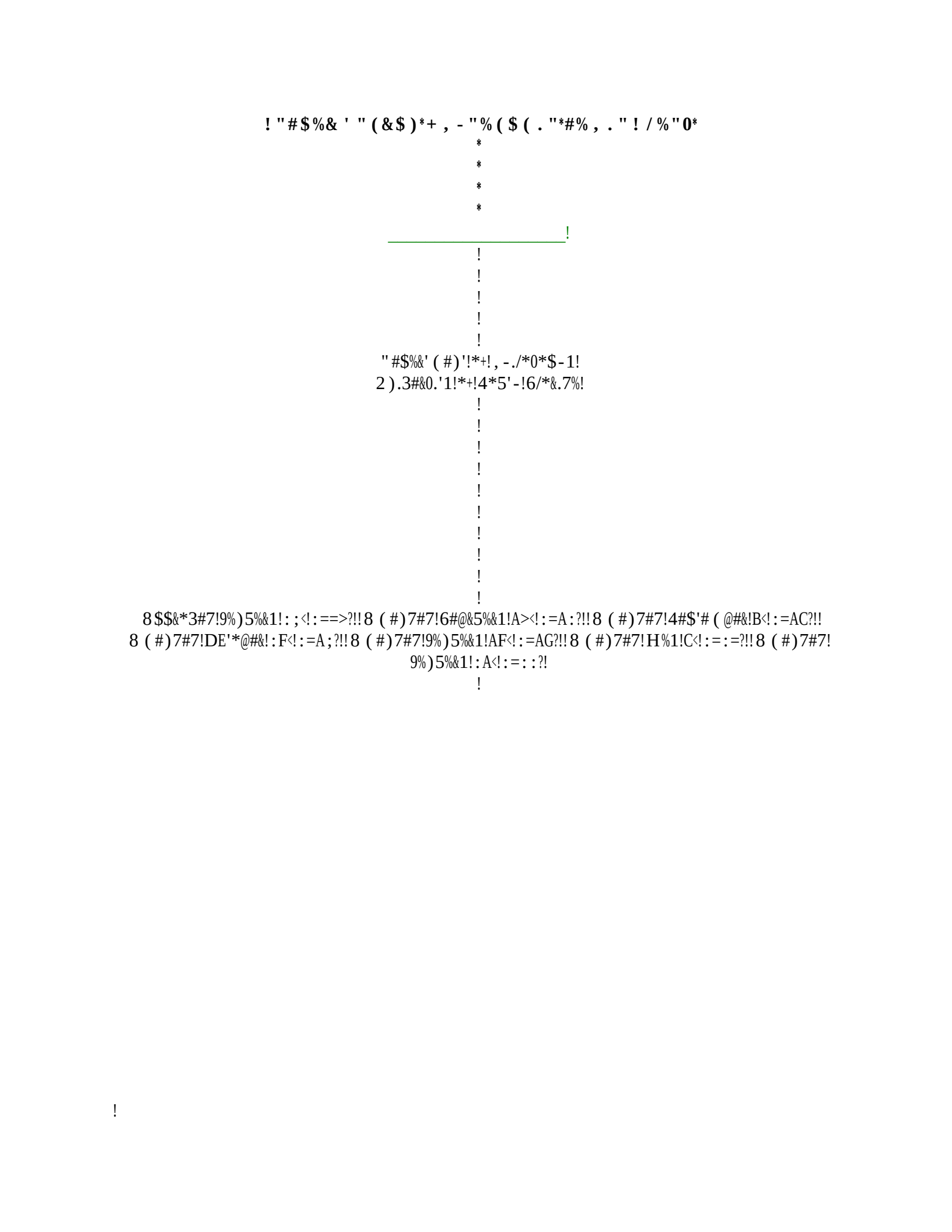
! " # $ % & ' " (& $) * + , - " % ($ (. " * # % , . " ! / % " 0 *
" # $ % & ' (#) ' ! * + ! , - ./ * 0 * $ - 1 !
2) . 3 # & 0 . ' 1 ! * + ! 4 * 5 ' - ! 6 / * & . 7 % !
8 $ $ & * 3 # 7 ! 9 %) 5 % & 1 ! : ; < ! : == > ?!! 8 (#) 7 # 7 ! 6 # @ & 5 % & 1 ! A > < ! : = A : ?!! 8 (#) 7 # 7 ! 4 # $ ' # (@ # & ! B < ! : = AC ?!!
8 (#) 7 # 7 ! DE ' * @ # & ! : F < ! : = A ; ?!! 8 (#) 7 # 7 ! 9 %) 5 % & 1 ! AF < ! : = AG ?!! 8 (#) 7 # 7 ! H % 1 ! C < ! : = : = ?!! 8 (#) 7 # 7 !
9 %) 5 % & 1 ! : A < ! : = : : ?!

