! ! " #\$%&'" ()*\$%+!!%& "##!\$%&&'(!)*+,-+!./! 0&1,2!314'2(5!\$6!789:;<7;:;! =.)! $>?\%, +\emptyset!A; B; C!D: 9<"B:8!$ / E1'F@!<u>F1EG+&HI J 'K(K1,121L+2-</u>!

#%&' ()\$*+,-).),/-!

M'(H', N!, K?%F1&5!O1F*', !=, '*+&(HP5!#:B''<4&+(+, H!)>&%Q+((%&!%Q!>?'F%(%4?P5!/E+&'H-(5!6,(H'H-H+!0%&!O?&'(H'1,!.H-2'+(!A6O.C5!R%&%,H%5!#:B;<4&+(+,H!

>&%Q+((%&!%Q!>?'F%(%4?P5!H+,-&+25!6O.5!R%&%,H%5!#::#<#:B;!

S%F2+&!%0!S+&E1.!T%%P+U++&2!O?1'&!'.!.%K'1F!1.2!>%F'H'K1F!>?'F%(%4?P!1H!6O.5!#:::<B:! • V-FF!>&%0+((%&5!.H1H-(!W,FP5!T+41&HE+,H!%Q!>?'F%(%4?P5!=,'*+&('HP!%Q!R%&%,H%5!#:BB<B;!

) ((%K'1H+!0&12-1H+!V1K-FHP!\$+EG+&5!>?'F%(%4?P5!=, '*+&('HP!%Q!R%&%, H%5!#:: ''<B;!

- 2X KH > &0 + ((&5!T + 41&HE + H!&0! > %F'H'K1F! K' + K + 5! = '* + &('HP!&0!R'&&, H&5!#:BY < BD!)•
- V1K-FHP!) ((%K'1H+5!O+, H&+!0%&!/H?'K(5!=, '*+&('HP!%0!R%&%, H%5!#:: D<4&+(+, H!
- $+EG+\delta_{0}=, *+\delta_{0}R\%$

/ E+&'H-(! \$ + EG+&5! O & 12 - 1H+!O+, H&+!Q%&!R?+%F%N'K1F!.H-2'+(5!R%&%, H%!.K?%%F!%Q!R?+%F%NP5!#:B;<!

• V-FF! \$ +EG+&5!) 2*1, K+2!T+N&++!V1K-FHP5!R%&%, H%!. K?%%F!%0!R?+%F%NP5!#::"<#:B;!) (($K'1H+!>\&%0+((\&!1,2!>\&%0+((\&!\&!))?'F\%(\&4?P5!O1F*',!=,'*+\&('HP5!B8D9<#::#\!H+,-&+2!B88B!)$)) 2X-, KH!V1K-FHP! \$+EG+&5!6O.5!B8DY<#::#5!1,2!M'('H',N!>&%0+((%&5!6O.5!R%&%,H%5!B88B!) (('($H1, H! > \& 0 + ((\& ! \& 0! > ?'F)(\& 4 ?P5!R?+!)', N^{(!=, *+\& ('HP!O\%FF+N+5!/2E\%, H\%, 5!B8DB<D9!)$

#& ()/)-.0%.)1'*234'0)'/\$'!

V%-, 2', N!T'&+KH%&5!O+, H&+!0%&!>?'F%(%4?P5!3+F'N'%, !1,2!,%K'1F!/H?'K(5!6O,5!#:B:<B#!) K12+E'K!T+1.5!6O.5!#::"<

!) +(H?+H'K(5!O%,H',+,H1F!>?'F%(%4?P5!O&'H'K1F!R?+%&P5!.%K'1F!1,2!>%F'H'K1F!>?'F%(%4?P!

!] 1, H5! ` ', +H++, H?<O+, H-&P!>?'F%(%4?P5!/4'(H+E%F%NP5!>?'F%(%4?P!%Q!b1, N-1N+!

! 0 + &E1, 5!T - HK?5!b1H', 5!0& + + c!

!

60%/.-*%/&*#7%0&-*A', !O1, 12'1, !Q-, 2(5!-, F+((!,%H+2!%H?+&U'(+C!

!

![%%c!)U1&25!&+K+'*+2!Q%&!

|AO1EG&'2N+! = >5!#::YC5!Q&&E!

$$\begin{split} & \texttt{H?+!O1, 12'1, !. \%K'+\texttt{HP!}(\%\&!O\%, \texttt{H}', +, \texttt{H1F!}{>}?'\texttt{F}\%(\%4?\texttt{PL} \\ & ! [\%\texttt{c}!) U1\&25!\&\texttt{K}+\texttt{K}+'*+2!\emptyset\&! \\ & !\texttt{AO1}\texttt{EG\&'2N+!}{=}{>}5!\texttt{\#}::7\texttt{C5!}\emptyset\&\&\texttt{E!}\texttt{H?+!O1, 12'1, !} \\ & .\%\texttt{K'+\texttt{HP!}(\%\&!O\%, \texttt{H}', +, \texttt{H1F!}{>}?'\texttt{F}\%(\%4?\texttt{PL!}\texttt{R?'}(!\texttt{G}\%\texttt{c}!\texttt{U1}(!\texttt{1}\texttt{F}(\%!(\texttt{+}\texttt{F}+\texttt{K}\texttt{H}+2!1(!1, !\texttt{W}-\texttt{H}(\texttt{H1, 2', N!})\texttt{K12}+\texttt{E'K!} \\ & \texttt{R'}\texttt{HF}!\emptyset\&!\texttt{M}::9!\texttt{GP!} \\ & \texttt{5!}\texttt{H?}{+}!\%-\&, \texttt{1F!}\&\emptyset!\texttt{H?+!}) \texttt{E}{+}\&'\texttt{K1, !}\texttt{b'}\texttt{G}\&\texttt{1}\&\texttt{P!}) ((\%\texttt{K'}\texttt{1}\texttt{H'}\%, \texttt{L!} \\ & \texttt{>}\&'(\texttt{K'}\texttt{FF1!}1, 2! . \texttt{H1}, 0\%\&\texttt{2!}3+'2!\texttt{R}\&-(\texttt{H5!}) \end{split}$$

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q.%K'1F!T%E1',(!%Q!],%UF+2N+@!R+K?,%F%NP5!)&H5!1,2!3+F'N'%,Lr! A#:B8C@!Y8 <b:blo!< th=""><th>!D75!,%L!B!</th></b:blo!<>	!D75!,%L!B!			
! qT'(H1,H'1F! h 1P(!%Q!],%U',N@!T%-N![F%EG+&N^(!>&%4%(1F!Q%&!1!3+Q%&E1H'%,1F!/4'(H+E !D75!,%L!B!A#:B8C@!9D <ydlo!< td=""><td>E%F%NPLr!</td></ydlo!<>	E%F%NPLr!			
!! q \$ 1K&%(H&-KH-&+(!1,2!.%K'+H1F!>&',K'4F+(@!),!)&K?'H+KH%,'K!O&'H's-+Lr!6,! 5!M%FL!#@! B9'' <yyl! 2'h+2!gp!o%*+&h!zl![-'x(!1,2!),,+hh+!]l!\$%(?+&l!t%&2&+k?h@!.4&',n+&:<="" td=""><td>5! 5!# : BDLo!</td></yyl!>	5! 5!# : BDLo!			
' qS'(H%&P!1,2!R&1,(K+,2+,K+!',!)2%&,%^(!62+1!%Q!R&-H?Lr!6,! 5!B#B<''7L!/2'H+2!GP!>+H+&!O%&2%,5!/(4+,!S1EE+&5!1,2!)e+F!S f%&c@!3%-\F+2N+5!#:BDLo!	%,,+H?L!`+U!			
7"Lo!	71FF!#:BDC0!"B<			
!! q&4F-(!G+P%,2!H?+!GX+KH0!R&-H?!',!)2%&,%^(!O&'H's-+!%Q!S-((+&F!1,2!S+'2+NN+&Lr! !##5!,%L!B!A.4&',N!#:BDC5!B#''<7:LO!				
qS+N+F5! \$ 1F'Kc5!1, 2!H?+!>%(H(+K-F1&!GF'E+Lr!6, ! 5!7Y<; YL!/2'H+2!GP!Z%?, !O1&-1, 1!1, 2! \$ 1&c!O1-K?'L!) FG1,] >&+((5!#:BDLo	P0!.=`f!			
!! q.P,H?+H'K!/*'2+,K+!1,2!WGX+KH'*+!62+,H'HP@!R?+!O%,H+E4%&1&P!.'N,'Q'K1,K+!%Q!/1&FP! O%,K+4H'%,!%Q!R&-H?Lr! B:LBBBBd+X%4LB#B8#Lo!				
! q6,H&%2-KH'%,@!uR?+!>%',H!6(!H%!O?1,N+!6H^Lr!6,!b1EG+&H!n-'2+&*11&H5! 5!''<#7L!\$%,H&+1F@!\$K0'FF <g-++,^ >&+((5!#:BYLo!</g-++,^ 	(!=,'*+&('HP!			
! qS%F'(H'K!)F+H?'K!>F-&1F'(E@!)!3+Q%&E1H'%,1F!3+(+1&K?!>&%N&1ELr! A#:B;C@!B9; <ydlo!!< td=""><td>!DB5!,%L!#!</td></ydlo!!<>	!DB5!,%L!#!			
' q>&%4%('H'%, 1F!1, 2!/e'(H+, H'1F!R&-H?!', !/2E-, 2!S-((+&F^(! Lr! !#:5!, %L!B!A.4&', N!#:B;C@!B9: <d:lo< td=""><td>!</td></d:lo<>	!			
! q6,H&%2-KH'%,@!R&1,(Q%&E',N!>?'F%(%4?PLr!6,!b1EG+&H!n-'2+&*11&H5! 5!''<				

. - G(H1,H'*+!A+*'('M,!MQ!1,!+,HAP!Q'&(H!4-GF'(?+2!',!#::''!1,2!H?+,!A+*'(+2!',!#::Y!1,2!#:BBL)

!!

