







%' +. 4&2:9#:#1,\$D#3/()9\$,(\$5)(D2/#5)(H#1,\$-3/\$1(39,)01,2(3\$6-3-;#6#3,\$9#)D21#9\$, "-,\$&2:.\$  
FO:F2:2,9\$(@:2;-2(3\$,(\$6-\*#265)(D#6#3,9\$,(\$D#3,2:-,2(3\$9<9,#69CS901"\$-9\$)#5-2)9\$,(\$&23/(&9\$  
-3/V()\$U#-,23;C\$\_#3,2:-,2(3\$-3/\$=2)\$Y(3/2,2(323;\$7U\_=Y8\$9<9,#69CS23\$9#&&'()\*\$+,-,#\$3(3>50@:21\$  
91"((-9\$,"-,\$"-D#)#E0#9,#/\$,"(9#9#)D21#9AS)(\$6())#23F()6-,2(3\$-@(\$,,"#-\$::(&-@:#9#)D21#9CS  
5:#-9#9##\$E0#9,2(3\$.>N\$(F\$,"#B+4.\$.=%+\$S=I\$-\$,"#F(:(&23;\$23\*\$J\$  
[,59JV\(#9#A#/A;\(DVF2:#9VNONLVOMVS23->.:=%+>S=I>NAO>MALeANLA5/FA\\$](#)

+##\$-,-1"/\$,-@:#\$29,23;\$@0/;#,\$#9,26-,#9\$F()\$,"#&()\*\$03/#)\$,"#\$F2)9,\$)(03/\$(F\$.=%+C\$@<\$:-@())\$  
F(1#)\$#;2(3\$7c.=%+\$S-12,2#9\$+#)D21#9\$]#E0#9,#/\$@<\$]#;2(3d8\$!"#\$/#,-2.9CS901"\$-9\$,"#306@#)\$  
(F\$91"((-9\$,\$@#9#)D#/\$-3/\$@0/;#,\$#9,26-,#9\$@<\$)#;2(3F()\$,"#9#1(3/\$(03/\$(F\$.=%+-\$)#3(\$,  
-D-2:-@:#\$-\$,"29\$,26#C\$-:,"(0;"\$&#5#1,\$,"#,\$(-,\$F03/23;\$,\$@#909#/\$F())#5-2)9\$(F\$U#-,23;C\$\_  
\_#3,2:-,2(3\$-3/\$=2)\$Y(3/2,2(323;\$7U\_=Y8\$9<9,#69\$-3/V()\$&23/(&9\$&2:.\$@#;#)#-,#)A\$

!"#9#:#1,#/\$D#3/()798&2:.\$@#)\$#95(392@:#\$F())\$5)(D2/23;\$9#)D21#9CS()\$1(3,-)1,23;\$&2,"\$5)(D2/#)9CS  
,\$(\$3-@:#\$3(3>50@:21\$91"((-9\$,\$)#/01#,\$"#)\$29\*\$F(D2)09\$,-)3962992(3\$-3/\$265)(D#23/(()-2)\$  
E0-2,<(\$231:0/23;\$)#5-2)\$-3/\$05;)-/#9\$,\$6#1"-321-:(\$3-,0)-:\$D#3,2:-,2(3\$9<9,#69\$7#A;A\$  
05;)-/#\$2:.)-2(3\$,(\$Q. ]\_LMS()\$@#,#)\$-3/#)@-:-31#\$F-39\$,(\$6-23,-23\$D#3,2:-,2(3\$)-,#9\$)#5-2)\$  
&23/(&\$9-9"#9\$(3\$(5#)-@:#&23/(&9\$F())\$3-,0)-:\$D#3,2:-,2(3\$)#5-2)\$#2#F\$-2)\$D#3,2:-,()9CS#,1A8\$  
!"#9#:#1,#/\$D#3/()23\$#-1"\$)#;2(3&2:.\$@#)\$#95(392@:#\$F())\$(D#)92;"\$-3/\$1(65:#,2(3\$(F\$-:\$  
91(5#/\$-3/\$-:))##/\$05(3&()\*\$2/#3,2F2#/\$23\$#-1"\$)#;2(3A\$