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&$1)"*, 2*. , (&" (&03)**

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I?!! HI44IDJ !4K8KLHLJK!??????????????????????????????!: !
II?!!MDJ " 2MKIJN!"L, 8OKHLJK8P!Q24IJL44!??????????????????????????????!: !
8?! "#$%&' (#)'%/!H##'.)R0!??????????????????????????????!: !
Q?! H.)5'#0!*+!6%E5/'1!H##'.)R0!??????????????????????????????S!
M?! T*'.)R!,&*E#75&#0!??????????????????????????????S!
III?!! "L, 8OKHLJK!8 " HIJI4KO8KDO4!??????????????????????????????B!
8?!!! "#$%&' (#)'!M-%.&!??????????????????????????????B!
Q?! 800*E.%'#!M-%.&!??????????????????????????????C!
M?!! " .&#E'*&!*+!'-#!N&%75%'#!,&*R&%(!??????????????????????????????!; !
" ?!! " .&#E'*&!*+!2)7#&R&%75%'#!4'57.#0!??????????????????????????????!; !

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.0!&#0$*)0.@/#!+*&!7#3#/*$.)R!%)7!7.0'&.@5'.)R!%!'#)'%'.3#!%R#)7%!$&.*&!'*!%//! (##'.)R0?!

6%E5/'1! (#(@#&0! (%1!%77!'*!'-#!+.)%/!%R#)7%!5$*)!&#Y5#0'?! "#$%&' (#)'%/! (##'.)R0!

Z.//!@#!E*)75E'#7!@1!&#R5/%&!+%E5/'1! (#(@#&0!*)!%!&*'%'.)R!@%0.0?!I+!E.&E5(0'%)E#0!

7.E'%'#<!'-#!800*E.%'#!M-%.&!(%1!E*)75E'!(##'.)R0!*&!$*&'.*)0!*+!(##'.)R0?!

:? K-#!+%E5/'1! (#(@#&!E*)75E'.)R!%!R.3#)!7#$%&' (#)'%/! (##'.)R!Z.//!@#!%00.0'#7!.)!'-.0!

$&*E#00<!%0!)##7#7<!@1!%!+%E5/'1!(#(@#&!7#0.R)%'#7!"#$%&' (#)'%/!,%&/.%(#)'%&.%)?!!K-#!

]*@! *+! '-#! ,%&/.%(#)'%&.%)! .0! '*! %73.0#! 7#$%&' (#)'! +%E5/'1! &#R%&7.)R! $#&'.)#)'!

$%&/.%(#)'%&1!$&*E#75&#!%)7!@1/%Z0?!

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H.)5'#0!*+!%//!7#$%&' (#)'%/!+%E5/'1! (##'.)R0<!Z-#'-#&!&#R5/%&!*&!0$#E.%/<!0-%//!@#!&#E*&7#7?!

H.)5'#0! %&#! 7.0'&.@5'#7! '*! +%E5/'1! (#(@#&0<!.)!%73%)E#! *+! '-#!)#V'! (##'.)R?!!6%E5/'1!

(#(@#&0! (%1!&#Y5#0'!'*!&#E* ((#)7!E-%)R#0!'*!'-#!(.)5'#0!%'!'-#!)#V'!0E-#75/#7! (##'.)R?!

