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                                                                                                                                                                                                                                                                              Z,i
 . /)012-)*3!4D!U1/*2&5!=2V&/-&-!
B(3-)'-!7BW9!
. /: 1262&: %&*1!; *%: 1/*!
<1-!
%
                                                                                                          8*#%?CC#-(; %DC%E #+(*#, %DO%FO; 3, +O-#%
                                                                                                                        X4-1, (!=V12-@B&%5!H)34/V%2%!
$/1!' 4%5: !C&V1!* (1!&--%C, *)4/!* (&*!* (121!L4%5: !?1!&!0&2)&/' 1!)/!* (1!&012&61!)/-%2&/' 1!, 21C)%C!4D!
 , 2)0&*1!, 24, 12*3!?&-1: !4/!*(1!D21Q%1/'3!&*!L()'(!)*!)-!1>, 4-1: !*4!1>'11: )/653!)/'51C1/*!L1&*(12@-%'(!&-!
-*2&)6(*F5)/1!L)/: -@*42/&: 41-@: 24%6(*@1*'a!W4L1012@(4L!54'&5)Z1: !'&/!*()-!&--%C, *)4/!?1!C&: 1@&-!*(1!
5)C)*)/6!&21&!)-!&521&: 3!21-*2)' *1: !*4!*(1!-*&*1!?42: 12-!4D!$V5&(4C&\( \exists )-!)*!, 4--)?51!*(&*!1/0)24/C1/*&5!
 ()-*423!&/: !'5)C&*)'!4''%221/'1-!-)6/)D)'&/*53!)C,&'*!)/-%2&/'1!, 21C)%C-!4/!&!'4%/*3!42!101/!')*3!
: )-*2)' *!-' &51b!!
!!!!!c&2)&?51-!-%'(!&-!&012&61!, 24, 12*3!0&5%1!&/: !215&*)01!54'&*)4/! \bot)55!?1!*&V1/!)/*4!&''4%/*&e.!)/-%2&/'1!
D-1(!-1(\&)-1(*)-1()01!)-16)-0. \ 4(4)0. \ 2(!)-0. \ 2(*) \\ E308519-1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf[(D)1Tf
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=' *0\%G\#0("\#6!) 0\#! B()5\&/: 12!; C)*(!U455161!) U(1C)-*23!7UW9! . /: 1262\&: \%&*1!; *\%: 1/*! <1-! % 8*\#', \#(.-+\%\#<.9\#<7.,.-+\%)+"-3"+(.'0;\%C\%?(*6"\#0\#H.+<.0\#(\#(,++-\#(.-\%+-.H\%?B8!))\#' 30H\%5\#(+"\%))' <7"\#$#; %5' H#"#H\c', \K\#+46\%5\#(+"\c'):; '0.01\% \X4(/!+1/*513\circ*U(2)-*4, (12!K&3542\circ*U3/*()&!+\c'224\%6(-\circ*X4-1, (!G1!; 4*4\circ*8/-\c'!]2&/V!W&(/!!)!
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 $\begin{array}{l} K12\&(12*Z!7KWZ9!)C\&6)/6!(\&-!21'1/*53!1C1261: !\&-!\&!, 24C)-)/6!C1*(4: 45463!D42!C\&/3!?)4C1:)'\&5!)C\&6)/6!\&, , 5)'\&*)4/-!)/'5%:)/6!*(1!: 1*1'*)4/!4D!'&/'12E!; , 1')D)'\&553#21-1&2'(!%-)/6!, %5-1: !7*)C1F: 4C&)/9!KWZ!-3-*1C-!(&-!?11/!-(4L_/!*4!?1!1DD1'*)01!)/!:)-*)/6%)-()/6!?1*L11/!'&/'124%-l&/:!(1&5*(3!*)--%1!4D!1>')-1:!?21&-*!'&/'12!*%C42-ID42!?4*(ID21-(!&/: !D42C&5)/FD)>1: 4, &2&DD)/F1C?1: :1:!-, 1')C1/-4&/:!^*(-!KWZ!-(4L-!, 4*1/*)&5!D42!)/*2&4, 12&*)01!C&26)/!&-1--C1/*!: %2)/6!?21&-*!'&/'12!5%C, 1'*4C)1-E!W4L10124*(12!)-!&!/11:!*4!D%2*(12!: 10154, !*(1!C1*(4: 45463!D42!)C&6)/6!D21-(!*)--%1!?1D421!KWZ!: 10)'-1-!'&/!?1!)/'42, 42&*1:!)/*4!&!-%26)'&5!-1**)/6E!K()-!L42V!C&V1-!%-1!4D!D21-(53!1>')-1:!C%2)/1!>1/462&D*!*%C42-l&-!&-!&!&!'+*F1DD1'*)01!&/:!()6(53!'4/*24551:!-4%2'1!4D!D21-(!*)--%1!D42!?%)5:)/6!KWZ!)C&6)/6!C1*(4: -!4D!?21&-*!'-*A''12!; 1012&5!UNT+[_0!-*2&)/!C)'1!&21!C&)/*&)/1:!4/!&!()6(1B&*!:)1*!7G#M"SMID24C!A1-1&2'(!G)1*-48/'19!)/!42: 12!*4!, 24C4*1!D&*!:1, 4-)*-!-)C)5&2!*4!(%C&/!?21&-*!*)--%1!!$/'1!*(1!C)'1!21&'(!&!-%)*&?51!-)Z14*(13!&21!*(1/!)/Y1'*1:!L)*(!dPTT#|C4%-1F: 12)01:!?21&-*!&: 1/4'&2')/4C&!'155-!D24C!*(1!=C12)'&/!K3, 1!U%5*%21!U4551'*)4/!7=KUU9!!]4554L)/6!\F''!L11V-!4D!624L*(4*(1!>1/462&D*!*%C42-l&21!*(1/!1>')-1:!&/:!)/*1**1:!D)*(1/2**12!*4!)C&61!&!'24--F-1'*)4/!4D!*(1!*%C42!K(1!*C42-l&21!)C&61:!D)2-*!&-!?%5V!*)--%1!&/:!*(1/!?)-1'*1:!D)*(1/2**4!)C&61!&!'24--F-1'*)4/!4D!*(1!*%C42!K(1!*L4!*%C42!(&501-l&21!*(1/!-*421:!)/!D42C&5)/!&/:!-1/*!*4!*(1!$V5&(4C&!=/)C&5!G)-1&-1!G)&6/4-*)'![&?!D42!, &2&DD)/F1C?1::)/6!&/:!()-*4, &*(45463!, 24'1--)/6!!$

U4C, &2)-4/!?1*L11/!KWZ!)C&6)/6!4D!D21-(53!1>')-1: !*)--%1!&/: !-%?-1Q%1/*!, &* (45463!&--1--C1/*!(&-!-(4L/!&!-*24/6!:)DD121/*)&*)4/!?1*L11/!?21&-*!' &/' 12!*)--%1!216)4/-!&/: !(1&5*(3!D&*!*)--%1@&/: !D%2*(12!)C&6)/6!4D!*(1!, &2&DD)/F1C?1:: 1: !*%C42!-1'*)4/-!, 240): 1-!&::)*)4/&5!-%, , 42*!4D!*(1!%-1!4D!KWZ!D42!: 1*1'*)/6!?21&-*!' &/' 12!!K(1!)C&6)/6!C1*(4: 45463!: 10154, 1:!)/!*()-!L42V!' &/!?1!&, , 5)1: !*4!)C&6)/6!D21-(53!1>')-1: !?21&-*!' &/' 12!*)--%1!D24C!(%C&/!, &*)1/*-!)/!*(1!D%*%21E

