Wplxgtulsv{ 'qh'Rlsvud Wt i j

QTVJ QRCGF Æ 'TQDQVÆU NCDQTCVQT[

4244''uWo o gt''Wpf gti tcf Wcvg cduvtcev''dqqmgv



Swanson School of Engineering





hqtgY ctf

Vj g"Qtý qr cgf ke"Tqdqvkeu"Ncdqtcvqt {"ku" ý g"Wpkxgtukv{"qh"Rkvudvti j øu" pgy n{"hqto gf" eqmcdqtcvkxg" ghtqtv" dgw ggp" ý g" F gr ctvo gpv" qh" Dkqgpi kpggtkpi " cpf " F gr ctvo gpv" qh" Qtý qr cgf ke"Uvti gt {0'Vj g"o kuukqp"qh" ý g"QTN"ku" ý g"r tgxgpvkqp"qh" f gi gpgtcvkxg"lqkpv" f kugcugu"d{"ko r tqxkpi "f kci pquvke."tgr ckt."cpf "tgj cdktkcvkqp"r tqegf vtgu"hqt"o vuewrqungrgvcn" kplvtkgu"wukpi "uvcvg/qh' ý g/ctv"tqdqvke"vgej pqmi {0'Vj g"QTN"'y qwf "rkng" vq"eqo o gpf "ý g" y qtm'qh'ý g"vpf gti tcf vcvg"uvvf gpvu"f vtkpi 'ý g"uvo o gt"qh'42440'Uvvf gpvu"o cf g"uki pkhlecpv" ko r cevu"kp" ý g"uvvf {"qh"uj qwf gt"cpf "grdqy "f gi gpgtcvkxg"lqkpv'f kugcugu0'Vj g"y qtm'qh"qwt" uvvf gpvu. 'y ký 'ý g'j gr "qh'qvt"o gpvqtu."eqpvtkdwgu'i tgcvn{"vq"y qtrf "qh'Qty qr cgf ke"Tgugctej " cpf "vq"cmi'r cvkgpvu'y j q"dgpghko

qWt 'tgco





Dgplco kp'Pgy gm Ercuu'qh'4245" Dkqgpi kpggtkpi " Wpkxgtukx{ "qh'Rkxudwti j



Cdli chiDqqm Ercuu''qh''4245'' Dkqgpi kpggtkpi '' Wpkxgtukk{ "qh'Rkwudwti j

wdrg'qh'eqpygpw

 30' Uwthreej'Ct gc'qhi'y g'I ngpqj wo gt chEcr uwg'Hqnqy kpi 'O wnkr ng'Cpvgt kqt "
 Rci g'7/8

 F knqec vkqpu'lp 'J ki j 'P qp/T geqxgt cdng'Uvt clp 'T gi kqpu'
 Rci g'7/8

 Cdki ckn'Dqqm "Mgkuj k'Vcmcdc. "Ugpg'Rqnco cnw.'Gj cd'P c| | cn 'Ucvquj k'Vcmgwej k"
 Xqmgt 'O wucj n 'T kej ctf 'G0F gdunk 'Cmlgt v'Nkp

 F gr ct vo gpv'qh'Dkqppi kpggt kpi "cpf 'F gr ct vo gpv'qh'Qt vj qr cgf ke 'Uwt i gt {
 Ki g'7/8

- 40' K gpvkh kpi 'kj g'Kphgt kqt 'I ngpqj wo gt cnNki co gpv'lp'5F 'O TKT geqpuxt wevkqpu
 Dgplco kp 'Y 0P gy gm'\ cej ct { 'L0J gto cp.'Gj cd'O 0P c| | cn 'Mgkij k'Vcmcdc." Rci g'9/: Xqmgt 'O wucj n 'Ej cp'J qpi 'O qqp.'Cndgtv'Nkp.'Tkej ctf 'G0F gdunk
 F gr ct vo gpv'qhDkqgpi kpggt pi .'F gr ct vo gpv'qhQt vj qr cgf ke 'Uwt i gt { .'F gr ct vo gpv'
 qhT cf kqnqi {
- 50' Dgj cxkqt 'qh'Kpvt co gf wnet { 'Uetgy 'Hkz cvkqp'kp'J wo gt Kepf 'Wipeg'hqt 'Vqven Gnlqy 'Ct vj t qr neuv{

Dgplco kp"Y 0P gy gm 'Gj cd'O 0P c| | cn"Nwng"V0O cwct. 'Tqdgtv'C0'Mcwho cpp. '**Rci g';** /**32**" Tkej ctf 'G0F gdunk *F gr ct w gpv'qhDkqgpi kpggt kpi "cpf "F gr ct w gpv'qhQt y qr c gf ke 'Uwt i gt f*

Uwthceg'Ctgc'qhivjg'I ngpqj wogtcnEcruwng'hqmqy kpi 'Ownkrng'Cpvgtkqt'Fkmqecvkqpu'kp'J ki j 'Pqp/" Tgeqxgtcdng'Uvtckp'Tgi kqpu

Cdki ckd'Dqqn³='Mgkuj k'Vcncdc⁴='Ugpg'Rqnco cnw³='Gj cd'P c| | cn⁴='Ucvquj k'Vcngwej k⁴='Xqmgt 'O wucj n^{3.4}='Cndgt v'Nkp⁴= Tkej ctf 'G0F gdunk^{3.4}

 ^{3}F gr ctvo gpv'qh'Dkqgpi kpggtkpi '(''^F gr ctvo gpv'qh'Qtyj qr cgf ke''Uwti gt {. ''Wpkxgtuks{ ''qh'Rkvudwti j. ''Rkvudwti j. ''Rkvudwti j. ''Rkvudwti j. ''Rkvudwti j. ''Rkvudwti j. '''Rkvudwti j. ''''