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 $\begin{array}{l} qR\&-\texttt{H}?!\$1\texttt{HH}+\&(\texttt{0}!S+\texttt{'2+NN}+\&\texttt{!1},\texttt{2}!S\%\&c?+\texttt{'E}+\&\texttt{!'},\texttt{!T'1F}+\texttt{KH'K1F!T'(\texttt{KF}\&(-\&+\texttt{L}r!))!}\\ B\texttt{''B}<\texttt{;}:\texttt{Lo!})\texttt{!F}\&\texttt{,N}+\&\texttt{!}*+\&\texttt{('}\&\texttt{,!-,2+}\&\texttt{!H}?+\texttt{!(1E+\texttt{!H'HF}+\texttt{!144}+\texttt{1}\&\texttt{(!'},\texttt{!H}?+\texttt{!G}\%&cF+\texttt{H}!)!}\\ \end{array}$

5!44L! "D<;;L!/2L!O?&'(H',1!31UF(L!>'HH(G-&N?0!T-s-+(,+!=,'*+&('HP5! R?+!.'E%,!.'F*+&E1,!>?+,%E+,%F%NP!O+,H+&5!#::DL!

 $\begin{array}{ll} qT\%P+U++\&2^{(!O\%,K+4H\%,!\%Q!R\&-H?@!/e4\%('H'\%,!1,2!O\&'H's-+Lr! & !Y''!A\#::DC@! & BY:< & BY:< & BY: < & B$

+((1P!4-GF'(?+2!',!

```
!
q) &H!6(!`%!V&',N+@!),!6,H&%2-KH'%,Lr!6,!
                                                                                                                                                                                            5!44L!B<B#L!
                +U! f \% c 0! . H! $ 1 \& H', (!>\&+((5!#:::Lo!))
q ) OH + & U & 2 Lr!6, !
                                                                                                                                        5!44L!#99<9;L!`+U!f%&c@!.HL!$1&H',^(!
               > \& + ((5!\#:::lo!)
qO_{k+1H'*+!} [\%_{k2+k!}O_{k}((',N!',!)+U!>-GF'K!O-FH-k+Lr!6,!)
                               5!44L!#:;<##7L!/2L!.-(1,!M1,n1,H+,!01FF1N?+&!1,2!$1&c!TL!h1F?%-H!b%,2%,0!
                  1KE'FF1, !> l+(()' +U! f % lc?!. H! $ 1 lH', ^(!> l+((5!#:::lo!)) 
q) -H%, % E P5! `+N1H'*'HP5!1, 2!6FF-(%&P!R&1, (N&+(('%, 0! $+, c+^(!T+K%, (H&-KH'%, !%0!) 2%&, %^(!
                                                                                  5!.>/>!.-44F+E+, H:B8885!44L:B97<; DLo!
                 ) +(\mathbb{H}?+\mathbb{H}'K(Lr!)
q) 2\%, \%5! R?+\%2\%! h'+(+, N&-, 20!. -&*+P!%0! R?%-N?HLr!/, H&P!',
                                                                                                                                                                                                   5!M%FL!B5!
                44L!B;<#:L!/2L!$'K?1+F!]+FFPL!`+U!f%&c@!We0%&2!=,'*+&('HP!>&+((5!B88DLo!
 q ) \& H'(H'+c+!1-H?+,H'K'H+'H!+,!(\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&+1H'+*+!(41,,',N!',!2+!?+2+,211N(+!))) \\ + (\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&+1H'+*+!(41,,',N!',!2+!?+2+,211N(+!))) \\ + (\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&+1H'+*+!(41,,',N!')) \\ + (\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&1+H'+*+!(41,,',N!')) \\ + (\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&1+H'+*+!(41,,',N!')) \\ + (\%K'1F+!*+\&1,HU\%\&2+F'Xc?+'20!K\&1+H'+*+!(41,,',N!')) \\ + (\%K'1F+!*+\&1,H'+*!) \\ + (\%K'1F+!*+:K'1F+!*+!) \\ + (\%K'1F+!*+:K'1F+!*+!) \\ + (\%K'1F+!*+:K'1F+!*+!) \\ + (\%K'1F+!*+:K'1F+!*+!) \\ + (\%K'1F+!*+!*+!) \\ + (\%K'1F+!*+!*+!!) \\ + (\%K'1F+!*+!*!) \\ + (\%K'1F+!*+!) \\ + (\%K'1F+!*+!!) \\ + (\%K'1F+!*+!!) \\ + (\%K'1F+!*+!) \\ + (\%K'1F+!*!) \\ 
                c-,(⊞r!6.!
                                                                                                                                                        5!44L!B#B<"YL!/2L!) H'+!R?L!
                [\&\{NN+E1, ,<]\&-'XQ05!S+, c!OL!O++\&H(+E15!1, 2! \$1\&'|HH+!VL!h'FF+E(+, L!]1E4+, 0!]\%c!)N\%\&15!
                B88DLo!AW&'N', 1F!H'HF+@!q) &H'(H'K!) - H?+, H'K'HP!1, 2!. %K'1F!3+(4%, ('G'F'HP@!O&+1H'*+!R+, ('%, !', !'
                O%, H+E4%&1&P!) &H(Lr!T-HK?!H&1, (F1H'%, !GP! $ 1&H+, !2+!Z%, NLC!
q6, H&%2-KH'%, Lr!6, !
                                                                                                                                                                                           5!44L!B<#DL!
                O1EG\&'2N+5! $ 1((L@! $ 6R!>&+((5!B88YLO!))
!
qM%%&?%+2+!,%K?!&1,2*+&(K?'X,(+F@!S+2+,211N(+!c-,(H!+,!2+!(H+-,!*1,!2+!(1E+,F+*',NLr!
                                                                                                                                                                                                                       ;: !AT+K+EG+&!B88;C@!B9:<9"Lo!AW&'N',1F!H'IF+@!qb+1*',N!H?+!$1&N',(@!>-GF'K!V-,2',N!Q%&!
                O\%, H+E4\%\&1\&P!) \&H(Lr!T-HK?!H\&1, (F1H'\%, !GP!S+F++, !]+'I+\&LC!
qR?+!>\%F'H'K(!\%0!)+(H?+H'K!T'(H1,K+Lr!6,!)
                                                                                                                                                  5!44L!#"#<"YL! / 2L!>1H&'K'1!$+P+&!
                 .41Kc(L!`+U!f%&c@!.HL!$1&H',^(!>&+((5!B88;Lo!
qR&1,(0%&E',N!)+(H?+H'K(0!3+0F+KH'%,(!%,!H?+!h%&c!%0!O1F*',!OL!.++&*+F2Lr!6,!
                                                                                                                                                                                                                  5!
                44L!B<##L!0&1,2!314'2(5!$'K?L0!/+&2E1,(5!B889L0!
qV1,H1(H'K!R?',N(@!O&'H'K1F!`%H+(!R%U1&2!1!.%K'1F!W,H%F%NP!%Q!H?+!) &H(Lr!
                                                                                                                                                                                                                   ;:!
               AB889C0!"Y<97Lo!
qV\%\&+U\%\&2Lr!
                                                                    5!4L!"L!/e?'G'H'%, !O1H1F%NL!0&1,2!314'2(5! $ 'K?L0!O1F*', !O%FF+N+!
                O+, H+\&! ) \&H! O 1FF+\&P5!B889L!
qS'(H\%\&P5!)\&H5!1, 2!R\&-H?@!h+FFE+\&^{(!O\&'H's-+!\%Q!)}2\%\&, \%Lr!6, !
                                                                                                                                                                                       5!44L!B8Y<#B#L!
                /2L!R?%E1(!3L!VFP,,!1,2!T1F'1!Z-2%*'HL!) FG1,P0!.H1H+!=,'*+&('HP!%0!`+U!f%&c!>&+((5!)
                B88"lo!
!
```

qO%, H&1<T'KH'%, @!) 2%&, %^(!>?'F%(%4?P!%Q!T'(K%-&(+Lr!6,!

5!M%FL!B5!44L!B: "<B#DL! / 2L!O?'4!. 'FF(!1,2!

O+%&N+!SL!Z+,(+,L!>%&H(E%-H?5!`LSL@!S+',+E1,,5![%P,H%,dO%%c5!B88#Lo!

!

qR?+!.%K'1F!.'N,'Q'K1,K+!%Q!)-H%,%E%-(!)&H0!)2%&,%!1,2![{&N+&Lr! !7D5!,%L!B!Ah',H+&!B88:C0!;B<YYLo!)!H&1,(F1H'%,!',H%!Z141,+(+!144+1&(!',! 5!44L!BD9<##"5!+2L!\$1&H',!Z1PL!

!

U'H?!.L!W, - (c1!A.HL!b% - '(@!O/\$3/b5!B8YYCL! !85!,%L!9!AR%&%,H%5! .+4H+EG+&dWKH%G+&!B8Y8C0!#"L!

% & () \$*+%4'0-@*A/.'01)'7-@*B, 0>-<, 4-@*%/&*+%/'9-*Aop!&+0+&++2C!

