OF AMERICA

C

UCTION

ASS-

A/09,B90"AC"D)00" (8ED"F9G"FFH" !IJ\$!"K/0"L9*:90"%M+\\$"(,+\C"N\$\$" 0*M2O+>"'\"J#I\$N" PJQJR"NSITSU\$N" V1)00W6:,1\@GC</:"

A\$77(.5&') \$& (1) \$& (1) & (1) & (1) & (23) & (4.3567&.& (01)) & (.5&.& (01))



 $</06,*)<,2/0"*+09,+1"</0,*9<,6>"32M+6"6=+<2;2<"+_9:=0+6"/;"B+9M20-"0+3/,29,+1"FXF" =*/M262/06>"901"+_=0/*+6",B+2*"=)*=/6+"901"V)6,2;2<9,2/00""$

GB 0.20 k! % .= (7(.57 kG%kA)"56"%6kH"%k-5k I "5:k>.57)%3?)(.5 k@\$*")\$6k > .5)%"?)72 k" 56 kG66%\$77 k" 56 kG**.?")\$kJ31\$%.37 k@(7,7 k)

$$\begin{split} FXF" = & */M262/06", 97 + "0) : + */)6"; /* : 6"901"9* + "[)2, + "</::: /0"20" < /06, *) < , 2/0" \\ & *+09, +1" < /0, *9 < , 60"? / *" + _9 : = 0 + >", B + "% : + *2 < 90"006, 2,) , + "/; "% * < B2, + < , 6 a "Pb%0% a cR" \\ & 901" ' /06 + 06)6"DX ' (a "; /* : 6"] / , B"20 < 0)1 + "FXF" = */M262/06"20", B + "; /* : "/; ":),)90" \\ & G92M + *6" / ; "< /06 + [) + 0,290"19 : 93 + 6"P ' X i (f i (e ("DX ' (a "#$$)" (+<,2/0" \C\j" %0% a "%#$!>" (+<,2/0" \C\j" %06/>"027 + ": /6," < /06,*) < ,2/0" < /0,*9 < ,>"02[)219, +1" \\ & 19 : 93 + 6"9* + "6)33 + 6, +1"; /*" / G0 + *"19 : 93 + 6"; /*"1 + 09 - 0""" \end{split}$$

$$\begin{split} EB+"201)6,*-"6,9019*1";/*:6"9*+"0/,"9,-=2<90"96":90)6<*2=,";/*:6"906/"+_<0)1+"/*"\\ 02:2,"029]202,-"/0"0):+*/)6"<9,+3/*2+6"/;"/,B+*G26+"*+</M+*9]0+"19:93+60"fM+0"\\ G2,B/),"</0,*9<,)90"=*/M262/06)",B+*+"9*+"02:2,6",/"*+</M+*9]0+"19:93+6>"]),",B+6+"\\ 02:2,6"9*+"6)]V+<,",/"</:=0+__"901"20</0626,+0,0-"9==02+1"0+390"1/<,*20+6"6)<B"96>";/*"+_9:=0+>"b=*/_2:9,+"<9)6+c"</0<+*0203",/*,"19:93+6"P(++"3+0+*900-"\"HB202="F(".*)0+*"4"H9,*2<7"A("Xd'/00/*)"A*\circ*...*)0+*"4"Xd'/00/*"/0"'/06,*)<,2/0"F9G"k!J^N"PY+6,"H)]0"#$!#"f1\circ*20<0"#$#$"()==00R"PB+*+9;,+*>"b.*)0+*"4"Xd'/00/*"X'F"k1cRR"901"b;/*+6++9]202,-c"</0<+*0203"]*+9<B"/>-(**0203"]*+9<B"/*,"</0,*9<,"19:93+6"P(++>"\").**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")**(**04")$$

| <u>!%.=(7(.5</u> & | ; \$7?%(#)(.5&.8&0 2 0&@\$73* <u>)</u> & |
|---|--|
| H9-"0;"m" Y B+O"H921" | F2: 2,6"@29]2@2,-";/*"2O,+*+6,"P=9-TGB+OT=921R"/*" +_<)6+6"@29]2@2,-"2O"+M+O,"/;"/GO+*"O/OT=9-:+0," |
| f_<@)62M+"*+:+1-"" | F2: 2,6"029]202,-";/*"M9*2/)6"19: 93+6"901"02: 2,6",B+" *+: +1-"9M9209]0+"P2C+C"*+=92*"/*"*+=69<+: +0,>"/*" 9M9209]0+"206)*90<+R" |
| ?/*<+" 8 9\\+)*+" | F2: 2,6" 0,*9<,)90"029]202,-";/*"=+*;/*: 90<+"GB+0"<br <+*,920" 012,2/06"1+M+0/="</td |
| E+*: 209,2/0";/*" '/OM+O2+O<+" | X;,+0"@2:2,6"*+=*/;2,6R"" |
| D26<@92: +*6"" | F2: 2,6"@29]2@2,-";/*"<+*,920"<2*<): 6,90<+6"P2C+C>" 126<@92: +*"/;"2: =@2+1"G9**90,2+6"/*";*/: "9@@"@29]2@2,-" 96"9" 012,2/0"/;")6+"m"6+*M2<+R"</td |
| Y92M+*6"/;"()]*/39,2/0" m"'/0,*/@+1"006)*90<+" | F2: 2,6"*+ |
| P006);;2<2+0,R" F2[)219,+1"D9:93+6" | X;,+0"02:2,6",B+"029]202,-"/;"9"=9*,-";/*"1+09-"19:93+6",/"90"9:/)0,",-=2<900-"0+66",B90"9<,)90"1+09-"19:93+6" |
| F2[)219,+1"D9:93+" '9=6" | F2: 2,6",B+"029]202,-"/;"9"=9*,-";/*"1+09-"19: 93+6",/"9": 9_2:): "9:/)0,")6)900-"0+66",B90"9<,)90"19: 93+6" |
| F2: 2,9,2/06"/;"F29]2@2,-" 901"D9: 93+"F2: 2,6"" | F2: 2,6"029]202,-"/;"9"=9*,-",/"9": 9_2:): "1/009*" 9:/)0,>"*+39*10+66"/;"09*3+*"19: 93+6"20<)**+1" |

