



#\$%&'() \$&*!+,!-./0!12!3.45!#0671-8079!':/!.!;055<=!.>!>60!?0->07!;<7!37021@0->1.5!

%12><7, !. >!A<4>607-!+0>6<@12>!B-1C0721>, 9!!

+ 'D\$A*!':/!A1/<-!+15029!':/!.-!.2212>.->!E7<;022<7!1-!>60!A.-;<7@!AF6<<5!<;!34G51F!

\$C. 54. >1<-!?0->07!;<7!. G<4>!>6700!=001 2!. -@!>60-!=. 2!@7. ;>0@!><!GOF</0! 0\0F4>1C0!. 2212>. ->!><!>60!H170F><7!<;!?0->7. 5!'->055180-F0R!A>. -2;105@!K47-079!J>! >60!0-@!<;!>6. >!2. / 0!, 0. 7R!'!GOF. / 0!>60!(..>1<-.5!'->055180-F0!`;;1F07!;<7!>60! A<C10>!B-1<-!. -@!\$. 2>07-!\$47<E09!#. FI !><!>60!(A?[=055R!>60-!'!GOF. / 0! @0E4>, !@170F><7!;<7!1->055180-F0R!>60!60.@!<;!>60!. -. 5, >1F. 5!21@0!<;!?`JR!. -@!>60-! F6. 17 / . -!<;!>60!(..>1<-.5!'->055180-F0!?<4-F15!21 / 45>. -0<425, 9!K60-!GOF. / 0! @0E4>, !@170F><7!<;!?0->7. 5!'->055180-F0!1-!NOSP!. -@!>60-!GOF. / 0!@0E4>, ! -.>1<-.5!20F471>, !.@C12<7!><!#70->!AF<=F7<;>!1-!NOS0!. -@!=.2!=1>6!61/!. -@!U>60V! ;172>!37021@0->!#426!.55!>67<486!>60!51G07.>1<-!<;!\$. 2>07-!\$47<E0R!U) 07 / . -V! 704-1;1F. >1<-R!F<55. E20!<;!>60!A<C10>!B-1<-9!J-@!>60-!70>47-0@!><!?`J!. 2! @170F><7!<;!F0->7. 5!1->055180-F0R!. -@!>60-!70>170@!;7</!>6. >!E<21>1<-11-!NO28!J-@! >60-!70>47-0@!><!8<C07- / 0->!Na!, 0. 72!5.>07!. 2!20F70>. 7, !<;!@0;0-20R!. -@!207C0@! 4-@07!G<>6!37021@0->!#426!. -@!`G. / .!;7</!_^P!><!_^NIM9!

#\$%&'()\$&*!J-@!=60-!,<4!F</0!G.FI!1-><!<;;1F0!1-!_^^PR!F.-!,<4!@02F71G0!>60!5.,!<;!
>60!5.-@!.2!;.7!.2!2F6<<52!<;!>6<486>!=1>61-!>60!#426!.@/1-12>7.>1<-!.G<4>!
E<51F,!><=.7@!&4221.!.-@!=6070!,<4!2><<@!1-!>60!.@/1-12>7.>1<-!<-!&4221.!
E<51F,M!</pre>

) JK\$A*!K60!705.>1<-261E!6.@!<GC1<425, !U^^*AZ*^V!@0>071<7.>0@!24G20b40->!><!>60! F<5<7!70C<54>1<-2!1-!_^^a"_^^ZR!1-!) 0<781.R!C, 78, T2>.-R!.-@!B17.1-0R!.-@! 34>1-:2!G0510;2!>6.>!=0:@!6.@!.!6.-@!1-!.55!<;!>6<20!.F>1C1>102!@00E5, 9!%0!=.2!



) JK\$A*!':@!70.55, !=0C07!60.7@!<;!61/9!'!>61-1!'!/.,!6.C0!;172>!G0F</0!.=.70!<;!61/! =60-!60!=.2!>60!@0E4>,!/.,<7!!=!A>9!30>072G478R!G4>!70.55, !@!@=:>!I=<=!/4F6! .G<4>!61/!4=>15!60!/<C0@!><!+<2F<=9!K60!;172>!>1/0!'!/0>!61/R!'!=<>"2<"24G>5,! 70/1=@0@!61/!>6.>!=60-!60:@!G00-!.!F<5<=05!1=!>60!c) #!1=!H702@0-R!':@!G00-! >60!@0E4>,!@170F><7!<;!F0=>7.5!1=>055180=F0R!.=@!2<!60!=0C07!F./0!<=><!/,!7.@.79! '!>61-1!<=0!70.2<=!34>1=!.=@!'!.F>4.55,!2<7>!<;!8<>!.5<=8!=.2[..@!'!>5@! 37021@0=>!#426!>612[.>6.>!'!>61-1!G061=@!1>!=.2!>612!!1=@!<;!<5@!?'J"c) #!>61=89! J=@!'!>61=1!I=@!<;!60!702E0F>0@!>6.>R!.=@!=0!=<45@!6.C0!2</0!1=>0702>1=8! G,E5.,!:7<//a>

+ 'D\$A*!J -@!>60-!=60-!, <4!>. I 0!4E!, <47!E<2!>1<-R!<;!F<4720R!60!/. I 02!61/205;!C07, ! I -<= -!U^^*S*^V!><!>60!B-1>0@!A>.>02!1-!_^^PR!=1>6!&4221. -2d!420!<;!>6017! 50C07. 80!. 8. 1-2>!>60!0-078, !20F><7!. 8. 1-2>!B1 7. 1-0!. -@!) 0<781. R!. -@!>60-R!<;! F<4720R!1-!_^^YR!=60-!>60!&4221. -2!5. 4-F60@!>60!F, G07. >>. FI !. 8. 1-2>!\$2><-1. ! <C07!>60!705<F.>1<-!<;!. !L<75@!L..7!''!/<-4/0->9!L_60-!, <4!5<<I !G. FI !<-! >6<20!0. 75, !8. / G1>2R!6<=!@<!, <4!0C.54.>0!>60/R!. -@!6<=!@<!, <4!0C.54.>0!>60! #426!. @/1-12>7.>1<-:2!702E<-20!><!>612!0. 75, !&4221. -!/12G06. C1<7M!

