

! "\$%#& # ' # " ( ' ) \* ! # + % , \* & ) - , ) . , / 0 \$ " # 1 , % 2 3 , ) 4 ,  
! " , 5 ) . - 6 . # 5 # - # . % % # - 0 ) - 3 , ,  
# \$ " 2 - \* 7 " 2 - , 8 - # . 5 2 7 " 9 5 - ) - , , 0 # 5 + : ; 2  
- 2 ' # & ( < , ) " 2 \* \* \$ # 9 - , 9 = 9 7 9 7 # + 2



# " 7 2 - , 5 2 3 , 9 # ' > ) + , - ) - - 6 ; - 2 3 , 4

2000

!"#\$%#&# '#"( ' ) \* !#+% , \*& ) - , ) . , / 0 \$ " # 1 , % 2 3 , ) 4 , ! " , 5 ) . - 6 .  
#5# - # . % % # - 0 ) - 3 , , # \$ " 2 - \* 7 " 2 - , 8 - # . 5 2 7 " 9 5 - ) - , , 0 # 5 + : ; 2  
- 2 ' # & ( < , )



#"- (759, 7"# 0 \*##"0("0) ) \* I \$#"#=#+#- #< #6\$5%) 7(%)) 0&<\$##0 #=#) \*+#0 58#"5 )+ ) );  
"\$5%\*6\$5%) 7%&; ' #"#=#0, ' \$) %9"&- 0 ! #E) ) 3H #="9<\$9 H988 6#: 5, ) I \$#"#=#+#- #< #6\$5%) 7(%))  
0&<\$##0 +(". 7); #6\$5%) 7(\*=); \*#(:)%(%)> )+ ) ); "\$5%\*6\$5%) 7%&; ' #"#=#0, ' \$) %9"&- 0 K (%0(  
H8 %9<\$9 H99H 6#: 5, . ? ( ' \$(: . \*- #"\$(%# #6\$5%) 7(%)) ( 0&<\$##0 #=#) : #0 58#"5 ) +(". 7);

1"5"19 H

H2. "2\$") 7(\*=59 %56\$. 8=5" #8%575("=#+) 7(\*"0(%%. 4 #3(%=. 0#8: (>"0) 9 #: %6#) +) %(\*=#+1=); 856\$98%) "(+(>, %) ? (=#"#S#6#, \*#6+5\*%# \*#0\$(- (%%&- 8%5%) 9- , %( 0#8%)=5(" 8%57) "(+1%&; 0\$(: %&; '#\*+(:\*"0) > : +9 =#=#("\$%&; 7. 0\*"0) "(+1%&; A+(- (%"#0 #=#. ?54 / (> \*\$(: &;

H3. "2\$") 7(\*=) ( . \$#0%) " #8%575("=#%3(%"\$53) ) 856\$98%) "(+(> 0 5"- #\*E(\$, 0&, (=#"#S&; , \*#6+5\*%# \*#0\$(- (%%&- 8%5%) 9- , - #6. " 0#8%)=5"1 ' \$9- & ( #" \$) 35" (+1%& ( ' #\*+(:\*"0) 9 : +9 "5=); \$ (3(' "#\$#0, =5= +4:), \$5\*" (%) 9, A=#\*) "\*" (- & ) +) - 5" (\$) 5+&;

H4. "J5>#% \$(6. +) \$#05%) 9 0&<\$#\*#0 856\$98%) "(+(>" (JJST) #8%575(" \$5>#%, #' \$( : (+9(- &> 0 ' \$) +#? (%) ) III 0 \*##"0("\*"0) ) \* . \*+ #0) 9- ), . =585%%&- ) 0 ' . %=" (9 \*"5"1) 3;

H5. "! "53) #5\$%&> ) \*"#7%) =" #8%575(" +4<# ( %(' #: 0) ?%# . \*"5%#0+(%# ( 8: 5%) (, \*##\$. ? (%) (, #<C(=" , . \*"5%#0=. ) +) #<#\$ . : #05%) (, ) 8=#"#S#6# ' #\* . ' 54" ) +) - #6. " ' #\* . ' 5"1 %(' #\*\$(:\*"0(%%# ) +) =#\*0(%%# 0 5"- #\*E(\$ . \*(\$5, #=#) : & 58#"5, +(. 7) ( #65% 7(\*=) ( \*#(:) % (%) 9) +) 5- - ) 5=;

H6. "D#0&> \*"53) #5\$%&> ) \*"#7%) =" #8%575(" +4<#> \*"53) #5\$%&> ) \*"#7%) =, \*##\$. ? (%) ( ) +) \* . / (\*"0(%%59 - #: ) E)=53) 9 =#"#S#6# %57) %5("9 ' #) "\*" (7%) ) #: %6# 6#: 5 \*# : %9 0\*" . ' + (%) 9 0 \* ) +. %5\*"#9 / (6# I \$#"#=#+5. S# ' \$#\* #< #' \$( : (+%) ) "#6#, 90+9("9 +) - #: ) E)=53) 9 \* . / (\*"0(%%#> ) +) %(" , \$ (, 5("9 =#- ' (" (%"%&- ) %53) #5+1%&- ) #65%5- ) \*

\*) : +9 #8#%5:

i) : +9 ! "#\$% 0 ' \$(: (+5; 6(#6\$5E) 7(\*=#6# #; 05"5 @Q@I - = \$) ") 7(\*=) ( . \$#0%) #8#%5,

ii) : +9 25%5: & - #</ (=5%5: \*=. 4 %#\$- . : +9 #8#%5; )

iii) : +9 ! #(:) %(%&; F "5"#0 G- (\$=) - %53) #5+1%. 4 %#\$- . =57(\*"05 #=\$. ?54 / (6# 0#8: . ; 5 : +9 #8#%5.

!"5"19 3

B! DBSDW@ BXPTGY@NV! YSG

H. 25?: 59 ! "#\$%5, : +9 =#"#\$#> 0 +4<#> "5<+> 3(0 ' \$) +#?(%) ) II . =585%# ' #"#+#7%#( 8%57%) ( 0&<\$#\*#0, \*#=\$5/5(") ' #: : (\$?) 05(" ' #\*+( \*#=\$5/(%) 9 \*0#> 6#: #0#> . \$#0(%1 0&<\$#\*#0 0 \*##"0("\*"0)) \* A") - ' #"#+#7%&- 8%57%) (-) \*\$#=#-), . =585%&-) 0 A"#- ' \$) +#?(%) . 25?: 59 ! "#\$%5 =5= -) % - - #6\$5%) 7) 05(" \*0#) (? (6#: %&( 0&<\$#\*#& 856\$98%94 /); \*#(:) %(> 0 \*##"0("\*"0)) \* #<985" (+1\*"05- ) 0 ' \$) +#?(%) ) II.

2. 25?: 59 ! "#\$%5 ' \$) - (%9(" ' \$(: (+1%&( 8%57%) 9, . =585%&( 0 ' \$) +#?(%) 9; IV, V) VI, = =5?: #- . %#0#- . "53) #5\$%#- . ) \*"#7%) =. 0 =5" (6#\$) ) \*"53) #5\$%&; ) \*"#7%) =#0, =5= A"# #' \$(: (+(%# 0 A"); ' \$) +#?(%) 9; , %(' #8: %(( \*\$#=#0, . =585%&; 0 ' \$) +#?(%) ) VII. S =57(\*"0( 5+1"(\$%5") 0%#6# 05\$) 5%"5 ! "#\$%5 - #? (" ' \$) - (%9"1) %&( "\*"5" (6) ) \*#=\$5/(%) 9 0&<\$#\*#0, #<(\*' (7) 054 /) ( : #\*" ) ? (%) ( A=0) 05+ (%""&; #</); . \$#0(> 0&<\$#\*#0 : +9 0\* ( ; =5" (6#\$) > ) \*"#7%) =#0 0- (\*" ( 089" &; .

3. 25?: 59 ! "#\$%5 0 "#> \*(" (%), %5\*=#+1=# A"# " (; %) 7(\*=) ) A=#%#- ) 7(\*=) #\* . / ("0) ?)(0. 250#+(7(") - 8. 7(0





H0. B" !"#S#%&, =="#S#>' S) - (%9("9 %5\*"9/)>' .%=", "S(<. ("9:

a) 0 \*+. 75( (\*+) #5 %5; #:)"\*9 0 ' S(: (+5; 6(#6\$5E) 7(\*=#6# #; 05"5 @Q@I , \*#<+4: 5"1 ' #+#? (%) 9 %5\*"9 / (> \*5"1) ) ' S) +#? (%) 9 II "#+1=# 0 ' S(: (+5; \*##"0("0. 4 / (6# JJST : +9 =5?: #6# 856\$98%) "(+9, : +9 =#"#6# JJST 0 ' S(: (+5; (( 4\$)\*:)=3)) 0=+47(% 0 ' S) +#? (%) ( III; ) +)

b) 0 \*+. 75( (\*+) #5 % ( %5; #:)"\*9 0 ' S(: (+5; 6(#6\$5E) 7(\*=#6# #; 05"5 @Q@I , \*#<+4: 5"1 ' #+#? (%) 9 ' .%="0 H, 2, 3, 5, 6) 7) ' S) +#? (%) 9 II "#+1=# 0 ' S(: (+5; \*##"0("0. 4 / (6# JJST : +9 =5?: #6# 856\$98%) "(+9 (#=\*): & 58#"5, \*( \$5) /) +) +(" . 7) ( #65%) 7(\*=) ( \*#(:) % (%) 9), : +9 =#"#6# JJST 0 ' S(: (+5; (( 4\$)\*:)=3)) 0=+47(% 0 ' S) +#? (%) ( III, ) %("S(<. ("9 \*#<+4: 5"1 ' .%=" 8 0 +4<#- - (\*"( 0 ' S(: (+5; (( 4\$)\*:)=3)).

HH. 25%5: 5) !#(:) %%%&( F "5" & G- (\$)=) ' #\*+( \$5") E)=53), ' S) %9") 9) +) . "0(\$?: (%) 9 %5\*"9 / (6# I \$#"#=#+5) +) ' #\*+( ' S) \*#(:) % (%) 9 = %(- . ' S(: \*50+94" O\* ' #+%) "(+1%#- . #65%. \*0#) \*##"0("0. 4 /) ( #<985"(+1\*"05 ' # \*#=\$5 / (%) 4 0 & < \$\*#0 0 #"%#, (%) ) \*(\$&, #=\*): #0 58#"5) +(" . 7); #65%) 7(\*=); \*#(:) % (%) > : +9 50#"5") 7(\*=#6# 0=+47(% 9 0 ' S) +#? (%) ( II.

H2. !"#S#%& 0 850)\* - #\*)" #" \$ (8. +1"5"#0 ' (\$0#6# #<8#\$5, ' S(: . \*- #"\$(%%#6# ' .%=" #- 2 \*5"1) H0, ) %(' #8: %(( 7(- 7(\$8 #: ) % 6#: ' #\*+( 850(\$, (%) 9 "5=#6# % ( %%(

2. I \$) ' ##/\$(%)) : (9" (+1%#\*)" , . =585%%#> 0 ' . %=" ( H, =5?: 59 C"#S#%5 \*#8: 5(" <+56#' \$) 9"%&( . \*+#0) 9 : +9 \*#: (>\*0) 9 =#%"5="5- ) \*#"\$.: %) 7(\*"0. - (? : . \*##"0("\*"0. 4/) - ) #565%) 853) 9- ) ) #": (+1%&-) +) 35- ) 0 75\*"0#- ) 6#\* . : 5\$\*"0(%%#- \*(="#\$5; , ) - (4/) - ) 0#8- #?%#"1 ' \$(: #\*"50+9"1 " (;%#+#6) 4, ' \$#(="&() )%?(%(\$%&( . \*+. 6) , #<#\$. : #05%) () +) E) %5%\*#0& (\*\$(: \*"05.

!"5"19 5

ODZBJQOJBSGDO@ BX] @! YS@DDB! YO

H. 25?: 59 ! "#\$#%5, : (>\*0. 9 0 \*##"0("\*"0)) \*# \*0#) - ) 85=#%5- ) , ' \$50) +5- )

e) ' #\*+(:\*"0)9; :+9 8: #S#019 ) #=\$. ?54 / (> \*\$(: &, \*0985%%&; \* 856\$98%) "(+9-),

i) ' \$) - (%9(", 0 \*+. 75( ) ; 85"\$5"#AEE(=") 0%#\*"), - (\$& : +9 . - (%1, (%) 9 0&<\$#\*#0 ) 8  
' #\*"' . 54 / ) ; 0 #"; #: & ' \$#: . ="#0, \*#: (\$?5 / ) ; + (" . 7) ( # \$65%) 7 (\*=) ( \*#(:) % (%) 9.

2. 25?: 59 ! "#\$#%5 \*#<) \$5(" ) ; \$5%) " ) %E#\$- 53) 4 #:

a) E5=") 7 (\*=) ; . \$#0%9; 0&<\$#\*#0 \* (\$&, \*#(:) % (%) > 58#"5 ) + (" . 7) ; # \$65%) 7 (\*=) ;  
\*#(:) % (%) >, 5 "5=? ( =#%3(% "\$53) > 0 #=\$. ?54 / (> \*\$(: ( ) #\*5?: (%) > A") ; \*#(:) % (%) > ) #8#%5 \*  
. 7 ("#- - : +9 " ( ; ! "#\$#%, =#"#\$&( %5; #: 9"\*9 0 ' \$(: (+5; 6(#6\$5E) 7 (\*=#6# #; 05"5 @Q@I , - ' +5%5  
\$5<#"& @Q@I ; )

b) 0#8: (>\* "0) =#%3(% "\$53) > 0 #=\$. ?54 / (> \*\$(: ( ) #\*5?: (%) 9 \* (\$&, \*#(:) % (%) > 58#"5,  
+ (" . 7) ; # \$65%) 7 (\*=) ; \*#(:) % (%) > ) #8#%5 %5 8: # \$#01 ( 7 (+#0 (=5, A=#\*) \* " (- & \* . , ) , 0#: %&( A=#\*) \* " (40TDC [ \$ (010) ] TJ. 502

- i) . \$#0%) 0&<\$#\*#0 \*(\$&, #=#): #0 58#"5, 5- -) 5=5) +(". 7); #65%) 7(\*=);  
 \*#(:) %(>,) \*' #+18. 9 : +9 A"#6#, =5= -)%) - . - , - ("#: #++6)) ) 0\$(- (%A4 )  
 ' \$#"5%"0(%%. 4 \$58<) 0=. , #' \$(: (+(%&( J. =#0#: 9/) - #65%#- @Q@I ;
- ii) . \$#0%) 0&<\$#\*#0 =5?: #6# 0(/ (\*"05 0 <58#0#- (H990) 6#: . ,) \*' #+18. 9 "( ?( \*5- &( - ("#: #++6)) ) 0\$(- (%A4 ) ' \$#"5%"0(%%. 4 \$58<) 0=. ;
- iii) : 5%&( #

0 ' \$(: (+5; 6(#6\$5E) 7(\*=#6# #; 05"5 @Q@I 0)%"(\$(\*5; : 5+1%(>, (6# \*#=\$5 / (%) 9, : +9 3(+(> ' .%="5 H  
\*"5"1) 3, \$58+) 7) 9 - (? : . E5=") 7(\*=) - ) #\*5?: (% 9- ) \*(\$& ) \*#(:)%(%> 58#"5 ) 8%57(% 9- )  
=\$) ") 7(\*=); %56\$. 8#=#, 5 "5=? ( \$58+) 7) 9 - (? : . E5=") 7(\*=) - ) =#%3(%"\$53) 9- ) #8#%5 ) =\$) ") 7(\*=) - )  
.\$#0%9- ) #8#%5, #' \$(: (+(%&- ) 0 ' \$) +#?(%) ) I) + ) \* ' #- #/14 "5=); 5+1"(\$%5") 0%&; - ("#: #0  
#3(=%), =#"#\$&(. "0(\$?: 54"\*9 ! "#\$%5- ) %5 \*(\*\*) ) O\*' #+%)"(+1%#6# #565%5.