 $0,"26"0/,",B+"20,+0,"/;",B26"=9=+*",/"911*+66"+9<B"/;",B+":90-"FXF"=*/M262/06"9,"\\ 0+03,B>"96"6+M+*90"6<B/09*0-"G/*76"911*+66",B+":-*291"/;"6)<B"=*/M262/06"20":/*+"\\ 1+,920>"20<0)1203":90-"/;",B/6+",B9,"B9M+"1+M+0/=+1",B+2*"/G0"126,20<,"]/1-"/;"\\ 09G("!""$\&"("9533-"\".*)0+*"4"Xd'/00/*"X'F"kk!J^N#"g"!J^IS(""006,+91>",B26"=9=+*"G200";/<)6"/0"9";+G"B+9M20-"0+3/,29,+1"FXF"=*/M262/06"901>":/*+"=9*,2<)09*0->"6,9,),+6"901"<96+"09G",B9,"6+,"*+6,*2<,2/06",/",B+2*"+0;/*<+:+0,("""$

4B > .11.5 & KL'' 1 # \$7 & .8 & M \$'' = (*: & J \$ < .) ('') \$6 & 0.20 & ! % . = (7(.57 & 1.56 & 1.

 $\begin{array}{l} 00\text{"}6,9,+6\text{"}GB+*+\text{"},B+-\text{"}9*+\text{"}0/\text{,"}=*/B2]2,+1\text{"}/*\text{"}*+6,*2<,+1\text{"}P6++\text{"}6+<,2/0\text{"}000\text{"}]+0/GR>\text{"}\\ B+9M20-\text{"}0+3/,29,+1\text{"}FXF\text{"}=*/M262/06\text{"}:9-\text{"}20<0)1+\text{"}201+:02,->\text{"}1/009*\text{"}02:2,6\text{"}/*\text{"}\\ 206)*90<+\text{"}]96+1\text{"}02:2,6\text{"}P20<0)1203\text{"}02\text{[})219,+1\text{"}19:93+6\text{"}02:2,6R>\text{"}901\text{"}G92M+*6\text{"}/;\text{"}\\ </06+\text{[})+0,290\text{"}19:93+6\text{"}\text{"} \end{array}$

!0 001 + : 02, -"H*/M262/O6"

 $YB+*+";*++",/"1/"6/"901"GB+*+"]9*3920203"=/G+*"900/G6>"]*/91"201+:02,-"\\=*/M262/O6"9*+"/;,+0"0+3/,29,+1"20,/"</0,*9<,60"b001+:02,-c"26"1+;20+1"96";/00/G6^"$

001+:02,-"26"9"</0,*9<,"]-"GB2<B"/0+"+0393+6",/"69M+"90/,B+*";*/:"9"0+390"</06+[)+0<+"/;",B+"</01)<,"/;"/0+"/;",B+"=9*,2+6"/*"/:"6/:+"/,B+*"=+*6/00"

$$\begin{split} &i \, (\text{DC"} \ ' + 0, \text{C"} \ ' \ / \ 1 + \text{"} k"\#\text{T}\$\#\text{T}\$! \ j"! \ '''\$53; 6 \rangle" \ ' \ 90\text{C"} \ ' \ 2\text{MC"} \ ' \ / \ 1 + \#\text{II} \ Hj" \ 8 \ / \ 0, \text{C"} \ ' \ / \ 1 + "\%00\text{C}" \ \#\text{UT}! \ !\text{TS}\$! \ !\text{C""E}/", B+"+_, +0,"201+: 02, -"6++76", /"69M+", B+"</0,*9<, ++"m"201+: 02, ++" \ ;*/: ",B+"0+390"</06+[) +0<+6"/;",B+"</0,*9<, ++d6"m"201+: 02, ++d6"/G0"</01)<,>"2,"26" \ 90"+_<)0=9, /*-"=*/M262/O"P/*"FXF"=*/M262/ORC"EB+"1+3*++"/;"+_<)0=9,2/O"B96"0+1" \ 6/: +"</)*,6", /"1+6<*2]+",B+6+"=*/M262/06"96"b, -=+"0>c"b, -=+"0>c"b, -=+"00>c"/*"b, -=+"000c" \ 201+: 02, -"=*/M262/06"+_=0920+1"96";/00/G6^{6}" \end{split}$$

