





&) 9 9\*!-%\*!)bb%\*D\*D&),AD8/B- \*!CA(!, \*D!(gE, \* 9 \*%8D!-%/7\*(D/8A/( \*DJ!Z%!&AD! . \*! . ) -8\*+!&G\*D8!7)8(\*!  
(\*DC)%DA`/,/86! . \*!&)%%A/8(\*!,A! . /bb6(\*%&\*!\*%8(\*!, \*D! . \* -HJ! : G\*D8!7)8(\*!( \*DC)%DA`/,/86! . \*!&)%%Af8(\*!, \*D!  
(gE, \* 9 \*%8D!-%/7\*(D/8A/( \*D!A- !D-0\*8! . - !C,AE/A8!\*8! . \*!,G/%86E(/86!D&),AD8/B- \*!%!&AD! . \*! . ) -8\*+!/,!bA-8!  
&)%D- ,8\*(!&\*D!(gE, \* 9 \*%8D!\*8!%) -D!C)D\*(!7)D!B- \*D8/)%D!D!/!%6&\*DDA/( \*J!  
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\_) /(!A-DD/!!! '88CILLMMMJ-M)J&AL) 9 ` - .DLE-/. \*DL& '\*A8/En` ()&' -( \*JC. b!  
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**MS\*W!&\$%0%\*&/-!!**

T\*!&)-(8D!o 9 /%/48\*D8Dp!) - !B- /N!bA&8- \*,D!D\*(%)%8!A . 9 /%/D8(6D!DA%D!A7/D!C(6A,A` , \*+!\*%! : >!) -!\*%!VT+!  
C) -( !76(b/\*(C)%&8- \*, \* 9 \*%8!7)D!&)%%A/DDA%&\*D! . \*D!, \*88- (\*D!\*8! . \*D! . /D&-DD/) %D!\*%!&,ADD\*J!I, !%GA- (A!  
CAD! . \*!(A88(ACAE\*! . \*D!C) -( !&\*D!B- /N+! 9 A/D!D\*-, \* 9 \*%8!, \*D! 9 \*%, \*, - (D!?!(6D- ,8A8D!5D- (!A- ! 9 )/%D!@<!D\*(%)%8!  
-8/,/D\*D!Ab/%! . \*!&A, &- ,\*(!,A!%)8\*!b/%A, \*J!  
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**?#%#2#&!3#2+(3+/%!-!!**

[ ]D!C\*( 9 A%\*%&\*D!5) - !q! \* - (\*D! . \*!` - (\*A- !r<!D)%8!F!7)8(\*! . /DC)D/8/)%!C) -( !(6C)% . (\*!F!8) - 8\*!B- \*D8/)%!  
(\* ,A8/7\*!A- !&) - (DJ! \_ \*-/, \*N!(6D\*(7\*(!, \*D!&) - ((/\*,D!C) - (!, \*D!B- \*D8/)%D!B- /!%\*!C\* - 7\*%8!CAD!e8(\*!(6E,6\*D!  
\*%!DA, \*, \*!&,ADD\*!) - !C\*% . A%8!, \*D!C\*( 9 A%\*%&\*DJ!I, !%\*!bA-8!D- (8) - 8!CAD!D-CC)D\*(!B- \*!%) - D!C) - ((%)D!  
(6C)% . (\*!CA(!&) - ((/\*, !F!8) - 8\*D!7)D!B- \*D8/)%D! . \*! . \*%(/g(\*! 9 /%-8\*!5, A!7\*//, \*, \*D!8\*D8D!) - ! . \*!, A! . A8\*! . \*!  
(\* 9 /D\*! . \*D!8(A7A- H+!CA(!\*H\* 9 C, \*<!#/#/7) - D!%) - D!6&(/7\*N!CA(!&) - ((/\*, +! 9 \*(&! . G/ . \*%8/b/\*(!, \*!&) - (D!  
5ob(A%cA/D! ; R3@Wp!) - !D/ 9 /, A/( \*<! . A%D!, \*!D-0\*8! . \*!7)8(\*! 9 \*DDAE\*+!Ab/%! . \*!%) - D!C\*( 9 \*88(\*! . \*!, \*!  
(\*&)%%Af8(\*J!  
#/#/7) - D!-8/,/D\*N! 'A` /8- \*, \* 9 \*%8!-%!&) - ((/\*, !A-8(\*!B- \*!7)8(\*!A . (\*DD\*! U - M)J&A+!/, !bA-8!bA/( \*!D- /7(\*!  
&\*, \*,4&! ) - !, A!76(b/\*( !6E- ,/g(\* 9 \*%8!!!&G\*D8! ,GA . (\*DD\*!CA(!, AB- \*, \*, \*!, G/%D8/8-8/)%!7) - D!&)%8A&8\*(AJ!!  
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**VQ),/&!121%(/,/&!-!!**