!"5"19 8

O! ! N@MBSGDOP, JGTJGXBY2O O QBDOYBJODR

! "#\$%& ' ## / \$94" ) \*\*+( : #05%) 9, \$58\$5<#"=), - #%) "#\$) %6 ) \*#"\$ . : %) 7(\*"0#, \*0985%%& (\*:

a) - (? : . %5\$#: %&- \*#6+5\*#05%) (- - ("#: #0 \$5\*7("5 ) #3(=%) \*

g) 0&90+(%) (- 0#8%)=54 /); \*# 0\$(- (%(- "(%:(%3)>) %5.7%&- '#%) - 5%) (- <#+((  
, )\$#)=; '#\*+(:\*"0)> 0#8: (>\*"0) 9 \*(\$&, 58#"5) +(". 7); #S65% 7(\*=); \*#(:)%(%)> )  
E#"#;) - ) 7(\*=#6# 896578%-(%198(5-8)#\$#01( 7(+#0(=5, 0=+4759); 0#8: (>\*"0) (%5 =#%3(%\$53)  
"0(\$: &; 75\*" ) 3, #=\$. ?54 / . 4 \*\$(:. . , 0 75\*"%"#\*" ) '#\*+(:\*"0) 9 '#: =) \*+(%) 9 ) A0"\$#E)=53), )  
- 5"(\$ 5+&, #\*#<(%%# ' 5- 9"%)=) )"#\$)) ) =. +1". \$&, \* . 7("#- 085) - #\*098) - (? : . #=\*): 5- ) \*(\$&,  
#=\*): 5- ) 58#"5, 5- J/D- D- 0. 001Tc c (TD0Tc () Tj/0#7! 0TD0Tc (, ) Tj/TT11T0. 50TD(. 001T5c [ (+0) 7) 9. 6(4);

- i)  $*0\# \# < 985" (+1*"05 0 \# "%\#, (\%)) *0\# ; \$5**7) "5\%\&; ) \#' ") - ) 8) \$\#05\%\&; \%5$   
 $- (? : . \%5\$ \# : \#\# > \#* \% \# 0 ( \$5*' \$ (: (+ (\%\&; * \# = \$5 / (\% ) > 0 \& < \$ \# * \# 0, \# = \# " \# \$ \&;$   
 $6\# 0 \# \$) " * 9 0 ' . \% = " ( 5 * " 5 " 1) 7 0 \&, ( ; )$
- ii)  $5: (=05" \% \# * " 1 \# < 985" (+1*"0) ' \$ \# 6 \$ (**, : \# * " ) 6\% . " \& > 0 \% 5' \$ 50 + (\% ) ) : \# * " ) ? (\% ) 9$   
 $3 (+) \% 5 * " \# 9 / (6 \#$



! "#\$%5, 90+94 / 59\*9 \$(6) #5+1#> #565%) 853) (> A=#%- ) 7(\*=#> )%"(6\$53)), - #? (" \*: (+5"1 ) - (4 / (( 5%5+#6) 7%# ( : (>"0) ( 8590+(%) ( 0 #"%#, (%) ) 5\$<) "\$5?5 0 \*##"0("0") \* ' \$#3(: . \$5- ), . =585%&- ) 0 ' #: ' . %=" ( b).

3. T590+(%) (, \*: (+5%#( 0 \*##"0("0") \* ' . %=" #- 2, \*#; \$5%9(" \*) +. 0' \$( : 1 : # ) \*" (7(%) 9 #6#0#\$ (%#6# 0 %(- \*\$#=5 : (>"0) 9 ) + ) \*" (7(%) 9 "\$ (; - (\*93(0 \* - #- (% "5 \*: 57) %5 ; \$5%(%) ( M(' #8) "5\$) 4 ' ) \*1- (%#6# . 0( : #- + (%) 9 # (6# # "8&0(.

4. D#0#( 8590+(%) (, . 0( : #- + (%) ( #< # "8&0( ) + ) \*" (7(%) ( \*\$#=5 : (>"0) 9 8590+(%) 9 %) =#) - #<\$58#- %( 85"\$56) 054" \$58<) \$5" (+1\*"05, 0#8<. ? : (%#6# 0 Q(? : . %5\$#: %#- ! : . ( ) +) 0 5\$<) "\$5?%#- \* : (, (\*+) "#+1=# \*"#5%& 0 \*' #\$( (% ' \$) % ) - 54" ) %6# \$ (, (%) 9.

5. @\*+) 7(\$ (8 : 0(%5: 35"1 - (\*93(0 ' #\*+( "#6#, =5= #: %5 \*"#5%5 . 0( : #- +9(" : \$. 6. 4 # \* . / (\*"0#05%) ) 21D2(01B701E25590706(121/0125)B781(419)1291123521B301931380161109110612(15910)B107040

2. I \$(: +565(- &(' #' \$50=) ) =#\$\$(=") 0& ' \$(: \*50+94"\*9 0 ' ) \*1- (%%#- 0): ( O\*' #+%)"(+1%#- .  
\*(="5\$4 2#- \*\*)), =#"#\$&> ' \$(' \$#0#?: 5("); 0\*(- ! "#\$%5- . ! "#\$%& #<\*.?: 54"  
' \$(: +#?(%&(' #' \$50=) ) =#\$\$(=") 0& %5 \*+( : . 4 / (> \*(\*\*)) O\*' #+%)"(+1%#6# #65%5 ' \$) . \*+#0),  
7"# A") ' \$(: +#?(%) 9 <&+) %5' \$50+(%& ! "#\$%5- O\*' #+%)"(+1%&- \*(="5\$(- , ' # - (%1, (> - (\$ , 85  
90 : %(>.

3. I #' \$50=) = %5\*" #9 / (- . I \$#"#=#+. , 0=11414720TD() Tj/TT11==#[ #TD() Tj/T/TT1\$#0) +#42: TJ?1T\$. 0TDD

A=#%#- ) 7(\*=#> )%"(6\$53)), \*#8: 5%%&- ) \*. 0(\$(%&- ) 6#\* . : 5\$\*"05- ) - 7+(%5- ) 2#- ) \*\*)) )  
#<+5: 54 / ) - ) =#- ' ("(%3) (> 0(\*)' ' (\$ (6#0#\$&, 85=+475"1 ) ' \$) - (%9"1 - (? : . %5\$#: %& ( \*#6+5, (% ) 9  
' # 0#' \$#\*5- , #; 05"&05 (- &- %5\*"#9 / ) - I \$#"#=#+#+- , ' \$) . \*+#0), 7"# A") 6#\* . : 5\$\*"05 )  
#\$65%) 853) ) 90+94 " \*9 C"# \$#%5- ) 2#%0(%3) ) ) ' (\$ (7) \*+(%& 0 ' \$) +#?(%) ) II.

2. S 0#' \$#\*5; , 0; #: 9 / ); 0 \*E(\$ . ); =#- ' ("(%3) ) , "5=) ( \$ (6) #5+1%& ( # \$65%) 853) )  
A=#%#- ) 7(\*=#> )%"(6\$53) ) #" \*0#(6# \*#<\*"0(%%#6#) - (%) #\* . / (\*"0+94 " ' \$505 ) 0&' #+%94"  
#<985%#\*") , #' \$ ( : ( +(%& ( %5\*"#9 / ) - I \$#"#=#+#+- : +9) ; 6#\* . : 5\$\*"0-7+(%#0. S A") ; \*+. 759;  
6#\* . : 5\$\*"05 - 7+(%& "5=) ; # \$65%) 853) > % (' \$50#- #7%& #\* . / (\*"0+9"1 "5=) ( ' \$505 0 ) % : ) 0 : . 5+1%#-  
' # \$9: =(.

! "5"19 H5

JGYOZO2GUOP, I JODPYO@, LYS@JKM@DO@ O I JO! B@MOD@DO@

H. D5\*"#9 / ) > I \$#"#=#+ ' #: +(?)" \$5") E)=53) , ' \$) %9") 4 ) +) . "0(\$?: (% ) 4 ' #: ' ) \*50, ) - ) (6#  
! "#\$%5- ) .

2. D5\*"#9 / ) > I \$#"#=#+ "#=\$&" : +9 ' \$) \*#(:) % (%) 9 6#\* . : 5\$\*"0 ) # \$65%) 853) > , . : #0+ ("0#\$94 / ) ;  
"\$ (<#05%) 9- ' . %= "5 H \* "5"1) H4, \* 3H - 59 2000 6#: 5.

3. "5=) ; Tf2.3(5) PJ/8D/ST 8D/TT1(82 Π 804 0 TD0 Tc( 8() Tj/TT1ff0.25 0 TD0.006 Tc(:+2 t( 2000 ) Tj/TT1ff2.48

!"5"19 H8

SW\BM

S +4<#( 0\$(- 9 ' # )\*" (7(%)) ' 9") +(" \*# :%9 0\*".' +(%)9 0 \*)+. %5\*"#9/(6# I \$#"#=#+5 0  
#"#%, (%) ) +4<#> ! "#\$#%& "5=59 ! "#\$#%5 - #?(" 0&>") ) 8 I \$#"#=#+5 ' . "(- %5' \$50+(%) 9  
' ) \*1- (%%#6# . 0(: #- +(%) 9 #< A"#- M(' #8) "5\$) 4. N4<#> "5=#> 0&; #: 0\*".' 5(" 0 \*)+. %5 : (09%#"&>  
: (%1 ' #\*+( ' #+. 7(%)) 9 M(' #8) "5\$) (- "5=#6# . 0(: #- +(%) 9 )+ ) 0 "5=#> <#+( ( ' #8: %) > \*\$#=#, ="#\$&>  
- #?(" <&"1 . =585% 0 . 0(: #- +(%) ) # 0&; #: (.

!"5"19 H9

GLY@DYOaDW@ Y@2! YW

I #: +)%%) = %5\*"#9/(6# I \$#"#=#+5, 5%6+) >\*) >, \$. \*\*=) > ) ES5%3. 8\*=) > "(=\* & ="#\$#6#  
90+94 "9 \$50%# 5. "(%) 7%&- ), \*: 5("9 %5 ; \$5%(%) ( R(%(\$5+1%#- . \* (=("\$5\$4 BS65%) 853))  
B<C(:) %%%&; D53) >.

S LMB! YBS@J@DO@ a@RB %) ?(' #: ' ) \*50, ) (\*9, : #+?%&- #<\$58#- %5 "# . ' #+%#- #7(%%&(  
' #: ' ) \*5+) %5\*"#9/)> I \$#"#=#+.

! BS@JF @DB 0 R\_("<#\$6( (F 0(3) 9) "\$) : 35"#6# %9<\$9 #: %5 "&\*975 : (09"1\*#" : (09%#"#  
: (09"#6# 6#: 5.

I \$)+#?(%) (I

4. `") %56\$. 8=) ) . \$#0%) 0#8: (>\*"0) 9 ) \*' #+18. 4"\*9 0 ; #: ( \$58\$5<#"=) - #: (+(> : +9 =#- ' +(\*%#> #3(%=) ) \*+. ?5" #\*%#0#> : +9 . "\*"5%#0+(%) 9 ' #"##+#7%&; 8%57(%> ) /) +) \*#=\$5 / (%) > 0&<\$#\*#0 : +9 25%5: & ) ! #(:) %(%&&; F "5"#0 G- (\$) =), ' \$) 0#: 9 /); \*9 0 ' \$) +#?(%) ) II.

II. 2JOYOa@! 20@ DGRJLT20 XOBR@DDBRB GTBYG

M+9 ! "#\$%# 0

\*(+1\*=#; #89>\*0(%%&; =. +1". \$ \$5\*\* - 5"\$) 05("9 "5=?() \* "#7=) 8\$(%) 9 85/) "& :\$. 6); \$5\*" (%) >, %5' \$) - (\$ : (\$01(0) :\$. 6#> ' \$) \$#: %> \$5\*" ) (+1%#"). S %5\*" #9/(( 0\$(- 9 0(:. "\*9 : 5+1(>, ) ( %5. 7%&() 8&\* =5%) 9 : +9 \$58\$5<#"=) <#+(( : ) EE(\$(%3) \$#05%#> )%" (\$' \$("53)) ' # =585" (+> ' \$ (0&, (%) 9 = \$) ") 7(\*=); . \$#0%(> #8#%5 : +9 \$5\*" ) (+1%#").