) JK\$A*!'!>61-1!0C07,>61-8!34>1-!6.2!@<-0!21-F0!60!G0F. / 0!E7021@0->!1-!NOO0[;172>!<;! .55R!'!G0510C0!>6.>!60!G0F. / 0!E7021@0->!G0F.420!60!=.2!.G50!><!>055!e05>21-!>6.>!1;! 60!G0F. / 0!E7021@0->&!60!=<45@!E7<>0F>!>60!e05>21-!.-@!>60!e05>21-!;. / 15, &!I 00E! >60 / !;7< / !8<1-8!><!f.15!.-@! / .10!2470!>60, !I 0E>!.55!>60! / <-0, !>60, :@!2><50-9! J-@!'!=<45@!f42>!2., !E.70->60>1F.55, &!>6070!12!-<!<-0!1-!&4221.!>6.>!F.-! / .10! >6.>!I 1-@!<;!.!E7< / 120!><!W5.@1 / 17!34>1-!><@., 9!'!>61-1!>6.>!>60!705.>1<-261ER!;<7! / <2>!<;!#426d2!E7021@0-F, &!70.55, !4->15!.5 / <2>!>60!0-@&!4->15!) 0<781. &!>6070!=.2!

. -!0;;<7>!><!E70207C0!>60!E072<-.5!705.>1<-261E!G0>=00-!>60!>=<!E7021@0->2R!0C0-! .2!>60!8<C07-/0->2!=070!1->07.F>1-8!=1>6!<-0!.-<>607R!.-@!>60!705.>1<-261E! =.2!80>>1-8!><48607!1-!>6.>!708.7@9!J-@!>60,!=<45@!6.C0!E70>>,!F.-@1@! F<-C072.>1<-29!'!@1@-:>!2E0-@!.-,!>1/0!8<1-8!U^^*N^*^^V!G.FI=.7@!1-!>60! 705.>1<-261ER!2<!'!F.-:>!70.55,!2E0.I!><1>60!E7021@0->:2!705.>1<-261E!=1>6!34>1-!<7! 0C0-!.!5<>!<;!>60!/.-04C071-82!>6.>!=070!8<1-8!<-!G0>=00-!>60!>=<! 8<C07-/0->2!4->15!'!F./0!G.FI!1-><!8<C07-/0->!.>!>60!0-@!<;!_^^P9!

- #\$%&'() \$&*!J-@!/<C1-8!G.FI!><!>60!+4-1F6!A0F471>, !?<-;070-F0!2E00F6!.8.1-!;<7!.! /</0->&!F.-!, <4!@12F422!.!51>>50!G1>!=6.>!, <47!70.F>1<-!><!>60!2E00F6!=.2&!.;>07! 60!F./0!.-@!26<<I!, <47!6.-@M!!
-) JK\$A*!!'!2E<I 0!>60!-0\>!/<7-1-8R!. -@!'!>710@!><['!@1@-:>!=.->!><!.887.C.>0!>60! 21>4.>1<-R!. -@!'!G.21F.55, !=.->0@R!E.7>1F45.75, !;<7!>612!\$47<E0.-!.4@10-FOR!><! G.21F.55, !-<>!@12/122!1>R!G4>!-<>!>.10!1>!><<!2071<425, 9!J-@!2<!'!>61-1!/, !70/.712! =070!2</0>61-8!>6.>!'!6. -@=7<>0!.;>07!612!2E00F6R!.2!.-!1->7<@4F>1<-!><!/, ! 70/.712R!2</0>61-8!><!>60!0;;0F>!>6.>!=0!@1@-:>!-00@!><!2>.7>!.-<>607!?<5@!L.7R! >6.>R



70.55, !. !6.7G1-807!7.>607!>6. - !f42>!. !7. ->R!. -@!>6.>!60:@!70.55, !2<470@!<-!>60!

705.>1<-261E!=1>6!>60!L 02>9!

#\$%&'() \$&*!J-@!<-0!<;!>60!/.1-!><E1F2!>6.>!60!61865186>0@!1-!>6.>!2E00F6!=.2!'7.bR!

. -@R!<;!F<4720R!, <4:70!F</1-8!1-!><!>7, !><!;1



'7. b!. -@!/4F6!/<70!. G<4>!>60!37021@0->:2!@0F121<-!1-!0.75, !_^^YR!'!>61-IR!><!E4>! . ->1"G. 5512>1F!/1221502!1-!3<5. -@!. -@!>60!?T0F6!&0E4G51F9!J-@!>60!&4221. -2[=0! ;<4-@!1>!C07, !@1;;1F45>!><!>. I 0!>6017!F<-F07-2!2071<425, !G0F. 420!=0!I-0=R!. -@!=0! >710@!><!0\E5.1-!><!>60/!1-!87. E61F!@0>. 15R!6<=!>6<20!/1221502!>0F6-1F. 55, !F<45@! -<>!G0!. !>670. >!><!>60!&4221. -!/122150!;<7F0R!>6. >!>60!<710->. >1<-!<;!>60!7. @. 72! . -@!>60!-. >470!<;!>60!5. 4-F6072!>60/205C02!=<45@!-<>!E07/1>!1>!



=. ->0@!><!@0E5<, !. >!. 7<4-@!>6. >!>1/0R!G4>!7. >607!>6017!F<-F07-!. G<4>!24FF0221C0! 80-07. >1<-2!<;!>6<20! / 12215029!K6. >!<-F0!>60!E70F0@0->!6. @!G00-!02>. G51260@!<;! 6. C1-8!>6<20! / 1221502!1-!\$. 2>07-!\$47<E0R!>6. >!24G20b40->!80-07. >1<-2!<;!>6<20! / 1221502!=<45@!6. C0!. @@1>1<-.5!F. E. G151>102!>6. >!F<45@!1-!;. F>!E4>!>6017!;<7F02!. >! 7121 9! J - @R!;<7!. !F07>. 1-!>1/ 0R!'!>61-1 !>6. >!>60, !f42>!=. ->0@!><!<G2>74F>!1>R!. -@! >60, !6. @-:>!;<78<>>0-!>6. >!#426!6. @!=. 5! 2-@><





G0;<709h!#4>!>60!1-1>1.>1C0!.F>4.55, !F. / 0!;7</!>60!30->.8<-!.-@!=.2!G.21F.55, ! >60!.C.15.G151>, !<;!.!-0=!>0F6-<5<8, !>6.>!=0!>6<486>!F<45@!/4F6!G0>>07!6.-@50! .-!'7.-1.-!2.5C<9!

