

!"#\$#%\$&'()*+,()*-'
!"#\$%&'#()*+,*-./0.*

1%0.&(/%"(*+,*2#'(+&)3*4+5#+6+7)3*8%+7&.09)3*:*;%7.6*4(<=#%'*
>?@*A6."(*2.66*
BC?*D%'(*E%""%=)*F6\$=6*F+H*I*
-./0.3*J;*KK@C@*
L'</%&.<M<(6%=<*
NNNGL'</%&.<65+/*
NNNGN&#(%N9%&#(9<&('6"%(*

! OPQRS4P - T*UJ* - VWAV*

1 #&%5(+&*+,*V006#%=*4+5#+6+7)*X>C?Y*Z*O&%'%"([* V''+5#.(%*A&+,%''+&*X>C>C*Z*O&%'%"([* V''#'(."(*A&+,%''+&*X>C?B*Z*>C>C[* Q#'#(#"7*V''#'(."(*A&+,%''+&*X>C?>*Z*>C?B[*

V7%"(*+,*]9."7%*VN.&=G*!"#\$%&'#()*+,*-./0.3*>C>KG*

- 9%*>C>?*8%+&7%*8.&&%((*J#5(#+''*A&#^%*,+&*(''.\$& - /&&/#\$0'1'2#3*46*-%H.'*S%\$#%N*A&%''3*.*'/%/_%&*+,*(9%*-%H.'*V:W*]+'''+&(#</3*>C>>6*

V / %."*4+5#+6+7#5.6*V''+5#.(#+"*4%5(#+"*,+&*4%H<.6#(#%'*R.&6)*].&%%&*VN.&=0*V / %."*
4+5#+6+7#5.6*V''+5#.(#+"3*>C>>0*

4+5#%()*,+&*(9%*4(<=)*+,*4) / _+6#5*P"(%&.5(#+"*R.&6)*].&%%&*VN.&=6*4+5#%()*,+&*(9%*4(<=)*+,*
4) / _+6#5*P"(%&.5(#+"3*>C>C6*

W#=`4+<(9*4+5#+6+7#5.6*V''+5#.(#+"*5#6/#4#7/6.4'58*69"% - 'V&(#56%*+,*(9%*T%.&*VN.&=*,+&* a!"=%&'(."=#"7*8%"=%&*.'*.*J<"=. / %"(.6*].<'%*+,*2%.6(9b*4#/<6(."%+<'*;#"%.&* S%6.(#+"'9#0'*_%(N%%"*8%"=%&3*W%"(.6*2%.6(93*."=*A9)'#5.6*2%.6(9*+\$%&*(#/%c*XN#(9*F&#((.")*W6*2.&=%&[6*W#=`4+<(9*4+5#+6+7#5.6*V''+5#.(#+"'3*>C?d6*

F#'%H<.6*F++e*VN.&='*J#".6#'(*#"*W)'(%&)*XN#(9*V6%H."=&.*] G2G*O+N.e+N'e#[*,+&*:9)*"'
! *#84*;&':+&9*"&3*>C?dG*

F#'%H<.6*F++e*VN.&='*J#".6#'(*#"*-%%"fT+<"7*V=<6(*J#5(#+"*,+&*!.4-*99#'<#&*3*>C?d6*
;./_=.*;#(%&.&)*VN.&=*J#".6#'(*#"*F#'%H<.6*J#5(#+"*,+&*!.4-*99#'<#&*3*>C?d6*



- ;./ =.*;#(%&.&)*VN.&=*J#".6#'(*#"*F#'%H<.6*J#5(#+"*,+&*=#-*6#-/\$7'>%**\$&3*>C?\G*
-] +66%7%*+,*4+5#.6*45#%"5%'3*W.(9% / .(#5'3*."=*R=<5.(#+"*U<('(."=#"7*459+6.&*VN.&=6*!"#\$%&'#()* +,*-./0.3*>C?g6*
- V / %."*4+5#+6+7#5.6*V''+5#.(#+"*4%5(#+"*,+&*S%6#7#+"*1#'(#"7<#'9%=*V&(#56%*VN.&=*,+&*a]+"(% / O+&.&)*S%6#7#+"*."=*(9%*]#'7%"=%&#"7*+,*S%.6#()c*XN#(9*S)."*-6*]&.7<"*."=*;.#"*V6F6*W.(9%&'[6*V / %."*4+5#+6+7#5.6*V''+5#.(#+"3*>C?@6*
- 4+5#+6+7#'('*,+&*D+/%''*#''*4+5#%()*4+<(9*R.&6)*8%''=%&*].&%&*459+6.&*VN.&=6*4+5#+6+7#'('*,+&*D+/%''*#''*4+5#%()*4+<(93*>C?@6**)
- !"'<"7*2%&+*VN.&=6**!"#\$%&'#()*+,*-./0.3*>C?Y6**
- $4+5\#()^*,+\&^*(9\%^*4(<=)^*+,^*4) / _+6\#5^*P''(\%\&.5(\#+''*2\%_-\%\&(^*F6</\%\&^*8\&.=<.(\%^*4(<=\%''(^*A.0\%\&^*VN.\&=^*,+\&^*aV55+/06\#'9\#''7^*U\&7."\#^.(\#+''.6^*W."9++=b^*;8F-^*]9\&\#'(\#."'h^*4+5\#.6^*]+"'(\&<5(\#+''*+,^*.*W.'5<6\#''\%*U\&7."\#^.(\#+''.6^*]<6(<\&\%Gc^*4+5\#\%()^*,+\&^*(9\%^*4(<=)^*+,^*4)/_+6\#5^*P''(\%\&.5(\#+''3^*>C?>6^*U<('(."=\#''7^*!"=\%^*2.=<.(\%^*-\%.59\#''7^*VN.\&=6^*J6+\&\#=.^*4(.(\%^*!",^*S\%^*\#()^3^*>C?>6^*U<('(."=\#''7^*!"=\%^*2.=<.(\%^*-\%.59\#''7^*VN.\&=6^*J6+\&\#=.^*4(.(\%^*!",^*S\%^*\#()^3^*>C?>6^*U<('(.,^*)^*!"+1.3\%^*)^2.$
- J6+&#=.*4(.(%*!"#\$%&'#()*1%0.&(/%"(*+,*4+5#+6+7)*V66%"`E6.&*F%'(*8&.=<.(%*4(<=%"(*S%'%.&59*A.0%&*VN.&=*,+&*a]+"'(&<5(#"7*."*P"56<'#\$%*]+"7&%7.(#+".6*P=%"(#()*#"*.*W%(&+0+6#(."*



<*&*. "6) 'M#\$#7". 8) & 'FNDO'