%"):#\$&-&N(**56**\$ **1 5**():0"93*++:+0,"=*/M21+6"n"0+_=*+660-"901"

 $+9 < B'' / , B + *"; /*"90 - "< / 06 + [) + 0,29 ("19 : 93 + 6", B9," : 9 - "9*26 + "/), "/;" /*"* + (9, +", /", B26" %3* + + : +0, >" + < + =,"; /*", B/6 + "6 = + < 2; 2 < "2, + : 6"/;" 19 : 93 + 6" + _ < () 1 + 1"; */ : ", B26" G92 M + *"96" :),) 9 ((0, -"93* + + 1") = /0"] - "$

YB+0"1*9;,203",B+"G92M+*>"<9*+;)@-"</0621+*",B+",-=+"/;"

 $\%6"6+,";/*,B"9]/M+>"20"\% (9679)",B+"*+6,*2<,2/06"6,+::203";*/:"90"201+:02,-"6,9,),+" \\ G+*+"20,+*=*+,+1",/"9==(-":/*+"]*/91(-",B90",/"201+:02,-"=*/M262/06)"]),"*9,B+*"$

```
 </0,*9<,)90"966):=,2/0"/;"*267"26"9"[)+6,2/0"/;";9<,";/*"9"V)*->"0/,"9"V)13+Cc"B<"34;$\\ ?\%K+9"=+9)\%J51"G5-\#$'(1\%)"#!$"\%*2`C"Q$S>"!!!"HCS1"!$$S>"!$!$"P#$$NRC"""\\ '902;/*029"26"=+*B9=6":/6,"=*/02;2<"20"+09<,203"6,9,),+6"*+3)09,203",B+"</06,*)<,2/0"
```

 $\begin{array}{l} '902; /*029"26"=+*B9=6": /6,"=*/02;2<"20"+09<,203"6,9,), +6"*+3) 09,203",B+"</06,*)<,2/0"\\ 201) 6,*->"B9M203"6,9,), /*-"6<B+: +6"; /*"02<+06203"/;"</0,*9<,/*6>",B+2*"126<2=020+>"\\ 901"*+6,*2<,2/06"/0"<+*,920",+*: 6"; /*"=+*6/06"</0,*9<,203"G2,B"02<+06+1"</0,*9<,/*6"\\ P'900":)60"4"H*/;0"'/1+"kI$$$>"+,6+[CR>"]/,B"=)]02<"901"=*2M9,+"</0,*9<,203"P'900"'/2M20"'/1+"kU$$$"+,0"+[CR>"901"6=+<2;2<900-"*+09,+1",/"=)]02<"</0,*9<,203")01+*",B+"'902; /*029"H)]02<"'/0,*9<,203"'/1+0"?/*"+_9:=0+>"'902; /*029"B96",B+";/00/G203"'6,9,),/*-"*+6,*2<,2/06^"$

```
'9@C"H)]C"'/0,C"'/1+"k!!$Q"P;/*]211203"@/<9@"=)]@2<"93+0<2+6"
;*/:",*906;+**203"*267"/;"1+6230"+**/*6"/*"/:2662/06",/",B+"
</0,*9<,/*>"+_<+=,"20"<@+9*@-":9*7+1"1+6230T])2@1"=*/V+<,6Rj"
'9@("H)]("'/0.C"'/1+"kI!$#"P0/"19:93+":/*"1+@9-"<@9)6+6"20"
=*2:+"901"6) ]</0,*9<,6"1++:+1"200+390"96"9":9,,+*"/;"=) <math>]02<"
=/02<-"/0"=) 102<"2:=*/M+:+0,"</0,*9<,6";/*"9*+96"]+0/G";/)*"PQR"
;++,Ri"
'9@C"H)]C"'/0,C"'/1+"kI!$0"P:9019,203",-=+"0"901",-=+"00"
12::+*203"62.+"</012.2/06>"901"+0M2*/0:+0.9@-"B9`9*1/)6"62.+"
</012,2/06"=*/M262/06"20,/"=)102<"</0,*9<.6Ri"
'9@C"'2MC"'/1+"k#IU#"P:97203"M/21"901")0+0;/*<+91@+"
201+:02,-"=*/M262/06"20"</06,*)<,2/0"</0,*9<,6",B9,"6B2;,"*267";/*"
6/9+0+3923+0<+0.4
*+6=+<,",/"9<,2M+"0+3@23+0<+"*267"6B2;,203"9;,+*"#$!Sj"=*/M21+1>"
B/G+M+*, B+*+"9*+"<+*,920"+_<+=,2/06"96"900/G+1"20"<+*,920"/,<math>B+*"
'2M2@"' /1+"6+<.2/O6RC"""
```

00,+*+6,203@->"G2,B20",B+"201+: 02,-"6+<,2/0"/;",B+" '9@2;/*029" '2M2@" '/1+>",B+*+"26"9" 9@6/"9"6=+<2;2<"=*/M262/0"+**/1\$''#"FXF"=*/M262/06C" '9@C" '2MC" '/1+"k#IU#CNC" '9@2;/*029" '2M2@" '/1+"(+<,2/0"#IU#CN"=*/M21+6^"