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T+.("600\mathbb{G}3("\mathbb{H},! \) \) \( \) \) \( \) \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \(
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K' MH#0%) +, "6!
                                                                                 /Si
W1/: 2)>!U455161!
+)45463!7+89!
. /: 1262&: %&*1!; *%: 1/*!
<1-!
%
             'O% < 7', (+O(\M."H".C#\"+OH; -+7#; \%O\P', (*\B+>'(+\%
          U&253!W4L: 1/@K&3542!: *4/1@c&21/3&!H&55%2@I &%211/!AE!I 'U5%/6@I &**(1L!GE!I 42&/!
. /' 4/01/*)4/&5!4)5!&/: !6&-!, 24: %' *)4/!7)[1E!(42)Z4/*&5!: 2)55)/6!&/: !(3: 24D2&' *%2)/69!(&-!1>, &/: 1: !2&, ): 53!
-)/'1!*(1!31&2!MPPP!L)*(!*1/-!4D!*(4%-&/:-!4D!L155!:2)551:!&'24--!*(1!./)*1:!;*&*1-[!!$/1!)C,42*&/*!216)4/!
)-!*(1!+&VV1/_K(211!]42V-!]42C&*)4/@&!*)6(*!4)5!, 5&3!*(&*!(&-!C&: 1!H42*(!G&V4*&!4/1!4D!*(1!*4, !. E; E!4)5!
, 24: %')/6!-*&*1-[!!K(1!1>, &/-)4/!4D!%/' 4/O1/*)4/&5!4)5!&/: !6&-!(&-!' &%-1: !621&*!' 4/' 12/!&C4/6!
'4/-120&*)4/)-*-@)/!, &2*)' %5&2!* (1!1>*1/-)01!5&/: F%-1!: 10154, C1/*!&/: !D2&6C1/*&*)4/!* (&*!&' '4C, &/)1-!
*()-!)/: %-*23[!!R1!C1&-%21: !*(1!: 10154, C1/*!, &**12/-!'&%-1: !?3!4)5!&/: !6&-!&'*)0)*)1-!4/!*L4!)C, 42*&/*!
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P+(*+0\%)+, <.-*+#"!
                                                                                         NP!
W&2: )/6!. /)012-)*3!
+)45463!7+89!
. /: 1262&: %&*1!; *%: 1/*!
<1-!
%
                !'$(*+,'-./0/)#$%$&'()%*#,<+7*,'H.(#;%*+4#%,#H3-#H%(,#;;%('"#,+O-#%
                       M*\#O\%, 'MO%O%(*#%7, #; #O-#% C%, #; .H3+"%< +"#%7*#, '< 'O#; %
    = C?12! = : &C-\Phih)/-13! + &V12\Phi^{21**}! + 23\&/\PhiH&^{4}(\&/!U&2C)' (&15\Phi/1--)' &!X4(/-4/\Phi/41!K45&2\Phi/4!^43!
ļ
A1, 24: %'*)4/!)-!&!D%/: &C1/*&5!' (&2&'*12)-*)'!4D!&55!426&/)-C-E!K(1!21, 24: %'*)01!-*2&*163!&/!426&/)-C!
%*)5)Z1-!)-!)/!5&261!, &2*!: 1*12C)/1: !?3!1/0)24/C1/*&5!D&' *42-[!]42!1>&C, 51@-*&?51!1/0)24/C1/*-!)/!L()' (!
D44: !)-!&?%/: &/*!&/: !1, (1C12&5!' (&/61-!&21!2&21!C&3!D)/: !*(&*!&-1>%&5!21, 24: %'*)4/!&554L-!D42!5&261!
, 4, %5&*)4/-!4D!)/: )0): %&5-!61/1*)' &553!-%)*1: !D42!*(1!&C?)1/*!' 4/: )*)4/-E!8/!*(1!L)5: !, 4, %5&*)4/-!4D!*(1!
-4)5!/1C&*4: 1@! "#$%&' "()*+*,-#.#/"$,@&21!, 2)C&2)53!'4C, 4-1: !4D!&-1>%&553!21, 24: %')/6!(12C&, (24:)*1-[!
W4L1012@)/!*(1!5&?!, 4, \%5&*)4/-!1>, 4-1: !*4!-*21--0\%5!'4/:)*)4/-!-%'(!&-!-*&20&*)4/@1510&*1: !*1C, 12&*%21!
&/: !4012!' 24L: )/6!21-%5*!)/!&/!)/' 21&-1!)/!*(1!/%C?12!4D!C&51-!)/!*(1!, 4, %5&*)4/E!K()-!4?-120&*)4/!)-!
'4/62%1/*!L)*(!*(1!*(1421*)'&5!, 21:)'*)4/!*(&*!-1>%&5!21, 24: %'*)4/!&/:!61/1*)'!21'4C?)/&*)4/!)-!
?1/10)')&5!)/!-*21--0%5!1/0)24/C1/*-E!W4L1012@-1>%&5!21, 24: %'*)4/!C&3!'&223!'4-*-E!W12C&, (24: )*1-!
624L/!)/!* (1!, 21-1/' 1!40!C&51-@42!4/!, 5&*1-!, 21F' 4/: )*)4/1: !?3!C&51-@(&01!&!-(42*1/1: !5)D1-, &/!
-%661-*)/6!, (3-)4546)' &5!' (&/61-!4''%2!L(1/!(12C&, (24:)*1-!&21!1>, 4-1:!*4!, (124C4/1-!: 1, 4-)*1:!4/!
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*(1!, 5&*1-!?3!C&51-E!K4!?1**12!%/: 12-*&/: !*(1!, (3-)4546)'&5!'(&/61-!4''%22)/6!*4!*(1!(12C&, (24:)*1-!L1!

, (124C4/1-E!R1!'%5*%21:!(12C&, (24:)*1-!4D!)/'21&-)/6!&61!4/!, 5&*1-!, 21F'4/:)*)4/1:!?3!C&51!L42C-E!

&--1--1: !* (1!&?)5)*3!4D!&: %5*!L)5: !*3, 1!! 0#.#/"\$,!*4!*4512&*1!(1&*!-*21--!D4554L)/6!1>, 4-%21!*4!C&51!

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T+;;+OH,+% #OH#Y+;! ON!
=2V&/-&-!K1' (!. /)012-)*3!
U(1C)-*23!7UW9!
. /: 1262&: %&*1!; *%: 1/*!
<1-!
%
FO% .".-' %2, #H.-(.' O; % C%) ' OC' , <+(.' O; %+OH%D, .#O(+(.' O; % C% <+""%5' "#-3"#; %M.(*.O%+%5+-, '-6-"#% h&--&/: 2&!U1/: 1Y&-&A&Y)?!U(4%: (%23!)!
R1!(&01!1>&C)/1: !' 4/D42C&*)4/-!&/: !42)1/*&*)4/-!4D!-C&55!C451' %51-!76%1-*9!L)* ()/!&!L&*12F-45%?51!
C&' 24' 3'51!7 (4-*9!V/4L/!?3!* (1!*2)0)&5!/&C1!$' *&!='): !7$=9!!G4' V)/6!, 2462&C!C)/&&L ()' (!L&-!42)6)/&553!
: 10154, 1: !D42!-'211/)/6!: 2%6
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V##;#%) *."H#,;!

. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
U4C, %*12!; ')1/' 1!7U; 9!

^2&: %&*1!; *%: 1/*!