2# - /\$.9*?'B#'''RSRT'H/'H##I'1A."'?&U'5*4*69*?'.&'V=:JVE'E&&*\$9/.4'<*.?/\$7'
W%\$*'RSRTU'RSRR'1 - *"/6.\$'5#6/#4#7/6.4'1&/.9/#\$'5*69/#\$'#\$'5*Q'.\$?'L*\$?*"'
X/&9/\$7%&)*?'H##I'1A."'?U'RSRR'1 - *"/6.\$'5#6/#4#7/6.4'1&/.9/#\$'5*69/#\$'#\$'
M*?/6.4'5#6/#4#7+'X#\$.4?'YI'0/7)9'1A."'?'B#"'1884/*?'M*?/6.4'5#6/#4#7+U'RSRR'
1 - *"/6.\$'5#6/#4#7/6.4'1&/.9/#\$'5*69/#\$'#\$'M*?/6.4'5#6/#4#7+'E4/#9'["*/?&#\$'
:%9&9.\$?/\$7'!%C4/6.9/#\$'1A."'?U'RSRR'1 - *"/6.\$'5#6/#4#7/6.4'1&/.9/#\$'5*69/#\$'
#\$'5*0%.4/9/*&'X/&9/\$7%\&)*?'H##I'1A."'?'

>C>CG*\/#4*\$9'M.\$)##?G*;."9./3*W.&)6."=b*S+N/."*:*;#((6%,#%6=G*

\$\\$#\N\=*\"*M*\$']'M.&6\%4\\$\9*&P'5\#6\.4'[\#"6*&P'.\"=\V\#\$9*-8\#\".\"+'5\#6\\#4\#7+'

5*4*69*?'C+'V=:JVE'.&'#\$*'#B'9)*'(#8'^N'V#--%\$/9+'V#44*7*'(/94*&'B#'''M."6)' RSRT'

."=*R*V"(9+")*8&+66/."6*>C>C6*H4.6I'0/3*&']'H.9)"##-&0'<.6/.4'.\$?'
L*\$?*"*?'<*.69/#\$&'9#'M/\$#"/9+'</7)9&'M#3*-*\$9&6*;."9./3*W.&)6."=b*;%H#"7(+"*
F++e'6*

S%\$#%N%=*#"*L*\$?*"']'5#6/*9+'

2#-/\$.9*?'B#"'9)*'RSRT'O.-C?.'O/9*"."+'1A."?&'

."=*O./\$'1ZHZ'M.9)*"&H4."/6.\$'5)*&+"#%7



X/&9/\$7%/&)*?'H##I'1A."?'

 $E?/9*?' \setminus \#4\% - *&'FGDO'$

>C>KG*()*'<#A - . \$'] 'O/994*B/*4?'=.\$?C##I'#\$'(".\$&7*\$?*'''59%?/*&G*;."9./3*W1b*S+N/."*:*;#((6%,#%6=G*

2#-/\$.9*?'B#""9)*'RSRS'O.-C?.'O/9*"."+'1A."?&'



>C?gG*E&&*\$6*G*A<_6#'9%=*#"=%0%"=%"(6)G*

2#-/\$.9*?'B#"'RSTe'H/'H##I'1A."?&'

! **"@<*3/*A *?'W#%"\$.4'1"9/64*&'F^TDb*

 $W.(9\%\&'3^*;.\#''*V0F0^*."=^* 0^*>C>>0^*aV''^*P''(\%\&.5(\#+"\#'(^*V00\&+.59^*(+^*F-;8^*)+1.50^*)+1.50^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*'<*8\#''9'>gX??[b^*>Y\setminus K'>0CB0^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*'<*8\#''9'>gX??[b^*>Y\setminus K'>0CB0^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*''<*8\#''9'>gX??[b^*>Y\setminus K'>0CB0^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*''<*8\#''9''>gX??[b^*>Y\setminus K'>0CB0^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*''<*8\#'''9'>gX??[b^*>Y\setminus K'>0CB0^*) \\ A\&\#=\%0^*c^*>\%.4/9.9/3*''<*8\%0^*$



V6%H."=&.*] G2G*O+N.e+N'e#*."=* V*]+66. +&.#"3*."=* 6*>C?d6*aS%,&. / #"7*2%.6(9*."=*P66"%''b*





] & .7<"3*S) . "*- G*. "=* G*>C?gG*a; + '#"7*W . "9++=*6#e%* . *W . "b*V*5+66._+& . (#\$%* . <(+%(9"+7& .09#5*%H . / #" . (#+"*+,* / . '5<6#"#(#%'*. "=*(9%*%H0%&#%"5%*+,* . *\$. '%5(+ /)Gc*M*\$' . \$?'M . &6%4/\$/9/*&'>CX?[b*d\`??@G**

 $O{+}N\,.\,e{+}N\,'\,e^{\#3^*}$



."=*1%_+&.9*] &.7<"G*>C?@G*aJ&./%'*+,*S%,%&%"5%b*V006)#"7*4+5#+6+7)*#"*
P"(%&=#'5#06#".&)*W%=#5.6*4%((#"7'Gc*W#%"\$.4'#B'1884/*?'5#6/.4'56/*\$6*'?CX>[b*??K`??\G*

3*O./\$'1ZHZ'M.9)*"&'."=*S)."*-G*]&.7<"G*>C?@G*aaP*,+<"=*8+=*#"*(9%*76+&)* 9+6%cb*-9%*W+&.6*].&%%&*+,*.*8.)*]9&#'(#."Gc*5#6/#4#7/6.4'J\$K%/"+'\@XB[b*@?\`@BCG*

()# - 8&#\$P'1 - . \$?. 'H. ''9*\$C. I*''3* 1 %_+&.9*] &.7<''3* 3*S) . ''*-G*] &.7<''3* Q. ''%''.*1 %*8#,#'*. ''=*1\$7*4. '(''*8. \$/*''G*>C?@G*aaF%*O&%O. &%=*#,*P*_&#''7*#(*<Ocb*A. (#%''('h*O%&5%O(#+'''*+,*(9%*<(#6#()*+,*&%6#7#+<'*. ''=*'O#&#(<.6*=#'5<''#+''*=<&#''7*7%''%(#5*5+<'''%6#''7Gc* W#%''\$.4'#B'L*\$*9/6'V#%\$&*4/\$7'>YXY[b*dBY`dY@G*

3*S)."*-0*]&.7<"3*."=*0./\$'12HZ'M.9)*"&0*>C?@0*a]+"(%/0+&.&)*S%6#7#+"*
."=*(9%*]#'7%"=%&#"7+,*S%.6#()&c*5#6/.4'V%""*\$9&'KXK[b*>dK`K??0*

Y/\$\$*"'RSTf'1 - *"/6. \$'5#6/#4#7/6.4'1&/.9/#\$'5*69/#\$'#\$'<*4/7/#\$' X/&9/\$7%\&)*?'1"9/64*'1A."?'