I)! E%0#0! Z-#&#! '-#&#! .0! 7.0$5'#! &#R%&7.)R! E-%)R#0! '*! '-#! (.)5'#0<! $&*$*0#7! E-%)R#0!

%$$&*3#7!@1!:_S!+%E5/'1!$&#0#)'!Z.//!@#!.)E*&$*&%'#7!.)'*!'-#!+.)%/! (.)5'#0?!M*$.#0!*+!'-#!

%$$&*3#7! (.)5'#0<!%)7!%)1! (%'#&.%/0!$#&'.)#)'!'*!'-#! (##'.)R!7.0E500#7!.)!'-#! (.)5'#0<!Z.//!

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%? D)/1!+5//`

S!

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'-*0#!+%E5/'1!%&#!.)E/57#7!.)!(%''#&0!*+!+%E5/'1!R*3#&)%)E#!%)7!K#)5&#! c !,&*(*'.*)!'*!

#)05&#!'-#1!-%3#!3*.E#!.)!7#$%&'(#)'%/!.005#0?! d #!&#E*R).e#!'-#!$&.)E.$/#0!*+!#Y5.'1!*+!

%00.R)(#)'<!&#0*5&E#0!%)7!*$$*&'5).'.#0!*+!+%E5/'1!%E&*00!%!(5/'.`E%($50!5).3#&0.'1?!

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8!0.($/#! (%]*&.'1!*+!#/.R.@/#!+%E5/'1!)*'!*)!/#%3#!E*)0'.'5'#0!%!Y5*&5(?!! 8!Y5*&5(!.0!

&#Y5.&#7!+*&!%!3*'#!'*!@#!-#/7!*)!%)1!(%''#&?!,&*V1!3*'#0!%&#!%EE#$'%@/#<!.+!Z&.''#)!%)7!0.R)#7!

a#/#E'&*).E!0.R)%'5&#0!%&#!%EE#$'%@/#b?!

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!! S?!!,&*E#75&#!

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T*'#0!*)!%)1!(%''#&!(%1!@#!E*)75E'#7!@1!3*.E#<!@1!%!0-*Z!*+!-%)70<!*&!@1!0#E&#'!@%//*'?!

H*0'!3*'#0!Z.//!@#!@1!3*.E#<!#VE#$'!+*&!$#&0*))#/<!-.&.)R<!%)7!#/#E'.*)!7#E.0.*)0<!Z-#&#!

0#E&#'!@%//*'0!%&#!&#Y5.&#7?!!6*&!%)1!*'-#&!3*'#<!+%E5/'1!(#(@#&0!(%1!&#Y5#0'!%)!%/'#&)%'.3#!

3*'.)R!$&*E#75&#<!05@]#E'!'*!%$$&*3%/!@1!:_S!*+!'-#!+%E5/'1?!T*'.)R!*)!%)1!(%''#&!(50'!@#!

7*)#!%'!%!E%//#7!&#R5/%&!*&!0$#E.%/!+%E5/'1!(##'.)R?!!,&*V1!3*'#0!%&#!%EE#$'%@/#<!.+!Z&.''#)!

%)7!0.R)#7!a#/#E'&*).E!0.R)%'5&#0!%&#!%EE#$'%@/#b?!!!?!!!

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!!!"##,*/)0($*'(#),$!'!%(0)(&0%#

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!"##$%&'()*%+)#8<'.(#

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B!

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K-#! "#$%&' (#)'!M-%.&!.0!%$$*.)'#7!@1!'-#! "#%)!*+!'-#!M*//#R#!*+!8&'0!%)7!4E.#)E#0!5$*)!
&#E* ((#)7%'.*)!*+!'-#! "#$%&' (#)'!+%E5/'1<!'-#!0#).*&!&%)[.)R!0'%++! (#(@#&<!%)7!E*)0#)'!
+!'-#!%$$.)'##?!

!

!:?!M-%&R#g!