YGACC(\*%8/DDAE\*!\*D8!-%!C)&\*DD-D!&), \*, \*88/b! . )%8!%) - D!D) 9 9 \*D!8) - D!\*8!8) - 8\*D! 9 -8- \*, \* 9 \*%8!  
(\*DC)%DA` , \*D!I, A!C(6D\*%&\*!A88\*%8/7\*+!, A!CA(8/&CA8/)%!A&8/7\*!8!, A!C(6CA(A8/)%!A . 6B- A8\*!( \*C(6D\*%8\*%8!  
)%&!-%! 9 /%/9 - 9 ! . \*!&) - (8)/D/\*!\*8! . \*!D), / . A(/86!\*%7\*(D!7)D!&A 9 A(A . \*D! . \*!&,ADD\*J!  
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k) -( !` /%\*( !6-DD/( ! . A%D!&\*!&) - (D!/, !bA-8!ADD/D8\*(!F!8) - 8\*D!, \*D!&,ADD\*D s &) - (D! 9 AE/D8(A- H!5 : ><!A%D!  
B- \*!, \*D!8(A7A- H! . /E6D!5VT<! s &) 9 9 \*!DG/, !DGAE/DDA/8! . G- %!\* 9 C, )/J!Y)E/B- \* 9 \*%8+!7) - D!%\*!C) - 7\*N!  
CAD!ACC(\*% . (\*! . \*D!&,ADD\*!A- HB- \*, \*D!7) - D!%GADD/D8\*N!CAD!m!C, - D/\* - (D!68- . \*D!)%8!&)%D8A86!-%\*!  
&)((6,A8/)%!D8A8/D8/B- \*! . /(\*88\*!\*%8(\*!,GADD/ . -/86!5,A!C(6D\*%&\*<!8!, \*D!%)8\*D!b/%A, \*DJ!!  
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**K/&!8/J#%&!X+% (J(\$L!0%(\*E\$/&Y!-!**

