

"#\$%\$%&! ' ())*\$+(,!-%!-%#)./\$/!0%!12(!3/(!0*! 4 2\$1(!520/620+7/!#%8!\$1/!9%1(+%#1\$0%#)! "(&7)#1\$0%!

! #\$%!&'()*!+),-.!!

!

9: 9%1+087;1\$0%!<!=#;>&+07%8!

!

 $\begin{array}{l} V0-0!; (\$7!(\<0-!G(1(7\%!,\ast,<,(3!963;!(\<(2.!6\ast!\%7-(038!G)1(\ast!X,:'<7!Y(<2'!ZGXY[!B0-,>,0;!\%7-(03,!;0536\$10\ast<!6>!<'0!',:'3\$!;(\ast:0-6)7!4', <0!5'675'6-)7!,\ast!I(J(?\%!!N\ast(3\$J,\ast:!B,;06!(\ast:!5'6<6:-(5',2!0B,;0\ast20!6>!1)\ast,<,6\ast7!0A536;,\ast:!(96B0!I(J(8!GXY!4(7!(930!<6!26\ast23);0!<'0!1)\ast,<,6\ast7!40-0!(-10;!4,<'!4',<0!5'675'6-)7!902()70!6>!<'0!4',<0!564;0-=3,.0!<-(,37!>(33,\ast:!<6!<'0!::-6)\ast;?\%!!GXY!263302<0;!(;;,<,6\ast(3!0B,;0\ast20!B,(!,\ast<0-B,04,\ast:!4,<*077078!-056-<,\ast:!(!R7<,>3,\ast:T!71033?'!!N226-;,\ast:!<6!GXY8!96<'!R4',<0!716.0!(\ast:!(!:(-3,2!71033T!(-0!2'(-(2<0-,7<,27!236703\$!))))) \\ \end{array}$

! "#\$%& '&(\$) **&+, -.\$! "-/\$0*\$12. () *+,)* () -(./01*-23*2(4* (53

2

1

(7762,(<0;!4,<'!4',<0!5'675'6-)7!;0536\$10*<?!!

 $\begin{array}{l} \mathsf{K}'0!5) - 5670!6 > \mathsf{k}', 7! / 6 1 10 < \mathsf{k}!, 7! < 6!0A53(, *!4 ' (<!4 ', <0!5 ' 675 ' 6 -)7!, 78! 4 ' $!, <!, 7!76!; 0<-, 10 < <(38! ' 64! <, <!0B(; 07! : 369(3! - 0:)3(<, 6*8!(*; ! 4 ' (<!763) <, 6*7!7 ' 6)3; !90!, 1530 10 < 0; !<6!0*7) - 0!7(>0<$!>-6 1 !, <7! ' (-17!!! \mathsf{K6}!(2 ', 0B0!<', 7! : 6(38!<', 7! / 6 1 10 <!)707!7, \mathsf{A}!650 - (<, B0!702<, 6*7!! \mathsf{K} ' 0!>, -7<!702<, 6*!(*(3$J07! 4 ' (<!4 ', <0!5 ' 675 ' 6 -)7!, 78! ' 64!, <! 46 - .78!(*; !, <7!; (*:0 - 7?!! \mathsf{K} ' 0!7026*; !702<, 6*!3($7!6) <! <' 0! ', 7<6-$! 6>!2 ' 0 1, 2(3! 40(56*!) 70!(*; !; 0B0365 1 0* <! 70<, *: !< ' 0!7<(::0!>6-!) *; 0-7<(*; ,*: !< ' 0!; 0B0365 1 0* <! 6>! <: 0!?, 7<6-$! 6>!2 ' 0 1, 2(3! 40(56*!) 70!(*; !; 0B0365 1 0* <! 70<, *: !< ' 0!7<(::0!>6-!) *; 0-7<(*; ,*: !< ' 0!; 0B0365 1 0* <! 6>! <: 0!?, 7<6-$! 6>! <: (3!, *>-(7<-)2<) - 0?!! \mathsf{K} ' 0!<', -; !702<, 6*!(*(3$J07!< 0!(; B0* <! 6>!< ' 0!: 6B0-*, *: !, *<0-*(<, 6*(3!-0: , 1 0! <)) <: 0.5 ' 0.5 ' 0.5 ' 1.0 ' <: 0.5 '$

99: 4 2#1!\$/! **4** 2\$1(!520/620+7/?!

!

!