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K-#! "#$%&' (#)'! M-%.&<! Z.'-! '-#! %00.0'%)E#! *+! *'-#&! 7#$%&' (#)'! %7(.).0'&%'*&0! %)7!
E* ((.''##0<! 7.&#E'0! '-#! %7(.).0'&%'.*)! *+! '-#! 7#$%&' (#)'<! 7#3.0#0! $*/.E1<! 05$#&3.0#0! %//!
$#&0*))#/?!K-#!M-%.&!%/0*!05$#&3.0#0!%73.0.)R<!0E-#75/.)R<!@57R#'0<!%)7!&#$*&'0!'*!'-#! "#%)!
+!'-#!M//#R#!*+!8&'0!%)7!4E.#)E#0!*)!%//!.005#0!&#/#3%)'!'*!'-#!7#$%&' (#)'?!!!

!

K-#!M-%.&!.0!E-%&R#7!Z.'-!.($/#(#)'.)R!2).3#&0.'1!%)7!M*//#R#!$*/.E.#0!%)7!$&*E#75&#0!
%)7!7#3#/*$.)R!.)'#&)%/!$*/.E.#0!%)7!$&*E#75&#0!E*)0.0'#)'!Z.'-!'-#(?!!K-#!M-%.&!0#&3#0!%0!

C!

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8"##$.(%6)3(#34#)<%#=(';2')%#:(3/(' *#

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A?!!8$$*.)'(#)'g!!

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	@?!!O#0$*)0.@./.'.#0g!
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	A?! ! O#3.#Z! E&.'#&.%! %)7! %$$/.E%'.*)0! +*&! %7 (.00.*)! '*! '-#! H%0'#&^0! %)7! " *E'*&%/! ,&*R&% (0! %)7! (%[#! 7#E.0.*)0! &#R%&7.)R! %7 (.00.*)0! Z-#)! %$$/.E%)'0!7*!)*'! (##'!'-#!0'%)7%&7!E&.'#&.%?!!
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	:?!!O#3.#Z!R&%75%'#!E5&&.E5/5 (!%)7!&#E* ((#)7!&#3.0.*)0!'*!'-#!+%E5/'1?!!!
!	
	S?!!O#E#.3#<!&#3.#Z<!%)7!$&#0#)'!'*!'-#!+%E5/'1!%//!R&%75%'#!E*5&0#!$&*$*0%/0! %)7!E-%)R#0?!!!
!	
	B?! ! O#3.#Z! %$$/.E%'.*)0! +*&! %)7! &#E* ((#)7! %$$*.)' (#)'0! *+! R&%75%'#! %00.0'%)'0-.$0<! %)7! (%[#! &#E* ((#)7%'.*)0! +*&! 5).3#&0.'1! %)7! E*//#R#! +#//*Z0-.$0<!0E-*/%&0-.$0<!%)7!%Z%&70!
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	C?! ! O#3.#Z<! Z-#)! &#Y5#0'#7<! '-#! %00.R) (#)'0! *+! R&%75%'#! %00.0'%)'0! .)!

F!

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%?!4#/#E'.*)g!

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K-#! 2)7#&R&%75%'#! M* ((.''##! .0! E* ($&.0#7! *+!%'!/#%0'!'-&##! "#$%&' (#)'!+%E5/'1!
(#(@#&0?!!K-#! "24! Z.//!@#!E-%.&!*+!'-#! 2)7#&R&%75%'#! M* ((.''##?! K-#! *'-#&!
+%E5/'1!(#(@#&0!*+!'-#!E* ((.''##!0-%//!@#!%$$*.)'#7!@1!'-#!M-%.&!5$*)!#)7*&0#(#)'!
+!'-#!"#$%&' (#)'!+%E5/'1<!%)7!E*)0#)'!*+!'-#!%$$.)'##?!

!

@?!!O#0$*)0.@./.'.#0g!

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A?!!!O#3.#Z!&#Y5.&#(#)'0!+*&!'-#!5)7#&R&%75%'#!(%]*&?!!

!

i! :?!!O#3.#Z!5)7#&R&%75%'#!E5&&.E5/5(!%)7!&#E*((#)7!&#3.0.*)0!'*!'-#!+%E5/'1?!!!