*

- qR&-H?!1,2!>%F'H'K((!))&+,2H5!V%-K1-FH5!1,2!H?+!R&-H?!%0!>%F'H'K(Lr!6,*'H+2!F+KH-&+5!>?'F%(%4?P! O%FF%s - - E5!O&1, 2!M1FF+P! . H1H+! = , '*+&('HP5! \$ 1&K?!#75!#: #''L!
- qR&-H?!>%(H<R&-H?@!3+'E1N', ', N!>?'F%(%4?P!Q%&!1! h %&F2!', !O&'('(Lr!6,*'H+2!F+KH-&+!', !H?+!%, F', +! (+&'+(!5!V+G&-1&P!#D5!#:#"L!M'2+%!4%(H+2!1H!H?+!F+KH-&+!(+&'+(! $U+G('H+\emptyset!?HH4(\emptyset dd4?'F\%(\%4?P',H'E+(\%0K\&'('(LK\% EdL!)))))$
- !

L!) H!H?+!(-EE+&!(K?%)F!)!(4%, (%&+2!GP!V%&-E!)O?&'(\m'K?+!.\mu-2'+,\averta_k) • (C5! \$ 1&'1(\mu+',!) GG+P5!.U'\mu+kF1,25!Z-FP!B8<\mu75!\mu:\mu+kH-&+!\mu+k+(\mu+(\mu+k+k)) + CF1,25\mu+kF1,25\mu

- qR?+!6E4%&H1,K+!%Q!R&-H?r!
- q) &H'(H'K!R&-H?r!
- q) &H5!R&-H?5!1, 2!>%F'H'K(r!)

q) 2%&, %^(!O&'H's-+!%Q!S+'2+NN+&@!R?+!R+E4%&1F'HP!%Q!R&-H?Lr!6, *'H+2!414+&!Q%&!1!G%%c!(+(('%,!%,! 61', ! \$ 1K2%, 1F25! !A#:B8C5!.%K'+HP! Q%&!>?+, %E+, %F%NP!1, 2! / e'(H+, H'1F!>?'F%(%4?P!%, F', +!K%, Q+&+, K+5!.+4H+EG+&!#75!#:#BL!

- q.-(1,,+!]L!b1,N+&5!S%F'(H'K!>F-&1F'(E5!1,2!>%(H<R&-H?!>%F'H'K(Lr!O%EE+,H1&P!2-&',N!1,!%,F',+! G%c!F1 - K?!0%&!) 2&' + , +!T + , N+&', c!O?14F', 5!

!Ab%, 2%, 0! [F%% E (G-&P!) K12+E 'K5!#: #: C5!?% (H+2!GP!H?+! \$ 1&N1&+H! [+1 - 0%&H!6, (H'H-H+!%0!R?+%F%NP!', !O1EG&'2N+5! / ,NF1, 25!) 4&'F!B''5!# : #BL!!

- $\operatorname{gu} h + ?!(4\&'K?H!*+\&N+?^{0}!R?+!=, H'E+FP!R'E+F', +((!\%0!) 2\%\&, \%^{(!)})$ r!O&'H'K1F!R?+%&P!3% - , 2H1GF+5! \$ K \$ 1(H+&!=, '*+&('HP5!S1E'FH%, 5!W, H1&'%5!WKH%G+&!75!#:B8L!

!qR&-H?!1,2!0%%2,+((!6,H+&(+KH0!))F+H?'K!S%F'(E!1,2!>&%4%('H'%,1F!R&-H?Lr!6,*'H+2!F+KH-&+!1H!H?+!M=! =, '*+&('HP!) E(H+&21E5!(4%, (%&+2!GP!H?+!.H-2P!O&%-4!O?&'(H'1, !>?'F%(%4?P5!.+4H+EG+&!B;5!))))#:B8L!

- qO?1,N',N!H?+!.-GX+KH0!S-((+&F5!) 2%&,%5!1,2!H?+!>%F'H'K(!%0!R&-H?Lr!3+(4%,(+!H%!414+&(!GP! \$ 1&K'1! \$ %&N1, !1, 2!] 1H?P!] 'F%?5!', !1!G%%c!(+(('%, !%, !
 - L!),, -1F!E++H', N5!.%K'+HP!Q%&!>?+,%E+,%F%NP!1,2!/e'(H+,H'1F!>?'F%(%4?P5! >+,, (PF*1, '1!. H1H+!=, '*+&('HP5!WKH%G+&!BD5!#: BDL!

```
qR&-H?5!3+('(H1,K+5!1,2!.%K'+H1F!/*'FLr!/((1P!4-GF'(?+2!%,F',+!',!
                                                                           5!1!0%&-E!?%(H+2!GP!H?+!
       6, (H'H-H+!\%0!) &H!1, 2!62+1(!A=]C5!) -N-(H!BY5!#:BY\!
```

 ?問4(@ddf?+E1N,'0'K1(問U%&24&+((LK%Ed#:BYd:9d#:d+4<D<&+*%F-H'%,<'(,H<U?1H<'H<-(+2<H%<G+<U<F1EG+&H<I-'2+&*11&HdL!</td>

!

 $\begin{array}{l} & qS'(H\%\&P!1,2!R\&1,(K+,2+,K+!',!)2\%\&,\%^{(!62+1!\%Q!R\&-H?Lr!>\&+(+,H+2!1H!H?+!K\%,Q+\&+,K+!q)2\%\&,\%^{(!} \\ & \hspace{2cm} !1H!V'QHP5r!S1\&^{*1\&2!=,'*+\&('HP5!`\%*+EG+\&!BD<B85!#:B;L!WH?+\&!*+\&('\%,(!\\ U+\&+!4\&+(+,H+2!1H!H?+!.'eH?!),,-1F!\$+H',N!\%Q!H?+!)((\%K'1H'\%,!Q%\&!)2\%\&,\%!.H-2'+(5!T-c+!\\ & \hspace{2cm} =,'*+\&('HP5!\$1\&K?!#7<\#95!#:BY!1,2!1H!H?+!>?'F\%(\%4?P!O\%FF\%s-'-E5!O\&1,2!M1FF+P!.H1H+!\\ & \hspace{2cm} =,'*+\&('HP5!`\%*+EG+\&!''5!#:BYL!\\ !\\ !(q3+QF+KH'\%,(!\%,!\\ Ur!V'*+!4\%(H(!',!&+(4\%,(+!H\%!1,!\%,F',+!)))))) \\ & \hspace{2cm} (qT++4!O\&1H'H-2+r!)\\ & \hspace{2cm} q3+Q\%\&E1H'\%,1F!.\%K'1F!>?'F\%(\%4?Pr!)\\ & \hspace{2cm} qR\%U1\&2!1!`+U!>\%F'H'K(r!) \\ \end{array}$

 $q > ?'F\%(\%4?P5!R\&-H?5!I, 2!H?+!h'(2\%E!\%0!b\%*+Lr!6O.!/e1-N-\&1F!) \\ 22\&+((5!R\%\&\%, H\%5!\$1P!B\#5!\#:BY\setminus!E1-N-\&1F!) \\ 22\&+((5!R\%\&\%, H\%5!)) \\ (24) \\$

- q>?'F%(%4?P5!) &H5!1,2!3+F'N'%, r!
- qT%P+U++&25!R&-H?5!1,2!H?+!3+Q%&E1H%,1F!R&12'H%,r!

 $*'_{2+\%}_{4\%}(H+2!_{1}H!_{2}HH_{0}dP_{M}-H-LG+dgI_{1}/W=2S)$. \$L!

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!
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 $\begin{array}{c} q. -\&4F-(!G+P\%, 2!H?+!.-GX+KH\emptyset!) \\ 2\%\&, \%^{(!62+1!\%\varrho!R\&-H?Lr!V'\varrhoH?!)}, -1F! \\ +H', N!\%\varrho!H?+!) ((\%K'1H'\%, !\varrho\%\&!) \\ 2\%\&, \%!.H-2'+(5!=, '*+\&('HP!\%\varrho! \\ \%, H\&+1F5!) \\ 4\&'F!'':5!\#:B; L! \\ \end{array}$

!

- qS%F'(H'K!)F+H?'K!>F-&1F'(E@!)!3+Q%&E1H'%, 1F!3+(+1&K?!>&%N&1Er!
- qS%F'(H'K!R&-H?!1,2!>&%4%('H'%,1F!R&-H?r!
- q.%K'1F!T%E1',(!%Q!R&-H?@!)&H5!3+F'N'%,5!1,2!.K'+,K+r!

!

qS%F'(H'K!)F+H?'K!>F-&1F'(E0!)!3+Q%&E1H'%,1F!3+(+1&K?!>&%N&1ELr!>?'F%(%4?P!T+41&HE+,H! O%FF%s-'-E5!O1F*',!O%FF+N+5!WKH%G+&!;!1,2!B''5!#:B9L!

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!

 $\begin{array}{l} qW\,,!\,[\,+'\,,N!1!\,3\,+\!Q\%\&E\,1H'\%\,,1F!\!>\,?'F\%\,(\%4?+\&!\,.4'\&'H-1F'HP5!\,3\,+F'N'\%\,,5!1\,,2!H?+!O1FF!H\%\,!b\%*+Lr\,!6\,,*'H+2!\\ F+KH-\&+5!\,.\,K\&'4H-\&+5!V1'H?5!1\,,2!\,.\,K?\%F1\&(\,?'4!(+E\,'\,,1\&5!6O\,.5!\,^{\times}\,\%*+EG+\&!B75!\#\,:B7L!\!>\%\,(H+2!\%\,,F'\,,+!1H!H) \\ H?+!6O\,.\,!6\,,(H'H-H'\%\,,1F!\,3\,+4\%\,('H\%\&P0!\,\underline{?HH4@dd}\,?2FL\,?1\,,2F+L\,,+HdB\,:Y9\,;d''\,''Y7B8}L! \end{array}$

!

