!" !#\$"

!

 $I('+\%2'*,\%1\&!71(\&3!:1(''(!>P1(2!./(!"\#\%'*,\%+,!1*2!7*0\%*''(+!JI7:>"7L!N!^*)))))$

.2,9366+,-)?"%H>32+3-(3"

8, I?3) &<!UV>>!I('#\\5\\,1,\\/*!\\/(a*0!\\(/-5!)

```
9'('*\%)'!W1(\#\%1!U-'81!J9:<!128\%+/(L!)
I/+,2/\#+D!
:$1*\\d!I1(a!J9:L!
"'/3'/*!i\\6!J9:L!
.)6*"@*'&3-*6\(\).,6*&,(6"@'>325+63&"
Z*2'(0(12-1,'!+,-2'*,+0!)
>*2('P!g10(1!J9:L!)
I F4F!+,-2'*,+D!!
W''.1!I'(+12!JI(\\*#',/*<!128\\+/(<!0(121,'2\\*!@?KB!P\\$!I$F4\\!>++\\,1*,!I(/.'++/(!1.!\$'!
Z*\%8'(+\%,3!/.!' i1+!1,!>-+,\%*L!
"5'*#'(!; %&&!JI(%*#',/*<!128%+/(<!0(12-1,'2!%*!@?KB!P%,$!I$F4F<!>++%+,1*,!I(/.'++/(!1,!,$'!
: \%,3!Z*\%8'(+\%,3!/.!U'P!E/(aL!)
k$1/3%!"$'*!JI(%*#',/*<!128%+/(<!0(12-1,'2!%*!@?KS!P%,$!I$F4F<!>++/#\1,'!['+'1(#$!
"#$/&1(!1,!:1&,'#$L!
: '*,('!./(!: &\ 61,'!['+'1(#\$!"\\*015/('L!
"5'*#'(!:&1(a!JI(%*#',/*<!128%+/(<!0(12-1,'2!%*!@?KR!P%,$!I$F4F<!41,1!"#%'*,%+,!1,!
g - &#1*L!
= \|#$'&\'!X(1]'(!JI(\|*#'./*\<!128\|+/(\<!0(12-1,'2!\|*!@?@K\<!I/+,2/\|!!,!\|\|#'!Z*\|8'(+\,3L!
c1*'!"63,\$!JI(\%*#',/*<!128\%+/(<!0(12-1,'2!\%*!@?@K<!:\&\%61,'!"#\'*,\\+,\!1,!=1*!W(/-5L!)
I/+,2/\#+D!!
= 1++% 6 /!9 /&&1+%*1!J" '*%/(!Y'#,-('(!1,!,$'!Z*%8'(+%,3!/.!72%*H-(0$<!,$'!('#%5%'*,!/.!,$'!
@?KO!>WZ!c16'+![F!; /&,/*!c-*\/(!"#\\'*,\\+,!>P1(2L!
I - !Y\%*!J > ++/\#\%1, '!['+'1(\#\$!"\#\$/\&1(<!I(\%*\#',/*L!))]
>*0'&!>216'+!J>++/#\1,'!I(/.'++/(!1,!,$'!Z*\8'(+\\,3!/.!\\\+#/*+\\*<!,$'!('#\\5\'*,!/.!,$'!
@?KS!>WZ!c16'+![F!; /&,/*!c-*\/(!"#\\'*,\\+,!>P1(2L!
\ '*$1/!4/*0!JI(/0'#,!"#\'*,\+,<!Z*\8'(+\,3!:/(5/(1,\/*!./(!>,6/+5\$'(\\\\|['+'1(\\\\\)]
U1+'(!=1\$./-1!JI/+,2/\#<!I1\#\%.\%\#!U/(,\$P'+,!U1,\%/*1\&!Y1H/(1,/(3L!))
E/-./*0!k$'*0!J>++\%+.1*.!I(/.'++/(<!Z*\%8'(+\%.3!/.!:/-+./*L!)
> a + 131!U \cdot a - 6H \cdot J > + + + + 1*, !I(/.'++/(<!)*2 \cdot 1*!)*+, \cdot , -, '!/.!`' # * / \ell / 03!9 / 6H 13L!
g''+\$1*!U1(\%*'+\%*0\$!JI\$3+\%#1\&!"#\%'*,\%+,<!UV>>TWX4YL!
W\&/H1\&!: $1*0'!I/+,2/\#,/(1\&!X'\&\&/P+\$\%5L!
"-66'(!\\*.'(*+D!
W'',1!I'(+12!J'',1*./(2<!W'/5$3+\|#+<!c-*\|/(L!)
"5'*#'(!; %&&!JZ:Y><!>,6/+5$'(%#!1*2!V#'1*%#!"#%'*#'+!1*2!>55&%'2!=1,$'61,%#+<!
c-*%/(L!
```

