

"#\$%%&!%'!()'%* + , -.%)!"-/0.12!31, *).)4!5%, &2!,)0!6/-#% + 12! 7, 8!9: 9; !

6/*!<.2.%)!

#\$%!&`\$(()!(*!+, *(-. /01(,!&0231%4!!%`\$(%4!0\$%!5,16%-4107!6141(,!0(!8%!/,!1,,(6/016%!)%/3%-!1,! %. 9(: %-1,;!;-/32/0%4!*-(.!316%-4%!8/'<;-(2,34!0(!.%%0!0\$%!`\$/))%,;%4!(*!/,!1,'-%/41,;)7! 1,0%-3%9%,3%,0!: (-)3=!

6/*!7.22.%)!

#\$%!&'\$(()!(*!+,*(-. /01(,!&0231%4>!0\$-(2;\$!104!6/-1(24!3%;-%%!9-(;-/. 4!/,3!'%-01*1'/0%4>!%. 9(: %-4!
4023%,04!0(!8%'(. %!9-(*%441(,/)4!: \$(!'(,,%'0!1,316132/)4!/,3!'(. . 2,101%4!0(!0\$%!: (-)3!(*!1,*(-. /01(,!
/,3!)%/-,1,;!: 10\$!-%/4(,>!'(. 9/441(,>!/,3!/!'(. . 10. %,0!0(!!4%-61'%!/,3!-/31'/)!1,')241(,=!

=*%4*, +!5%, &2!,)0!31, *).)4!6/-#%+12!

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?-(;-/. !; (/)4!/, 3!)%/-,1,;!(20'(. %4!/-%!1,0%;-/0%3!1,0(!0\$%!'2--1'2)2. >!/,3!/-%!01%3!0(!'(2-4%! (8%'016%4!/,3!3%)16%-/8)%4=!!!

() '%^{*}+, -.#2!>!?) 01^{*}4^{*}, 0/, -1!7, @^{*}!,) 0!7.) %^{*}!A!!31, ^{*}).) 4!5%, &²!,) 0!6/-#% + 12!

A'0(8%->!BC"D!

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 $\label{eq:starter} \begin{array}{l} \#\$\%!+, \ \ (-, \ \ /01' \ 4!. \ \ /@(-!-\%')\%' \ 04!E(. \ 1, 1' /, F4!13\%, 0107!/4!/!'(. \ 2, 107!: \ \$\%-\%!*'/ \ 2)07!\%40/8)14\$!')(4\%! \\ -\%)/01(, \ \ 4\$194!: \ 10\$!4023\%, 04!1, \ !(-3\%-!0(!9-\%)-\%!0\%). \ !*(-!^2)^*1))1, \ ; \ !9\%-4(, \ /)!/, \ 3!9-(*\%441(, \ /)!)16\%4!/, \ 3!0(! \\ 1; \ , \ 10\%!0\$\%1-!9/441(, \ !0(!\$\%)9!' -\%/0\%!/!. \ (-\%!@240!/, \ 3!\$2. \ /, \ \%!: \ (-)3=!!G\%!8\%)1\%6\%!0\$/0!0\$\%!+, \ *(-. \ /01' \ 4! \\ . \ \ /@(-3!87!: \ /7!(*!0\$\%!; \ (/)4!)140\%3!8\%)(: \ !: \ 1))!*2-0\$\%-!E(. \ 1, \ 1' /, \ F4!. \ 1441(, \ !0(!\%32' /0\%!4023\%, \ 04!: \ \$(!4\%\%<! \\ 4('1/)!@2401' \%!/, \ 3!'(. \ 9/441(, \ /0\%!4\%-61'\%=! \end{array}$

#\$%!+, *(-. /01'4!. /@(-!: 1))H!