 $\begin{aligned} qO\&+1H', N!1!T'(H-\&G1, K+\emptyset!) \&HS!. &K'1F!/H?'K(5!1, 2!3+F1H'&, 1F!) -H&, &EPLr!6, &H+2!414+&!(W&!1!\\ (PE4\%('-E!\%, ! !1H!H?+!1, , -1F!E++H', N5!/1(H+\&, !T'*'('\%, 5!) E+\&'K1, !) \\ >?'F\%(\%4?'K1F!) ((%K'1H'\%, 5![1FH'E%\&+5!T+K+EG+\&!#Y5!#:B'L!) F(\%!4\&+(+, H+2!1(!1, !', *'H+2!) \\ 414+\&!1H!H?+!(PE4\%('-E! !1H!H?+!(PE4\%('-E! !1H!H?+!=, '*+&('HP!\%0!R\%\&\%, H\%5! $1P!B#5!#:B9\!1(!1, !', *'H+2!F+KH-&+!', !H?+!O\%FF\%s-'-E! \\ \%, ! ! 5!(4\%, (\%\&+2!GP!H?+!) \&K-(!O+, H+\&!Q\%\&!. \%K'1F!Z-(H'K+!) \\ \end{aligned}$

!

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qR?+%2%&!) 2%&, %!', !>%(HE%2+&, !R'E+(Lr!O%EE+, H1&P!%, !414+&(!GP!bP2'1!0%+?&5!0+&H&-2!]%K?5! 1,2!V&+2!3-(?!Q%&!H?+!41,+F!

5!1, -1F!E + +H', N5! E + & K1, !. & K' + HP!Q & ! + H'K(5!b & (!), N+F+(5! & *+EG+& 85!#::YL! + H'K(5!b & (!), N+F+(5! & *+EG+& 85!#:YL! + H'K' + H'K'

!qR&-H?!1,2!6,H+&4&+H1H'%,@!.K'+,K+5!3+F'N'%,5!1,2!O-FH-&+Lr!]+,,+H?!]%,P,2Pc!\$+E%&'1F!b+KH-&+5! (4%,(%&+2!GP!H?+!.%K'+HP!%0!O?&'(H'1,!>?'F%(%4?+&(5!',!K%,X-,KH'%,!U'H?!H?+!O+,H&1F!T'*'('%,! \$++H',N!%0!H?+!)E+&'K1,!>?'F%(%4?'K1F!)((%K'1H'%,5!O?'K1N%5!)4&'F!B85!#::YL!V'&(H!N'*+,!1H! O1F*',!O%FF+N+5!)4&'F!B95!#::7!1(!1,!',*'H+2!F+KH-&+!',!H?+!(+&'+(!

L!3+4+1H+2!1H!3+2++E+&!=, '*+&('HP!)

O%FF+N+!',!),K1(H+&5!W,H1&'%5!.+4H+EG+&!#85!#::95!1,2!R&','HP!O?&'(H'1,!O%FF+N+!',!>1F%(! S+'N?H(5!6FF',%'(5!WKH%G+&!#:5!#::9L!

!!

 $\begin{aligned} qR\&-H?! \$ 1HH+\&(\emptyset!S+'2+NN+\&!1,2!S\%\&c?+'E+\&!',!T'1F+KH'K1F!T'(KF\%(-\&+Lr!6,*'H+2!c+P,\%H+!F+KH-\&+!0\%\&!\\ & 5!H?+!\#9H?!),,-1F!.PE4\%('-E!\%0!H?+!.'E\%,!.'F*+\&E1,!\\ &>?+,\%E+,\%F\%NP!O+,H+\&5!T-s-+(,+!=,'*+\&('HP5!>'HH(G-\&N?5! \$ 1\&K?!B;<BY5!#::YL \end{aligned}$

- q/1&H?^(!b1E+,H0!.-QQ+&',N5!S%4+5!1,2!h'(2%ELr!6,1-N-&1F!b+KH-&+5!6,(H'H-H+!Q%&!O?&'(H'1,!.H-2'+(5! R%&%,H%5!`%*+EG+&!#B5!#::"L!>%(H+2!%,F',+!1H!H?+!6O.!6,(H'H-H'%,1F!3+4%('H%&P0! <u>?HH40d?2FL?1,2F+L,+HdB:Y9;d#87998</u>L!
- !

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 $qO\&+1H'*+! [\%&2+\&!O\&\%((',N\emptyset!) \&H'(H'K!) - H?+, H'K'HP!1, 2!.\%K'1F!3+(4\%, ('G'F'HP!', !`+U!>-GF'K!O-FH-\&+Lr! > \&+(+, H+2!1H!H?+!', H+\&, 1H'\%, 1F!(PE4\%('-E!)) = (FH-\&+Lr)) = (FH-\&+Lr) = (FH-B+(FH-B+K)) = (FH-B+(FH-B+K)) = (FH-B+K) =$

5! \$ - (y+!2^1&H!K%, H+E4%&1', !2+! \$ %, H&y1F5!

`%*+EG+&!;5!#::"L!

q0%%2!O'H'+(5!%&!O'H'+(!%Q!H?+!O%%2z!312'K1F!) -N-(H', '1, (5!.%K'+H1F!.H&-KH-&+(5!1,2!`%&E1H'*+! O&'H's-+Lr!>&+(+, H+2!1H!H?+!K%, Q+&+, K+!

5!O1F*', !O%FF+N+5!.+4H+EG+&!B#5!#::"Lo!

- $\begin{array}{c} q \$ + \texttt{H}14?P('K(!10\texttt{H}+\&!) (\texttt{K}?\texttt{U}'\texttt{H}\texttt{I}\texttt{I}!. 0\texttt{Q}+\&', \texttt{N}!1, 2!\texttt{S}\%4+!', !) 2\%\&, \%^{(!} \\ \$ + \texttt{H}', \texttt{N}(5!O1, 12'1, !>?'\texttt{F}\%(\%4?'\texttt{K}\texttt{I}\texttt{F}!) ((\%\texttt{K}'\texttt{1}\texttt{H}'\%, !1, 2!\texttt{H}?+!O1, 12'1, !. \%\texttt{K}'+\texttt{H}\texttt{P}!\texttt{Q}\&!) + (\texttt{H}?+\texttt{H}'\texttt{K}(5!\texttt{1}\texttt{H}!) \\ \texttt{H}?+!O\%, \texttt{N}\&+((!\%\texttt{Q}!\texttt{H}?+!. \%\texttt{K}'\texttt{1}\texttt{F}!. \texttt{K}'+, \texttt{K}+(!1, 2!\texttt{S}-\texttt{E}1, '\texttt{H}'+(5!\texttt{S}\texttt{1}\texttt{F}'\texttt{Q}\texttt{1}\texttt{e}5!\,\$\texttt{1}\texttt{P}!''\texttt{B}5!\#::"\texttt{L}o!! \\ \end{array}$
- W&N1, 'I+&5!U'H?! \$ 1&'+<`% |FF+!3P1, !A>?'F%(%4?P5! \$ %, KH%, !=, '*+&('HPC!%Q!H?+!21P<F%, N!(PE4%('-E! 5!K%<(4%, (%&+2!GP!H?+!O1, 12'1, !>?'F%(%4?'K1F!)) ((%K'1H'%, ! 1, 2!H?+!O1, 12'1, !. %K'+HP!Q%&!) +(H?+H'K(5!1H!H?+!O%, N&+((!%Q!H?+!. %K'1F!.K'+, K+(!1, 2! S - E1, 'H'+(5!S1F'Q1e5! \$ 1P!''B5!#:: "Lo