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\label{eq:control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_control_co
```

k#IU#CN""%@@/<9.2/O"/*"@2:2,9,2/O"/;"@29]2@2,-"

%0,B/3B" '900" '2M0" '/1+"k#IU#(N"26"]*/910-"G*2,,+0>",B+"A59I=6962&<\$</)*,"906/" *+</0<20+1",B26"6,9,),+"G2,B",B+"201+:02,-"6,9,),+>"</0<0) 1203^"

?2*6,>",B+"90,2T201+: 02,-"6,9,),+>"6+<,2/0"#IU#>"G96"20,+01+1",/" <B903+",B+"@9G",/"=*/B2]2,"/0+"=9*,-",/"9"</06,*)<,2/0"</0,*9<," ;*/: "9M/21203"@29]2@2,-",/",B2*1"=9*,2+6"]+<9)6+"/;"2,6"6/@+" 0+3@23+0<+"]-";/*<203",B+"/,B+*"=9*,-",/",B+"</0,*9<,",/"=*/M21+"

-QB P36(?("*&0(1)7&).&K58.%?\$1\$5)&.&&020&!%.=(7(.57&)

 $\begin{array}{l} X),</:+6";/*"126=),+6"20",B+"</0,*9<,203"201)6,*-"g"</0626,+0,"G2,B"2,6"09:+"g"9*+"\\ :/6,\emptyset-"</0,*/00+1",B*/)3B",B+"09G"/;"</0,*9<,6(""00"9"]*/91"0+390"6+06+>":/6,"/;",B+"\\ :/2:+>"</0,*9<,"09G"*+:+12+6"901"</0,*9<,"19:93+",B+/*2+6"9*+"9==02<9]0+("0,"26"\\ [)2,+"</::/0>"B/G+M+*>";/*"9"=0920,2;;",/"966+*,",/*,"<092:6"20"9112,2/0",/"/*"\\ 90,+*09,2M+0-",/"</0,*9<,"<092:6"939206,"9"</06,*)<,2/0"201)6,*-"1+;+0190,("FXF"=*/M262/06"9*+"/;+0"90"266)+"9,",B26"20,+*6+<,2/0"/:,/*,"901"</0,*9<,"09G(""")$

 $'/)*,6"B9M+"6,*)33@+1"G2,B",B26"20,+*6+<,2/00""X0+"9),B/*"0/,+1^"$

$$\begin{split} Y\,B+*+"6,9,+"\ell G'' 26"62\ell +0, >& "3+0+*9\ell\ell-"2,"26"\ell+;,",/",B+"6,9,+\ell\ell'-/)*,6"\\ ,/"1+,+*:20+",B+"+0;/*<+9]2\ell 2,-"/;"90"+_<)\ell = 9,/*-"<\ell 9)6+\ell"\\ EB+*+;/*+>"+9<B"6,9,+\ell G'' B23B+6,"<//*,":)6,"1+;20+",B+"9==*/=*29,+"\\]9\ell 90<+"]+,G++0",B+";*++1/:",/"</0,*9<,"901",B+"=)]\ell 2<"=/\ell 2<-"</0<+*06"20M/\ell M+1"20"+_<)\ell = 9,203",/*,"\ell 29]2\ell 2,-\ell"% 6"G2,B":90-"</ri>$$

$$\begin{split} E+00+66++"26"0/"+_<+&=,2/0>"901", B26"9*+9"/;",B+"@9G"26"M93)+"901"\\ ,*/)]@+1"G2,B"</0;)62/00"?/*"0+9*@-";2;,-"-+9*6>"</0,*9<,203"\\ &=9*,2+6"901"@+39@"=*9<,2,2/0+*6"20"E+00+66++"B9M+"3*9==@+1"G2,B"\\ +_<)@=9,/*-"<@9)6+6>"96",B+"E+00+66++"()=*+:+"'/)*,"B96"\\ 6,*)33@+1",/"<@+9*@-"1+;20+"",B+2*"+0;/*<+9]2@2,-0" \end{split}$$

 $Z(".*906<) :> " X 8 8 f i E^{"}/(:691"5=+3+, -\$6:\$/012345,69-\$8352;";7\$@2)+1+53\$ \\ C"13595,+6(;\$6:\$B2=3+1\$B63+1-\$5;\$5\$A"5(;\$,6\$B96*6,"\$K9"")6*\$6:\$86(,951,\$+(\$Q"((";;"")"N!"e("8+:("F("5+MC"U!!)"U!"HTU!SC")$

 $EB+"'902;/*029"()=*+:+"'/)*,"6)::9*2`+1",B+"6,*)330+"96";/00/G6^"$

 $\begin{array}{l} 0,B+"@9G"B96"@//7+1"<9^*+;)@0-"901"G2,B"6/:+"67+=,2<26:"9,",B/6+"\\ GB/"9,,+:=,",/"</0,*9<,"9G9-",B+2*"@+39@"@29]2@2,-";/*",B+"\\ </::2662/0"/;",/*,600"'/)*,6"901"</::+0,9,/*6"B9M+"/]6+*M+1"\\ ,B9,"6)<B"*+@+96+6"=/6+"9"</0;@2<,"]+,G++0"</0,*9<,"901",/*,"@9GC"\\ XO",B+"/0+"B901"26",B+";*++1/:"/;"2012M21)9@6",/"93*++",/"@2:2," \end{array}$