!"#D#3/()&2:.\$J\$

@#)\$#95(392@:#\$F())\$#-1"23;\$(\$,,\$,\$-:\$91"((-9\$,"-,\$)#E0#9,#/\$F-12,2#9\$9#)D21#9\$,")(\$;\$  
,"#\$.=%+-\$55:21-,2(3\$5)(1#99&2,"23\$,"#;\$-@())\$F(1#)\$#;2(3\$79##95)#-/9"##,\$c.=%+\$  
S-12,2#9\$+#)D21#9\$]#E0#9,#/\$@<\$]#;2(3d8\$  
-)-3;#;\$-92,\$#D292,\$(\$/#D#:(5\$-\$1:#-\$)5)(H#1,\$91(5#A\$?:#-9#3(\$,\$,"-,\$9(6#91"((-:\$  
@02:/23;9\$6-<\$)#E02)#6()#,\$"-3\$(3#,\$<5#\$(F\$9#)D21#A\$!"29\$6-<\$231:0/#\$&23/(&\$&()\*\$C\$  
U\_=Y&()\*\$C()\$(,"#)\$D#3,2:-,2(3\$)#5-2)9\$(265)(D#6#3,9A\$Y(6@23#/\$C\$,"29\$&2:.\$1(65)29#  
-\$c5)(H#1,A\$d\$  
/#D#:(5\$9,26-,#9\$F()\$,"#\$1(9,\$(F\$9#)D21#9\$F())#-1"5)(H#1,\$  
(@,-23\$-3<\$3#1#99-)<\$5#)62,9\$F()\$1(39,)01,2(3&()\*\$5)2(\$,\$,"#\$9,-,\$/-,##  
(@,-23\$-\$6232606\$(F\$,")##\$7M8\$E0(,#9\$F)(6\$:21#39#/\$-3/\$E0-:2F2#/\$90@1(3,-)1,()9\$,(\$  
5#)F(6)\$,"#9#)D21#9\$3##/#/\$,\$1(65:#,\$#-1"5)(H#1,\$2F\$90@1(3,-)1,()9\$-)#/#6#/\$  
3#1#99-)<A\$G"#)#-\$5)##`29,23;\$1(3,-)1,0-:)\$#:-,2(39"25\$#`29,9\$@#,&##3\$-\$91"((-:\$-3/\$-\$  
90@1(3,-)1,()C\$-\$E0(,\$609,\$@#9(:212,#/\$F)(6\$,"-,\$90@1(3,-)1,()A\$=/2,2(3--:<C\$  
5)##`29,23;\$&-)-3,##9\$609,\$@#6-23,-23#/\$7%' +.4\$609,\$-55)(D#,\$"#D#3/()\$,\$  
5#)F(6\$-3<\$)#5-2)\$-3/\$1(39,)01,2(3\$9#)D21#9\$,"#69#:#D#9\$-3/\$,"#D#3/()\$609,\$5)(D2/#\$-\$  
5)21#SH09,2F21-,2(3F()\$,"#&()\*\$C()/#)\$,"-,\$29\$-11#5,-@:#,\$(%'+.4A8\$  
9#:#1,\$-\$E0-:2F2#/\$90@1(3,-)1,()72F\$3(\$5#)F(6)23;\$,"#)\$#5-2)\$-3/\$1(39,)01,2(3&()\*\$  
,"#69#:#D#98\$,"-,\$1-3\$5)(D2/#\$-:\$,"#9#)D21#9\$(0,:23#/\$&2,"23\$,"#95#12F2#/\$,26#F)-6#C\$  
-3/\$,"-,\$90@62,9\$-\$E0(,\$,\$,"-,\$29\$&2,"23\$LOB\$(F\$,"#):(&#9,\$1(9,A\$  
5)#5-)#\$-\$&()\*\$C()/#)#/#,-2:23;\$,"#306@#)\$(F\$"(0)9CSH(@,\$2:##9CS-3/\$"(0):<\$)-,#9\$  
71(3929,#3,\$&2,"\$Y(9,\$?)\$(5(9-:8\$-3,2125-,\$/#F())#-1"5)(H#1,\$5#)F(6#/\$@<\$,"#D#3/()\$