KP VT QF WE VKQP <'Vj g''i repqj vo gtch'lqkpv''ku''yj g'' o quv'eqo o qpn{ "f kungecvgf "lqkpv."tguvnkpi "kp"i tgcvgt" y cp": 2' " cpvgtkqt" f kungecvkqpu"]3_0' Cty tqueqr ke" Dcpmctv' tgr ckt " ku" y g" o quv' eqo o qp" uwti kecn' r tqegf wtg"vq"vtgcv"cpvgtkqt"f kurqecvkqpu."j qy gxgt."vj g" f kungecvkqp"tgqeewttgpeg"tcvg"ku"wr "vq"44' "]4_0'Vj g" i mpqi wo gtch'ecr uwp" gzr gtkgpegu" pqp/tgeqxgtcdmg" uckp"chyst"f kurgecykgp."kp"cf f kkgp"vg"Dcprrctv"rgukgpu"]5_0'Ecr uwret 'r nleevlqp"ecp"dg'f qpg'lqp"cf f kkqp"vq'y g" Dcpmctv'tgr ckt "vq"j grr "f getgcug"vj g"tgqeewttgpeg"tcvg" qhi'f kungecvkqpu''cpf ''uj qwrf gt 'kpuvcdkrkv{ 0J qy gxgt.''yj g'' r tqegf wtg"ku"dcugf "qp"yj g"uwti gqpøu"gzr gtkgpeg."cpf " y ký "o koko ch'kphyto cvkąp" gp"ý g" y ko ch'f ktgevkąp" gh" uwwtg"r mego gpv0'P qp/tgeqxgtcdrg"uvtckp"ecp"dg"c" o gcuwtg" qh' ecr uwrct" kplwt {." dw' y g" tgrcykqpuj kr " dgw ggp"utckp"cpf "utckg"ctgc"ku'wpmpqy p"hqmqy kpi " cpvgtkqt"f kurgecvkqpu0'Uvthceg"ctgc"ku'y g"s vcpvkv{ 'y cv' ku'o gcuwtcdng''kp''j wo cp''uwdlgevu0'Vj g''hktuv''qdlgevkxg'' qh" yi ku" uwuf { " ku" vq" xgt kh{ " o wnxkr ng" cni qt ky o u" vq" ecrewrcvg"uwthceg"ctgc"qh'y g'uj qwrf gt "ecr uwrg"wukpi "c" dcmqqp"o qf gr0Vj g"ugeqpf "qdlgevkxg"qh"vj ku"uwf { "ku" vq"f gygto kpg"y g"uwthceg"ctgc"qh"y g"i ngpqj wo gtcn" ecr uwrg"kp"tgi kqpu"yj cv'y gtg"r necvgf "dcugf "qp"j ki j " pqp/tgeqxgtcdrg"uvtckp"f wtkpi "tgr ckt"r tqegf wtgu"kp"c" ecf cxgtke"o qf gn0

DCNNQQP 'VGUVUC''dcmqqp''y cu''dmy p''wr ''vq''c'' ektewo higtgpeg" qhi 422" o o ." o ko kemkpi " cp" kpvcev' uj qwf gt 'ecr uwg0C '6'z '6'i tkf ''qh'o ctngtu'y gtg'f tcy p'' qp"y g"uwtheeg"qh"y g"dcmqqp0'Vj g"o ctngt "meevkqpu" y gtg"tgeqtf gf "cpf "vtcengf "wukpi "c"FOCU'9"O qvkqp" Ecr wtg" U{uygo " *Ur kec" Vgej pqmji {" Eqtr qtcvkqp." J ckmw."J KO'Vj g"f kuvcpegu"dgw ggp" y g"egpytqkf u"qh" y g"o ctngtu"y gtg"cnuq"o gcuwtgf "wukpi "ecnkr gtu0'Vj g" dcmqqp'y cu'y gp'dqy p'wr '\q'c'ektewo hgtgpeg'qh'432" o o ."o ko kemkpi "yj g"uj qwrf gt "ecr uwrg" y kj "7' "uvtckp0" Vj g" o ctmgt" mecvkqpu" y gtg" ci ckp" tgeqtf gf " cpf " stcengf."cu'y gm'cu'y g"f kucpegu'dgw ggp'y g"egpstqkf u" qh"y g"o ctngtu0'Vj g"uwtheg"ctgc"qh'dqy "eqpf kkqpu" y cu"ecrewrcygf "wukpi "CDCS WU"*CDCS WUIXkgy gt" Uwf gpv'Gf kkqp"4243="Uko wrkc."Rtqxkf gpeg"TK+"cpf" OCVNCD" *OCVNCD" ("Uko wrkpm! T4242d=" O cy Y qtml. 'O C. 'WUC+0Vj g'4F 'ctgc'y cu'ecrewrcvgf " htqo "o gcuwtgf "f kucpegu"wukpi "O CVNCD0Vj g"pqp/" tgeqxgtcdrg'utckp'y cu'ecrewrcygf 'wukpi 'CDCS WU0

Vj ku'r tqegf wtg''qh'drug kpi 'wr 'y g''dcmqqp''q''ecr uwrt" uk g'' cpf " ecrewrcykpi " uwthceg" ctgc" cpf " uwtckp" y cu" tgr gcvgf "c''ugeqpf "yko g."kp"cf f kkqp"vq"kpetgcukpi "y g" ektewo hgtgpeg" d{" 32" o o " gcej " yko g." o ko kenkpi " kpetgcukpi 'uwtckp"*7' '32' .'37' .'42' .'cpf '47' ± 0 **TGUWNVU**C' CDCS WU'' tguwngf " kp" c" 36" o o 4" f khigtgpeg" dgw ggp" y g" \pm kpycew' cpf" \div 7' ø'' uwcyu0' O C VNCD" cnq" tguwngf " kp" c" 36" o o 4" f khigtgpeg" dgw ggp"y g" \pm kpycew' cpf" \div 7' ø''uwcyu0' O C VNCD" cnq" tguwngf " kp" c" 36" o o 4" f khigtgpeg" dgw ggp"y g" \pm kpycew' cpf" \div 7' ø''uwcyu0'Wukpi "ecrkr gtu" hqt"c"4F "cr r tqzko cykqp."y g"f khigtgpeg"dgw ggp"y g" \pm kpycew' cpf" \div 7' ø'' uwcyu" y cu" 32" o o 40' Wukpi " CDCS WU."y g"pqp/tgeqxgtcdrg"uwtckp"y cu"cxgtci gf" y" dg" 802' 0'Cu"ektewo hgtgpeg" kpetgcugf "d{"320 o ." uwthceg"ctgc"cnnq"kpetgcugf ."cu'y gm'cu'tguwnkpi 'uwtckp" ***Vcdrg'3**+0

	UC 'Ecnewrcvgf "]o o ⁴ _	UC" Kpetgcug" * +	Cxgtci g" Utckp"* +
-:Kpvcevø	493		
÷7'ø	4: 5	606	60,
÷ 32' ø	4;;	3207	3302
÷ 37' ø	52:	3509	3608
÷ 42' ø	54;	4307	3: Ø
÷ 47' ø	572	4;04	4508

Vcdrg''3<"Uwtheeg"Ctgc"ej cpi gu"htqo "kpycev"yq"y g" kpetgcugf "uvcyg." kp" o o ⁴" cpf " r gtegpy" f khigtgpeg0' Cxgtci g'uvckp"ecrewrcygf 'hqt"gcej 'uvcyg0