```
 \begin{array}{l} X),621+"/;"126=),+6"]+,G++0"6/=B26,2<9,+1"</::+*<290"=9*,2+6>"3+0+*900-":90-"\\ 6,9,+6"9==0-"90"b)0</06<2/09]202,-c",-=+"9090-626"]96+1"/0"M9*2/)6";9<,/*60"%6"09:+0,+1"]-"/0+"9),B/*^" \end{array}
```

```
EB+"=*/10+: "G2,B"1+,+*: 20203",B+"+0;/*<+91202,-"/;"90"
+ \_<) \\ @=9, /*- "< \\ @9) \\ 6 + "26" \\ 0/, "9" \\ @9<7"/; "*) \\ @+6"/*" < 96 + " \\ @9G"T", B+"
=*/[0+:"26",B9,",B+*+"9*+",//":90-"*)0+60".+<9)6+"+<)0=9,/*-"
<(9)6+6"9*+"9":9,,+*"/;"</0,*9<,"(9)G>"+9<B"6,9,+06"6)=*+:+"</)*,"
26",B+"9),B/*2,9,2M+"20,+*=*+,+*"/;",B+6+"=*/M262/060"EB+*+;/*+>"
B^{+}()=*+:+"'/)*,"/;",B^{+}=02,+1"(,9,+6"26"/00-"9]0+",/"
=*/:)@39,+"*)@+6"1+9@203"G2,B"+_<)@=9,/*-"<@9)6+6"GB+*+";+1+*9@"
6.9.), +6"9*+"</0<+*0+10"(20<+",B+*+"26"0/."9"62030+"]*23B,T020+"
*)@+",/"9==@->"+M+*-"6,9,+"B96"B91",/"</:+")="G2,B",B+2*"/G0"6+,"
/;"6,9019*16)";9<,/*6>"/*"+0+:+0,60"(/:+"6,9,+6"B9M+"<B/6+0",/"
;/@0/G" '902;/*029"20",B+")693+"/;",B+"02(I3";9<,/*6>"q"r"/,B+*"
6.9,+6"B9M+"</0621+*+1",B+"5+6.9,+:+0,"P(+</01R"/;" ' /0,*9<.6>"qr"
901"+M+0": /*+"B9M+"<B+**-T=2<7+1"+0+: +0,6"901";9<,/*6";*/:"
1/.B'', /'' < *+9, +''9''0 + G''6,9019*10"q"r" Y B20+"B9M203"6/" : 90-"*)0+6", /"
<B//6+";*/: ":9-"0/,"6++: "@27+"9"]91"21+9>"B9M203",//":90-"
6,9019*16"<90":97+",B+"=*/<+66"/;"909@-^203"+<)@=9,/*-"
=*/M262/O6"2O+;;+<,2M+C"
```

 $(+M+*90"6,9,+6"B9M+"<*+9,+1":+,B/16";/*"+_9:20203"+_<)0=9,/*-"<0.09)6+6"T"*+6)0,203"20"6+M+*90"12;;+*+0,",+6,6"901"0):+*/)6")02[)+";9<,/*60"e0;/*,)09,+0->"B9M203",//":90-",+6,6",/"<B//6+";*/:"/00-"<9)6+6"</0;)62/0"GB+0"9,,+:=,203",/"9090-`+"90"+<)0=9,/*-"<0.96+0"$

8 9332+"F)>"<u>'X88fiE^"%39206,"H)]@2<"H/@2<-^"f0;/*<+9]2@2,-"/;"f_<)@=9,/*-"
'@9)6+6>"\\$"(C"E+_C"FC"5+MC"QJI>"QJU"P()::+*>"#\$!JR"P<2,203"20";//,0/,+6>"Q2(I3\$1134.668-/G**\$\$**67.043</u>

$$\begin{split} p \ (\text{"EB+"}</0,*9<,/\text{"GB/"}70/G2030-\text{"901"}G2002030-\text{"}=*/:26+6\text{"},/\text{"}\\ 201+:02;-\text{"},B+\text{"}</0,*9<,++\text{"};/\text{"},B+\text{"}09,,+*06\text{"}0+3023+0<+\text{"}:9-\text{"0}/,\text{"}\\ 6)<<+66;)00-\text{"}</:=0920\text{"}2;\text{"}6)<&\text{"}9\text{"}*+[)2*+:+0,\text{"}696\text{"}:91+\text{"}+_=02<2,\text{"}\\]-\text{"},B+\text{"},+*:6\text{"}/;\text{"},B+\text{"}</0,*9<,\ell\text{"} \end{split}$$

 $\label{eq:control_control_control_control} i /,"+M+*-"V)*2612<,2/0"900/G6"FXF"=*/M262/06";/*"=+*6/090"20V)*->"B/G+M+*("EB+" ()=*+:+"'/)*,"/;"K2*32029"B96")0+[)2M/<900-"B+01",B9,"=)]02<"=/02<-";/*]216",B+" +0;/*<+:+0,"/;"9"*+0+96+"/*"G92M+*";/*"=+*6/090"20V)*-"<9)6+1"]-";),)*+"9<,6"/;" 0+3023+0<+("P!""%06<(;6(T;$P)*T0$?%$J+1<*6()$5()$C5(?+33"$J\J\$86\\"U\"K90" JIN>"JIU>"!!"(0f0"U#J>"US$"P!UJ$Rj">+",,$?\$L5I"$H59196:,$86**2(+,-$P;;61\\"#Q0" K90"!J!>"!JQT!JN"P!JJ#R0"$

4B <u>I "5: &> .3%)7&TA)%(?)*: &> .57)%3\$U&0 2 0&!% .=(7(.57&).&0(1()&'/\$(%&A?.#\$&"56&G##*(?")(.5&</u>

