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/\$%\$#C&\$ *&+, -3(#C&\$. N+?&' 2- \$"\$) (&&\$"3.2- 3(&/(&7-; %
-&%("3-7-\$&&\$; "= (5(% N\$"3\$, &\$; I *- . %#. #- "C *&+, -3(#C&' (
0+<- 3+&\$%#S? (&- . % 2+L- &' - \$) \$51/\$%+&- (, + 3+0? (5+"L- 5(&- (
"35\$-3(#C"3%+ \$) 8(03\$% =-*-, ("0\$; -&=5+"3510315' . F3\$
1#1, L(&- (\$) A(6\$ -&%("3-7-\$&&\$6\$ 0#-2+3+ %) \$#CL-&"3%(
"#1, +(%)' # \$ "%.*+&\$ "\$ "3+)-#C&' 2- -#- /+? (5+"31A-2- /\$#. 2-
6\$"1/+5"3%(&&' 9 0+<- 3+&\$%#S? (&-; , \$) ("<(- %+%L- 2-
*&+, -3(#C&' ; E==(03 <5-%#(, (&- . , +"3&' 9 -&%("35\$5%
N &(0\$3\$5' 9 "35+&+9, 3+0-9, 0+0 D+#+; *-. , %"<#("0
-&%("3-7-\$&&\$; +03-%&\$"3-)' # 3("&\$ "%.*+& " 1%(#-, (&- (2 TSS,
&\$ /#. 5(6- \$&+ %7(#\$2 E3\$ &() ' # \$ 9+5+03(5&\$; "\$) (&&\$"3C@.

Y&+, (&- (-2((3 &(3\$#C0\$ 15\$%(&C -#- "\$"3+% -&%("3-7-; .
B\$<\$"3+%#(&- (-&%("3-7-\$&&' 9 7-0#S% *+ <\$"#(/&- (, (3' 5(
/(" . 3- # (3- . "%- / (3(#C"3%1(3 \$ 3\$2, , 3\$ % R+3- &"0\$; I 2(5-0(E3\$3
7-0# .%#. (3. &+2&\$6\$) \$#((&(1"3\$; , -%' 2, , (2 % N\$"3\$, &\$;
I *- . . >5\$2(3\$6\$, % 5+20+9 3- <- , &\$6\$ 7-0#+ % =+*(\$?-%#(&- . %\$
=+*(

\$) ("< (, (&- . %' "\$0-9

<5\$2' L#(&&\$"3-, \$)1"#S%#(&&\$; 5(+ #- *+7- (;
- 2<\$53\$*+2(A+@A(; "35+3(6- - &/1"35-+#- *+7--;
- /(; "3%- 3(#C&\$, *+ %\$*2\$?&' 2 -"0#@, (&- (2 >- 3+., "35+&'
G ?&\$6\$ >\$&1"+ "\$"3+%#. #- &+ 2\$2(&3 /\$#6\$%\$6\$ 05- *- "+ &+-) \$#((
- &/1"35-+#- *\$%+&&1@ , +"3C 5+*%- %+@A(6\$". 2-5+, ("#- "1/- 3C <\$
/\$#(<5\$2' L#(&&\$"3- % "\$%\$01<&\$; *+&. 3\$"3-. F3+ 2\$/(#C " 3(9
<\$5 "3+#+ *&+, - 3(#C&\$ 2(&((/- &\$)\$ 5+*&\$; : % &(0\$3\$5' 9 , +"3. 9
5+*%- %+@A(6\$". 2-5+ 9+5+03(5&\$; \$"\$) (&&\$"3C@ "3+#+
<5(? /%5(2(&&+. /(- &/1"35-+#- *+7-. % 1"#S%- .9 2(/#(&&\$6\$
5\$"3+.