\_#3/()\$609,\$9055:<\$/2;2,-:\$1(52#9\$(F\$5-<6#3,\$)#1()/9\$()\$(,"#)\$/(106#3,9\$-3/\$)#5(),9\$  
)#:-,#/\$,(\$-\$5)(H#1,\$()\$5)(H#1,9\$,(\$%' +. 4A\$

?-<6#3,9\$,(\$D#3/())\$&2:\$(3:<\$@#-\$0,"()2g#/\$F()\$5)(H#1,9\$,"-,\$-)#\$1(65:#,#/CS2395#1,#/CS-3/\$FO:<\$  
1(662992(3#/\$72F\$-55:21-@:#8CS()\$(,"#)&29#/\$/#6#/\$1(65:#,#/\$@<\$%' +. 4A\$

[390]-31#-\$-3/\$X(3/9\$

%(, &2,"9,-3/23;\$-3<\$,#)69CS1(3/2,2(39CS()\$5)(D292(39CS23\$-3<\$(",#)\$&2,23;\$@#, &##3\$,"#\$5-),2#9CS  
,"#\$1(39,)01,2(3\$6-3-;#)\$&2:~\$-; )###,(\$FF#1,0-,\$,"#\$3-623;\$(F\$%' +. 4\$-3/\$,"#\$91"((:\$-9\$-3\$  
-//2,2(3-:2390)#/\$(\$,"#\$1(39,)01,2(3\$6-3-;#)i9\$1(66#)12-;\$;#3#)-:2-@2:2,<\$-3/\$06@)#::~-\$  
-3/V()\$# 1#99\$2-@2:2,<\$5(:212#9A\$F\$, "#\$5(:21<29\$&)2, #3\$(3\$-1:-269>6-/#\$@-929CS,"#\$)#,)(-1,2D#\$  
/-, #609,\$5)#1#/#\$, "#\$/-, #\$(F\$, "#\$1(3,)-1,A\$

!"#\$5(:21<3-623;\$%' +. 4\$-3/\$,"#\$91"((:\$-9\$-//2,2(3-:2390)#/9\$9"-:23/#632F<\$%' +. 4\$-3/\$,"#\$  
91"((:\$F()\$-3<\$-55:21-@:#\$/#/01,2@:#9\$-3/\$9#F>2390)#/\$)# #3,2(39A\$7!"29\$/(#9\$3(\$90; ;#9,\$%' +. 4\$  
"-9\$-3<\$(&3#)9"25\$(D#)\$,"#\$91"((:\$@02:/23; 9A\$%' +. 4\$29\$,"#\$)#95(392@:#\$+,-,#\$-;#31<3-3/\$&2:~\$@#  
1(3,)-1,23;\$&2,"\$,"#\$1(3,)-1,()\$(5)(D2/#9\$)D21#9\$,(\$,"#\$91"((:\$@02:/23; 9A\$

j #3#)-:,\$)#69\$)#;-)/23;2390)-31#J\$

Y(3,)-1,()\$-; )##9\$-3/\$-1\*3(&:#/; #9\$,"-,\$@#1-09#,\$ "#\$1(3,)-1,()\$7-3/\$3(\$%' +. 4\$()\$  
,"#\$91"((:8\$29\$)#95(392@:#F()\$5#)F()6-31#\$(F\$, "#\$0/2#9\$-3/\$(@:2;-2(39\$9#,\$F()), "\$23\$,"29\$  
1(3,)-1,\$F()\$1(65:#,2(3\$(F\$, "#\$5)(H#1,CS,"#\$1(3,)-1,()CS,") (0;"\$,"#\$09#\$(F\$2390)-31#CS  
23,#3/9\$,(\$-::(1-,\$\$-:\$(99#9\$,(\$901"2390)-31#\$(5)(, #1,\$2,9#F\$-3/\$%' +. 4\$-3/\$,"#\$  
91"((:A\$