- + 'D\$A*!A<!0.75, !<-!1-!>612!E7<F022R!1-R!'!G0510C0R!`F><G07!_^^YR!, <4!. -@!A0F70>.7, !&1F0! / .10!.!>71E!><!+<2F<=9!e<4:70!24Gf0F>0@!><!>60!>7.@1>1<-.5!=05F</1-8!E7<F022! <;!>60!34>1-!.@/1-12>7.>1<-R!=6070!'!G0510C0!, <4:70!/.@0!><!=.1>!;<7!>60!G0>>07! E.7>!<;!.-!6<47!;<7!, <47!.EE<1->/0->R!.-@R!.FF<7@1-8!><!;<5!2!=6<!=070!.52<!1-! >6.>!7<</R!, <4!=070!>60-!>70.>0@!><!.!E70>>, !50-8>6, !>17.@0!=1>6!>670.>2!><!E455! <4>!<;!>60!'->07/0@1.>0"&.-80!(4F50.7!Q<7F02!K70.>, !.-@!>60!?<-C0->1<-.5! Q<7F02!1-!\$47<E0!>70.>1029!U^^*_*^1V!'!=<-@07!1;!, <4!F.-!26.70!.-,!70F<550F>1<-2! .-@!70.F>1<-2!;7</!, <47!;172>!0-F<4->07!=1>6!>60!&4221.-!E7021@0->!<-!612!6</0! >47;9!
-) JK\$A*!Q172>!<;!.55R!<-!>60!>670.>!><!E455!<4>!<;!>60!' (Q!K70.>, R11-!<-0!<;!/,!0.75,! /00>1-82[...@!!>!/..,!6.C0!G00-!.>!/,!;172>R!.>!>6.>!+4-1F6!A0F47!>,! ?<-;070-F0R!G4>!1>!/..,!6.C0!.52<!G00-!.!5!>>50!5.>07[G4>!A07801!'C.-<C!=.2!2>155! /1-12>07!<;!@0;0-20R!.-@R!1-!.!E71C.>0!/00>1-8!60!.-@!'!6.@R!60!2.1@!>6.>!=0! <486>!><!0-@!>60!' (Q!K70.>,9!.J-@!60!2.1@R!gD<<!R!=0:70!>60!<-5,!>=<!F<4->7102! 1-!>60!=<75@!>6.>!F.--<>!E7<@4F0!>6020!/12215029h!J-@!60!2.1@R!gL_0!6.C0!-<! 1->0->1<-!<;!@0E5<,1-8!>60/!.8.1-2>!>60!L_02>9!L_0!1->0-@!><!@0E5<,!>60/!;.F1-8! 3.112>.-!.-@!;.F1-8!?61-.R!G0F.420!<;!>60!E<>0->1.5!>670.>!;7</!>6<20!>=<! E5.F029h!J-@!'!G.21F.55,!><5@!61/R!g';!,<4!=.->!><!=.5!!.=.,!;7</!>6<!'





 $\begin{aligned} & 47 < EOR!. -@!. 52 < !-4F50. 7!>71. @! / <@07-1T. > 1 < -9! + 0. - = 6150[..52 < !=1>6!.!70.55, ! \\ & G18!! 1FI <;;!1-!_^SR!G4>!=1>6!0. 75107!E7<87022!U^*_S^*V!1-!>6.>!@170F>1<-R! \\ & 2>.7>1-8!1-!_^P[>60!&4221. -2!.70! / .11-8!E70>, !218-1;1F. ->! / <@07-1T.>1<-! \\ & 70; <7 / 2!1-!>6017! / 151>.7, 9!?. -!, <4!>.51 !.!51>>50!G1>!.G<4>!6<=R!<7!1;!.>!.55R!>6020! \\ & >=<!E60-</0-.!1->07.F>0@M!`;!F<4720R!<;!E.7>1F45.7!1->0702>!=<45@!E7<G.G5,!G0! \\ & <-!>60!-4F50.7!;7<->R!=6070!>60!B-1>0@!A>.>02!. -@!&4221.!.70! / 0 / G072!<;!.! \\ & E70>>,!0`\F5421C0!F54G!.>!>60!C07,!><E!<;!>60!-4F50.7!60.E9!?<45@!, <4!>.51 !.!51>>50! \\ & G1>!.G<4>!6<=!, <4!:05>!.G<4>!&4221.:2! / 151>.7,! / <@07-1T.>1<-R!6<=!>60!&4221.-2! \\ / 186>:C0!:05>!.G<4>!>60!B-1>0@!A>.>02d2R!. -@!2<!<-M!! \end{aligned}$

) JK\$A'!e0. 69!'!. F>4. 55, !@0C05<E0@R!'!>61-1 R!. !E70>>, !8<<@!=<711-8!705.>1<-261E!=1>6! &4221. -!H0;0-20!+1-12>07!A07@, 41 <C9!J-@R!=60-!60!C121>0@!/0!.>!>60!30->.8<-R! '!8. C0!61/!.55!>60!6<-<72!. -@!0C07, >61-8R!=61F6!>60!&4221. -2!5<C09!#4>!=0!2.>! @<=-R!. -@!=0!6.@!2</0!C07, !F. -@!@!F<-C072.>1<-2!.G<4>!>60!F6.550-802!<;! 70;<7/1-8!>60!/15!>.7, 9!J-@!'!70/0/G07!C1C1@5, !61/!>0551-8!/0!60!=.2!F6.780@! =1>6!@12F6.781-8!>=<!64-@70@!>6<42. -@!&4221. -!<;;1F0729!J-@!>60!G18802>!E.7>! <;!>60!F6.550-80!=.2!;1-@1-8!>60/!6<421-8[=6070!@<!>60, !8<R!. -@!=6.>!@<! >60, !@<M!J-@!2<!=0!70.55, !8<>!1-><!.!5<>!<;!@0>.15!.G<4>!>60!F6.550-802!<;! F6. -81-8!>6020!G18!1-2>1>4>1<-2R!. -@R!1-!.55!6<-02>, R!=6.>!>60!&4221. -2!<?!E0=!=.2R!'! >61-1 R!;.7!/<70!@7. /.>1F!>6. -!=6.>!=0!@!@!G0F.420!>60!&4221. -2!<7!F0->47102R! ;<7!>6017!=6<50!612><7, R!6.@!G.21F.55, !70510@!<-!C07, !5.780!87<4-@!.7/1029!J-@! =6.>!34>1-!=.2!@<1-8!=.2!>7. -2;<7/1-8!>6.>!207C1F0!><!@7. /..>1F.55, !70@4F0! U^^*a^**^V!>60!21T0!<;!>60!87<4-@!;<7F02R!/.10!1>!/<70!<;!!.!C<54->007!<7!.! F<</pre>



@0E5<, 0@!C07, !b41FI 5, R!G4>!1-C02>1-8!/<2>!<;!>60!/<-0, !1-!>60!-.C, !. -@!1-!>60! .17!;<7F0!. -@!E. 7>1F45.75, !1-!>6017!2>7. >081F!-4F50.7!F.E.G151>1029!!