N\$"3\$, &\$+*- +3"0- ("35+&' <5\$/\$#?+#+-)' "35' 2- 3(2<+2-
<5\$%\$/- 3C - &/1"35-+#- *+7-@, - : SB <(5\$; %\$#&' /\$"3-6#-
15\$%&(; <5\$- *%\$/- 3(#C&\$"3-, "\$<\$"3+%- 2' 9 " <5\$2' L#(&&\$
*5(#' 2- "35+&+2-, <\$ 2(5(3\$6\$ 0+0 &\$%\$(<\$0\$#(&- ("35+&, "
+<\$/+&- (2 &+, +%L-9 - &/1"35-+#- *+7-@, % 5(6- \$&()' "35\$
5+"L-5. #S"C, \$) ("<, -%+. "\$, (3+&- (3+0-9 =+03\$5\$% 0+0 5\$"3
- &("3-7-; - 5\$"3 /\$)+%#(&&\$; "3\$-2\$"3- % \$) 5+)+3' %+@A(;
<5\$2' L#(&&\$"3- 0+0 % +) "\$#@3&\$2 %' 5+? (&- , 3+0 - % 0+, ("3%(
/\$#- \$3 NNT. : +<5\$3- % <5\$2' L#(&&+. "3+6&+7-. - "<+ / "3+#+
&\$52\$; % R+3- &"0\$; I 2(5-0(, + 3+0?(% I=5-0(, 6/(%
) \$#CL- &"3%("35+& "&- ?(&- (/\$#- - &("3-7-; % NNT
"\$<5\$%\$?/+#\$"C <+ / (&- (2 /\$#- /\$)+%#(&&\$; "3\$-2\$"3- %
\$) 5+)+3' %+@A(; <5\$2' L#(&&\$"3- % 1"#S%- .9 2(/#(&&\$6\$ -
&("3+)-#C&\$6\$ 5\$"3+. S* 26 "35+&, %0#@, (&&' 9 % %') \$501,
- *1, +(21@

T\$5\$; E3\$3 <5\$7(" /(-&/1"35-+#-*+7-- 3\$#01(3". 0+0
/\$5\$%+. <(5(\$5- (&3+7-. &+ 2\$/(#C 5+%-3-. , %) \$#CL(; "3(<(&-
"\$S) 5+*1@A1@". " \$)("< (, (&&\$"3C@ "35+& 5("15"+2- - -9
"5+%&-3(#C&' 2- <5(- 21A("3%+2-, <\$"#(<(5-\$/+ ", 5(*2(5&&\$; " -
"5+"3\$, -3(#C&\$; "

- * 2&\$?("3%+ =- 52 " 5+*#-, &' 2- 9+5+03(5- "3- 0+2-. D&\$6- ("35+&' , - 2(@A- (% "\$0\$0\$&015(&3\$"<\$"\$)&' (=- 52' % \$<5(/(#(&&' 9 \$35+"#. 9, ", -3+@3 &(\$)\$9\$/- 2' 2 *+A- A+3C /516- (\$35+"#- \$3 -&\$"35+&&\$; 0\$&015(&7-- , - 3+0 <5\$-"9\$/- 3 <5+03-, ("0- &+ %" (9 15\$%&. 9 -&/1"35-+#- *+7-- - 5+*%- 3-.. >5\$2(3\$6\$, " 3\$, 0- *5(&- . 0\$5<\$5+7-; *+, +"31@ <5+03-, ("0- &(-2((3 *&+, (&-., *+ ", (3 , (6\$ <\$%' L+(3". 2(?/1&+5\$/&+. 0\$&015(&3\$"<\$"\$)&\$"3C: *+ ", (3 5\$"3+ <5\$- *%\$/- 3(#C&\$"3-, 15(*+&- . *+5+) \$3&\$; <#+3' -#- /(%+#C%+7-- %+#@3' , \$/&+0\$ ")\$#((L- 5\$0\$; "\$7-+#C&\$-E0\$&\$2-, ("0\$; 3\$, 0- *5(&- . E3- "5(/"3%+ - 2(@3 +)"\$#@3&\$ 5+*&' (<\$"#(/"3%- . /#. E0\$&\$2-, ("0\$; - "\$7-+#C&\$; "3+)-#C&\$"3- -)#+6\$<\$#1, -.. S &+0\$&(7, 0\$&015(&3\$"<\$"\$)&\$"3C - E3\$ \$3&\$"- 3(#C&\$ (<\$&. 3- (, 0 3\$21 ?("\$<5. ?(&&\$ (" <5\$)#(2\$; ""122- 5\$%+&- ."; %" ("35+&' &(2\$613 \$/&\$%5(2(&&\$ <\$%' "- 3C 0\$&015(&3\$"<\$"\$)&\$"3C "%\$- 9 =- 52 % /+&&\$; 0\$&05(3&\$; \$35+"#-. B /516\$; "3\$5\$&' , 1"<(9 "5+*1 &("0\$#C0- 9 5+*%- %+#@A- 9". "35+& % /(#(\$/&\$%5(2(&&\$6\$ <\$%' L(&- . <5\$- *%\$/- 3(#C&\$"3- - 15\$%&. *+5<#+3' 2\$?(3 1#1, L- 3C - 9 \$)A((E0\$&\$2-, ("0\$()#+6\$<\$#1, - ("35&