Y(3,)-1,()\$29\$)#95(392@:#F()\$#390)23;\$,"-,\$#-1"\$90@1(3,)-1,()\$(@,-239\$-3/\$6-23,-239\$23\$  
,"#\$)#E02)#/\$-6(03,\$#-1"\$<5#\$(F\$2390)-31#5(:21<\$)#E02)#/\$@<\$,"29\$1(3,)-1,\$-3/\$,"-,\$  
901"2390)-31#5(:21<\$5)(D2/#9\$%' +. 4CS,"#\$91"((:CS-3/\$1(39,)01,2(3\$6-3-;#)\$&2,"\$,"#\$  
1(D#)-;#)#E02)#/\$@<\$,"29\$1(3,)-1,A\$

!"#\$1(39,)01,2(3\$6-3-;#)\$-1\*3(&:#/; #9\$,"-,\$F-2:0)#\$,(\$@,-23\$-3/\$6-23,-23\$901"\$  
2390)-31#,\$") (0;"(0,\$,"#\$0)-2(3\$(F\$, "#\$1(3,)-1,\$1(39,2,0,#9\$-6-,#)2-:\$@)#-1"\$F\$  
1(3,)-1,A\$!"#\$1(39,)01,2(3\$6-3-;#)\$29\$,(\$5)(D2/#9\$%' +. 4\$&2,"\$-\$1#),2F21-,\$\$(F\$2390)-31#  
F()\$,"#\$1(39,)01,2(3\$6-3-;#)\$-3/V()\$(3#\$(6)90@1(3,)-1,()9CS-9\$-55:21-@:#CS  
#D2/#3123;\$,"#\$-@ (D#)#E02)#6#3,9\$"-D#\$\$##3\$6#,\$5)2(C)\$,\$,"#\$1(66#31#6#3,\$(F\$  
&()\*A\$!"#\$F-2:0)#\$(F\$%' +. 4\$,\$(@H#1,\$,\$,"#\$1(3,#3,9\$(F\$, "#\$1#),2F21-,\$\$(C)\$,"#\$-@9#31#\$(F\$  
9-6#9\$9"-:23(\$@#/\$/#6#/\$-\$&-2D#)\$F\$-3<3/\$-:2);,"9\$"#:/@\$<\$%' +. 4A\$

]#E02)#/\$[390)-31#723\$-//2,2(3\$,(\$G()\*)9\$Y(65#39-2(3\$-3/\$%' +\$429-@2:2,<2390)-31#8J\$

6+- - %0# 3IH%2%( . 3IH# . <#3#DIJ2\*&( . 20%K!



, "#\$9, #59\$ < (0\$&2:.\$, - \*#\$, (\$2/#3, 2F<\$, "#\$3##/798\$-,\$#-1"\$91" ( (: \$  
-\$@-9#>:#D#:\$9, -FF23; \$5:-3\$, (\$#390)#\$-55) (5)2-, #5\$) (H#1,\$9055 ( ), \$-3/\$1-5-12,<\$, (\$"2)#\$  
-3/\$5:-1#\$-//2,2(3-:\$9, -FF\$-9\$3##/#/\$  
-\$,#3,-,2D#\$-330-:\$1-:#3/-)\$(F\$6-H())\$5:-3323; C\$/#:2D#)-@:#9C\$-3/\$6##,23; \$/-,#9\$  
?) (D2/#\$ #D2/#31#\$ (F\$ )#- /23#99\$ , (\$ & ())\*\$ &2, -3D6F; C\$&2,