- ?-(. (0%!)%/3%-4\$19>!6141(,>!/,3!0-20\$14%%<1,;!4(!0\$/0!4023%,04!. /7!/3(90!/,3!%,/8)%!24%4!(*! 1,*(-. /01(,!0%'\$,()(;7!0\$/0!9-(. (0%!0\$%1-!(:,!/,3!(0\$%-4F!9%-4(,/)!/,3!9-(*%441(,/)!*2)*1)). %, 0=!!
- ?-%9/-%!4023%, 04!*(-!/, !1, *(-. /01(, !4('1%07!: 10\$!0\$%!<, (:)%3; %!/, 3!4<1))4!, %'%44/-7!0(!*)(2-14\$!
 1, !/!'/-%%-!0\$/0!: 1))!8%!1, '-%/41, ;)7!%, . %4\$%3!: 10\$!0%'\$, ()(; 7=!
- J-/*0!)%/-,1,;!%K9%-1%,'%4!0\$/0!9-(. (0%!'())/8(-/016%!<,(:)%3;%!'(,40-2'01(,!0(!-%*)%'0!
 1,'-%/41,;)7!,%0: (-<%3!/,3!4('1/))7!618-/,0!: (-<9)/'%4=!
- L%*)%'0!1, !104!'2--1'2)2. !/, 3!'\$(1'%!(*!)%/-, 1, ; !. /0%-1/)4!0\$%!%6()61, ; !, /02-%!(*!1, *(-. /01(, ! 0%'\$, ()(; 7!: (-<>!%32'/01(, /)!0%'\$, ()(; 7>!/, 3!%. %-;1, ; !9%3/; (; 1%4=!)

31, *).)4!6/-#%+12! 59(, !' (. 9)%01(, !(*!0\$%!M/'\$%)(-!(*!&'1%, '%!1, !+, *(-. /01'4!4023%, 04!: 1))!8%!/8)%!0(H!

- E%4'-18%!0\$%!'(. 9)%K!-%)/01(, 4\$194!8%0: %%, !9%(9)%!/, 3!1, *(-. /01(, !0%' \$, ()(; 1%4!1, !49%' 1*1' !
 : (-<!/, 3!4('1/)!'(, 0%K04=!
- N/<%!/99-(9-1/0%!24%!(*!0%'\$,1'/)!)/,;2/;%!/,3!3%41;,4!-%)/0%3!0(!6/-1(24!1,*(-./01(,!0%'\$,()(;7!/-01*/'04!/,3!4740%.4=!
- L%4%/-'\$!/, 3!%6/)2/0%!49%'1*1'!1, *(-. /01(, !0%'\$, ()(; 1%4!/, 3!0\$%1-!1. 9/'0!(, !24%-4>!
 (-; /, 10/01(, 4>!/, 3!1, 4010201(, 4=!
- P99)7!-%)%6/, 0!. /0\$%. /01'/)!/, 3!'(. 920%-!9-(;-/. . 1, ; !'(, '%904!1, !0\$%1-!'\$(4%, !314'19)1, %4=!
- N/, /; %!9-(%'0!01. %)1, %4>!-%4(2-'%4>!; (/)4!/, 3!(20'(. %4>!/, 3!9%-4(,,%)!1, !(-3%-!0(!3%)16%-!0%'\$, ()(;1'/)!/-01*/'04!/, 3!4740%. 4!(,!01. %!/, 3!: 10\$1, !823; %0!'(, 40-/1, 04=!
- J(. . 2,1'/0%!0(!40/<%\$()3%-4!0\$%!,%%34!/,3!(20'(. %4!(*!1,*(-. /01(,!0%'\$,()(;7!9-(%'04=!
- E%6%)(9!4('1(I

