

!"#\$%&'()*\$*+,+-.*/0-12*30%

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

0% , &1)2&'3, -)'(4!!

%

<>%-), !; <D3'D,)!; &A!;)) ,))M, &()#17>%!; -, !, &<>%-; B, A!(>!; AC, -, !(>!; !J-, _A, (, -M'&, A!)(%A4!
)<C, A%@!;)!4>%!'@F, !M>-, !@=, @!(>!<>MJ@, (, !C, !<>%-), !>!DM, !)%<<,))H%@4#!!!!
!!

DOH5->. ; 2, /P26%, />67->26%, G%25. -1+, 3%25. : %

- N&B; B'&B!?'(C!(C, !<>%-), !M; (, -'; @!!
- 8>MM'(M, &!(>!)%A, &()!(; ='&B!(C, !<>%-), !!
- N] , <D3, !M, (C>A!>H!<>MM%&'<; D>@!'?'(C!)(%A, &()!!!
- E<<>%&D&B!H>-!; &Aa>-!; <<>MM>A; D&B!A'] , -, &<,)!'!@; -&'&B!!!
- N&B; B, M, &!?'(C!)(%A, &!<C; @, &B,)!; &A!)(%A, &!<>&<, -&)!!

%

P26%>7G5, >/%

- E ^, &A; &<, !; &A!J; -D<'J; D>&!!
- Q, , J'&B!%J!?'(C!A, ; A@&,)!'@ (, !J>@<4b!!
- K, <C&>@B4!%), !!!
- 8@))!J-, J; -; D>&!!
- 8>%-), !<>MM%&'(4!, &B; B, M, &(!!!
- E<; A, M'<!&(, B-'(4!'<- , ; D>&!; &A!)C; -'&B!>H!>-'B'&; @'A, ;)b!!
- 8>MM%&'<; D>&!; &A!'&(, -; <D>&!!

%

KC->%BC>%!(C')!<>%-), !!C, -, !?'@F, !>JJ>-(%&'D,)!H>-!4>%!(>!'&(, -; <!?'(C!4>%-!'&)(-%<(>-!4>%-!
(, ; <C'&B!(, ; M!!; &A!4>%-!<@))M; (,)#6(%A, &()!'?'@&(, -; <!?'(C!(C, '-!J, , -)!; &A!C; 3, !
>JJ>-(%&'D,)!(>!@; -&H->M!(C, '-!<>@; B%), !A%-'&B!@; -&'&B!; <D3'D,)!(C; (!&<@A, !A, F; (,)!; &A!
A')<%)>)>%!; -, !, \J, <(, A!(>!; @?; 4)!F, C; 3, !?'(C!'&(, B-'(4!F>(C!'&H!<, -(>_H!<, !'&(, -; <D>&!)
&A!?'C, &! , &B; B'&B!?'(C! , ; <C!>(C, -!>&@&, #6, , !C, !&, D[%, ^, !; &A!A')<%)>)&B%'A, @&,)!F, @?!
'?C'<C!4>%!; -, !, \J, <(, A!(>!; AC, -, !(>!'?C, &!&(, -; <D&B!?'(C!&@, !; &>(C, -!?'C, (C, -!&!J, -)>&!>-!
>&@&, #!!!

!!

!

Q5=7+65G%\$276/5%R. >56+. */%

%

@50>J22S%0: 7: ':<; (% 1%=(%2: >?#,%@''A, 1''\$(BC%>L>')!c#E#15, -)J, <D3,)!'&!5)4<C>J; (C>@B4#!
6, 3, &(C!NA'D>&#!!
T2>5%1. >%1+/%/% % 5U%5G+; 2, %29%15%50>J22S%1. >%1. /%J55, %7/5G%, %H65F+27/%05. 6/M7>%!M%)(!
) , !C')!&, ?!3, -)'>&H!>-!(C')!<>%-), #!

!

CGG+; 2, . *%Q5. G+, 3/)%

!