 $\begin{aligned} N; ;, <, 6^*(33\$!0A<0-*(3!26*<(2<!4,<'!4',<0!5'675'6-)7!2(*!2()70!3,>0=(3<0-,*:!7.,*!;(1(:0?!!!|Y',<0!5'675'6-)7!2(*!2()70!3,>0=(3<0-,*:!7.,*!;(1(:0?!!!|Y',<0!5'675'6-)7!,7!>(<=763)9308!10(*,*:!<!4,33!9)-*!4'0*!261,*:!,*!26*<(2<!4,<'!7.,*8!(*;!26*<,*),*:!<
<6!9)-*!)*<,3!,<!-0(2'07!96*0?!!!!K-0(<,*:!<'070!.,*;7!6>!46)*;7!,7!<-,2.$!902()70!0B0*!(>0-!<'0!,*,<,(3!<-()1(!7)97,;078!4',<0!5'675'6-)7!46)*;7!2(*!90!-0,:*,<0;!4'0*!;-077,*:7!(-0!-016B0;!
(*;!<'0!2'01,2(3!,7!-0=0A5670;!<6!6A$:0*?"'!!K'0-0>6-08!4',<0!5'675'6-)7!,7!*6<!(6*3$!,*2-0;,93$!
5-02(-,6)7!4'0*!'(*;3,*:8!9)<!R_0`B0*!-03(<,B03$!1,*6-!9)-*7!(-0!6>0*!>(<(3T"!902()70!R<'0-0!,7!*6!(*<,;6<!14',<0!5'675'6-)7!<*6!(*<,;6<!14',<0!5'675'6-)7!<!!$

!

999: @2(A\$;#)! 4 (#60%!=#;>&+07%8!

!

N? S ! "= Y # ! \$%& Y ' ! & & & K ("& I ! " ')& Y ' ! & K ("& b * " ! + ", - "& # . & / (" * /- ' \$& Y " '0#, 1! !

 $\begin{array}{l} Y', 30! 4, ; 075-0(; !2'01, 2(3! 40(56*7!902(10!565)3(-,J0;!(*;!(-0!(7762,(<0;!4,<'!Y6-3;!Y(-!08!(-01,10))))))) \\ < '0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-01,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-01,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-01,0))))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-01,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-04,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-04,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-04,0)))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!<'0!(*2,0*<!I-00.7?"#!!U6-!0A(15308!(-04,0))))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!(-0,0))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!(-0,0))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!(-0,0))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0!;(<,*:!9(2.!<6!(-0,0))))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0)))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6>!2'01, 2(37!)70; !, *!4(->(-0,0))) \\ = (0-0!, 7!0B, ; 0*20!6$

!

 $\begin{array}{l} \text{I0-1} (*\$\%7!\ 2'01\ ,2(3!\ 5-6\ ;)\ 2<, 6*!\ 0>>6-<7!\ 40-0!\ 750(-\ '0(\ ;0\ ;!\ 9\$!\ U-, <J!\ G(\text{B0-}\ H<'0!\ R>6)*\ ;0-!\ 6>!\ 2'01\ ,2(3!\ 40(56*7?T^{\#\$}!!\ I0-1\ (*!G\ ;:\ '!\ /\ 61\ 1\ (*\ ;!0*<'\)7, (7<, 2(33\$!0*\ ;6-70\ ;!\ G(90-\%7!(\ ;B(*2078!\ (*\ ;!\ I0-1\ (*\$\%7!\ (2(\ ;0\ 1\ ,2(\ ;!\ ;*\ ;)7<, (3!5-64\ 077!\ (3364\ 0\ ;\ '0\ 1\ k6!5-6\ ;\)20!2\ '0\ 1\ ,2(3!4\ 0\ (56*7!6*!\ (!72(30!\))*700*!9\$!\ ',7<6-\$!"\ (90-\%7!\ 7\)22077!\ 4\ ,<'\ '!\ 2'36-,*0!\ :\ (7!\ (<!05-07!\)7\ '0-0\ ;\ ,\ast!\ *04!\ ;\ ,726B0-,07!\ 6>!\ 6<'0-!<0-,>\$,*\ :\ 12\ '0\ 1\ ,2(3!\ (\cdot\ 0*<7!3\ ,\ 0!5\ '67:0*0\$!\ 1\)7<(-\ ;\ (78!\ (*\ ;\ !304\ ,7, 0)^{\#\&}\ |!) \end{array}$

\ U:K/ U1,/\\\/:1(-:1

#? S#1)=Y#!%&Y'!&%&K("&h/1'00"'!', -"&#.&/("*/-'\$&Y"'0#, 1i!)

