$9C > DE^*F > GGH$, ?FIE? >,

J-2-:85"38K:825:8L-2-KK"6M":N-"O08P0.0"?K1023"Q85-"R6RS10:862"823850:-K"16."T0:-"6M" 38KR-TK01"MT6Q"Q0821023", -. "/-01023

!

4118-"UT031-;\"9:-L-2"I<"ET-.85P"023"G0T;"G6T702*D85N0T3KW

456167; "JT6SR\"?2K:8:S:-"6\|"I7T85S1:ST-"023"42L8T62Q-2:\"G0KK-; "H28L-TK8:;\"XT8L0:-"U07"!!"\$\$\$\"X01Q-TK:62", 6T:N\"", -. "/-01023

W I S:N6T"M6T"56TT-KR623-25-"#4Q081)"Q<Q6T702*T85N0T3K Y Q0KK-;<05<2A'

XSZ18KN-3"62182-)"&" [-ZTS0T; "\$% ! &

! ''#\$%&'\$()?2", -. "/-01023\"Q85-"82"T-K-TL-K"502"56QR1850:-":N-"562:T61"6\"Q0QQ01802"RT-30:6T"82L0K862"Z;" Q0KP827"K5-2:'023"-0:827"Z08:K<' 4T03850:827"Q85-"0116. K"RT-30:6T"82L0K862K":6"Z-"Q6T-"T-0381;"3-:-5:-3"023" Q0207-3\"ZS:"T-Q6L01"6\"Q85-"8K"621; "\-0K8Z1-"8\"T-561628K0:862"8K"T0T-<' O-"SK-3"7-2-:85K"023"Q6TRN6167; ":6" OKK-KK". N-:N-T":N-"Q6SK-"R6RS10:862"62"O08P0. 0"?K1023". 0K"8K610:-3\"T6Q":N-"Q0821023"R6RS10:862<"I"K0QR1-" 6\"Q8:65N623T801" =, I"K-\S-25-K"T-L-01-3":N0:"0:"1-0K:"M6ST"\-Q01-"Q85-"QSK:"N0L-"M6S23-3":N-"O08P0.0" rqrwncvkqp. dwv vjcv igpg fqy dgvyggp kuncpf cpf ockpncpf okeg ku nk okvgf0 Cnvjqwij pq xctkcvkqp kp FPC K-\S-25-K"6\\"-]62"!"6\\":N-"2S51-0T"7-2-"L8:0Q82" ^\\$V_*-R6]83-"T-3S5:0K-"KSZ56QR62-2:"!". 0K"3-:-5:-3\":N-" 56QQ62"011-1-"8K"26:"0KK6580:-3".8:N"T-K8K:025-":6"02:85607S102:"T63-2:8583-K"KS5N"0K".0TM0T82<"U63;"K8A-" 56QR0T8K62K"T-L-01-3":N-"8K1023"R6RS10:862"0K"38K:825:\"R6KK8Z1;"3S-":6"07-"K:TS5:ST-"38\\-25-K<"O-"82\\-T16." I-L-IK'6\\KS55-KK\\S1'38KR-TK01'Z-:.-2'\N-"Q0821023''O08P0.0";K1023"Q85-"R6RS10:862K''023''KS77-K:"-T03850:862" Q87N:"Z-"KSK:0820Z1-"82":N-"1627*:-TQ"8\"RT6:-5:862"07082K:"T63-2:"82L0K862"K"Q082:082-3<

*+, -.%/#(F/nqqr=igpg fqy=okvqejqpftkcnFPC=

A .7+'37&%)&9&7,#1#

G6SK-"=, I". 0K"SK-3":6"0QR18M; "023"K-\S-25-":N-"56QR1-:-" okvqejqpftkcn F/nqqr cpf fcpmkpi tgikqpu *ugg Crrgpfkz 9!"82"9SRR1-Q-2:0T;"G0:-T80IK"M6T"3-:08IK'<"?2"0338:862\" .-" cornkfgf c pwengct igpg. xkvcokp M 4.5/grqzkfg tgfwevcug KSZ56QR62-2:"!"# ``9627"-:"01<"\$%!!'<"I11-185"L0T80:862" 0:":N8K"165SK"8K"P26.2":6"562M-T"T-K8K:025-":6"02:85607S102:" T63-2:8583-K"KS5N"0K".0TM0T82"#D6K:"-:"01<"\$%%(`"9627"-:"01<" \$%!!'<"EN-T-M6T-\".-"K-\S-25-3"62-"Q6SK-"MT6Q" O08P0.0" ?K1023"MT6Q":N-"Z-7822827"6M"-]62"!":6":N-"-23"6M"-]62"\$<"E6" kfgpvkh{ rquukdng pwengct xctkcvkqp. yg cornkfgf cpf ugswgpegf BSK:"-]62"!"6M" MT6Q'0'MST:N-T"_%'Q85-"#E0Z1-"!'<"=0:0'0T-" 0L0810Z1-MT6Q'N::R)@-L61L-K<Q0KK-:<05<2A =, I1E661P8<N:Q<"