8. 2\$") 7(\*=) > . \$#0(%1 #8#%5 : +9 8: # \$#019 7(+ #0(=5 #' \$(: (+9("9 . \$#0%(- =#%3(%"\$53)) #8#%5, . =585%&- 0 J. =#0#: 9/); ' \$) %3)' 5; SBT ' # =57(\*"0. 0#8: . ; 5) \*#\*"50+94/) - H20 - =6/-<sup>3</sup> (\*\$(:%) > ' # =585" (+1 85 0#\* (- 1 75\*#0). S 3(+9; \$58\$5<#"=) - #: (+> : +9 =#- ' +(\*%#> #3(%=) <&+ ' \$) %9", 0 ' # \$9: = (85- (%& ' # =585" (+9, . =585%#6# 0 J. =#0#: 9/); ' \$) %3)' 5; SBT ' # =57(\*"0. 0#8: . ; 5, \$58\$5<#"5%&> \*#0- (\*"%# \* @0\$#' (>\*=) - \$(6) #%5+1%&- <4\$# S\*(-) \$%#> # \$65%) 853)) 8: \$50##; \$5% (%) 9 (SBT/@SJB) = \$) ") 7(\*=) > . \$#0(%1, 0&\$5? (%%&> 0 0) : ( GBY60 (\*#0#=. ' %# ( 0#8: (>\*0) ( ' \$ (0&, 54 / (( ' # \$#6#0# ( 8%57%) ( 60 75\*" (> %5 - +\$: .), ". ( . H20 - =6/-<sup>3</sup>, \$5\*\*7) "5%# ( 85 #: ) % 6#: . B% <&+ ) \*' # +18#05% : +9 #' \$(: (+%) 9 ' #: 0(\$? (%%&; \$) \*=. \$5>#%#0, 0 =#"#S&; ' \$ (0&, 5("9 = \$) ") 7(\*=) > . \$#0(%1. S ; #: (

I S)+#?(%) ( II

I BYBNBaDW@ TDGa@DOP SWXJB! BS

I "#++7%&( 8%57(%) 9 0&<\$##0, ' (\$7) \*+(%&&( 0 "5<+) 35; %) ?(, #"%#\*9"\*9 = ' #+? (%) 9-  
' . %="#0 H) HO \*"5"1) 3 %5\*"#9/(6# I \$#"#=#+5. L\$#0%) 0&<\$##0 0 H980 ) H990 6#: 5; ) . =585%&&( ' \$#3(%"%&&( \*#=\$5/(%) 9 0&<\$##0 ' \$) 0#: 9"\*9 "#+1=# : +9 \*0( : (%) 9.

Y5<+) 35 H. I "#++7%&( 8%57(%) 9 0&<\$##0 : +9 \*(\$& (0 "&\*. " SO<sub>2</sub> 0 6#: )

! "\$#%5	LS#0%) 0&<\$##0		I "#++7%&( 8%57(%) 9 0&<\$##0 : +9 20HO 6#: 5	I \$#3(%"%59 : #+9 *#=\$5/(%) 9 0&<\$##0 : +9 20HO 6#: 5 (<58#0&> 6#: - H990)
	H980	H990		
GS- (%) 9	H4H	73	73	0%
G0*"S) 9	400	9H	39	-57%
X(+5\$. *1	740	637	480	-25%
X(+16) 9	828	372	H06	-72%
X#+65\$) 9	2 050	2 008	856	-57%
25%5: 5 (0*(6# ' # *"\$5%() a/	4 643	3 236		
JJST (JJB! )	3 H35	H 873		
\#\$05") 9	H50	H80	70	-6H%
a(, *=59 J(*' . <+) =5	2 257	H 876	283	-85%
M5%) 9	450	H82	55	-70%
Z) %+9%: ) 9	584	260	HH6	-55%
Z\$5%3) 9	3 208	H 269	400	-68%
R(\$- 5%) 9	7 5H4	5 3H3	550	-90%
RS(3) 9	400	509	546	7%
S(%6\$) 9	H 633	H 0H0	550	-46%
OS+5%: ) 9	222	H78	42	-76%
O"5+) 9	3 757	H 65H	500	-70%
N5"0) 9	-	HH9	H07	-H0%
N); "(%, "(>%	0,39	0,H5	0,HH	-27%
N)"05	3HH	222	H45	-35%
N4=*(- <. \$6	24	H5	4	-73%
D): (\$+5%: &	490	202	50	-75%
D#\$0(6) 9	H37	53	22	-58%
I #+1, 5	4 H00	3 2H0	H 397	-56%
I #S". 65+) 9	266	362	H70	-53%
J(*' . <+) =5 Q#+: #05	308	265	H35	-49%
J. - &%) 9	H 055	H 3HH	9H8	-30%
J#**)>*=59 Z(: (\$53) 9 b/	7 H6H	4 460		
JJST	H 062	H H33	635	-44%
! +#05=) 9	780	543	HH0	-80%
! +#0(%) 9	235	H94	27	-86%
O*' 5%) 9 b/	2 959	2 H82	774	-65%
F 0(3) 9	49H	HH9	67	-44%
F 0(>35\$) 9	HH6	43	26	-40%
L=\$5) %5	3 849	2 782	H 457	-48%
! #(:) %%%#( 2#\$#+(0*"0#	4 863	3 73H	625	-83%
! #(:) %%%&( F "5"& G- (\$) =) c/				
@0\$#' (>*=#( *##</(*"0#	26 456	H6 436	4 059	-75%

5/ I #\*+( \$5") E) =53) ), ' \$) %9") 9) +) . "0(\$?: (%) 9 %5\*"#9/(6# I \$#"#=#+5 ) +) ' \$) \*#(:) % (%) 9 = %(- . 25%5: 5 ' \$(: \*"50+9(" ' "#++7%&( 8%57(%) 9 0&<\$##0 : +9 \*(\$& +) <# %5



JJST )

Y5<+) 35 2. I #"+#7%&( 8%57(%) 9 0&<\$#\*#0 : +9 #=#) : #0 58#"5 (0 "&\*. " NO<sub>2</sub> 0 6#:) )

! "#\$%5

LS#0%) 0&<\$#\*#0  
H990 6#:

I #"+#7%&( 8%57(%) 9 0&<\$#\*#0  
: +9 20H0 6#: 5

I \$#3(%"%59 : #+9 \*#=\$5 / (%) 9  
0&<\$#\*#0 : +9 20H0 6#: 5

Y5<+) 35 3. I #"#+#7%&(

Y5<+) 35 4. I #"+#7%&( 8%57(%) 9 0&<\$##\*#0 : +9 +(" . 7) ; #S65%) 7(\*=) ; \*#(:) %(> (0 "&\* . " NB! 0 6# : )

! "\$#%5	LS#0%) 0&<\$##*#0 H990 6# :	I #"+#7%&( 8%57(%) 9 0&<\$##*#0 : +9 20HO 6# : 5	I S#3(% "%59 : #+9 *#=\$5 / (%) 9 0&<\$##*#0 : +9 20HO 6# : 5 (<58#0&> 6# : - H990)
G\$- (%) 9	8H	8H	0%
G0*"S) 9	35H	H59	-55%
X(+5\$. *1	533	309	-42%
X(+16) 9	324	H44	-56%
X#+65S) 9	2H7	H85	-H5%
25%5: 5 a/	2 880		
\#S05") 9	H05	90	-H4%
a(, *=59 J(*' . <+)=5	435	220	-49%
M5%) 9	H78	85	-52%
Z)%+9%: ) 9	209	H30	-38%
ZS5%3) 9	2 957	H H00	-63%
R(S- 5%) 9	3 H95	995	-69%
RS(3) 9	373	26H	-30%
S(%6S) 9	205	H37	-33%
OS+5%: ) 9	H97	55	-72%
O"5+) 9	2 2H3	H H59	-48%
N5"0) 9	H52	H36	-HH%
N) ; "(%, "(>%	H,56	0,86	-45%
N)"05	H03	92	-HH%
N4=*(- < . S6	20	9	-55%

I \$)+#?(%) ( III

SWM@N@DDW[ JG[ BD J@RLNOJBSGDOP SWXJB! BS TGRJPTDOY@N@[ (JJST)

L=58&05(- &> %) ?( JJST ' \$) 0#: ) "\*9 : +9 3(+ ) %5\*"#9/ (6# I \$#"#=#+5:

JJST J#\*\*>\*=#> Z(: (\$53))

S A"# " \$5>#% 0; #: 9" Q. \$- 5%\*=59 #<+5\*"1, J(\*' . <+)=5 25\$ (+) 9, N(%)%6\$5: \*=59 #<+5\*"1  
(0=+4759 ! 5%="-I (" (\$<. \$6), I \*=#0\*=59 #<+5\*"1, D#06#\$#: \*=59 #<+5\*"1 ) 25+) %)%6\$5: \*=59 #<+5\*"1.  
RS5%) 35 JJST \*#0' 5: 5(" \* 6#\* . : 5\$\*"0(%%&- )

I \$)+#?(%) (IV

I J@M@NVDW@ TDGa@DOP 2BDU@DYJGUO[ !@JW S SWXJB! G\  
OT ! YGUOBDGJDW\ O! YBaDO2BS

H. J58: (+ A ' \$) - (%9("9 = ! "#\$%5- , 85) \*+=47(%) (- 25%5: &) ! #(:) %%%&; F "5"#0 G- (\$) =),  
\$58: (+ B ' \$) - (%9("9 = 25%5: ( ) \$58: (+ C ' \$) - (%9("9 = ! #(:) %%%&- F "5"5- G- (\$) =).

A. ! "#\$%&, 85) \*+=47(%) (- 25%5: &) ! #(:) %%%&; F "5"#0 G- (\$) =)

2. M+9 3(+) \$58: (+5 A, 85) \*+=47(%) (- "5<+) 3& 2) ' . %=" #0 HH) H2, ' \$(: (+1%#( 8%57(%) ( #8%575(" \*#: (\$?5 / ((\*9 0 #"; #: 9/); 6585; . \*"5%#0# = - 5=\* ) - 5+1%#( =#+) 7(\*"0# 658##<\$58%#6# 0(/ (\*"05, =# "#\$% ( % ( : #+?%# ' \$ (0&, 5"1\*9. @\*+) % ( . =58&05 ("\*9) % #6#, #%% \$5\*\*7) "&05 ("\*9 =5= - 5\*\*5 856\$98%) "(+9, ' \$); #: 9/59\*9 %5 (: ) % 3. #<C(- 5 #"; #: 9/); 658#0 (0 0): ( - 6/-<sup>3</sup>), ' \$) \*"5%: 5\$"%&; . \*+#0) 9; : +9 "(- ' (\$5". \$&) : 50+(%) 9 \* . ; #6# 6585 (#<C(- ' \$) 273,H5 K, HOH,3 =I 5). a"# =5\*5 ("\*9 \*#: (\$?5%) 9 =) \*+#\$#: 5 0 #"\$5<#"5%#- 658(, "# \*+( : ( " ) \*' #+18#05"1 8%57(%) 9, . =58&05(- &( 0 ' \$) 0#: 9/); \*9 %)? ("5<+) 35; : +9 =5?: #> =5" (6#\$) ) \*"#7%) =#0. D( : #' . \*=5 ("\*9 \$58<50+(%) 9 \* 3(+14 . - (%1, (%) 9 =#%3(%\$53) > 856\$98%) "(+> 0 #"; #: 9/); 6585; . T5' . \* =, #"5%#0=5 ) A=\*' +. 5"53) %%%#( #<\*+. ?) 05%) ( #<#\$ . : #05%) 9) \*+=4754"\*9.

3. 5/7(1146076(9" 182133%) (15- 964801B66958) T(17193480) D(112024067T6) 0#(0583) 19) @2 TTJ) /IT21T7T2

8. S \*+. 75 ( : ) \* = \$ ( " % & ; ) 8 - ( \$ ( % ) > \* # < + 4 : ( % ) ( % # \$ - 0 & < \$ # \* # 0 0 = 57 ( \* " 0 ( - ) % ) - 5 + 1 % # 6 #  
" \$ ( < # 0 5 % ) 9 : # \* " ) 6 5 ( " \* 9 , ( \* + )





B. 25%5: 5

H3. I \$(: (+1%&( 8%57(%) 9 : +9 #6\$5%) 7(%) 9 0&<\$#\*#0 : ) #=#\*) : 5 \*(\$& ) 8 %#0&; \*"#53) #5\$%&; ) \*"#7%)=#0 0 \*+(: . 4 / (> =5" (6#\$) ) \*"#53) #5\$%&; ) \*"#7%)=#0 <. : . " #' \$(: (+9"1\*9 %5 #\*%#0( ) - (4 / (>\*9 )%E#\$- 53) ) # "(: %#+#6) ) #6\$5%) 7(%) 9 0&<\$#\*#0 ) . \$#0%9; , 0=+4759 ' \$(: (+1%&( 8%57(%) 9 , ' \$) - (%9(- &( 0 : \$ . 6) ; \*"#5\$5; , ) \*+(: . 4 / (6# : #=-. - (%"#5: 25%5: \*#) > 0(\*"#) =, 75\*"1 I. M(' 5\$"5- (%"#=#. ?54 / (> \*\$(: & . S&<\$#\* & ' \$) 0&\$5<#=" ( ' + #0#> A%(\$6) ) - D53) #5+1%&( \$ . =#0#: 9 / ) ( ' \$) %3) ' & : +9 %#0&; \*"#53) #5\$%&; ) \*"#7%)=#0. H5 - 59 H993 6#: 5 (Canada Gazette, Part I. Department of the Environment. Thermal Power Generation Emissions - National Guidelines for New Stationary Sources May H5, H993. pp. H633-H638).

C. ! #(:) %(%&( F "5" & G- (\$) =)

H4. I \$(: (+1%&( 8%57(%) 9 : +9 #6\$5%) 7(%) 9 0&<\$#\*#0 : ) #=#\*) : 5 \*(\$& ) 8 %#0&; \*"#53) #5\$%&; ) \*"#7%)=#0 0 \*+(: . 4 / ) ; =5" (6#\$) 9; \*"#53) #5\$%&; ) \*"#7%)=#0 #' \$(: (+(%& 0 \*+(: . 4 / ) ; #=#. - (%"#5; :

- a) ' 5\$#6(%(\$5"#S%&( . \*"#5%#0=) A+("S#\*"53) > - ! 0#: E(: (\$5+1%&; %#\$- 5") 0%&; ' #+? (%) > 40 (! .Z.D.), \$58: (+ 60, ' #: \$58: (+ D) ) ' #: \$58: (+ Da;
- b) ' 5\$#6(%(\$5"#S%&( . \*"#5%#0=) 0 ' \$#- &, +(%%#- , =#- - (\$7(\*=#- ) . 7\$(: (%7(\*=#- \*("=#5; - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ Db, ) ) ' #: \$58: (+ Dc;
- c) . \*"#5%#0=) ' # ' \$#) 80#: \*"#0. \*(\$%#>=) \*+#"& - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ H;
- d) %(E"(' (\$(\$5<5" & 054 / ) ( . \*"#5%#0=) - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ J;
- e) ' (\$0) 7%59 0&' +50=5 - (: ) - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ P;
- f) ' (\$0) 7%59 0&' +50=5 3) %5 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ Q;
- g) ' (\$0) 7%59 0&' +50=5 \*0) %35 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ R;
- h) \*"#53) #5\$%&( ( 658#0&( " . \$<) %& - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ GG;
- i) #<\$5<#"=5 ' \$) \$#: %6# 6585 %5 \* . , ( - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ LLL;
- j) . \*"#5%#0=) \*?) 65%) 9 6#\$#: \*#) ; #"; #: #0 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ Ea, ) ' #: \$58: (+ Eb; )
- k) . \*"#5%#0=) : +9 \*?) 65%) 9 <#+1%) 7%&; /- (: ) 3) %\*#) ; /) %E(=3) #%&; #"; #: #0 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ Ec.