F ILE WUURP <' Uwtheeg'' ctge'' y cu'' uko kret'' dgw ggp'' CDCS WU'epf 'O CVNCD."cpf "eqo r ctcdrg''q''y g''4F '' ctge'' hqwpf '' wukpi '' eerkr gtu0' Vj ku'' xgtkhgf '' y ev'' y g'' en qtkj o u'dgkpi ''wugf.'CDCS WU'epf 'O CVNCD."ecp'' eqttgevn{'' qwvr wv'' y g'' uwtheeg'' ctge'' qh'' y g'' uj qwf gt'' ecr uwrg0'Utckp''y cu'enq''y kj kp'tgr gevedktw{ "qh'5' '' qh'' y g''f guktgf ''utckp'']3_0'Cnq."cu''utckp''kpetgeugf."y g''' uwtheeg''etge''kpetgeugf ''hpgetn{0 ll k j ''pqp/tgeqxgtcdrg''' utckp''uj qwrf 'tguvn/kp'kpetgeugf ''uwtheeg''etge0

ECFCXGTHE'VGUVUCGki j vhrguj /hrq| gp"ecf cxgtke" uj qwrf gtu"y gtg"f kuugevgf ."ngcxkpi "qpn{"y g"uecr wc." j wo gtwu."i ngpqj wo gtcn'ecr uwrg."cpf "eqtceqcetqo kcn" cpf "eqtceqj wo gtcn'hki co gpw0C'9'z''33''i tkf "qh'uvtckp" o ctngtu"ctg"hkzgf "qpvq"y g"ecr uwrg0'Vj g"uj qwrf gtu"ctg" o qwpvgf "qpvq"y g"8'f gi tgg"qh'htggf qo "tqdqvke'vguvkpi " u{urgo "cpf ''99''o ctngtu"qp"y g"i ngpqj wo gtcn'ecr uwrg" ctg" vtcengf 0' Vj g" r qukkqp" qh' y g" uj qwrf gt" y kj " o kpko cn'r tguuwtg"kpugtvgf "y cv' cmqy u"hqt" y g"ngcuv" co qwpv" qh" o ctmgt" o qxgo gpv" y cu" wugf " cu" y g" tghgtgpeg" uvcvg0' Vj g" i ngpqj wo gtcn' lqkpv' y cu" y gp" f kungecvgf " cpvgtkqtn{" 7" vko gu" cpf " yj g" lqkpv" y cu" tgwtpgf "vg"vj g"tghgtgpeg"uvcvg"hqt"o ctngt"ngecvkqpu'vg" dg" vtcengf " ci ckp0' Vj g" eqqtf kpcvgu" htqo " o ctngt" stcenkpi "ctg"wugf "vq"f gvgto kpg"y g"pqp/tgeqxgtcdng" uvtckp"f kuvtkdwkqp"wukpi "CDCS WU0'Vj g"9"z"33"i tkf" ecp"dg"dtqngp"kpvq": "uwdtgi kqpu." y g"cpvgtkqt"dcpf "qh" K J N." yj g" cpygtkqt" czknct {" r qwej ." yj g" r quygtkqt" czknet { "r qwej ."cpf "vj g"r quvgtkqt "dcpf "qh"K J N."gcej " j cxkpi "i ngpqkf "cpf "j wo gtcn'tgi kqpu0'S wcpvkhecvkqp" qh'uvtckp''xcnwgu'hqt''gcej ''uwdtgi kqp''qh''y g''ecr uwrg''y cu'' eqmgevgf."cpf "y qug" y ky "j ki j gt" y cp" y g" cxgtci g" xcnwg"y gtg"r nlecvgf 0'Uwthceg"ctgc"qh"y qug"r nlecvgf " uvdtgi kqpu" y cu" hqwpf " wukpi " O C VNCD" cpf " CDCS WU'hqt 'dqy 'y g'kpvcev'cpf 'chygt '7'f kurqecvkqpu'

uvcvgu0 TGUWNVU/Uwthceg"ctgc"qh"r nlecvgf "uwdtgi kqpu"qh"y g" i ngpqj wo gtcn'ecr uwrg"tguwnu"kp"uqo g"kpetgcugu"cpf" uqo g"f getgcugu"y j gp"eqo r ctkpi "y g"kpvcev"cpf "chygt" 7" f kungecvkqp" uvcvgu0' Uwtliceg" ctgc" ku" eqo r ctgf" dgw ggp" y g" kpvcev" uvcvg" cpf " chygt " 7" f kurgecvkqpu0' *Vcdrg''4+0'Qwv"qh''42"tgi kqpu" y cv'y gtg"r necvgf ."9" f getgcugf " kp" uwthceg" ctgc" cpf " 35" kpetgcugf 0' Hkxg" f getgcugu"qeewttgf "kp"vj g"i ngpqkf "tgi kqp."v j kng"vy q" qeewttgf "kp" y g" j wo gtcn' tgi kqpu0'Y j gp" eqo r ctkpi " cpvgtkqt"xgtuwu"r quvgtkqt"f getgcugu."hkxg"qeewttgf "kp" y g"cpvgtkqtn{ "y j kng" w q"qeewttgf "r quvgtkqtn{ 0'Y j gp" eqo r ctkpi "y j gtg"kpetgcugu"qeewttgf."gki j v"y gtg"qp" y g'i ngpqkf 'ukf g'y j kng'hkxg'y gtg'qp'y g'j wo gtch'ukf g=" hkxg" qeewttgf " cpvgtkqtn{" cpf " gki j v' qeewttgf " r quygtkqtn{0

<u> </u>				
Vguv	Uwdtgi kqpu	Uttckp'₩ +	UC "ej cpi g"]o o 4 _	
3	CDI	: 05	/304	
	RCRI	804	706	
	RDJ	330,	320	
5	CDJ	70,	208	
	CCRI	706	/3405	
	RDI	706	80B	
8	CDI	903	/303	
	CCRI	702	308	
	CDJ	703	508	
7	RDI	50	304	
	RCRI	607	403	
	RDJ	50,	/: O2	
	RCRJ	905	3208	
;	RDI	608	408	
	CCRI	706	50,	
	CDI	705	/206	

	CCRJ	80,	207
32	RDI	804	/707
	RCRI "	; 0	: 03
	CDJ	804	/506

Vcdng'4<'Uwthceg''ctgc''qh'uwdtgi kqpu''y cv'y gtg'r necvgf "

dcugf "qp"j ki j "pqp/tgeqxgtcdrg"utckp0'Cpvgtkqt"dcpf"

qh" K J N" *CD+." cpygtkqt" czknct {" r qwej " *CCR+." r quygtkqt" czknct {" r qwej " *RCR+." r quygtkqt" dcpf " qh"