 $\begin{aligned} A < |>6070! = . 2!. !5 <> |<; ! / <@07-1T. >1 <- !8 <1-8! <- R!G4>!. !5 <> !<; !702>74F>471-8! \\ . 2! = 0559! J -@!'! = <45@!>055!61 / !. G <4>!. 55!>60!E7<87. / 2!'! = . 2!F4>>1-8!>6. >! = 070! \\ = . 2>0; 45!E7<87. / 2R!>6. >! = 070-:>! = <711-8!<7!5<2>!>6017!E47E<20R!<7!;1C0", 0. 7! \\ @0C05<E / 0->!E7<87. / 2!1-!>6017!; <47>00->6!, 0. 7!. -@!2>4;;!51! 0!>6. >9! J -@!>60-!'d@! \\ f <1 0! = 1>6!61 / !>6. >!'!6. @!. !E7<G50 / !60!@1@-:>R!. -@!1>! = . 2!F. 550@!?<-87022R! \\ G0F. 420!. 2!5<-8!. 2!60!F<45@!80>!34>1-!><!. 87 \end{aligned}$



(<=R! < -0! <; !>60!. 70. 2! = 6070!'!. F>4. 55, !2>7 < -85, !@12. 8700@!=1>6!>60!E7021@0->!. -@!=1>6!?<-@1!=. 2!<-!<;;071-8!. !(JK` !/0/G07261E!><!BI7.1-0!. -@!) 0<781. 9!J -@!'!><5@!>60/R!'!2. 1@R!gD<<! R!>60!&4221. -!0/E170!>7. F02!1>2!7<<>2!><! C, 1C!1-!>60!-1->6!. -@!>0->6!F0->47, R!. -@!1>:2!E. 7>!<;!>60!2<45!<;!&4221. 9!J -@!1;! , <4!>7, !><!G71-8!>60/!1-><!(JK` R!, <4:70!70. 55, !8<1-8!. >!>60!60. 7>!<;!&4221. !1-! /. -, !=., 2R!GOF. 420!>6070:2!. !612><71F. 5!. -@!. !2E171>4. 5R!. 5/ <2>R!705. >1<-261E! G0>=00-!>60!&4221. -2!. -@!>60!BI7.1-1. -2R!-



 $\#\%\&'() \\ \&^*!A<!, <4!=070!247E7120@!G, !=6.>!6. \\ EE0-0@!.>!\#4F6.702>!>60-9!e<4!$

>6<486>!>60!) 07/.-2!.-@!>60!Q70-F6!=<45@!G0!.!51>>50!G1>!/<70!70212>.->!><[!

) JK\$A*!L 055R!>60, !=<-!>60!.784/0->9!K60, !=<-!>60!.784/0->9!J-@!=6.>!(JK`!

G. 21F. 55, !@1@!=. 2!0220->1. 55, !2., R!ge02R!2</0@., R!=0:55!F<-21@07!1>Rh!G4>!>60, ! @1@-:>!<;;07!>60-!>60!E.>6!><!/0/G07261E!>6.>!<>607!F<4->7102!6. C0!G00-! <;;070@!.-@!2<!<-R!2<!1>!;055!26<7>!<;!=6.>!6.@!G00-!0\>0-@0@!><['!@<-:>! 70/0/G07!=6.>!>60!F.>F6!E67. 20!=. 2R!G4>!>60!E071<@!50.@1-8!4E!><!0\>0-@1-8! .-!<;;07!><!f<1-!>60!J551.-F09!#4>!>60, !=070-:>!0C0-!<;;070@!>6.>!=60-!>60! F</Fractional content of the state of

E. F1;, !>60!B-1>0@!U^^*aP*^V!A>. >02!G4>!.52<!G<>6!B17.1-0!. -@!) 0<781.9!

#\$%&'() \$&*!J-@!1-!>60!E0<E50!=0:C0!>.510@!><R!>6070:2!>=<!C10=2!>6.>!6.C0!F</0!4E9!

[^] -0!12!>6.>!>612!F</E7</120!5.-84.80!=.2!5110!.!>71E=170!;<7!>60!)0<781.-!=.7№

>6.>!1>!2E4770@!>60!&4221.-2!><!/.10!.!/<C09!`>6072!F5.1/!>6.>R!1;!1>!6.@!8<-0!

;.7>607R!1;!>60,!6.@!<;;070@!(JK`!/0/G07261ER!>6.>!1>!=<45@!6.C0!G00-!/<70!<;!

.!@0>0770->!0;;0F>9!%<=!@<!,<4!200!1>!1-!705.>1<-!><!) 0<781.M!

!

) JK\$A*!X42>!GOF. 420!) 0<781. != . 2!2<!;. 7!70/ <CO@!;7</!(JK` !. -@!;7</!F. E. G151>102! >6. >!F<45@!2><E!>60!&4221. -2!1;!>60, !1->0-@0@R!'!>61-1!1>!=<45@!-<>!6. CO!@0>0770@! >60!&4221. -2!6. @!>60, !GOO-!0\>0-@0@!>60!<;;079!K60!<>607!>61-8!>6.>!-00@2!><!GO! >. I 0-!1-><!. FF<4->!12!f42>!6<=!/4F6!34>1-!6. >0@!A. . I . 26C151!1-!C07, !E072<-.5! >07/29!J-@R!=60-!>60, !6. @!. !E6<-0!F<-C072.>1<-R!34>1-!G. 21F. 55, !><5@!



! A. . I . 26C151!><!2>1FI !1>!4E!612!. 22!1-!0C0-!/<70!87. E61F!>07/2!>6. -!>6. >9!J -@!2<!





+ 'D\$A*!K<!G0!;.17!><!JGI 6. T1. R!>60, !@1@!E7<@4F0!>60!21-850!=<72>!G<>>50!<;!=1-0!>6.>! ':C0!0C07!>.2>0@!1-!/,!51;0!=6150!'!=.2!1-!+<2F<=9!'!/.@0!.!2>7.>081F!077<7!.>!>60! 87<F07,!2><70R!<-F09!!