<1-!
%

S' M9B#"+6%/+(#%)' O(,' "%', %KQ[\] XK?Z)%Z.H#' %)' <7,#;;.' O%
A11-1!U()5: 12-@X&C1-!B&5C12@X4-1, (!W)5*4/@<%!; %/!
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/i
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: (#7*#0%) *', H+; %FFF!
$ ()4!; *&*1!. /)012-)*3!
+)45463!7+89!
]&'%5*3!_!A1-1&2' (12!
H4!
%
     S.(\#, +(3, \#\%, \#-', H\%^*\#->".; (\% C\%, 3\#\%31; \%K\#<.7(\#, +J\%', \%, >+O; +; \%M.(*\%^*\#\%.; ; (% \#7', (% C\%, Y))))
  1)$2. *3' 4, 5-+' 4, /2)#6/(402)%IV*67+,'-*,'<.H+#J%I+";'%D>"+*'<+J%+OH%+O%+O+"6;.;% C%5.,.H+#%
                                           ; #$\% +(.'\%, '<\%.1*(\%, +7;0\%)
                            ; *1, (1/!U(42: &-!888@A1//!K%C5)-4/@U(2)-!I '=55)-*12!
=!' \%221/*!5)*12\&*\%21!21' 42: !' (1' V5)-*!4D!* (1!*2\%1!?\%6-!7W1C), *12&9!4D!=2V&/-&-!)-!, 240): 1: [!!8*!(&-!?11/!)
&5C4-*!\P!31&2-!-)/' 1!* (1!#S``!K2%1!+%6!' &*&546%1!L&-!, %?5)- (1: !&/: !4012!#PP!/1L!?%6!21' 42: -!D42!
=2V\&/-\&-!(\&01!?11/!, \%?5)-(1:!-)/'1!*(1/!!!=!, 24?51C!)-!*(\&*!*(1!#S``!'&*&546\%1!)-!C)--)/6!C\&/3!1&253!
, %?5)- (1: !21' 42: -!D42!=2V&/-&-E!!R1!&: : 21--!*(1!C)--)/6!21' 42: -!, 24?51C!&/: !, 240): 1!&!-)/651!' %221/*!
-4%2' 1!D42!21D121/')/6!=2V&/-&-!?%6!21' 42: -E!!]%2*(12@L1!&::!&!/1L!=2V&/-&-!7&/:!$V5&(4C&9!21' 42:!D42!
*(1!: )2*F' 45421: !-11: !?%6!1,#2)%3"4' 5(&"4' *2,-6*$4+2,!7A(3, &24' (24C): &19!!!=::)*)4/&553!L1!, 240): 1!&/!
&/&53-)-!4D!*(1!-1>!2&*)4!4D!I)2): &1!7, 5&/*!?%6-9!'&, *%21:!)/!5)6(*!*2&, -E
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H4!
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?02V?::FDP%DN%D)8^% PB%P! PDU%FP%KL5! P%NFGVDGS!:8: %E F8K% KDV8%8?SD5?V?:% d*(&/!U51C1/*@U&5)/!! &2)&/!

K(1!?)4546)' &5!&6)/6!4D!-4C&*)' !' 155-!' &%-1-!-(42*1/)/6!4D!*154C121-!: %1!*4!*(1!1/: !21, 5)' &*)4/!, 24?51C[!U2)*)' &553!-(42*!*154C121-!' &/!-)6/&5!' 155-!*4!1/*12!)/*4!-1/1-' 1/' 14&!' 155!-*&*1!: 1D)/1: !?3!*(1!' 1--&*)4/!4D!' 155%5&2!:)0)-)4/[!R1!-11V!*4!%/: 12-*&/: !*(1!' (&/61-!* (&*!4'' %2!)/!' 155-!* (&*!%/: 1264!21, 5)' &*)01! -1/1-' 1/' 1a!-, 1')D)' &5534*(1!)C, &'*!4D!' 2)*)' &553!-(42*!*154C121-!4/!*(1!1>, 21--)4/!4D!-15DF21/1L&5!D&'*42-!! .-)/6!AKFBUA!&/: !)CC%/4D5%421-' 1/' 1!L1!4?-1201: !216%5&*)01!' (&/61-!&/: !54' &5)Z&*)4/!4D!*2&/-' 2), *)4/! D&'*42-!\$UK''!&/: !H=H\$^4)/! (%C&/!D)?24?5&-*!L)*(!' 2)*)' &553!-(42*!*154C121-!AKFBUA!: &*&!-(4L-!H=H\$^4; 2.5)C/*4D5%421-' 1/*!)C&6)/6!)/:)' &*1-!)/' 21&-1: !/%' 51&2!54' &5)Z&*)4/!4D!H=H\$^!!\$%2!21-%5*-!-%661-*! H=H\$^!C&3!, 5&3!&!V13!-)6/&5)/6!2451!&-!' 155-!?1' 4C1!-1/1-' 1/' 1!: %1!*4!*154C12)' !54--!!d5%'): &*)/6! H=H\$^m-!-)6/&5)/6!2451!)/!-1/1-' 1/' 1!C&3!?1!V13!*4!%/: 12-*&/:)/6!' 155%5&2!&6)/6!&/: !, 4*1/*)&553!51&: !*4!*(1!: 10154, C1/*!4D!/1L!&/*)F' &/' 12!*21&*C1/*-E

=, $(24)^{6!}$)/'21&-)/653!, 4, %5&2@5&26153!?1'&%-1!, 14, 51!0)1L!?)2: !D11: 12-!&-!&!L&3!*4!'4//1'*!L)*(!*(1!/&*%2&5!L425: ! &24%/: !*(1C[!K(1!?2)6(*!'4542-!1>()?)*1: !?3!?)2: -!'&*'(!*(1!&**1/*)4/!4D!?)2: L&*'(12-!&/: !-1201!&!'2)*)'&5! 2451!)/!&**2&'*)/6!C&*1-@31*!0123!5)**51!)-!V/4L/!&?4%*!*(1!1DD1'*!4D!?)2: !D44: !4/!, 5%C&61!' 4542&*)4/[!K()-!)-!-%2, 2)-)/6!' 4/-): 12)/6!*(&*!, 5%C&61!' 4542&*)4/!)-!V/4L/!*4!?1!)/D5%1/' 1: !?3!*(1!Q%&/*)*3!&/: !Q%&5)*3!4D! D44: !'4/-%C1: [!; , 1')D)' &553₫* (1!, 24: %'*)4/!4D!' 4542D%5!, 5%C&61!)-!1>, 1'*1: !*4!?1!1/1261*)' &553!1>, 1/-)O1₫ C1&/)/6!*(&*!4/53!?)2: -!L)*(!&?%/: &/*!D44:!'4/-%C, *)4/!&21!&?51!*4!&DD42:!*(1!'4-*-!4D!, 24: %')/6! ' 4542D%5!, 5%C&61a!*()-!): 1&!4D!' 4/:)*)4/F: 1, 1/: 1/*!, 5%C&61!' 4542&*)4/!(&-!6&2/121: !' 4/-): 12&?51! *(1421*)' &5!&/: !1C,)2)' &5!-%, , 42*[!;)C)5&253@C4-*!21: @42&/61@&/: !31554L!' 4542-!' 4C1!D24C!' &24*1/4): ! ,)6C1/*-!*(&*!'&/!4/53!?1!: 12)01: !D24C!*(1!:)1*@C1&/)/6!?)2: -!*(&*!'4/-%C1!C421!4D!*(1-1!,)6C1/*-!&21! ?1**12!&?51!*4!: 1, 4-)*!*(1C!)/*4!*(1)2!D1&*(12-!!K()-!, 24Y1'*!&)C-!*4!*1-*!*(1!(3, 4*(1-)-!*(&*!*(1!)/:)0): %&5!?)2: -!L()' (!%*)5)Z1!?)2: !D11: 12-!C4-*!D21Q%1/*53!: %2)/6!* (1!L)/*12!C4/* (-!L)55!?1!)/!?1**12!' 4/:)*)4/!&*! *(1!*)C1!4D!C45*)/6!&/: !*(%-!L)55!C45*!C421!'4542D%5!?211:)/6!, 5%C&61E!='24--!*(1!=2V&/-&-!K1'(! . /)012-)*3!'&C, %-@L1!(&01!1-*&?5)-(1: !?)2: !D11: 12-!&/: !, 5&' 1: !&%*4C&*1: !2&:)4FD21Q%1/'3!): 1/*)D)' &*)4/!7A]8G9!21&: 12-!4/!*(1!D11: 12-!*(&*!L)55!C4/)*42!*(1!D11:)/6!&'*)O)*3!4D!*&661: !?)2: -E!R1! (&01!?16%/!' &*' ()/6!?)2: -!&/: !%-)/6!, (4*462&, (-!*4!Q%&/*)D3!*(1)2!, 5%C&61!' 4542&*)4/@&/: !L)55!, 21-1/*! 4%2!D)/:)/6-!*4!' 4C, &21!*()-!' 4542&*)4/!*4!D11:)/6!&'*)0)*3[!8D!?)2: !D44: !: 41-!)/D5%1/' 1!, 5%C&61!' 4542&*)4/!)*!L4%5:!'&223!-')1/*)D)'!&/:!-4')1*&5!)C,5)'&*)4/-@&/:!&-!-%'(!'4%5:!1/(&/'1!4%2!%/:12-*&/:)/6!&/:! '4/-120&*)4/!4D!-4/6?)2: -E