K J N"*RD+"i ngpqkf "*I +"j wo gtwu"*J +0

FKJEWUUKQP<'Y j gp"hkpf kpi "uwthceg" ctgc" qh' y g" i mgpqj wo gtch'ecr uwng"kp"j ki j "pqp/tgeqxgtcdng"uvtckp" ctgcu."ecrewrcvgf "uwthceg"ctgc"f kf "pqv'cny c{u'tguwn/kp" cp" kpetgcug0' Kp" ecugu" y j gtg" y g" uwthceg" ctgc" f getgcugf."j wo cp"gttqt"eqwrf "j cxg"qeewttgf "y j gp" kpugtvkpi "o kpko cn'r tguuwtg" kpvq" y g"ecr uwrg" qt" y g" f kuxtkdwkqp" qh' r tguuwtg" y cu" pqv' gxgp" cetquu" y g" ecr uwrg0' F wtkpi "c" uwr r ngo gpvcn' cpcn{ uku." f khngt gpv' cpi rgu"qh'y g'r tguuwtg"pq| | rg"cpf "y g"f gr y "qh'pq| | rg" kpugt kqp"j cf "cp"ghgev"qp"uwthceg"ctgc"ecnewrckqpu0' Vj ku"eqwrf "rgcf "vq"y tkprmgu"cpf lqt "hqrf u"y kj kp"y g" ecruwrg" cmqy kpi "hqt" kpeqttgev" ecrewrc wqpu0' Hwwtg" uwf kgu'y km'kpenwf g'o qtg"ecf cxgt "vguvu"cpf "eqo g"wr " y ky "c"tgrcvkqpuj kr "dgw ggp"uwthceg"ctgc"ej cpi gu"cpf " y g"co qwpv"qh"pqp/tgeqxgtcdrg"uvtclp0'Y kj kp"y qug" hwwtg'uwf kgu. "enkpkekcpu'uj qwrf "mggr "c"eqpuvcpv'cpi ng" cpf 'f gr y 'y j gp'kpugt kpi 'y g'r tguuwtg'pg || mg0

UK P KHKE CP EG<'Vj g"hkpf kpi u"qh'y g"dcmqqp" yuv" uj qy gf " y cv" CDCS WU" cpf " O C VNCD" eqwf " ceewt cyn{" r tqeguu" f cvc." cpf " cu" uvt ckp" kpet gcugf." uvthceg" ctgc" kpet gcugf " nkpgctn{0' J qy gxgt." kv" ku" tgeqo o gpf gf "vq"o ckp ckp"c"eqpuvc pv'r tguuwtg"pq| | ng" cpi ng"cpf "kpugt kqp"f gr y "f wt kpi "ecf cxgt ke" yguu."cpf " q" f qewo gpv" engctn{" y cv" cpi ng" cpf " f gr y 0' Kp" y g" hwwtg." y gug" hkpf kpi u" ecp" dg" wugf " vq" j gr " cuuguu" uvthceg" ctgc" f cvc" htqo " O T" cty tqi tco u" vq" nkpn" ecf cxgt ke"cpf "j wo cp"uwd lgev'f cx0 Kp" ctgcu'y j gtg"cp" kpet gcug" kp" uvthceg" ctgc "qeewtu."j ki j "pqp/tgeq xgt cdm" uvtchp" r tqdcdn{" qeewtu."cpf " uvti gqpu"uj qwf " r nkecvg" y gug" tgi kqpu'f wt kpi "tgr ck" r tqegf wtgu0

CEMPQY NGFI GO GPVU, Uwr qtv' htqo "yg" Wpkxgtukv{" qh' Rkwudwti j "Uy cpuqp" Uej qqn' qh' Gpi kpggtkpi ." F gr ctvo gpv' qh'' Dkqgpi kpggtkpi ." cpf " F gr ctvo gpv'' qh'' Qtyj qr cgf ke"Uwti gt {"ku" i tcvghwm{" cempqy ngf i gf 0

TGHGTGPEGUK

]3_"O qqtg'IQT''422:]4_"Dgulgtg'EQTT''4236]5_"O crlem('IDG''4223

K gpvlh(kpi 'tj g'Kphgt kqt 'I ngpqj wo gt crlNki co gpv'kp'5F 'O T KT geqpuvt wevkqpu

Dgplco kp"Y 0P gy gm^{3.5}. \ cej ct { 'L0J gto cp'O F ^{3.4}. 'Gj cd'O 0P c| | cn'O F ^{3.4}. 'Mgkuj k'Vcmcdc'O F ^{3.4}. 'Xqmgt 'O wucj n'O F ^{3.4.5}."

30' Qtyj qr cgf le 'Tqdqvleu' Ncdqtcvqt {. 'Wpkxgtulx{ "qh'Rkvudwti j. 'Rkvudwti j. 'Rc

40' F gr ct vo gpv"qh"Qt vj qr gf ke "Uvti gt {. "Wpkx gt ukv{ "qh"Rkvud vti j. "Rkvud vti j."RC

50' F gr ct vo gpv'qh'Dkqgpi kpggt kpi . 'Wpkx gt ukx{ "qh'Rkwudwt i j . 'Rkwudwt i j . 'RC