) JK\$A*!'!=<45@!f42>!2., !. 5<-8!>6<20!51-02!>6. >R!G. FI !1-!>60!?<5@!L. 7R!=60-!'!=. 2! @0. 51-8!=1>6!>60!60. @!<;!>60!C) #R!W5. @1/17!C7, 4F61 <CR!C7, 4F61 <C!8. C0!/0!. ! G<>>50!<;!) 0<781. -!=1-0!>6. >!=. 2!G<>>50@!1-!>60!, 0. 7!<;!/, !G17>69!A<R!;172>!<;!. 55R! 1>!=. 2!C07, !<5@!=1-0R!. -@!1>!=. 2!-<>!>60!I 1-@!<;!=1-0!>6. >!8<>!G0>>07!=1>6!. 809! J-@!60!=<45@!81C0!/0!C<@1. R!. -@!60:@!81C0!/0!F. C1. 7R!. -@!60!8. C0!/0!>60! =1-0R!. -@!'!-0C07!>710@!. -, !<;!1>9!'!. 5=., 2!;18470@!>6. >!1>!=. 2!E7<G. G5, !5. F0@!=1>6! E<5<-14/!<7!2</0>61-89!!

+ 'D\$A*!U5. 486>07V!#0>>07!2. ;0!>6. -!2<77, 9!!

) JK\$A*!\$\.F>5,9!!

+ 'D\$A*!A<R!_^^S[G18!50. @07261E!F6. -802!1-!G<>6!<;!>60!F<4->7102!>6.>!=0:70!>.511-8! .G<4>R!2<!/., G0!=0!F<45@!>.51!.G<4>!>60/11-!>47-9!Q172>R!>60!>7. -21>1<-R!.2!, <4! 0\E0710-F0@!1>!;7</!>60!C. ->.80!E<1->!<;!>60!30->.8<-R!;7</!>60!#426! .@/1-12>7.>1<-!><!>60!~G./.!.@/1-12>7.>1<-R!G4>R!<;!F<4720R!=0:@!.52<!5<C0!><! >.51!.G<4>!>60!>7. -21>1<-!;7</!37021@0->!34>1-!><!371/0!+1-12>07!34>1-!.-@! 37021@0->!+0@C0@0C9!

) JK\$A*!e0.69!'!=<45@!2.,!>6.>R!



E0<E50R!J;86. -12>. -R!'7. bR!. -@!2<!<-9!#4>!=60-!>60, !@0F1@0@!><!@<!>60!7020>R! =61F6!=. 2!E70>>, !0. 75, !<-R!'!E4>!1>!1-!>60!2. / 0!G<\!. 2[=60-!?<-@1!=. ->0@!><! 70. F6!<4>!><! (<7>6!c<70. R!UW1F0!37021@0->V!?60-0, !=. 2!C07, !/ 4F6!<EE<20@!><! 1>9!'>!=. 2!C07, !F<->7<C0721. 5!1-!>60!. @/ 1-12>7. >1<-9!J -@!'!=. 2!<I., !=1>6!1>9

>07/R!>61-82!/186>:C0!8<-0!@1;;070->5, !G0F. 420!60!=.->0@!><!/<@07-1T0!&4221.9! %0!=.->0@!><!@1C0721;, !>60!0F<-</, !.=., !;7</!f42>!<15!.-@!8.29!A<!60!6.@!2</0! E70>>, !/<@07-!1@0.29!J-@!2<!'!>61-1!60!.-@!`G./.!=070!E70>>, !21/E.>1F<9!!

 $J - @! = 0 I @! 6. \ C0! - 0 C07!8 <> 0 - |> 60!B (|702 < 54 > 1 < -! < -! D1G, . |> 67 < 486|> 60!$ $A0F471>, !? < 4 - F15!6. @! 34>1 - !2>155!G00 - |> 60!E7021@0 - >9!J - @! 60!. F>4. 55, !F. / 0! < 4>!
. - @!F71>1F1T0@! + 0@C0@0C!; <7!>6. >!@0F121< - !. - @!F<//>
E. 70@! = 6. >|> 60!L_02>! = . 2!
<math display="block">8 < - . . !@ <! 1 - ! D1G, . !> <!> 60!F742. @029!J - @! 2 <!> 6070! = 070!. 70. 2! = 6070! 34>1 - ! = < 45@!$ $E4>!612!; <<>!@ <= -!. - @!G. 21F. 55, !2. , R!gL_0:70! - <> 18 < 1 - 8!> <!@ <!> 6129h!#4>! / .1 - 5, ! < -!
2>4;;!511 0!D1G, .!. - @! 2 </ 0! <> 6072! + 0@C0@0C!@1@! 2 </ 0!>61 - 82!>6. >! 34>1 - ! = < 45@!
- <>!6. C0!@ < - 09!J - @! 1>! = . 2!1 - !>6. >!0 - C17 <- / 0 ->!E. 7>1F45. 75, !>6. >! '!6. @! 2 </ 0! <;!
/ ,! / <2>!; <7>6F </1 - 8!@12F4221 < - 2! = 1>6!A07@, 41 < C!. - @!U^^*i^*^^V!2<! < -9!A<!
>6070! = . 2!. !F6. - 80!1 - !>< -0! = 6150! + 0@C0@0C! = . 2!E7021@0 ->9!K6070! = 070 - :>!. -, !
G18!F <- F0221 < - 2! <- !. -, >61 - 8R!G4>!>60, !@1@! / . I 0!2 </ 0!@0F121 < -2!>6. >!. 55 <= 0@!42!
><!. F>9!#4>!'!>61 - 1!>6070! = . 2!80 - 07. 55, !>60!;0051 - 8!>6. >!<-170. 55, !218 - 1;1F. ->!
122402R!>6. >!34>1 - ! = . 2!>60!84, !E4551 - 8!>60!2>71 - 82R!>6. >!60! = . 2!>60!70. 5!E7021@0 ->!
<;!&4221. 9!!$

+ 'D\$A*!J -@!f42>!><!;<55<=!4E!<-!>6.>!C07, !b41F15, R!, <4!;005!>6.>!=. 2!2</0>61-8! >6.>!=. 2!4-@072><<@!1-!>60!B9A9!8<C07-/0->!.>!>60!>1/0R!>6.>!0C0-!>6<486!>60, ! /186>!<;;1F1.55, !@0.5!=1>6! + 0@C0@0C!.2!>60!E7021@0->[<;!F<4720R!^G./.! ;./<425, !8<02!<4>!><!>60!34>1-!@.F6.R!F</E<4-@R!=6.>0C07!>07/!, <4!=.->!><! 420R!><!/00>!=1>6!>60!371/0! + 1-12>07R!12!-.>47.55, !I 0E>!=.1>1-8!.!5<-8!>1/09!H<! , <4!>61-1!>6.>!=.2!4-@072><<@!1-!>60!.@/1-12>7.>1<-R!<7!=.2!>6.>!.!87.@4.5! F</1-8!><!>07/2!=1>6!>6.>!70.51>, M!!