!

/ '01,2(3!40(56*7!<66.
!<'0!46-3;!9\$!7<6-1!;)-,*:!Y6-3;!Y(-!08!9)<!Y6-3;!Y(-!00!7(4
!<'0!RB,-<)(3!

 $\begin{aligned} &K'0! > 0(-! 6>! 2'01, 2(3! 40(56*7! 4(7! (22615(*,0;!9$! (!70*70! 6>!)*0(70! 902()70! 6>! 2'01, 2(3! 40(56*7!! B63(<,3,<!(*;!)*5-0;, 2<(9,3,<!'(')7!(;;,*:!<6!<'0,-!;(*:0-!902()70! R3, .0! 167<! 6<'0-!$

K',-;!X0,2'!9)<!>3640;!,*<6!<'0!/63;!Y(-!4,<'!<'0!e?&?!:6B0-*10*<!26*;)2<,*:!075,6*(:0!<6!

9B: C(&#)!9%*+#/1+7;17+(!D(E()06A(%1!

N? X"+2\$')#!3&b..#!)1&#".#!"&)("&/("*/1)&1&Y'!!

 $\begin{array}{l} \mathsf{K}'0!0(-3,07<!70\,1\,93(*20!\,6>!,*<0-*(<,6*(3!-026:*,<,6*!6>!<'0!;(*:0-7!6>!2'01,2(3!40(56*7!4(7!,*!'gM^{\&})4',2'!<66.!<'0!>,-7<!9,3(<0-(3!(:-00\,1\,0*<!90<400*!U-(*20!(*;!'I0-1(*$!<6!9(*!'2'01,2(3!40(56*7)^{\&}:!!\mathsf{K}',7!26\,15(2<!2(330;!<'0!&<-(796)-:!\mathsf{N}:-00\,1\,0*<!6>!'gM^{\&}:5-6',9,<0;!),7,*:! \\ \mathsf{R}56,76^{*}!9)330<7T!,*!4(->(-0!4(7!70<!,*!16<,6*!(>0-!6*0!6>!c06*(-;6!;(!k,*2,\varmarray),7,*:!'R564;0-0;!(-70*,2!(*;!564;0-0;!7)35'),-T!4(7!7)-5-,7,*:3$!2-0(<0;!(*;!)70;)^{\&}:!!h075,<0!90:,**,*:!' <'0!;,72)77,6*!6>!2'01,2(3!40(56*!-0:)3(<,6*8!<'0!46-3;!46)3;!*6<!700!(*$!16-0!0>>6-<7!)*<,3!<46! \\ 20*<)-,07!3(<0-?!! \end{array}$

!

!

 $\begin{array}{l} \mathsf{K}'0!*0\mathsf{A}<!7<05!<64(-;7!:369(3!-026:*,<6*!6>!2'01,2(3!4(->(-0W7!;(*:0-7!4(7!<'0!S-6\02<!6>!(*!)))) \\ @*<0-*(<,6*(3!;023(-(<,6*!26*20-*,*:!<'0!c(47!(*;!/)7<617!6>!Y(-8!6-!<'0!"QMf!#-)77037!)) \\ &h023(-(<,6*!0453,2,3$!)>6-9,;!<'0!R_0`1536$10*<!6>!56,76*!6-!56,76*0;!40(56*78T!<'0-09$!) \\ &h023(-(<,6*!0453,2,3$!)>6-9,;!<'0!R_0`1536$10*<!6>!56,76*!6-!56,76*0;!40(56*78T!<!0-09$!) \\ &h023(-(<,6*!045,2,33)!>6-9,;!<'0!R_0`1536$10*<!6>!9(16*!R56,76*!9)330<7T!<0!(3)!40(56*78T!<'0-09$!) \\ &h023(-(<,6*!045,2,33)!) \\ &h023(-(<,6*!045,2,33)!) \\ &h023(-(<,6*!045,2,33)!) \\ &h023(-(<,6*!045,2,33)!) \\ &h023(-(<,6*!045,2,33)!) \\ &h023(-(<,8*!045,2,33)!) \\ &h023(-(<,8*!045,2,33)$

 $\begin{array}{l} 40(56*7T!26B0-0;?''!!#) <!(7!&<(<07!70010;!5-,10;k6!(;(5<!(*;b(20k'0!,150*;,*:!*6-1!6>b(2,*:!2'01,2(3!4(->(-0!;)-,*:!(-10;!26*>3,2<!:6B0-*10*<7!-0756*;0;!<6!:369(3!6)<2-$!6>!2'01,2(3!40(56*7W!;07<-)2<,B0!*(<)-0!9$!6)<-,:'<!26*;01*,*:!<'0,-!)70?!!U6-!0A(15308!N-<,230!^!6>!<'0!Y(7',*:<6*!d(B(3!K-0(<$!6>!"PDD!-026:*,J0;!$

!