3*O./\$'1ZHZ'M.9)*"&'."=*S)."*-6*]&.7<"6*>C?@6*aP*L<'(*5."h(*0<(*/)*,#"7%&*+"*#(cb*V*&%'%.&59*&%0+&(*+"*(9%*"+"%H#'(%"5%*."=*/%."#"76%''"%''*+,*'#"*N#(9#"*(9%*4+5#.6*45#%"5%'6c*()*'>%.4/9.9/3*'<*8#"9'>?X@[b*??K>`??BB6*

. "=*S) . "*-0*] & . 7<"0*>C?@0*aa 2 +N*6+N*5 . "*9< / . " '*06<"7%cb*J . 5#6#(. (#"7* W+& . 6*U00+ '#(#+"*#"*-9%*] 9<&59*+, *k%'<'*] 9&#'(*+,*; . ((%&`=.)*4 . #"('6c*>% . 4/9 . 9/3*' 5#6/#4#7+'<*3/*A '?>X?[b*B>`Yd6*



1"6)/3*'B#"'9)*'!&+6)#4#7+'#B'<*4/7/#\$'Kgb*K>?`KB>G*

3*P&%"%*A.=.\$#53*."=*1+<76.'*A6*459&+5e6*>C?Y6*aa;#((6%*7#&6'* <"N#66#"7*(+*=+*N9.(h'*_%'(*,+&*(9% / cb*S%'<&&%5(#"7*A.(&#.&59)*#"*."*; 8 F -*] 9&#'(#."*] 9<&596c*W#%"\$.4'#B'V#\$9*-8#"."+'E9)\$#7".8)+'BBXK[b*KC@`KKB6*

V#@Y/\$\$*"'RSTR'5#6/*9+'B#"'9)*'59%?+'#B'5+ - C#4/6'J\$9*". 69/#\$'=*"C*"9'H4% - *"'
L". ?%. 9*'59%?*\$9'!. 8*"'1A. "?'

."=*S)."*-(*]&.7<"(%>C?Y(%aa1+"h(*O<'9*)+<&*#//+&.6'*+"*/%cb* R"5+<&.7#"7*V"(#`O+&"*V=\$+5.5)*#"*(9%*]9<&59*+,*k%'<'*]9&#'(*+,*;.((%&`=.)*4.#"('6c* 5*Q%.4/9/*&'?\X?f>[b*Yg`gd()*

 $O+N.\,e+N'\,e\#3^*V6\%H.\,"=\&.\,^*]\,^{^{\circ}}\,^{^{\circ$

."=*S)."*-6*] &.7<"6*>C?Y6*aaV\$+#=*(9.(*0+&"+7&.09#5*
06.)7&+<"=cb*-%.59#"7*A+&"+7&.09#5*V_'(#"%"5%*#"*-9%*] 9<&59*+,*k%'<'*] 9&#'(*+,*;.((%&` =.)*4.#"('6c*V"/9/6.4'<*&*."6)'#\$'<*4/7/#\$'KX>[b*?@\`?\\6*

3**M*. \$?/'27'H. ""/\$7*"3*. "=*S). "*-0*] &.7<"0*>C?Y0*aaP*=+"h(*"%=*.*
'9+(7<"3*L<'(*.*6++ecb*S%0&%'%"(#"7*W."9++=*#"*4%5<6.&*. "=*S%6#7#+<'*W.7.^#"%'6c**M**\$'
. \$?'M. &6%4/\$/9/*&'?\XY[b*Y\?`@CB6*



. "=*S) . "*-G*] & .7<"G*>C?BG*aa D 9) *N+<6=*+<&* 2 % . \$%"G) *J . (9%&*=+* (9 . (*(+*.")+"%cb*U00&%' '#\$%*U(9%&#"7*(9&+<79*4%H< .6*] 6 . ' '#,#5 . (#+"*459% / %'*#"* - 9%*] 9<&59*+,*k%'<'*] 9&#'(*+,*; . ((%&`=.)*4 . #"('Gc*5+ - C#4/6'J\$9*". 69/#\$'KgXK[b*KK?`KY>G*)

%C?>%aa - 9.(h'*N9.(*/\%''*.\\%*'<00+'\%=*



3* 1 +<76. '*A6*459&+5e3*. "=* - %&#*k+*S%% '%6*>C?K6*a - &. "''%H<.6'h*
8 % "=%&%=*A&%'%"(.(#+"'6c*P"*0/B*'.&'!*"B#" - .\$6*0'I'X". - .9%"7/6.4'=.\$?C##IZ'R=#(%=*_)*
1 9 .&6%'*R=76%)6*V'97.(%6*

 $."=^*1+<76."*A6^*459\&+5e6^*>C???6^*aaP(h'^*P/O+\&(."(^*(+^*49+N^*)+<&^*)+<^*(+^*49+N^*)+<^*(+^*1)+6+&^*(+^*1)+<^*(+^*1)+6+&^*$

:9)*"'<*&*. "6)'!%C4/6.9/#\$&'FTeDb*

>C>KG*aV"*P"(%&.5(#+"#'(*V00&+.59*(+*W%=#.*S%0&%'%"(.(#+"'*+,*4%H<.6* O#+6%"5%Gc*5+-C#4/6'J\$9*".69/#\$Z'

>C>>G*aS%\$#%N*+,*g\$4/3.C4*'O/3*&0'\/#4*\$6*'.\$?'J?*\$9/9+'/\$'(".\$&7*\$?*''' 169/3/&-Gc*V#\$9*-8#''."+'5#6/#4#7+'Y?XK[b*>K\`>BCG*

>C>?G*a-&."'*R&.'<&%Gc*P"*51LE'E\$6+64#8*?/.'#B'(".\$&'59%?/*&3*%=#(%=*_)* V #%*RG*8+6= %&7*."=*8%"")*F%%/)"G*-9+<'."=*U.e'3*]Vb*4V8R*A< 6#5.(#+"'G*

>C>C6*a]+"(#"<#()*."=*]9."7%*#"*F%6#%,'*."=*V((#(<=%'b*V*S%\$#%N*+,* <#6I'#B'17*&0'5%C6%49%".4'<*4/7/#%&'J?*\$9/9+'.\$?'!%C4/6':8/\$/#\$'.-#\$7'd#%\$7' E3.\$7*4/6.4&')*k%&%/#.9*k%*].'(6%6c*5+-C#4/6'J\$9*".69/#\$6*

