!"#\$%&'(&)"\$*&

! "#\$"%&' "(()*)&+, -&./0""(& 112&')%\$3)&.\$3))\$& 4)-\$"%5&67&89:2;& <0"%)=&>?@A229A8>8:& BC,D(=&3D%*EDFG/H)EI&

$^{\prime\prime}$

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#+#!%'"+&%, -%)"%$+%&
JI(K&9882LM3)#)%$&
                       . /01/2&+/33454&678&9:;//3&&
                                                                                     4) - $"%5&67&
                       N%$)3DC&O),%&PJI%)&989?&L&J,%I,3K&9890R&
                       7##"/D,$)&O),%&S"3&T,/I($K&PJI%)&98?1A&JI%)&989?R&
                       <3"S)##"3&"S&+, -&P988@LM3)#)%$R&
                       UO)&O3H&UO"C,#&TH&',3%)K&OD#$D%*ID#O)E&./O"(,3&
                       7##"/D,$)&O),%&"S&7/,E)CD/&7SS,D3#&PJI%)&98?8LJI%)&98?9R&
                       ! "#$%&%=&U,V,$D"%5&N%$)3%,$D"%,(&U,V5&'"3M"3,$)&U,V5&7EW,%/)E&'"3M"3,$)&U,V5&
                       U, V \le (D/K \le X) * I(. D'' \le Y \le 6.3Z) = ["3Z = 0'' \le U, V \le ''' \le /) \le 3.5D'' \le 1.0CD \le 3.6
98?:4 4
                       "214<271=/273&.><47>&/?&@=0:73&!/:>A42171=/2& 7 C#$)3E, C5&4)$O)3(,%E#&
                       <3"S)##"3&D%&X)#DE)%/)H&
7 M3D(L 6, K&98?Q&
                       ) 7BCD24<&9:; //3&/?&678E&"214<B=0:=F3=27<D&+4214<&&&
                                                                                     \)3](DK,5\&N#3,)(\&\&
                       ^W)3#),#& D#D$D%*&<3"S)##"3H&&
       å
                       '"I3#)=&'I33)%$&D##I)#&D%&D%$)3%,$D"%,(&$,V,$D"%H&
G7 < H7 < B \& 678 \& 9:; //3 \&
                                                                             å
                                                                                     ', CG3DE*)5&67&
988:5498?85498??4
                        D#D$D%*&<3"S)##"3&"S&+, - H&&&
       å
                       "I3#)=\&N\%$)3%,$D"%,(&U,V&
988: LJI%) &9882&&&&&&& I 2=H4<0=1D&/?&@3/<=B7E&64H=2&+/33454&/?&678&
                                                                                     , D\%) \# WD(()5\&T+\&
                       7##"/D,$)&<3"$)##"3&"$&+, -&-D$O&U)%I3)H&U,I*O&D%&`3,EI,$)&U,V&<3"*3,C&,%E&