I \$) - (75%) (:

H/ Q#%) "#\$) %6 \*+(: . ( " ' #%) - 5"1 =5= #</ . 4 =5" (6#\$) 4 : (9" (+1%#\*") , 0=+4754 / . 4 0 \*(<9 ) 8- (\$%) ( 0&<\$#\*#0, \$5\*7(" <5+5%\*5 - 5\*\* ) " . : . B% - #? (" #\* . / (\*"0+9"1\*9 %(' \$(\$&0%# ) +) ' (\$) #: ) 7(\*#) .

I S)+#?(%)(V

I J@M@NVDW@ TDGa@DOP MNP SWXJB! BS B2! OMBS GTBYG OT  
! YGUOBDGJDW\ O! YBaDO2BS

H. J58: (+ A ' \$) - (%9("9 = ! "#\$%5- , 85) \*+=47(%) (- 25%5: & ) ! #(:)%(%&; F "5"#0 G- (\$) =),  
\$58: (+ B ' \$) - (%9("9 = 25%5: ( ) \$58: (+ C ' \$) - (%9("9 = ! #(:)%(%&- F "5"5- G- (\$) =).

A. ! "#\$%&, 85) \*+=47(%) (- 25%5: & ) ! #(:)%(%&; F "5"#0 G- (\$) =)

2. M+9 3(+ ) \$58: (+5 A ' \$(: (+1%#( 8%57(%) ( #8%575(" \*#: (\$?5/((9 0 #"; #: 9/); 6585; . \*5%#0#=#  
=#+) 7(\*"0# 658##<\$58%#6# 0(/ (\*"05, =# "#\$#( %(: #+?%# ' \$(0&, 5"1\*9. @\*+) %(. =58&05("9)%#6#,  
##\$ \$5\*\*7)"&05("9 =5= - 5\*\*5 856\$98%) "(+9, ' \$); #: 9/59\*9 %5 (: )% 3. #<C(- 5 #"; #: 9/); 658#0 (0  
0): (- 6/-<sup>3</sup>), ' \$) \*5%: 5\$"%&; . \*+#0) 9; : +9 "(- ' (\$5". \$&) : 50+(%) 9 \*.; #6# 6585 (#<C(- ' \$) 273,H5 K,  
HOH,3 =I 5). a"# =5\*5("9 \*#: (\$?5%) 9 =) \*+#\$#: 5 0 #"\$5<#"5%#%- 658(, "# \*+(: . (" ) \*' #+18#05"1  
8%57(%) 9, . =58&05(- &( 0 ' \$) 0#: 9/); \*9 %)?("5<+) 35; : +9 =5?: #> =5"(6#\$) ) \*"#7%)=#0. D(  
: #' . \*5("9 \$58<50+(%) 9 \* 3(+14 . - (%1, (% 9 =#%3(%"\$53) > 856\$98%) "(+(> 0 #"; #: 9/); 6585; .  
I \$(: (+1%&( 8%57(%) 9 #<&7%# #"%#\*9"\*9 = NO 0- (\*(" \* NO<sub>2</sub>, \*#0- (\*"%# %58&05(- &; NO<sub>x</sub>)  
0&\$5?5(- &; 0 0): ( NO<sub>2</sub>. T5' . \*., #\*"5%#0=5) A=\*' +. 5"53) ##%#( #<\*+. ?) 05%) ( #<#\$. : #05%) 9  
) \*+=4754"\*9.

3. Q#%) "#\$)%6 H/ 0&<\$#\*#0 : #+?(% #\*. /(\*"0+9"1\*9 0# 0\*(; \*+. 759;. ! #<+4: (%) ( ' \$(: (+1%&;  
8%57(%) > %(#<; #: ) - # ' \$#0(\$9"1 0# 0\*(; \*+. 759;. Q("#: & ' \$#0(\$=) \*#<+4: (%) 9 - #6. " 0=+475"1  
%(' \$(\$&0%&( ) +) ' (\$)#: 7(\*=) ( ) 8- (\$(% 9, ") ' #0. 4 5' \$#<53) 4 )+ ) +4<&(: \$. 6) ("(; %) 7(\*=)  
\$53) ##5+1%&(- ("#: &.

4. B"<#\$ ' \$#< 856\$98%) "(+(> ) ); 5%5+) 8, 5 "5=? ( A"5+##%&(- ("#: & ) 8- (\$(% )>, ' \$(: %58%57(%&(<  
: +9 =5+) <\$#0=) +4<&; ) 8- (\$) "(+1%&; \*) \*(-, : #+?%& #\*. /(\*"0+9"1\*9 0 \*###0("0) ) \*%#-\$- 5- ),  
. \*5%#0+(%&- ) @0\$#' (>\*=) - =#-)"("#- ' # \*5%: 5\$") 853) (@2! ) )+ Q(? : . %5\$#: %#>  
#\$65%) 853) (> ' # \*5%: 5\$") 853) ) (O! B). M# \$58\$5<#=") %#\$- @2! )+ ) O! B ' \$) - (%94"\*9  
%53) ##5+1%&( %#\$- &.

5. O8- (\$(% 9 0&<\$#\*#0 \*+(: . (" ' \$#0#:) "1 %5 %(' \$(\$&0%#> #\*%#0( 0 "(; \*+. 759; , =#6: 5 0&<\$#\*&  
NO

8. S \*. 75( ' (\$) #: ) 7(\*=) ; ) 8- (\$%) > \*#<+4: (%) ( %#\$- 0&<\$##0 0 =57(\*"0(

HO. L\*"5%#0+(%%&( %5 \*., ( ". \$<)%& 0%. "\$(%%(6# \*6#\$5%) 9 \* %#- )%5+1%#> (" '+#0#> - #/%#\*"14 <#+(( 50 QS": ' \$:( +1%&( 8%57(% 9 0&<\$#\*#0 NO<sub>x</sub>, 0&\$5?(%%&( 0 - 6/-<sup>3</sup> %.. (\*#: (\$?5%) ( O<sub>2</sub> - H5%), \*+(:. (" ' \$) - (%9"1 0 #"%#, (%)) =5=#>-+)<# #: %#> #": (+1%#> ". \$<)%&. L=58&05(- &( 0 "5<+) 3( 2 ' \$:( +1%&( 8%57(% 9 ' \$) - (%94"\*9 "#+1=# ' \$) %56\$. 8=5; , ' \$(0&, 54/); 70%.

Y5<+) 35 2. I \$:( +1%&( 8%57(% 9 =#%3(% "\$53) > NO<sub>x</sub> 0 0&<\$#\*5; ) 8. \*"5%#0+(%%&; %5 \*., ( ". \$<)% 0%. "\$(%%(6# \*6#\$5%) 9

> 50 . 0 I <sub>1</sub> (\$>?@ABCD EAF GAHIJ B QH@ABODZ, A?K>L>@D>ERZ HICGLCKICEO , * #)	! K>L>@JGA> MGCN>GO> (EP/E <sup>3</sup> G.Q.)
D#0&( ."5%#0=), ' \$) \$#: %&> 658 a/	50 b/
D#0&( ."5%#0=), ?) : =) ( "#' +) 05 c/	H20
! ./ (*"0. 4 /) ( ."5%#0=), 0*( 0) : & "#' +) 05 d/ - I \$) \$#: %&> 658 - K) : =#( "#' +) 0#	H50 200

a/ I \$) \$#: %&> 658 - A"# 0\*\$"(754 /)>\*9 0 ' \$) \$#: (- ("5%, \*#: (\$?5 /) > %(<#+(( 20% (' # #<C(-.))%(\$"%&; 658#0 ) : \$ . 6); \*\*"50+94 /); .

b/ 75 - 6/-<sup>3</sup> %.., (\*+):

- ". \$<)% 5 0%. "\$(%%(6# \*6#\$5%) 9)\*' #+18. ("\*9 0 \*)\*"(- (: +9 =#- <)% \$#05%#6# ' \$#) 80#: \*"05 " (' '+#0#> ) A+(=" \$) 7 (\*=#> A%(\$6); ) +)
- )\*' #+18. ("\*9 ' \$) 0#: 9 /)>\*9 0 : (>"0) (

H2. ! "53) #5\$%& ( : 0) 65" (+)

Y5<+) 35 4. I \$ ( : (+1%& ( 8%57 (%) 9 =#%3 (% "\$53) > NO<sub>x</sub> 0 0&<\$#\*5; ) 8 % #0&; \* "53) #5\$%&;  
: 0) 65" (+>

. A F GAHIJ, I>ZGA@APOD, H?>YOUOV CYOD IA?@OBC	! K>L>@JGA>MGCN>GO> <u>a</u> / (EP/E <sup>3</sup> G.Q.)
M0) 65" (+) * ) *=\$#0&- 85?) 65%) (- (=5\$<4\$5"# \$%&(), 4-"5=" %& (, > H QS".	
- M0) 65" (+), \$5<#"54 / ) (%5 <(: %&; - 32. 9457- 1Tf270D0. 017. 75TfTc . 20	

B.



ii) =5<) %& 6\$. 8#0&; 50"#- #<) +(>, #' \$(: (+9(- &( =5= 75\*"1 "\$5%\*' # \$"%#6#



f) "\) - ) 7(\*=59 7) \*"#=5" #8%575(" +4<#> ' \$#- &, +(%%&> ) +) =#- - (\$7(\*=) > ' \$#3(\*\* \* ) \*' #+18#05%) (- NB! %5 #<#\$. : #05%) : +9 7) \*"#=) #: (? : &, "=5%(> ) +) 5%5+#6) 7%&; ' #"\$(<)" (+1\*#); "#05\$#0, 85) \*="+47(%) (- \$. 7%#6# . : 5+(%) 9 ' 9" (%) 856\$98% (%) > 0 "(=\*") +1%#> ) , 0(>%#> ' \$#- &, +(%%#\*");

g) "I \$#) 80#: \*"#0# ' #=\$&") >, +5=#0, =\$5\*#=#) =+(9" #8%575(" ' \$#) 80#: \*"#0# \*\$(: \*"#0 : +9 ' #=\$&") >, +5=#0, =\$5\*#=#, =+((0) ' \$#- (? . "#7%&; ; ) -) 7(\*=); \*#(:) % (%) >, (\*+) #%) ) 86#"50+) 054"\*9 %5 #: %#- ) "#- ?( #<#\$. : #05%) ' . "(- \*- (, ) 05%) 9 =\$5\*)" (+(>, \*- #+) \*098. 4 /); 0(/ (\*"#0 \* #S65%) 7(\*=) - ) \$5\*"#0#\$)" (+9- ) +) : \$. 6) - ) \*# : (\$?5 / - ) ); 0(/ (\*"#05- ) . S A". =5" (6#\$) 4 "5=? ( 0=+4754"\*9 : ) \*' (\$6) \$#05%) (, ' \$(: 05\$)" (+1%#( : ) \*' (\$6) \$#05%) (, ' \$) : 5%) ( - 5" (\$) 5+5- #' \$(: (+(%%#> 098=#\*") ) +) 30("5) . ' 5=#0=5 6#"#0&; ) 8: (+) > 0 "5\$. ;

h) "I (75"5%) (" #8%575(" +4<#> ' \$#3(\*\* 0#\*' \$#) 80(: (%) 9 "(=\*"5) / +) ) 8#<\$5? (%) >, 0 ; #: ( =#"#\$#6# \* ' (75"%#> E#\$- & =\$5\*=5 ' (\$(%#\*) "\*9 %5 0#\*' \$) %) - 54 / . 4 ' #0(\$; %#"1, ) ' \$) - (%9("9 = \*+(. 4 /) - ' #: ' \$#3(\*\*5- :

i) E+(=\*#6\$5E) 9: ' \$#3(\*\* ' (75"5%) 9 \* A+5\*" ) 7%&; ' (75"%&; E#\$- ) 8 \$ (8) %& ) +)

E#"# #+) - (\$#0, %5 =#"#\$&; ' (75"%&( A+(- (%& %5; #: 9"\*9 0&, ( ' \$#<(+1%&;

A+(- (%"#0; ' \$) A"#- ) \*' #+18. ("9 " (= 759 #6%) #TT11T0. 26T28011T0. 27170TD0840\*9021T0. 0761

v) \$#"53) #%%59 "\$5E5\$("%59 ' (75"1: ' \$#3(\*\* ' (75"5%) 9 \* \$. +##%#> ' #: 57(>, ' \$) =#"#\$#-  
 =\$5\*=5 0: 50+) 05("9 0 0#\*' \$)%) - 54 / . 4 ' #0(\$; %#"1 7(\$ (8 ' #)\$) \*". 4 ' (75"% . 4  
 E#\$- . , 6: ( 8#%5 ' (75"54 /); A+(- (%"#0 #="\$&"5, 5 ' \$#<(+1%& ( . 75\*"=) ) 8#+) \$#05%&;  
 0 A"#- ' \$#3(\*\* ( ) \*' #+18. ("\*9 " (= . 759 =\$5\*=5, 0&\* &; 54 / 59 "#+1=# <+56#: 5\$9  
 ) \*' 5\$ (%) 4. J. +##%59 ' #: 575 #8%575(" , 7"# - 5" (\$ ) 5+, %5 =#"#\$#- ' \$#) 80#: ) "\*9 ' (75"1,  
 ' #: 5 ("\*9 = - 5, )% ( \* \$. +##%5, 5 % ( 0 0 ) : ( #": (+1%& ; +) \*"#0;

vi) +5- )%) \$#05%) ( , \*0985%%#( \* ' \$#3(\*\*#- ' (75"5%) 9: \*+=() 05%) ( : 0. ; ) +) <#+(( 6) <=);  
 - 5" (\$ ) 5+##0 : +9 ' #+. 7(%) 9 \*+#) \*"&; - 5" (\$ ) 5+##0; )

vii) +5=) \$#05%) (: ' \$#3(\*\*, \* ' #- # / 14 =#"#\$#6# %5 6) <=) > - 5" (\$ ) 5+ %5%#\*) "\*9 \*+#> +5=5  
 ) +) =+(4 / (6# 0 (/ (\*"05 : +9 : 5+1%(>, (6# \*+=() 05%) 9 . ' 5=#0#7%#6# - 5" (\$ ) 5+5;

i) "I \$#) 80#: \*"#0# E5\$- 53(0") 7(\*=); ' \$#: . ="#0" #8%575(" ; ) - ) 7(\*=) > \*)%" (8,