) JK\$A'!'!@<-:>!I -<=!'!!05>!>6.>!=.,!;7</!>
!>60!G081--1-89!'>:2!>60!f<G!<;!
@1E5</.>2!><!G0!<E>1/12>29!J-@!>6.>:2!=6,!'!=.2!.-!1->055180-F0!<;;1F07!1-2>0.@!
<;!.!@1E5</.>9!J-@!'!>61-1!`G. /.!4-@072><<@!.>!2</0!50C05!>6.>!34>1-!=.2!2>155!
1-!F6.780R!G4>!<-0!>61-8!>6.>!+0@C0@0C!@1@!=.2!5<<20-!>60!F<-2>7.1->2!>6.>!
34>1-!6.@!1/E<20@!<-!()`2!=<7!1-8!1-!&4221.!>6.>!=070!=<7!1-8!<-!
@0/<F7.F,R!@0/<F7.>1T.>!<-R!1-2>1>4>!<-!G415@1-8R!64/.-!7186>2R!.-@!>61-82!
5110!>6.>9!34>1-!6.@!E4>!2</0!C07,!20C070!51/1>.>!<-2!<-9!+0@C0@0C!5<<20-0@!
>6<20!4E!E70>>,!@7./.>1F.55,9!J-@R!<;!F<4720R!>60!20F<-@!34>1-!G0F./0!
E7021@0->R!60!-<>!<-5,!70C0720@!0C07,>61-8!+0@C0@0C!6.@!@<-0R!60!/.@0!1>!
0C0-!/<70!U^^*i_*^^V!@7.F<-1.-9!!

A<!>6070!=070!. 70. 2!=6070! + 0@C0@0C!F50. 75, !@1;;070->1. >0@!61/205;!;7</! 34>1-9!#4>!. 2!'!2., R!'!>61-1!>6070!/., !6. C0!G00-!=6.>!'!=<45@!F6. 7. F>071T0!. 2! ;. 520!<E>1/12/!<-!>60!E. 7>!<;!`G. /.!. -@!/., G0!UA0F70>. 7, !<;!A>. >0V!%155. 7, ! U?51-><-V!. G<4>! + 0@C0@0C9!Q7</!/, !2>. -@E<1->R!'!-0C07!@<4G>0@!;<7!. !20F<-@! >6.>!34>1-!=. 2!F. 551-8!>60!26<>2!<-!. 55!>60!2>4;;!>6.>!70. 55, !/.>>070@9!

#\$%&'()\$&*!J-@!,<4!/0->1<-0@!1-!Duty!>6.>k!1-!>60!`G./.!.@/1-12>7.>1<-k!,<4!
E5.,0@k!,<4!F.550@!1>!.!g/1-<7!7<50h!1-!B9A9"&4221.-!705.>1<-2!@471-8!>6.>!E071<@9!
L 6.>!=.2!>60!70.2<-!>6.>!,<4!@1@-:>!E5.,!.!G18807!7<50!=1>6!,<47!G.FI87<4-@!
<-!B9A9"&4221.k!.-@!F<45@!,<4!.52<!>.51!.!51>>50!G1>!.G<4>!,<47!7<50!1-!>60!(

jYS!1-!W10--.!=60-!?.7>07!218-0@!>60!-0\>!.8700/0->R!.-@!'!=.2!C07,! 24EE<7>1C0R!G0F.420!/,!G.21F!E1>F6R!.5=.,2R!E.7>1F45.75,!><!>60!<EE<-0->2!=.2R! g'!5<<1!.>!1>!1-!<-0!=.,!.-@!<-0!=.,!<-5,*!'2!>60!B-1>0@!A>.>02!G0>>07!<;;!=1>6!1>! <7!=1>6<4>!1>M!J-@!,<4!F.-!/.10!.55!11-@2!<;!@1;;070->!.784/0->2R!G4>R!-0>"-0>R! .70!=0!G0>>07!<;;!=1>6!1>!>6.-!=1>6<4>!1>M!J-@!'!.5=.,2!2.1@R!g%.C1-8! E70@1F>.G151>,!12!G0>>07!>6.-!-<>!6.C1-8!E70@1F>.G151>,!.-@!G01-8!.G50!><!/<-1><7!

 $A < \mathbb{R} : < 7! > 6 < 20! > = <!70. 2 < -2\mathbb{R} ! ! = . 2!b41 > 0!24EE < 7 > 1COR!. -@!%155. 7, !. -@!'!=0->! > <!>60!%155!. !G4 - F6! <;!>1/029! + ,!) <@\mathbb{R} ! !=126!'!6. @!. !@<55. 7!; <7!0C07, !U^^*i Z*^^V! / 1-4>0! = 0!2E0 ->! - 08 <>1. >1-8! = 1>6!X<6-!C, 5!. -@!> = <!<7!>6700! <>6072!4E!>60709!'! > 61-1!>60! < -0!>61-8!>6. >!'!8<>!<4>!<;!>60!>70. >, !=. 2\mathbb{R} ><!80>!1>!7. >1;10@\mathbb{R} >60! .@/1-12>7. >1<-!6. @!><!. 8700!><!. !218-1;1F. ->! / <@07-1T. >1<-!<;!<47!-4F50. 7! 02>. G5126 / 0->!J - @!'! / 0. -!><!>60!>4-0!<;!. G<4>!0186>, !><!. !64-@70@!G1551<-! @<55. 72!<C07!. !>0-", 0. 7!E071<@!J - @!>6. >!=. 2!>60!E71F0!0<>7. F>0@!G, !>60! <<EE < -0->2!<;!>60!>70. >, \mathbf{R} <10! - @!>6<.>!=. 2!>60!E71F0!0<>7. F>0@!G, !>60! <1>!<0!F<45@!80>! 1>!7. >1;10@9!!$

A<!'!=. 2!C07, !24EE<7>1C0!<;!>6.>!. -@!=0->!><!>60!%155!. -@!=. 2!C07, !