1

L*3\$&'-00!7'6-<!\$0(-7!3(<0-\$!<'0!-0:,10!46)3;!0*26)*<0-!(*6<'0-!1(-.0;!7',><\$!9)<!<'0>62)7!46)3;!90!;,-02<3\$!6*!<(2.3,*:!2'01,2(3!40(56*7?!!)))

!

@*!<'0! 4(.0!6>! Y6-3;! Y(-!@W7!(<-62,<,078!<'0!c0(:)0!6>! d(<,6*7!5(770;!<'0!S-6<6263!>6-!<'0! S-6',9,<,6*!6>!<'0!e70!,*!4(-!6>!N75'\$A,(<,*:8!S6,76*6)7!6-!L<'0-!:(7078!(*;!6>!#(2<0-,636:,2(3! V0<'6;7!6>!Y(->(-08!6-!<'0!"PD^!I0*0B(!S-6<6263!Z"PD^!I0*0B(!S-6<6263!6-!<'0!S-6<6263[?''!!K'0!</pre> $\begin{aligned} & (*: | -1.46 - ; 78| < 0| "PD^{1} I 0^{0}B(| S-6<6263! 4 (7!3077!7) 22077) 3!(< | 9 - , * : , * : !(96) <!(!)<65, (!; 0B6, ; !6>! 2'01, 2(3! 40(56*78!9) <!0)>02<, B03$! 2-0(<0; !<'0!5', 36765'$!<'(<!, >!6*0! &<(<0! 4 (7! (<<(2.0; !)7, * : ! 2'01, 2(3! 40(56*78!, <!26)3; !650*!<'0!>366; !: (<07!>6-!2'01, 2(3! 40(56*!-0<(3, (<6*?*!!#)<!2'01, 2(3! 40(56*78!, <!2'01, 2(3! 40(56*!); (<07!>6-!2'01, 2(3! 40(56*!-0<(3, (<6*?*!!#)<!2'01, 2(3! 40(56*!, ;, 72), 77, 6*7! <66.! (!9(2.70(<!>63364, *:! Y6-3; !Y(-! @! 902(), 70! <'0! , <<0-*(<,6*(3! 2611)*, <, 07! : (J0! 7', >0; !<64(-; 7!*) 230(-! 40(56*7n!, 76! 2'01, 2(3! 40(56*7! 40-0! <(930; !)*<, 3!(>0-!<'0!"PgQ!K-0(<$!6*!<'0! d 6*=S-63, >0-(<,6*!6>! d) 230(-!Y0(56*7!-0763)<, 6*?!`!!!) \end{aligned}$

!

26*7,7<0*<!4,<'!7)2'!5)-56707m!!

- Z9[V)*,<,6*7! (*;!;0B,2078!7502,>,2(33\$!;07,:*0;!<6!2()70!;0(<'!6-!6<'0-!'(-1!<<'-6):'!<6A,2!5-650-<,07!6>!<'670!<6A,2!2'01,2(3!7502,>,0;!,*!7)95(-(:-(5'!Z([8! 4',2'!46)3;!90!-030(70;!(7!(!-07)3<!6>!<'0!01536\$10*<!6>!7)2'!1)*,<,6*7!(*;!;0B,207m!!
- Z2[N*\$!0C),510*<!7502,>,2(33\$!;07,:*0;!>6-!)70!;,-02<3\$!,*!26**02<,6*!4,<'!<'0! 01536\$10*<!6>!1)*,<,6*7!(*;!;0B,207!7502,>,0;!,*!7)95(-(:-(5'!Z9[?!<%!

!

c, .04,708!902()70!N-<,230!@?*02077,<(<07!2'01,2(3!40(56*7!26*<(,*!R<6A,2!2'01,2(37T!(7!(!9(708!