% 5023(5) /TT25 1 Tf 5.8696 0 T770 Tc ( )Tj /TT1 1 Tf 0.2391 0 TD0.0017 Tc [(;1Tj /5)'("2(2)8(?)\*(.8,.)J /T2.8

ii) %5%(\*(% )9 ' (\$0#%575+1%#6# ' #=\$&") 9 %5 ' #0(\$; %##\*"1 : #S#?%&; "\$5%\*' #S"%&; \*\$(: \*"0 )+ ) ); 75\*" (> \* ' #- #/14 ) \*' #+18. (- &; : +9 #=#%75" (+1%#> #: (+=) - 5" (\$ )5+#0 0 "#- \*+. 75(, =#6: 5 A") #' (\$53)) % ( #\*. / (\*"0+94"\*9 %5 ' (\$0#%575+1%#> ' \$#) 80#: \*"0(%%#> +)%)) ; )+)

iii) %5%(\*(% )9 ' #=\$&") > %5 ' #0(\$; %##\*"1 ' \$) 3(' #0 (0=+4759 ' #+. ' \$) 3(' &);

n) "I \$#' )" =5 : (\$ (09%&&; ' #0(\$; %##\*" (>" #8%575(" +4<#> ' \$#3(\*\* ' \$#') "&05%) 9 : \$ (0(\*) %& ; =#%\* (\$05%"5- ); H

o) "! "5%: 5\$"%&( . \*+#0) 9" #8%575(" " (- ' (\$5" . \$ . 273,H5 K ) : 50+(%) ( HOH,3 =I 5;

p) DQNB! 0=+4754" 0\* ( #S65%) 7(\*=) ( \*#(:) %%) 9, =S#- ( - ("5%5, =#"#\$&( ' \$) "(- ' (\$5" . \$ ( 273,H5 K ) - (4" : 50+(%) ( %5\*&/ (%%#6# ' 5\$5 % ( - (%(( 0,0H =I 5 ) +) =#"#\$&( ' \$) : 5%&&; =#%=\$("%&; . \*+#0) 9; ) - (4" \*# ' #"50) - . 4 + (" . 7(\*"1;

q) " - (4TD0Tc (: &- #0042D- 0. 48>] TJ/TT21T#2. 180TD0Tc () Tj/TT11Tf 43. 2826- 1. 3043TD0. 0"\$.) 9

v) "D#\$- 5+1%59 A=\*' +. 5"53) 9" #8%575(" 0\*( "\*"5:)) A=\*' +. 5"53)), =S#- ( #' (\$53) > ' . \*=5, #\*"5%#0=) ) (" ; %) 7(\*=#6# #<\*+. ?) 05%) 9 #<#\$. : #05%) 9;

w) "SS(: %& (: +9 8: #S#019 7(+ #0(=5 0(/ ("05" ' #: \$58: (+94"\*9 %5 : 0( =5"(6#S))):

i) 65+#6(%) 8) \$#05%%&( NB! , #' \$9? (%%&( \* 0#8- #?%#> #' 5\*%#\*"14 %(<\$5") - &; ' #\*+(: "\*"0) >;

ii) #' 5\*%&( 0(/ ("05, =#"#\$&( 90+94"\*9 =5%3(\$#6(%%&-) , - . "56(%%&-) ) +) 0#8: (>\*"0. 4/) - ) %5 \$(' \$#: . =) 0%. 4 E. %=3) 4 0(/ ("05- ) +) =#"#\$&( - #6. " 0&8&05"1 85<#+(05%) ( \$5=#- , - #6. " 0&8&05"1 %5\*+(: "\*"0(%%&( 6("%) 7(\*=) ( %5\$. , (%) 9, - #6. " 0&8&05"1 85<#+(05%) ( \$5=#- ' \$) 0: &; 5%), - #6. " "#\$5?5"1\*9 %5 ' +#: #0) "#\*" ) +) - #6. " ' \$) 7) %9"1 0\$(: %(\$#?: (%%#- . \$(<(%=. .

4. M#+?%& . : #0+("0#\$9"1\*9 \*+(: . 4/) ( "\$(<#05%) 9:

a) : #+? (% #\* . / ("0+9"1\*9 - #%) "#\$) %6 H/ 0&<\$#\*#0 DQNB! ) \*#<+4: (%) ( ' \$(: (+1%&; 8%57(%) > : #+?%# ' \$#0(\$9"1\*9. Q("#: & ' \$#0(\$=) - #6. " 0=+475"1 %(' \$( \$&0%&( ) +) : ) \*=\$("%&( ) 8- (\$ (%) 9, " ) #0. 4 5' \$#<53) 4 ) +) +4<&( : \$ . 6) ( (" ; %) 7(\*=) \$53) #5+1%&( - ("#: &; = "#- . ? ( #%) : #+?%& <&"1 A=#%#- ) 7(\*=) \$("%5<(+1%&-) );

b) =#%3("%\$53) ) 856\$98%) "(+(> 0#8: . ; 5 0 658##"0#: %&; =5%5+5; : #+?%& ) 8- (\$9"1\*9 \* \*#<+4: (%) ( - ' \$) %3) ' 5 \$(' \$(8("%5") 0%#\*" ) . B"<# \$ ' \$#< 0\* ( ; 856\$98%) "(+(> 0#8: . ; 5) ) ; 5%5+) 8, 5 "5=? ( A"5+##%&( - ("#: & ) 8- (\$%) >, ' \$(: %58%57(%%&( : +9 =5+) <\$#0=) +4<&; ) 8- (\$) "(+1%&; \*) \*"( - , : #+?%& #\* . / ("0+9"1\*9 0 \*##"0("0) ) \*# \*5%: 5\$"5- ) , . \*5%#0+(%&-) @0\$# ' (>\*) - =#- ) ("#- ' # \*5%: 5\$") 853) (@2! ) +) Q(? : . %5\$#: %#> #65%) 853) (> ' # \*5%: 5\$") 853) (O! B). M# \$58\$5<#=") \*5%: 5\$"#0 @2! ) +) O! B ' \$) - (%94"\*9 %53) #5+1%&( \*5%: 5\$"&;

c) (\*+) "\$(<. ("\*9) 8- (\$9"1 . \$#0(%1 0&<\$#\*#0 DQNB! , (6#) 8- (\$%) (\*+(: . (" ' \$#0#: ) "1 %5 %(' \$( \$&0%#> #\*%#0( 0 " ( ; \*+. 759; , =#6: 5 0&<\$#\*#0 DQNB! ' \$ (0&, 54" HO =6 #</ (6# #65%) 7(\*=#6# . 6+(\$#: 5 (BBL) 0 75\* 0 0&"9?%#> \*) \*"( - (%5 0&; #: ( . \*5%#0=) ' # \*#=\$5 / (%) 4 0&<\$#\*#0) 0\$(- 9 A=\*' +. 5"53) ) ' \$ (0&, 5(" 200 75\*#0 0 6#: . D5 0\* ( ; #\*"5+1%&; . \*5%#0=5; "\$(<. ("\*9 ' \$#0#: ) "1 =5= - ) % ) - . - : ) \*=\$("%&( ) 8- (\$ (%) 9. M+9 . : #\*"#0(\$%) 9 E5="5 \*#<+4: (%) 9 - #?%# ' \$) - (%9"1 \*0#) \*#<\*0(%%&( ' #: ; #: & ' \$) . \*+ #0) , 7"# #%) : 54" \*"#+1 ? ("#7%&( \$ (8. +1"5"&;

d) 0 \*+. 75( %(' \$( \$&0%&; ) 8- (\$%) > \*#<+4: (%) ( %\$- 0&<\$#\*#0 0 =57(\*"0(-) %) - 5+1%#6# "\$(<#05%) 9 #<(\*' (7) 05("9 0 "#- \*+. 75( , (\*+) \*\$(: (%(\*. "#7%#( 8%57(%) ( %(' \$( (0&, 5(" ' \$(: (+1%#6# 8%57(%) 9 (\*+) {7500500&7T%}4(57(%)()6J/TT2 If5.63 0 TD0 Tc( )Tj/TtHf6.2043 TD-#(8

e) 0 \*+. 75 (: ) \*\$("%&; ) 8- (\$%) > \*#<+4: (%) ( %#\$- 0&<\$##\*#0 0 =57(\*"0( - )%) - 5+1%#6#  
"\$(<#05%) 9 #<(\*' (7) 05("9 0 "#- \*+. 75(, (\*+) \*\$(: %(( 8%57%) (, ' #+. 7(%%#( 0 ; #: ( \*%9") 9 0\* (;  
' # =585%) >, % ( ' \$ (0&, 5 (" ' \$ (: (+1%#( 8%57%) ( ) (\*+) %) =5=# ( \*\$ (: %(75\*#0#( 8%57%) ( % ( ' \$ (0&, 5 ("  
' \$ (: (+1%#6# 8%57%) 9 %5 H50%. M+9 . : #\*"#0(\$%) 9 E5="5 \*#<+4: (%) 9 - #?%# ' \$) - (%9"1 \*0#)  
\*#<\*0(%%&( ' #: ; #: & ' \$) . \*+#0)), 7"# #%) : 54 " \*"#+1 ?( "#7%&( \$ (8. +1"5"&;

f) 0 3(+9; - )% - ) 853)) #<C(- 5 0&<\$##\*#0 DQNB! 0# 0\$(- 9 #' (\$53) > ' . \*=5 ) #\*"5%#0=), 5  
"5=? ( ' \$) #" =+##(%) ) #" %#\$- 5+1%#6# \$ (?) - 5 A=\*' +. 5"53)) \*+ (: . (" ' \$) %) - 5"1 0\* ( % (#<; #: ) - & (   
- (\$& ' \$ (: #\*"#\$#?%#\*")

7. I \$(: (+1%&( 8%57(%) 9 : +9 0&<\$##0 NB! : +9 =5"(6#\$) > ) \*"#7%) =#0, . =585%%&; 0 ' . %=" ( 3, : #+?%& <"1 "5=) -), =5= A"# . =585%# 0 ' . %="5; 8-2H %) ? (. )

8. \ \$5%(%) ( ) \$5\*' \$(: (+(%)) <(%8) %5:

Y5<+) 35 H. I \$(: (+1%&( 8%57(%) 9 =#%3(%"\$53) > DQNB! 0 0&<\$#\*5; , #<\$58. 4 /); \*9 ' \$) ; \$5%(%) ) \$5\*' \$(: (+(%)) <(%8) %5, 85

HH. I \$#3(\*\*& %5%\*(%) 9 ' #=\$&") > (%5 - ("5++ ) 7(\*=) ( ) ' +5\*" - 5\*\*#0&(' #0(\$; %#\*" ) + (6=#0&; 50"#- #< ) + (>, =5<) % 6\$. 8#0&; 50"#- #< ) + (>, 6\$. 8#0&; 50"#- #< ) + (>, 50"#<. \*#0, : (\$ (09%& ( ' #0(\$; %#\*" ) ):

Y5<+) 35 4. I \$ ( : (+1%& ( 8%57 (%) 9 . : (+1%&; 0&<\$#\*#0 DQNB! , #<\$58. 4 / ) ; \*9 0 ; #: ( ' \$#3 (\*\*#0 %5%\*(%) 9 ' #=\$&") > 0 50"#- #< ) +1%#> ' \$#- &, + (%%#\*" )

. AFGAHIJ, I>ZGA@APOD, LA?A@GOI>@JGR> ZCKCVI>KOHIOVO	! AKAPABA>MGCN>GO>L@D KCHZALC KCHIBAKOI>@D ( . P/PAL) <u>a</u> /	! K>L>@JGA>MGCN>GO> <u>b</u> /L@D AWF>PA VA@ON>HIBC BRWKAHAB - . &#*
D#0& ( . *"5%#0=), %5%*(%) ( ' #=\$&") > %5 + (6=#0& ( 50"#- #< ) + ) (MH, M2)	> H5 ( ) > 5 000 #<\$5<#"5%&; (: ) % 3 0 6# : )	45 6 DQNB! /- <sup>2</sup> ) + ) H,3 =6 %5 (: ) % 3. ) 33 6 DQNB! /- <sup>2</sup>
! . / (*"0. 4 / ) ( . *"5%#0=), %5%*(%) ( ' #=\$&") > %5 + (6=#0& ( 50"#- #< ) + ) (MH, M2) D#0& ( ) * . / (*"0. 4 / ) ( . *"5%#0=), ' #=\$&") > %5 +	> H5 ( ) > 5 000 #<\$5<#"5%&; (: ) % 3 0 6# : )	60 6 DQNB! /- <sup>2</sup> ) + ) H,9 =6 %5 (: ) % 3. ) 4H 6 DQNB! /- <sup>2</sup>





\*=59 7) \*"=5:

I \$(: (+1%&( 8%57(%) 9 =#%3(%"\$53) > DQNB! 0 0&<\$#\*5; , #<\$58. 4 /); \*9 ' \$)  
 ;) -) 7(\*=#> 7) \*"=(

AHIJ, I>ZGA@APOD, JGR> ZCKCVI>KOHIOVO	! AKAPABA> MGCN>GO> L@D KCHZALC KCHIBAKOI>@D ( . P/PAL)	! K>L>@JGA> MGCN>GO>
"0. 4 /) ( . *"5%#0=)	0	20 6 DQNB! /=6 a/

S(: (+1%#( 8%57(%) ( #</ (6# =#+) 7(\*"05 0&<\$#\*#0 DQNB! 0&\$5?5(\*"9 0 0): ( #"%, (%) 9 - 5\*\*&  
 E#\$- ( 0&<\$#\*#0 = - 5\*\* ( #7) / (%#6#) 0&\*. , (%#6# ' \$#: . ="5.

