

## GYWXg'6Ui [YbY\a][ib[Yb'ibX'j]Yf 5bhfÀ[Y']a '5df]`'&\$&(']b'@]WXhYbVYf[

=a 6Yn]f\_gUa h'@|W\hYbVYf| 'k i fXYb']a 5df]\'&\$&( 'a Y\fYfY 6Ui [YbY\a][ib[Yb'ibX'5bhfÀ[Y'UiZ'6Ui [YbY\a][ib['ZØf 6Ui | cf\UVYb @VYf.%~A |c . . YfhY].h.Vnk ".Y]b[Y[Ub[Yb".Ni  $XYb^{-1}YbY = 1[hYb^{-1}Dfc^{-1}Yb^{-1}Yb^{-1}bhYf^{-1}bXYfYa^{-1}X]Y$ 9ff]WXhib['icb'<c`n!AcXi`!<ÀigYfb']b':U`YbVYf[ž'X]Y BYi Ui ZhY]`i b[ XYg 9fX[ YgWXcggYg ]a @]bXYb!7YbhYf 6Yf`]b ]b B Yi !< c \ Y b g W \ Ob \ Ui g Y b i b X X Y f B Y i V Ui 'Y ]b Y g 8 ]ghf]Vi h]cbgnYbhfi a g`]b`5`h!<c\YbgW.Òb\Ui gYb"'6Y]'XYb Y]b[Y[Ub[YbYb'5bhfÀ[Yb'\UbXY`h'Yg'g]W\'i bhYf'UbXYfYa ia 'XYb'la VUi #GUb]Yfib[ 'XYg'<c`nkifa \Ui gYg']b'BYi!  $< c \ Ybq \ \dot{O}b \ Ui \ g \ b \ \dot{Z}'X] \ Y' 9ff] \ Whib['Y]b \ Yg$ JYfkU'hib[g[YVAiXYg']b':f]YXf]WXgZY`XY'ibX'X]Y; fi bX]bghUbXgYhni b[ 'XYf / Ua d/, , &&&/?i `hgW\i `Y/ Ua d/, , &&\$/`]b :: f]YXf]W\\ gZY `XY" 8 | Y g Y '6 U i d f c 'Y \_ h Y ' \_ Ob b h Y b ' `c \_ U ` Y '5 i g k | f \_ i b [ Y b ' U i Z ' X ] Y  $YkY]^{[Yb]}$  GhUXhhY]^Y \ UVYbžk ]Y Y]bY J YfÀbXYfi b[ XYg GhUXhV]`XYqžY]bY'JYfVYqqYfib['XYf'\DZfUqhfi\_hif'cXYf / Ua  $d \wedge Y^{\dagger} d$ /

8]YgY'6Ui dfc Y\_hY'\_ObbhYb'`c\_U`Y'5i gk ]f\_i b[Yb'Ui Z'X]Y
Yk Y]`][Yb'GhUXhhY]`Y'\UVYbž'k ]Y'Y]bY'J YfÀbXYfi b['XYg
GhUXhV]`XYgž'Y]bY'J YfVYggYfi b['XYf'\Delta ZfUghfi \_hi f'cXYf'Y]bY
GhY][Yfi b['XYf'K c\b!'i bX'5fVY]hga O[`]W\\_Y]hYb'''<]ghcf]gW\
[YgY\Yb'\Uh'XYf'GhUXhhY]``@\W\hYbVYf['Y]bY'k YW\gY`j c``Y
; YgW\]W\hY'Xi fW\`YVhz'j cb'Y]bYf'Y\Yf'`AbX`]W\Yb'FY[]cb']a '%-"
\U\f\i bXYfh'V]g'\]b'ni f'\DX'ghf]U`]g]Yfi b[']a '&\"\U\f\i bXYfh''

± XYf Zc`[YbXYb HUVY``Y g]bX X]Y 6Ui dfc Y\_hY ]a 6Yn]f\_gUa h@]W hYbVYf[ ]a 5df]`'&\$&( ini gUa a Yb[YZUggh

p5XfYggY p6Ui j cf\UVYb p р р р pAUf[Y!9`]qUVYh\!icb!<iaVc`Xh!GhfU»Y')%p9ff]W\hib[ijcbiqYW\q <c`n!A cXi `!<Ài gYfb a ]h nk Y] V ]g XfY] K c\bY]b\Y]hYb p p'DfYfck Yf'D'Uhn'%'p'BYi Ui ZhY]'i b['9fX[YgWkcgg']a '@]bXYb!7YbhYf 6Yf`lb'p p'D'Ui YbYf'GhfU» Y'%\* %'pBYi VUi 'Y]bYg'8]ghf]Vi h]cbgnYbhfi a g'a ]h 6Øfc!'i bX'Gcn]U'ZÀWXYb'p p?cbfUX!Kc`ZIGhfU»Y'%, 'p'9ff]W\hi b['Y]bYg'Kc\b\Ui gYg'a]h'&% K c b Y b Y b Y h Y b pp'A U'W\ck Yf'K Y['%' ('p'9fk Y]hYfi b['XYg'@]X`!A Uf\_hYg'a ]h 5bdUggi b[ 'XYf'5i » YbUb`U[ Yb'p pF\]bghfU» Y '%&+ '5 'p'9ff]W\ hi b[ ž'ŸbXYfi b[ ž'GUb]Yfi b[ 'i bX 9fk Y]hYfi b[ 'Y]bYf'; H!HmdYbqdcfh\U``Y'p p: U`\_YbVYf[Yf'7\Ui ggYY'%(%pl a VUi #GUb]Yfi b['<c`nk i fa \Ui g р pA O``YbXcfZZghfU» Y`)' 'p'ŸbXYfi b[ž'9fk Y]hYfi b['i bX'BYi VUi 'XYq  $8UW_{Y}W_{C}qqYq'a h'' & K c b Y b Y h Y b p$ p:5`ZfYX!?ck U`\_Y!GhfU» Y'' - '6p'9ff]W\hi b[ž'BYi VUi JYfk U`hi b[q[YVÀi XY`p p'GYk UbghfU» Y'(%'p'; fi bX]bghUbXgYhni b['XYf'?i`hgW\i`Y'p

8 ]YgY '6Ui dfc  $\Upsilon$ \_hY 'k YfXYb 'X]Y '9bhk ]W\_`i b[ 'XYg '6Yn]f\_g @]W\hYbVYf[ ']b 'XYb '\_ca a YbXYb '\J\fYb 'a U\ [ YV `]W\ 'VYY]bZi ggYb i bX '\_\ObbhYb 'bYi Y 'A \O[ `]W\\_Y]hYb 'i bX '< YfUi gZcfXYfi b[ Yb 'Z\Off X]Y 6Yk c\bYf'i bX 'X]Y '`c\_U`Y 'K ]fhgW\ UZh'gW\ UZYb"

## 8 YhU]`g

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'b!U[ "XY