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\begin{array}{lll} 5+((*\#M\%)'\ 00.'\ ,! & N! \\ H42^*(\ L1-^*!=2V\&/-\&-!U4CC\%/)^*3!U455161! \\ +)45463!7+89! \\ ]8'\ \%5^*3!\_!A1-1\&2'\ (12! \\ H4! & \\ & \\ P\#M\%/\#-'\ ,H;\%\ C\%2+,+;.(\#;\%!\ 7.-'<7"\#\$+_\%\ -+,._\%\ 0'\ 7"3\,,+_\P\#+<+('\ H+J\%,'<\%'\ H\#0(;\%0\%\ ,>+0;+;\%\ I\ \&^**(1L!U4//)42@[\&/'1!G\%2:\ 1/@U(2)-!I\ '=55)-^*12@A4?12^*!;\ 10)551@U(\&251-!+%2-13@W1/23!A4?)/-4/! \\ ! & \\ R1!-\%20131:\ !-151'\ ^!-,\ 1')1-!40!24:\ 1/^*-!024C!\&'24--!^*(1!-^*&^*1!042!?4^*(!1/:\ 4,\ \&2\&-)^*1-!&/:\ !1'\ ^4,\ \&2\&-)^*1-!!! \\ R1!:\ 4'\%C1/^!\&!'\ 4''):\ )\&/@N!-,\ 1')1-!40!'\ ()6612-!&/:\ !C)^*1-@4/1!-,\ 1')1-!40!-\%'\ V)/6!54\%-1@&/:\ !&!/1C\&^*4:\ 1! \\ 024C!0&2)4\%-!24:\ 1/^*-!)/!=2V\&/-&-!!!KL4!/1L!(4-^*!&/:\ !0!/1L!61462\&,\ ()'!21'\ 42:\ -!&21!21,\ 42^*1:\ E \end{array}
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H42*(L1-*!=2V&/-&-!U4CC%/)*3!U455161!
+)45463!7+89!
]&'%5*3!_!A1-1&2'(12!
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8*#\N\"#+;\N!!,(*,'7'H+\FO;#-(+\Phi.7*'O+7(#,+J\%C\N, >+O;+;\%
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. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
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     !, (*, '; -'7.-\%'(+(', \%)300\%3, 1#, 6%2#, 0', <+0-#%)'<7+, .; 'O% (3H6% 0%P'4.-#; %+OH%?$7#, (; %)
    !G46&!G1C)215@; 1* (!U44, 12F+&12@I %-*&D&!K%/'@K&/-15!W&5)'@; )/&/!h4'V&2&@H)Z&C1**)/!h4'V&2&@!
                                  I &2V!d: L&2: |A4612-\Phi|; (&(23&2!=(C&:)!
; (4%5: 12!&2*(24-'4, 3!)-!&!C)/)C&553!)/0&-)01!-%26123!&)C1: !&*!21, &)2!4D!*(1!-(4%5: 12!C%-'51-!&/: !Y4)/*-[!
A1, &)2!40!*(1!24*&*42!'%D0!)-!4/1!40!*(1!C4-*!'4CC4/!&2*(24-'4,)'!, 24'1: %21-E!K(1!24*&*42!'%D0!)-!4/1!40!
*(1!624%, -!4D!C%-'51-!*(&*!, 240): 1!C4?)5)*3!&/: !-*&?)5)*3!*4!*(1!&2C[!=!: &C&61: !24*&*42!' %DD!' &/!' &%-1!
, &)/&' 4/-*2&)/*!4D!C401C1/*&\/: !L1&V/1--!4D!* (1!&2CE!R1!(&01!?11/!: 10154, )/6!&!0)2*%&5!-)C%5&*42!D42!
24*&*42!'%DD!, 24'1: %21-E!$%2!54/6F*12C!64&5!)-!*4!, 12D42C!0&5): &*)4/!-*%: )1-!L)*(!(%C&/!-%?Y1'*-!*4!
: 1*12C)/1!1DD1'*)01/1--!4D!4%2!0)2*%&5!-)C%5&*42E!K(1!0&5): &*)4/!-*%: )1-!21Q%)21!&%*(1/*)'!, 12D42C&/'1!
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&21!' 4/012*1: !)/*4!1/1263!* (13!, 24: %' 1!1C)--)4/-!* (&*!, 455%*1!4%2!1/0)24/C1/*[!W4L101

T6"#%B+4.;! M#!

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        G' H6\% * +7 #\mathrm{\psi}_+, . + (.' O\mathrm{\psi}_0.(*.0\mathrm{\psi}_0H\mathrm{\psi}_+ < ' 01\mathrm{\psi}_.0\mathrm{\psi}_+ + 1\mathrm{\psi}_;\mathrm{\psi}_0\mathrm{\psi}_+\mathrm{\psi}_+\mathrm{\psi}_0\mathrm{\psi}_+\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\mathrm{\psi}_1\m
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K(1!A&)/?4L!G&2*12!7<+'#%,+%7"-4"#&2.#279!)-!: )-*2)?%*1: !L): 153!*(24%6(4%*!*(1!1&-*12/!. /)*1: !; *&*1-@
 \bot* (!-1012&5!: )-\footnote{\colored}' \cdot*!, 4, \(\footnote{\colored}\) \(\footnote{\colored}\) (1.54\L\12!\] )--)--), , )!A)012!: 2&)/&61[!=/!\(\footnote{\colored}\), \(\footnote{\colored}\) (1: !C42, (4546)' &5!
 -*%: 3!4D!<04"#&2.#27!-%661-*1: !-1012&5!, 4*1/*)&553!: )-*)/'*!-, 1')1-!)/!*(1!R()*1!A)012!: 2&)/&61!&/: !)/!
 *2)?%*&2)1-!4D!*(1!54L12!I)--)--),,)!A)012!: 2&)/&61[!W4L1012@,%?5)-(1:!,(35461462&,()'!-*%:)1-!&21!/4*!
 '4/'42: &/*!L)*(!C42, (4546)' &5!: &*&E!K()-!-*%: 3!%-1: !614C1*2)'!C42, (4C1*2)'-!*4!10&5%&*1!?4: 3!-(&, 1!
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21-%5*-!?&-1: !4/!, 4, %5&*)4/-!D24C!541--!(&?)*&*-!4D!U24L513m-!A): 61!)/!=2V&/-&-!7; *[!]2&/')-!A)012!
 : 2&)/&619!&/: !%, 5&/: !(&?)*&*-!4D!* (1!$Z&2V!W)6(5&/: -!7R()*1!A)012!: 2&)/&619!2101&51: !-4C1!40125&, !)/!
?4: 3!-(&, 1!?1*L11/!:)-*)/'*!5)/1&61-E!W4L1012@:)-Y%/'*!, 4, %5&*)4/-!D24C!U24L513m-!A): 61!L121!
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ļ
+&'V624%/: 0!]42!C&/3!*3, 1-!4D!-%26)'&5!, 24'1: %21-!D42'1FD11: ?&'V!)-!'2)*)'&5!]42'1FD11: ?&'V!)-!&/!
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-%?Y1'*1: !*4!&!NF-*1, !, 24'1--!D42!5), ): !, 21, &2&*)4/0!53, (45)Z&*)4/0!5), ): !1>*2&'*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2&*)4/0!D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D5*2*0*D
&/: !C1*(35!1-*12!1>*2&'*)4/[!!K(1!0&**3!&'): !1>*2&'*-!L121!&/&53Z1: !%-)/6!^UFI : [!!=0*12!Q%&5)*&*)01!
: 1*12C)/&*)4/!4D!D&**3!&'): -!?3!C&--!-, 1'*24C1*23@215&*)01!Q%&/*)*)1-!4D!*(1!D&**3!&'): -!L121!: 1*12C)/1:!
?3!. 1&V!)/*162&*)4/@&/:!*2)' 4-&/4)'!&'):!7UM\0P9!L&-!%-1:!&-!&!-*&/:&2:!*4!: 1*12C)/1!&?-45%*1!Q%&/*)*)1-E!!
B215)C)/&23!21-%5*-!-(4L!:)DD121/'1-!?1*L11/!&56&5!-*2&)/-!0)&!215&*)01!D&**3!&'):!'4/'1/*2&*)4/E
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 \begin{array}{l} \text{NM!} \\ . \ /) 012 -)^* 3! 4 D! U 1 /^* 2 \& 5! = 2 V \& / - \& -! \\ +) 4 5 4 6 3! 7 + 8 9! \\ . \ /: \ 12 6 2 \&: \ \% \&^* 1!; \ ^*\%: \ 1 /^*! \\ < 1 -! \\ \% \\ & V \# 13" + (.' \ 0\% \ C\% \ 6 < \&.' \ (.-\% \# 0 \# \# \$ 7, \#; ; .' \ 0\% \ 0\% \ .- \# \% \\ & W \& ! A \& C! h) C @ A \& Y!; ) / 6 (@ = 2) Y) ^*!! \ \% V (12 Y 1 1! \\ ! \\ ; \ 4) 5! C) ' 2 4 ? 1 -! 1 -, \ 1') \& 553! D \% / 6) ! \& /: !? \& ' * 12) \& !' 3' 51! / \% * 2) 1 / * -! \& /: ! L \& * 12! * 4!, 5 \& / * - @ * 4! 4 \% 2!' 2 4, - @ * (1! - 4 \% 2' 1! 4 D! 4 B) \\ \end{array}
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. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
U4C, %*12!; ')1/' 1!7U; 9!
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=B\%3<+0'.H\%'\&'(\%\I)/!\X)!h)C\dh2)-*1/!H6\%31/\du\&245)/1!I'\H\%**\dv4/6(3\%/6!;()/\d=\&24/!\\$(\dv4\%!;\%/!