/ 00>1-8R!. -@!>6.>!=.2!. -<>607!;.F><7!>6.>!/.@0!G<>6!`G./.!.-@!UW1F0! 37021@0->V!#1@0-!/.@!>6.>!>60!Q#'!6.@!@12F<C070@!>612!>61-8R!=.2!G0F.420!1>!6.@! >60!E<>0->1.5!-<>!<-5,!><!2F70=!4E!>60!.7/2!F<->7<5!-08<>1.>1<-2!G4>!.52<!>60! E7<2E0F>1C0!24//1>!G0>=00-!U^^*i S*^^V!`G./.!.-@!+0@C0@0C9!J-@!'!2.1@R!gA<! 6<=!.G<4>!>612M!%<=!.G<4>!><!,<47!/00>1-8!=1>6!+0@C0@0C!

!

) JK\$A*!U^N*^^*^^V!



64/151.>1<-9!#4>!-<=!':/!f42>!E7<f0F>1-8!/,!G0510;2!<-><!>60!E7021@0->9!'!>61-1! 60!=.2!@00E5, R!@00E5, !F<//1>>0@!><!>60!Q700@</!J80-@.9!J-@!'!>61-1 R!<-! /0/G07261E!;<7!B17.1-0!.-@!)0<781.[':/!-<>!.!64-@70@!E07F0->!2470R!G4>!'! >61-1!?<-@1!0\E70220@!607!F<-F07-2!><!61/!.G<4>!>6<20!.2!=055R!G0F.420!<;!607! I-<=50@80!<;!>60!A<C10>!B-1<-!.-@!A<C10>!612><7,!.-@!&4221.-!612><7,!.-@! .F>4.55,!E<20@!>60!b402>1<-!><!61/!>6.>!1>!=.2!8<1-8!><!51!05,!F.420!.!5<>!<!

>61-1!>6070!=.2!.121-850!1-2>.-F0!@471-8!.55!>60!>61-82!>6.>16.EE0-0@!G0>=00-! NOSO!.-@!NOO_R!>6070!=.2!.121-850!1-2>.-F0!1-!=61F6!?<-@1!.-@!'!6.@!.12071<42! @12.8700/0->9!L 0!=070!<-1>60!2./0!E.80!=60-!1>!F./0!><12.,1-8!><!>60!;172>! 37021@0->!#426R!ge<4!-00@!><!>.51!><12</0G<@,11-1.@@1>1<-1><!)<7G.F60C9!e<4! -00@!><!70.F6!<4>!>60!e05>21-9!e<4!-00@!><!G0!1-!><4F6!=1>6!<>607!70;<7/0729! e<4!F.-:>!E4>!.55!,<47!0882!1-!>60!)<7G.F60C!G.210>9h!U^N*^S*^^V!J-@!=0!=<710@! ><80>607!.-@!6.@!>60!605E!<;!?60-0,!.-@!D.77,!\$.850G47807⁵!1-!>07/2!<;!80>>1-8! e05>21-!1-!><!200!>60!E7021@0->9!J-@!?<-@1!.-@!'!.7840@!>6.>!>60!B9A9!<486>!><! E426!G.F1!6.7@07!=60-!)<7G.F60C!420@!;<7F0!1-!j

>60! + <-8<52!<7!24G<7@1-.>0@!><!>60! + <-8<52!;<7!>=<!F0->47102!. -@!f42>!6.@!.! F</E50>05, !@1;;070->!612><71F.5!0\E0710-F0!>6.-!-0.75, !.55!U^N*N^*^^V!<;!\$47<E0R! .-@!>6.>!>60, !6.@!.!@1;;070->!.EE7<.F6!><!>60!=.,!>60, !5<<10@!.>!>60!=<75@9!A<! ,0.6R!'!>61-1!<47!2>4@,!<;!A<C10>!.-@!&4221.-!612><7,!C07,!/4F6!.;;0F>0@!429! + 'D\$A*!'!=<-@07!1;!'!F.-!f42>[]

) JK\$A*!'-F54@1-8!>60!-<>1<-R!;172>!<;!.55R!>6.>!34>1-!=.2!.!G455, R!5110!/<2>!A<C10>! 50.@072!.-@!&4221.-!50.@072R!.-@!>6070!=.2!<-5, !<-0!=., !><!@0.5!=1>6!.!G455, 9!! + 'D\$A*!'!=.2!f42>!8<1-8!><!.2!!1;!,<4!6.@!.-, !F<-F70>0!.-0F@<>02!<7!122402!>6.>!2E<10! ><R!<GC1<425, R!34>1-9!H<02!.-, >61-8!0520!F</0!><!/1-@M!

) JK\$A*!'!>61-I!-01>607!?<-@1!-<7!'[=1>6<4>!G01-8!74@0R!'!>61-I!-01>607!<;!42!=070! 0C07!=1551-8!><!81C0!34>1-!>60!5.2>!=<7@!1-!.!F<-C072.>1<-!<7!><!50>!61/!>67<=! 2</0>61-8!<4>!>6.>!=.2!<4>7.80<42!.2!.!;1-.5!2>.>0/0->!.-@!>60-!50>!1>!2>.-@['! @<-:>!6.C0!.-,!F<-F70>0!0\./E502!<;!>6.>9!J-@!'!>61-I!60!702E0F>0@!>6.>9!

#\$%&'()\$&*!J-@!'!=.->0@!><!>.5I!.!51>>50!G1>!/<70!.G<4>!>60!Q700@</!J80-@.R!21-F0! ,<4!G7<486>!1>!4E9!'!=.2!2>74F1!=60-!'!=.2!70.@1-8!.!70F0->!Washington Post! 1->07C10=!,<4!@1@!=1>6!H.C1@!'8-.>142R!.-@!60!.210@!,<4!.G<4>!>60!70.2<-2!=6,! ,<4-8!E0<E50!/186>!8<!1-><!8<C07-/0->!207C1F0R!.-@!,<4!F1>0@!.@C.-F1-8! g@0/<F7.F,!.-@!64/..-!7186>2!.G7<.@h!.2!<-0!70.2<-9!J-@!,<44C0!G00-! E<7>7.,0@!1-!>60!/0@1.!.2!.!70.512>!.-@!.!E7.8/.>12>!@471-8!,<47!207C1F0!1-!>60! #426!.-@!`G./.!.@/1-12>7.>1<-29!#4>!F50.75,!G.5.-F1-8!1@0.52!.-@!1->0702>2!.70! .-!1/E<7>.->!E.7>!<:up>1

! 1->0702>!=1>6!F71>1F12/!.-@!E7022470!<-!34>1-!><!/.10!@0/<F7.>1F!.-@!64/.-!