- K?F M+-<B"Ok! gF! [161+P13<!YFcF!4/**'(<!1*2!gF`FcF!I\$%&\%5+!@??BD!>!U'P!

 I1(16','(\)]1,\/*!/.!:\&/-2!4(/5\&',!>#,\\81,\/*!>55\\\#1H\&'!,/!\W'*'(1\&!:\\(#-\&1,\\/*!)=/2'\&+<!

 !BO<!KOASNKOMBF!

- KOF Y''<!"F"F<!YFcF!4/**'(<!gF`FcF!I\$%&\%5+<!1*2!O0"M+-<<!@??SD!`\$'!2'5'*2'*#'!/.! 1'(/+/&!'..'#,+!/*!#&/-2+!1*2!5('#\5\,1,\\/*!/*!#&/-2N+3+,'6!/(01*\]1,\\/*<!+\$'1(!1*2! +,1H\&\,3F! <!KKO<!2/\DK?FK?@RT@??Cc4??R@@AF!
- KAF M+-<B"OK!1*2!gF![161+P163<!@??RD!U/*&**'1(!:&*61,'!1*2!;32(/&/O\#1&!['+5/*+'+!...'!>'(/+/&!7...'#,+F!) <!@@<!KO@RNKOORF!
- $$\begin{split} \text{KMF} &= 10 \text{\ensuremath{\times}} ! \text{TF!} > \text{F!W} \text{\ensuremath{\times}} \text{i} < \text{!gF!} \left[161 + \text{P163} < \text{!1*2!} \mathbf{00''M} + < \text{!0??RD!} ? 81 \text{\ensuremath{\times}} 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} \right] \\ & \quad \cdot (/5 \text{\ensuremath{$\%$}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} \right] \\ & \quad \cdot (/5 \text{\ensuremath{$\%$}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} \right] \\ & \quad \cdot (/5 \text{\ensuremath{\times}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} + 1, \text{\ensuremath{\times}} + 1, \text{\ensuremath{\times}} / \text{\ensuremath{\times}} + 1$$
- KCF M+-<B"OK! g F! [1 6 1+P1 6 3<!1*2!WF! I '(+12<!@?K?D!` P /!V55/+%*0!7..'#,+!/.!>H+/(H%*0! > '(/+/&+!/*!W&/H1&N 6 '1*!I('#%5%,1,%/*F! <!OC<! 2/%DK?FK?@RT@?K?WY?A@SRMF!

- @?F:\$'*<!WF<!O0"M+-<<!UF!"**0'(<!1*2!cF!Y-<!@?K?D!>'(/+/&N**2-#'2!:\$1*0'+!**!='1*!
 1*2!7i,('6'!I('#\5\\,1,\\/*F!
 2/\\DK?FK?\@RT\@?K?WY?ABAOMF!