>C>C%aS%\$#%N*+,*!"/3/4*7*'.9'!4.+'_)*2<7+*]%&+"`V".).Gc*(*.6)/\$7'5#6/#4#7+'B\XB[b*K@C`K@>G*

>C>C%aS%\$#%N*+,*()*'(*&9. - *\$9&'_)*W.&7.&%(*V(N++=Gc*(*.6)/\$7' 5#6/#4#7+'B\XK[b*>BB`>B@G*

>C?d6*aRH#'(%"(#.6*<&7%"5)*."=*W+/%"(+<'*#"(%&.5(#+"'*\$#.*\$.0*1&%./'b* V*\$%\$#%N*+,*H4#A/\$'g80'<.8'X''*.-&'/\$'5#%9)'V*\$9".4'_)*k++)+<"7*;%%6c*5+-C#4/6' J\$9*".69/#\$'B>XK[b*B\\`B\d6*



>C?\G*aD9.(*5."*N%*6%.&"*,&+/*(9%*".&&.(#\$%'*+,*'%H<.6*+,,%"=%&'b*V* S%\$#%N*+,*5*Q':BB*\$?*"&P'59/7 - .P'.\$?'5#6/.4'V#\$9"#4'_)*1#.".*S#5e.&=Gc*5+ - C#4/6' J\$9*".69/#\$'B?X?[b*?Kd`?BCG*

 $(^*>C?g(^*aS\%\$\#N^*+,^*V)''\&9/.\ \$\&'g\ \$?*'''V\#3*''\&0'E3.\ \$7*4/6.\ 4\&'.\ \$?'5*2\%.\ 4'' !4*.\ \&\%''*'\#\$'9)*'J\$9*''\$*9'_)*E\%6')*F<&e\%(^*1-*''/6.\ \$'W\#''\$.\ 4'\#B'5\#6/\#4\#7+'?>>XY[b*?@C@`?@C\(^*)$

J\$9J\$*'J\$9*"j-25.249-1f(B?X?[b*?Kd`?BCG*)TjKdX>-1KB>`KBKID3>>BDC/TT31Tf4-2.3TD(%&'()



>C>>6*a - <6#,#"")6c*H4##?']'H#%"C#\$'O/9*"."+'M.7.b/\$*3*P''<%*?C3*0.7%'* gB*Z*gd6*

>C>>6*a!"=%&*T%66+N*4#7"'6c*()/-C4*'O/9*"."+'M.7.b/\$*3*P''<%*B3* Q+6</%*B3*,<66*(%H(*.(*9((0'bffNNNG(9#/_6%6#(/.765+/f>C>>fC>fC)+6<"-%&`)%66+N`'#7"'f6*

>C>>G*a-9%*; <5e*+,*(9%*1&.NGc*5#'[/'h/\$*3*P''<%*?C3*,<66*(%H(*.(* 9((0'bff'+,#^#"%G,#6%'GN+&=0&%''G5+/f>C>>fC>f',^?Cj+"6#"%j6&GO=,G*

>C>?(%aW%(&+*]+,,%%9+<'%*: *A<_(c*=*. "9)'] 'V#BB/\$'O/9*". "+"W#%"\$.43* Q+6< / %*?3*P''<%*B3*,<66*(%H(*.(*9((O'bffNNN(9%.&(9."=5+,,#"(5+/f0+'(f/%(&+`5+,,%%9+<'%`0< (3*)))))))

>C>? $6^*aS=7\%6."=3^*4+<(9^*].\&+6\#".6c^*5\#'[/'h/$*3^*P''<\%*d3^*,<66^*(\%H(*.(*9((0'bff'+,#^#"\%65+/f6.(%'(`\%=#(#+"f\%=#(#+"af6)*$

 $\texttt{G*} > \texttt{CC} \setminus \texttt{G*} a \texttt{W} \% (\texttt{\#"7*W\#"'*W\#66'} \texttt{Gc*4."} = 9\#66'*; \#(\%\&.\&)*k + <\&".6\texttt{G**}$

G*>CC\G*aV*J.(9%&h'*8#,(Gc*A9+%''#H*W.7.^#''%3*V<7<'(.*

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

!#* - &'FRDO'

>C>KG*a; #e%*W%Gc*5#'[/'h/\$*3*,<66*(%H(*.(*<u>9((O'bff'+,#^#''%65+/f6.(%'(`</u>%=#(#+''f%=#(#+''`?KfG*

>C>>6*a]."*)+<*&% / #"=* / %mc*5#'[/'h/\$*3*P''<%*?>3*,<66*(%H(*.(*)))
9((0'bff'+,#^#"%0,#6%'6N+&=0&%'''65+ / f>C>>f?>f'+`,#`^#"%`?>j+"6#"%`K60=,6*

V''*.9/3*'2#\$@B/69/#\$'E&&.+&'FTDO'

>C>K6*a - .66.9.''%%6c*X**8'5#%9)'M.7.b/\$*3*,<66*(%H(*.(*
9((0'bff=%%0'+<(9 / .705+ / f>C>KfCKfC>f(.66.9.''%%f0*

[%\$?*?'F9#9.4'9#'?.9*'i'jRSPSSSSSD0'

?6* k.5e*49."=*S%'%.&59*VN.&=*,&+/*(9%*4+5#%()*,+&*(9%*4+5#.6*45#%"(#,#5*4(<=)*+,*

!"#\$%&'%(')*+,-./%0')1,)&&)0,)' !"#\$%&'(#)*'+,\$-.\$!/01/\$\$345\$67\$8#&	,\$:;(97\$\$!/01/\$=>\$??@4@A53B4\$\$CD5?E\$FG?A????\$\$HHH7I+7#9I\$



45#%"(#,#5*4(<=)*+,*S%6#7#+"*V""<.6*W%%(#"7'3*V(6."(.3*8%+&7#.6**

O./\$'17H2'M.9)*"&3* ."=*S)."*-G*] &.7<"G*>C?@G*a-&."'7%"=%&*S%6#7#+<'*A%+O6%h'*RHO%&#%"5%'*N#(9*] #'7%"=%&*S%6#7#+<'*A%+O6%Gc*4+5#%()*,+&*(9%*4+5#.6*45#%''(#,#5*4(<=)*+,*S%6#7#+"*V""<.6*W%%(#"7'3*V(6."(.3*8%+&7#.G*

 $S)."^*-G^*] \&.7<"3^*\\ X"-\#(-1)^*] \&.7<"3^*\\ X"-\#(-1)^*] \&.7<"3^*\\ X"-\#(-1)^*] &.7<"3^*\\ X"-\#(-1)^*] &.7<"3^*\\ X"-\#(-1)^*] &.7<"3^*\\ X"-\#(-1)^*] &.7<"3^*\\ X''-\#(-1)^*] &.7<"3^*\\ X''-\#(-1)^*\\ X''-\#(-1)^*] &.7<"3^*\\ X''-\#(-1)^*\\ X''-\#(-1$