60' F gr ctvo gpv'qh'T cf kqnqi {.'Wpkxgtukx{ "qh'Rkvudwti j.'Rkvudwti j. "RC

IP VTQF WE VKQP <'Vj g''i rgpqj wo gtch'lqkpv''ku''yj g'' o quv" f kunqecvgf " lqkpv" kp" y g" j wo cp" dqf {30' Chvgt" tgr gcvgf "f kungecvkqpu." y g"ecr uwng."r ctvkewnctn{ "y g" kphgtkqt"i ngpqj wo gtcn'rki co gpv'*K J N+:"uwhigtu"pqp/" tgeqxgtcdrg" utckp⁴0' Vj g" K J N" ku" eqo r tkugf " qh" 5" tgi kqpu." yj g" cpvgtkqt" dcpf." r quvgtkqt" dcpf." cpf" czknct { "r qwej ."dw/ecp"dg"qdugtxgf "cu"c"ukpi ng"uj ggv" qh" vkuuvg" y kj "cpvgtkqt" cpf "r quvgtkqt" y kengpkpi u^{5.6}0' Enkpkecm{."f kungecvkqpu"tguwn/"kp"i ngpqj wo gtcn"lqkpv" kpuvcdkrkv{ "tgs wktkpi "uwti kecn"kpvgtxgpvkqp"kp"yj g"hqto " qh" r nkecvkqp0' Ewttgpvn{." r nkecvgf " nqecvkqpu" ctg" uvdlgevkxgn{"f gvgto kpgf"d{"y g"qr gtcvkpi "uvti gqp0' Kf gcm{." kf gpvkh{ kpi " y g" kpf kx kf wcn' t gi kqpu" qh' y g" KIJN" y cv" uwhigt "pqp/tgeqxgtcdng" uvtckp" chygt" f kurqecvkqp" y qwrf " i kxg" qt y qr cgf ke" uwti gqpu" y g" kpliqto cvkqp" pgeguuct { "vq" r gthqto "uvdlgev" ur gekhke" r nlecvlqpu."y j lej "o c{"lo r tqxg"vtgcvo gpv"qweqo gu0" Rtgxkqwu"ecf cxgtke"uwf kgu"j cxg"r rcegf "o ctngtu"qp" y g"K J N"cpf "f gygto kpgf "pqp/tgeqxgtcdrg"uvtckp"kp" tgi kqpu" qh" yi g" K J N" chigt" uko wrcvgf "f kurqecvkqp⁴0' J qy gxgt."c"uko krct"o gy qf qrqi {"ecppqv"dg"wkrk gf "kp" r cvkgpvu" enkpkecm{ " cu" y g" f kurqecvkqp" j cu" crtgcf { " qeewttgf "cpf "o ctmgtu"ecppqv'dg"r ncegf "kp"xkxq0'Vj ku" o gy qf qmi {"y qwf "tgs wktg"ceewtcvg"cpf "tgr gcvcdrg" kf gpvkhecvkqp"qh'yj g"K J N"qp"O TKt geqput wevkqpu'vq" s wcpvkh{ "uwthceg"ctgc0'Vj wu "y g"i qcn"qh"y g"r tqlgev" y cu" vq" f gvgto kpg" yj g" kpvtc/" cpf " kpvgt/qdugtxgt" tgr gcvcdktkv{ "qh" kf gpvkh{ kpi "y g" hqwt "eqtpgtu" qh" y g" K J N''qp''c''5F ''uj qwf gt''o qf gn'etgcvgf ''htqo ''cp''OTK' qh"c"ecf cxgt ke" uj qwrf gt "vq"ckf "kp" kf gpvkhkecvkqp" qh" kplwtgf "tgi kqpu"qh"yj g"ecr uwrg0

O GVJ QFUK Kp"qtf gt"\q"r tqf weg"o ctngtu"\j cv'eqwf" dg" wugf "qp" c" o qvkqp" vtcenkpi "u{uvgo "cpf "uggp" qp" O TK"c"pqxgn'o gyj qf "y cu"etgcvgf "d{"uqcnkpi "ecpqrc" uggf u"kp" c"i cf qnkpkvo "uqnwkqp0'Hqwt" o ctngtu" y gtg" hzgf "qp" yj g" eqtpgtu" qh" yj g" K J N" kp" c" ecf cxgtke"

uj qwrf gt0'Rtgxkqwu''y qtm'kp''y g''rcdqtcvqt { "j cu''uj qy p" y g"cdktkv{ "vq"o gcuvtg"f kuvcpegu"dgw ggp"w q"o ctngtu" qp"5F "tgeqpuxtwevkqpu"y kj "cp"ceewtce{"qh"O'208"o o " eqo r ctgf " vq" c" i qrf " uvcpf ctf 0' Vj g" o ctngtu" y gtg" r ncegf "7"o o "htqo" y g"kpugt kqp"uk gu"kp" y g"o gf kcn'qt" ncvgtcn" fktgevkqp." tgur gevkxgn{." qh" yj g" cpvgtkqt" cpf " r quvgtkqt" dcpf u" qh" y g" i ngpqkf " cpf " j wo gtwu0' Vj g" uj qwrf gt "y cu"o qwpvgf "qpvq"c"ewuvqo "hkz wrt g"kp"; 2" f gi tggu"qh"cdf wevkqp"cpf "gz vgtpcn"tqvcvkqp"*CDGT+" cpf " ko ci gf " xkc" O TK' wukpi " 5V" *Ukgo gpu." o O T " Dkqi tcr j +"cpf "lngzkdng"6ej "eqkn"*vcti gv"xqnvo g"hvm{" y tcr r gf "d{ "y g"eqkn+."VT IVG"37140 7"o u."kuqvtqr ke" xqzgn'622" wo 0' Vj g" j wo gtwu." i ngpqkf." K J N." cpf" o ctngtu'y gtg'ugi o gpvgf 'vq'etgcvg'c'5F 'o qf gn'qh'y g'' i ngpqj wo gtcn'lqkpv'cpf "KI J N"kp"O KO KE u"*xgtukqp" 4502+0°C "r tqvqeqn'vq "kf gpvkh{"cpf "o ctm'vj g"eqtpgtu"qh" y g'K J N'qp''y g'5F 'o qf gn'qh''y g''y qwf gt 'y cu'i kxgp'' vq" yitgg" qdugtxgtu" y kyi "fkhhgtkpi "cpcvqo ke" mpqy ngf i g."cpf "c"ewuxqo "O CVNCD"eqf g"y cu"wugf " vq" o gcuwtg" y g" 5F "f krxcpeg" htqo "qdugtxgt/r rcegf" o ctngtu"vq"yj g"ecpqnc"uggf "o ctngt"nqecvkqp"dcugf "qp" O TKugi o gpvcvkqp0/Cm/qdugtxgtu/y gtg/drkpf gf 'vq'yj g'' vtwg" nqecvkqp" qh" yj g" ecpqrc" uggf " o ctngtu0' Gcej " qdugtxgt"tgrgcvgf "y g"rtqvqeqn"y tgg"vko gu0'Cxgtci g" f kucpeg'htqo ''y g''guvko cvgf ''vq''cewcn'o ctngt ''y cu''wugf '' vq"kf gpvkh{"ceewtce{."y j krg"uvcpf ctf "f gxkcvkqpu"y gtg" wugf "vq" fgvgto kpg" kpvtc/" cpf "kpvgt/qdugtxgt" tgr gcvcdkrkv{0'C "Y gnej "vguv'y kj "I co gu/J qy gm'r quv" j qe"cpcn{uku'y gtg"wugf "vq"eqo r ctg"o ctngt "r rcego gpv" ceewtce{."cpf "cp"H'vguv'y kj "Vwng{ "r quv'j qe"cpcn{ uku" y gtg" wugf " vq" eqo r ctg" o ctmgt " r ncego gpv"

tgrgcvcdkrkv{0

TGUWNVUK'Vj g" pqxgn' ecpqrc" uggf " o ctngtu" y gtg" uggp'engctn{ 'kp''y g'O TKcpf "gcukn{ 'tgeqputwevgf 0Vj g" cpcvqo { ''qh'y g''lqkpv'kpenwf gf ''y g''eqnrct/nkng'kpugtvkqp" qh'' y g" K J N" ctqwpf " y g" i ngpqkf " cpf " X/uj cr gf "