$$\begin{split} & E6^{*}L8KS018K^{-!}N^{-}T^{-}10:862KN8R'Z^{-}:..^{2}:N^{-}=, I'K^{-}S^{-}25^{-}K''' \\ & NOR16:; R^{-}2^{-}:. 6TPK''. -T^{-}82M^{-}TI^{-}3'SK827'!N^{-}'Q828QSQ'KR022827'' \\ & ORT605N''#U023^{-}:'^{-}:''0l<''! aaa'''82''X6R I DE''#e^{8}7N'' f''UT; 02:'' \\ & \%'!d'<''E6'':-K:''M6T''^{-}L83^{-}25^{-}''6M''R6RS10:862'''38M''^{-}T^{-}2:80:862'''.-''' \\ & uqhvyctg Ctngswkp 507 *Gzeqhfgt gv cn0 4227^{+}0 Kh qwt oqwug uc orngu ygtg vcmgp htq oc ukping rqrwncvkqp. _{9E'} 6S13''26:''' \\ & fkhhgt htq o |gtq *Gzeqhfgt gv cn0 3; ;4^{+}. vjgtghqtg. yg vguvgf vq ugg kh rcktykug _{9E} guvkocvgu ygtg ukipkfecpvn{ @2 wukpi !'%%'''R^{-}TQS:0:862K''023V''Z^{-}50SK^{-}''6M'''QS1:8R1^{-}''R08T^{-}.8K^{-}'':-K:KV''' \\ & yg wugf 202247 ukipkfecpeg ngxgn0 \end{split}$$

A.%<B.7.21'&7)&9&7,#1#

- . " / -01023" Q85-"0T-":N-"RT63S5:"6M" Q8]827"0:"1-0K:":NT--" 38K:825:" 182-07-K" 6M" " #4ST6R-02" " 023" `"9-0T1-"-:"01<"\$%%a'<" V"023" I K802" EN-K-" nkpgcigu fkhhgt ukipkfecpvn{ kp vckn/ngpivj vq Z63;*1-27:N"T0:86"#^T0M:"!abd'"023":N8K"T-KS1:K"82"K6Q-"16501" R6RS10:862"38M-T-25-K"82", -. "/-01023"#9-0T1-"-:"01<"\$%%a'<" O-" Q-0KST-3" :081" 023" Z63 ; " 1-27:N" SK827" :N-" N027827*:081" Q-:N63" #j-. -11" f " [S11070T" ! acc'`" -05N" 8238L83S01" Z-827" KSKR-23-3"07082K:"0"56TPZ60T3"023"R82K"R105-3"82":N-"Z60T3" :6"Q0TP":N-":8R"6M":N-":081V":N-":8R"6M":N-"26K-V"023":N-"Z0K-"6M" :N-":081<"=8K:025-K"Z-:.-2"R82K".-T-"Q-0KST-3"SK827"0"TS1-T<" EN8K"RT65-KK" . 0K"T-R-0:-3":NT--":8Q-K" . 8:N"-05N"Q6SK-"023" Q-0KST-Q-2:K'0L-T07-3":6"T-3S5-"-]R-T8Q-2:01"-TT6T<"O-'SK-3" 0" O8156] 62* G022* ON8:2-; ":-K:":6"56 QR0T-":081@Z63; "1-27:N" T0:86K"MT6Q"8K1023"Q85-"#2"o" !% '"023" G0N80"X-282KS10T"Q85-" #8251S3827">2-2S8`"2"0"\$d'\"023"02"I , >kI":6"56QR0T-"011" K8]"R6RS10:862"K0QR1-"Q-02K"K8QS1:02-6SK1;<"