 $3^*O./\$'17H2'M.9)*''\&3^*."=^*S)."^*-6^*]\&.7<"6^*>C?@6^*a-\&."'7\%"=\%\&^*S\%6\#7\#+<'^*A\%+O6\%h'^*RHO\%\&\#''5\%^*N\#(9^*]\#'7\%"=\%\&^*S\%6\#7\#+<'^*A\%+O6\%c^*4+5\#\%()^*,+&^*(9\%^*4(<=)^*+,^*4)/_+6\#5^*\\P''(\&.5(\#+"^*V"''<.6^*W\%\%(\#''7'3^*4\%.((6\%)^3D.'9\#''7(+"6^**))))$

3*S)."*-G*]&.7<"EMC/P<</MCID2>7-0.000Tj-0.0002Tc(.G*)Tj.V""<.6*W%%TT31#8()*-



#"*5+ / _.((#"7*59&+"#5*9+ / %6%''"%''Gc*V''+5#.(#+"*,+&*V006#%=*."=*]6#"#5.6*4+5#+6+7)*V""<.6*
W%%(#"7'3*W+ #6%3*V6. . / .6**

."=*14./\$.'12H2'M.9)*"&6*>C?Y6*aS%,6%H#\$%*S%5#O&+5#()b*R(9"+7&.09#5* R=<5.(#+"*.'*.*]+66._+&.(#\$%*]+"\$%&'.(#+"6c*]+<59*4(+"%*4)/O+'#</b*D#"(%&*W%%(#"7*+,*(9%*4+5#%()*,+&*(9%*4(<=)*+,*4)/+6#5*P"(%&.5(#+"3*4(6*A%(%&'<&73*J6+&#=.6*)

."=*S)."*-6*] & .7<"6*>C?B6*aa - 9%*_++__) `(& .00%=*L<"76%cb*1 %,#"#"7*] +'('* +,A+&"+7&.09#5*] +"'< / 0(#+"*#"*-9%*] 9<&59*+,*k%'<'*] 9&#'(*+,*; .((%&`=.)*4.#"('6c*4+5#%()*,+&* (9%*45#%"(#,#5*4(<=)*+,*S%6#7#+"*V"'<.6*W%%(#"7'3*P"=#.".0+6#'3*P"=#.".6*

."=*S)."*-0*]&.7<"0*>C?B0*a-9%*2.66/.&e'*+,*S#79(%+<'*D+/%"0c*4+<(9%&"*4+5#+6+7#5.6*



W%(&+0+6#(. "*]+//<"#()*]9<&59b*V"*P"(%&.5(#+"#'(*V".6)'#'Gc*V/%."*4+5#+6+7#5.6* V''+5#.(#+"*V""<.6*W%%(#"7'3*V(6."(.3*8%+&7#.6*

\$\text{G*}\c?\C\frac{1}{2}aA\\delta\

 $S) + "*k0*] + __3*F\&\#. "*4(.\&e'3*."=* 0*>CCd0*aS\%6\#7\#+<'*;\%.=\%\&'*V55+<"('*+,*) O.\$\#7.(\#"7*S\%6\#7\#+"*."=*A+6\#(\#5'0*4+<(9\%\&"*4+5\#+6+7\#5.6*4+5\#\%()*V""<.6*W\%(\#"7'3*O\%N*U\&6\%."'3*;+<\#'\#.".6*$

! %C4/6'5*"3/6*0'

2+<'#"7*."=*!&_."*1%\$%6+0/%"(*f*O%#79_+&9++=*4(._#6#^.(#+"*A&+7&./*F+.&=*+,*
1#&%5(+&'*/%/ %&3*2#66' +&+<79*]+<"()*."=*-./0.3*J6+&#=.*X>C?Y*Z*>C>Kf6*

! %C4/6'56)#4. "&)/8b*

V= / #"#'(&.(+&3*%=#(+&3*."=*&%7<6.&*5+"(&#_<(+&*,+&*'_''#/<'#56N+&=0&%''65+/3*."*.5.=%/#5*
6+7*'O+"'+&%=*)*(9%*4+5#%()*,+&*(9%*4(<=)*+,*4)/_+6#5*P"(%&.5(#+"*O&+\$#=#"7*4)/_+6#5*
P"(%&.5(#+"#'(*.".6)'%'*."=*=#'5<''#+"'*+,*/<'#5*:*'+5#%()*X'%%*'#(%*,+&*O<_6#'9%=*O+'('[3*)<C?Y*Z*>C>?6**

] +`,+<"=%&3*5+`%=#(+&3*.= / #"#'(&.(+&3*."=*&%7<6.&*5+"(&#_<(+&*XN#(9*1 &6*V6%H."=&.*]626*
O+N.e+N'e#3*J6+&#=.*4(.(%*!"#\$%&'#()3*."=*.''#'(."(*%=#(+&*;.#"*V6F6*W.(9%&'3*
!"#\$%&'#()*+,*P66#"+#'*]9#5.7+[*+,*NNNGN&#(%N9%&%#(9<&('6''%(3*."*.5.=% / #5*_6+7*'#(%*
XN#(9*'+5#.6* / %=#.*5+ / O+"%"([*O&+\$#=#"7*7<#=."5%3*&%'+<&5%'3*."=*%HO&%''#+".6*
+OO+&(<"#(#%'*,+&*'59+6.&'*%"7.7%=*#"*% / +(#+".6*."=*f*=%%06)*O%&'+".6*&%'%.&59*."=*
(%.59#"7*X'%%*'#(%*,+&*O<_6#'9%=*O+'('[3*>C?Y*Z*O&%'%"(6*

\$\$\tag{8.25} \tag{7.6.\delta*5+"(\delta\pi_<(+\delta*,+\delta*\nnn05+"=\pi(\pi+".66).55\delta0(\delta=65+/3\tau."\tau.5.=\tau/\pi\tau.5\tau.6+7\tau,+\delta*'59+6.\delta'\tau.6+\

A<_6#'9%=*.*'%&#%'*+,*,+<&*+0`%='*5+"5%&"#"7*W<'6#/*RH0%&#%"5%*#"*(9%*4+<(9%.'(*."=* 8 %+&7#.*'0%5#,#5.66)*_.'%=*+"*."*%\$.6<.(#+"'*'(<=)*+,*.*'+<(9%.'(%&"*P'6./#5*]+//<"#()* XO< 6#5.(#+"'*/.)* %*.55%''%=*\$#.*.&59#\$%'*.(*()*'1%7%&9.'V)"#\$/64*[3*>CC\G*