>15260% , G% -+5, -5%29% *+, +. *H/0-12*230)

!

9# 8>@, I!N#!k#!` . \$\$I b#l0&(, -), <D>&; @!(4!; &A!-,), ; -<C!&!J)4<C>@B4#!D> (\$'): +%E, 8) = " ; "/, 1!FG "b!
9m\$#!

!

. #

[Redacted]

S; -. 9!! 6, \%; @A4)H%&<D>&!; &A!J; -; JC'@<!A')>-A, -)!

]M C//+3, : 5, >/)%Q5^5-; 2, %_75/; 2, /%W&YZ%29%[, . *%36. G5\%
6(%A, &())!?'@<>MJ@ (, !; (!@; ;)(!>U2!-, R, <D>&!;))'B&M, &()#KC,), !)%FM'))'>&)!M%)(!F, !&>!M>-;!
(<C; &!''\$\$!?'>-A)#0H!4>%!?'-'(, !M>-; !(C; &!''\$\$!?'>-A)!(C, !KE)!?'@>&@!B-; A, !(C, !P-)(!''\$\$!?'>-A)#!
KC,), !-, R, <D>&!(>J'<)?'@F, !P-)(!A'<%)), A!?'(C!4>%-!J, , -)!&!<@))#KC, &!H->M!(C, !&H>-M; D>&!
4>%!C; 3, !B; (C, -, A!4>%!?'@F, !-, [%'-, A!(>!)%MM; -'L, !4>%-!>J'&'>&!?'(C!)<', &DP<!-,), ; -<C!(>!
)%JJ>-(!'(#!C%, !A; (,)!; &A!'&)(-%<D>&)?'@F, !)C; -, A!>&!j &O#!N; <C!J>)(!?'@F, !?'>-(C!9\$√!>H!
4>%-!P&; @B-; A, #7>%!?'@C; 3, !(C, !>JJ>-(%&'(4!(>!<>MJ@ (, !>1655

\$* .//%C>>5, G. , -5%

7>%-!J-,) , &<, !; &A!J; -('<'J; ('>&!&!<@))!<>&(-'F%(,)!(>!(C, !=&>?@ AB, !; &A!)=!@)!(C; (I4>%!?'@
A, 3, @J!(C->%BC>%!(C')!<>%-), #0!, \J, <!(C; (I4>%!; ((, &A!<@))!-, B%@ -@!J; -('<'J; (, !'&!<@))!
<>&3, -); ('>&); &A!@; -&'&B!;<('3'(',)#KC,) , !!(4J,)!>H!; <('3'(',)!J->3'A, !; <('3, !, &B; B, M, &(!
J->M>(, !; !A, , J, -!%&A, -); &A'&B!>H!(C, !<>%-), !<>&(, &(!; &A!<>&(-'F%(, !(>I4>%-!)%<<,))!&!&(C')!
<>%-), #!

!
!

\$276/5%_75/; 2, /% , G%C, , 27, -5: 5, >/%\$2, >5, >%_75/; 2, /%

KC->%BC>%!(C')!<>%-), !I4>%!M; 4!<>M, !%J>&!>M, !B, &, -; @[% ,)D>&); F>%!(C, !<>%-), !; &A!; &A!
)'B&M, &()#0H!4>%!(C'&=(C; (I4>%-![% ,)D>&!M; 4!F, &, P(!>(C, -!)(%A, &()!I4>%!; -, !'&3'(, A!(>!J>))!
4>%-![% ,)D>&!>&!&(C, !j &O!H>-%M)#KC, !\$2, >5, >%?+/-7//+2, %] 2. 6G%?'@F, !%), A!H>-!)(%A, &()!(>!
H2/>%=75/; 2, /% J27>%-276/5%-2, >5, >#E&4![% ,)D>&)%&- , @ , A!(>!<>&(, &(!)C>%@A!F, !J>)(, A!>&!
(C, !CG: +, +/>6. ; 2, %?+/-7//+2, %] 2. 6G#p>(C!A')<%)'>&!F>; -A)!?'@F, !M>&'(>-, A!F4!4>%-!
(, ; <C'&B!(, ; M!>&!; !-, B%@ -!F;)'#0H!(C, !KE)!<; &&>(!; &)?, -!(C, ![% ,)D>&!!(C, 4!?'@&H>-M!(C, !
'&)(-%<(>#E&4!>(C, -![% ,)D>&)%!(C; (I4>%!?'>%@A!J-, H, -!(>!)C; -, !J-'3; (, @!J@;), !<>&(<!(C, !
<>%-), !, M; 'd@)(, A!; !(C, !(>J!>H!(C')!4@ F%)#%