                       JHOH&<3"*3, CH&&'"I3#)#&D%/(IE)=&!,#D/&N%/"C)&U,V,$D"%$&U,V,$D"%&"S&TD%,%/D,(&
                       N%#$3IC)%$#5&`3,EI,$)&U,V&.)CD%,3&"%&OD3)/$)E&X)#),3/OH&
?;;:L988:& &
                       G7 < H7 < B \& 678 \& 9:; //3 \&
                                                                     å
                                                                                     ', CG3DE*)5&67&
                                                     å
                                                             å
                                                                             å
                       7##D#$, %$&<3"$)##"3&"$&+, - H&&U, I*O$&, %E&-3"$)&M3DC, 3D(K&D%&$O)&$D)(E#&"$&$, V, $D"%5&
                       D%$)3%.$D''%,(&$,V,$D''%5&,%E&SD%,%/D,(&D%#$3IC)%$#H&&'"I3#)#&D%/(IE)=&!,#D/&N%/"C)&
                       U, V5& ' "3M"3, $D"%& U, V5& N%$) 3%, $D"%, (& U, V5& U, V, $D"%& "S& TD%, %/D, (& N%#$3 I C) %$#5&
                       N%$)3%,$D"%,(& TD%,%/D,(& N%#$D$I$D"%#&,%E&N%$)3%,$D"%,(& U,V5&N%$)3%,$D"%,(& U,V&
                       <"(D/K5&N%$3"EI/$D"%&$"&+,-K)3D%*H&
%! I + # J"K$&
?;1@L?;;8&
                       G7 < H7 < B\&678\&9: ; //3\&
                                                                                     ', CG3DE*)5&67&
              å
                       JHOH5& '()*(+!#, +-(#. &5&JI%)&?;;8H&
                       7 / \text{SDWD}D) #= \& \ 3W, 3E\& +, -\&X) WD) - 5\&BED$"35\&?; 11A?; ; 8H\&
```

```
! "#$%#&'()#*+,#-+-.#
```

```
! "#$%#&'()#*+,#-+-.#
```

P - D\$O&.OIA

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

 $\label{eq:control_N} \verb|N|| * - \% 8! 3*1\%) \$*\% \$ b . \$ N) * \# -) '*1\%) '/\$ U ' 2 '*1\%) \& P@'^0 \& ED$D''% \& a (I -)3&+, - \& N\% \$) 3\% , \$ D''\% , (\& ACC) ACC | ACC) ACC | ACC |$

```
! "#$%#&'()#*+,#-+-.#
```

9%6%+J%!&-)%9%\$J#J"K\$9&

```
! "#$%#&'()#*+,#-+-.#
```

```
N!TO\&, \&h\%$)3\%, $D"\%, (\&TD#/, (\&7##"/D, $D"%&7 %% I, (&' "%S)3)%/)5&B&A&8"72*)+!"#*9$I+R2%F%+2*+
