## **! ! '' # \$ %& '' ' ( '' \$ !**" <u>#\$\% ' () \* +\\\\\</u>#, (--(.('/" 01!23"421567!1"#

! '' # \$ %&!' (() & <u>\*+%</u> \$ \*+,'

8 %&&# , (--("9)%:(;<%-=">?&&(\$("?@"A#+" 0+%-B"-()/;(3C"DE;%)\$"F6F!5E;(<()-" C"F6!45F6F!" o >?/;<(<G"H;?E(;-=C">?E=;%\$B-C"I;#'(,#;JC"KH"A#+"L"H;#M-%M(C"I;/<-<"L"N<-#-(<C" K)-(;)(-"L"D?M%#&"O('%#"A#+"

0

"

 $("a_"9>!^{"}\#\$!A.!W&\#.!0+\$-B"N:\#"D/R?-)\$JC"@?;-BM?, \$)$ • W(:\%(+('\"R=\"H;?@."](<<\M#\D\&R(=G\"<u>B--E<Gbb\E.c?-+(&&.M?, bM?E=:\%\$B-5@\\'/M\#:\%(<5</u> E;?R&(,<5#)'5<?&/-&?)<b''

 $("42"X.>.!A.!W\&#."\setminus 6!"0F6F73"$ 

• W(&#-('"SE5N'€"

C !!"D-",7.()!].!>.W.5>.A.!7!7"0F6!a3"0%):%-('" <=,E?<%/,"(<<#="+%-B"IB(#"]?B)<?)3"

("FF"Y&.(\*&!O"%.,!A.!W&#."!7"0F6!23""")

("2)" " ( # " ( ) !>.W.5>.A.!A.!W&#.!7a\_!0F6!73""

• W(:%(+('"R="H;?@."]#)(-"`#&&(=G"<u>B--EGbbc?-+(&&.M?,b#5E;?5\$#=5-(()5#;\$/,()-5@?;5</u> <u>E/<B%)\$5-B(5E#/<(5R/--?)5?)5#)-%5R/&&=%)\$b3""</u>

("a2" 8 \$11\$" + !L!O" (2!A.!W&#.")

!!F7"0F6!73"

"

 $(" \setminus 6" 9.! > 3$  "\* . !A.!W&#."^\$"1. \* '&" \ \ "0F6!73"0+"-B"

I%, "Y;(()(3" !

PPAD"P))/#&"O((-%)\$("]#)/#:="F7("D#)"^%(\$?(">P("E#)(&"?)" "#)'"-B("'(:%:#-%:(" +?;J<";%\$B-" A#+"L"D?M%(-="P<<?M%#-%?)"Y&?R#&"O((-%)\$C"]/&="F6FFC"A%<R?)C"H?;-/\$#&C"E;(<()-('"E#E(;C" >;%-%M#&"N<-#-(<"L"I;/<-<">?)@(;()M(C"PE;%&"F6FF"0?)&%)(3C"E;(<()-('"E#E(;C" 8?;J<5%)5H;?\$;(<<"%)"K)-(&(M-/#&"H;?E(:==C"U(R;/#;="F6FFC"D-."A?/%<"9)%:(;<%-=C"E:(<()-('" E#E(:C" IB%; '"P))/#&"D=, E?<%/, "?)">?)-([-/#&"K)-(\$;%-=C"D(E-(, R(;"F6F!C"9))%:(;<%-="?@">B%M#\$?C" E;(<()-('"E#E(;C" D-."]?B)<"A#+"DMB??&"KH">?&&?e/%/, C"PE;&&"F6F!"0?)&%)(3C"E;(<()-('"E#E(;C" `?@<-:#"A#+"DMB??&"KH">?&&?e/%/,C"U(R;/#;="F6F!"0?)&%)(3C"E;(<()-('"E#E(;C" Y 8 "A# + "DMB??&"KH" > ?&&?e/%/, C"U(R;/#;="F6F!"0?)&%)(3C"E;(<()-('"E#E(;C"))))8?;J<5%)5H;?\$;(<<"%)"K)-(&(M-/#&"H;?E(;==C"U(R;/#;="F6F!0?)&%)(3C"E;(<()-('"E#E(;C"  $Y(?;\$(-?+)"9)\!:(;<\$-="A#+">()-(;"U#M/\&-="8?;J<B?EC"]#)/#;="F6F!"0?)\!\!\)(3C"E;(<()-('"$ E#E(;C"  $PPAD^{P})/\#^{2}((()M(())/\#)/\#;=F6F!0?)^{(1)}((())(()/\#)/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2})^{(1)}(()/\#^{2$ K)-(kk(M-/#k"H:?E(:=i":(G"M?E=:kB-"E('#\$?S="OSDPK>"KH">?)@(;()M(C"SM-?R(;"F6F6"0?)&)(3C"E;(<()-('"E#E(;C" 9) \s: (;<\\-="?@"g \s\\ \\#"A#+"DMB??\"U#M/&-="8?;J<B?E("SM-?R(;"F6F6"0?)) \s() (3C"E;(<()-('" E#E(:C" K)-(&&(M-/#&"H;?E(;-="DMB?&#;<">?)@(;()M(C"]/&=5P/\$/<-"F6F6"0?)&))(3C"E;(<()-('"E#E(;<(" "#)'" "  $KH"DE(\#J(;"D(;\(<\mathbb{C}") + \mathbb{F}6F6"0A? = ?\&\#"A\# + "DMB??\&\mathbb{C}"A? < "P) \\ (\&(<\mathbb{C}" > P3\mathbb{C}"\&) : \&(<\mathbb{C}" > \mathbb{F}3\mathbb{C}"\&) \\ (``$ E;(<()-#-%?)("  $\|H^{(1)} - B(\|I_{((<||U|)} + \|-\|F_{(+)} - \|F_{(+)} -$ 

