

6Yhfi [ga UgWX Y]b B Yi a Uf_h. 'Ÿ `hYfY 8 Ua Y j Yf`]Yfh HUi gYbXY '9i fc °

9]bY', '!'À\f][Y': fUi 'Ui g'BYi a Uf_h'k i fXY'CdZYf'Y]bYg 6Yhfi [g"'K Ufbi b[Yb'i bX'H]ddg'XYf'Dc`]nY]'ni 'U_hi Y``Yb 6Yhfi [ga UgWXYb"



GYY`ghfU» Yž'-&' %, 'B Yi a Uf_h']b 'XYf'C VYfd ZU`nž
8 Yi hgWX`Ub X '! \dagger B Yi a Uf_h'\Uh'Y]bY', '!\A\f][Y': fUi 'Y]bY
VYi bfi \][YbXY'9fZU\fi b['[Ya UWXh"5a '%&"'\dagger b]'&\&\) 'k i fXY'g]Y
C d ZYf'Y]b Yg'fUZZ]b]YfhYb'6Yhfi [g"'B UWXXYa 'g]Y'a Y\fYfY
Ghi b XYb`Ub['a Ub]di `Uh]j 'Ua 'HY`YZcb'VYUfVY]hYh'k i fXYZ'ØVYf[UV
g]Y'Y]bYa 'i bVY_UbbhYb'5V\c`Yf'GWXa i W_i bX'a Y\fYfY'hUi gYbX
9i fc"'8]Y', VYf[UVY'ZUbX'[Y[Yb'%).%\$'I\f']b'XYf'GYY`ghfU» Y
ghUhh"8Yf'5V\c`Yf']gh'V]g`Ub['i bVY_Ubbh'i bX'k]fX'U`g'gWX`Ub_Z
Yhk U'') 'V]g'(\\$'\J\fY'U`h'i bX']b'Xi b_`Yf'6Y_`Y]Xi b['VYgWXf]YVYb'''

8]Y'Dc`]nY]'\Uh'gcZcfh'Ui Z'X]YgYb'JcfZU``fYU[]Yfh'i bX
i a ZUb[fY]W\Y': U\bXi b[ga U»bU\a Yb'Y]b[Y`Y]hYhž'Y]bgW\`]Y»`]W\
XYg'9]bgUhnYg'Y]bYg'Dc`]nY]\i VgW\fUi VYfg"'8]Y

?f]a]bU`dc`]nY]]bgdY_h]cb`FY[YbgVi f['Yfa]hhY`h`k Y[Yb`VUbXYb! i bX`[Yk YfVga À»][Yb`6Yhfi [g"'6YgcbXYfg`VYgcf[b]gYffY[YbX`]gh X]Y`HUhgUW\Yž`XUgg`gc`W\Y`6YhfØ[YfY]Yb`cZh`[Yn]Y`h`À`hYfY A YbgW\Yb`]bg`J]g]Yf`bY\a Ybži a `\c\Y`; Y`Xgi a a Yb`ni Yf[Ui bYfbž'k]Y`Ui W\`Ui Z'dZ`Y[Y\]`ZY!gYb]cfYb"XY`Yf`Ài hYfh k]fX"

6Yhfi [ga UgWXYb Ui ZXYa Jcfa UfgWX

a Yf'k]YXYf'g]bX'À\b`]WXY'6Yhfi [ga UgWXYb']b'XYb

GWX`U[nY]`Ybž'VY]'XYbYb'g]WX'?f]a]bY``Y'U`g'5b[Y\Òf][Yž

Dc`]n]ghYb'cXYf'gc[Uf'U`g'A]hUfVY]hYf'j cb' +bgh]hi h]cbYb'Ui g[YVYb"

9]b'U_hi Y``Yg'6Y]gd]Y``g]bX'X]Y'5bfi ZYf'XYf'8Yi hgWXYb

FYbhYbj Yfg]WXYfi b['f8FJ ŁŽ'X]Y'b]WXh'XUj cf'ni fØW_gWXfYW_YbŽ

GYb]cfYb'a]h'[YZÀ`gWXhYb'8fc\i b[Yb'ni 'j Yfi bg]WXYfb"'G]Y'[YVYb

j cfŽ'X]Y'FYbhY'_ObbhY'Ui Z[fi bX'Ub[YV`]WXYf': cfXYfi b[Yb'Ui g

Y]bYa '@chhc!5Vc'[YdZÀbXYh'k YfXYb"'Gc`WXY'+bZcfa Uh]cbYb'i bX

X]Y'AYh\cXYb'X]YgYf'6YhfØ[Yf'_ObbYb'Ui Z'XYb'GY]hYb'j cb'

gWX k UYV]gWXY!dcgh"XY'bUWX[Y`YgYb'k YfXYb"