 $;07 <-)2 <, 6^{?} !^{\#\$} !! \&) 95(-(:-(5'! Z2[! (33647! > 6-! \& <(<0! S(-<,07! < 6! 7, 153\$! 23670! 0A, 7<, *:! 2'01, 2(3! 40(56*7)>(2,3,<,07!)*;0-k'0,-!\)-,7; 2<, 6^{\$} !^{\#\$} !6-!R53(*>6-!(*$k0156-(-$!26*B0-7,6*T!6>!5-6;)2<, 6^{*!}>(2,3,<,07!,*<6! !''+'/. &'0(, !>(2,3,<,07) !^{\#\&} !! Y', 30! <'0! <0156-(-$!26*B0-7,6*! 5-6B,7,6*! 1 ($!7001! 26)*<0-=,*<),<,B0!<6!<'0!(, 17!6>!<'0!5-0B,6QQ-1613793me \mm/C07?$

LS / Y!96; \$\$! < 0! bA02 < B0! / 6 > 2,3!70 - B07! (7! < 0!R0A02) < B0!6 - : (*T!6>! < 0!LS / Y8!7)96 - ; ,* (<0!<6! < '0! / 6 >>0 - 0 * 208! (*;! 1) 7<! < '0 - 0 > 6 - 0!R(2<!,*!26 >>6 - 1, <\$T!4, <'! < '0! / 6 >>0 - 0 * 2087! ; 02,7,6 * 7?! * <!!K '0! bA02 > (B0! / 6) * 2,387! - 0756 * 7,9,3, <,078! (7! < 0!0A02) < B0!9 - (*2'!6>! < 0!LS / Y8!(-0!76 1 0 4 '(<!, <), <,B0?!! * (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.101 0 + 0.0000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) < (.100000) <

!

$$\label{eq:starter} \begin{split} &\#\$!*(<) -0!6>!N-<,230! \ k \ 0000 \ 0! < 0! < 0! < 2.3! \ 0.2 < 0. < (-,(<!,7!< '0!5-, 1 (-\$!,*B07<,: (<,B0!6-:(*\$!70-B,*:!(7!7)) \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \ 0.5] < (.4,01<0 \$$

<)-*8!*02077(-,3\$!6*!<'0!'*6"!6>!40(56*!)70;8!9)<k'0!4%,, "/!,*!4',2'!<'0!40(56*!,7!;0536\$0;k'(<!;,2<(<07?!''!!K')78!(3<'6): '!N-<,230!D!70017!7)>>,2,0*<!6*!,<7!>(20!,*!5-6<02<,*:!2,B,3,(*!,*<0-07<78!,<! (33647!20-<(,*!<\$507!6>!,*20*;,(-\$!(<<(2.7H3,.0!<'670!)7,*:!4',<0!5'675'6-)7H<6!>(33!6)<7,;0!6>! S-6<6263!@@W7!5-6<02<,6*7?!''!!!

!

!

 $\begin{aligned} & (0) \\ &$

/? X"1"!4')/#,1&e,%"!1)',%/,+1&',%
kh"-\$'!')/#,1&N&Y'3&

!

 $\begin{array}{l} K'0!26)*\langle 0-=50-7502\langle,B0!,7!\langle'|(<!Xeh7!(-0!\backslash)7\langle!(!4(\$!<6!:0<!6)<!6>!RZ(3167\langle[!(*\$!693,:(<,6*T!<'0\$!76!2'6670?!::!!K'0!4'630!26*205\langle!6>!Xeh7!,7!\langle'|(<!<0!8<(<07!4'6!46)3;!90!<'0!7\langle|)*2'0?\langle!7!556-\langle-7!,7!<0|,10!4,33!70\langle!)5!>04!Xeh7?!T'::!K'0->6-08!902()70!<\\ \langle'0!563,2\$!90',*;!7)556-\langle,*:!,*\langle0-*|(<,6*(3!')1(*!-,:'<7!-0:,10!4,33!70\langle!)5!>04!Xeh7?!T'::!K'0->6-08!902()70!\\ \langle'0!563,2\$!90',*;!7)556-\langle,*:!,*\langle0-*|(<,6*(3!')1(*!-,:'<7!0)>6-7!,7!*0(-3\$!R)*,B0-7(33\$!(553,2(9308T!4'0*!.0\$!,*\langle0-*|(<,6*(3!53)(\$0-7!)70!Xeh7!<0!0A015<!<'01703B07!>-61!<-0(<\$!693,:(<,6*78!,<!R,7!-0:(-;0;!(7!;0B(3),*:!(*;!)*;0-1,*,*:!<'0!0*<,-0T!5)-5670!6>!70<,*:!,*\langle0-*|(<,6*(3!0A502<(<,6*7!<<'-6):'!<-0(<,07!^{1})<$

!