%

C, , 27, -5: 5, >/%

KC->%BC>%!(C, !<>%-), !!(C, !(, ; <C'&B!(, ; M!?'@->%D&, @!J>)(!<>%-), !&, ?)!&!&(C, !!
E&&>%&<, M, &()!), <D>&!>H!(C, !<>%-), !C>M, J; B, #!7>%!; -, !, &<>%-; B, A!(>!; <D3, @!<C, <=(C, !
<>%-), !>&O!M; '&!J; B, !H>-!<>%-), !; &&>%&<, M, &()!(C->%BC>%!(C, !), M,)(, -!H>-!-, M'&A, -)!; &A!
; AA'D>&; @<>%-), !'&H>-M; D>&!>-!@; -&'&B!>JJ>-(%&'D,)#!

!!

T5; =75` 5%

2&'3, -)'(4!')!; !J@<, !(>!)C; -, !![% ,)D>&!!; &A!<C; @, &B, !'A, ;)#N; <C!)(%A, &(F-'&B)!; !A'] , -, &(!), (!
>H!@3, A!, \J, -, '&<,)#!7>%!<; &!C, @!(>!<- , ; (, !; !); H, !-,)J, <y%@J@<, !H>-!@; -&, -)!F4!J->M>D&B!
(C, !H>@?'&BxB%'A, @&,)ex!!!

!!

9# S; =, !; !J, -)>&; @<>MM'(M, &(!(>!@; -&!; F>%(!%&A, -); &A!; &A!)%JJ>-(I4>%-!J, , -)#!!!
. # E))%M, !(C, !F,)(!>H!>(C, -)!; &A!, \J, <!(C, !F,)(!>H!(C, M#!!!
"# E<=&>?@ AB, !(C, !'MJ; <(!>H!>JJ-,))'>&!>&!>(C, -!J, >J@ !)!@3, !); &A!M; =, !)%-, !4>%-!
?'-D&B')!-,)J, <y%@; &A!'&<@)'3, #!!!
/# k, <>B&'L, !; &A!3; @, !(C, !, \J, -, '&<,)!!; F'@D,)!!; &A!&=>?@ AB, !, ; <C!J, -)>&F-'&B)#!!!
r# 5; 4!<@), !; ^, &D>&!(>!?C; (I4>%-!J, , -)!?'-(, !F, H>- , !4>%!-,)J>&A#KC'&=(C->%BC!; &A!
-, _ , ; A!4>%-!?'-D&B)!F, H>- , !4>%!J>)(!>-!), &A!(C, M!(>!>(C, -)#!!!
Y# 0(!); @'BC(!(>!A'); B-, , !?'(C!A, ;)!IF%(!A>!&>(M; =, !J, -)>&; @; ^; <=)#!!!

m# p, !>J, &!(>!F, '&B!<C; @ &B, A!>-!<>&H->&(, A!>&!4>%-!'A, ;)!; &A!<C; @ &B, !>(C, -)!?'(C!
(C, !'&(, &!>H!H; <'@(; D&B!B->?(C#!C>!&>(!A, M, ; &!>-!, MF; --;))!>(C, -)#!!!
d# N&<>%-; B, !>(C, -)!(>!A, 3, @J!; &A!)C; -, !(C, '-!'A, ;)#!!!

