c''ukpi rg''r tqi tco ''vq''eqrrgev''

o go qt{"etcuj gu0

erkenkpi 'õUcxg'F cvcö'qp''y g'I WKO Uqo g''uvgr u''j cxg''dggp''vcmgp''vq''cf f tguu''y g''o go qt { etcuj gu0'C''o cvtkz''qh''| gtqgu''j cu''dggp''r tg/''cmqecvgf " vq''o koko k g''y g''co qwpv''qh''TCO "wugf "f vtkpi "f cvc" eqmgevkqp0' Vj ku'' o cmgu'' f cvc" eqmgevkqp'' hct" o qtg'' eqo r wcvkqpcm{" ghhekgpv0' Kp" cf f kkqp." f cvc" pq" nqpi gt " j cu" vq" dg'' ko r qtvgf " kpvq" O CVNCD" htqo " gz vgtpcn'uqvtegu. "y j kej "y cu''cpq y gt "rkmgn{" ecwug" qh''

f cvc" ecp" y gp" dg" uvqtgf " uchgn{ "hqt" hwwtg" wug" d{ "

cr r ngf "vq"lqkpvu"qyj gt "yj cp"yj g"mpgg

uco g"f cvc"hqt"gcej "qh"vj g"8"F QH"o qvkqpu"cpf "vj g" qwr wu" y gtg" vj g" uco g0' Hwt vj gt" vguvkpi " o c{" dg" pgeguuct { 'vq"eqphto 'vj ku"qdugt xcvkqp0 Kp" vj g" hwwtg." kv' y km' dg" gcukgt" vq" eqngev" mpgg" mkpgo cvke"f cvc"f wtkpi "enkplecn'gzco u'y kvj qw'j cxkpi " vq" y qtt { " cdqw" f cvc" nquu0' Vj ku" uqhvy ctg" ecp" dg"

mpgg" mkpgo cvkeu0' O go qt{" etcuj gu" uj qwf" dg" grko kpcvgf "dgecwug" f cvc" ku" eqmgevgf "f ktgevn{"kpvq" O C VNCD" tcyj gt" yj cp" dgkpi " ko r qtvgf " yj tqwi j " cpqyj gt" hkrg0' D{" uvdlgevkxg" qdugtxcvkqp." yj g" pgy " r tqi tco "ku" cu" ceewtcvg" cu" yj g" r tgxkqwu0' Dqyj " yj g" pgy "cpf "yj g"qnf "r tqi tco "y gtg" wugf "vq" eqmgev' yj g" uco g"f cvc" hqt"gcej "qh" yj g"8" F QH'o qvkqpu" cpf " yj g" yg" qwr wu" y gtg" yj g" uco g0' Hvtyj gt" vgukpi " o c{" dg"