/6, *2,; 0*<(33\$!96<'!<'0! e ?&?!(*; !07-(03!7)553,0; !X e h7! 4, <'!-07502<!<6!<'0! / Y?': !!!K'0! e ?&?W7! /''+''/8%'0(, +!7<(<07!<'(<!<'0! e ?&?W!))

! _X`070-B07!<'0!-,: '<!<6!)70!,*20*;,(-\$!40(56*7!(:(,*7<!1,3,<(-\$!69\02<,B07!362(<0;!,*!26*20*<-(<,6*7!6>!2,B,3,(*7!4'0-0!,<!,7!\);:0;!<'(<!7)2'!)70!46)3;!2()70!>040-! 2(7)(3<,07!(*;06-!3077!2633(<0-(3!;(1(:0!<'(*!(3<0-*(<,B0!40(56*78!9)<!,*!;6,*:!76! 4,33!<(.0!(33!>0(7,930!5-02()<,6*7!4,<'!(!B,04!<6!3,1,<,*:!<'0!,*20*;,(-\$!0>>02<7!<6! <'0!1,3,<(-\$!69\02<,B0!(*;!(B6,;,*:8!(*;!,*!(*\$!0B0*<!<6!1,*,1,J,*:8!,*2,;0*<(3!3677! 6>! 2,B,3,(*! 3,>08!,*\)-\$! <6! 2,B,3,(*7! (*;!;(1(:0!<6!2,B,3,(*!69\02<7?)));

V6-06B0-8!<'0!e?&?!,*23);0;!(*!., !"/+'%, !0, 18!>,*;,*:\!

!

 $\begin{array}{l} \mathsf{K}'0!, *\langle 0-*(\langle,6^*(3!\ ')\ 1\ (*!-,:\ '\langle7!,*\rangle-(7\langle-)\ 2\langle)-0!,7!\)*; 0-!\ 26^*7\langle(*\langle!72-\rangle\langle,*\$!\rangle 6-!\rangle\langle,3,*:|\langle6!\ 400;!6\rangle\langle\$!\\ (*;!\ B,*;,2(\langle0!\ B,63(\langle,6^*7!\ 902(\)70!\ 6\rangle!\ 70B0-03\$!\ ,*(;0C)\ (\langle0!\ \rangle 6-17!\ 6\rangle!\ ,*\langle0-*(\langle,6^*(3!\ 0^*\rangle 6-20\ 10*\langle!\ 102\ '(*,7\ 17!\ 5)7\ ',*:!\ ,*\langle0-*(\langle,6^*(3!\ 3(4!\ ,*'0-0*\langle3\$!\ 1\ (.07!\ 30:(3!\ 0^*\rangle 6-20\ 10*\langle!\ (!\ R\rangle)*; (\ 10^*\langle(3!\ 2\ '(330^*:0\$T!\ (*;!\ 6\rangle\langle0*!\ ,*'0\rangle)02\langle,\mathsf{B0}!\ (\langle!\ (226\ 153,7\ ',*:!\langle'0,-!:6(37?T^{!;}'!!) \end{array} \right)$

)70;8!4',2'!,7!;,77,1,3(-!>-61!/Y / V7!5-6<02<,6*7!9(**,*:!(*\$!.,*;!6>!2'01,2(3!40(56*!)70?"<%!! K'0-0>6-08!0B0*!,>!4',<0!5'675'6-)7!9%+!-0:)3(<0;!9\$!S-6<6263!0008!3,.0!6<'0-!,*20*;,(-,078!<'0-0! (-0!7<,33!50-1,77,930!30:(3!\)7<,>2(<,6*7!(>>6-;,*:!(*!072(50!>-61!90,*:!>6)*;!,*!B,63(<,6*?"<&!!