; *9&$*(92''*(8+>(6+>$(*%7($&*<1+(*.+B2%<8''\/#$&+P+''\/E''\/5\).)M$\\\; 5\(\)98?;R\\
 7 \text{ C} = 7 \text{
>$(*%7($&*<1+(*.+B2%<8''%#$&+R&A''8#92''*T\P7C#$)3E,C5\.)M$H\25\98?;RH\
N!TO$&U,V&a%"-()E*)&,%E&.O,3D%*5&P:(9+2%+L&69+2*+9:&+;*9&$*(92"*(8+>(6+>$(**7($&*<1+(*.+
 B2\%<8''\%\#$\&+R\&A''8\#92''*T\&P7C\#$)3E,C5\&.)M$H&25&98?;RH&
 ! "#\$" \& U, V\&T" \\ 3IC \\ S\&P : \&*+B (9(+!",\&\%+Q",\&4+L\&69+/9\&7\%+2*+;*9\&\$*(92"*(8+>(6+R\&C"\$,0\%+;*C"\$,(92"*+1))))) \\ 0.564444469 \\ 0.564444469 \\ 0.564444469 \\ 0.564444469 \\ 0.56444469 \\ 0.56444469 \\ 0.56444469 \\ 0.56444469 \\ 0.56444469 \\ 0.5644469 \\ 0.5644469 \\ 0.5644469 \\ 0.5644469 \\ 0.5644469 \\ 0.5644469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.564469 \\ 0.56469 \\ 0.564469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56469 \\ 0.56
R\&A''8\#92''*?+P-D$O\&^)DR\&P!''\#$'''85\&JI\%)\&Q5\&98?;RH\&
+ , - \&Y\&. "/D) \$K5\&P : \&*+B (9(+!", \&\%+Q", \&4+L\&69+/9\&7\%+2*+; *9\&\$*(92"*(8+>(6+R\&C"\$, 0\%+; *C"\$, (92"*+1))))) \}
R&A''8#92''*?+P - D$O&^)DR&P [ ,#OD%*$''%&O ' 5& 6 ,K&O85&98?;RH&
N%$)3%,$D"%.(&TD#/.(&7##"/D,$D"%&"$&4)$O)3(,%E#5&P:(9+2%+L&69+2*+9:&+:*9&$*(92"*(8+>(6+>$(**7($&*<1+
 (*.+B2%<8''%#$&+R&A''8#92''*5\P7C#$)3E,C5\(\dagger{A}\)$0)3(,%E#R\P6,K\(\dagger{A}\)?5\(\dagger{A}\)?;R\\
BI/"$, V&' "%$)3)%/)5&N%$)3%,$D"%,(&! I3), I&"$&TD#/,(&O"/IC)%$,$D"%5&>$(*%7($&*<I+d+B2%<8"\#$&+(*.+
 B&A&8"72*)+!"#*9$2&%4+!#$$&*9+:%#&%&P7 C#$)3E. C5&4)$0)3(.%E#R&P7 M3D(&25&98?:RH&
 b %DW) 3#D$K&"S&+"ID#WD(()&!3,%E)D#&./O""(&"S&+,-&T,/I($K&["3Z#O"M5&>(6+-(=0%+P"$F78(<&+/:20%P-D$O&
 ^{\circ})DR&P+"ID#WD(()5&T)G3I,3K&15&98?;RH&
 ^OD"&.$,$)&6 "3$D]&' "(()*)&"$&./O""(&T,/I($K&["3Z#O"M5&>(6+-(=0%+P"$F78(<&+/:2C9&P-D$O&^)DR&
P'"(ICGI#5&J.%I.3K&9:5&98?:RH&
 6/`D((&b%DW)3#D$K&+,-&./O""(5&'"%$)3)%/)&"%&<3"*3.CCD%*&`"W)3%.%/)5&P:&*+B(9(+!".&%+O".&4+
 L&69+/9&7%+2*+;*9&$*(92"*(8+>(6(92"*0%+;*C"$, (92"*+R&A"8#92"*&P-D$O&^)DR&P6"%$3),($&4"WH&:5&98?1RH&
 4"3$O - )#$\)3%&b\;DW\)3#D$K&+, - &. \(O\)"(5&> (6+- (=0%+P\)"$F78(<&+/:20\)P - D$O&^\)DR&P\'OD/,*"5&4\"WH&?5&98?1RH&