• $O\%FF\%s - ' - E5! > ?'F\%(\%4?'(K?+(!6,(H'H-H5!O\%+H?+<=,'*+\&('HaH5!V\&1,cQ-\&H5!Z-,+!#B5!#::B!))$
$ \begin{array}{l} \label{eq:q_1} \\ \mbox{q_1} \\ \mbox{1}, !E1, !) 2\%\&, \%! *\%, !T + \&\&'21!? + \&! * + \&(\mathbb{H} + ? + , zr! > - GF'K!F + K\mathbb{H} - \&+!(4\%, (\%\&+2!GP!\mathbb{H}? + !T + 41\&\mathbb{H} E + , \mathbb{H}!\%\mathbb{Q}! \\ \\ \mbox{$>?'F\%(\%4?P5! = , '* + \&('\mathbb{H}\mathbb{H}!O + (1 E\mathbb{H}?\%K?(K? - F + !] 1((+F5!O + \&E1, P5! \$ 1P!B:5!\#::BL!))F(\%!4\&+(+, \mathbb{H} + 2!) \\ \\ \mbox{$-, 2+\&!\mathbb{H}? + !\mathbb{H}!\mathbb{H} + !q $) - \mathbb{H}\%, \% EP5! ` + N1\mathbb{H}'*'\mathbb{H}P5!1, 2!6\mathbb{F} - (\&\mathbb{P}!\mathbb{R}\&1, (N\&+(('\%, 5r!.\%K'1F!1, 2!>\%F'\mathbb{H}'K1F!)) \\ \\ \mbox{$R? + \%\&P! . + E', 1\&5! = , '* + \&('\mathbb{H}P!\%\mathbb{Q}!/2', G - \&N?5! \$ 1P!B5!\#::BL! $ \end{array} } $
<pre>. q) &H5!R&-H?5!1,2!M%K1H'%,@!M1F'2'HP!1,2!T'(KF%(-&+!',!S+'2+NN+&^(!),H'<)+(H?+H'K(Lr!),,-1F! E++H',N5!.%K'+HP!Q%&!>?+,%E+,%F%NP!1,2!/e'(H+,H'1F!>?'F%(%4?P5!>+,,(PF*1,'1!.H1H+!) =,'*+&('HP5!WKH%G+&!;5!#:::Lo!)F(%!4&+(+,H+2!GP!',*'H1H'%,!1H!H?+!=,'*+&('HP!%Q!h',2(%&5!) \$ 1&K?!#D5!#::BL!</pre>
; q0121E+&^(!>?'F%(%4?'K1F!S+&E+,+-H'K(@!),!6,H&%2-KH'%,Lr!O-+(H!F+KH-&+5!O1F*',!O%FF+N+5!WKH%G+&! #''5!#:::L!
' q\$%2+&, 'HP!1, 2!6H(!T'(K%, H+, H(0!))!b+, H+, !3+(4%, (+Lr!6, *'H+2!&+(4%, (+!H%!q /, 'NE1(!%Q!.K'+, K+!1, 2! h '(2% E!Q&% E!>F1H%!H%!T+&&'215r!H?+!#:::!h', 'Q&+2!/L! h +H+&!V1K-FHP!) U1&2!b+KH-&+!GP!Z1, +H! [F-EG+&N5!.+1HHF+!>1K'Q'K!=, '*+&('HP5!) 4&'F!B''5!#:::L!
L!>1,+F!1H!H?+!B888!E++H',N!%Q!H?+!) E+&'K1,!.%K'+HP!Q%&!)+(H?+H'K(!1,2!H?+!B888!E++H',N!%Q!H?+!.%K'+HP!Q%&!>?+,%E+,%F%NP! 1,2!/e'(H+,H'1F!>?'F%(%4?PLo!
'q) -H%,% EP5!`+N1H'*'HP5!1,2!6FF-(%&P!R&1,(N&+(('%,0!\$+,c+^(!T+K%,(H&-KH'%,!%Q!)2%&,%^(!))+(H?+H'K(Lr!),,-1F!E++H',N5!)E+&'K1,!.%K'+HP!Q%&!)+(H?+H'K(5!h1(?',NH%,!TO5!WKH%G+&!#85!)B888Lo!),,-1F!E++H',N5!.%K'+HP!Q%&!>?+,%E+,%F%NP!1,2!/e'(H+,H'1F!>?'F%(%4?P5!=,'*+&('HP!)%Q!W&+N%,5!/-N+,+5!WKH%G+&!D5!B888Lo!
! qS1G+&E1(^(!O&'H's-+!%Q!>%(HE%2+&,'(ELr!>&+(+,H1H'%,!H%!1!(-EE+&!(+E',1&!Q%&!K%FF+N+!H+1K?+&(!%,! 5!O1F*',!O%FF+N+5!Z-,+!;5!B888L!
' q) -H%,% EP!1QH+&!) 2%&,%@!R?+!>&1KH'K+!%Q!) &H!',!R?+!) N+!%Q!6H(!OF%G1F!3+4&%2-K'G'F'HPLr!6,*'H+25! +,2%U+2!F+KH-&+5!/(F'Kc!.PE4%('-E5!T+41&HE+,H!%Q!>?'F%(%4?P5!.H!b%-'(!=,'*+&('HP5! WKH%G+&!#D5!B88DL!3+*'(+2!*+&('%,!4&+(+,H+2!1H!6O.!',!R%&%,H%5!Z1,-1&P!#D5!B888L!
; q.?%&H!O'&K-'H(!1,2!\$1&c+H!V1'F-&+@!R?+%&'+(!%Q!H?+!O'*'K!.+KH%&Lr!RU+,H'+H?!h%&F2!O%,N&+((!%Q! >?'F%(%4?P5![%(H%,5!)-N-(H!B: <b;5!b88dl0!6,! 5!*%FL!7#!AB88DC@!BDY<b8"l!=3b!p!<u>?HH4(@dd2%'L%&NdB:L9D7:dUK4#:<</b8"l!=3b!p!<u></b;5!b88dl0!6,!
<u>41'2+'1B88D7#Y87</u> L!) !F%, N+&!*+&('%, !U1(!4&+(+, H+2!1H!1, !/K%, %E'K(!1, 2![-(', +((! T+41&HE+, H!(PE4%('-E5!O1F*', !O%FF+N+5!. +4H+EG+&!#85!B888L!
qO&'H'K1F!R?+%&P!\$++H(!`+U!O+,&+!>-GF'K!)&Hr!\$'2U+(H!O&'H'K1F!R?+%&P!3%-,2H1GF+5!.H!b%-'(! =,'*+&('HP5!.+4H+EG+&!#;<#D5!B88YLo!
q)2%&,%5!S1G+&E1(5!1,2!H?+!)&H!%Q!>%F'H'K(Lr!),,-1F!\$++H',N!%Q!H?+!)E+&'K1,!>%F'H'K1F!.K'+,K+!)((%K'1H'%,!',!h1(?',NH%,5!TLOL5!)-N-(H!#D<"B5!B88YLo! !

q`%&E1H'*+!)+(H?+H'K(!1,2!O%,H+E4%&1&P!)&H0![{&N+&^(!O&'H's-+!%Q!)2%&,%Lr!•6!6,H+&,1H'%,1F! O%,N&+((!',!)+(H?+H'K(5!=,'*+&('HP!%Q!`%HH',N?1E5!/,NF1,25!)-N-(H!#8! .+4H+EG+&!#5!<br B8DDLo!
q.K?+F+&5!O1(('&+&5!1,2!R&1,(Q-,KH'%,1F!T+Q','H'%,(!%Q!S-E1,c',2Lr!•M666!h%&F2!O%,N&+((!%Q! >?'F%(%4?P5![&'N?H%,5!/,NF1,25!)-N-(H!#B<#Y5!B8DDLo!
$ qR?+! . \%K'1F! . 'N, 'Q'K1, K+!\%Q!) -H\%, \%E\% - (!) \&H\emptyset!) 2\%\&, \%!1, 2! [{\&N+\&Lr!O\%, Q+\&+, K+!\%, ! 5!6, H+\&, 1H'\%, 1F!) ((\%K'1H'\%, !Q\%\&!>?'F\%(\%4?P!1, 2!b'H+\&1H-\&+5!) = , '*+&('HP!\%Q!` \%H\&+!T1E+5!) 4\&'F!#B<#''5!B8DDLo! $
qT + *+F%4E +, H!1, 2! /, K% -, H+&!', H?+!b'N?H!%Q!b'G+&1H'%, Lr!O%, Q+&+, K+!%, ! 5!V&++!=, '*+&('HP!%Q!) E(H+&21E5!) - N-(H!B: <b95!b8dyl!)< td=""></b95!b8dyl!)<>
!! q.H&1H+N'+(!Q%&!6,H+&4&+H',N!6,H+,H'%,1F!)KH'%,(Lr!.PE4%('-E!',!)+(H?+H'K(5!O1F*',!O%FF+N+5!\$1P!Y5! B8DYL!
, q3+1F'(E5!\$%2+&,'(E5!1,2!H?+!/E4HP!O?1'&Lr!O%,Q+&+,K+!%,!)((%K'1H'%,!Q%&!>?'F%(%4?P!1,2!b'H+&1H-&+5!=,'*+&('HP!%Q!]1,(1(5!)4&'F!'':! \$1P!#5!B8DYLo!</td
q)2%&,%^(!b'Q+!1,2!h%&cLr!O+&E1,!.H-2'+(!O&%-45!O1F*',!O%FF+N+5!\$1&K?!#:5!B8D;L!!
! q\$+H?%2%F%N'K1F!.?12%UG%e',N!',!\$1&e'(H!)+(H?+H'K(@!b-ciK(!1,2!)2%&,%Lr!6,H+&,1H'%,1F!b-ciK(! .PE4%('-E5!\$%,H&+1F5!WKH%G+&!B: <b#5!b8d9lo!< td=""></b#5!b8d9lo!<>
$q \$ \%21F! + (!?+!'K(!1,2! \$ \%21F!R?+\%\&P@!.++\&*+F2!\%, !T\%\%P+U++\&2^{(!b+N1KPLr!O\%, Q+\&+, K+!\%, !)$

qu)+(H?+H'K!62+1(^!1,2!H?+!3%F+!%Q!)&H!',!]1,H^(!/H?'K1F!S+&E+,+-H'K(Lr!V'QHP</'N?H?!),,-1F! \$++H',N5!>1K'Q'K!T'*'('%,5!)E+&'K1,!>?'F%(%4?'K1F!)((%K'1H'%,5!b%,N![+1K?5!O1F'Q%&,'15! \$1&K?!B8D7Lo!)F(%5!RU+,HP</'N?H?!),,-1F!O%,N&+((5!O1,12'1,!>?'F%(%4?'K1F!)((%K'1H'%,5! O-+F4?5!W,H1&'%5!Z-,+!B8D7Lo!

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- $\begin{array}{c} q \) + (\texttt{H}?+\texttt{H}'\texttt{K}!\texttt{M}1\texttt{F}-+\texttt{0}!\texttt{b}', 25!\texttt{O}1*+\texttt{FF5}!1, 2!\texttt{R}\&-\texttt{'}\texttt{H}\texttt{L}r!\texttt{6}, *\texttt{'}\texttt{H}+2!\texttt{K}\%\texttt{E}\texttt{E}+, \texttt{H}1\&\texttt{P5}!.4+\texttt{K}'1\texttt{F}!.+((\texttt{'}\%,\texttt{5}!)\texttt{E}+\texttt{k}'\texttt{K}1,\texttt{!}.\%\texttt{K}'+\texttt{H}\texttt{P}!\\ \mathbb{Q}\&\texttt{k}! \) + (\texttt{H}?+\texttt{H}'\texttt{K}(\texttt{5}!\$\%,\texttt{H}\&+1\texttt{F5}!) \) -\texttt{N}-(\texttt{H}!\#75!\texttt{B}8\texttt{D}''\texttt{L}! \) \end{array}$

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- quR&-H?<6E4%&H^!',!) 2%&,%^(!) +(H?+H'K!R?+%&PLr!V%&H'+H?!),,-1F!\$++H',N5!) E+&'K1,!.%K'+HP!Q%&!) +(H?+H'K(5![1,Q05!)FG+&H15!WKH%G+&!B8D#Lo!
 - L!V%-&!414+&(!4&+(+,H+2!H%!Q1K-FHP!E+EG+&(!', !H?+!1&H(5!