8/!21' 1/*!31&2-\(delta L)* (!\(delta : 0\(delta / 1: \) 1' (/45463!, 5\(delta - 1: \) 1' (1!0&-*!)/01-*C1/*-!)/!21-1&2' ()/6\(delta / 24* + 4*)' - !(&-!?11/! : 10154,)/6!L)* (!\(delta / 24; \) 1: 2&*1E\(delta / 24* + 4*)/21!&5!\(delta / 24* + 4*)/21!&6!+2*)/21!&6!+2*/21!&6*/21

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              =/615&![1/&2: @=E!+%26&: @; E!U5&2V@I E!]%22@I E!B451**@UE!A4?)/-4/@UE!; (12L44: @!
                                      ^[!; , 44/12@; [!; *4%6 (*4/@; [!=: &C-!
K(1!A)012!U4/*)/%%C!U4/'1, *!7AUU9!, 240): 1-!*(1!D2&C1L42V!D42!-*%: 3)/6!(4L!54*)'!1'4-3-*1C-!0&23!
D24C!(1&: L&*12!-*21&C-!*4!5&261!2)012-E!K(1!AUU!L&-!: 10154, 1: !)/!=, , &5&' ()&/!-*21&C-@?%*!L&*12-(1: !
/&*%2&5!' (&2&'*12)-*)'-!&/: !5&/: !%-1!: )DD12!&'24--!1'4216)4/-@, 21-1/*)/6!%/)Q%1!4, , 42*%/)*)1-!*4!-*%: 3!
(4L!*(1!, 21:)'*)4/-!4D!*(1!AUU!C&3!:)DD12!&'24--!216)4/-[!=::)*)4/&553@AUU!, 21:)'*)4/-!C&3!0&23!: %1!*4!
*(1!)/D5%1/'1!4D!D)-(1-@?%*!D1L!-*%:)1-!(&O1!%-1:!D)-(!*&>&!&-!&!C1*2)'!D42!10&5%&*)/6!,21:)'*)4/-!4D!*(1!
AUUE!$%2!64&5!L&-!*4!: 1*12C)/1!)D!AUU!, 21: )'*)4/-!L121!-%, , 42*1: !?3!, 2)C&23!, 24: %' 12@
C\&' 24)/012*1?2\&*1@\&/: !D)-(!'4CC%/)*)1-!)/!U\&: 24/!U211V!4D!*(1!=2V&/-&-!A)012!c&5513!!R1!-&C, 51:!
C\&'24)/012*1?2\&*1-@D)-(1-@&/:!'(5424, (355!&!&*!D)01!-*21&C!21&'(1-!&'24--!&!62&:)1/*!4D!L&*12-(1:!-)Z1!!
)/!*(1!U&: 24/!U211V!L&*12-(1: [!=-!*(1!AUU!, 21: )' *-@D)-(!&/: !C&' 24)/012*1?2&*1!: )012-)*3!)/' 21&-1: !L)*(!
'&*' (C1/*!-)Z1[!U4/*2&23!*4!AUU!, 21:)'*)4/-@' (5424, (355!&!:):!/4*!)/'21&-1!)/!'4/'1/*2&*)4/!L)*(!
'&*' (C1/*!-)Z1E!; (21::)/6!&/:!'4551'*)/6!C&'24)/012*1?2&*1!*&>&!-%,,42*1:!AUU!,21:)'*)4/-@21-,1'*)0153!
: 1'21\&-)/6!\&/: !)/'21\&-)/6!)/!'4C, 4-)*)4/!\&-!'&*'(C1/*!&21&!)/'21&-1: [!W12?)0424%-!&/: !, 21: &'14%-!D)-(!)
: ): !/4*!D4554L!AUU!, 21: )'*)4/-a! (4L1012@-%2D&'1 L&*12!' 45%C/!D11: )/6!D)- (!L121!&?%/: &/*!&*!&55!-)*1-!&-!
, 21: )' *1: [!R1!(3, 4*(1-)Z1!C&/3!, 21: )' *)4/-!4D!*(1!AUU!L121!/4*!-%, , 42*1: !?3!U&: 24/!U211V!: %1!*4!
216)4/&5!: )DD121/'1-!)/!L&*12-(1:!/&*%2&5!' (&2&'*12)-*)'-!&/:!&5*121:!21-4%2'1!&0&)5&?)5)*3!: %1!*4!5&/:!%-1!
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d&-*12/!\$V5&(4C&!; *&*1!U455161!

B210)4%-!*4!*(1!, 21-1/*!-*%: 3@NO!-, 1')1-!L)*(!\!&::)*)4/&5!-%?-, 1')1-!D42!&!*4*&5!4D!NS!:)DD121/*!*&>&!L121! 21' 46/)Z1: !D24C!=2V&/-&-[!R1!&::!&!-)/651!-, 1')1-!7C"...*4" 7 ("&2,-,4' 2,+#&*9!*4!* (&*!5)-*@-%?*2&'*!&!:4'%C1/*1:!-3/4/3C!71&%4" 7 ("&2,-9#&&2/#\$*2,!&!-3/4/3C!4D!1&%4" 7 ("&2,-.*(#&%&2 79@%,:&*1!*(1!5&--)D)' &*)4/!*4!?1**12!21D51'*!21' 1/*!, (35461/1*)'!)/-)6(*-@&/:!, 240): 1!&/!%,:&*1:!&//4*&*1:!' (1'V5)-*!4D!*(1!N`!*&>&!4D!'2&3D)-(1-!, 21-1/*53!V/4L/!*4!4''%2!)/!*(1!-*&*1[!!K(121!&21!`!1/:1C)'!-, 1')1-!)/!=2V&/-&-!&/:!)/'5%: 1!*(1!+&34%!+4:'&%!U2&3D)-(!7D%24'''&)*\$"-&%(*,%\$*9@+4-*4/!! 4%/*&)/-!U2&3D)-(!7!" 7 ("&2,-4"2,#5*E=W155!U211V!U&01!U2&3D)-(!7! @%3'%\$",+#,9@!X1DD12-4/!U4%/*3!U2&3D)-(!7! &#",#&*\$2,-/*.3*\$*9@\$\$%&'()*&!+%224L)/6!U2&3D)-(!7C"...*4" 7 ("&2,-'"&3*9@;51/:12L2)-*!+%224L)/6!U2&3D)-(!7CB***.*4"832,9@\$;\$51/:12L2)-*!+%224L)/6!U2&3D)-(!7CB**.*4"832,9@\$;\$51/:12L2)-*!+%224L)/6!U2&3D)-(!7CB**.*4"832,9@\$;\$51/:12L2)-*!+%224L)/6!U2&3D)-(!7CB**.*4"8,9E!K(121!&21!&5-4!M!]1:12&553!d/:&/6121:!;,1")1-@*(1!+1/*4/!U4%/*3!U&01!U2&3D)-(!7!"7 ("&2,-"42."(&2 79!&/:!*(1!W155!U211V!U&01!U2&3D)-(!7! @%3'%\$",+#,9!*(&*!)/(&?)*!=2V&/-&-!V&2-*!(&?)*&*E!R1!1>,1"*!*(&*!&::)*)4/&5!U211V!U&01!U2&3D)-(!7! @%3'%\$",+#,9!*(&*!)/(&?)*!=2V&/-&-!V&2-*!(&?)*&*E!R1!1>,1"*!*(&*!&::)*)4/&5!U211V!U&01!U2&3D)-(!7!'0.*!L)*(!D%2*(12!GH=!&/&53-1-E