 +"K"(,\&+,-\&./O""(5&>(6+-(=0%+P"%F78(<&+/.20%P-D$O&^)DR&P+"#&7%*)()#5&^/$"G)3&?5&98?1RH&
+,-&Y&."/D)$K5&/28"%+(*.+@2$%9+'"A&$%+2*+9:&+/:($2*)+5<"*",1%PU"3"%$"5&JI%)&@5&98?1RH&
b \%DW)3\#D\%K\&"S\&+IV)CG"I3*\&7U^r\&''\%S)3)\%/)\&"\%\&4)-\&U,V\&'O,(()\%*)\#5\&-\&(FSB$2A&*+-(=\&P-D$O&^)DR\&+(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*+-(BB)A&*
P+IV) CG" I3*5& 6, K&?15&98?1RH&&
N%#$D$I$)&S"3&7 I#$3D,%&,%E&N%$)3%,$D"%,(&U,V&+,-5&-&(FSB$2A&*+-(=&P-D$O&^)DR&PD)%%,5&6,K&@5&98?1R&&
bH'H&N3WD%)&./O""(&"S&+,-5&-&(FSB$2A&*+-(=&P-D$O&^)DR&P6,3H&9>5&98?1RH&
 ! 3D*O, C&c "I%*&b%DW)3#D$K&+, -&./O""(5&>:&+X9:&$+-(3"$+-(=T+L&=+;R!+e+K\\H+(*.+9:&+;,7(<9+"C+
> (6+"*+P"\$F78(<\&+H\$\$(*)\&,\&*9\%\$\&P-D\$O\&^)) DR&P 6,3H&25&98.? 1 RH&
å
```

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

```
! "#$%#&'()#*+,#-+-.#
! 3""Z(K%&+, - & . /O""(& ' "((" i IDI C&"%&N%$)3%, $D"%, (&U, V&<"(D/K&D%&$O)&4) - & 6 D(()%%DI C5&W$"%7&<9%+("$+(+
′#8928(9&$(8+>$&(91&P4"W)CG)3&9888RH&
 )"3*)$" - %& b %DW)3#D$K&+, - & ./O""(5& X*+9:&+@$"*92&$+"C+W$"<&.#$(8+;**"A(92"*4+H.A(*<&+W$2<2*)+
H)$&&, &*9%?+; *9&$*(92''*(8+;*<'', &+H88''<(92''*+(*.+9:&+!:(88&*)&+''C+(+W$''<&.#$(8+Q13$2.&P6,3/O&?;;1RH+
\ .3W.3E&+, -&./O""(& [ "3Z#O"M&"%& ' I33)%&X)#),3/O&D%&U,V,$D"%5&/#3%(*<&+(*.+W$"<&.#$&+2*+9:&+
>(6(92"*+ "C+>$(*%&$+ W$2<2*)4++ H+ /9#. 1+ "C+ 9:&+!", 7&92*)+!"*<&792"*%+ "C+ 9:&+ H.A(*<&.+ W$2<2*)+
H) $&&, &*9+W$")$(, +P7 I*I#$&?;; @RH&
\,3W,3E&N%$)3%,$D"%,(&U,V&<3"*3,C5&MN/N+HWH+W$")$(,&P7M3D(&?;;@RH&
4)-&c"3Z&b%DW)3#D$K&./O""(&"$&+,-&UD((D%*0,#$&+)\$13)&'"CC)\%$,3K?+5678"\$2*)+9:&+!:(88&*)&\%"C+
58&<9$"*2<+!", . . &$<&+>(6(92"*+>:$"#):+9:&+567&$2&*<&+"(+@2*(*<2(8+:*%)$#, &*9%+P^/$"G)3&?::>RH&
X=*&$%:27+(*.+-&)(8+/9(9#%+2*+R&8(9&.+W($91+>$(*%(<92''*%\P7 I*I#$\&?;;2\H\
4) - & c "3Z& b %DW) 3#D$K& ./O" (& "S& +, -& '"(("i IDI C& "%& TD%, %/D, (& <3"EI/$#5&!", , &*9($1+"*+E@262*)+
R&(82V(92"*+ H<<"#*92*)4+ /1, , &9$1?+!"*\\%\%9&*<1+(*.+!"\$$&<9*&\\%\+2*+9:&+>(6(92"*+"C+@2*(*<2(8+
;*%9$#, &*9%G+P6,K&?;;2RH&