T%&2H!O%FF+N+5! \$ 1P!B:<B#5!B8D#L!

!

 $q > ?'F\%(\%4?P5!) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, \%^{(!)} + (H?+H'K!R?+\%\&PLr! h \%\&c(?\%45!T+41\&HE+, H!\%Q! > ?'F\%(\%4?P5!)) \&H5!1, 2! > \&1e'(!', !) 2\%\&, 2! > \&1e'(!'$

[+F',21!>'+&KP5!

- \$ 1HH! [+1*+&(%,5!/eH+&,1F!/e1E',+&5!O%E4&+?+,('*+!g-1F'QP',N!/e1E(!',!/,NF'(?!b'H+&1H-&+!1H! \$ 'K?'N1,!.H1H+!=, '*+&('HP5!Z1,-1&P!B887L!
- !
- . (#\$/'0#*!'''+'(, #!Ao!p!4&'E1&P!(-4+&*'(%&\!O\$!p!O%EE'\++!\$+EG+&C!
- !
- T1, '+FF+! f +HH5!q \$ 1c', N!.+, (+0!), !/e41, ('*+!.H-2P!%0!6E1N', 1H'%, 5!.H&-KH-&1F! \$ +H14?%&5!1, 2!)+(H?+H'K!`%&E1H'*'HP!U'H?!O1F*', !.++&*+F2Lr! \$)!R?+('(5!>?'F%(%4?P5!6O.!#:B8L!AO \$ C!
- $\begin{array}{l} O1\&F\%(!V\&+2+\&'K\%!>+\&+'\&1!WFy15!qM+\&212+!+E!S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR\&-H?!', !S1G+\&E1(!AB897<B8Y''Cr!fR&-H?!', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?!', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y''Cr!fR&-H?'', !S1G+&E1(!AB897<B8Y'', !S1G+&E1(!AB897<B8Y'', !S1G+&E1(!AB897<B8Y'', !S1G+&E1(!AB897<B8'', !S1G+&E$
- \$ 1HH?+U!/L!Z%?, (%, 5!qb'G+&1H', N!/E+&N+, K+@!S-E1, !T+4+, 2+, K+!1, 2!) -H%, % EP!', !/E+&N+, H'(E5! S+&E+,+-H'K(5!1, 2!>&1NE1H'(ELr!\$)!R?+('(5!>?'F%(%4?P5!6O.!#:B7L!AO\$C!
- [&P1,!3'K?1&25!qWUA,C',N!/e'(H+,K+@!S-E1,!\$+1,',N5!62+,H'HP!1,2!3+(4%,('G'F'HP!',!S+'2+NN+&^(! Lr!\$)!R?+('(5!>?'F%(%4?P5!60.!#:B"L!AO\$C!
- Z+FF+!S-'(E1,5!qR&1,(F1H'%,(!%Q!H?+!6E4F'K'H0!R&1K',N!S%U!b1,N-1N+!h%&c(!G+P%,2!O+,2F',!1,2! T+&&'21Lr!\$)!#?+('(5!>?'F%(%4?P5!6O.!#:B#Lo!
-] +*', !S -', ', c5!q h ?1H!O?'F2&+, !O1, !T%@!) !>%FPK-FH-&1F!O1&2+, !R?+%&P!%Q!T+*+F%4E+, H!Q%&! /2-K1H'%, Lr!\$) !H?+('(5!>?'F%(%4?P5!6O.5!#:BBL!AO\$C!
- 3P1, !/ -*+&E1,5!q>-E4', N!6, H-'H'%, (!1,2! \$ 1c', N!>&1KH'K+!T'QQ+&+, H0!3'K?1&2!3%&HP^(!u6, H-'H'*+^!)) KK% -, H!%Q!3+Q+&+, K+!1,2!R&-H?Lr!\$) !H?+('(5!>?'F%(%4?P5!6O.5!#:B:L!AO\$C!
- Z1,+H!3+125!q\$+H14?%&'K!R&-H?@!.++',N!1,2!.1P',N!',!\$+&F+1-\$\$%,HP!1,2!3'K%+-&5!U'H?!1![&%12+&! /H?'K(!*'1!n-'2+&*11&Hr!\$)!H?+('(5!>?'F%(%4?P5!6O.5!#:B:L!AO\$C!
- >1-F!S-GGF+5!q) !O+&H1', HP!%Q!T+1H?0!) 44&+K'1H', N!S-E1,!), 'E1F?%%2Lr!\$) !H?+('(5!>?'F%(%4?P5!6O.5! #::8L!AO\$C!
- [+KcP!S-GGF+5!q), !/H?'K!%Q!/EG%2'E+, Hr!\$ h.!4&%X+KH!', !.%K'1F!/H?'K(5!6O.5!#::DLo!
- O?&'(!) FF+&(5!qR1c', N!S1, ,1?!) &+, 2H!H%!O?-&K?Lr!\$) H?+('(5!>?'F%(%4?P5!6O.5!#::YL!AO\$C!
- [+,X1E',!0&%+,+U%F25!q]',NQ'(?+&(!1,2!O&'H+&'10!)!`+U!)44&%1K?!H%!H?+!/,N',++&',N!T+('N,! \$+H?%2Lr!\$)!H?+('(5!>?'F%(%4?P5!60.5!#::;Lo!

] &'(H', 1!Z-, N5!q3%(1!b-e+EG-&N0!V'&(H!.%K'1F'(H!V+E', '($\mathbb{H}r!$) !H?+('(5!>?'F%(%4?P5!6O.5!#::;Lo! R&'K'1!M1, !TPc5!q`1H1F'HP!Q&%E!O?1%(0!S1,,1?!

>1-F!V+&2', 1, 25!qR?+!.+2-KH'%, !%Q!Z+1, ![1-2&'FF1&2@!)!>?'F%(%4?'K1F!O&'H's-+!%Q!V1H1F!R?+%&PLr!\$)! H?+('(5!>?'F%(%4?P5!6O.5!B88BL!AO\$C!

 $\begin{array}{l} O?\&'(!/G+\&F+5!q31H'\%, 1F'I1H'\%, \emptyset!>1\&12\%e!\%\&!>1\&H'1F'HPzr! \$) !H?+('(5!>?'F\%(\%4?P5!O1F*', !O\%FF+N+5!B88:lo!: 3\%N+\&!M1X215!q) +F^{(!R&1, (K+, 2+, H1F!>&1NE1H'K(!1(!1!R?+%\&P!\%\emptyset!.K'+, K+!1, 2!b1, N-1N+Lr! \$) !H?+('(5!)) +F^{(!K+1)}(\%4?P5!O1F*', !O\%FF+N+5!B88:lo!: 0) \\ \end{array}$

>&'(K'FF1!3+'E+&5!qO%E41(('%,!1,2!>&%H+(H!',!H?+!)&H!%Q!]aH?+!.K?E'2H!]%FFU'HILr!\$)!H?+('(5!) >?'F%(%4?P5!6O.5!B8D8L!AO\$C!

60%&5%.'*C'()/%0-*D%5E<.*AV!p!V1FF\!.!p!.4&',N\!...!p!.-EE+&C!

- #: B7 < B9! R?+%&'+(!%0!R&-H?!A.#::Y5!V#:B7C!
- #:B7<B9! 3+Q%&E1H'%,1F!>?'F%(%4?P!AV#::#5!V#::"5!V#::95!V#::;5!V#::Y5!V#:B"5!V#:B7C!
- $\begin{array}{l} \#:B'' < B7! \\ V\#::: 5!V\#:B:5!V\#:B:5!V\#:B''C! \end{array} \\ R?+\%\&'+(!\%Q!b1,N-1N+!1,2!6,H+\&4\&+H1H'\%,0!0121E+\&5!]\&'(H+*15!1,2!.+1\&F+!AV\#::\#5!) \\ V\#::: 5!V\#:B:5!V\#:B''C! \end{array}$
- #:B#<B"! R&-H?!1,2!)-H?+,H'K'HP@!S+'2+NN+&^(! !A.#::95!.#::85!.#:B"C!
- $#:BB < B#! > 1&12\% e + (!\%Q! > \&\%N\& + ((@!S1G + \&E1(^{(!R?+\%\&P!\%Q!O\%EE-, 'K1H'*+!)KH'\%, !A. #::75!. #::D5! V#:BBC!$
- #:B:<BB! 6T.0!) &H5!3+F'N'%,5!/2-K1H'%,5!1,2!Z-(H'K+0!R?+!O?&'(H'1,!>?'F%(%4?P!%0!`'K?%F1(! h %FH+&(H%&00!A.#:BBC!
- #::8<B:! 6T.0!h1P5!R&-H?5!b'Q+0!A3+CM'('%,',N!R&-H?!Q&%E'H?+!>&+.%K&1H'K(!H%!S+N+F!A.#:B:C!
- #::8 < B:! \$ +H14?P('K(!10H+&!) (K?U'HI0!) 2%&, %^(!`+N1H'*+!T'1F+KH'K(!A.#::"5!V#::8C! !
- #::D<:8! 6T.@!R&-H?!',!O%,H+E4%&1&P!R?%-N?H!A.#::8C!
- #::Y<:D! 6T.0!/H?'K(!10H+&!) (K?U'HI0!) 2%&, %!1, 2!b+*', 1(!A..#::DC!
- #::Y<:D! .%K'1F!.H&-KH-&+(!1,2!`%&E1H'*+!O&'H's-+@!S+N+F!1,2!\$1&e!AV#::"5!V#::YC!
- #::9<:;! R?+!OF%G1F!1,2!H?+!b%K1F@!O14'H1F'(E5!O-FH-&+5!1,2!T+E%K&1KP!A.#::;C!
- #::9<:;! V+E', '(H!.%K'1F!R?+%&'+(@!62+,H'HP5!>%U+&5!1,2!Z-(H'K+!AV#::9C!
- #::#<:"! 6T.@!312'K1F!W&H?%2%eP!AV#::#C!