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H41*(12m-!*(1421C-!: 1-'2)?1!*(1!)/*12, 5&3!?1*L11/!0&2)&*)4/&5!-3CC1*2)1-!7-3CC1*2)1-!4D!*(1!&'*)4/!
D%/'*)4/&59!&/: !54'&5!'4/-120&*)4/!5&L-!&: C)**1: !?3!&!, (3-)'&5!-3-*1C[!8/![&62&/6)&/!D)15: !*(142)1-!
: 1D)/1: !4/!&!: )DD121/*)&?51!C&/)D45: !I !1/: 4L1: !L)*(!&!C1*2)'!6@*(1!0&2)&*)4/&5!-3CC1*2)1-!&21!
)/*)C&*153!*)1: !*4!*(1!)-4C1*2)1-!4D!*(1!C1*2)'!6E!R1!()6(5)6(*!*()-!'4//1'*)4/!?3!215&*)/6!*(1!0&2)&*)4/&5!
-3CC1*2)1-!4D!L&01-!4/!&!-*2)/6!*4!*(1!)-4C1*2)1-!&/: !'4/D42C&5!)-4C1*2)1-!4D!*(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2)'E!K(1!I)/V4L-V)!C1*2
&--4')&*1: !54' &5!' 4/-120&*)4/!5&L-!&/: !' 4/-1201: !Q%&/*)*)1-!D42!*()-!, (3-)' &5!-3-*1C!&21!: 1*12C)/1: !&/:!
*(1)2!, (3-)'&5!-)6/)D)'&/'1!:)-'%--1:E
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Z.-(',.+%P.#H/M.#H/! NO!
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. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
+)45463!7+89!
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                             X4-(%&!H)5Z@; *1, (&/)1!; *4%6(*4/@; &553!d/*21V)/!
. 2?&/!: 10154, C1/*!21-%5*-!)/!* (1!&5*12&*)4/!&/: !(4C461/)Z&*)4/!4D!-*21&C!&/: !L1*5&/: !(&?)*&*-!?3!
)/'21&-)/6!-1:)C1/*&*)4/@/%*2)1/*!54&:)/6@&/:!&5*12)/6!L&*12!'(1C)-*23!!R1*5&/:-!&21!-%-'1,*)?51!*4!
: 162&: &*)4/!D24C!%2?&/!: 10154, C1/*!*(24%6(!'4//1'*)4/-!L)*(!-*21&C-!*(&*!: 2&)/!%2?&/)Z1:!
L&*12-(1: -!&/:!, 24>)C)*3!*4!: 10154, C1/*!21-%5*)/6!)/!&5*121: !L&*12!Q%&5)*3!71[6[!: )--4501: !4>361/@
'4/: %'*)0)*3@-1: )C1/*!54&: )/69!&/: !(&?)*&*!'4/: )*)4/-!*(&*!'4%5: !&DD1'*!C&'24)/012*1?2&*1!'4CC%/)*3!
-*2%' *%21E!W4L1012@-4C1!L1*5&/: !C&' 24)/012*1?2&*1!*&>&!C&3!42!C&3!/4*!21-, 4/: !*4!' (&/61-!)/!
1/0)24/C1/*&5!'4/:)*)4/-!D24C!%2?&/)Z&*)4/!: %1!*4!*(1)2!*4512&/'1!*4!54L!:)--4501:!4>361/@&/:!
*1C, 12&*%21!D5%' *%&*)4/-[!I &'24)/012*1?2&*1!' 4CC%/)*3!-*2%' *%21!L)55!?1!%-1: !*4!: 1C4/-*2&*1!* (1!
)C, &'*!4D!%2?&/)Z&*)4/!&'24--!&!62&:)1/*!754L1-*!*4!()6(1-*!%2?&/!'40129!4/!*1/!L1*5&/:-!L)*()/!*(1!
R()*1!$&V!+&34%!!; (&//4/m-!G)012-)*3a!pd, (1C124, *12&@B51'4, *12&@&/: !K2)' (4, *12&!7pdBK9a!&/:!
L\&*12!0\%\&5)*3!C1*2)'-!L)55!?1!\%-1: !D42!\&--1--C1/*!!=-!, 12'1/*!L\&*12-(1: !\%2?&/)Z&*)4/!)/'21&-1-@L1!
, 21: )' *!D1L12!-1/-)*)O1!C&' 24)/O12*1?2&*1!*&>&!7pdBK9!&/: !54L12!: )O12-)*3!D24C!(&?)*&*!(4C461/)Z&*)4/!
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U&5C4: %5)/!7U&I 9!)-!&!' &5')%C!-1/-)/6!, 24*1)/!, 12D42C)/6!&!216%5&*423!D%/'*)4/!)/!&/!&22&3!4D!' 155!
-)6/&5)/6!, &*(L&3-E!U&I !(&-!&!C%5*)*%: 1!4D!?)/:)/6!*&261*-@-4C1!?)/: -!*4!)*-!&, 4!D42C@?%*!U&I !?)/: -!
C4-*!*&261*-!L()51!&5-4!?4%/:!*4!' &5')%C!)4/-E!R(1/!?4%/:!*4!D4%2!' &5')%C!)4/-@' &5C4: %5)/!&**&)/-!&!
'4/D42C&*)4/&5!'(&/61!*(&*!1>, 4-1-!(3: 24, (4?)'!21-): %1-@1/&?5)/6!U&I !*4!?)/:!*4!&/:!)/: %' 1!F(15)' &5!
-*2%'*%21!)/!)*-!)/*2)/-)' &553!:)-42: 121: !5)6&/: -E!U(&/61-!)/!*(1-1!)/*12&'*)4/-!(&01!?11/!&--4')&*1: !L)*(!
:)-42: 12-!-%'(!&-!=5Z(1)C12m-!:)-1&-1@B&2V)/-4/m-!:)-1&-1@&/:!' &2:)&'!(3, 12*24, (3E!U&5')/1%2)/!7U&H9!)-!
&!U&I !216%5&*1:!-12)/1_*(214/)/1!, (4-, (&*&-1!*(&*!(&-!&/!&5, (&F(15)>!)/: %' 1: !?)/:)/6!216)4/!4/' 1!
?4%/:!*4!U&I E!U&H!&5-4!(&-!&!216)4/!UF*12C)/&5!*4!)*-!' &/4/)' &5!U&I !?)/:)/6!-)*1!*(&*!&**&)/-!&/!&5, (&F(15)*)*3!*4!)/: %' 1!&5, (&F(15)*3!*4!)/: %' 1!&