9%6%+J%!&-#$%69&#$!&"$N"J%!&+K$@%)%$+%9&
+"3)%$\lank \')\%$\3&\Y&+\)DE\\%&b\%DW\)3#D$K5&\'\"\$\$)3\%\/\&\"\&X\)E\$D\%D\%*&\`(\"G,(&`\"W)3\%,\%\)=&7\&$,\V5&\$3,E)&,\%E&
D%W)#$C)%$&M)3#M)/$DW)&D%&$O)&B b&,%E&!)K"%E5&&P+)DE)%5&4)$O)3(,%E#5&JI%)&9>AQ85&989QRH&'"CC)%$)3&
,%E&ED#/I##,%$H&
å
6,%/O)#$\3&6\$3"M"(D$,%&b%DW)3#D$K&,%E&\0)&' "3M"3,$\&'3DC\&^G#\3W,$"3K&X"I%E$,G(\&!", 782(*<&?+
HA"2. (*<&?+(*.+5A(%2"*+2*+>(6(92"*4+>:&+R"8&+"C+W$"C&%%2"*(8%5>:&+O$2):9+H$&(5k&PT)GH&O$&9890&WD,&
1""CR5& 6 "E)3,$"3&"S&3"I%E$,G()&M,%)(#H&
N%$)3%,$D"%,(&U,V&<"(D/K&T"3IC&Y&`)"3*)$"-%&b%DW)3#D$K&+,-&')%$)3&'"%$)3)%/)&jN%$)3%,$D"%,(&U,V&
989QRH&&
NX . A` [ b &QQ<sup>12</sup>&7 %% I , (&N%#$D$ I $) & ''% & ' I33) % &N## I ) #&D%&N%$) 3% , $D''% , (&U , V , $D'' %5&59 : 2<(8+; %%#&%+; *+
: *9&$*(92''*(8+>(6+W$(<92<&&P[.#OD%*$''%5&OH'H5&O)/)CG)3&?>5&9899RH&
_NXUB b &N%$)3% ,$D"% ,(&TD% ,(&' "%S)3)%/)&PJI%)&98995&WD,&]""CRH&
       JI%)&905&9899&&L'O,D3&"S&<,%)(=&;.&*92C12*)+9:&+2*9&$$&8(92"*%+3&9=&&*+<"$$#79+7$(<92<&%+(*.+
9(6+(3#%&%4+-&%\"*\+C$",+3&1"*.+5#$"7&&
                     L!8"%2*)+R&, ($F%&
```

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JI%)&9:5&9899&&L!8"%2*)+R&, (\$F%+

```
N%$)3%,$D"%,(&TD#/,(&7##"/D,$D"%&b.7&!3,%/O&28<sup>/O</sup>&7%%I,(&'"%$)3)%/)5&<,%)(=&59:2<%+2*+IJII4+W$2A28&)&+
"*+>$2(8?+W$(<92<&+"*+9:&+" "A&+P[,#OD%*$"%&O'5&JI%)&Q5&9899RH&
å
[ OD#$(D%*&,$&$O)&T,Z)=&TD%,(&N%$)3%,$D"%,(&'"%$)3)%/)&P6,K&98995&WD,&]""CRH&
       6, K&25&9899& L'0, D3&"S&<,%)(=&P:2%98&38"=&$%+(%+)(9&F&&7&$\%"C+9$#9:+2*+9:&+()&+"C+
. 2%2*("$, (92"*+
                    L!8"%2*)+R&, ($F%+
       6,K&>5&9899& L!8"%2*)+R&, ($F%+
å
9899R&\'\"A\"3\*,\%D])3&Y&6\"E)3,$\"3&PM,3&\"S&3)#),3\O&M3\"t)\\$&SI\%E)E&GK&47U^d#&<IG(D\&ODM(\"C,\K&
ODWD#D"%RH&
[ OD#$(D%*k,$&$O)&T,Z)=&X"I%E$,G()=+B2%2*C"$, (92"*+(*.+9:&+W$2A(9&+/&<9"$&PWD,&r""C&J,%I,3K&915&
9899R&'"A"3*,%D])3&Y&6"E)3,$"3&PM,3&"S&3)#),3/O&M3"t)/$&$I%E)E&GK&47U^d#&<IG(D/&ODM("C,/K&
ODWD#D"%RH&
N%$)3%,$D"%,(&TD#/,(&7##"/D,$D"%&b.7&!3,%/O&[D%$)3&'"%S)3)%/)5&<,%)(=&59:2<(8+;%%#&%+2*+;*9&$*(92''*(8+