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'#& (0?!!I)!'-#!#3#)'!%)1! (# (@#&!*+!'-#!LV#E5'.3#!M* ((.''##!.0!+%E#7!Z.'-!%!

$*'#)'.%/!E*)+/.E'!*+!.)'#&#0'!.)!E%&&1.)R!*5'!%!$%&'.E5/%&!E-%&R#!+*&!'-#!LV#E5'.3#!

M* ((.''##<!'-#!"#$%&' (#)'!

A=!

!
C!Z.//!@#!R.3#)!+*&!#7.'.)R!%!0E-*/%&/1!]*5&)%/<!E-%.&.)R!%!$&*R&%(!E*((.''##!+*&!%!&#R.*)%/!*&!
)%'.*)%/!E*)+#&#)E#<!E-%.&.)R!%!0E-**/<!7#$%&'(#)'<!*&!5).3#&0.'1!E*((.''##!*&!E*5)E./\!*&!+*&!'Z*!
(%]*&<!'.(#`E*)05(.)R!%E'.3.'.#0!#%E-!*+!Z-.E-!R*#0!@#1*)7!&*5'.)#!(#(@#&0-.$!.)!%!7#$%&'(#)'!
E*((.''##?!K-#0#!(%1!.)E/57#!0#&3.)R!%0!800*E.%'#!L7.'*&!+*&!%!0E-*/%&/1!]*5&)%/<!E-%.&.)R!%!
7#$%&'(#)'!E*((.''##<!*&!(#(@#&0-.$!.)!%!0E-**/<!E*//#R#<!*&!5).3#&0.'1!E*((.''##!*&!E*5)E./?!

A:!

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Q?!!K-#!M-%.&!Z.//!@#!&#0$*)0.@/#!+*&!*@'%.).)R!%//!'-#!7*E5(#)'0!)#E#00%&1!'*!%00#00!'-#!

AS!

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. ((#7.%'#! $%0'! 05 ((#&! Z*5/7! &#E#.3#! =! $*.)'0?! 800.R) (#)'! +*&! %! E* (.)R! 05 ((#&!
Z*5/7!+.&0'!@#!*++#&#7!'*!'-*0#!Z.'-!C!$*.)'0<!)#V'!'*!'-*0#!Z.'-!B!%)7!0*!*)?!! J #Z!-.&#0!
'*!'#)5&#`'&%E[<!+5//`'. (#!$*0.'.*)0!Z.//!@#!%00.R)#7!S!$*.)'0!.)!'-#.&!.).'.%/!1#%&?!

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AB!

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!""#$%&'(")*#+,")'-"#.)$#/-%(%*0%)#1-0*"-0.23#4"5.-.*0%)#6-%(#7%8"-).)&"#$%&'(")*#"66"&*08"#9992#
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8!"#)$*',$*'(%#(&#(5!%#.&3*0')'+*#,&+-$*'(%#

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K-.0!N*3#&)%)E#!"*E5(#)'!(%1!@#!%(#)7#7!%'!%)1!&#R5/%&!(##'.)R!*+!'-#!"#$%&'(#)'!
$&*3.7#7!'-%'!'-#!0$#E.+.E!%(#)7(#)'!.)!Z&.'.)R!0-%//!-%3#!@##)!7.0'&.@5'#7!%'!'-#!$&#3.*50!
&#R5/%&!7#$%&'(#)'!(##'.)R?!

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8!:_S!3*'#!*+!'-#!+%E5/'1!0-%//!@#!&#Y5.&#7!'*!%(#)7!'-.0!7*E5(#)'?!

A;!