- @OF $\mathbf{M}+-<$ B" \mathbf{O} 0!1*2! g F! [1 6 1+P1 6 3<!@?KKD!>!= /2 '!1)*8 '+,!01,!1.'>' (/+/!1\%*2-#'2! : \$1*0 '+!\%*!\ (/5\\#1\!!:\(#-\&1,\\/*F!\) <!2/\\DK?FKKCMT@?KKc: Y)AK?SFKF!
- $\text{@AF } \mathbf{M} + < \mathbf{B}'' \mathbf{O} \\ \text{\mathbb{N}} = 161 + \mathbf{P} \\ 163 < 1*2! \\ \text{\mathbb{N}} = 1*2$

%*2-#'2!:\$1*0'+!%*!9/('1&!\%*,'(!7i,(1,(/5\#1&!:\(#-&1,\%/*F!)) <! 2/\(\frac{1}{3}\)K\(\frac{1}{3}\)K\(\frac{1}{3}\)E\(\frac{1}\)E\(\frac{1}{3}\)E\(\frac{1}{3}\)E\(\frac{1}{

- @MF W\$1*<! "FcF<! ; F!>H2-&N [1]]1a<!**O0"M**+-<<! hF!Y%-<! = F!V8#\$%**%a/8<!>F!U'*'+<!UF! = '+a\$%2]'<!cF! h -<!1*2! hF!"\$%<!@?KKD!4(/5&',!U-#&'1,%/*D! I\$3+%#1&&3N91+'2! I1(16','(%)]1,%/*!1*2! g 1&%21,%/*F! <! 2/%DK?FK?@RT@?KK = "?????CAF!
- @CF I '(+121<!WF<!O0"M+-<<!1*2! gF! [1 6 1+P 1 6 3<!@?K@D!`(/5\#1&!`(/5/+5\$'(\#\/*\&3! ['+5/*+'+!,/!>H+/(H*0!>'(/+/\&+F! <!@MJCL<!2/\DK?FKKCMTc: Y)\\4\N KK\\??K@@FKF!

@RF

+-H#/*,%*'*,F!

<!C<!2/%DK?FK?OST*#/66+K?R@MF!

- MOF Y%*1<! IF<! 4 FcF! I 13*, '(<!O0"M+-<!1*2! g F! [161+P163<!@?KCD! : \$1*0'+!/.!,\$'!,(/5\#1&!, (/5/51-+'!&13'(!-*2'(!0&/H1&!P1(6%*0F!0?JAL<! <!2/\mathbb{\text{MDK}?FKKCMTc} : Y)N 4 NKBN?AMCFKF!
- $$\begin{split} \text{MAF Y} & \text{MAF$$
 - 2/\mbk?Fk??@T@?KCWY?COSB@!F!

!" !#\$"

> = AF?TY = AF?!N!I1(,!))D! = /2 ll 4 lm, ** lm ** l",(1,'0%'+F! F!K?JOL<! 4 V)DK?FK??@T@?KC = "??K@?RF!

BSF : &1(a1<!"FjF<!O0"M+-<!

- 4%('#,&3!X/&&/P%*0!,\$'!>*,\$(/5/0'*%#!76%++%/*F! <!CJAL<! 4V)DK?FK?@RT@?KS7X??K?BSF!
- $$\begin{split} \text{S@F} > & 216 \ '+<!>\text{FXF}<! 4F! \ j \ \% 6 <! \text{"F} j \ F! : \& 1 (a <! \textbf{O0"M+-} <<! 1*2! \ j \ F!)*/- '<!@?KRD! "#1&'!1*1&3+\\+!/.! \\ & 6 \ /\ \%+,!,\$' (6 \ /\ 23*16 \ \%\#+!\ \%*!1!+\ \% 65\&'!6 \ /\ 2'\ \&!1*2!,\$'!('\&1,\ \%/*+\$\%5!H',P''*!6 \ /\ \%+,-('!6 \ /\ 2'+!1*2!0(18\%,3!P18'+F!F!F!4V)) \\ & \text{F!} \ 4V) \text{DK?FKKCMTc} > \text{"N4N} \\ & \text{KRN?K@KFKF!} \end{split}$$
- SOF Y''<!cF7F<!9F!X/iNj'65'(<!:F!; /(81,<!1*2!**O0"M+-**<<!@?KRD!`\$'!('+5/*+'!/.!71+,!>+\1*! 6/*+//*!,/!,\$'!5('#'++\/*1&!#3#&'D!>!*'P!+,-23!-+*0!,\$'!W'/5\$3+\#1&!X&-\2! 43*16\#+!Y1H/(1,/(3!6/2'\&F! 4V)DK?FK?@RT@?KRWY?S@BBKF!
- SAF Y%<!EF<!4 '*0<!"F!E1*0<!; F!k\$1*0<! $\mathbf{O0}$ " \mathbf{M} +-<<!1*2!kF!"\$ '*<!@?KRD! = -&,%N+#1&'!, '65/(1&N

RBF 1: \$-1<! hFN [F<!1*2!**00"M+-<**

<!BJO@L<!