> (6+W$(<92<&&PWD,&r""C&O)/)CG)3&;5&989?RH&
NXUB b & . KCM"#DI C&L&>: &+W$"C&\%2"*(8\%4+B&(82*)+=29:+9:&+5*(38&$\%+"C+5<"*", 2<+! $2, &+PWD, &r""C&
JI(K&9?5&989?R&'"A^3*,%D])3&,%E&6"E)3,$"3H&
' "M
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NX . A` [ b&Q?'<sup>0</sup>&7%%I,(&N%#$D$I$)&"%&' I33)%$&N##I)#&D%&N%$)3%,$D"%,(&U,V,$D"%5&<,%)(&'O,D3=&59:2<(8+
;%%#&%+,*+;*9&$*(92''*(8+>(6+W$(<92<&&P[,#OD%*$''%5&OH'H5&O)/)CG)3&?:5&98?1RH&
+, - &Y&. "/D)$K5&6 "E)3,$"3=&!", 7($(92A&+W&$%7&<92A&%+"*+>(6(92"*&PU"3"%$"5&JI%)&:5&98?1RH&
! "#$"%&' "(()*)AUI(,%)&U,V&X"I%E$,G()5&' "CC)%$)3&P4) - $"%5& 6 75& 6 ,3H&9Q5&98?1RH&
. ISS"(ZkbHk+, -k./0"(Ska)K%"$)&M3)#)%$,$D"%&,$k/"%S)3)%/)=&"+""MD%*&UO3"I*O&$O)&\"()#=&BVM("3D%*&
B, 3%) 3#k&P!"#$"%5&7 M3D(&:5&98?@RH&
NX . A` [ b&9; '0&7 %% I , (&N%#$D$I$)&"%& ' I33)%&N##I)#&D%&N%$)3%,$D"%, (&U,V,$D"%5&<,%)(=&59:2<(8+;%%#&%+;*+
; *9&$*(92''*(8+>(6+W$(<92<&&P[,#OD%*$''%5&OH'H5&O)/)CG)3&15&98?>RH&
b H&"S&_D3*D%D, &+, - &. /O""(&U, V&X"I%E$, G()=&N%WD$)E&' "CC)%$)3&P'O,3("$$)#WD(()5&4"WH&@A15&98?>RH&&
+,-&Y&."/D)$K&6))$D%*5&4)-&^3(),%#5&6"E)3,$)E&<,%)(=&j!I#D%)##&U,V,$D"%&&PJI%)&95&98?>R\&
7 \text{ C} )3D/, %\&7 \# "/D, $D"%\&"S\&+, -\&./O""(\#\&P77+.R\&7\%I, (\&'''%S)3)%/)5\&^3*, %DI)3\&"S\&'3"\#\&'I$$D%*&<,%)(=&
W&&$$9"$W&&$+!"*\#, 792"*?+5, &$)2*)+;\%\#&\P-D$Ok.OIAcDk^)DR&P4)-kc"3Z5k4c5kJ,\I,3Kk;5k98?>RHk
NX . A` [ b&91<sup>70</sup>&7%I,(&N%#$D$I$)&"%&' I33)%$&N##I)#&D%&N%$)3%,$D"%,(&U,V,$D"%5&<,%)(=&59:2<(8+;%%#&%+;*+
; *9&$*(92''*(8+>(6+W$(<92<&&P[,#OD%*$"%5&OH'H5&O)/)CG)3&?15&98?2RH&
k
4,$D"%,(&U,V&7##"/D,$D"%&7%%I,(&6))$D%*5&6"E)3,$)E&<,%)(=&>"72<%+2*+0#%2*&6%+>(6(92"*m&' "CC)%$)3&
"%&<,%)(=&>(6(92"*+(*.+/"<2(8+W"82<1&P!"#$"%5&4"W)CG)3&?;5&98?2RH&
- "*. "*+/<: ""8+"C+5<"*", 2<%+^B&7($9, &*9+"C+-(=+! "*C&$&*<&4+j7%`("G,(&7%,(K#D#&"S&U,V&U3),$K&
OD#MI$)#Hk&'"CC)%$)E&"%&.-D##&'O,M$)3&GK&X"G)3&&O,%"%&P+"%E"%5&^/$"G)3&Q85&98?2RH&
;*9&$*(92"*(8+@2%<(8+H%"'<2(92"*+H<(.&,2<+/1,7"%2#,+P/"AO"#$)E&-D$O&+I]DI#&',W)($D$&6,E)()D%)&