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 $\begin{array}{l} \mathbb{R}1!^*(1421^*)^! \& 553!: 1 \mathbb{C}4/-^*2\&^*1!^*(1![421/^*Z!D42'1!4/!'421F-(155!/\&/4F,\&2^*)'51!\%-)/6!^*(1!-1,\&2\&^*)4/!4D!?4\%/: !\\ \&/: !D211!' \%221/^*-!\&/: !' (\&261-!?3!1>,\&/:)/6!!)1!^*(1423!!!)1!-'&^**12)/6!^*(1423!4D!(4\mathbb{C}461/14\%-!)-4^*24,)'!\\ -, (121!D42!/16\&^*)O1!)/: 1>!\mathbb{C}1:)\&!^!\&/!: 1-'2)?1!, 5\&-\mathbb{C}4/)^! !21-4/\&/^! 1!4D!\mathbb{C}1^*\&5!/\&/4, &2^*)^! 51!\mathbb{L})^*(4\%^*!\\ D\%/: \&\mathbb{C}1/^*\&5!' 4221'^*)4/!4D!I)1!-'&^**12)/6!^*(1423!\%-)/6!^*)\mathbb{C}1!21012-\&5!O)1\mathbb{L}, 4)/^*E!\mathbb{K}()-!-'&^**12)/6!^*(1423!)-!\\ D\%2^*(12!1>,\&/: 1:!D42!^*(1!'421F-(155!(4\mathbb{C}461/14\%-!,\&2^*)'51!E!\mathbb{K}()-!-45\%^*)4/!'\&/!1>, 5\&)/!21-4/\&/'1!'4/:)^*)4/!\\ 4D!\mathbb{C}1^*\&5!/\&/4,\&2^*)^!51!1)^*(12!^*(1!'421!42!-(155!)-!\mathbb{C}1^*\&5!!\mathbb{R}1!(\&01!\&5-4!0\&5): \&^*1:!4\%2!\&/\&53^*)'\&5!-)\mathbb{C}55\&^*)4/!\\ 21-\%5^*-!\mathbb{L})^*(!D)/)^*1!151\mathbb{C}1/^*!21-\%5^*-!)/!U\$1; $[!! \%5^*), (3-)'-E \\ \end{array}$

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5+\$.<./.01%E.OH%2' M#, % A4312!A&C)21Z!A%)Z@I)'(&15!W&CC12!

$$\begin{split} & K(1!\$V5\&(4C\&!I\ 1-4/1^*!)-!\&!/1^*L42V!4D!1/0)24/C1/^*\&5!-^*&^*)4/-!^*(\&^*!C4/)^*42!\&/:\ !C1\&-\%21!^*(1!1/0)24/C1/^*\&5!-^*&^*)4/-!^*(&^*!C4/)^*42!\&/:\ !C1\&-\%21!^*(1!1/0)24/C1/^*\&5!-^*&^*)4/-!^*(&^*!C4/)^*42!\&/:\ !C1\&-\%21!^*(1!1/0)24/C1/^*&5!-^*&^*)4/-!^*(&^*!C4/)^*42!\&/:\ !C1\&-\%21!^*(1!L4/53!544V)/6!^*4!, \ .5)^*&^*)4/-!^*(&^*!C4/)^*(4-1!^*(&^*!C4/)^*&^*)4/-!^*(1!/263!)4/-!/^*&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/263!)4/-!/**&^*(1!/26$$

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K+, "#.1*W' &&.0;!
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                           ?7.H#<.'"' 16% C%2+OH#<.-\foC"3#O/+\%O\%5.;;'3,.\%
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                        =//\&!+5\&'(@[\&\%2\&![)/@=?)6\&)5!^\&5)')\&FA4C124@+1/!A4L513!
K(121!(&01!?11/!D4%2!C&Y42!)/D5%1/Z&!, &/: 1C)'-!)/!*(1!5&-*!'1/*%230!#S#`F#S#$@#SNTF#SN`@#S0`F#SOS@
&/: IMPPSFMP#PE!=5* (4%6(!*(121!L121!/%C124%-!: 1&*(-!)/!1&'(!4D!*(1-1!, &/: 1C)'-@*(1!31&2-!#S#`F#S#S!
L121!21' 42: 1: !&-!*(1!: 1&: 5)1-*!0)2%-F-, 21&: !, &/: 1C)'!)/!C4: 12/!()-*423E!8*!)-!1-*)C&*1: !\P!*4!NP!C)55)4/!
, 14, 51!: )1: !654?&553!)/!*()-!-)/651!, &/: 1C)'[!A15&*)0153!D1L!-*%: )1-!(&01!?11/!'4/: %'*1: !4/!*(1!: 1&*(!
21'42: -!D24C!*(1-1!4%*?21&V-!*4!&/&53Z1!:)-*2)?%*)4/!4D!: 1&*(-!?3!61462&,()'!216)4/@&61!624%,-@&/:!
61/: 12!!K()-!-*%: 3!)/01-*)6&*1-!)/D5%1/Z&!, &/: 1C)'!: 1&*(!21' 42: -!)/!I )--4%2)@L)*(!' 4C, &2)-4/-!*4!
: 1C462&, ()'!: 1&*(!: &*&!D42!*(1!-&C1!, &/: 1C)'-!)/!=2V&/-&-E!+3!10&5%&*)/6!(4L!*(1!0)2%-!-, 21&: !&'24--!
I )--4%2)!&/: !=2V&/-&-!)/!*(1!, &-*\delta!?1**12!%/: 12-*&/:)/6!4D!(4\L!&!D%*%21!)/D5%1/Z&!4%*?21&V!C&3!-, 21&:!
C&3!?1!4?*&)/1: [!+3!'4C, &2)/6!*(1-1!*L4!-*&*1-ml)/D5%1/Z&!, &/: 1C)'!: 1&*(-@/1L!)/D42C&*)4/!'&/!?1!
4?*&)/1: !4/!)D!&/: !(4L!-)6/)D)'&/*!)/D5%1/Z&!: 1&*(!, &**12/!: )DD121/'1-!4''%221: E
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K4C&*41-!&21!&!D2%)*!*(&*!(&01!?11/!5)/V1: !*4!&!: 1'21&-1: !2)-V!D42!(1&2*!:)-1&-1!&/: !'&/'12!!K(13!&21!
'4CC4/53!624L/!)/!C&/3!&21&-!4D!*(1!. /)*1: !; *&*1-@)/'5%:)/6!\$V5&(4C&!!K(1!, %2, 4-1!4D!*()-!21-1&2'(!)-!
4!): 1/)D3!L()'(!C4/*(-!)/!\$V5&(4C&!&21!?1-*!-%)*1: !D42!*4C&*4!, 5&/*&*)4/!&/: !624L*(!?&-1: !4/!*(1!
&012&61!-4)5!C4)-*%21!&/: !*1C, 12&*%21!: &*&!D24C!*(1!I 1-4/1*!L1?-)*1!!K4C&*4!, 24: %'*)4/!: 1, 1/: -!