!

46. G+, 3%R5>12G%

E@<>MJ>&, &(!>H!(C')!<>%-), !?'@-, <, '3, !&%M, -'<; @J, -<, &(; B, !M; -=)#!KC, !P&; @B-; A, !4>%!
-, <, '3, !H>-!(C, !<>%-), !?'@F, !A, -'3, A!F4!<>&3, -D&B!4>%-!&%M, -'<; @<>%-), !; 3, -; B, !(>!; !@, ^, -!
B-; A, !; <<>-A'&B!(>!O%, , &!)!j u<' ; @h-; A, !8>&3, -)'>&!6<; @, e!!

!!

-,;,-<C!J;-D<'J;D>&!?'@ @!F,!<-,A'(,A!?C,&!4>%!)'B&!%J!H>-!;!)(%A4#!7>%!<;&!<>MJ@,(,!)(%A',)!
(>?;-A!;,;<C!<>%-),#!7>%!<;&&>!;JJ@4!(C,!);M,!)(%A4!<-,A'(!>!M>-,!<C;&!>&,!<>%-),!;&A!
-,;,-<C!<-,A'(!<;&&>(!F,!%),A!(>!MJ->3,!;H;'@'&B!M;-=!(>!;J;))&B!M#KC,!@;)(!A;4!(>!

6'B&'&B!%J!H>-!)(%A',)!)!A>&, !(C->%BC!(C, !6>&; !)'(, !A'-, <(4e!8: 08Q!GNkN!!

√1. >%9%%G2, b%J. , >%2%H. 6; -+H. >5c%

5; -D<'J; D>&!&!, , ; -<C!')!, &D-, 4!3>@&&; -4#!0H!4>%!?!; &!(>! , ; -&!<- , A'(!F%(!A>&1(!?!; &!(>! J; -D<'J; (, !'&!; !J; -D<%@ -!)(%A4!4>%!<; &!<>MJ@ (, !; &!; @, -&; D3, !;))'B&M, &(!&)(, ; A#U>-!(C, ! ; @, -&; D3, !;))'B&M, &(!!-, , , ; -<C, -)!, '(C, -!?'@>], -!; !?; @_(C->%BC!>H!(C, '-!, \J, -'M, &(!!>-!(C, 4! ?'@C; 3, !4>%!(>!, , ; A!; &!; -D<@ !>-!F@B!J>)(!!@)(, &!(>!; !)C>-(J>A<;)(!!>-!?!; (<C!; !)C>-(!3'A, >! ; &A!(C, &!; &)?, -![%,)D>&!; F>%(!'(#K>!<>MJ@ (, !; &!; @, -&; D3, !;))'B&M, &(!!4>%!M%)(!<>&; (<! >15%H6+, -+H. *%, F5/; 3. >26!>H!; !J; -D<%@ -!)(%A4!') , , !(C, !)(%A41)!<>&; (<(!&H>-M; D>&!>&!6j VE!H>-!(C, '-!, M; '@!F, H>-, !(C, !@)(!?, , =!>H!<@)),)!H>-!(C, !), M,)(, -!(>!<>MJ@ (, !(C, !; @, -&; D3, ! ;))'B&M, &(!>JD>&#!E@C>%BC!(C, !@ &B(C!>H!)(%A',)!?'@3; -4!; @; @, -&; D3, !;))'B&M, &(!?'@@)(! ; JJ->\'M; (, 4!"\$!M'&%(,)!)>!4>%!?'@, ; -&!\$#r√!H>-!, ; <C!; @, -&; D3, !;))'B&M, &(!C; (!4>%! <>MJ@ (, #!!

Ad<\$. : H7/%'>7G5, >/%

j]_<; MJ%)!)(%A, &()e!J@ ; , !&>(, !(C; (!4>%!<; &!J; -D<'J; (, !'&!>&@&, !)(%A',)!; &A!-, , , ; -<C, -)!?C>! >], -!(C, , , !)(%A',)!; @>!>], -!>&@&, !; @, -&; D3, !;))'B&M, &()#!