k) -( !&' AB- \*! . \*7)/(+!/, !bA-8!/% . /B- \*(!&,A/( \* 9 \*%8!, A! . A8\*! . \*!( \* 9 /D\*+!7)8(\*!%) 9 !\*8!%- 9 6(!) . G68- . /A%8J\*+!  
\*8!67\*%8- \*, \* 9 \*%8!, \*!%) 9 !\*8!, \*!%- 9 6(!) . G68- . /A%8J\*! . \*!8) - 8\*!C\*(D)%%\*!A7\*8!B- /!7) - D!A- (/ \*N!  
&), ,A` ) (6!C) - (!&) 9 C, 68\*( !, \*!8(A7A/, !#/#/7) - D!%/ . /B- \*N!B- \*!7) - D!e8\*D! 9 -8- \*, \* 9 \*%8! . GA&&)( !C) - (!  
D) - 9 \*88(\*!, \*! 9 e 9 \*! . \*7)/(+!/, !D- bb/8! . G- %!D\*-, !\*H\* 9 C, A/( \*!C) - (!, \*D! . \* - H!C\*(D)%%\*D! 9 A/D!A7\*8! , \*D!  
. \* - H!%) 9 D!&, A/( \* 9 \*%8!/% . /B- 6D!!7) - D!) ` 8/\*% . (\*N!, A! 9 e 9 \*!%)8\*!C) - (!&\*! . \*7)/(J!#/#/7) - D!8(A7A/, \*N!  
\*%!&), ,A` ) (A8/)%! 9 A/D!%\*!, G/% . /B- \*N!CAD!&, A/( \* 9 \*%8!5A7\*8! , \*!%) 9 ! . \*D!C\*(D)%%\*D!B- /!&), ,A` ) (%\*8<+!  
7) - D!(DB- \*N!-%\*!%)8\*! . \*!N6(!)C) - (!&\*!8(A7A/, !5) - !C/( \*+!D\* , )%!, \*D!(gE, \* 9 \*%8D!-%/7\*(D/8A/( \*D!  
ACC, /&A` , \*D!!  
'88CILLMMMJ-M)J&AL- %/7D\*%LC . bLA&A . \* 9 /&nC), /&\*DLACC\* A, DLD&' ), AD8/&n . /D&C, %\*n- % . \*(E(A . JC . b)!<!!  
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U 7 ?GVC . RC!-!Z/\$\$, /W!3#2&\$, +/!/+!3#2&/%J/!%, /&!%/2&/\*) 2/ ' /2+&! (3(81 ' \*E\$/&!!  
\* ' 0#%+(2+&!8(2&!, /&!0 ) /&!E\$\*!&\$J/2+!-, &!&[(00, \*E\$/2+!0!+##&!, /&!3#%\$&!8\$!F10(%+/ ' /2+!  
8[1+\$8/&!@% (2N(%&/&!  
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56 U+!\*&!+D/!&+\$8/2+[&!%/&0#2&\*4\*,\*+!+#!3D/3]!+D/!3#\$%&!0%//%E\$\*&+/&! (28!(2+%/E\$\*&+/&! K%,\*DD!\$) -!'A7\*!\*/8'\*(!8'\*(!B-/D/8\*D!b)(!8'/D!&)-(D\*!)(!M(/88\*%!DC\*%&/A,!C\*(9/DD/)%!b() 9!8' \*! T\*CA(89\*%8!)b! ](\*%&'!#8- ./D!8)!\*%(),!%/!8+!\$)-!9A\$!`\*(9)7\* .!b() 9!8'/D!&)-(D\*!A% .! /8! M/,,!`\*! .,\*8\* .!b() 9!\$)-(!(\*&)(.J!V'/D! . \*%&/D/)!9A\$!)8!`\*!ACC\*A,\* .J! t ) -!M/,,!( \*&\*/7\*!%)! A.0-D89\*%8!8!)\$)-(!b\*\*D!/!%8' \*! \*7\*%8!8' A8!\$)-!A(\*! . .)CC\* .!b() 9!A!&)-(D\*!b)(!bA/,/%E!8)! 'A7\*! 8' \*!%!\*&\*DDA(\$!C(\*B-/D/8\*D!J!

=6 ?#,#3\!#2! . 3(8/ ' \*3!' '#2&\*8/%(+\*#2!@#%!^+\$8/2+! . 4&/23/&!\_!` 28/%) (8\$(+!/!^+\$8/2+&!\*2! a%&+!T2+% \! ?%#) % ( ' &!!

'88CILLMMMJ-M)J&AL-%/7D\*%&LA&A . \* 9/&nC),/&\*/DL(E'8Dn(\*DC)%D/^/,/8\*/DJ'89,!!

V/E\$/&+&!@#%! . 3(8/ ' \*3!' '#2&\*8/(+\*#2!` &\*2)!+D/!^/,@\_V/0#%+/8! . 4&/23/!a#% ' !! #8- . \*%8D!M' )!\*HC\*(/\*%&\*!A%!-%\*HC\*%&8\* .!/,,%\*DD!)(!/%0-(\$!)(!A\*!H8\*%-A8/%E!&/(&-9D8A%&\*!5PR! ') -(D!)(!,\*DD<18' A8!D!D-bb/&/%\*8,\$!D\*7\*(!8)!8\*9C)(A(/,\$!( \*% . \*(!8' \*9!-%A` ,!8)!9\*\*8!A&A . \* 9/&! (\*B-/(9\*%8D!5\*JEJ+A88\*% . /%E!,\*%8-(D!)(!,A`D+!M(/8/%E!8\*D8D!)(!9/ . 8\*(9!\*HA9D+!&)9C,\*8/%E! A% . !D-` 9/88/%E!ADD/E% 9\*%8D+!CA(8/&CA8/%E!/%!C(\*D\*%8A8/)%D<D' )- , . !D\*,b4!

! . \*%&A(\*!-D/%E!8' \*!)%,/%\*!#\*,b4^\*C)(8\* . !X`D\*%&\*!C)(8A,J!V'/D!)C8/)%D' )- , . !`\*!-D\* . !/%! D/8-A8/)%D!M' \*(!8' \*!D8- . \*%8!\*HC\*%&8D!8)!(\*D-9\*!A&A . \* 9/&!(\*DC)%D/^/,/8\*/D!M/8'/%!PR!' )-(D!)(!,\*DD!V' \*!b),,)M/%E!&)% . /8/)%D!A(\*!/%!C,A&\*!b)(!D\*,b4(\*C)(8/%E!)b!9\* . /&A,!)(!\*H8\*%-A8/%E! &/(&-9D8A%&\*D!!