5*4*69*?'!%C4/6'O*69%"*&P'!.\$*4&P'.\$?'Y#"I&)#8&0'

aQ#+6%"5%3*W."9++=3*."=*V006#%=*4+5#+6+7)6c*P"\$#(%=*(.6e*=%6#\$%&%=*,+&*].6#,+&"#.* A+6)(%59"#5*4(.(%*!"#\$%&'#()3*4."*;<#'*U_#'0+3*].6#,+&"#.3*J.66*>C>>6*

a4+5#+6+7#5.6*J#5(#+"*: *W%"(.6*D%66*F%#"76c*P"\$#(%=*(.6e*=%6#\$%&%=*,+&*!"#\$%&'#()*+,*
O+&(9*J6+&#=.3*k.5e'+"\$#66%3*J6+&#=.3*J.66*>C>>6*

!" # \$%&'%(') *+, -./%0') 1,) &&) 0,)'



 $a459+6.\&'9\#0^*."=^*V5(\#\$\#'/6c^*P"\$\#(\%=^*A."\%6^*A\&\%'\%"(.(\#+"^*.(^*(9\%^*!"\#\$\%\&'\#()^*+,^*-./0.3^*-./0.3^*J6+\&\#=.3^*J.66^*>C>>6^*$

 $aV < (+\%(9"+7\&.09\#5^*; \#,\%0c*P"\$\#(\%=^*; \%5(<\&\%^*.(*(9\%*U__\%\&6\#"^*] +66\%7\%3^*U__\%\&6\#"3^*U9\#+3^*40\&\#"7^* > C>>6^*)$

a-%.59 #''7*V006 #% = *4+5 #+6+7) Gc*P''\$#(% = *; %5(<&%*.(*(9%*!" #\$%&' #()*+,*S #59/+"=3*S #59/+"=3*Q #&7 #''#.3*J.66*>C>?p*40 &#''7*>C>>G*

a; %.&"#"7*(+*!06#,(*."=*4<00+&(*(9%*;8F-I1*]+//<"#()6c*P"\$#(%=*,+&*=%6#\$%&)*.(*(9%*!"45%&'#()*+,*-./0.3*40&#"7*>C>>6*

a - 9%* 1 #\$%&'#()*+,* - &.'''7%''=%&*RHO%&#%''5%Gc*P''\$#(%=*,+&*=%6#\$%&)*.(*(9%*!''#\$%&'#()*+,* -./0.3*40&#''7*>C>?6*

a; 8 F - I *O.&&.(#\$%'*: *RHO%&#%"5%6c*P"\$#(%=*,+&*=%6#\$%&)*.(*P"=#.".*4(.(%*!"#\$%&'#()3*J.66* >C?dp*40&#"7*>C>C6*

a!"=%&'(."=#"7*; 8F-I*%H0%&#%"5%*#"*(9%*4+<(96c*P"\$#(%=*,+&*=%6#\$%&)*.(*!"#\$%&'#()*+,* O+&(9*J6+&#=.3*J.66*>C?d6*

a4+5#+6+7)*."=*(9%*5.66*+,*(9%*6#(%&.&)*#"*; 8F-I*4(<=#%'Gc*P"\$#(%=*,+&*=%6#\$%&)*.(*P"=#.".*
4(.(**!"#\$%&'#()3*J.66*>C?dG*

a!"=%&'(."=#"7*(9%*2%.6(95.&%*RHO%&#%"5%'*+,*-&."'7%"=%&*V / %."'Gc*1%6#\$%&%=*<0+"*
#"\$#(.(#+"*.(*(9%*!"#\$%&'#()*+,*-./0.*."=*.(*0<_6#5*5+//<"#()*/%%(#"7'*#"*J6+&#=.3*
40&#"7*>C?dG*

a;%.&"#"7*,&+/*(9%*%H0%&#%"5%'*+,*_#1*."=*(&."'*0%+06%*#"*(9%*'+<(96c*1 %6#\$%&%=*<0+"*
#"\$#(.(#+"*.(*(9%*!"#\$%&'#()*+.*O+&(9*J6+&#=.3*J.66*>C?\6*

a;%''+"'*,&+/*.*;#,%*]+<&'%*49.0%=*_)*Q#+6%"5%6c*1%6#\$%&%=*<0+"*#"\$#(.(#+"*(+*.*7&.=<.(%*5+<&'%*+"*#"%i<.6#(#%'*.(*9%*!"#\$%&'#()*+,*]%"(&.6*J6+&#=.3*4<///>/ %&*>C?\G*

a!"=%&'(."=#"7*F#1*."=*-&."'q*%HO%&#%"5%'*#"*(9%*'+<(96c*1 %6#\$%&%=*<0+"*#"\$#(.(#+"*,+&*5+<&'%'*.(*!"#\$%&'#()*+,*P66#"+#'3*]9#5.7+*."=*!"#\$%&'#()*+,*O+&(9*J6+&#=.3*40&#"7*>C?\6*

 $a-\%.59\sharp"7^*O+"\&\%6\sharp7\sharp+<'^*A\%+O6\%^*._+<(^*F\sharp1^*."=^*-\&."'7\%"=\%\&^*RHO\%\&\sharp\%''5\%'Gc^*1\%6\sharp\%\&\%=^*<0+"^*\sharp"\$\sharp(.(\sharp+"^*.(^*(9\%^*))\%''(\&.6^*J_6+\&\sharp=.^*2</."\sharp'(^*V''+5\sharp.(\sharp+"^*4O\&\sharp"7^*W\%\%(\sharp"73^*4O\&\sharp"7^*>C?\G^*$

<224@



 $aA\& + _6\% \ / \ .(\#^* "7^*(9\%^*) \# '7\%" = \%\&^* J + <" = .(\# + "'* + , *] + "(\% / O + \& .\&) *S\%6\#7\# + "*." = *O + "&\%6\#7\# + "Gc* ! "#$%&'#()* + ,*P66#" + #'*] 9#5 .7 + *1 %O .&(/ %"(* + ,*4 + 5 # + 6 + 7) *] +66 + i < # < / *4 % &#%' 3*4 O &#" 7* > C?@G**$

aS%6#7#+"b*D9%&%*=+*N%*5+ / %*,&+ / *A."%66c*! "#\$%&'#()*+,*-./0.3*]%"(%&*,+&*J.#(9*."=*O.6<%'3*40&#"7*>C?@G**

a]+"(% / O+&.&)*S%6#7#+"*."=*(9%*] #'7%"=%&#"7*+,*S%.6#()6c*2+"+&'*A&+7&. /*!"#\$%&'#()*]+66+i<#< / *4%&#%'3*J.66*>C?Y6*

aO.\$#7.(#"7*8&.=<.(%*4(<=)6c*!"#\$%&'#()*+,*4+<(9*J6+&#=.*1%0.&(/%"(*+,*4+5#+6+7)3*J.66*>C?Y6*