#: \*"0# ' #=\$&") >, +5=#0, =\$5\*#=) ==+(9):

I \$(: (+1%&( 8%57(%) 9 =#%3(%"\$53) > DQNB! 0 0&<\$#\*5; , #<\$58. 4 /); \*9 ' \$)  
 ' \$#) 80#: \*"0( ' #=\$&") >, +5=#0, =\$5\*#=) ==+(9

>ZGA@APOD, >@JGR> OHIOVO	! AKAPABA> MGCN>GO> L@D KCHZALC KCHIBAKOI>@D ( . P/PAL)	! K>L>@JGA> MGCN>GO> (EP C/E <sup>3</sup> G.Q.)	! K>L>@JGA> MGCN>GO> L@D BRWKAHAB - . &# * BG> HOHI>ER PCMAANOHI VO (B % AI OHZALGAPA VA@ON>HIBC KCHIBAKOI>@D)
"0. 4 /) (	H00-H 000	H50 a/	5 a/ c/
	> H 000	H50 b/	3 b/ c/

c , 7Tc (H) Tj/T8%R

H5. I (75"5%) ( (E+(=\*#6\$5E) 9, \$. +##%59 #E\* ("59 ' (75"1 \* ) \*' #+18#05%) (- =\$5\*#=, 85=\$( ' +94 / ); \*9 ' #: : (>\*0) (- %56\$(05, 0&' . \*=) 8: 5" (+1\*=#>

H7. I (\$(\$5<#"=5 %5". \$5+1%#6# )+ ) \* )%"(") 7(\*=#6# =5. 7. =5:

Y5<+) 35 HH. I \$(: (+1%&( 8%57(%) 9 =#%3(%"\$53) > DQNB! 0 0&<\$#\*5; , #<\$58. 4 /); \*9 ' \$)  
' (\$(\$5<#"=(

H9. I \$#3(\*\*& A="S5=3)) \$5\*" "(+1%#6# - 5\*+5) ?) 0#"#6# ?) \$5) \$5E)%53)) \$5\*" "(+1%#6# - 5\*+5):

Y5<+) 35 H3. I \$(: (+1%&( 8%57(%) 9 =#%3(% "\$53) > DQNB! 0 0&<\$#\*5; , #<\$58. 4 /); \*9



g) 2! QB! . `=#+##6) 7(\*=) >=#: (= \* ' \$5=) 7(\*=); - (\$ : +9 . +50+) 05%) 9 ' 5\$#0 ' \$) 85' \$50=(  
"\$5%\*' #S"%&; \*S(: \*"0 %5 <(%8#=#+##%=5; ) : \$ . 6); #<C(="5; ' # \$5\*' S(: (+(% 4 <(%8)%5. ( ` "5' II).  
G' \$(+1 H995 6#: 5. PNHH84;

h) 2! QB! . `=#+##6) 7(\*=) >=#: (= \* ' \$5=) 7(\*=); - (\$ ' # . - (%1, (% 4 0&<\$##\*#0  
\$5\*"0#\$) "(+(> ' \$) #<(8?) \$) 05%) ) %5 =#- - (\$7(\*=); ) ' \$#- &, +(%%&; #<C(="5;. O4%1 H995 6#: 5.  
PNHH82;

i) 2! QB! . `=#+##6) 7(\*=) >=#: (= \* ' \$5=) 7(\*=); - (\$ ' # . - (%1, (% 4 0&<\$##\*#0  
\$5\*"0#\$) "(+(> ' \$) #<(8?) \$) 05%) ) %5 =#- - (\$7(\*=); ) ' \$#- &, +(%%&; #<C(="5;. O4%1 H995 6#: 5.  
PNHH82;

j) 2! QB! . `=#+##6) 7(\*=) >=#: (= \* ' \$5=) 7(\*=); - (\$ ' # . - (%1, (% 4 0&<\$##\*#0  
\$5\*"0#\$) "(+(> ' \$) #<(8?) \$) 05%) ) %5 =#- - (\$7(\*=); ) ' \$#- &, +(%%&; #<C(="5;. O4%1 H995 6#: 5.  
PNHH82;

k) 2! QB! . D53) #5+1%&(%#\$- & %5 \*#: (\$?5%) (+(" . 7); #S65%) 7(\*=); \*#(:) % (%) > : +9  
' \$#: . ="#0, ' S(: %58%57(%%&; : +9 %5%(\* % 9 ' #=\$&") > ) ' #=\$5\*#) 50"#- #<)+(> 0 =#- - (\$7(\*=#- )  
' \$#- &, +(%%#- \*(="#\$5; 0 25%5: (. G06. \*" H997 6#: 5. PNH288.

C. ! #(:) % (%) & ( F "5" & G- (\$)=)

23. I \$(: (+1%&( 8%57(% 9 : +9 #6\$5%) 7(% 9 0&<\$##\*#0 NB! ) 8%#0&; \*"53) #5\$S%&; ) \*"#7%) =#0 0  
\*+(: . 4 / ); =5"(6#\$) 9; \*"53) #5\$S%&; ) \*"#7%) =#0 #"\$5? (%& 0 . =58&05(- &; %) ? ( : #=. - (% "5; :

a) (-=#\*" ) : +9 ; \$5%(% 9 ?) : =); % (E" (' \$#: . ="#0 - ! 0#: E(: (\$5+1%&; %#\$- 5") 0%&;  
' #+##? (% ) > 40 (! .Z.D.), \$58: (+ 60, ' #: \$58: (+ K ) ' #: \$58: (+ Ka;

b) (-=#\*" ) : +9 ; \$5%(% 9 +(" . 7); #S65%) 7(\*=); ?) : =#" (> - ! .Z.D. 40, \$58: (+ 60,  
' #: \$58: (+ Kb;

c) % (E" (' (\$ (6#%&& ( 850#: & - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ J;

d) ' #=\$&") (' #0(\$; %#" (> - ("5++) 7(\*=#> - (<(+ ) - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ EE;

e) ' #=\$&") (' #0(\$; %#" (> + (6=#0&; 50"#- #<)+(> ) + (6=); 6\$. 8#0) =#0 - ! .Z.D. 40,  
\$58: (+ 60, ' #: \$58: (+ MM;

f) \$#"53) #5%59 6+. <#=#9 ' (75"1 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ QQ;

g) #' (\$53) ' # ' #=\$&§) 4 ' #0(\$; %#" (> 7. 0\*"0) "(+1%&; = : 50+(%) 4 +(% ) 9\$+&=#0 -  
! .Z.D. 40, \$58: (+ 60, : 50+(%) 4=D2 9(\*0 Tc.0006 Tc-0.0005 Tc:)-(D)Tj/T8+Tf0.f0.25 0 TD(D)Tj/TT2 Πf9\*1Πf8:(7 0

- i) =\$. ' %&("(\$-) %5+& : +9 ; \$5%(%) 9 <(%8) %5 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ XX;
- j) ' \$#) 80#: \*"#0# \$(8) %#0&; , ) % - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ BBB;
- k) ' \$#) 80#: \*"#0# ' #+) - (\$#0 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ DDD;
- l) ' #=\$&") (6) <=) ; 0) %)+#0&; ) . \$("5%#0&; ) 8: (+) > ) ' (75"5%) (- ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ FFF;
- m) . "(7=) ) 8%(E"(' (\$(\$5<5"&054 / (6# #<#\$. : #05%) 9 ) \*) \*"( - \*"#7%&; 0#: -! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ GGG ) ' #: \$58: (+ QQQ;
- n) ' \$#) 80#: \*"#0# \*) %" (" ) 7(\*=#6# 0#+#=#5 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ HHH;
- o) %(E"(' \$#: . ="& : +9 ; ) - ) 7(\*=#> 7) \*") =) - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ JJJ;
- p) . \*"#5%#0=) ' # ' (\$(\$5<#"=( ' \$) \$#: %#6# 6585 %5 \* . , (- ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ KKK;
- q) . "(7=) \* #<#\$. : #05%) 9 ! B2QO, 0#8: . , %&( #=) \*+) "(+1%&( . \*"#5%#0=) # ' (\$53)) ' # : ) \*") ++93)) ) \$(5="#\$%&(' \$#3(\*\*& - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ VV, ' #: \$58: (+ III, ' #: \$58: (+ NNN ) ' #: \$58: (+ RRR;
- r) ' #=\$&") (- 56%) "%#> +(%"& - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ SSS;
- s) %5%(\*(%) (' #=\$&") > 0 ' \$#- &, +(%%#\*") - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ TTT;
- t) ' #+) - (\$%#(' #=\$&") (0\*' #- #65" (+1%&; #<C(=#0 - ! .Z.D. 40, \$58: (+ 60, ' #: \$58: (+ VVV.

I \$) - (75%) (:

H/ Q#%) "#\$) %6 \*+( : . (" ' #%) - 5"1 =5= #</ . 4 =5" (6#\$) 4, 0=+4754 / . 4 0 \*(<9) 8- (\$%) ( 0&<\$##0, \$5\*7(" <5+5%\*5 - 5\*\* ) " : . B% - #? (" #\* . / (\*"0+9"1\*9 %(' \$(\$&0%#) +) ' (\$) #: ) 7(\*=) .

S0(: (%)(

H. D5\*"#9 / (( : #<50+(%) (= ' \$) +#? (%) 4 # ' \$(: (+1%&; 8%57(%) 9; : +9 0&<\$#\*#0 %(- ("5%#0&; +(" . 7); #S65%) 7(\*=); \*#(:) %(> (DQNB! )) 8 \*"53) #5\$%&; ) \*"#7%)=#0 90+9 ("9 \$ .=#0#: \*"#0#- ' # \$ (5+) 853) ) ' +5%5 \$ (6. +) \$#05%) 9 ) \*' #+18#05%) 9 \$5\*"0#\$) "(+(>. S %(- . =58&054"\*9 ' \$) %3) ' &, =#"#S&( \*+(: . ( ' ' \$) - (%9"1 ( ' . %= " 2), 5 "5=? ( ' \$) 0#: ) \*9 #\*%#05 : +9 \$5\*7 ("5 <5+5%\*5 - 5\*\* ( ' . %= " 3) ) . =58&054"\*9 "\$ (<#05%) 9, ' \$(: C90+9(- &( = ' \$#0(\$= ( \*#<+4: (%) 9 ( ' . %= " 4).

I \$) %3) ' &

2. I +5% \$ (6. +) \$#05%) 9 ) \*' #+18#05%) 9 \$5\*"0#\$) "(+(> ' \$(\*+(: . (" \*+(: . 4 /) ( 3(+):

- a) ' \$#0(\$=5 \*#<+4: (%) 9, \*E#\$- . +) \$#05%%59 0 ' \$) +#? (%) ); )
- b) 0&90+(%) ( : 5+1%(>, ) ; 5+1"(\$%5") 0%&; 05\$) 5%"#0 \*#=#5 / (%) 9 0&<\$#\*#0.

B' \$(: (+(%)) 9

3. I \$) 0#: 9 /) (\*9 %) ? ( # ' \$(: (+(%)) 9 \*+. ?5" #\*%#0#> : +9 \$5\*7 ("5 <5+5%\*5 - 5\*\*.

5) O\*; #: %&( =#+) 7(\*"05 #S65%) 7(\*=); \$5\*"0#\$) "(+(>:

IH. 2#+) 7(\*"0# #S65%) 7(\*=); \$5\*"0#\$) "(+(>+) ) ; =#+) 7(\*"0# 0 85=. ' 5(- &; =#- ' #%(%"5; , =#"#S&( ) \*' #+18. 4"\*9 0 =57(\*"0( ) \*; #: %#6# - 5" (\$) 5+5 : +9 : 5%#6# ' \$#3(\*"5 0 " (7(%) ( ' (\$) #: 5, 85 =#"#S&> \$5\*\*7) "&05("9 <5+5%\* - 5\*\*.

I2. 2#+) 7(\*"0# #S65%) 7(\*=); \$5\*"0#\$) "(+(>+) ) ; =#+) 7(\*"0# 0 =#- ' #%(%"5; , =#"#S&( \$ (= ' (\$) \$ . 4"\*9) +) ' #0"#S%# ) \*' #+18. 4"\*9 0 =57(\*"0( ) \*; #: %#6# \$5\*"0#\$) "(+9 0 : 5%#6# - ' \$#3(\*" ( . (J(3) \$=. +) \$. (- &> \$5\*"0#\$) "(+1 . 7) "&05("9 =5?: &> \$58, =#6: 5 #%) ) \*' #+18. ("9 0 =5=#>-+) <# # ' (\$53) .)

b) S&: (+) 0, ) (\*9 #S65%) 7(\*=) ( \$5\*"0#\$) "(+):

OH. S&<\$#\* & DQNB! 0 #"; #: 9 /); 6585; .

O2. I #" (\$) #S65%) 7(\*=); \$5\*"0#\$) "(+(> 0 0#: ( \* . 7("#- , 0 \*+. 75( %(<; #: ) - #\*\*), #7) \*"=) \*"#7%&; 0#: ' \$) \$5\*7("5; ' # ' . %= " . O5.

O3. 2#+) 7(\*"0# #S65%) 7(\*=); \$5\*"0#\$) "(+(>, =#"#S&( #"54"\*9 0 =57(\*"0( 856\$98%94 /); ) +) \*"#5" #7%&; =#- ' #%(%"#0 0 ' \$#: . = "5; , ' #+. 75(- &; 0 \$ (8. +1"5" (=5=#6#-+) <# ' \$#3(\*"5.



O4. D(. + #0 + (%& ( 0 & < \$ # \* & # \$ 65 % ) 7 ( \* = ) ; \$ 5 \* " 0 # \$ ) " ( + ( > 0 5 " - # \* E ( \$ . . 2 % ) - # " % # \* 9 " \* 9  
0 & < \$ # \* & 0 \$ ( 8 . + 1 " 5 " ( # < / ( > 0 ( % " ) + 93 ) ) 0 ' # - ( / ( % ) 9 ; , ) 8 = # " # \$ & ; 0 # 8 : . ; ' # \* " . ' 5 ( " 0  
# = \$ . ? 5 4 / . 4 \* \$ ( : . 7 ( \$ ( 8 # = % 5 , : 0 ( \$ ) , 0 ( % " ) + 93 ) # % % & ( ) 5 % 5 + # 6 ) 7 % & ( # " 0 ( \$ \* " ) 9 .