İ. 5%, &! I C! J, E.4, -1K! #/*, -1K!,) O!#*1, -1!.) '%* +, -.%) !, #*%22!-\$1!2F1#-*/+!%'!\$/+,) !*1#%*O2H! 11 ! "#\$%&'(. *+!E%41; , !-%4(2-'%4!(-!0(()4!0\$/0!*/'1)10/0%!/''%44!0(!1, *(-. /01(, =! ii. ! "#\$%&'(., +!501)10%!-%4(2-'%4!(-!0(())4!0(!. /, /; %!1, *(-. /01(, =! II. ! "#\$%&'(.\$+!Q6/)2/0%!-%4(2-'%4!(-!0(()4!0\$/0!. /, /;%!/,3!*/'1)10/0%!/''%44!0(!1,*(-. /01(,=! II. 5%, &!LC!''8)-\$12.M1!-\$1%*8!,)0!F*, #-.#1!G.-\$.)!, !08), +.#K!1E%&E.)4K!,)0!0.E1*21!.)'%*+, -.%)! 1)E.*%)+1)-H II ! "#\$%&'(/*+!P99)7!)18-/-7!/, 3!1, *(-. /01(, !4'1%, '%!0\$%(-1%4>!9-1, '19)%4>!/, 3!-%4%/-'\$!0(!9-(*%441(, /)! 9-/'01'%=! II. ! "#\$%&'(/, +!Q6/)2/0%!'2--%, 0!/, 3!%. %-;1, ;!0%'\$, ()(;1%4!*(-!1, *(-. /01(, !'/902-%>!(-;/, 10/01(, >! 3144%. 1, /01(, ;/''%44;)/, 3R(-!'2-/01(, !0(!. %%0!0\$%!6/-1%07!(*!1, *(-. /01(, !, %%34!(*!316%-4%!'(. . 2, 101%4=) II. ! "#\$%&'(/\$+!E%. (, 40-/0%!0%/'\$1, ; !/, 3!)%/-, 1, ; !9-1, '19)%4!1, !-%)/01(, !0(!9-(*%441(, /)!9-/'01'%=! II. 5%, &!NC!O''1#-.E1&8!#%++/).#, -1!,)O!#%&&, B%*, -1!-%!O1&.E1*K!+, *P1-K!,)O!, OE%#, -1!'%*!&.B*, *8!,)O! .)'%*+,-.%)!21*E.#12H! Т ! "#\$%&' (0*+!(P99)7!. /-<%01, :!/, 3R(-!/36('/'7!9-1, '19)%4!0(!3%. (, 40-/0%!/, 3!9-(. (0%!0\$%!6/)2%!(*!)18-/-1%4!/, 3!1, *(-. /01(, !/; %, '1%4=! ! "#\$%&' (0, +IE%. (, 40-/0%!%**%' 016%!9-(*%441(, /)!' (. . 2, 1' /01(, !0(!/' \$1%6%!' (. . (, !2, 3%-40/, 31, ; !/4! /, !1, 316132/)!(-!1, !; -(29!4%001, ; 4=!!

! "#\$%&' (0\$+!(E%. (, 40-/0%!)%/3%-4\$19!9-1, '19)%4!1, !/, !%32' /01(, /)>!9-(*%441(, /)>!(-!' (. . 2, 107!' (, 0%K0=!

7, 2-1*!%'!"#.1)#1!.)!()'%*+, -.%)!7,), 41+1)-!A!31,*).)4!

=\$D!=*%4*, +!>!31, *).)4!5%, &2!,)0!6/-#%+12!

 $N/7 \rightarrow BCB''!$ Т

#\$%!E(. 1,1'/,!5,16%-4107!&'\$(()!(*!+,*(-. /01(,!&0231%4!U&A+&V!?\$E!9-(;-/. !14!3%41;,%3!0(! /''(...(3/0%!: (-<1,;!9-(*%441(,/)4!/,3!14!/1.%3!/0!9-%9/-1,;!4023%,04!*(-!\$1;\$%-!)%6%)4!(*!1,W21-7!/,3! 0\$ (2; \$0*2)!9-/'01'%!1, !-%)/0%3!9-(*%441(, 4!(-!0%/'\$1, ; !1, !/, !/'/3%. 1'!4%001, ; =!#\$%!E('0(-!(*!?\$1)(4(9\$7! 1, !+, *(-. /01(, !&0231%4!14!/: /-3%3!0(!0\$%!4023%, 0!: \$(!\$/4!/00/1, %3!/!8-(/3!2, 3%-40/, 31, ;!(*!0\$%! '(,0%,0×!. %0\$(34×!/,3!0\$%(-1%4!(*!0\$14!*1%)3!/,3!-%)/0%3!1,0%-314'19)1,/-7!*1%)34!(*!<,(:)%3;%=!!&A+&!\$/4! 13%, 01*1%3!0\$%!*())(: 1, ; !; (/)4!*(-!0\$%!?\$E!9-(; -/. H! L