?2" Q02; "T63-2:" KR-58-KV" 8K1023" R6RS10:862K" 38MM-T" ukipkfecpvn{ kp uk|g htq o ockpncpf tgncvkxgu cpf rqrwncvkqpu . 8:N6S:" RT-30:6TK" #J 613 . 0:-T" -: " 01<" \$% ! \$`" = STK:" f " D6:N" \$%!d'"023":N8K":T-23"N0K"Z--2"365SQ-2:-3"82", -. "/-01023" Q85-"#DSKK-11"\$% ! \$ '<"405N"Q6SK-"82"6ST"K0QR1-". 0K". -87N-3" #Z01025-"055ST0:-":6"%<%!"7'\"023\"Z-50SK-"-05N"R6RS10:862" KOQR1-" 562:082-3" Q85-" 6M" 38MM-T-2:" 07-KV" . -" 0201;K-3" Q6TRN61678501"L0T80:862"SK827"02" I , >k I *18P-" J -2-T018A-3" Nkpgct Oqfgn *INO+ fvvgf wukpi vjg nkpgct oqfgn *no+ MS25:862" 82" :N-" D" K:0:8K:8501" RT67T0Q\" L-TK862" _<%<!<" EN8K" 0RRT605N'0116 . - 3'SK'':6''3-:-5:''38MM-T-25-K'Z-: . --2''\S02:8:0:8L-'' RT-385:6TK'023"\S018:0:8L-\M05:6TK'0K"-]R1020:6T; "L0T80Z1-KW'023" :6'562K:TS5:'02'0RRT6RT80:-'Q63-1'8256TR6T0:827'L0T80Z1-K". 8:N" ukipkfecpv gzrncpcvqt{ rqygt0 Yg wugf oqwug ygkijv cu vjg T-KR62K-'L0T80Z1-'':6'3-:-TQ82-". N-:N-T'5611-5:862''1650:862'N03" 02; "-]R1020:6T; "R6.-T'82'RN-26:; R-"L0T80:862<"O-'8251S3-3'0K" M05:6TK)":081"1-27:NWZ63;"1-27:NW023"5611-5:862"1650:862`'023"011" kpvgtcevkqpu qh v j gug hcevqtu0 Y j gp pq uk i pk f ecpv kpvgtcevkqpu . -T-"3-:-5:-3" . - "T-*T02"0201;K-K" . 8:N6S:"82:-T05:862K<

D-KS1:K

C+9+\$1')#\$%3'\$3%+

EN-"1627-T"Q:=, I"K-\S-25-K"#!!b&"ZR'"MT6Q"c!"Q85-" -T-" SK-3" M6T" 2-: . 6TP" 82M-T-25-" 023" :-K:K" 6M" R6RS10:862" 38M-T-2:80:862"#K--"3-:081K"82" I RR-238]"9!'<" [6ST"NOR16:; R-K" . -T-"3-:-5:-3"82":N-" O08P0 . 0"?K1023"K0QR1-"#2" o" ! ('<"EN-" 56QQ62"N0R16:;R-"#36Q, /<!\$``^827"-:"01<"\$%!c'".0K"01K6" RT-K-2:'82":N-"G0N80'023"J 8KZ6T2-'K0QR1-K\"ZS:": 6'N0R16:;R-K" . -T-"T-56T3-3" 621; "62" O08P0 . 0" ?K1023<" ENT--"NOR16:; R-K" #36Q, /<! \$`" 36Q, /<! (`" 36Q, /<_'" . -T-" . 83-KRT-03" 82" C0. P-K"U0; "#[87<"! '<"?2"6ST"30:0V":N-" J 8KZ6T2-"K0QR1-"N03":N-" jki jguv pwengqvkfg fkxgtukv{ * ? 2022;3+ cpf Yckmcyc Kuncpf vjg nqyguv * ? 202237= Vcdng 3+0 Guvkocvgu qh rcktykug _{9E}" T027-3"MT6Q"%":6"%<&("#E0Z1-"\$'<">M":N-"!d"R6RS10:862"K0QR1-" eqorctkuqpu. qpn{ vjg fxg rcktykug eqorctkuqpu dgvyggp YckmcycKuncpfcpfockpncpfokegygtgukipkfecpvn{itgcvgt vjcp |gtq.kpfkecvkpi ukipkfecpv igpgvke fkhhgtgpvkcvkqpcoqpi vj gug uc o rnkp i nqecvkqpu *Vcdng 4+0 Rckt y kug _{9E}"Z-:.--2":N-" O08P0.0"?K1023"K0QR1-"023":N-"2-0T-K:"R6RS10:862K"0:"G0N80" $_{9E}$? 206; 9= R > 202223+ cpf Qpgpwk hct o * $_{9E}$ "o"%<c%_`"X"p" Okeg htqo Yckmcyc Kuncpf ygtg ukipkfecpvn{ jgcxkgt gxgp