O5. B \$ 65 % ) 7 ( \* = ) ( \$ 5 \* " 0 # \$ ) " ( + ) / + ) # \$ 65 % ) 7 ( \* = ) ( \* # ( : ) % ( % ) 9 , = # " # \$ & ( " ( \$ 8 4 " \* 9 0  
\$ 8 1 " 5 " ( + ) ) 7 ( \* = ) ; ( + ) E ) 7 ( \* ) ) \$ ( 5 - 3 ) - ( 0 - 1 4 7 5 0 , % 5 ' \$ ) - ( \$ , \$ 5 \* " 0 # \$ ) " ( + ) , = # " # \$ & ( 6 5 ( # 5 . ( 8 ) # \$ ) 0 1 D  
\$ 4 . 5 2 0 6 3 9 1 5 7 5 2 1 0 4 1 0 9 6 6 / 7 1 2 1 1 5 4 6 7 3 ( ) 7 1 1 3 0 1 D ( 0 ) 7 1 7 / 1 1 2 1 1 3 ( \$ 8 1 " 5 " ( + ) ) 7 ( \* = ) ; ( + ) E ) 7 ( \* ) ) \$ ( 5 - 3 ) - ( 0 - 1 4 7 5 0 , % 5 ' \$ ) - ( \$ , \$ 5 \* " 0 # \$ ) " ( + ) , = # " # \$ & ( \$ 8 . , 5 4 " \* 9 , 0 7 5 \* " % # \* " ) , ' \$ ) \* ? ) 6 5 % ) ) ) + ) : \$ . 6 ; ( ) + ) ( Π f 0 . 2 5 0 T D - 0 . 0 0 7 T c ( # 0 ( \$ 9 . 2 ( \* ) - 3 . 5

ii)  $M + 9 \#3(=) * \#<+4: ( \% ) 9 \#</ ( 6\# ' \$ ( : ( +1\% \#6\# 8\%57 ( \% ) 9, 0\&\$5? ( \% \#6\# 0 0 ) : ( 0\&<\$ \#* \#0 \$5* "0\#\$ ) " ( + ( > \%5 ( : ) \% ) 3. ' \$ \# : . =3 ) ) + ) =5= ) - - + ) < \# ) \% \& - \# < \$58\# - . =585\% \#6\# 0 ' \$ ) + \# ? ( \% ) , ' +5\% \$ ( 6. + ) \$ \#05 ( \% ) 9 ) * ' \# +18\#05 ( \% ) 9 \$5* "0\#\$ ) " ( + ( > * + ( : . ( " \# * . / ( * "0 +9 "1 ( ? ( 6\# : \% \# : +9 \# ' \$ ( : ( + ( \% ) 9 \# < C ( - 5 0\&<\$ \#* \#0 DQNB! . S\&<\$ \#* \& DQNB! - \# ? \% \# \$5* *7 ) " \&05 "1 ' \# * + ( : . 4 / ( - . . \$50 ( \% ) 4 :$

$$E = F + OH,$$

6: ( F - 0\&<\\$ \#\* \& DQNB! 0\% ( \* ) \* " ( - \& 658\#\#7 ) \* " = ) , \# ' \\$ ( : ( + ( \% ) ( = \# " \# \\$ \& ; ' \\$ ) 0 \# : ) " \* 9 0 ' \# : ' . \% = " ( b ) i ) \% ) ? ( . I \# = 585 " ( +1 0\&<\\$ \#\* \#0 85 " ( - \* + ( : . ( " \\$58: ( + ) "1 \%5 \* \# \#0 ( " \* "0. 4 / ) > ' 5\\$5 - ( " \\$ ' \\$ \# : . = 5.

b)  $B ' \$ ( : ( + ( \% ) ( 0\&<\$ \#* \#0 DQNB! 0\% ( * ) * " ( - \& 658\#\#7 ) * " = ) : +9 * \$50 ( \% ) 9 * \# 8\%57 ( \% ) 9 - ) \# < C ( - \#0 0\&<\$ \#* \#0 0\% ( * ) * " ( - \& 658\#\#7 ) * " = ) , ' \$ ) 0 \# : 9 / ) ; * 9 0 ' \$ ) + \# ? ( \% ) ) :$

i)  $Q ( " \# : \# + \#6 ) 9 : 0\&<\$ \#* \& DQNB! 0\% ( * ) * " ( - \& 658\#\#7 ) * " = ) - \# ? \% \# \$5* *7 ) " 5 "1 ' \# * + ( : . 4 / ( - . . \$50 ( \% ) 4 :$

$$F = IH - OH - O5 - O6 - O7 - O8$$

) +)

$$F = O2 + O3 + O4 + O9$$

` \# = \# + ) 7 ( \* "0\# - \# ? \% \# \# ' \\$ ( : ( + ) "1 ' . " ( - ' \\$9 - \& ; ) 8 - ( \\$ ( \% ) > \* \# \#0 ( " \* "0. 4 / ) ; = \# + ) 7 ( \* "0. G +1 " ( \\$ \%5 " ) 0\% \& - \# < \\$58\# - 5\%5 + \#6 ) 7\% \& ( 0\&7 ) \* + ( \% ) 9 - \# ? \% \# \* : ( +5 "1 \* ' \# - \# /14 : \\$ . 6 ) ; ' \# = 585 " ( + ( > , \%5 ' \\$ ) - ( \\$ \* ' \# - \# /14 ' \# = 585 " ( +9 AEE ( = " ) 0\% \# \* " ) . +50 + ) 05 ( \% ) 9 0\&<\\$ \#\* \#0 0 ; \# : ( " ( ; \% \# + \#6 ) 7 ( \* = \#6\# ' \\$ \#3 ( \*\*5.

T\%57 ( \% ) ( \# < C ( - 5 0\&<\\$ \#\* \#0 0\% ( \* ) \* " ( - \& 658\#\#7 ) \* " = ) 0\&\\$5?5 ( " \* 9 0 0 ) : ( : \# + ) \* ; \# : \% \#6\# = \# + ) 7 ( \* "05 - 5 " ( \\$ ) 5 + \#0 , = \# " \# \\$ . 4 - \# ? \% \# \\$5\* \*7 ) " 5 "1 ' \# \* + ( : . 4 / ( - . . \\$50 ( \% ) 4 :

$$I = IH + I2$$

ii)  $I ( \$ ) \# : ) 7\% \# * "1 : = \# + ) 7 ( * "0\# 0\&<\$ \#* \#0 DQNB! 0\% ( * ) * " ( - \& 658\#\#7 ) * " = ) - \# ? ( " < \& "1 \# ' \$ ( : ( + ( \% \# * ' \# - \# /14 = \$5 " = \#6\# , \% \# = \# - ' + ( = \% \#6\# \$9 : 5 ) 8 - ( \$ ( \% ) > . I \#0 " \# \$9 "1 ) ; \% ( " \% ( \# < ; \# : ) - \# * " ) , 85 ) * = +47 ( \% ) ( - * + . 75 ( 0 - \# : ) E ) = 53 ) \# < \# \$ . : \#05 ( \% ) 9.$

! \ @QG ! B2JG] @DOP SWXJB! BS

I \$) %3) ' &

H. U(+1 %5\*"#9 / (> \*; (- & \*#=#5 / (%) 9 0 &<\$#\*#0 \*#\*"#) " 0 #<(\*' (7(%)) 0#8- #?%#\*") #' (\$5"#\$. : #\*") 65"1 \* ' #- # / 14 : \$. 6) ; \*\$(: \*"0 \*#=#5 / (%) 9 0 &<\$#\*#0, A=0) 05+(%"%#6# " #- . , =#"#\$( : #\*") 65("9 ' \$) ) \*' #+18#05%) ' \$(: (+1%&; 8%57(%)) >. ! A"#> 3(+14 #' (\$5"#\$. - #?(") \*' #+18#05"1 +4<. 4 \*; (- . \*#=#5 / (%) 9 0 &<\$#\*#0, \*' (3) 5+1%# ' \$(: %58%57(%). 4 : +9 (6# . \*"5%#0=), ' \$) " #- . \*+#0), 7"# 0) "#6( : #\*") 65("9 A=0) 05+(%"%# ( \*#=#5 / (%) ( 0 &<\$#\*#0. ! "#\$#%& \*##< / 54 " # ' \$#6\$(\* ( 0 : #\*") ? (%)) "5=#6# ? ( \*#=#5 / (%) 9 0 &<\$#\*#0, 0=#+4759 #' &" ' \$) - (%(%)) 9 \*; (- & \*#=#5 / (%) 9 0 &<\$#\*#0.

I \$5=")=5

2. S \*+. 75( ' \$) - (%(%)) 9 ' #=#&" ) >, +5=#0, =+( (0) =5\*#=# - #?(") \*' #+18#05"1\*9 %) ?(\*+(: . 4 / 59 \*; (- 5. S "(; \*+. 759; , =#6: 5 #%5 90+9("9 %(' #: ; #: 9 / (>, =#- ' ("(%"%&> #S65% - #?(" \$58\$ (, 5"1 #' (\$5"#\$. ' \$) - (%9"1 0 0) : ( ) \*#=#+47(%)) 9 +4<. 4 5+1" (\$%5") 0%. 4 \*; (- . , =#"#59 #<(\*' (7) 05(" 0 &' #+% (%)) ( ) 8+##? (%&&; 8: (\*' ' \$) %3) ' #0. S \*"#\$. =". \$ ( \*; (- & . 7) "&054"\*9 \*+(: . 4 / ) ( ' #+##? (%)) 9:

5) 0 "(; \*+. 759; , =#6: 5 85- (%) " (+), \*#:( \$?5 / ) ( - 5+## (=#+) 7(\*"0# \$5\*"0#\$) "(+9) +) 0##< / ( % ( \*#:( \$?5 / ) ( \$5\*"0#\$) "(+9, 0\* ( / (%5; #: 9"\*9 0 \*"5:)) \$58\$5<#=#), #' (\$5"#\$. - #?(" <&"1 ' \$(: #\*"50+(%5 #\*"#\$7=5 : +9 #\*. / (\*"0+(%) 9 (6# ' +5%#0 \*#=#5 / (%) 9 0 &<\$#\*#0;

b) ) \*; #: % . 4 "#7=. : +9 \*#=#5 / (%) 9 0 &<\$#\*#0 \*+(: . (" . \*"5%50+) 05"1 "5=) - #<\$58#- , 7"#<& #%5 %5; #: ) +5\*1 =5= - #?%# <+ ) ? ( = "#- . . \$#0%4 0 &<\$#\*#0, =#"#S&> \* . / (\*"0#05+ <& 0 \*+. 75( %(' \$) %9") 9 =5=); -+)<# - (\$ ' # ) ; \*#=#5 / (%) 4.

3. L=58&05(- 59 %) ? ( \*; (- 5 85: (>\*"0. ("9 : +9 . \*"5%#0#=#, : +9 =#"#S&; - #?(" <&"1 . \*"5%#0+(%# ' #\*"#9%#( "0(\$: # ( \*#:( \$?5%) ( ' \$#: . ="5 0 3(+9; ) \*' #+18#05%) 9 A"#6# 8%57(%)) 9 : +9 #' \$(: (+(%)) 9 ) \*; #: #%#> "#7=) : +9 \*#=#5 / (%) 9 0 &<\$#\*#0:

5) #' (\$5"#\$. #\* . / (\*"0+9(" ' +5% \*#=#5 / (%) 9 0 &<\$#\*#0, =#"#S&> 0=#+475(" , 0 75\*"%"#\*"), \*#=#5 / (%) ( \*\$(: % (6# \*#:( \$?5%) 9 \$5\*"0#\$) "(+9 0 #< / (- #<C(- (00#:) - &; - 5"(\$) 5+##0) / ) +) ' #0&, (%) ( AEE(=") 0%#\*") ) \*' #+18#05%) 9 "0(\$: #> \*#"50+94 / (> \* 3(+14 \*#=#5 / (%) 9 #< / (6# #<C(- 5 0 &<\$#\*#0) 8 . \*"5%#0=) : # 85: 5%#> ' \$#3(%"%#> : #+) (? (6#:#%6#) \*; #: %#6# . \$#0%9 0 &<\$#\*#0, ) - (%. (- #6# =5= 3(+ (0#> . \$#0(%1 0 &<\$#\*#0. ` "# : #+?%# <&"1 #\* . / (\*"0+(%# 0 \*+(: . 4 / ) ( \*\$#=#):

\*KAVO

b) @?(6#: %# (<58#0#(=#+) 7(\*"0# 0&<\$##0 \$5\*\*7) "&05("9 \*+(. 4 /) - #<\$58#- :

i) B' \$(: (+9("9 #</59 - 5\*\*5 "0(\$: #> \*#"50+94 / (> 0 =#+) 7(\*"0(' #=\$&") 9 ) /) +) = \$5\*=), +5=5 ) +) =+(9, ' #"\$(<+9(- #6# 0 "(7(%) ( 6#: 5. Y0(\$: &- ) 0(/ (\*"05- ) 90+94"\*9 0\*( - 5"(\$ 5+& 0 ' #=\$&") 9; , = \$5\*=5; , +5=5; ) =+( (, =#"#\$&(\*"5%#09"\*9 "0(\$: &- ) ' #\*+( ) \*' 5\$(\$ 9 0#: & ) +) +(". 7) ; # \$65% 7(\*=); \*#(:) % (%) >.

ii) @?(6#: %# (<58#0#(=#+) 7(\*"0# 0&<\$##0 \$5\*\*7) "&05("9 ' . "(- . - %#? (%) 9 - 5\*\*&, #' \$(: (+(%%#> 0 ' #: ' . %= " ( i), %5 \*##"0("9 0. 4 /) > =#AE/TT917(c [ (' #=-) - 4. 8(\$) - 1. 5(&") 9; )

I \$)+#?(%) (VII

! JB20 S ! BBYS@Y! YSOO ! B ! YGYV@[ 3

H. ! \$#=5- ) : +9 ' S) - (%(%) 9 ' S(: (+1%&; 8%57(%> ) %5)+. 7, ) ; ) - (4 / ) ; \*9 - ("#: #0, . ' #- 9%. "&;  
0 ' . %="5; 2 ) 3 \*"5"1) 3, 90+94"\*9:

5) : +9 %#0&; \*"53) #5\$%&; ) \*"#7%) =#0 - #: ) % 6#: ' #\*+( : 5"& 0\* ". ' +(%) 9 0 \* ) +.  
%5\*"#9 / (6# I \$#"#=#+5 : +9



Y5<+) 35 H. I \$(: (+1%&( 8%57(%) 9 : +9 ' 5\*\*5?) \$\*=); 50"#- #<)+(> ) 50"#- #<)+(> - 5+#> 6\$. 8#' #: C(- %#\*")

Y5<+) 35 2. I \$(: (+1%&( 8%57(%) 9 : +9 50"#- #<)+(> <#+1, #> 6\$. 8#' #: C(- %##\*" ) - ) \*' &"5%) 9 ' #  
 (0\$#' (>\*=#- . 3) =+. . \*"#>7) 0#6# \$(?) - 5 (ESC) ) (0\$#' (>\*=#- . 3) =+. %56\$. 8#7%#6#  
 \$(?) - 5 (ELR)

/IC?R	!AL@>XCI ?KOE>G>GO [ H <u>a</u> /	#VOHJ QP@>KALC (P/VOI·N)	:P@>BALAKALR (P/VOI·N)	#VHOLR CMAIC (P/VOI·N)	\$B>KLR> NCHIOYR (P/VOI·N)	+REGAHIJ (E <sup>-</sup> )
A	H.H0.200H	2,H	0,66	5	0,H0 0,H3 <u>b</u> /	0,8
BH	H.H0.2006	H,5	0,46	3,5	0,02	0,5





Y5<+) 35 6. I S(: (+1%&( 8%57(%) 9 : +9 - #"#3)=+#0 ) 5%5+#6) 7%&; "S(: -) 7("&S(: =#+(%&; "S5%\*' #S"%&; \*S(: \*"0 (>50 \*<sup>-3</sup>; >45 =- /75\*), ' #: +(75/)( ' S) - (%%) 4 \* H7 ) 4%9 H999 6#: 5 a/

\$O? LBOPCI>@D	! K>L>@JGR>MGCN>GOD
M0. ; "5="%"&> : 0) 65" (+1	CO = 8 6/=- LS = 4 6/=- NO <sub>x</sub> = 0, H 6/=-
a("&S(: "5="%"&> : 0) 65" (+1	CO = H3 6/=- LS = 3 6/=- NO <sub>x</sub> = 0,3 6/=-

a/ S #E) 3) 5+1%#- . "0(S?: (%)) ' # " )' . =#%\*"S. =3)) : #+?%# <&"1 #"=585%# \* . =585%#> : 5"&, (\*+) 0&<S#\*& "S5%\*' #S"%#6# \*S(: \*"05 (% # "0(754" ' S(: (+1%&- 0(+ ) 7)%5- .