Ej cp'J qpi 'O qqp⁶.'Cndgtv'N
p'O F $^{3.4}$.'Tkej ctf 'G0F gdunk'Rj F $^{3.4.5}$

kpugt kqp"qp" y g"j wo gtw0' Vj g"f cuj gf "dpgu"kp" y g" hki wtg"uj qy "y g"tcpi g"qh"gttqt"kp"o ctngt"r nego gpv" hqt"gcej "qh"y g"o ctngtu0'Qdugtxgt"3'f go qputcvgf "cp" kpvtc/qdugtxgt"tgr gcvcdkds{ "qh'206"o o 'hqt"y g"i ngpqkf " kpugt kqp"qh"y g"cpvgtkqt"dcpf "%I CD+:'204"o o 'i ngpqkf " kpugt kqp"qh'y g"r quvgtkqt"dcpf "%I RD+:'402"o o 'hqt"y g" j wo gtcnlkpugt kqp"qh"y g"cpvgtkqt"dcpf "%I CD+:'cpf "208" o o "hqt"y g"j wo gtcnlkpugt kqp"qh'y g"r quvgtkqt"dcpf " %J RD+0' Hqt" cm' qdugtxgtu."r nego gpv" qh" y g" I CD" o ctngt"y cu'o quv'ceewtcvg.'cv'505"Õ'209"o o "%r '>'2023" hqt"cm'r ckty kug"eqo r ctkuqpu+"cpf "y g"J RD"y cu'y g" eqo r ctkuqpu+0

FKEWUUKQP<' Vj g" i cf qrkpkvo /uqcngf " o ctngtu" y gtg"uweeguuhwm{ "xkuwcnt gf "qp"O TK"cpf "y wu."y ku" o gy qf qrqi { "ecp"dg"wkrk gf "kp"uwdugs wgpv"uwf kgu0' Vj g'r tqr qugf "o gyj qf "hqt 'lf gpvlh{ kpi "ecr uwrct "dqtf gtu" y cu"ceewtcvg"vq"80, "o o "cpf "tgr gcvcdrg"vq"405"o o 0' $Ceewtce{"y cu" chigevgf"d{"y g" hcev"y cv" qdugtxgtu"}$ r kengf "5F "o ctngt "necvkqpu" qp "y g" uwtheeg" qh" y g" ecr uwrg. "y j krg"gzr gtko gpvcm{ "i nwg"y cu"wugf "vq"r rceg" ecpqrc"uggf u."y j kej "grgxcvgf "y g"o ctrrgtu"htqo "y g" uwthceg"qh"y g"ecr uwrg0'Vj g"r qkpul"y kj "y g"uo crrguv" cxgtci g"f kucpeg"*I CD."I RD+"o c{"dg"y g"tguwn/"qh" y gm/f ghkpgf " kpugt vkqpu" qp" y g" i ngpqkf " tko ." y j kng" o ctngtu"y cv'y gtg"o qtg"lpceewtcvg"*J CD."J RD+"cpf" nguu" tgr gcvcdng" *J RD+" o c{" dg" cwtkdwgf " vq" yj g" kpf kukpev." X/uj cr gf "kpugt kqp" qh" yj g" K J N" qp" yj g" j wo gtwu0'Rtgxkqwun{."cpcvqo kecn'ncpf o ctmu"qp" y g" hgo wt "qh"5F "r tkpvgf "mpggu"y gtg"ngecvgf "y ky "cp"gttqt" tcpi kpi "htqo "50,/3308"o o "chygt"c"vgcej kpi "uguukqp70" Vj gug"tguwnu"ctg"qp"y g"uco g"qtf gt"qh"o ci pkwf g"cu" qwt" hkpf kpi u." r tqxkf kpi " hwtyj gt" xcrkf cvkqp" qh" qwt" tguwnw0' Vj g" nqpi/vgto " i qcn" qh" y ku" y qtm' ku" vq" f gygto kpg'y g'f khigtgpegu'kp'kplwtgf "cpf "eqpytcrcvgtcr" uj qwrf gtu" y kj " tgur gev' vq" yj g" i gqo gvt {" qh" yj g" ingpqj vo gtch' ecruvng0' Hwwtg'' kpxguvki cvkqp'' ku'' pgeguuct { "vq" f gygto kpg" j qy "cnygtcykqpu" kp" o ctngt" r ncego gpv'ceewtce { "chigev'ecr uwrct 'i gqo gvt { 0

ENKP KE CN'' TGNGX CPEG<' Vj g" cdktx{ " vq" tgr gcvcdn{ "kf gpvkh{" vj g" KI J N" qp" 5F "tgeqpuvt wevgf " o qf gnu'y km'cmqy "f kxkukqp"qh''y g"ecr uwrg"kpvq'uo cmgt" tgi kqpu''vq"f gvgto kpg"yj g"mecvkqpu'y j gtg"yj g"ecr uwrg" o c{"dg"kplwtgf0'Qpeg"yjg"tgi kqpu"ctg"f gvgto kpgf." kplwtgf"ujqwnfgtu"ecp"dg"eqorctgf"vq"eqpvtcncvgtcn" ujqwnfgtu" kp"xkxq"vq"rtqxkfg"uwtigqpu"ykyj" kphqtocvkqp"vq"ivkfg"uwdlgev'urgekhke"rnkecvkqpu0

 TGHGT GP E GU
 '30' P cdckp" gv' cn0' C DLU." 4239" 40'

 [quj kf c"gv'cn0LQT.'4242"50'O qqtg"gv'cn0Cpp"Dkqo gf "

 Gpi .'422; "60'QøDtkgp"gv'cn0CLUO .'3; ; 2'70'Ncxgtf kgtg"

 gv'
 cn0'

 QLUO .''
 4242

Vcdng'30Cxgtci g"f kncpeg"dgw ggp"guvko cvgf "o ctngt" cpf "pgctguv" gf i g" qh" ecpqnc" uggf " o ctngt " hqt" gcej " qdugtxgt0I ngpqkf "kpugtvkqpu"qh"cpvgtkqt"cpf 'r quvgtkqt" dcpf u" kpf kecvgf " d{" I CD" cpf " I RD0' J wo gtcn" kpugtvkqpu" qh" cpvgtkqt" dcpf " cpf " r quvgtkqt" dcpf " kpf kecvgf "d{"J CD"cpf "J RD0

Qdugtxgt	I CD"	I RD"	J CD"	J RD"
	*00+	*00+	*00+	*00+
3	409	50	906	90,
4	502	6 B	804	608
5	6 B	707	90B	507
CXI	505	607	80,	705
UF	20	20,	208	405

Hi wt g'305F "tgeqput wevkqp"qh'vj g"i ngpqkf "*{gmqy +" j wo gtwu" *i tggp+" KI J N" *dnwg+." cpf "6" ecpqnc" uggf " o ctngtu" *dncem+0' F cuj gf "nkpgu" tgr tgugpv" gttqt" kp" o ctngt "rncego gpv0' O ctngt u" gpncti gf "hqt" xkuwcnkt cvkqp0