- U-TT; "Dj\"X-:-TK"j\" k0200T3-"Dj" ! a&b<"9SZ* I 2:0T5:85"N6SK-" Q85-" *" 561628A0:862\" KSTL8L01" 023" K-1-5:862<" j6ST201" 6M" / 66167; "!b()" ! \$&h ! (!<
- Ul66Q\S&K:" 4 OV" e Q ; "X" 9S5N0T3" G I " \$% ! %<" ENT - "T603K" 3&L-T7-3s" D6S: -K":6" RN ; 167 - 67T0RN85" &2M-T-25 - <" ET-23K" &2" 456167 ; " f "4L61S:&62"\$d)"c\$chc_\$<
- US5PI-; "CeV"X0:-TK62"I GV"FTS85PKN02P"DC'\$% !_<EN-\%6S23-T" KR05-"T05-)"0"T-KR62K-":6" O0:-TK"-:"01<"ET-23K"82"456167;" f "4L61S:862"\$b)" ! bah ! a%<
- FN0T1-K . 6T:N"U"\$%%a<"4M-5:8L-"R6RS10:862"K8A-"023"R0::-T2K" 6M" Q61-5S10T" -L61S:862" 023"L0T80:862<", 0:ST-"D-L8-.K" J-2-:85K"!%)"!adh\$%d<
- =6.3827"j4\">gF6226T'9G'\$%!_<D-3S5827":N-T8KP'6M"-]:825:862" 6\"0"716Z011;":NT-0:-2-3"KN6T-Z8T3)":T02K1650:862K"6\":N-" ,-."/-01023"KN6T-"R16L-T"# "'\" !aa%h\$%!\$<",6:6T28K"c%)"&%hb(<
- =STK:" I XI" D6:N" k e" \$% !d<" G0821023" K8A-" L0780:862" 82M6TQK" RT-385:8L-"Q63-1K"6M"-]5-R:86201'82KS10T"Z63; "K8A-"5N027-" 82"T63-2:K<"XT65--3827K"D6;01"9658-:; "U"\$b\$)"\$% !d%\$_a<
- Gzeqhfgt N. Uoqwug RG. Swcwtq LO 3;;40 Cpcn{uku qh Q61-5S10T"L0T8025-"82M-TT-3'MT6Q"Q-:T85"38K:025-K"0Q627" =, I "N0R16:;R-K"h"0RR1850:862":6"NSQ02"Q8:65N623T801* =, I "T-K:T85:862"30:0<"J-2-:85K"!_!)"(&ah(a!<
- Gzeqhfgt N. Ncxcn I. Uejpgkfgt U42270Ctngswkp*xgtukqp502+< 02%2:-7T0:-3%K6M: .0T-R05P07-%6T%R6RS10:862"7-2-:85K"30:0" 0201;K8K<"4L61S:8620T;"U8682M6TQ0:85K"!)"(&hd%<
- Gzeqhfgt N. Hqm O. Rgvkv TL 422;0 I gpgvke eqpugswgpegu qh T027-"-]R02K862K<"I 22S01"D-L8-. "6M"456167;"4L61S:862" 023"9;K:-Q0:85K"(%)"(b!hd%!<

```
[TOK-CI:FIN"LCO2PK 986 JOOS CO
```

:6S23-T-K:8Q0:86M68KR-TK01"02M2L0K86M6:-2:80145 rQ1EQ9-2G!FACDDC%1rYDD%2r_ATdD1rT1rTDAr] YDd\$'I C\$dnst\$rFTID3t],C7FC

9SRR1-Q-2:0T; "G0:-T801

I 338:86201"KSRR6T:827'82M6TQ0:862"Q0; "Z-"M6S23'82":N-"62182-" L-TK862"6M":N8K"0T:851-)

 $\label{eq:constraint} \begin{array}{l} !<<+9/1GH45'9SRR1-Q-2:0T; "Q-:N63K'023'Q61-5S10T'0201; K8K< \\ 0123\%+)H45) \ , -: . \ 6TP'' 6M'') Q:= , \ I \ '' \\ \end{array}$

NOR16:; R-K"KOQR1-3"82", - . "/-01023<

0123%+)HD5! k0T80:862"82":N-"T0:86"6M":081*1-27:N":6"Z63;*1-27:N" 82")MT6Q" O08P0 . 0"?K1023"023"03B05-2:"Q0821023" , - . "/-01023"1650:862K<