aS%6#7#+"*."=*8%"=%&*A."%66c*!"#\$%&'#()*+,*-./0.3*]%"(%&*,+&*J.#(9*."=*Q.6<%'3*40&#"7*>C?Y6*

a4+5#.6*k<'(#5%6c*!'#\$%&'#()*+,*-./0.3*F+""%&*;%.=%&'9#0*A&+7&./3*40&#"7*>C?Y6*

aS%6#7#+"*."=*4%H<.6#(#%'b*4%H<.6*U&#%"(.(#+"*A."%66c*!"#\$%&'#()*+,*-./0.3*]%"(%&*,+&* J.#(9*."=*Q.6<%'3*40&#"7*>C?Y6*

aaD+&e*#(*7#&6rc*; 8F-*] 9&#'(#."'*0&+=<5(#+"*+,*9+/+"+&/.(#\$#()*#"*1&.7*I<%%"*F#"7+6c*!"#\$%&'#()*+,*4+<(9*J6+&#=.3*1%0.&(/%"(*+,*4+5#+6+7)*]+66+i<#</*4%&#%'*5+`'0+"'+&%=*)*(9%*D+/%"h'*4(<=#%'*A&+7&./3*J.66*>C?B6*

 $a4+/\%N9\%\&\%^*F\%(N\%''^*R\$."7\%6\#5.6^*."=^*I<\%\%\&b^*4\%H<.6^*S\%6\#7\#+<'^*P=\%''(\#()^*D+\&e\ s\ ./+"7^*;\ 8\ F-^*]\ 9\&\#'(\#."'c^*!"\#5\%\&'\#()^*+,^*-./0.^*2+"+\&'^*A\&+7\&./^*!"\#5\%\&'\#()^*]+66+i<\#</*4\%\&\#\%'3^*+40\&\#"7^*>C?BG^*$

M*?/. 'J\$3#43* - *\$9b*

P"(%&\$#%N%=*,+&*.&(#56%*+"*a-%.59#"7*4%H*R=<5.(#+"*,+&*]+66%7%*4(<=%"('c*,+&*(9%**!"#\$%&'#()*+.*-./0.*'(<=%"(*"%N'0.0%&3*>C?dG*

P"(%&\$#%N%=*,+&*.&(#56%*+"*-%.59#"7*F#3*-&."'3*V5%3*E#"e3*P"(%&'%H3*."=*A+6)*(+0#5'*,+&* (9%*D%_'(%&*!"#\$%&'#()*'(<=%"(*"%N'0.0%&3*4%0(% / _%&*>C?d6*
9((0bffN% '(%&L+<&".665+/f>C?dfCdf?df0&+,%''+&`0< 6#'9%'` ++e`+"`67 (i`&%6.(#+"'9#0'f*

R\$.6<.(#+"*&%'%.&59*#"*9+<'#"7*0&+7&. / '*,+&*9+ / %6%''*0+0<6.(#+"'*5+\$%&%=*,+&*!"#\$%&'#()* +,*-. / 0.*N%_'#(%3*U5(+_%&*>C?YG**9((ObffNNNG<(G%=<f]44WR`-.5e6%'`2+/%6%''"%''`#"` 1+//<"#()`R"7.7%/%"(`P"#(#.(#\$%G.'OH*

P"(%&\$#%N%=*+"*a2+ / %6%' '*RHO%&#%"5%*#"*V / %.c*,+&*! "#\$%&'#()*+,*-. / O.*'(<=%"(* =+5< / %"(.&)*+"*a2+ / %6%' '"%' '3c*>C?K6*





V#%"&*&': BB*"*?0'

$$\begin{split} &I<.6\#(.(\#\%\%S\%'\%.\&59\%W\%(9+='*\\ &4+5\#+6+7\#5.6^*-9\%+\&)^*\\ &S.5\%^*."=^*R(9"\#5^*S\%6.(\#+"'*\\ &-9\%^*4+5\#+6+7)^*+,^*8\%"=\%\&^*\\ &P''(\&+=<5(\#+"^*(+^*4+5\#+6+7)^*\\ &4+5\#.6^*A\&+_6\%/'^*\\ &4+5\#.6^*A.')59+6+7)^*+,^*8\&+<0'^*\\ &]6\#''\#5.6^*."=^*]+<'''\%6\#''7^*4+5\#+6+7)^*\\ &4+5\#+6+7)^*+,^*1\%\#"."5\%^*\\ &4+5\#+6+7)^*+,^*40+\&(^*) \end{split}$$

V006#%=*4+5#+6+7)*
J. /#6#%'*#"*86+_.6*A%&'0%5(#\$%*
W%=#5.6*4+5#+6+7)*
4%H<.6*4<_5<6(<&%''*(9&+<79*J#6/*
4+5#+6+7)*+,*4%H<.6#(#%'*
4+5#+6+7)*+,*S%6#7#+"*
] 9#6=9++=*4+5#.6#^.(#+"*
4+5#+6+7)*+,*W<'#5*
F6.5e*;#\$%'*:*-&."'*F.(9&++/'*
4+5#+6+7#5.6*A&.5(#5%*RH0%&#%"5%*

g\$/3*"&/9+'#B'(. - 8. 'FRSTR'l'!''*&*\$9D'

J.5<6()*V=\$#'+&*,+&*! -. / O.*A&#=%*X>C>>*Z*A&%'%"([6* ! - *O .6<% '*(+*V5(#+"*- . 'e*J+&5%*+"*1#\$%&'#()3*Ri<#()3*."=*P"56<'#+"*X>C>C*Z*>C>?[G* 19.#&3*F%"59 / .&e#"7*4< 5+ / /#((%%* 2%.=*D &#(%&3* - . 'e*J+&5%*R\$.6<.(#+''*S%0+&(* 1 #&%5(+&*+,*O.(#+".66)*V55&%=#(%=*V006#%=*4+5#+6+7)*O&+7&. / *X>C?Y*Z*A&%'%"([6* 1+`V<(9+&*:*1+`2%.=*+,*4%6,*4(<=)*,+&*4<55%'',<6*S\`V55&%=#(.(#+"*>C?YZ>C?g* V<(9+&*: *2%.=*+,*4%6,*4(<=)*,+&*S%`V55&%=#(.(#+"*>C>>*Z*A&%'%"(* J.5<6()*/%/ %&*+"*D+/%"h'*4(<=#%'*V=\$#'+&)*F+.&=*X>C?*Z*>C>Cp*>C>>* A&%'%"([* J.5<6()*/%/_%&*,+&*!"#\$%&'#()*F.55.6.<&%.(%*]+//#((%%*X>C?*Z*>C>?[* J.5<6()*/%/ %&*,+&*!"#\$%&'#()*1#\$%&'#()*1+//#((%%*X>C?B*Z*>C?\p*>C>?*Z*A&%'%"'([6* D &#(%&*: *R=#(+&*,+&*4<//. &)*+,*W%"(+&*A&+7&. /*A+''# #6#(#%'*S%O+&(*X>C>K[G* J.5<6()*&%O&%'%"(.(#\$%*,+&*O&%'%"(.(#+"'*,&+/*(9\%*!-*J.5<6()*1#\$\%&'#()*4<&\$\%)* $X>C?g[G^*]$ J.5<6() *&%O&% '%"(.(#\$%*,+&*O&%' '%"(.(#+"'*,&+ / *(9%*!-*!"=%&7&.=<.(%*1 #\$%&'#()* 4<&\$%)*X>C?@[G* 1+`:%.=*+"*1%'#7"*+.*!-*J.5<6()*."=*!"=%&7&.=<.(%*1#\$%&'#()*4<&\$%)'*X>C?@[G* J.5 < 6()*6#.#'+"*,+&*4+5#+6+7)*V = L < "5(*P"'(&<5(+&'*X)>C?B*Z*>C?Y[0*]J.5<6()*k<=7%*,+&*V""<.6*]+66%7%*+,*4+5#.6*45#%"5%'3*W.(9%/.(#5'3*."=*R=<5.(#+"*