8]Y 'Hf]W_g'XYf'6YhfØ[Yf'n]Y `Yb'XUfUi Z'UVž'XUg'JYfhfUi Yb'j cb GYb]cfYb'ni 'YfgW\ `Y]W\Yb" 8]Yg'ZØ\fh'cZh'ni 'Z]bUbn]Y ``Yb JYf'i ghYbž'X]Y 'VYhfcZZYbY'DYfgcbYb']b'Y]bY'dfY_ÀfY'@U[Y'Vf]b[Yb" 8]Y'?f]a]bU`dc`]nY]'[]Vh'Xf]b[YbXY'K Ufb\]bk Y]gY.'@Y[Yb'G]Y gcZcfh'Ui Zž'k Ybb'G]Y'j YfXÀW\h][Y'5bfi ZY'Yf\U`hYbž'i bX'k À\`Yb G]Y'gY`VghghÀbX]['X]Y'Bchfi Zbi a a Yf'%%\$"'9g']gh'k]W\h]['ni k]ggYbž'XUgg'X]Y'Dc`]nY]'cXYf'\$\(\forall \text{gh}]n'b]Ya U`g'hY`YZcb]gW\'ni f \(\text{VYf}[UVY'j cb'; Y`X'cXYf'K Yfh[Y[YbghÀbXYb'Ui ZZcfXYfb'']

Dfàj Ybh]cb]gh XUg 5 i b X C

I a 'g]W\'i bX'gY]bY'5b[Y\Of][Yb'j cf'gc`W\Yb'6Yhfi [gj Yfgi W\Yb ni 'gW\ØhnYbž'g]bX'Y]b][Y'Y]bZUW\Yž'UVYf'YZZY_h]j Y'A U» bU\a Yb Xi fW\Ui g'fUhgUa "'8 Uni '[Y\Ofhž'g_Ydh]gW\'ni 'gY]b'VY] i bVY_UbbhYb'5bfi ZYb'i bX'X]Y'\Rightarrow\YbhAh'XYg'5bfi ZYfg'ni \@VYfdf@ZYb''\Rightarrow\Y]bYf'?f]gY'gc``hYb'J Yfk UbXhY'cXYf': fYi bXY\]bni [Ync[Yb'k YfXYbž'i a 'I bg]W\Yf\Y]hYb'Ui gni fÀi a Yb"

8 Yf K \]gh Y V ck Y f! @Y]h ZU X Y b 'X Y f 'Dc `]n Y] 'Y a d Z]Y \ `h Y V Y b ZU ``gž _Y]b Y 'd Y fg Ob `]W X Y b ' \(\frac{1}{2} \) Zc fa Uh]c b Y b 'd f Y]gni [Y V Y b 'i b X 'V Y] 'N k Y] ZY `b]a a Y f 'Y]b Y 'j Y fh f Ui Y b g k Ø f X][Y 'E i Y ``Y 'n i '_c b h U_h] Y f Y b " '8] Y K Uf b n Y] W X Y b 'j c b 'H f] W _ V Y h f Ø [Y f b 'g] b X 'c Zh 'g Y \ f 'A \ b `] W X Z k Ug V Y X Y i h Y h Z X Ugg 'Y] b Y '[fi b X `Y [Y b X Y 'G Y b g] V] `]g] Y fi b ['ZØ f 'gc `W Y A Y h \ c X Y b 'j c b '[f c » Y f '6 Y X Y i h i b [']gh " 8] Y 'D Z `Y [Y \] `ZY 'k Y] gh X U f Ui Z \] b Z `X Ugg 'X] Y ; Ya Y] b g W U Zh n i g Ua a Y b U f V Y] h Y b 'a i gg Z i a G Y b] c f Y b 'n i 'i b h Y f g h Ø h n Y b 'i b X 'n i 'g W Ø h n Y b "

8 YhU]`g	
Cfh	GYY`ghfU»Yž'-&' %, 'BYia Uf_h']b'XYf
	CVYfdZU`nž'8YihgWX`UbX
EiY``Yb	• k k k "cVYfdZU`n!U_hi Y``"Wca
	k k k "g\W\ k UYV]g\W\ Y!dcgh"XY
	k k k "dZ`Y[Y\]`ZY!gYb]cfYb"XY

6 Y gi W Y b 'G | Y 'i b g 'U i Z 'b U [! V U m Y f b " X Y