\$"\$(&&\$ U("<1)#-0+ >\$5(. - >-3+; "0+. <5\$%- &7-. H+; %+&C, "
&(- *2(&&' 2 1"<(9\$2 "35\$- #- 5+*%- 3- ("%\$(; 3\$56\$%#- &+ 2\$A&\$2
5\$"3(<5\$- *%\$/- 3(#C&\$"3- 351/+. HS \$)"3\$. 3(#C"3%S, , 3\$ E3\$

%' "\$0\$3(9&\$#6-, &\$; <5\$/107--. N)\$#CL- &'3%("35+& R+3- &'0\$;
I 2(5-0- - I=5-0- 0+0 % <5\$2' L#(&&\$2 <5\$- *%\$/ "3%(, 3+0 - %
EO"<\$53(<\$-<5(?&(21 /\$2- &- 51@3 3\$%+5', <5\$- *%\$/- 2' (&+)+*(
<5-5\$/&' 9 5("15"\$%

N "35+&+9, 3("&\$ %*+&&' 9 " 2(?/1&+5\$/&' 2- "(3. 2-,
EO"<\$53 <5\$/107--)5+)+3' %+@A(; <5\$2' L#(&&\$"3-
<5(/"3+%#. (3". 6\$5+*/\$)\$#((3(9&\$ (20-2 - /-&+2-, &' 2, , (2
/\$)+%#(&&+. "3\$- 2\$"3C, "\$*/+%+(2+. % \$3(, ("3%(&&\$;
\$)5+)+3' %+@A(; <5\$2' L#(&&\$"3-. F3\$ 5+"9\$?/(&- (2(?/1
3(9&\$ (20\$"3C@ \$3(, ("3%(&&\$; /\$)+%#(&&\$; "3\$- 2\$"3- -
3(9&\$ (20\$"3C@ EO"<\$53+ \$)5+)+3' %+@A(; <5\$2' L#(&&\$"3- %
\$&\$%\$2 .%#. (3". \$35+?(&- (2 *+&, -3(#C&\$; (3(9&\$ (20\$;)
-2<\$53&\$; "\$"3+%#. @A(; 3+0\$6\$ EO"<\$53+. 43(, ("3%(&&+.
/\$)+%#(&&+. "3\$- 2\$"3C \$35+?+(3 %0#+/ 351/\$ (20-9 \$<(5+7-; , &(35)
1@A-9 0%+##=-0+7-- , % <5\$7(" <5\$- *%\$/ "3%+ 3\$%+5\$%,
0\$3\$5' (.%#. @3". <5(- 21A("3%(&&\$ 3(9&\$- -#- 0+<- 3+##\$ (20-2-.
H+0-2 \$)5+*\$2, 5+"31A(("9\$/ "3%\$ "3510315 EO"<\$53+
5+*%- %+@A-9". - <5\$2' L#(&&\$ 5+*%- 3' 9 "35+& <\$ "13-
<5(/"3+%#. (3 "\$)\$; -##@*-@, \$)1"#%#(&&1@ /%\$; &' 2 1, (3\$2
EO"<\$53+ %' "\$0\$3(9&\$#6-, &\$; <5\$2(?13\$, &\$; <5\$/107--.

; , #4#0. *'(('/ 7"', #(' "'0(. .9''0#/ 83, %1 8". \$<=4%((.6.
''0*#, #/

T5-%\$/- 2' ; % !"#%&+ *+ E3\$3 6\$/ "5+%&- 3(#C&' ; +&+##- *
3(&/(&7-; % &+0\$<#(&- - 0+<- 3+##+, E0\$&\$2-, ("0\$2 5\$"3(-
- &/1"35-+##- *+7-- " &+, +##+ 80-9 6\$/ \$% % R+3- &'0\$; I 2(5-0(-
I *-- <\$*%\$#. (3 "\$"3+% 3C "3- #- *\$%+&&1@ 0+53- &1,
9+5+03(5- *1@A1@ "\$3&\$L (&- (<\$*- 7-; 5+*%- %+@A-9". "35+&.

- "G(+ \$; + , /&03 ' (, %\$, -% ' " (; ". N E31 651<<1 %9\$/ .3
: SB <(5%\$; %\$#&' , \$"\$) (&&\$ U("<1)#-0+ >\$5(. -
>- 3+; "0+. <5\$%- &7-. H+; %+&C, 0\$3\$5' (1? (/"\$3- 6#-
15\$%&. <5\$2' L#(&&\$; *5(#\$"3- *+ " , (3)' "35\$6\$
&+0\$<#(&- . 0+<- 3+##+, 5\$"3+ *+&. 3\$"3- ,
<5\$- *%\$/- 3(#C&\$"3- - \$)8(2+ <5\$- *%\$/ "3%+ %

<5\$2' L#(&&\$"3-, + 3+0?(E0"<\$53+ <5\$2' L#(&&\$;
<5\$/107--. F3- "35+&' %" (A(- 2(@3) \$#((% " \$01@
/\$#@ <5\$2' L#(&&\$6\$ <5\$- *%\$/"3%+ % NNT, , (2
5+*%- 3' ("35+&' , &\$ 5\$"3 <5\$2' L#(&&\$"3- 1 &- 9 &+, + #
*+2(/#. 3C"..