!" !#\$"

 $7 \ i, (1, (/5\% \# 1 \&!\ ; -6\% 2\%, 3!1*2!: \&/-2+!P\%, \$!1*!)2'1\&\%]'2!W'*'(1\&!: \%(\#-\&1, \%/*!=/2'\&F! <!OMJKBL<!MO@KNMOOCF!}$

 $\text{KK?F} \qquad : \$ ' \ 6 \ a' < ! \ [\ \texttt{F} < ! \ 00" \ M + - < ! \ 1 * 2! \ cF! \ E - 81 \& < ! \ 0? @ @ < ! ` \$' ! \% * , ' * + \% . \% # 1, \% / * ! / .! \ P \% * , ' (! \ 6 \% 2 \text{N})$

K@MF

```
1Z*2'(+,1*2\%*0!1*2!6/2'\%\%*0!,\$'!71(,\$b+!\#\%61,'<!>!+365/+\%-6!\%*!\$/*/(!/.!)+11#!;'\&2!
JK?TKSL!
1U/H\&'!"'6\%*1(\langle!Z*\%8'(+\%,3!/.!`/(/*,/!JK?TKSL!))
Z*\8'(+\.3!JKKTKCL!
1)*, '(*1,\%/*1\&!:/-5\&'2!41,1!>++\%6\%\&1,\%/*!"365/+\%-6<!m\%021/<!:$\%*1!JKKTKCL!
: X = )I! \setminus /(a+\$/5 <!Z*\%8'(+\%,3!/.!^/a3/!JRTKCL!)
1) 65'(\lambda1\lambda!: \lambda\lambda'0'\lambda!Y\/\dagger2\/\dagger\lambda!Zi!JBTKCL!
1W7 \ 7h! > '(/+/\&!I('#\S\,1,\/*!JW>IL! \ /(a+\$/5<!Vi./(2!Z*\8'(+\,3!JBTKCL!))
1:7[7"!"#%'*#'!='',%*0<!U>">!Y1*0&'3!JMTKCL!
1U1,\%/*1\&!: '*, '(!./(!"#\%'*,\%.\%#!['+'1(#$!^4'6/a(\%,/+_<!>,$'*+<!W(''#'!JATKCL!
1 > = "!> **-1 \&! = ' ', \%*0 <! " '1, \& '!JKTKCL!
1 \setminus (a+\$/5!/*!^W(1*2!:\$1\&k'*0'+!\%*!6/**+//*!6/2'\&\%*0D!('5('+'*,1,\%/*!/.!5(/\#'++'+!\%*!))
#\&\%61, '!6/2'\&+_<!'(\%'+, '<!), 1\&3!JBTKBL!
171(,$!1*2!V#'1*!"#\'*#'!4\\8\\+\\/*<!U\\#$/\&1+!"#$//\&!/.!7*8\\(/*6'*,<!4-a'!Z*\\8'(+\\,3!
JATKBL!
14'51(,6'*,!/.!=','/(/\&/03<!Z*\%8'(+\%,3!/.!;1P1\\\!JATKBL!
14'51(,6'*,!/.!>55\&h'2!I$3+h#+!1*2!>55\&h'2!=1,$'61,h#+<!:/\&-6Hh1!Z*h8'(+h,3!JOTKBL!
14'51(,6'*,!/.!:$'6\\+,(3\!Z\*\\8'(+\\,3!/.!:(','!JRTKML!
1"\#\$//\&!/.!>, 6/+5\$'(\%\#!"\#\%'*\#'<!U1*0\%*0!Z*\%'(+\%,3!JRTKML!)
1 \setminus /(a+\$/5!/*!^*) > **-1 \&! \# 3 \# \&'!/.! 6 / *+//* + !1*2!) : `k+! \&'!, \$'!; / \& / \#'*'! 1*2!, \$'!.-, -('_<!) 