I S) - (75%)(: I S(: (+1%&( 8%57(%) 9 : +9 5%5+#6) 7%&; - #"#3)=+5- "S(: -) 7("&S(: =#+(%&; "S5%\*' #S"%&; \*S(: \*"0 \*+(: . (" . - %#?) "1 %5 =#AEE) 3) (%) H,5.

Y5<+) 35 7. I S(: (+1%&( 8%57(%) 9 : +9 - #' (: #0 (b 50 \*<sup>-3</sup>; < 45 =- /75\*)

/ IC?	! AL@>XCI ?KOE>G>GO [ H a/	! K>L>@JGR>MGCN>GOD	
		CO (P/VE)	: 0 + NO <sub>x</sub> (P/VE)
I	H7.6.H999	6,0 b/	3,0 b/
II	H7.6.2002	H,0 c/	H,2

a/ S #E) 3) 5+1%#- . "0(S?: (%)) ' # " )' . =#%\*"S. =3)) : #+?%# <&"1 #"=585%# %57) %59 \* . =585%#> : 5"&, (\*+) 0&<S#\*& "S5%\*' #S"%#6# \*S(: \*"05 (% # "0(754" ' S(: (+1%&- 0(+ ) 7)%5- .

b/ I S(: (+1%&( 8%57(%) 9 : +9 5%5+#6) 7%&; - #"#3)=+5- "S(: -) 7("&S(: =#+(%&; "S5%\*' #S"%&; \*S(: \*"0 \*+(: . (" . - %#?) "1 %5 =#AEE) 3) (%) 2.

c/ I S(: (+1%&( 8%57(%) 9 : +9 5%5+#6) 7%&; - #"#3)=+5- "S(: -) 7("&S(: =#+(%&; "S5%\*' #S"%&; \*S(: \*"0: 3,5 6/=- .



e/ MS. 6) (- #%#\*' ) S"&, =#%(7%59 "#7=5 : ) \*") ++93) =#"#S&; %(' S(0&, 5(" =#%(7%. 4 "#7=. : ) \*") ++93) , ' S(: . \* - # " S(%%. 4 %53) # %5+1%&- ) \*' (3) E)=53) 9- ) +), (\*+) "5=#0&; %(\*. / (\*"0. (, ' S#- &, +(%%&- ) \*' (3) E)=53) 9- ) : +9 - # " # S % # 6 # " # ' +) 05.

I S) - (75%) (: ! "#\$%& # < (\*' (7) 054", 7"#<& %(' #8: %(( H 9%05\$9 2000 6#: 5 <(%8)% - #6 ' #\*" . ' 5"1 0 ' S#: 5?. %5 ); "(SS) "#S) ) +), 1 0 "#- \*+. 75(, (\*+) # % \* ## " 0 (" \* " 0. (" A=#++6) 7(\*=) - ; 5S5=" (S) \*) =5- , ) 8+#? (%%&- 0 "5<+) 3 (8. S "#- \*+. 75(, =#6: 5 ! "#\$%5 . \* " 5%50+) 05(" , 7"# 85' S (" <(%8) %5 \* \* #: (\$?5%) (- \* (S&, =#"#S#( % ( \* ## " 0 (" \* " 0. (" ; 5S5=" (S) \*) =5- : +9 \* #: (\$?5%) 9 \* (S& 0 "5<+) 3 (8, %# =#"#S#( % ( ' S(0&, 5(" \* . / (\*"0. 4 / (( \* #: (\$?5%) (, 0&8#0(" \* (\$1(8%& ( "\$. : % # \* ") : +9 (( ' S#- &, +(%%&; ' S(: ' S) 9") > ' S) #\* . / (\*"0+(%) ) % (#<; #: ) - &; ) 8- (%%) > %5 ); ' S#) 80#: \* " 0(%%&; . \* " 5%#0=5; : # H 9%05\$9 2000 6#: 5, # %5 - # ? (" ' S#: +) "1 ' (S) #: ' #\*" . ' +(% ) 9 0 ' S#: 5?. %5 (( " (SS) "#S) ) \*5- # ( ' #8: %(( : # H 9%05\$9 2003 6#: 5. S "5=#- \*+. 75( ! "#\$%5 . =58&05(" 0 8590+(%) ), =#"#S#( \* : 5 (" \* 9 %5 ; S5% ( % ) ( 0- (\* ( \* ( (: # =. - (% "#- # S5") E)=53) , ' S) %9" ) , #: # < S (%) ) ) +) ' S) \*# (: ) % (%) , 7"# # %5 %5- (S (%5 ' S#: +) "1 ' (S) #: 0S (- (%), ) ' S(: \* " 50+9(" O\* ' # + %) "(+1%#- . #S65%. 0 ' ) \*1- (%%#- 0) : ( ) (S) # S- 53) 4

Y5<+) 35 HO.

Y5<+) 35 HH. `=#+#6) 7(\*=) (;5\$5="( \$)\*") =) '#\*"' . ' 54 / (6# %5 \$&%#=

III .

I \$)+#?(%) (IX

Q@JW I B BRJGDOa@DO^ SWXJB! BS GQQOG2G  
OT ! @NV! 2B\BTP[ ! YS@DDW\ O! YBaDO2BS

H. ! "#\$%&, %5 =#"#\$&( \$5\*' \$#\*\$5%94"\*9 #<985" (+1\*"05, . =585%%&( 0 ' . %="( 8 a) \*"5"1) 3,  
' \$)%) - 54" - (\$&, . =585%%&( 0 %5\*"#9 / (- ' \$) +#?(%) ).

2. 25?: 59 ! "#\$%5 : #+?%&- #<\$58#- .7) "&05(" %(<; #: ) - #\*"1 . - (%1, (%) 9 ' #"(\$1 0 \$5- =5;  
0\*(6# 58#"%"#6# 3) =+5.

A. J(=#- (%: 5" (+1%&> =#: (= \* %5: +( ?5 / (> \* (+1\*=#; #89>\* "0(%%#> ' \$5=") =)

3. ! "#\$%5 0 "(7%) ( #: %#6# 6#: 5 ' #\*+( 0\*" . ' + (%) 9 : +9 %(( 0 \*) +. .1%&>



C. S%(\*%)(%50#85

6. 25?: 59 ! "#\$%5 #<(\*' (7) 05(") \*' #+18#05%) (- ("#: #0 0%(\*%)(% 9 ?): =#6# %50#85 \* % 8=) -  
 . \$#0%(- 0&<\$#\*#0 (' (\$7) \*+(%&& 0 \$ .=#0#: 9 / (- :#=. - ("% ( V, ' \$) %9"#- O\*' #+%)" (+1%&- #565%#-  
 %5 (6# \*(- %5: 35"#> \*(\*\*)) (\$ (, (%) (H999/H) ) 0 +4<&; ' #' \$50=5; = %(- .) ,=#"\$S&(   
 ' \$#: (- #%"\$) \$#05+) 0#8- #?%#"1 . - (%1, (%) 9 0&<\$#\*#0 ' # =5>%(> - (\$ (%5 30% ' # \*\$50%)(% 4 \*  
 <58#0&- 8%57 (%) (- , . =585%%&- 0 A"#- \$. =#0#: 9 / (- :#=. - ("% (, 0 "#> - (\$ (, %5\*=#+1=#  
 \*##"0("\*"0. 4 / 59 ! "#\$%5 \*7) "5(") ; ' \$) - (%) - &- ,) \*; #: 9) 8 - (\*"%&; ' #70(%%&; )  
 6(#- #SE#+#6) 7(\*=); . \*+#0) > ,) ' 5 ?): =#6# %50#85) \*"\$ . =". \$& ; #89>\*0. ! \$#=-) : +9 ' \$) - (%%) 9  
 A"); - (\$ 90+94"\*9: 3H : (=5<\$9 2009 6#: 5 - : +9 ! "#\$%# \* A=#%#- )=#> ' (\$ ; #: %6# ' (\$) #: 5 )  
 3H : (=5<\$9 2007 6#: 5 - : +9 : \$. 6) ; ! "#\$%# H/.

7. ! "#\$%5 0 "(7%) ( #: %6# 6#: 5 ' #\*+( 0\*"' . ' +(% 9 : +9 %(( 0 \*) +. %5\*"#9 / (6# I \$#"#=#+5  
 #<(\*' (7) 05(" 85' 5; ) 05%) ( 0 ' #70. 0%(\*%#6# "0(\$: #6# %50#85 0 "(7%) ( ' # =5>%(> - (\$ ( 24 75\*#0  
 ' #\*+( \$58<\$5\*&05%) 9, (\*+) #5 \*7) "5(" A". - (\$ . ' \$) - (%) - #> \* . 7("#- - (\*"%&; ' #70(%%&; )  
 6(#- #SE#+#6) 7(\*=); . \*+#0) > ) \*"\$ . =". \$& ; #89>\*0.

D. \\$5%(%)(%50#85

8. ! "#\$%5 0 "(7%) ( #: %6# 6#: 5 ' #\*+( : 5"& 0\*"' . ' +(% 9 : +9 %(( 0 \*) +. %5\*"#9 / (6# I \$#"#=#+5  
 ' \$) - (%9(" 0# 0\* ( : %0&; ; \$5%) +) / 5; ?): =#6# %50#85 %5 =\$. ' %&; \*0) %E(\$- 5; ) ' ") 3(E(\$- 5; : +9  
 2 000 \*0) %(> %5 #"#=#\$- ( ) +) 750 \*0) %#- 5"#=#) +) 40 000 6#+#0 ' ") 3& \*) \*"- ( & ) +) - ("#: & ; \$5%)(% 9 \*  
 %) 8=) - . \$#0%(- 0&<\$#\*#0, 0 #"%#, (%) ) =#"#\$&; <&+# . \*"#5#0+(%#, 7"# #%) . - (%1, 54" 0&<\$#\*& %5  
 40% ) +) <#+(( ' # \*\$50%)(% 4 \* <58#0&- ) 8%57 (%) 9- ) (' \$) 0#: 9"\*9 0 \$ . =#0#: 9 / (- :#=. - ("% (,  
 . ' #- 9%. "#- 0 ' . %= " ( 6, ) +) : \$. 6) ( \* ) \*"- ( & ) +) - ("#: & , : #=5850, ) ( A=0) 05+(% "% . 4  
 AEE(=") 0%#"1 2/.

9. S #"%#, (%) ) \* . / (\*"0. 4 / ) ; ; \$5%) +) / ?): =#6# %50#85 %5 =\$. ' %&; \*0) %E(\$- 5; )  
 ' ") 3(E(\$- 5; : +9 2 000 \*0) %(> %5 #"#=#\$- ( ) +) 750 \*0) %#- 5"#=#) +) 40 000 ' ") 3&

) +) <#+((' # \*\$50%(%) 4 \* <58#0&-) 8%57(%) 9-) (' \$) 0#: 9"\*9 0 \$.=#0#: 9/(- :#=- (%"(, . ' #- 9%. "#- 0' . %=" ( 6), ) +) : \$. 6) ( \* ) \* " (- & ) +) - (" #: &, ' \$ #: (- #%"\$) \$ #050, ) ( A=0) 05+(% "% . 4 AEE(=") 0%#"1 2/. I \$) - (%) - #\*"1 - #? (" <&"1 #6\$5%) 7(%5 ' # ' \$) 7)%5- %(#<; #:) - #\*" ) #<(\*' (7(%) 9 %5: +( ?5 / ) ; . \* + #0) > \* #: (\$ ? 5%) 9 ?) 0#" % & ; , %5' \$) - (\$ 0 \*098) \* ' \$) - (%(%) (- : +9 \*0) %(> \* ) \* " (- , #\*%#05%&; %5) \*' # +18#05%) \* # + # - &, ) 0# + 1 (\$ # 0 ) \* ) \* " (- \* 0 # < #: % # - 0 & 6. + 1 % # 6 # \* #: (\$ ? 5%) 9 : + 9 : # - 5, % (> ' ") 3&.

I \$) - (75%) 9:

H/ M + 9 3 (+) %5\*"#9 / (6# ' \$) + # ? (%) 9 "\*" \$5%5 \* A = # % # - ) = # > ' (\$ ; #: % # 6# ' (\$) #: 5" #8%575 (" ! "# \$ # % . , = # " # \$ 59 ' \$) ' \$ (: \* " 50 + (%) ) \* 0 # (6# : # = . - (% " 5 # \$ 5 " ) E) = 53 ) , ' \$) % 9 " ) , . " 0 (\$ ? : (%) ) ) + ' \$) \* # ( : ) % (%) ) \* : ( + 5 + 5 8590 + (%) (