- "C; 3 '(; + , / & 0 3 '(, % \$, - % ' "(; ". > E3\$; 0+3(6\$5--
\$3&\$". 3". "35+&' " 5+"31A(; /\$#(; \$) 5+) +3' %+@A(;
<5\$2' L#(&&\$"3- % "\$%\$01<&\$2 <5\$- *%\$/"3%(,
*+&. 3\$"3- - E0"<\$53() #+6\$/+5. %' "\$0\$;
- &%("3- 7- \$&&\$; +03-%&\$"3- - 2\$/ (5&- *+7--
<5\$- *%\$/"3%+ <5- <(5(\$5- (&3+7-- " 5("15"\$- -
351/\$ (20-9 %- /\$% /(. 3(#C&\$"3- &+ <5\$- *%\$/"3%\$
"5(/&(3(9&\$#\$6-, &\$; <5\$/107--. 5\$ 5+&E0NC&#&DAb&#&E&#&E% 5+3107--

<5((2"3%(&&\$"3- %%- /1 "35(2- 3(#C&\$; "2(&' "35+3(6- - 5+*%- 3- . "
%&135(&&(; &+ %&(L&@@ \$5- (&3+7- @.

: \$%+. "35+3(6- . %

<5-3\$0 0+<-3+#+, %' *%+&&' (E3-2 1/\$5\$?+&- (%+#@3 -
5(*0-(0\$#()+&-. \$)2(&&' 9 015"\$% %01<(" % "\$0-2-
<5\$7(&3&' 2- "3+%0+2-, &(\$)9\$/-2' 2- /#. <5-%#(, (&-.
-&\$"35+&&\$6\$ 0+<-3+#+, <5-%(#- 0 3\$21, ,3\$ 1"#S%- . %
/(&(?&\$-05(/-3&\$; "=5(% R+3-&"0\$; I 2(5-0(% 90-9 6\$/+9
\$0+*+ #- "C "#-L0\$2 ?("30-2- - &("3+)-#C&' 2-, ,3\$)'
\$)("<(-3C <5\$, &1@ "\$&\$%1 /#. &+0\$<#(&-. 0+<-3+#+.
>\$2)-&-5\$%+&&' ; -&/(0" 5(+#C&\$6\$ \$)2(&&\$6\$ 015"+ -
5(+#C&\$; 7(&35+#-*\$%+&&\$; <5\$7(&3&\$; "3+%0- 10+*' %+(3 &+
6\$5+*/\$)\$#((?("30-(1"#S%- . % 05(/-3&\$-/(&?&\$; "=5(%
R+3-&"0\$; I 2(5-0(, (2 % N\$"3\$, &\$; I *- , &+ <5\$3. ?(&-
90-9 6\$/\$%, 9\$3. % 60-9 - 70-9 6\$/+9 E3- 1"#S%- . % &-9)' #-
"9\$/&' 2-.

R-) (5+#- *+7-. 3\$56\$%' 9 - ==&+&"\$%' 9 5(?-2\$% %2("3("

R-) (5+#- *+7-. 5(?- 2\$% ", (3\$% \$<(5+7-; " 0+<- 3+#\$2 -
<\$3\$0- 0+<- 3+#+ %' *%+#- "(5C(*&' (")\$- % 5+) \$3(
2(9+&- *2\$% 0\$55(03- 5\$%0-) @/? (3\$% - <#+3(?&' 9)#+&' \$%
X5(*2(5&' ; <5- 3\$0 0+<- 3+#+ *+' 3\$<\$5- # =1&07- \$&- 5\$%+&- (
0\$55(03- 5\$%\$, &' 9 2(9+&- *2\$% , + , 5(*2(5&' ; \$3\$0 <5- %(# 0
"/(=#. 7- \$&&\$21 <(5) \$51".