Dgj cxkqt 'qh'Kpvt co gf wnct { 'Uet gy 'Hkz cvkqp'kp'J wo gt k'cpf 'Wipcg'hqt 'VqvcnGndqy 'Ct vj t qr ncuv{ "

Dgplco kp 'Y 0P gy gm^{3.5}. 'Gj cd 'O 0P c| $| cn^{3.4}$. 'Nwng 'V0O cwct^{3.5}. 'Tqdgtv'C0Mcwb cpp^{3.4}. 'Tkej ctf 'G0F gdunk^{3.4.5}

50' F gr ctvo gpv'qh'Dkqgpi kpggtkpi ."Wpkxgtukx{ "qh'Rkwudwti j ."Rkwudwti j ."RC

IP VTQF WEVKQP <' P qp/t geqput weved mg'' f knvcn'' j wo gtwu"hicewtgu"cpf "gndqy "f {uhwpevkqp"ugeqpf ct {" vq"tj gwo cvqkf "ctvj tkku."f gi gpgtcvkxg"quvgqctvj tkku."qt" r quv/stcwo cske"quvgqctyj tksku"ecp"dg"stgcvgf "y kj "sqvcn" gndqy "cty tqr ncuv{ "*VGC+^{3/5}0'E wttgpvn{ "VGC "j cu"cp" qxgtcm" eqo r nkecvkqp" tcvg" qh" 47' " cpf " cp" 33/{gct" uwtxkxcn'tcvg''y cv'ku'nguu''y cp''. 2' "cpf ''ku''o wej ''nqy gt'' y cp"y cv"qh"j kr "cpf "mpgg"ct y tqr rcuv{ "y j kej "j cxg"c" ; 8' "32/{gct"uwtxkxcn'tcvg^{5/7}0'Nqqugpkpi "ku"yj g"o quv" eqo o qp"ecwug"qh"hcknwtg"ghbgevkpi "VGC⁸0'Ewttgpvn{" ko r ncpvu" wkłkt g" dqpg" ego gpv" vq" j qrf " y g" uvgo u" kp" r nceg0'Dqpg"ego gpv'j cu'dggp"wugf "ukpeg"yj g'3; 72u"cpf" j cu"pgi cvkxg"ghigevu"kpenvf kpi "vj gto cn'quvgqpgetquku" y j kej "ku" f wg" vq" yj g" uwf f gp" kpet gcug" kp" j gcv' yj cv' f co ci gu'y g'uwttqwpf kpi "dqpg"ecwukpi "quu'kp"cdkrkv{" vq"j gcn"cpf "i tqy ^{9.:} 0'Cffkkqpcm{."ego gpv"ku"fkhkewn/" vq"tgo qxg"o cmkpi "tgxkukqp"uwti gt{"o qtg"eqo r nkecvgf" cpf " vko g" eqpuwo kpi 0' F wg" vq" yj g" eqo r nkecvkqpu" cuuqekcvgf "y ký "ego gpv'korncpv'hkzcvkqp."ý g" hgcukdknkv{ "qh"kpvtco gf wnct { "uetgy "hkzcvkqp"pggf u"vq" dg"cuuguugf "hqt"wug"kp"VGC0'Vj g"qdlgevkxg"qh"y ku" uwuf { 'ku'vq'f gvgto kpg'uvtwewtcn'r tqr gtvkgu'qh'y g'dqpg/ uetgy "kpvgthceg"hqt"VGC "cpf "cuuguu" y g"ghigevkxgpguu" qh"yj ku"o gyj qf "qh"ko r rcpvcvkqp"dcugf "qp"f cvc"kp"yj g" rkvgtcvvtg0

O GVJ QF U<''Ugxgp" higuj "hiq| gp" wr r gt" gz vtgo kv{" ecf cxgtu" *ci g<' 83" Õ' 36" {gctu+" y gtg" r tgr ctgf " d{" tgo qxkpi "cm'uqhv" vkuuvg"hiqo "yj g"j wo gtk"cpf "wpcg" cpf 'yj gp"f tkmgf "cv'yj g"gpf "r tqzko cn'vq''yj g"gndqy 'y kyj " ewuvqo 'f tkm'dku. "kpetgcukpi "kp"f kco gvgt "wpvkn"ej cvgt" y cu" hgnv"hiqo "tgcej kpi "eqt vkecn" dqpg0' Qpeg" ej cvgt" y cu" gzr gtkgpegf ." yj g" ur geko gpu" y gtg" j cpf " vcr r gf " y kj 'yj g''yj tgcf 'uk' g"eqttgur qpf kpi "vq''yj g"f tkm'dkv'cpf " y gp"ewuvqo /o cf g'vkxcpkwo 'uetgy u'y gtg"uetgy gf "kpvq" y gtg" yj gp"r qwgf "kp"cp"gr qz { "r ww{ "cpf "o qwpvgf "vq" y g" dcug" qh" c" wpkczkcn' o cvgtkcm" yuvkpi " o cej kpg" j gcf "y cu"cnki pgf "y ky "y g"vguvkpi "o cej kpg"vq"gpuvtg" y cv" pq" dgpf kpi " o qo gpvu" y gtg" crrnkgf " cpf " y gp" rtgnqcfgf" vq" tgo qxg" uncem" dghqtg" dgkpi" r tgeqpf kkqpgf 'htqo '52/88'P 'hqt'32'e {ergu0P gzv.'y g'' ur geko gp"y cu"mcf gf "cv"c"tcvg"qh"70 o lo kp"wpvkn'y g" mcf "tgcej gf "5mP." y g" hqteg" y cv" ecp" dg" tgcej gf " f wtkpi "uvtgpwqwu"kuqo gvtke"cevkqpu 0Vq"gpuwtg"uchgv{." y g"vguv'y cu"cnuq"vgto kpcvgf "dcugf "qp"w q"etkgtkc<'3+" c"f getgcug"qhi'422P."qt"4+"gzvgpukqp"dg{qpf '92"o o 0' Cv''y g"eqpenwukqp" qh''gcej "yguy." y g"ur geko gp" y cu" kpur gevgf " hqt " gxkf gpeg" qh' r wmqwv." mqugpkpi ." qt" xkukdrg"htcewstgu0Gpf/qh/vguv'grqpicvkqp."rqcf."gpgti {" cduqtdgf."cpf "uvkhipguu"y gtg"ecnewncvgf 0'Gpf/qh/vguv" mcf "cpf "gmpi cvkqp"y gtg"f ghkpgf "cu"y g"gmpi cvkqp" cpf "mcf "gzr gtkgpegf "d{ "y g" uvt wewstg" cv" 5nP "qt" hcknxtg0'U\khhpguu"qh"yjg"nkpgct"tgi kqp"qh"yjg"nqcf/ gnpi cwp"ewtxg"y cu"hqwpf "d{ "tgo qxkpi "cm'r qkpw" chygt "gpf "qhi'yguv'nqcf."cpf "yj gp"tgo qxkpi "r qkpwi'htqo " y g"uvctv" qh" y g" vguv" wp vkn" cp "T⁴@0; "y cu" tgcej gf 0' Gpgti { "cduqtdgf "y cu"f gvgto kpgf "d{ "guvko cvkpi "y g" ctgc"wpf gt "y g"ewtxg"htqo "y g"dgi kppkpi "qh"y g"vguv" wpvkn'gpf "qh'vguv'wukpi "c'vtcrg| qkf cn'Tkgo cpp'uwo 0