- B88: <8B! >?'F%(%4?'K1F!) + (H?+H'K(!A.B88BC!)
- B88:<8B! 6T.0!6, H+&2'(K'4F', 1&P!.+E', 1&!A.B88BC!

B8D; <8:! 6T. @!O?&'(H'1, 'HP5!b+1&, ', N5!1, 2!O-FH-&+!AVB8D; 5!VB8DY5!VB8DD5!. B88:C!

!

!

60%&5%. * **65**)& * & ? * %&) / E-* D%5E<.* AV!p!V1F{\!.!p!.4&', N\!..!p!.- EE+&C!

- !
- #:B7<B9!) 2%&, %!1, 2!S+N+F@!O%, (H&-KH'%, !%Q!H?+!. %K'1F!T'E+, ('%, !A6O.5!V#:B7C!
- #: B7<B9! $Z\{\&N+, !S1G+\&E1((!R?+\&P!))|R\&-H?!A=, '*+\&('HP!)(!R\&\&\&), HS!V#: B7C!$
- #:BB<B#! 6E4F'K'H!b1,N-1N+!G+P%,2!>1\; (0!0+,2F',1,2!T+&&'21!A6O.5!.#:B#C!
- #:B:<BB! `%&E1H'*'HP!1,2!.%K'1F!.H&-KH-&+(!A6O.5!V#:B:C!
- #:B:<BB! OF+1,F',+((!1,2!.%F'H-2+!',!`'+HI(K?+^(!/H?'K(!A6O.5!V#:B:C!
- #::8<B:! S1G+&E1(^(!.%K'1F5!>%F'H'K1F5!1,2!\$%&1F!R?%-N?H!A6O.5!.#:B:C!
- #::;<:Y!) 2%&,%^(!

- #:: "<: 7! O+, H&1F!R+eH(!',!), 1FPH'K!/4'(H+E%F%NP!A6O.5!.#:: 7C!
- #:: "<: 7!] 1, H^(!O%, K+4H'%, !%Q! 3+QF+KH'*+!Z-2NE+, H!A6O.5!

+0,8'--), /%9*%/&*+5;9)\$*C'01)\$'*H4%0.)%9*9)-.I!

!

- W,N%',N! [%c!E1, -(K&'4H!&+Q+&++!Q%&'] F%E(G-&P!>-GF'(?',N5!O1EG&'2N+!=, '*+&('HP!))`%&H?U+(H+&,!=,'*+&('HP!>&+((5!WeQ%&2!=,'*+&('HP!>&+((5!>1FN&1*+!\$1KE'FF1,5! 1,2!3%UE1,!t!b'HHF+0'+F2! W, N%', N! 3+0+&++!0%&!*1&'%-(!1K12+E'K!X%-&,1F(!!)W, N%', N! \$+EG+&5!) 2*'(%&P![%1&25!] !A(', K+!#: B7C! W, N%', N! \$+EG+&5!/2'H%&'1F![%1&25! !(+&'+(5!3%UE1,!t!b'\\\F+Q'+F2! A(',K+!#:B7C! W, N%', N! +EG+45!) 2*'(%&P![%1&25!] A(',K+!#:B# ! W, N%', N! \$+EG+&!%Q!H?+!O+,H&+!%Q!R?+%F%NP!1,2!>?'F%(%4?P5!`%HH',N?1E5!=]! \$+EG+&5!/2'H%&'1F!) 2*'(%&P![%1&25!] #:B#<##! !X% - & , 1F! #:#"! ! O&1, H!144&1'(+&5!6(&1+F!.K'+,K+!V%-,21H'%,! #:##<! ! \$+EG+&5!O?%&1F!O%,,+KH'%,5!0&1,2!314'2(! #:BD<! ! \$+EG+&5!V%-,H1',!.H&++H!O?-&K?!W&1H%&'%!O?%'&5!O&1,2!314'2(!
- #:BY<! ! \$+EG+&5!O?1EG+&!O?%'&!%Q!0&1,2!314'2(!
- #:BY<#:! /F2+&!0%&! \$ ('K5! h + (HE', (H+&!>&+(GPH+&'1,!O?-&K?5!0&1,2!314'2(!
- #:B;! ! / eH+&, 1F!>&%N&1E!3+*'+U+&5!>?'F%(%4?P!>&%N&1E5![+F%'H!O%FF+N+

#::;<:D!	$T'_{k}+KH\%_{2}(9)^{3}+(+1\&K?)^{1}, 2!.K?\%F1\&(?'45)^{6}O.!$
#::9<:Y!	>F1K+E+, $H!WQQ'K+&5!6O$. !
#::9<:Y!	V1K-FHP! $\&+4\&+(+, H1H'*+5!6O.![\%1\&2!\%0!R\&-(H++(!))]$
#::9<:;! #::9! !	$O?1' \&5!60. !> \& \& Q + (('\%, 1F!. H) + (!O\% E E') + !! + !! \\ (all b b b) \& W = 15 b & W = 15 b &$
#::9! ! #::"<:;!	/ eH+&, 1F!>&%N&1E!3+*'+U+&5!>?'F%(%4?P!T+41&HE+, H5!R&', 'HP!O?&'(H'1, !O%FF+N+!)
,	V1K-FHP! $3+4\&+(+,H1H'*+5!60.!.+,1H+!A1K12+E'K!N\%*+\&,',N!G\%1\&2C!$
#::"<:7! #::#<:"!	O?1'&5!6O.!/2-K1H'%, 1F!>%F'KP!O%EE'HH++! O?1'&5!6O.!) K12+E'K!O%-, K'F!
#::#<: ! #::B<:#!	
#:: B <:#!	O%<2'&+KH%&5!N&1,H <q-,2+2!&+(+1&k?!n&%-4!%,! 5!O1F*',!O%FF+N+!</q-,2+2!&+(+1&k?!n&%-4!%,!
<u></u>	,
#::B<:#! #::B! !	V1K-FHP! $+, H\% \&5!T'*'('\%, !\% Q!O\%, H+eH-1F!T'(K'4F', +(5!O1F*', !O\% FF+N+!)$
#::B! !	$/ eH+\&, 1F!) 44\&1'(+\&5!V\%, 2(!4\%-\&!F1!V\%\&E1H'\%, !2+!O?+\&K?+-\&(!+H!F^{)})'2+!†!F1!$
#:::! !	3+K?+&K?+5!g-yG+K!
#!!	T'&+KH%&5!(+E', 1&!0%&!01K-FHP!1, 2!N&12-1H+!(H-2+, H(!%, !))
B888<#:::!	5!R%&%,H%! O?1'&5!b%,N<31,N+!>F1,,',N!O%EE'HH++5!=&G1,!6,(H'H-H+!0%&!O%,H+E4%&1&P!)&H(!!
B88D<#::B!	(2 + 12) = 0, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1, 1 < 1,
B88Y<#:::!	>a+(2+, n)! [% 1a2!% !1 a+Kn%a()!K !+!], N'(!O% r+N+! v% -, 21n%, !!=1.1!) O?1'&5!O-&&'K-F-E! t !>+21N%NP!O% E E 'III++5! T+41&IE+, I!%Q!>?'F%(%4?P5!O1F*', !OL!)
B88Y<88!!	$O'_{1} (3) O_{4} (7-1) O_{6} (7-1) O_{7} (7-1) O_{7}$
B88Y<88!!	$S + EG + \&5! \ / S < Q - , 2 + 2!M'(-1F! 3 ? + H%\&'K!O\% E E 'HH + 5!O1F*', !O\% FF + N + !$
B88Y<8D!	$V_{-,2',N!.+K_{+}H_{+}P$
	(%' - ,2), %' + Ka + mar(Ka + 1(-a + a); Om + ,; Om + N + ; O + 14m + a; % + ;) E + a K1, :) ((% K' 1 H' %, !% != , '* + & ('HP!>& % + ((% & (!A))) =>C!)
B88Y! !	$Z - \frac{1}{2} - \frac{1}{2} + $
B88;<88!	V% - , 2', N!K% E E'HH++!K?1'&!0%&!H?+!q) &H!R1Fc(r!(+&'+(5!R%&%, H%!))
B88;5!B88Y!!	\$ +EG+&5!) 2*'(%&P! [%%c!. +F+KH'%, !O% E E'HH++5!. %K'+HP!(%&!>?+, %E+, %F%NP!1, 2!
D00,J:D001!!	e'(H+, H'1F!>?'F%(%4?P!)
B889!! !	O%, Q+&+, K+!T'&+KH%&5!', H+&, 1H'%, 1F!1, 2!', H+&2'(K'4F', 1&P!K%, Q+&+, K+!%, !
D007:: :	5!) -N-($H!B$; $B5!1H!O1F*'$, $IOFF+N+!$
B887<89!!	+ EG + &5! > &% N&1 E ! O% E E ' H + +! t ! / e + K - H' * +! > F1, , ', N! O% E E ' H + +5!', H + &2' (K' 4F', 1&P!
D007\07.	K%, Q+&+, K+!%, ! 5!>' $HI(G-&N?5!Z-, +!#<75!B889!$
B887<#:::!	$ + EG + \&! \otimes [!2'(K - (('\%, !N\&\% - 4!0\%\&!K'*'K!F + 12 + \&(!\%, !H? + !q4\%F'H'K(!\%0!E + 1, ', N5r!0\&1, 2!)] $
	314'2(!)
B887	$\mathcal{L}_{1} + \mathcal{L}_{1}$
1001	

? '8'0'/\$'-* ! ''#\$%&''\$#!(\$)*!+,#&! `%1?!>%&H+&!>&%Q+((%&!%Q!>?'F%(%4?'K1F!R?+%F%NP! f 1F+!T'*', 'HP!.K?%%F! `+U!S1*+,5!OR!:;9#:<D":;! WQQ'K+@!A#:"C!7"#<9"7"! /<E1'F@!<u>X%?,L?1&+JP1F+L+2-</u>! ! -#.!/,#01*!(,2!