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- A< D8- . \*%8D!M/,,!`\*!A,,)M\* . !(' (L' \$' !#0!+b#!&/, @\_%/0#%+/8!(4&/23/&!` \*8M\*\*%# #\*C8\*9`\*(!A% . !XC(/,!A% . !)%\*!D\*,b4(\*C)(8\* . !A`D\*%&\*!` \*8M\*\*%>A\$!A% . !X-E-D8m!!
- < A%\$!A`D\*%&\*D!/%!H&\*DD!)b!8' \*!%-9`\*(!`D/E%A8\* . !/%!&,A-D\*!A!A` )7\*+!(EA(.,\*DD!)b! . -(A8/)%+!M/,,!(B-/(D8- . \*%8D!8)IC(\*D\*%8!A!#8- . \*%8!>\* . /&A,! : \*(8/b/&A8\*!5#> : <+! D/E%\* . !`\$!A/,/&\*%D\* . !9\* . /&A,!)(!9\*%8A,!`\*A,8'!C(A&8/8/)%\*(+! . \*8A/,/%E!8' \*! . -(A8/)%!A% . ! D\*7\*(/8\$!)b!/,,%\*DD+!)(ACC)C(/A8\*! . )&-9\*%8A8/)%!D-CC)(8/%E!H8\*%-A8/%E! &/(&-9D8A%&\*D!8)!8' \*!X&A . \* 9/&! : )-D\*%,/%E!-%/8!/%8' \*/(!JA&-8\$!)b!(E/D8(A8/)%!%)! ,A8\*(18' A%!8M)!`-D/%DD! . A\$D!A8\*(18' \*! . A8\*!DC\*%&/b/\* . !b)(!(\*D-9/%E!(\*DC)%D/^/,/8\*/DJ! k,\*AD\*!D\*\*!D\*%&8/)%!P!`\*,,)M!b)(!9)(\*! . \*8A/,DJ!!
- &< V' \*! . -(A8/)%!b!8' \*!H&-D\* . !A`D\*%&\*!M/,,!`\*!b)(!A!9AH/9-9!)b!PR!' )-(D!b() 9!8' \*! 8/9\*!8' \*!#\*,b4^\*C)(8\* . !X`D\*%&\*!b)(9!/D!&)9C,\*8\* . !8' ( )-E'!8' \*!%) ,/%\*!C)(8A,+!)(! b() 9!R123!A9!8' \*!b),,)M/%E!9)(%/E!b!8' \*!b)(9!/D!D-` 9/88\* . !Ab8\*(!P!23!C9m!!
- < V' \*! . -(A8/)%!b!8' \*!H&-D\* . !A`D\*%&\*!M/,,!8\*(9/%A8\*!C(/)!8)!8' \*!% . !)b!8' \*!PR!' )-(! C\*(/)!D' )- , . !8' \*!D8- . \*%8!-% . \*(8A\!D/E%/b/&A%8!A&A . \* 9/&!(\*DC)%D/^/,/8\*/D!5M(/8\*!A! 8\*D8+!D-` 9/8!A!CAC\*(<! . -(/%E!8' A8!8/9\*%m!!
- \*< V' \*! . -(A8/)%!b!A\*!H&-D\* . !A`D\*%&\*!M/,,!8\*(9/%A8\*!A8!R123!A9!)%8' \*! . A\$!b),,)M/%E! 8' \*! ,AD8! . A\$!)b!&,ADD\*D!\*A&'!D\*9\*D8\*(!(\*EA(.,\*DD!)b!')M!9A%\$! . A\$!)b!A`D\*%&\*!A7\* \* ,ACD\* . m!!
- b< #\*,b4(\*C)(8\* . !A`D\*%&\*D!M/,,!%)8!`\*!A,,)M\* . !b)(!D&\* . - , \* . !b/%A,!\*HA9/%A8/)%Dm!b)(! 9/ . 8\*(9!\*HA9/%A8/)%D!D&' \* . - , \* . ! . -(/%E!8' \*!T\*%&\*9`\*(!HA9/%A8/)%!C\*(/)!m!)(!b)(! b/%A,!,A`!HA9/%A8/)%D!D&' \* . - , \* . ! . -(/%E!8' \*!b/%A,!M\*\*\!)b!8\*(9m!!
- E< #\*,b4(\*C)(8/%E!9A\$!)8!`\*!-D\* . !b)(!ADD\*DD9\*%8D!5\*JEJ!9/ . 8\*(9!\*HA9D+!8\*D8D+!(\*C)(8D+! C(\*D\*%8A8/)%D+!)(!DDA\$D<!M)(8'!9)(!\*8' A%!23 i !)!b!A%\$!E/7\*%!&)-(D\*J!!
- < D8- . \*%8D!9-D8!`\*!/%!8)-&'!M/8'!8'\*/(!%D8(-&8)(D!2#!,(+/%!+D(2!=c!D#\$%&!(@+/%!+D/! /28!#0!+D/!0/%#8!3#J/!/8!4!\!+D/!^/,@\_V/0#%+/8! . 4&/23/!@#%'+18)!&,A(/b\$')M! 8' \*\$!M/,,!`\*!HC\*%&8\* . !8)!b-,b/,18' \*!A&A . \* 9/&!HC\*%&8A8/)%D!8' \*\$!9A\$!'A7\*!9/DD\* . !