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ļ
=!-3-*1C!(&-!?11/!: 1-)6/1: !*4!-'&/!&!C)'24, (4/1!4012!&!\P>\P!'C!, 5&/1!*4!)C&61!&/!&'4%-*)'!L&01D)15: [!
K(1!-3-*1C!\%-1-!*L4!B8!*2\&/-5\&*)4/!-*\&61-!*4!, 240): 1!C4*)4/!)/!?4*(!*(1!>!&/: !3!: )21'*)4/-[!K(1!-'&//12-!)4/!]
&21!' 4/*24551: !&/: !: &*&!)-!' 4551' *1: !%-)/6!&! [&?)1L!0)!: 10154, 1: !D42!*()-!-3-*1C[!=!^EAE=E; E!Q%&2*12!)/' (!
C)'24, (4/1!)-!-'&//1: !*(24%6(!*(1!&'4%-*)'!L&01D)15: E!K()-!-3-*1C!L)55!&554L!*(1!'(&2&'*12)Z&*)4/!4D!
&' 4%-*)'!-4%2'1-!&-!L155!&-!*(1!L&O1D)15: -!-'&**121: ID24C!*&261*!-%2D&'1-!%-1: !*4!-*%: 3!&'4%-*)'!'&%-*)'!
D4')
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                                                                        D7(.<+\%)^{'}-+(.'O;\%',\%^{*})U\#O\#,+(.'O\%C\%)\#O\#M+\&\#\%?O\#,16\%
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ļ
=-!*(1!654?&5!, 4, \%5&*)4/!'4/*)/\%1-!*4!)/'21&-1@*(1!: 1C&/: !D42!1/1263!?1'4C1-!621&*12!!K(1!*21/: !D42!1/1263!?1'4C1-!621&*12!!K(1!*21/: !D42!1/: 1C&/: !D42!1/: 1C&/: !D42!1/: 1C&/: !D42!1/: 1C&/: !D42!1/: !D42!1/!! !D42!1/: !D42!1/: !D42!1/!! !D42!! !D42
*4L&2: -!21/1L&?51!1/1263!)-!&*!&/!&55!*)C1!()6(!/4L!L)*(!*(1!%/: 12-*&/: )/6!*(&*!/4/21/1L&?51!1/1263!)-!
?4*(!0123!5)C)*1: !&/: !(&2CD%5!*4!*(1!1/0)24/C1/*[!K(1!, 24: %'*)4/!C1*(4: -!4D!21/1L&?51!1/1263!1&'(!
210%)21!: )DD121/*!1/0)24/C1/*&5!' 4/: )*)4/-!)/!42: 12!*4!C&>)C)Z1!*(1!&C4%/*!61/12&*1: E!G&*&!D4%/: !4/!
*(1!I 1-4/1*!-%' (!&-!-45&2!2&: )&*)4/!51015-@L)/: !-, 11: @&/: !2&)/D&55!L)55!1/&?51!*(1!D42C%5&*)4/!4D!&!C421!
&''%2&*1!, 21:)'*)4/!&-!*4!L(121!-45&2!'155!, 4L12!, 5&/*-@L)/: !D&2C-@(3: 24151'*2)'!, 4L12!, 5&/*-@1*'[@
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=3; (.0%) % #6< '3,!
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. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
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     8*#%?CC#-(% C%5' H#"%! (<'; 7*#, #%2+, +<#(#,; % O%(*#%?"#<#O(+"%! &30H+0-#; %0%K+"' % (+,; %
                           X%-*)/!U!; 13C4%2@h1//1*(!=!X%C, 12@G1?2&![!+%22)-!
8/!*()-!21-1&2' (!*(1!21-1&2' (12-!L)55!?1!, 12D42C)/6!12242!&/&53-)-!4/!*(1!' (1C)' &5!&?%/: &/' 1!4D!
d%24,)%C@&!/1%*24/F'&,*%21!7/F'&,*%219!151C1/*!*(&*!)-!,21-1/*!)/!,442FC1*&5!C&--)01!-*&2-@D4%/:!)/!
-)>!: )DD121/*!-*&2-!*(&*!&21!&''4C, &/)1: !)/!*(1!)//12!6&5&'*)'!(&54E!K(1!)//12!6&5&'*)'!(&54!)-!(4C1!*4!C&/3!
4D!4%2l54' &5!, 442FC1*&5!-*&2-!*(&*!*(13!L)55!?1!' &, &?51!4D!&/&53Z)/6!%-)/6![Kd!D)/1F&/&53-)-!*1' (/)Q%1-!
L)*(!?4*(!5)/1!&/&53-)-!&/:!-, 1'*2&5!-3/*(1-)-!*(24%6(!&!, 2462&C!V/4L/!&-!I $$^[!R(121!*(1!
21-1&2' (12-!L)55!?1!&?51!*4!C&/), %5&*1!D4%2!: )DD121/*!, &2&C1*12-0!C1*&55)')*3@*1C, 12&*%21@C)'24!
*%2?%51/*!0154')*3@&/: !-%2D&'1!62&0)*3!*4!: 1*12C)/1!*(1!1DD1'*-!1&'(!, &2&C1*12!(&-!4/!*(1!151C1/*!
: )-*2)?%*)4/!*(24%6(4%*!*(1!-*&2[!. -)/6!&!h%2%'Z!!C4: 15!&*C4-, (121!D42!1&'(!-*&2@L()'(!&--%C1-![Kd!!
*(1!&?%/: &/'1-!&'0%)21: !D24C!'(&/6)/6!*(1!, &2&C1*12-!&21!'4C, &21: !*4!*(1!&?%/: &/'1-!, 210)4%-53!
6)01/!)/!*(1!V/4L/!C4: 15!&*C4-, (121E!!K()-!&554L-!&/!12242!&/&53-)-!4D!*(1!&?%/: &/'1-!*4!?1!'4/: %'*1: E
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. /)012-)*3!4D!U1/*2&5!=2V&/-&-!
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+&'V624%/: o!W)/: ![)C?!. /54&:)/6!7W[. 9!)-!&!5&?42&*423!*1' (/)Q%1!*(&*!'&/!?1!%-1: !*4!-)C%5&*1!
C)'2462&0)*3@42!21: %'1: !62&0)*3!)/!24: 1/*-[!I )'2462&0)*3!21-1&2' (!%-)/6!W[. !(&-!?11/!1>*1/-)0153!
-*%: )1: !-)/' 1!* (1!#S`Pm-@61/12&553!D4'%-)/6!4/!?4/1!: 1' &5')D)' &*)4/!&/: !' &2: )40&-' %5&2!: 1' 4/: )*)4/)/6[!
K(1-1!-*%:)1-!(&01!-(4L/!*4!: 1'1&-1!'4/*2&'*)51!21-, 4/-1!)/!?544:!01--15-!: %1!*4!C)'2462&0)*3!
, &2*)'%5&253!)/!*(1!&?: 4C)/&5!&42*&E!. /*)5!21'1/*53@*()-!D)15: !4D!21-1&2'(!(&-!C&)/53!D4'%-1: !4/!%-)/6!C&51!
24: 1/*!C4: 15-\darksquare 4. !(&01!/4*!10&5%&*1: !*(1!)C, &'*!4D!)/!0)04!1-*2461/!4/!' &2: )40&-' %5&2!D%/'*)4/E!!
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 $G\%2)/6!^*(1!-\%CC12\bullet^*(121!\&21!C\&/3!C\%-)^!\&5!D1-^*)0\&5-!\&/: !4\%^*: 442!101/^*-!4^! \%22)/6!)/!\$V5\& (4C\&!!\&2454/61: !1>, 4-\%21!^4!-\%CC12!L1&^*(12!)/!\$V5\& (4C\&!!\&/!?1!: 1^*2)C1/^*&5!^4!^*(1!(1&5^*(!4D!^*(4-1!&^*1/:)/6!^*(1!D1-^*)0&5!!; C&55!^*(&/61-!)/!^*(1!1/0)24/C1/^!!^*&/!21-\%^*!)/!C&Y42!, 24?51C-!L)^*(!^*\%/)/6\bullet^*4/1\bullet^42!101/!&/1m-!&?)5)^*3!^4!, 5&3!&^!&/!4\%^*: 442!101/^!D42!^*(4-1!L)^*(!)/-^2\%C1/^*-!!$\%2!^*&-V!)-!^*4!: 1^*12C)/1!^*(1!2)-V!^*&V1/!?3!&/!&^**1/: 11!4D!&!D1-^*)0&5!&/: !(4L!-1/-)^*)01!)/-^2\%C1/^*-!&21!^4!^*(&/61-!)/!(\%C): )^*3!&/: !^*1C, 12&^*\%21!&/: !\%-1!^*(1!: &^*&!D24C!I 1-4/1^*!^4!: 1^*12C)/1!D42!L(&^*!^4/:)^*)4/-!&/!42^*(1-^*2&!-(4\%5: !-1, 21., 221!K(1!)/D42C&^*)4/!216&2: )/6!(1&5^*(!&/:!^*\%/)/6!)C, &'^*-!L)55!?1!D4\%/: !D24C!0&2)4\%-!4/5)/1!-4\%2'1-!--\%'(!&-!^*(1!. E; E!^54?&5!U5)C&^*1!A1-1&2^*(!B2462&CE!]\%2^*(12C421^*dL1!C&3!\%-1!^*(1!I 1-4/1^*!: &^*&!^*4!: 1^*12C)/1!(4L!4^*(12!D&'^*42-\ell-\%'(!&-!-\%/!1>, 4-\%21!&/: !51015!4D!: 24\%6(^*e'^*4\%5: !)C, &'^*!&/!4\%^*: 442!^*4/'12^*!&^*!4/1!4D!^*(1-1!D1-^*)0&5-!D42!?4^*(!^*(1!, 5&312-!&/: !^*(1!&\%:)1/'1E$ 

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d/6)/112)/6!7dH9! ]&'%5\*3!\_!A1-1&2' (12! H4!

H4! %

 $?4+"3+(.'\ O\%\ C\%+\%AB\%<\#(+"9'\ ,1+O.-\%,+<\#M'\ ,>\%\ 31\&76JZ^DRf\%+;\%+\%+(*'\ H\#\%<+(\#,.+"\%)$ 

W%%1%/19(4%%K&3542!GE!<4%/6%;)C4/!;E!=/6%