- #(!%32' /0%!37, /. 1' !)%/3%-4!1, !1, *(-. /01(, !40231%4!: \$(!/-%!2, 1W2%)7!4210%3!0(!8-13; %!0\$%!0\$%(-71 9-/'01'%!31613%!1,!0\$%!;)(8/)!/-%,/=!
- #(!3%6%)(9!'-%/016%!1,,(6/0(-4!9(14%3!0(!4\$/9%!)18-/-7!/,3!1,*(-./01(,!40-/0%;1%4!*(-!0\$%!B"40! '%, 02-7!, /01(, /))7!/, 3!1, 0%-, /01(, /))7=!
- #(!9-%9/-%!316%-4%!4'\$()/-4!: \$(!/-%!/8)%!0(!9-(32'%!-%)%6/,0>!1, ')2416%!-%4%/-'\$!/,3!\$/6%!0\$%! 9(0%, 01/)!*(-!'(, 0-18201, ; !, %: >!9(0%, 01/))7!1, 0%-314'19)1, /-7!<, (:)%3;%-!
- #(!9-%9/-%!9-(*%441(,/)4!;-(2,3%3!1,!316%-4%!9(1,04!(*!61%:!*(-!)%/3%-4\$19!-()%4!1,!8(0\$! /'/3%. 1'!/, 3!, (, I/'/3%. 1'!4%001, ; 4=!

"-/01)-!31, *).)4!6/-#%+12!

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#\$%!&A+&!?\$E!9-(;-/. !4023%, 0!)%/-,1,;!(20'(. %4!: 1))!8%!/44%44%3!241,;!'(2-4%!;-/3%4>10\$%!W2/)1*71,;! 9-('%44>!0\$%!3144%-0/01(,!9-(9(4/)!3%*%,4%>!/,3!0\$%!3144%-0/01(,!3%*%,4%=!! &A+&!?\$E!4023%, 04!: 1))!8%!/8)%!0(H! L ''V!J-101' /))7!%6/)2/0%!316%-4%!1, 0%-314'19)1, /-7!-%4%/-'\$!0\$-(2; \$!-%*)%'01(, >%, ; /; %. %, 0>!/, 3!47, 0\$%414-! BVIE%6%) (9! (-1; 1, /)>!W2/)107!-%4%/-' \$!0 (!/36/, '%!0\$%!*1%)34! (*!)18-/-7!/, 3!1, *(-. /01 (, !4' 1%, '%!UX+&V>! 1, *(-. /01(, !. /, /; %. %, 0!U+NV>!(-!-%)/0%3!1, *(-. /01(, !314'19)1, %4=!

SVIE%. (, 40-/0%!%**%'016%!(-/)!/, 3!: -100%, !'(. . 2, 1'/01(, !4<1))4!/'-(44!9)/0*(-. 4=!!

TV!P-01'2)/0%!0\$%!-%)/01(,4\$194!/. (,; !1,0%-314'19)1,/-7!/99-(/'\$%4!0(!1,*(-. /01(,!40231%4*)/,3!0\$%!4('1/)>! '2)02-/)>//, 3!9()101'/)!4740%. 4!1, !: \$1'\$!0\$(4%!/99-(/'\$%4!/-%!%. 8%33%3=!!

DV!J (, 32'0!%0\$1'/)!/, 3!-%49(, 418)%!-%4%/-'\$!1, ')231, ; !'-101'/)!/, 3!-%*)%'016%!/, /)7414=!

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