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.-(/%E!8'!\*A`D\*%&\*J!

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V/E\$/&+!@#%! . 3(8/ ' \*3!' '#2&\*8/%(+\*#2!@#%!(! 7 /8\*3(,! . 4&/23/!!

#8- . \*%8D!D\*\*\/%E!A&A . \* 9/&!&)%D/ . \*(A8/)%!b)(!A! 9 \* ./&A,!A`D\*%&\*!%)8!&)7\*(\* . !`\$!\*H/D8/%E!

#8- . \*%8!X&&\*DD/^/,/8\$!#\*(7/&\*D!5#X#!A&&) 9 9) . A8/)%+!M/,,!`\*!(B-/( \* . !8)!C()7/ . \*!

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V/E\$/&+!@#%!. 3(8/ ' \*3!' '#2&\*8/(+\*#2!@#%!(R#2\_7 /8\*3(,!. 4&/23/!!

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#8- . \*%8D!D\*\*\/%E!A&A . \* 9 /&!&)%D/ . \*(A8/)%!b)(!A!%) %4 9 \* ./&A,!A`D\*%&\*!M/,,!` \*!( \*B-/( \* . !8)!  
C()7/ . \*!ACC()C(/A8\*! . )&- 9 \*%8A8/)%!M' \*( \*!8 ' \*!&)% . /8/)%D!b)(!A!#\*,b4^\*C)(8\* . !X`D\*%&\*!'A7\*!  
%)8!`\*\*%! 9 \*8+!/%&,- ./%E!M' \*( \*!8 ' \*!D8- . \*%8!'AD!\*H&\*\* . \* . !8 ' \*! 9 AH/9 - 9 !% - 9 `\*(!)b!  
C\*(9/DD/^ , \*!#\*,b4^\*C)(8\* . !X`D\*%&\*DJ!

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V' \*!b),,)M/%E!&)% . /8/)%D!A(\*!/%!C,A&\*!b)(!D8- . \*%8D!D\*\*\/%E!A&A . \* 9 /&!&)%D/ . \*(A8/)%!b)(!A!  
%)%4 9 \* ./&A,!A`D\*%&\*1!!

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AJ #8- . \*%8D! 9 -D8!D- ` 9 /8!8 ' \*!ACC()C(/A8\*! . )&- 9 \*%8A8/)%!A,)E!M/8' !A!( \*B- \*D8!b)(!  
A&A . \* 9 /&!&)%D/ . \*(A8/)%!DC\* &/b\$/%E!8' \*!( \*AD)%!b)(!8' \*!A`D\*%&\*!A% . !8' \*!%A8- (\*!)b!  
8' \*!( \* ,/\*b!` \* /%E!( \*B- \*D8\* . J!V' /D! . )&- 9 \*%8A8/)%!D' A,,!` \*!D- ` 9 /88\* . !8)!8' \*!  
X&A . \* 9 /&! : ) - %D\* , /%E!)(!K% . \*(E(A . -A8\*! d bb/&\*!/%!8' \*!D8- . \*%8GD! ]A&- ,8\$!)b!  
(\*E/D8(A8

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