: (<\$"#(/\$%+3(#C&\$"3C 2+05\$E0\$&\$2-, ("0\$; , 3\$56\$%\$; ,
-&%("3- 7- \$&&\$; - =-&+&"\$%\$; <\$#- 3- 0- &(2\$6#+ &
"0+*+3C". &+ 9+5+03(5("3510315&' 9 <5(\$) 5+*\$%+&-; . !"- #- .
<\$ &+#+?- %+&- @ <5\$- *%\$/"3% % 3(9&\$#\$6-, ("0- "#\$?&' 9
"(03\$5+9, &+<5+%#(&&' (&+ 3\$, , 3\$)' "5+&\$. 3C". " 5+*%- 3' 2-
"35+&+2-,)' #- <\$/\$5%+&' , &\$ % 3\$?(%5(2. &- *0- (
<\$0+*+3(#- <5\$- *%\$/- 3(#C&\$"3- 351/+ %)\$#((351/\$ (20- 9
"(03\$5+9 <5- %(#- 0 %\$*5+"3+&- @ 0\$&015(&7-- "\$ "3\$5\$&'
6\$"1/+5"3% , 0\$3\$5' 9 *+5+) \$3&+. <#+3+)' #+)\$#((&- *0\$; .
J+%#(&- (" \$ "3\$5\$&' /%19 E3- 9 -"3\$, &- 0\$% <5- %(# \$ 0
/(- &/1"35- +#- *+7-- % R+3- &"0\$; I 2(5- 0(% 1"#\$\$- . 9 ") 5\$"
5+) \$, (; "- #' - % . #6\$ E0\$&\$2-, ("0\$6\$ 5\$"3+.

H+0- 2 \$) 5+*\$2, 9\$3. &\$%+. \$5- (&3+7-. % <\$#- 3- 0(<5- %(#+ 0
1"<(L&\$21 / (2\$&3+?1 <5(/' /1A(6\$ 5(?- 2+, \$&+ &("2\$6#+
\$) ("<(- 3C +#C3(5&+3- %&' 9 1"#\$\$-; /#. <5\$7%(3+&- .. 0A(
)\$#CL1@ 35(%\$61, " 3\$, 0- *5(&- .)1/1A- 9 <(5"<(03-%, %' *' %+(3
135+3+ "+2\$"3\$. 3(#C&\$"3- % <\$#- 3- 0(0+0 &+ 2- 05\$E0\$&\$2-, ("0\$2,
3+0 - &+ 2+05\$E0\$&\$2-, ("0\$2 15\$%&. 9, + 3+0?("1?(&- (
<5\$"35+&"3%+ /#. 2+&(%5+ % <\$#- 3- 0(J#. <(5(\$"2" "#(&-
%\$*2\$?&' 9 %5- +&3\$% 35) 1(3". , ("3&+. \$7(&+ E\$#@\$7--
E0\$&\$2- 0- *+ <\$"#(/&- (/%+ /(" . 3- # (3- . -)\$#((1"<(L&\$6\$ \$<' 3+
%/ (#(- &/1"35- +#- *+7-- - 5+*%- 3- .. J#. E3\$6\$ &(\$) 9\$/- 2\$ 3+0?(
\$30+*+3C". \$3 \$) \$) A+@A- 9 <\$/9\$/%\$ " 3(2 , 3\$)' 2\$?&\$)' # \$
1, ("3C 5+*&\$) 5+*- (1"#\$\$-; - <5\$) # (2, "3\$. A- 9 <(5/
5+*%- %+@A- 2". 2- 5\$2.

T\$"0\$#C01 2&\$6\$ () 1/(3 *+%- "(3C \$3 5(+#- *+7-- "35+&+2-
"\$) "3%(&&\$6\$ <\$3(&7- +#+ 5\$"3+, , 3\$)' <\$/05(<- 3C &+5+A- %+&- (
-&%("3- 7-; - 2\$/(5&- *+7- @, &(\$) 9\$/- 2\$) 1/(3 5+"L- 5- 3C "<(035

)\$#(("35+3(6-, ("0-9 2(5 <\$#-3-0-. F3\$ <\$35()1(3 <5\$%/(&- .
+03-%&&\$; <\$#-3-0-, \$"\$) (&&\$ % 3+0-9 %\$<5\$"+9, 0+0 <\$//(5?0+
<5\$2' L#(&&\$"3-, 3(9&\$#\$6-, ("0-; <5\$65(" - \$)A+.
-&=5+"3510315+, - %"(E3\$ - " 1, (3\$2 "<(7=-, ("0-9 1"#\$%- ; %
"\$33%(3"3%1@A-9 "35+&+9.

N\$ 2&\$6-9 "#1, +.9 /#. <5(\$/\$#(&- . 351/&\$"3(; % \$)#+"3-
<#+3(?&' 9)+#+&"\$%