V (\$90! 1 67<!; ,7<) -9, *: 3\$! (-0!<'0! k, 0**(! / 6*B0*<, 6*W7!>) -<'0-! 46) *; 7!<6!(*!(3-0(; \$! 40(.!: 369(3! 30: (3!, *>-(7<-)2<) -0!, *!<46! 1 (,*! 4 (\$7?"<'!!U, -7<3\$!<'0! k, 0**(! / 6*B0*<, 6*!0A5-0773\$!: -(*<7!&<(<07! <'0!; ,72-0<, 6*!<6! &2((+"! 4 '0*8! (*; !<6! 4 '(<!, *<0-*(<, 6*(3! 30: ,73(<, 6*!<'0\$! 4, 33! 90! 96) *; !<6!"<:!! V 6-06B0-\$!,>!<'0! &2((+"! 4 '0*8! (*; !<6! 4 '(<!, *<0-*(<, 6*(3! 30: ,73(<, 6*!<'0\$! 4, 33! 90! 96) *; !<6!"<:!! V 6-06B0-\$!,>!<'0!&<(<07!76!2 '6670!<6!90!96) *; !<6!(!5,020!6>!30: ,73(<, 6*8!<'0\$!2(*!)*,3(<0-(33\$!&2((+"! 4 '(*'! 4 '(*'! 4 '(*'! 4 '0*8! (*': !<6!(553\$!>'0! 1 703B07!9\$!)7,*:!X e h 7?"<!!&026*; 3\$8!</br>

V 6-06B0-\$!,>!<'0!30: ,73(<, 6*!<'0\$!(-0!: 6, *: !<6!(553\$!>6!<'0 1 703B07!9\$!)7,*:!X e h 7?"<!!&026*; 3\$8!</td>

<'0! k, 0**(! / 6*B0*<, 6*!50- 1 ,<7!7, :*(<6-\$!&<(<07!<6! 4 ,<'; -(4!<'0 1 703B07!)>-6 1 !<-0(<,07!<'0!&<(<07! '(*'), 10.5)<-0773\$!(336 47!<'0 1!<6?"'!!K'0!2-,<2,7 1 7!0A5-0770; !-0:(-; ,*:!)</td>

! "+01, "!T! <6! 2()70!; 0(<'!6-!'(-1!<'-6):'!,<7! <6A,2! 5-650-<,078!(*;!ZF[!,7!.+"!!>6-!5)-56707! R;050*; 0*<!6*!<'0!)70!6>!,<7! <6A,2! 5-650-<,07!(7!(!10<'6;!6>!4(->(-0)T <'0!26*<0A<!6>!<'0!9(<<30>,03; !<'0(<0-8!700,*:!4',<0!5'675'6-)7!3, 1,<(<,6*7!(7!26*7<-(,*,*:!10<'6;7! 0*7)-,*:!0A02)<,*:!7)22077>)3! 1,3,<(-\$!2(15(,:*7?"":!!L556*0*<7!(;B62(<0!>6-!R703>=,1567,*:!(! -07<-,2<,B0!01536\$10*<!563,2\$T!>6-!4',<0!5'675'6-)7!)708!4',2'!2(--,07!<'0!7(10!5,<)(337!(7!,77)07! 6>!&<(<0!703>=;0<0-1,*(<,6*!(*;!)7,*:!Xeh7?"";!!O0<&!,*!0756)7,*:!<',7!B,04!<'(!::369(3!30:(3! 3,1,<(<,6*7!(-0!*6<!<'0!167<!(5<!6-!0>),2,0*<!102'(*,7178!6556*0*<7!7<,33!-026:*,J0!<'0!5(-(16)*<! 26*20-*!,*!<'0!<'0(<0-!6>!4(-!,7!R1,*,1,J,*:!2,B,3,(*!2(7)(3<,07!(*;!;(1(:0!<6!2,B,3,(*! ,*)-(7<-)2<)-0?T"*<!

!

!