$$\begin{split} & fM+0"20"</::+*<29@"126=), +6"<96+6)"FXF"=*/M262/06"9*+"3+0+*9@-"6,*2<,\emptyset-"\\ &</06,*)+1"20":/6,"6,9,+6"939206,",B+"=9*,-"6++7203",/"+0;/*<+",B+:C"F2(";\$\\ & Q29:&95;;\#'(1\%?\%N52&<5(M@5113+(\$!"")\$86\P!]UUR"#\$"'90C\%==CS1"!N!U\"!NSUj"\\ & B"9"&9+("\$B<59*;\#'(1\%?\$83+(+153\$!2443+";\$A&*,\#\$;2495\"#\$!Q"eC(C"D26,C"Ffu0("!\$NIIN\"9,"!UT!JC"(/:+"6,9,+6"</06,*)+"6)<B"<09)6+6"9<</1203",/",B+2*"09,)*+\"\\ & GB2<B"9*+\"20"+;;+<,\";'*;+2,)*+"=*/M262/06",B9,"9*+",/"]+"</06,*)+1"6/"96",/"9M/21"9";/*;+2,)*+"/;"*23B,6C"\%"0/03"+6,9]\(026B+1"*)\(08+20" \) "902;/*029\(029\) "2;"90"93*++:+0,"<90"]+"*+96/09]\(09-20,+*=*+,+1"6/"96",'"9M/21"9";/*;+2,)*+\"2,"26",B+"1),-"/;",B+"</)*,",/" 9M/21"2,C"X(+?"9;53\$!53";\$8694\$!\$853\\$",1\\$A:&\$86\\P!JQ#R"\$"\"9"-190236"]-",B+"=9*,-"</1203'',*;+2,)*+6"9*+"126;9M/*+1\"90-"20</0626,+0,"9<,6"/*"1+9\(02036")-",B+"=9*,-"</1203'',*;+2,)*+6"9*+"126;9M/*+1\"90-"20</0626,+0,"9<,6"/*"1+9\(02036")-",B+"=9*,-"</1203'',*;+2,)*+"G2\(0203'',*;+2,)*+"G2\$$

 $H29(",,\$?\%8<+*("-\$!G""4"P#$$QR"!#S"'900%==0Q,B"!$NI>"!$\\T$

 $1+; +0190,6";*/:",B+"0/66"/;"=*/;2,6"<092:0"EB+"'/)*,"126,203)26B+1"9<,2M+"901"\\ =9662M+"0+3023+0<+";201203",B+"=0+912036"6,9,+1"9"<092:";/*"9<,2M+"0+3023+0<+"\\ GB+0",B+"1+;+0190,"G96"9G9*+"/;",B+"=*/]0+:6"901"70/G2030-"*+;)6+1",/"*+:+129,+",B+:0"')%"9,"!$\ I0""$

 $00"90/,B+"+_9:=\emptyset+>"</0621+",B+"<96+"/;"'(\&"9;633MJ5())&86\%?\%/3$C695)6$8<"*\%\\ 86\%"P\#$$U"\%*7C"(C"',CR"SIS"%*7C"##\C"00",B26"<96+>"9":90);9<,)*+*";20+1"6)2,"\\ 939206,"9"</0,*9<,/*"901"2,6"6B/="6)=+*20,+01+0,";/*"0+3023+0<+"20",B+"*+=92*203"\\ 901"*+])201203"/;"+[)2=:+0,";/*",B+":90);9<,)*+*06"=090,C"EB+"</0,*9<,/*"966+*,+1"\\ 96"9"1+;+06+"9"02:2,9,2/0"/;"029]202,-"<09)6+"20"9";9_+1"0+,,+*C"EB+"</0,*9<,/*";9_+1"90"93*++:+0,",B9,"967+1",B+"=0920,2;;",/"6230"2,"901"*+,)*0"9;,+*"93*++203",/",B+",+*:6"/0",B+";*/0,"901"]9<7"621+C"EB+"=0920,2;;"6230+1"901"*+,)*0+1"2,>"]),"0/,B203"\\ G96"/0",B+"]9<7"621+"/;",B+";9_C"%"6+</01";9_"<9:+"G2,B"90"FXF"=*/M262/0"]),",B+"/G0+*"0+M+*"6230+1"901"0+M+*"*+,)*0+1"2,C"%"V)*-"*+,)*0+1"9"M+*12<,"20";9M/*"/;",B+":90);9<,)*+*";/*"s"J>IJ\>#!UC"EB+"9==+906"</)*,>"6,*2<,0-"</06,*)203",B+"</pre>$

$$\begin{split} & EB\,)\,6\rangle^{\circ}2,^{\circ}26^{\circ}+6=+<29\ell\ell-^{\circ}2:=/^{\ast},90,^{\circ},/^{\circ})\,6+^{\circ}<9^{\ast}+;\,)\,\ell\rangle^{\circ}<\ell+9^{\ast}\rangle^{\circ})\,0+[\,\,)\,2M/<9\ell^{\circ}901^{\circ}6=+<2;\,2<^{\circ}\ell^{\circ}903\,)\,93+^{\circ}GB+0^{\circ}=+=9^{\ast}203^{\circ}FXF^{\circ}=*/M262/06^{\circ}20^{\circ}93^{\ast}++:\,+0,6\rangle^{\circ}901^{\circ}+06)^{\ast}+^{\circ}2,^{\circ}G96^{\circ}+_{=^{\ast}+66\ell^{\circ}-93^{\ast}++1^{\circ}}=/0\ell^{\circ}(\,\,(++)^{\circ}+\ell^{\circ}3)^{\circ}(\,\,(+++0)^{\circ}-\ell^{\circ}3)^{\circ}+_{=^{\ast}+66\ell^{\circ}-93^{\ast}+1^{\circ}}=/0\ell^{\circ}(\,\,(++)^{\circ}+\ell^{\circ}3)^{\circ}(\,\,(+++0)^{\circ}-\ell^{\circ}3)^{\circ}+_{=^{\ast}+66\ell^{\circ}-93^{\ast}+1^{\circ}}=/0\ell^{\circ}3,^{\circ}2,^{\circ}2\ell^{\circ}3,^{\circ}$$

>B >.3%)7&V\$5\$%''**:&R(**&J.)&K58.%?\$&020&!%.=(7(.57&8.%&@\$?,*\$77E&R(**83*E&.%&-5)\$5)(.5''**:&R%.5<83*&>.563?)&