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E*)0.0'#)'!$%''#&)!*+!$*0.'.3#!#3%/5%'.*)!.)!'#%E-.)R!%)7!-%3#!%E-.#3#7!%!/#3#/!*+!$#&+*& (%)E#!'-%'!
.0!0'&*)R!*&!*5'0'%)7.)R?!!
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O#0#%&E-?!K-#!R&%)'.)R!*+!'#)5&#!.0!%!]57R (#)'!@%0#7!*)!$%0'!$#&+*& (%)E#!%)7!$*'#)'.%/!+*&!+5'5&#!
E*)'&.@5'.*)0!'*!&#0#%&E-!%)7_*&!E&#%'.3#!%E'.3.'1?!6*&!%!&#E* ((#)7%'.*)!*+!'#)5&#!.)!'-#!M*//#R#<!
E%)7.7%'#0! (50'!7*E5 (#)'!'-%'!'-#1!-%3#! (%7#!%!05@0'%)'.%/!E*)'&.@5'.*)!'*!&#0#%&E-!%)7_*&!
E&#%'.3#!%E'.3.'1!.)!'-#.&!7.0E.$/.)#!%)7!-%3#!#0'%@/.0-#7!%!&#E*&7!*+!%E-.#3# (#)'!'-%'!.0!0'&*)R!*&!
*5'0'%)7.)R?!!
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4#&3.E#?!K*!Y5%/.+1!+*&!'#)5&#<!E%)7.7%'#0! (50'!7.0$/%1!#3.7#)E#!*+!0* (#!%$$&*$&.%'#!0#&3.E#!'*!
'-#!2).3#&0.'1!%)7_*&!'-#!$&*+#00.*)!%)7_*&!'-#!E.3.E!E* ((5).'1?!M* ((5).'1!0#&3.E#! (50'!&#/%'#!
'*!'-#!@%0.E! (.00.*)!*+!'-#!2).3#&0.'1!%)7!'*!'-#!+%E5/'1! (# (@#&!0!$&*+#00.*)%/!#V$#&'.0#?!!
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L%E-!&#E* ((#)7%'.*)!+*&!'#)5&#!0-*5/7!@#!%EE* ($%).#7!@1!%!0'%'# (#)'!*+!'-#! (.00.*)<!R*%/0<!%)7!
#75E%'.*)%/!)##70!*+!'-#!7#$%&' (#)'<!E*//#R#<!%)7_*&!&#R.*)%/!E% ($50<!%)7!'-#!. ($*&'%)E#!*+!'-#!
E*)'&.@5'.*)0!'-#!E%)7.7%'#!-%0! (%7#!

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'-#!M-%.&!0##[!'-#!E*5)0#/!*+!'-#!7#$%&' (#)'!'#)5&#!%)7!$&* (*'.*)!E* ((.''##?!D&7.)%&./1<!'-.0!