√1. >%9%%- . , b% . S5% %5/5. 6-1% HH2+, >: 5, >c%

J; -D<'J; &(#J>>@Z [% , &)%#<; #!eT2>5)%#276%-276/5%, />67->26%/ % 2>%, F2*F5G%, %15%
. G: +, +/>6. ; 2, %29%/>7G+5/% , G% *>56, . ; F5% // +3, : 5, >/#!

!

C--2: : 2G. ; 2, /%026%?+/. J+*; 5/%

!

O%, , &W!2&'3, -)'(4!)!<>MM'((, A!(>!?)>-= '&B!?'(C!)(%A, &()!?'(C!A'); F'@(' ,)!(>!-, M>3, !F; --', -)!
(>! (C, '-! ; < ; A, M'< !B> ; @#!O%, , &W)!6(%A, &(!E<< ,))'F'@ (4!6, -3'< ,)!' O6E6b!!) (%A, &()!?'(C!

6C>-(!, -M!5C4)'<; @>-!S, &(; @0@&,)!>-!0&f%-4!')(>M; <C!H@%!!; &\', (4aA, J-,))'>&! M>&>&%<@, >)'!!<>&<%)>'>&!F->=, &!F>&,)!!)%-B, -4!!M, A'<; @(-, ; (M, &Q)!!, (<#b%

K-; %M; ('<!N3, &(a8>&H'A, &('; @

, \; MJ@ !%JC>@!M%(%; @!; B-, , A_J>&!)(&A; -A)!!; &A!(; =, !; <'>&!?C, &!(C, 4!, &<>%&(, -!
?->&BA>'&B#

Y# \$276. 35)!!!!K>!A, 3, @J!; &A!)%); '&!<>MM%&'(')!>H!&(, B-'(4!'(!(; =,)!M>- , !(C; &!)'MJ@!
F, @, 3'&B!'&!(C, !H%&A; M, &(; @3; @%,)#K-; &)@ ('&B!(C, !3; @%,)!H->M!(!; @'&B!J>'&()!'&(>!
<'>&!_!); &A'&B!%J!H>-!(C, M!'&!(C, !H; <, !>H!J-,))%-, !; &A!; A3, -)'(4!} !-, [%'-,)!
A, (, -M'&; ('>&!<>MM'(M, &(!!; &A!<>%-; B, #

6(%A, &()!; -, !-,)J>&)'F@ !H>-!H; M'@; -'L'&B!(C, M), @,)!?'(C!; &A!; AC, -'&B!(>!(C, !6, &; (, !
-, B%@ ('>&)!<>&<, -&'&B!; <; A, M'<!&(, B-'(4!; @&B!?'(C!U; <%@4!>-!6<C>>@)J, <'H'<!'&H>-M; ('>&#!
C, J; -(%,)!H->M!; <; A, M'<!&(, B-'(4!'&<@%A, !F%(!; -, !&>(!@M'(, A!(>!J@, B'; -)M!%), !>H!
&&; %<C>-L, A!M; (, -; @!H; <'@(; ('>&!H>-B, -4!; &A!H; @'H'<; ('>&#E<'>&)!?C'<C!<>&(-; 3, &, !(C, !
-, B%@ ('>&!>&!; <; A, M'<!&(, B-'(4!<; --4!); &<'>&)!<C; (!<; &!-; &B, !H->M!; !?; -&'&B!(>!@))!>H!
B-; A,)!>&!; &!;))'B&M, &(!!(>H; '@-, !>H!; !<>%-), !!(>!-, [%'-, M, &(!!(>!?'(CA-; ?!H->M!(C, !
&&'3, -)'(4#

45, 56. >+F5%C6>+9+-+. *%8, >5**+35, -5%WC8\%@22*/)%

@76, +; , %'>. >5: 5, >%