7186>2!70;<7/M!

!

) JK\$A*!A<!/, !. >>1>4@0['!@<-:>!I -<=!=60>607!, <4:@!F.55!/0!.-!1@0.512>1F!70.512>!<7!.! 70.512>1F!1@0.512>R!G4>!':/!<;!.!G0510;!>6.>!, <4!F.-!G0!.-!.@C<F.>0!;<7!>60!Q700@</! J80-@.!. -@!;<7!64/. -!7186>2!. -@!4-@072>. -@!>6.>!, <4!F. -:>!1/E<20!1>!<-!<>607! F<4->7102!G, !/ 151>. 7, !;<7F09!'!>61-1!=0!.5=., 2!2>. -@!;<7!>6.>9!'!>61-1!=0!!-!<47! 2>7. >081F!F<//4-1F. >1<-28!1-!<47!@1E5</.F, 8!. -@!. 55!<;!>6<20!>61-828!>6. >:2! .5=., 2!8<>!<!G0!E.7>!<?!<47!.80-@.9!X42>!5110!4-@07!>60!24E70/0!70.512>!&1F6.7@! (1\<-R!%0-7, !C1221-807R!0C07, !>1/0!60!=0->!><!+<2F<=R!6.@!.!512>!<;!A<C10>!X0=2! =0!=.->0@!7050.20@!;7</!E712<-!<7!.55<=0@!><!0/187.>09!K6070!=.2!.5=.,2!.-! 050/0->!<;!>6.>!1-!.55!<;!<47!E7021@0->2d!.EE7<.F6!><!>60!A<C10>!B-1<-R!0C0-!.2! =0!=<45@!>. | 0!C07, !70.512>1F!. -@!2</0>1/02!><486"/1-@0@!@0F121<-29!J-@!'! >61-1!>6.>:2!>740!1-!@0.51-8!=1>6!<>607!F<4->7102!.2!=0559!J-@!'!>61-1!,<4!@0E5<,! /151>.7,!;<7F0!. -@!, <4!420!F<07F1<-!1-!>6<20!F.202!=6070!, <47!C1>.5!1->0702>2!.70! >670.>0-0@!<7!.>!2>. | 0R!G4>!=60-!1>!F</02!><!<47!1@0.52!.-@!>60!Q700@</! J80-@. R!>6. >:2!. -!. 80-@. !>6. >!12!E4>!;<7=. 7@!>6. >!12!1-!>60!F<->0\>!<;!@1E5</. F, ! . -@!OF<-</1F2!. -@!. !=6<50!6<2>!<;!-<-"/151>. 7, !><<52!1-!>60!G<\9!!

 $J - @!>6. >:2! = 6070!U^{N*NZ*^V!'!}@70 = !. !@12>1 - F>1< - R!. >!50. 2>!1 - !/, !60. @R!1 - !$ I/E50/0 ->1 - 8!>60!E7021@0 ->:2!E<51F102!1 - !'7. b!. - @!J;86. -12>. - 9!'!>6<486>!>60, ! G<>6!G08. - [...@!'!=7<>0!. G<4>!>612!1 - !Exercise[...>6.>!>60, !G<>6!G08. - !=1>6! 870. >!/151>. 7, !C1F><71029!L 0!. F610C0@!<47!<Gf0F>1C029!J - @!>60 - != 60 - != 0!@0F1@0@! ><!420!<47!. 7/102!><!G71 - 8!. G<40. 2(<) 0. 5(-)]TJET0@. 24000. 2418621. 92C5 - 1947TPh 0. 1>10 - 15817





><!>60!&4221. -2!=60-!=0!26<45@!6. C0!G00-!/<70!@0;070->1.5!><!&4221.:2! 1->0702>2!1-!. !E5. F0!511 0!A07G1. R!. -@!=6070!>6070!. 70!5<-82>. -@1-8!612><71F.5! 705. >1<-261E29!

A<!'!>61-I!>6.>:2!=6070!612!G.FI87<4-@!1-!>60!C) #!E7<G.G5,!.;;0F>2!612! <4>5<<I9!J-@!/,!84022!12R!6.@!60!G00-!.!F<5<-05!1-!>60!A<C10>!J7/,R!60:@!6.C0! >60!2./0!U^N*NS*^^V!;0051-829!

+ 'D\$A*!A<!. 2!=0!74-!><!>60!0-@!<;!<47!>1/0!=1>6!, <4[..-@!>6.-1!, <4!.8.1-!;<7!G01-8! 2<!80-07<42['!>61-1!=0!G<>6!E7<G.G5,!6.C0!2</0!G18"E1F>470!b402>1<-2!>6.>! =0!=.->!><!=7.E!4E!=1>69!J-@!/1-0!6.2!><!@<!=1>6*!, <4:C0!6.@!.!;7<->!7<=!20.>! ><!E<51F, /.11-8!1-!>60!B-1>0@!A>.>02!;<7!.-!1-F70@1G5,!5<-8!7.-80!<;!>1/0R! 2>.7>1-8!=1>6!>60!(1\<-!.@/1-12>7.>1<-R!.-@!'!=.->0@!><!.2!!, <4[!

) JK\$A*!JF>4.55, R!X<6-2<-!=.2!>60!;172>!E7021@0->!':C0!=<710@!;<79!

+ 'D\$A*!'!2>. -@!F<770F>0@9!

) JK\$A*!Q172>!<;!>60!0186>9!

+ 'D\$A*!A<!<C07!0186>!E7021@0->2R!.!/ 070!0186>!E7021@0->2R!'!=<-@07!1;!, <4!F<45@!81C0!

, <47!6



) JK\$A*!'!>61-I



J - @!1 > !G08. - !C07, ! = 055! < - !F < 4 - > 07 > 077 < 712 / !. - @! & 4221. - 2d! = 1551 - 8 - 022! > <! = <71!

=1>6!42!. -@!. 77. -80@!>60!G.2







K6<20!E072<-.5!705.>1<-261E2!F.-!80>!,<4!E.2>!7<486!2E<>2!1-!.!

705. >1<-261E9