 $\begin{array}{l} Y \, B + , B + *"] \, -"6,9,) \, , +"/*"/0" =) \,] \, @2<" = /@2<-"3*/) \, 016>" </) \, *, 6" G2@"0/," +0;/* < +"FXF" \\ = */M262/06", B9,"6++7",/"6B2+@1" = +*6/06";*/: "20,+0,2/09@": 26</01) <, >";*9) \, 1>" \\ b \, G/0,/0c"/*"* +<7@+66"</01) <, C"?/*"206,90<+>"%@9] 9: 9"</) \, *, 6"B9M+"0/, +1"FXF" \\ = */M262/06>"b9@,B/) \, 3B"M9@21"901"</0626,+0,"G2,B" =) \,] \, @2<" = /@2<-"96",/"0+3@23+0," \\ </01) <, "9* +"20M9@21"901"</0,*9* -",/" =) \,] \, @2<" = /@2<-"96",/"G90,/0"/*"G2@0;) @"</01) <, Cc" \\ H59("; $?\$H+9* +(&<5*$'(,73\$J51"G5->"P(C"',C"\%@9C"!JUJR"NN!"(/C"#1"J#J>"JSSj"!""*\$53;6\$@6("; $?\$C9";;"3>"P(C"',C"'/@/C"!JU!R"\#S"HC#1"SI$>"SI\"Pbq2r0"0/"+M+0,"G2@0" 90"+_<)@=9,/*-"93* ++:+0,"] +"=+*:2,,+1",/"6B2+@1"939206,"9"<@92:"/;"G2@0;)@"901" \\ G90,/0"0+3@23+0<+CcRj">>5(I; \$?\$B6G)"9\$J+)&"\$J";,\$8694\\"P'/00C"(C"',C"#$$NR" #I\"'/00C"S!Q>"SSI"P'/00+<,2<),"1/+6"0/,"*+</302`+"1+3*++6"/;"0+3@23+0<+C".)," =*/B2[2,6"FXF"=*/M262/06";/*"*+<7@+66"901"20,+0,2/09@"</01)<,RC"" \\ \end{array}$

 $\begin{tabular}{ll} & \begin{tabular}{ll} & \begin{tabular}{ll}$

!C (,9,),/*-"H*/B2]2,2/O6"/O"FXF"H*/M262/O6"

 $\%6"911*+66+1"9] / M+"20"00"9"<96+"GB+*+",B+"02:2,9,2/0"/;"029] 202,-"=*/M262/06"] 9**+1" </06+[)+0,290"19:93+6"901"02:2,+1"*+</M+*-",/"b,B+",/,90"9:/)0,"=921>c"/0+" '902;/*029"'/)*,"B+01"bq'2M20"'/1+r"6+<,2/0"!\U"*+01+*6",B+"qr"02:2,9,2/0"/;" 029] 202,-")0+0;/*<+9] 0+",/",B+"+_,+0,"2,"G/)01"206) 09,+"D+;+0190,";*/:"20,+0,2/090",/*,"029] 202,-cc"!""#$W"H66;,$A")+5$!\J\L\S?\SL661!*59,$L,)\WPiCC"'90C\"A)0+"!#>" #$!QR"#$!Q" eC(("D26,C"Ffu0("U$J1U>"#$!Q"YF"#\#!Q\N>"9,"JT!$C"$

 $F/)262909"B96"9"6,9,),+",B9,"1+< (9*+6"96"0) (0"90-"<09) 6+",B9,"(2:2,6"(29)]2(2,-"]96+1" \\ /0"20,+0,2/090";9) (0,"/*"3*/66";9) (0,"/*";/*"=B-62<9("20V)*-C"(++>"F9C"'2MC"'/1+"%*,C" \\ \#$$Qi" \;,96G+"11+$?\$P&&9";;69$K3"",#$L,)\$"J\N"(/C#1"N#I"PF9C"\%==C"#$$IRC""$

#(00,+0,2/090"E/*,6"901"?*9)1)0+0,"'/01)<,"

00",B+"G/*16"/;"/0+"</)*,>"

e 0027+"<092:6"20M/0M203"0+3023+0,"M2/09,2/06"/;"09G")01+*"q'90C"
'2M20"'/1+r"(+<,2/0"!\\U>",B+*+"26"0/"6=02,"20",B+"<96+09G"
*+39*1203"20,+0,2/090",/*,6C"EB+"<96+6")02;/*:0-"B/01",B9,"
w02:2,9,2/0"/;"029]202,-"<09)6+6"9*+"20+;;+<,2M+"G2,B"*+6=+<,",/"
<092:6";/*";*9)1"901":26*+=*+6+0,9,2/0>d"*+39*10+66"/;"GB+,B+*"
,B+"=)]02<"20,+*+6,"26"2:=02<9,+1C"q8+,+(&\$K66)\$!5:",-\$F",\$!9?;%?%
/16\$!5:"\$!-;%\$X!P#\$'(1\"P#\$!#R"#\$J"'900%==CQ,B"!!!U>"!#\j"
H35(1"(<"+*#\$;2495>"#!I"'900%==C\$S1"9,"!QI!T!QI\$r"qxr p C"+M+O"
GB+*+",B+"<09)6+"9:/)0,6",/"9"02:2,9,2/0"/0"19:93+6"96"
/==/6+1",/"90"/),*23B,"+_++:=,2/0C"

 $\begin{array}{l} 00"9"<96+"GB+*+",B+"@::2,9,2/0"/;"@29]2@2,-"=*/M262/06"]9**+1"</06+[)+0,29@"19::93+6"\\ 901"@::2,+1"*+</M+*-",/"b,B+",/,9@"9:/)0,"=921>c",B+"i/*,B+*0"D26,*2<,"/;"\\ '9@2;/*029"B+@1"bq'9@C"'2M2@"'/1+r"6+<,2/0"!\U"*+01+*6",B+"qr"@::2,9,2/0"/;"\\ @29]2@2,-")0+0;/*<+9]@+",/",B+"+_,+0,"2,"G/)@1"206)@9,+"D+;+0190,";*/:"20,+0,2/09@",*,","@29]2@2,-Cc" \end{array}$

S0 $\underline{\&*/66" i +3@23+0<+"89-"5+01+*"90"FXF"H*/M262/0"}$ $e\ 0+0;/*<+9]@+"$

 $</00+<,2/0"G2,B"</06,*)<,2/0"</0,*9<,60"E/":97+"2,":/*+"*+9026,2<"G+"911",/",B+"+_9:=0+",B*++"9112,2/090";9<,6^"P!R"</:=+,203"=920,"</:=902+6"G+*+"0/,"9M9209]0+","1/",B+"G/*7")0,20"/0+"-+9*"9;,+*",+*:209,2/0>"901"P#R",B+"1+09-"*+6)0,+1"20",B+"$