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[F\$6 ()#\$, "-3\$(3#5) (5(9-:\$(@,-239\$, "#\$2; "#9,-; ; )#; -, #91 ()#C\$, "#\$1 (3,-)1,\$&2:.\$@#-\$&-)/#/\$, (\$  
," #D#3/()23\$, "-,\$;) (05\$(F"\$2; "#9,-; ; )#; -, #91 ()#9&" (9#@\$0/; #,\$1 (65 (3#3,\$)#F:#1,9\$, "#\$  
:(&#9,\$(D#)-:.\$1 (9,A\$

Q23 ()2,<\$-3/\$G (6#3>W&3#/\$X0923#99\$. 3,#)5)29#7QVGX. 8\$?-),2125-,2(3\$j (-:9\$?0)90-3,\$,(\$  
=),21:.\$La>=\$(F\$, "#\$%#&\$' ()\*\$+,-,#\$. `#10,2D#\$R-&J\$

S()\$50)5 (9#9\$(F\$, "29\$5) (10)#6#3,C\$%' +\$. /01-,2(3\$4#5-),6#3,\$" #)#@<#9,-@:29" #9\$-3\$(D#)-:.\$  
; (-:\$(F\$MOb\$(F\$, "#\$, (-:.\$1 (3,-)1,\$-6 (03,\$F()\$QVGX. \$5-),2125-,2(3C\$LPb\$F()\$Q23 ()2,<W&3#/\$  
X0923#99\$. 3,#)5)29#97cQX. d8\$5-),2125-,2(3\$-3/\$LMb\$F()\$G (6#3>W&3#/\$X0923#99\$. 3,#)5)29#9\$  
7cGX. d8\$5-),2125-,2(3@-9#/\$ (3\$, "#\$10))#3,\$-D-2:-@2,2,<\$(F\$E0-:2F2#/\$QX. 9\$-3/\$GX. 9A\$=.:.\$2//)#9\$  
609,\$/(106#3,\$; ((/F-2,"#\$FF(),9\$,(\$5) (D2/#\$6#-323; FO:\$5-),2125-,2(3\$@<\$QGX. 9\$-9\$  
90@1(3,-)1, ()9\$()\$9055:2#)9\$23\$, "#\$5#)F()6-31#\$(F\$, "29\$Y(3,-)1,A\$Q23 ()2,<\$-3/\$G (6#3>W&3#/\$  
X0923#99\$. 3,#)5)29#7QVGX. 8\$5-),2125-,2(3Q231:0/#9\$-3<\$-3/\$-:.\$9#)D21#9C\$6-,)#2-:9\$()\$9055:2#9\$  
50)1" -9#/\$F) (6\$%#&\$' ()\*\$+,-,#\$1#),2F2#/\$623()2,<\$-3/\$&(6#3>(&3#/\$F2)69A\$B,2:2g-,2(3\$(F\$  
1#),2F2#/\$Q23 ()2,<\$-3/\$G (6#3>W&3#/\$F2)69\$&2:.\$@#-\$55:2#/\$, (&-)/\$, "#\$; (-:9A\$X2//)#9\$1-3\$  
-1"2#D#\$1 (65:2-31#&2,"\$%' +. 4^9\$Q23 ()2,<\$-3/\$G (6#3>W&3#/\$X0923#99\$. 3,#)5)29#9\$; (-:9\$-9\$  
/#91)2@#/\$@#:(&A\$