. DC "%) Z5\( 6 \, D/O \, )(\(\ell + \, \% *5\ell Y \& 1 \, \WD \) 3\(\ell ^ G \) 3\(\pi ' \) 8\(\ell P ! \, \pi ) (5\(\ell . - D\) \] 3\(\, \%E\& 7 \, I * I #\ell Q85\(\ell 98 ? 2 \) 2\(\ell A \)
Q(A(\$.?+/9(*C"\$.+d+c(8\&+D\#*2"\$+@(<\#891+@"\$\#, \&P\#)()/\$)E\&,\%E\&/"CC)\%\$)E\&"\%\&tI\%D"3\&\#/O"(,3\&\$,V\&E)
M, M) 3#5\& - D$O\&c, D3\&+D#$"ZD%R\&P \setminus ,3W, 3E\&+, -&./O""(5\&JI%)\&?>A?@5\&98?2R\&
-(=+d+/''<2\&91+'\&\&92*)5\&6 "E)3,$)E&<,%)(&"%&iUO)"3K&,%E&'"%#$D$1$D"%,(D#C&D%&U,V&+, -5&&P.),$$()5&
 6, K&Q85&98?2RH&
HH - /+IJKh + H ** \#(8 + ' \&\&92 *)? + Q''9 + > "72 < iO\$2.) \&+W\$") \$(,=&6"E)3,\$) E\&<,\%) (5\&jX) /) \%\&O) W) ("MC) \% \#\&N\% \&ABC = (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (8.5) &+ (
\ IC,%&',MD$,(&N%W)#$D%*5k&P[,#OD%*$''%5&OH'H5&J,%I,3K&Q5&98?2RH&
NX.A` [ b&9@'<sup>0</sup>&7%'I,(&N%#$D$I$)&''%&' I33)%$&N##I)#&D%&N%$)3%,$D''%,(&U,V,$D''%5&<,%)(&'O,D3=&59:2<(8+
;%%#&%+;*+;*9&$*(92''*(8+>(6+W$(<92<&&P[,#OD%*$''%5&OH'H5&O)/)CG)3&?95&98?:RH&
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! "#$%#&'()#*+,#-+-.#
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Ih!"+H**#(8+W:28(. &87:2(+>(6+!"*c&&&*c&&, %)(D#$5&jB$OD/,(&N##I)#\d0\&6 "E)3\%\^ ("G,(&U,V&<3,\$D/)H\&\delta P<OD(,E)(MOD,5\dama4"W)CG)3\&25\d98?:R\d\\
\[ \lambda 3*,\dolson \rangle DE\!"\dolson \rangle 3\rangle \rangle SOB\ \rangle A' \rangle A
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! "#$%#&'()#*+,#-+-.#
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        S"3&O)W)("MD%*&' "I%$3D)#& &
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                                                                         PO)/)CG)3\(\dagger{9}\)8?2R\(\dagger{1}\)
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^3*,%D])E&S"(("-D%*&M,%)(#=&P?R&6,K&98?:&[,#OD%*$"%&O'&&
P-D$O&a)33K&XK,%Rm&P9R&.)M$)CG)3&98?:&[,#OD%*$"%&O'&&
P - D$O&a )33K&XK, %Rm&PQR&. )M$) CG)3&98?2&'OD/,*''&P - D$O&a )33K&XK, %Rm&&
P:R&J,%I,3K&98?>&+"#&7%*)()#&P-D$O&a)33K&XK,%Rm&P2R&6,K&98?@&
[ ,#OD%*$"%&O ' &P - D$O& a )33K&XK ,%Rm&P>R&^/$"G)3&98?1&7$(,%$,&&
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