: /&-6H\1!Z*\8'(+\,3!JRTKML!
1 \setminus (a+\$/5!/*!^{-} = /*+//*0!51+, <!5('+'*,!1*2!.-,-('_<!:1\&\%./(*\%1!)*+, \%,-,'!/.!`'#\$*/\&/03!
JMTKML!
14'51(,6'*,!/.!>55&\'2!I$3+\\#+!1*2!>55&\'2!=1,$'61,\\#+\<!: /&-6H\\1!Z*\\8'(+\\,3!JOTKML!
> = "!> **-1 \&! = ' ', \%*0 <! I \$ / ' *\% i !JKTKML!
> WZ!X1&&! = '',\%*0<!"1*!X(1*#\\+#/!JK@TKAL"
14'51(,6'*,!/.!71(,\$<!>,6/+5\$'(\$#!1*2!I\&1*',1(3!"#\*"+\*"!=1++1#\$-+',.+!)*+,\\,-,'!/.!
`'#$*/&/03!JK?TKAL!
"#%'*#'!JSTKAL!!
14'51(.6'*.!/.!:32(1-\|\|\|\|!7*0\|\*''(\|\*0\!\`+\|\*0\$-1!Z\*\\\8'(+\|\.3!JSTKAL!!
1: /\&\&'O'!/.!>, 6/+5\$'(\%#!''#\%'*#'+<!Y1*]$/-!Z*\%'(+\%,3!JSTKAL!)
1: /&&'O'!/.!W&/H1&!: $1*0'!1*2!71(,$!"3+,'6!"#\"*#'<!9'\\0\\*0!U/(61\&!Z*\\8'(+\\.3!JSTKAL!
1X\%(+,!)*+,\%,-,'!/.!V\#'1*/0(15\$3<!",1,'!V\#'1*\%\#!>26\%*\%+,(1,\%/*<!m\%*021/!JSTKAL!
1U1.\%/*1\&!: \&\% 61.'!: '*, '(<!: \$\%*1! = ', '/(/&/0\#1\&! > 2.6 \\%\+, (1.\\/*<!9'\\0\\*0!JCTKAL!
1: '*, '(!./(
```

```
>WZ!X1&&!='',%*0<!"1*!X(1*#%+#/!JK@T?SL!
> [=!X1\&\&!='',\%*0<!I(\%*\#',/*!JKKT?SL!]
`$'!K?,$!"#%'*,%.%#!:/*.'('*#'!/.!,$'!)W>:!I(/0\#,<!>**'#3<!X(1*#'!JRT?SL!
; > IT> : : !c/\%*,! \setminus /(a+\$/5<! \setminus 1+\$\%*0,/*!4F:F!JBT?SL!
>N`(1\*!"365/+\-6<!Y\\\\'<!X(1*#'!JK?T?CL!
> WZ!X1&&! = ' ',%*0<! "1*!X(1*#%+#/!JK@T?BL!
> '(/:/6! \setminus /(a+\$\%5<!g\%(0\%*\%1!9'1#\$!JK?T?BL!)
U > ">!W/221(2!"51#'!X\&h0\$,!: '*, '(!JMT?BL!)
>'(/:/6! \setminus /(a+\$/5<!U'P!E/(a!JK@T?AL!)
>>>[!>**-1&!:/*.'('*#'<!>*1$'\\6!J?OL!
1Z*\\8'(+\\,3!/.!4'\&1P1('!J?\@L!
1[-,0'(+!Z*\%8'(+\%,3!J?@L!)]
> WZ!X1&&! = '',\%*0<!"1*!X(1*#\\+\#/!J?KL!
>): $7!>**-1\&!:/*.'('*\#'<!Y/+!>*0'\&'+!J??L!
>>> [!>**-1&!:/*.'('*#'<!",F!Y/-%+!J??L!
```