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8+'#&!#%E-!(#(@#&!*+!'-#!M*//#R#h0!K#)5&#!%)7!,&*(*'.*)!M*((.''##!-%0!&#3.#Z#7!'-#!
E%)7.7%'#h0!E&#7#)'.%/0<!'-#!M*((.''##!Z.//!(##'!'*!$&#$%&#!.'0!&#E*((#)7%'.*)0!'*!'-#!"#%)?!K-#!
M*((.''##h0!7#/.@#&%'.*)0!Z.//!+*E50!#VE/50.3#/1!*)!-*Z!Z#//!%!E%)7.7%'#!(##'0!E*//#R#<!
5).3#&0.'1!%)7!7#$%&'(#)'!E&.'#&.%!+*&!K#)5&#!%)7!,&*(*'.*)?!K-#!M*((.''##!(50'!)*'!%$$/1!
0'%)7%&70!'-%'!%&#!/*Z#&!'-%)!'-*0#!0$#E.+.#7!.)!'-#!7#$%&'(#)'h0!E&.'#&.%?!!
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I+!%!M*//#R#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!(#(@#&!.0!+&*(!'-#!0%(#!7#$%&'(#)'!%0!%!
E%)7.7%'#!+*&!'#)5&#!%)7_*&!$&*(*'.*)<!*&!.+!%!(#(@#&!-%0!0$#E.%/!$#&0*)%/!%)7_*&!$&*+#00.*)%/!
%00*E.%'.*)0!Z.'-!%!E%)7.7%'#<!'-%'!E*((.''##!(#(@#&!Z.//!/#%3#!'-#!&**(!75&.)R!%//!7#/.@#&%'.*)0!
E*)E#&).)R!'-%'!E%)7.7%'#!%)7!Z.//!%@0'%.)!+&*(!(%[.)R!%!&#E*((#)7%'.*)!E*)E#&).)R!'-%'!
E%)7.7%'#?!!
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K#)5&#!%)7!,&*(*'.*)!M*((.''##!(#(@#&0!0-%//!E*)+.)#!'-#(0#/3#0!'*!(%[.)R!7#E.0.*)0!0*/#/1!
5$*)!'-#!.)+*&(%'.*)!$&*3.7#7!.)!#%E-!E%)7.7%'#h0!*++.E.%/!'#)5&#!%)7!$&*(*'.*)!+./#?!J*!
E*((.''##!(#(@#&!0-%//!0*/.E.'!*&!E*)0.7#&!%)1!%77.'.*)%/!.)+*&(%'.*)!E*)3#1#7!$&.3%'#/1<!
'-&*5R-!$#&0*)%/!E*)'%E'<!@1!$-*)#<!/#''#&<!*&!%)1!*'-#&!(#%)0?!K-#!#)'.&#!E*((.''##!(%1!3*'#!@1!
%!'Z*`'-.&70!(%]*&.'1!'*!%5'-*&.e#!'-#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!M-%.&!'*!0*/.E.'!%77.'.*)%/!
.)+*&(%'.*)!.+!)#E#00%&1?!8//!&#Y5#0'0!+*&!%77.'.*)%/!.)+*&(%'.*)!(50'!@#!.)!Z&.'.)R!@1!'-#!K#)5&#!
%)7!,&*(*'.*)!M*((.''##!M-%.&<!Z-*!Z.//!$&*3.7#!'-#!E%)7.7%'#!%)7!'-#!M-%.&!*+!'-#!E%)7.7%'#h0!
7#$%&'(#)'!Z.'-!E*$.#0!*+!'-#!&#Y5#0'?!!
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T*'.)R!*)!%!E%)7.7%'#!@1!'-#!M*//#R#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!Z.//!@#!@1!0#E&#'!@%//*'?!
K-#0#!@%//*'0!0-%//!@#!$&#0#&3#7!.)!'-#!D++.E#!*+!'-#!"#%)!+*&!%!&#%0*)%@/#!'.(#?!K-#!E*((.''##h0!
3*'#!%)7!E/#%&<!05@0'%)'.3#!05((%&1!*+!&#%0*)0!+*&!@*'-!$*0.'.3#!%)7!)#R%'.3#!3*'#0!(50'!@#!
.)E/57#7!.)!'-#!E%)7.7%'#h0!+./#?!8//!(#(@#&0!*+!'-#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!(50'!0.R)!
'-#!&#E*((#)7%'.*)!+*&(0!+*&!#%E-!E%)7.7%'#?!!
!
D)E#!'-#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!-%0!(%7#!.'0!7#E.0.*)<!.'!Z.//!.7#)'.+1!'-*0#!E%0#0!.)!
Z-.E-!.'0!&#E*((#)7%'.*)!7.++#&0!+&*(!'-%'!*+!%!E%)7.7%'#h0!"#$%&'(#)'!M-%.&!%)7_*&!'-#!
"#$%&'(#)'!M*((.''##<!%)7!'-#!K#)5&#!%)7!,&*(*'.*)!M*((.''##!M-%.&!Z.//!.)+*&(!'-#!
E%)7.7%'#!%)7!'-#!M-%.&!*+!'-#!E%)7.7%'#h0!7#$%&'(#)'<!.)!Z&.'.)R?!K-#!E%)7.7%'#h0!"#$%&'(#)'!
M-%.&<!'-#!E%)7.7%'#!*&<!%'!'-#!E%)7.7%'#h0!7.0E&#'.*)<!%!+%E5/'1!%73*E%'#!E-*0#)!@1!'-#!E%)7.7%'#!

:A!

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