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!"#\$%&'())*(+, '(1'2."#3'4#.&(5,.\$"(((

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- #? @6'!9'.%/3&'(3%5!W6%,/!\$6%55!4'!%..),(3'0!47!36'!9'%(!)*!36'!W)55'+'!%*3'/!%!/'2)&&'(0%3,)(!,\$!&%0'!47! 36'!9'.%/3&'(3!36/)1+6!36'!./)2'\$\$!\$.'2,*,'0!,(!36'!G3%(0,(+![15'\$?!@6'!3'/&!,\$!36/''!7'%/\$?!!! !!!
- C? (06'!9'.%/3&'(3%5!W6%,/!\$6%55!4'!/'\$.)(\$,45'!3)!36'!9'%(!)*!36'!W)55'+'!%(0!=(,-'/\$,37!%0&,(,\$3/%3,)(!%(0!3))!36'!*%21537!)*!36'!9'.%/3&'(3!*)/!36'!+'('/%5!).'/%3,)(!)*!36'!9'.%/3&'(3!%(0)!%5)(+!8,36!36'!:E'213,-'!W)&&33''>!*)/!36'!%0&,(,\$3/%3,)(!)*!36'!9'.%/3&'(3!%(0!36'!'E'213,)(!)*!,3\$!.)5,2,'\$!%22)/0,(+!3)!36'\$'!475%8\$?!@6'!W6%,/\$!013,'\$!\$6%55!4'\$!!!

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 $\label{eq:starter} \begin{array}{l} \# (7!\%\$,\$\%(3!)/!\%\$) 2,\%3'!0,/'23)/\$\rangle!, (2510,(+!36'!\#\$\$) 2,\%3'!W6\%,/!0,*!)('!'E,\$3\$\$!\$6\%55!\%33'(0!'E'213,-'! 2)\&\&33''!\&''3,(+\$!\%\$!()(B-)3,(+!&'&4'/\$!X(!1(1\$1\%5!\$,31\%3,)(\$!86'/'!\%!*\%21537!&'&4'/!,\$!\$'/-,(+!,(!\&)/'!36\%(!)('!2\%,\%2,37!)(!36''!:E'213,-'!W)\&\&33''!\&\$53\%(')1\$57>!36'7!8,55!6\%-'!)(57!)('!-)3'?!! \\ \end{array}$

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C? 913, '\$!)*!36'!: E'213,-'!W)&&,33''!\$6%55!4'!3)!%0-,\$'!36'!W6%,/!,(!'\$3%45,\$6,(+!.)5,27!%(0!%0&,(,\$3'/,(+!36'! ./)+/%&\$!)*!36'!9'.%/3&'(3?!!!

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W? @6'!:E'213,-'!W)&&,33''!\$6%55!\$'/-'!%\$!%!a/,'-%(2'!W)&&,33''!3)!6'%/!+/,'-%(2'\$!)*!*%21537!&'&4'/\$!,(! \$.'2,%5!\$'\$\$,)(?!@6'!+/,'-%(2'!./)2'01/'!\$6%55!'E./'\$\$57!'E2510'!<1'\$3,)(\$!%/,\$,(+!*/)&!!!

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: E2'.3!86'/'!)36'/8,\$'!\$.'2,*,'0!,(!36'\$'!475%8\$>!0,/'23)/\$!%(0!&'&4'/\$6,.!)*!%55!G3%(0,(+!W)&&33''\$! \$6%55!4'!%..),(3'0!47!36'!9'.%/3&'(3%5!W6%,/!,(!2)(\$153%3,)(!8,36!36'!:E'213,-'!2)&&,33''?!!!

W & 33''!) ((b/) & 3,) ((s) & 6%55! & D'!/2 & (0%3,) ((s) (3%55!./)&)3,)(B'5,+,45'!*%21537>!%\$!0'\$2/,4'0!,(!36'!0'.%/3&'(3\\$!+1,0'5,('\$!*)/!./)&)3,)(?!@6'!3'(1/'0! *%21537!)(!36'!2)&&,33''!8,55!%5\$)!&%D'!/'2)&&'(0%3,)(\$!3)!36'!9'%(!/'+%/0,(+!%((1%5!/'-,'8!%(0!3'(1/'!

G6%55!2)(\$,\$3!)*!36'!9'.%/3&'(3%5!W6%,/!%(0!%55!*155!%(0!%\$\$)2,%3'!./)*'\$\$)/\$?!G142)&&,33''\$!)*!36'!

G6%55!*1(23,)(!%\$!\$14B2)&&,33''!)*!36'!:E'213,-'!W)&&,33''!3)!%\$\$,\$3!%(0!%0-,\$'!36'!9,/'23)/!)*! F)1(0%3,)(\$!,(![6'3)/,2!,(!&%33'/\$!.'/3%,(,(+!3)!36'!.5%((,(+!%(0!%0&,(,\$3/%3,)(!)*!:(+5,\$6!"PP"?!@6'! &'&4'/\$6,.!\$6%55!4'!2)&.)\$'0!)*\$!36'!9,/'23)/'!36'!#\$\$,\$3%(3!9,/'23)/0\$R!0,*!/'5'-%(3R'!%3!5'\%\$3!38)!*%21537! &'&4'/\$`!%(0!%!+/%01%3'!\$310'(3!/'./'\$'(3%3,-'!0,*!/'5'-%(38`!%55!%..),(3'0!47!36'!9'.%/3&'(3%5!W6%,/?!#3! 5'%\$3!) ('!&'&4'/!&1\$3!4'!3'(1/'0!*%21537?!d6'(!%..),(3,(+!.%/3,2,.%3,(+!*%21537!%(0!+/%01%3'!\$310'(3\$>!

G6%55!\$'/-'!%\$!\$14B2)&&,33''!)*!36'!:E'213,-'!W)&&,33''!3)!2)(\$,0'/!%55!&%33'/\$!)*!36'!1(0'/+%01%3'!

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21//,2151&!'E2'.3!*)/!: (+5,\$6!"PP"!0,?'?!I)()/\$!: (+5,\$6>!G).6)&)/'!: (+5,\$6>!36'!&%T()/)TETQQ2/TT4200424*%ET20*%662406!9.

36'!W6%,/!8,55!\$''D!()&,(%3,)(\$!0,(2510,(+!\$'5*B()&,(%3,)(\$R?!!!

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#? W) & &, 33'' !) (!b/) &) 3,) (\$!!!

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 $\label{eq:constraint} \begin{array}{l} \# (7!/+15\%/!)/!*155B3, \& ' !. \%/3, 2, . \%3, (+!*\%21537! \& ' \& 4'/! \& \%7!. /) .) \$ ' !\% (!\% \& ' (0 \& ' (3!3)!36' \$ ' !475\% 8 \$?!G126! \\ \% \& ' (0 \& ' (3!\$ 6\%55! 4' !. /) .) \$ ' 0!\%3!\%! / ' +15\%/! \& ' ' 3, (+) \% (0!\$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0!\$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0!\$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0! \$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0! \$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0! \$ 6\%55! 4' !2) (\$, 0' / ' 0!\% (0! -) 3' 0!) (!\%3!36' ! (' E3!/ ' +15\%/! \& ' ' 3, (+)!\% (0! \$ 6\%55! 4' !2) (\$, 0! * 1475\% 8 \$!! W) . , ' $!) *!\%! . /) .) \$ ' 0!$

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