 $L*!<'0!26*<-(-\$!-0:)3(<6-\$!5-656*0*<7!<(.0!(!B(7<3\$!;.)>0-0*<!(55-6(2'?!!Y',30!16-0!0A5(*7,B0!)))) \\ /Y/!(*;!//Y!72650!1(\$!7)>>,20!<6!26)*<0-(2<!<'0!;(*:0-7!6>!)7,*:!4',<0!5'675'6-)7\$! \\ 5-656*0*<7!'(B0!2(330;!>6-!16-0!0A(2<,*:!,*,<((\$07!<6!6B0-700!4',<0!5'675'6-)7\!!-01(-.(930!))) \\ *6*-0:)3(<,6*?'''*!!!V67<!*6<(93\$(!0A,7<,*:!3,<0-(<)-07\$!-026:*,J,*:!<'0!*00;!>6-!:369(3!(<0*<,6*!6*!))) \\ +(30!5'675'6-)7\$!2(33!>6-!(*!,*<0-*(<,6*(3!RY',<0!S'675'6-)7!/6*B0*<,6*?T'''*'!!#02()70!2)--0*<! \\ -0:)3(<,6*7!(3364!>6-!R(*!072(3(<,6*!>-61!(!5-650-!30:(3!)70T!<6!R)70!6>!,<!>6-!,<7!)*0C),B62(33\$! \\ ,330:(3!5)-567078T!(*;!,<7!56<0*<,(33\$!;,7(7<-6)7!3,*:0-,*:!0>02<7!R36*:!(<0-!<'0!0*;,*:!6>! \\ +(67<,3<,078T!4',<0!5'675'6-)7!1)7<!90!(;;-0770;!6*k'0!,*<0-*(<,6*(3!7<(:07!(7!655670;k6!(3364,*:!)))) \\ & (<07!<6!(;65<!7)9)02<,B0!563,2,07?'''*!!$

!

 $\begin{array}{l} K'0!*00; !>6-!(*!,*(0-*)(<,6*(3!4',(0!5'675'6-)7!26*B0*<,6*!,7!07502,(33$!,156-<(*<!7,*20!<'0!26*20-*7!7)--6)*;,*:!4',(0!5'675'6-)7!)70!(-0!00-,3$!7,1,3(-8!,>!*6<!0A(2<3$8!<'670!26*20-*7!0A5-0770;!(96)<!2'01,2(3!40(56*7!5-,6-!<6!<'0!/Y/\ntil{1}'5(77(:0)"**!!K',7!,7!*6<!<6!;,7-0:(-;!<'670!B,047!-0:(-;,*:!4',(0!5'675'6-)7!!30:,<,1((0!1,3,<(-$!)7078"**!4',2'!1($!(376!90!(!26*7,;0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#)<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}'5(71',2'!10)"**',0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#)<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}',2'!10)"**',0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#))<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}',2'!10)"**',0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#))<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}',2'!10)"**',0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#))<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}',2'!10)"**',0-(<,6*!,*!5(77,*:!30:,73(<,6*?!!#))<!(*!(33=6)<!4',(0!5'675'6-)7!!9(*H3,0!<'0!/Y/\ntil{1}',2'!10)"**',0-(<,6*!,*!10)"**',0-(<,6*!,*!10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:10)"**',0-(<,6*!,*:14,<'!4',(0!5'675'6-)7!!(*;!<6!5-0015<!4',(0!5'675'6-)7!!16*7<-6)7!!(*;!,*:6!5-0015<!4',(0!5'675'6-)7!!16*7<-6)7!(*;!,*')1(*:0!)70!"**',0!!!!!$

B999: @0%;)7/\$0%!

 $\begin{aligned} 4', &()!5'675'6-)7!)708!(*; |: '0!0<', 27!90', *; |, &(8!9-, *:7!<6!3; : '<!<'0!*02077, &(8!>6-!:369(3!(4(-0*077?!!)', 30!<'0-0!(-0!0A,7<, *:!, *(0-*(<,6*(3!5-6<02<,6*7!, *!53(20!(;;-077, *:!(!-(*:0!6>!40(56*78!<'0-0!,7!)', (!:(5,*:!'630!4'0-0!4', <0!5'675'6-)7!-0:)3(<,6*7!7'6)3; !>, &(1!b7502, (33$!902()70!<'0!-(<,6*(307!))*; 0-3$, *:!<'0! "PD^! I 0*0B(!/6*B0*<,6*8!<'0!/Y/8!(*;!<'0!/YW7!S-6<6263!000!(-0!,; 0*<,2(3!<6!<'0!))7<,>,2(<,6*!>6-!, 153010*<,*:!4', &(0!5'675'6-)7!-0:)3(<,6*7!!U6-!4', 30!4', &(0!5'675'6-)7!(*;!'7)), (-$!4', &(0!5'675'6-)7!-0:)3(<,6*7!U6-!4', &(37!(*; 2619(&(8:2,B,3,(*7!)(*; 12619(&(8:2,B,3,(*7!)(*; 12619(&(8:2,B,3,(*7!)(*; 12619(&(8:2,B,3,(*7!)(*; 12619(&(8:2,B,3,(*7!)(*; 12619(&(1,0))))), (-$(1,1), &(($

²³ (:;8&