/?&E1, !>&&Q+((%&!%Q!/-&%4+1, !S'(H%&P5!/E+&'H-(!T+41&HE+, Hm/T5.8008-31Tm/TT211Tf(!)TjETQq(2000.2418589.92cm(%&H)0.28#24ETQq@04q3-5002)

#,,\$-*).'#J'+(#/)0'+%\$1\$-&!&)2-1'2-'D3\$'#%&1! q $\begin{array}{l} qb+1*', N!l?+! \$ 1\&N', (@!>-GF'K!V-,2', N!Q\%\&!O\%, l+E4\%\&1\&P!) \& H(Lr!W4+, ', N!\&+E1\&c(!G+Q\%\&+!1!\\ (4+K'1F!(K\&++, ', N!\%0! !1H!H?+!M1, !), 2+F! \$ -(+-E!O+, l+\&!', !O\&1, 2!\\ 314'2(5! \$ 65!) 4\&'F!75!B88YL!) F(\%5!1Ql+\&!H?+!(K\&++, ', N5!E\%2+\&1H\%\&!\%Q!1!41, +F!2'(K-(('\%, !\%, !H?+!Q'FE!1, 2!\%, !'((-+(!\%Q!4-GF'K!Q-, 2', N!Q\%\&!H?+!1\&H(L!))))) \\ \end{array}$

!

 $q[\&-K+!O\%KcG-\&, \emptyset! \\ &-('K!\%, !!!?+!b', +Lr!b+K!!-\&+!', !!!]', N^{(!)} = , '*+\&('!P!O\%F!+N+!+e!!+, ('\%, !K\%-\&(+5)!) \\ &+('\%, !K\%-(+5)!) \\ &+('\%, !K$ M1, K% - *+&!1, 2!M'KH%&'15! \$ 1&K?!7<95!B8D#L!=421H+2!*+&('%, (!N'*+,!',!/2E%, H%, ! AB#d#dD#C5! `++&F1,2'1!ABBd#DdD"C5!1,2!1H!O-FF!b1c+!A8d#<"dD7CL! L!) 2-FH! / 2-K1H'%, !O%-&(+5!R%&%, H%5! V+G&-1&P!B; !<! \$ 1P!75!B8YYL!R+, !HU%<?%-&!(+(('%,(!%,!T+G-((P5![1&H~c5!.l&1*',(cP5! . K?%+, G+&N5! h +G+&, 5!6*+(5!M1&‡(+!1,2!O1N+5!.+(('%,(!1,2!O1&H+&5!\$+(('1+,!1,2! . H%Kc?1-(+, L!)*

Lr!6, H+&*'+U+2!

5!4%(H+2!WKH%G+&!

: '&)%*#44'%0%/\$'-!

B:<#"<BB@! q6, H+&*'+U!U'H?!b1EG+&H!n-'2+&*11&H!1G%-H!S'(![%%c! GP!R?+X1(!Z1N1,,1H?!',!H?+! [&'H'(?!%,F',+!X%-&,1F! #"5!#:B70!?HH4(0dd-&G1,H'E+(LK%d#:B7dB:d',H+&*'+U<U'H?<F1EG+&H<I-'2+&*11&H<%,<

?'(<G%%c<1&H<',<4-GF'Kd!

D<#Y<BB@!! 6, H+&*'+U+2!1, 2!s - %H+2!GP!RX+&c!2+!3+-(!', !1!HU%<41N+!Q+1H-&+!H'HF+2!q] -, (H0!

- 8<;<8;0!! R+F+*'('%,5!O?1,,+F!DL!6,H+&*'+U+2!1G%-H!=6O)^(!4&%N&1E(!1,2!4F1,(L!
- B: <#B<890! 312'%5! h WWT!) \$ L!6, H+&*'+U+2!1G%-H!=6O) L!

Y<#9<8"0! 312'%5! h WWT!) \$L!6, H+&*'+U+2!1G%-H!q>-GF'K!V-, 2', N!Q%&!H?+!) &H(Lr!

',H+&≯	H?!>&%E+H?+-(Lr!O1F*',!O%FF+N+ *'+U!U'H?![&-K+!O%KcG-&,5!%&N '(!/44F+HH!1,2!31K?+F!M+&G-&NI	1, 'I+2!1, 2!+2'H+2!U'H?	+K+EG+&!B8DYC0!B:<##L!O&%-4! !H?+!1(('(H1,K+!%Q!(H-2+,H(!
q)G%1&2!1!0	-FF <o?1(+2!.?'4lr!3+*'+u!%q![< td=""><td>&-K+!O%KcG-&,5!</td><td>5!) 4&'F!#D5!B8D;5!4L!BDL!</td></o?1(+2!.?'4lr!3+*'+u!%q![<>	&-K+!O%KcG-&,5!	5!) 4&'F!#D5!B8D;5!4L!BDL!
-	(('E'(ELr!>14+&!4&+(+,H+2!H%!H? 4+KH'*+(!%,!b+1&,',N5!Z1,-1&P!B		HP!H+1K?',N!O?&'(H'1,!
]',N [/]	!Ab+KH-&+dT'(K-(('%,!.+ !AV'FEdT'(K-(('%,!.+&'+(^^(!=, '*+&('HP!O%FF+N+5!V1FF!.+E	CL!O%,H',-',N!/2-K1H'%	,!K%-&(+(!%QQ+&+2!1H!R?+!
-	1K?!WH?+&^(![-&2+,(@!R?+!O?-& O%,Q+&+,K+5!]',N^(!V%F25!O%K?		
! qR?+!.ℍ-2P!%	%Q!) &H(!Q%&!.+&*'K+1GF+!6,('N?HL1	r! !BB5!,%L!"!A \$	5 1&K?!B8D"C0!#:<#7L!
1 /	HP5! \$ 1, '4-F1H'%, 5!%&! O 'QH!%Q! O % , ('%, !K%-&(+5!.H!.H+4?+,^(!O%FF		
! qR%U1&2!1!.	?1&+2!=,2+&(H1,2',N!%Q!H?+!)&H	l(Lr! !BB5!,%L!#	AT+K+EG+&!B8D#C@!BD<#9L!
h %&(,H%!T1,K',N@!)!R'E+!%Q!h%&(? (?'4r!A41,+F!K%,H&'G-H'%,CL!h+() 0?&'(H'1,!3+Q%&E+2!O?-&K?5!/2]	H+&,!3+N'%,1F!O%,Q+&+	K+!%, !b'H-&NP!1, 2!\$ -('K!', !
1,2!R	E1,c',20![F+((',N(!',!/2-K1H'% R&1,(Q%&E',N0!)!h%&c(?%4!',!/ ^{\$} +,H'%,5!O?&'(H'1,!/2-K1H%&(!)(/2-K1H'%,1F!>?'F%(%4?P	Pr!AU%&c(?%4CL!),,-1F!
• ·	IF!3+QF+KH'%,(!%,!T%%P+U++&2^(^(!=,'*+&('HP!O%FF+N+5!WKH%G+&!		-+Lr!V1K-FHP!O%FF%s-'-E5!R?+!
T'(K'	Y!qO% E E - , '% , !1 , 2!O% E E - , 'HP '4F+(?'4Lr!]+P ,%H+!F+KH-&+(5!O% P&1 , +5!) FG+&H15!Z-FP!B9 <bd5!b8d#< td=""><td>,Q+&+,K+!%,!O?&'(H'1,'H</td><td></td></bd5!b8d#<>	,Q+&+,K+!%,!O?&'(H'1,'H	
1	1,2!T'(KF%(-&+Lr!.+E',1&!(4%,(+&('HP!%Q!)FG+&H15!V+G&-1&P!B:5!		3+Q%&E+2!O?14F1',KP5!
1 - ,	U%! h %&F2(Lr!) 22&+((!H%!H?+!), +N+5!WKH%G+&!85!B8DBL!	, -1F! \$ +EG+&(?'4! \$ ++	H', N5!R?+!]', N^(!=, '*+&('HP!
WH?+8	&H(!R%21P0![+P%,2!T+1H?!1,2! &!*+&('%,(!N'*+,!1H!R?+!]',N^(! &'%!O%,Q+&+,K+5!V%&H!/&'+5!)-N-	=, '*+&('HP!O%FF+N+5!Z1,	,
:			

qR?+!b+N1KP!%Q!.K?%F1&FP!3+,+U1FLr!

!#5!,%L!#!