501#%)%N&3!6+- ' 3#. 20%!=#\$1!L. (\$#0#'. \$#+2!H+. 3\*!0L(%8%(%: P!  
X2//)#9\$ 9" (0:/ \$ 90@62,\$ 90@1(3,-)1,23; V9055:2#)\$ F()69\$, "-,\$ 6##,\$ ()\$ #`1##/\$%' +. 4^9\$  
5-),2125-,2(3\$ ; (-:9\$ F())\$ , "29\$ 5) (10)#6#3,A\$ =:.\$ 90@1(3,-)1,23; V9055:2#)\$ F()69\$ 609,\$ @#\$  
90@62, #/\$&2,"\$, "#\$@2/\$5) (5(9-:A\$[3\$-//2,2(3C\$@2//)#9\$609,\$1 (65:#,#\$-3/\$90@62,\$QVGX. \$L00J\$  
B,2:2g-,2(3\$?:-3C\$QVGX. \$LONJ\$% (,21#\$(F\$[3,#3,\$,(\$?-),2125-,#,\$-3/\$. . W\$ L00J\$+, -FF23; \$?:-3A\$  
[39,)01,2(39\$-3/\$1 (52#9\$(F\$, "#9#F()69\$-)#\$: (1-,#/\$23\$, "#\$+0@62992(3\$4 (106#3,9A\$=.:.\$F2)69\$  
0,2:2g#/\$ 609,\$ @#\$ 1#),2F2#/\$ &2,"\$, "#\$%' +\$ 42D292(3\$ (F\$ Q23 ()2,<\$-3/\$ G (6#3\$ X0923#99\$  
4#D#: (56#3,\$@#F()\$@#; 23323; \$-3<\$&()\*\$ (3\$, "29\$1 (3,-)1,A\$S()\$-//2,2(3-\$23F()6-,2(3\$-3/\$-\$  
:29,23; \$(F\$10))#3,:<\$1#),2F2#/\$QVGX. 9C\$9##\$, "#\$%' +\$42)1, ()<\$(F\$Y#),2F2#/\$Q23 ()2,<\$-3/\$G (6#3>  
W&3#/\$X0923#99\$. 3,#)5)29#9A\$

!"#\$ 1(3,-)1,\$ 5#)9(3\$ (3\$ QVGX. \$ 6-,)#9\$ 29\$ -D-2:-@:#\$, ") (0; " (0,\$ , "#\$ -55:21-,2(3\$ -3/\$  
5) (10)#6#3,\$5) (1#99\$, (\$-9929,\$@2//)#9\$23\$6##,23; \$, "#\$QVGX. \$; (-:9A\$%' +. 4\$)#9#)D#9\$, "#\$)2; ", \$  
, (\$-55) (D#\$, "#\$ -//2,2(3\$ ()\$/#:#,2(3\$ (F\$90@1(3,-)1, ()9\$ ()\$9055:2#)9\$, (\$#3-@:#\$@2//)#9\$, (\$  
1(65:<\$&2,"\$, "#\$ QVGX. \$; (-:9C\$5) (D2/#/\$901"\$ -//2,2(3\$ ()\$/#:#,2(3\$ / (#9\$3 (,\$265-1,\$ , "#\$  
,#1"321-:\$5) (5(9-:\$-3/V()231)#-9#\$, "#\$, (-:.\$1 (9,\$(F\$, "#\$@2/\$5) (5(9-:A\$

Q%R&%\*\$!. !L. (\$# 3!S. #)%(!+8!L. (\$#0#'. \$#+2!H+. 3\*!  
[3\$()/)#\$, (\$)#E0#9,\$-\$5-),2-:.\$&-2D#)\$ (F\$, "#\$5-),2125-,2(3\$; (-:9\$F()\$, "29\$5) (10)#6#3,C\$X2//)#9\$  
609,\$5) (D2/#\$/ (106#3,-,2(3\$(F\$, "#\$2); ((/F-2,"#\$FF(),9\$, (\$@,-23\$, "#\$09#\$(F\$1#),2F2#/\$QVGX. \$  
#3,#)5)29#9\$-:(3; \$&2,"\$, "#\$)2/\$5) (5(9-:F()69A\$! "#\$90@1(3,-)1,23; 6 (-:(3; 33#J-!"#\$)\$(%:P!