TGUWNVUK'36" vqvcn' vguvu" y gtg" eqo r ngvgf "wukpi "9" j wo gtk'cpf '9'wpcg0Vj g'nqcf/gnqpi cvkqp'ewtxgu'y gtg" o quvn{ "htpgct0" Hki wtg'3" cpf "4+"Uqo g"ewtxgu"j cf "uo cm" ftqru"dghqtg"eqpvlpvlpvlpi "vq"gpf/qh/vguv0'Vjg"j vogtk" j cf "cp"gpf/qh'yguy'mcf "qh"4943@"Õ'95: %"P "cpf "cp" gpf/qh/yguv/gnqpi cykqp"qh/502"Õ20, "o o 0"Wnpcg"tgcej gf " ; 4' "qh"yj g"j wo gtk"gpf/qh/vguv'nqcf "cv'473507"Õ89908" P "cpf "342' "gpf/qh/vguv'gnqpi cvkqp"cv'508"O'208"o o 0' Vj g'uvkhipguu'qh'y g'j wo gtk'y cu'32980, 'Õ'55709'P lo o " cpf "y g"wpc"j cf "95' "qh'y g"u\khpguu"cv'9:; (8'O'43305" P to o 0'Hkpcm{."y g"gpgti { "cduqtdgf "hqt"y g" j wo gtk" y cu"508"Õ'308"L'y j kej "y cu"; 4' - "qh'y g"wpcg"cv'50, "Õ' 308'L0Qpg'j wo gtwu'cpf '5'wpcg'hckngf 'dghqtg'y g'gpf/" qli/vguvingcf "qli'5"nP 0'Qli'y g'hqwt "ur geko gpu'y cv'hckrgf." w q'hcknwtgu'y gtg'f wg'vq'uetgy 'r wmqw/cpf 'w q'f wg'vq' dqpg''dtgcm0

^{30&#}x27; Qtyj qr cgf le'Tqdqvleu'Ncdqtcvqt {. "Wpkxgtulw{ "qh'Rkwudwti j. "Rkwudwti j. "RC

FKEWUKQP<'Vj g"r wtr qug" qh" yj g" uwwf { " y cu" vq" f gvgto kpg" y g"uvt we wtch'r tqr gt vlgu" qh" pqp/ego gpvgf " kpvgto gf wnct { "uetgy "hkzcvkqp"hqt "wug"kp"vqvcn"gndqy " cty tqr muv{0'Vj g"mcf/gmpi cvkqp"ewtxgu"y gtg"nkpgct" y j kej "ku"gzr gevgf "kp"dqpg0'Vj g"uo cm"f tqr u"kp" y g" mcf/gmpi cwqp"ewtxgu"qh"uqo g"qh"yi g"ur geko gpu"o c{" dg"f wg"vq"o ketq"hcknwtgu."j qy gxgt"vj g"uetgy u"y gtg" cdng'\q'tgugcv'cpf 'tgcej 'j ki j gt''nqcf u0'Vj g''o clqtk{ ''qh'' ur geko gpu'tgcej gf "qwt "gpf "qh"\guv'etkgtkc "y kj "qpn{ '3" j wo gtwu'cpf "5"wpcg'hckkpi "dghqtg''y g'r tgf gygto kpgf " 5"mP "mcf 0'J qy gxgt."gxgp"y qug"y cv"hckrgf "tgcej gf" gpf/qli/vguv/mcfu'vj cv'r tqxg'vq'dg"cfgs wcvg'hqt 'hkzcvkqp" y ký "cp"cxgtci g"gpf/qh/vguv'nqcf "qh"388205"P."o wej " jkijgt" y cp" y g" ewttgpv" hqteg" pggf gf " hqt" quvgqkpvgi tcvkqp 0'Cffkkqpcm{."y g"v{r kech'cmqy gf" mcf "r quv"qr gtcvkxgn{ "ku"cdqw"33"ndu"kp"j cpf ."y j kej " i gpgtcvgu'o wej "rguu'hqteg'kp''y g'grdqy 'y cp'y j cv'y cu' hqwpf "kp" y ku'uwf {320

ENKP KE CN''T GNGX CP EG<'Vj g" hkpf kpi u" kp" y ku" uwf { "uj qy "y cv'KO "uetgy "hkzcvkqp"y ky qwv'y g"wug"qh" dqpg"ego gpv'ecp"y ky uvcpf "c"hqteg"y cv'ku'i tgcvgt"yj cp" y g"ewttgpvn{ "tgeqo o gpf gf "r quv/qr gtcvkxg"nqcf "cpf "ku" tgs wktgf " hqt" quvgqkpvgi tcvkqp" kp" vqvcn" gnlqy " cty tqr muv{ "ko r mpvcvkqp0

TGHGT GP E GU^{C'} 30' \ j cpi " gv" cn0' LJ U." 423; " 40' Uco f cpku"gv"cn0'Uj qwrf gt"('Gndqy ."423; "50'Xqmuj kp" gv" cn0'LUGU." 4233" 60' Y gnikpm"gv" cn0' LDLU." 4239" 70' Dc { rkuu"gv"cn0'Ncpegv."4239"80'Rtnke"gv"cn0'C QVU."4239" 90'Y j kgj qwug"gv"cn0'gEO ."4236": 0'Mcwho cpp"gv"cn0' C UUJ ."423; "; 0'Co ku"gv"cn0'L'Dkqo gej cpkeu."3; : 2"320' U0'Mwo ct."U0'O cj cpvc"KQ."4235 **Hi wt g'30**Nqcf "xu0'grqpi cvlqp"ewtxg"qh'j wo gtЮ'Vguvu" yj cv'tgcej gf "5"nP "uj qy p"kp"dnvg. 'hcknwtgu'uj qy p"kp" qtcpi g0



Hi wt g'40Nqcf ''xu0'grqpi cvkqp''ewtxg''qh''wrpcg0'Vguvu'' y cv'tgcej gf ''5''nP ''uj qy p''kp''dnwg. 'hcknwtgu''uj qy p''kp qtcpi g0