2"

8 ?;J<5%)5H;?\$;(<<"%)"K)-(&&(M-/#&"H;?E(;-=">?)@(;()M(C"U(R;/#;="F6F6"0D#)-#">&#;#"A#+" DMB??&3C"E;(<()-('"E#E(;C" XQ9 "KH">?&?e/%/, C"T?:(, R(;."F6!1C"%): %-('"E;(<()-#-%?)C")  $\begin{array}{l} \mathbb{K} \\ \mathbb$ E#E(;C" A#+"#)'"D?M%(-="P<<?M%#-%?)"P))/#&"O((-%)\$C"O#=5]/)("F6!1"08#<B%)\$-?)C"^>3C"E;(<()-('" E#E(:C" E#E(:C" >B%M#\$?"KH">?&&?e/%/, C"PE;%&"F6!1"0A?=?&#"A#+"DMB??&3C"%):%-('"E;(<()-#-%?)C" K)-(;)(-"A#+" 8 ?;J<5%)5H;?\$;(<<">?)@(;()M(C"O#;MB"F6!1"0D#)-#">&#;#"A#+"DMB??&3C" E;(<()-('"E#E(;C" 8 ?;J<5%)5H;?\$;(<<"%)"K)-(&&(M-/#&"H;?E(;-=">?)@(;()M(C"U(R;/#;="F6!1"09)):(;<%-="?@" `?/<-?)30"E;(<()-('"E#E(;0" W?MJ="O?/)-#%)"]/)%?;"DMB?&#;<" 8 ?;J<B?E("T?:(, R(;"F6!\"09)%:."?@"9-#B"A#+"DMB??&3" K)-(&&(M-/#&"H;?E(;-="DMB?&#;<">?)@(;()M(C"P/\$."F6!\"09.>."X(;J(&(="A#+"DMB??&3" S [@?;''`#)'R??J"?)"A#+"L"`/,#)%-%(<">?)@(;()M(C"O#="F6!\"0D-#)@?;'"A#+"DMB??&3" U#, M="A#+"DMB?k#;<"#)'"I(#MB(;<">?)@(;()M(C"]/)("F6!"0>#;'?f?"A#+"DMB??k3")K)-(;)(-"A#+" 8 ?;J<5%)5H;?\$;(<<C"O#;MB"F6!\"0T(+"Q?;J"A#+"DMB??&3") 8 ?:J<5%)5H;?\$;(<<"%)"K)-(&(M-/#&"H;?E(;=C"U(R;/#;="F6!\"0>#<(" 8 (<-(;)"W(<(;:(3" " W?MJ="O?/)-#%)"]/)%?;"DMB?&#;<" 8 ?;J<B?EC"T?:(, R(;"F6!\_"0XQ9"A#+"DMB??&3" H#M%@%M"T 8 "KH"DMB?&#;<">?)@(;()M(C"D(E-(, R(;"F6!\_"0D(#--&("9)));(;<))=3"

a"

O#;J(-E&#M(C"D(E-."F6!2" K)-(;:%(+('"@?;";#'%?"<(\$,()-C"

IB%<" 8 ((J"%)"A#+C"O#;MB"F6!a" Y/(<-"@?;"(E%<?'("F1\_C"

K): %-('"DE(#J(;C" 8 B%--%(;"A#+"DMB??&">()-(;"@?;"K)-(&&(M-/#&"H;?E(;-=C"D(E-."F6!a"

Y/(<-"R&?\$\$(;C"H;#+@<R&#+\$.M?, C"^(M."F6!4"

 $A # + "#) ' "D?M (-="P <<?M # - \%?)"P)) / # \& "O((-\%) \& "] / ) ("F6!4"0T(+"S; \& (#) < \mathbb{C}"AP3")) = (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%) \& (-\%)$ 

K) - (&&(M-/#&'H;?E(;="DMB?&#;<">?)@(;()M(C"P/\$."F6!4"0D-#)@?;'"A#+"DMB??&3")

"

 $D = , E? < 1/7, C"X(;J(\&(="]?/;)#\&"?@"Y()'(;C"A#+C"#)'"]/<-MM(C"O#;MB"F6!_"0X(;J(\&(=C">P3")))) = 0.5$ 

" IB("P;-"#)'"DM%()M("?@"-B("KH"^(#&C"PE;."F6!\_"09)%:(;<%-="?@" 8 #<B%)\$-?)"DMB??&"?@"A#+3"

g#)'(;R%&-"KH"DMB?&#;<"W?/)'-#R&(C"PE;."F6!\_"0T#<B:%&&(C"IT3"

• K):%-('"'%<M/<<#)-"?@"]?<(EB"U%<MB(&Z<"R??JC"

 $A # + "#) ' "D?M(-="P <<?M #- ?)"P)) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!_"0O([M?"> -3")) / # & O((- ) $C] / ("F6!") / ("F6!"$