```
,B9,",B+2*"</06+[)+0,290"19:93+6"*+6)0,+1";*/:"1+;+0190,d6";*9)1)0+0,"
</0<+90:+0,"/;",B+"206,900:+0,"/;";9)0,-"<9]0+0""
```

 $fM+0"G2,B/), "</0<+90:+0,"20M/0M+1>")01+*" '902;/*029" '/0,*9<,/*6" (,9,+"F2<+06203" 09G6>",B+";/00/G203"9*+")009G;)0^{\chingma}" 09G6>".$

```
'9@C".)6C"4"H*/;C"k"I!$IC"%]901/0:+0,"/;"</0,*9<,C"
```

```
'9@(".)6("4"H*/;("k"I!$J("D+=9*,)*+";*/: "9<<+=,+1",*91+" 6,9019*16j"D+=9*,)*+";*/: "=@906"/*"6=+<2;2<9,2/06"
```

'9@".)60"4"H*/;C"k"I!!\$C"D26*+39*1"/*"M2/@9,2/0"/;"6,9,),+6" P20<@)1203"])201203"</1+6R"

```
'9@C".)6C"4"H*/;C"k"I!!SC"?92@)*+",/"</:=@+,+"=*/\V+<,";/*"
</0,*9<,"=*2<+"
```

'9@C".)6C"4"H*/;C"k"I!!JC"?92@)*+",/"=*/6+<),+"G/*7"12@23+0,@-"

#N"