! "=%&7&.=<.(%*S%'%.&59*]+",%&%"5%*X>C?B[6*



U&7."#^%&*,+&*0."%6*+"*a; 8 F -*4+<(9%&"*RH0%&#%"5%3c*>C>C*W#=*4+<(9*4+5#+6+7#5.6* V''+5#.(#+"*V'''<.6*W%%(#"73*U"6#"%6*

P"\$#(%=*A."%6#'(*+"*a2+N*(+*A<_6#'9*)+<&*_++e3c*>C?d*V''+5#.(#+"*,+&*V006#%=*."=*
16#"#5.6*4+5#+6+7)*V""<.6*W%%(#"73*A+&(6."=3*U&%7+"6*

U&7."#^%&*,+&*#"\$#(%=*V / %."*4+5#+6+7#5.6*V''+5#.(#+"*:*V''+5#.(#+"*,+&*(9%* 4+5#+6+7)*+,*S%6#7#+"*k+#"(*A."%6*+"*S%6#7#+"*:*4%H<.6#()3*>C?d*V / %."*4+5#+6+7#5.6*V''+5#.(#+"*V""<.6*W%%(#"73*O%N*T+&e*]#()3*O%N*T+&e6*

U&7."#^%&*,+&*0."%6*+"*aO+"_#".&)*RHO%&#%"5%'*#"*4+5#%()3c*>C?d*4+<(9%&"*4+5#+6+7#5.6* 4+5#%()*V""<.6*W%%(#"73*V(6."(.3*8 %+&7#.6*

P"\$#(%=*1#'5<''."(*,+&*0."%6*+"*aP"(%&'%5(#+".6#()*#"*(9%*aW%*-++c*W+\$% / %"(3c*>C?d* 4+<(9%&"*4+5#+6+7#5.6*4+5#%()*V""<.6*W%%(#"73*V(6."(.3*8%+&7#.0*

P"\$#(%=*1#'5<''."(*,+&*(9% / .(#5*0."%6*+"*a-&."'*."=*O+"_#".&)*4%H<.6#(#%'3c*>C?*V / %."*4+5#+6+7#5.6*V''+5#.(#+"*V""<.6*W%%(#"73*A9#6.=%609#.3*A%"'')6\$."#.6*

 $U\&7."\#^{\%}=^*."=^*9+'(\%=^*.^*(9\%/.(\#5^*'\%''\#+"^*+"^*aS\%'\%.\&59^*."=^*-\%.59\#"7^*._+<(^*O+"_\#".\&)^* \\ ."=^*-\&."'7\%"=^&\&^*4+5\#+6+7)^3c^*>C?\\ ^*4+<(9\%\&"^*4+5\#+6+7\#5.6^*4+5\#()^*V""<.6^*W\%(\#"73^*O\%N^*) \\ U\&6\%."'^3^*:+<\#'\#.".6^*$

A. "%6*1#'5<''. "(*,+&*aF%)+"=*F#". &#%'b*4%H3*8%"=%&3*. "=*4%H<.6#()*S%'%. &59*A. "%63c* >C?*4+<(9%&"*4+5#+6+7#5.6*4+5#%()*V""<.6*W%%(#"73*O%N*U&6%. "'3*;+<#'#.". G*

 $U\&7. "\#^\%=^*."=^*9+'(\%=^*.^*(9\%\ /\ .(\#5^*'\%''\#+"^*.'^*0.\&(^*+,^*N\#'''\#''7^*(9\%^4D\ 4^*R.\&6))^*8\%''=\%\&^*459+6.\&^*VN.\&=^*+"^*a-\&."'7\%''=\%\&^*RH0\%\&\#'''5\%^*\#''^*4+5\#+6+7)3c^*>C?g^*4+<(9\%\&''^*4+5\#+6+7\#5.6^*4+5\#()^*V'''<.6^*W\%(\#''73^*8\&\%'''\$#66\%3^*4\ 1\%^*)$

] + \ +&7 . "#^%=* . *(9% / . (#5*0 . "%6*'%' '#+"*%" (#(6%=*a D &#(%* D 9%&%*P(* 2 <&('b* 1 % . (93* 1) #"73* . "=* 8 &#%, c*N#(9* 1 &6*V6%H . "=& . *] 6 2 6*O+N . e+N 'e#3*>C?g*4+<(9%&"*4+5#+6+7#5 . 6*4+5#%() * V""< . 6*W%%(#"7* 8 &%" \\$#66%3*4] 6*

P"\$#(%=*0."%6#'(*,+&*=#'5<''#+"*+"*a!'#"7*/<'#5*#"*(9%*(%.59#"7*+,*'+5#+6+7)3c*>C?@*W#=*
4+<(9*4+5#+6+7#5.6*V''+5#.(#+"*V"'<.6*W%(#"73*]9.&6%'(+"3*4+<(9*].&+6#".6**

P"\$#(%=*0."%6#'(*,+&*=#'5<''#+"*+"*aV006)#"7*'+5#+6+7)*(+*5+ / / <"#()*.5(#+"*_.'%=* &%'%.&59*."=*.=\$+5.5)3c*>C?@*W#=*4+<(9*4+5#+6+7#5.6*V''+5#.(#+"*V""<.6*W%%(#"73*]9.&6%'(+"3*4+<(9*].&+6#".6**

P"\$#(%=*5&#(#5*,+&*."*V<(9+&*W%%('*] &#(#5*'%''#+"*,+&*58/"/9&'<*k#/6*0'W.bb'.\$?'1 - *"/6.\$'