

BYiY'?Uff]YfYWXUbWY. DfØZib[gUahgiWxhach]j]YfhY'A]hUfVY]hYf']b'?fYZY`X

9b[U[]YfhY'A]hUfVY]hYbXY']a 'DfØZ b[gUa h'fk #a #XŁ'[Ygi W\h' \Rightarrow hnh']b'?fYZY`X'VY]'XYf'?U]gYfgk Yfh\Yf'8]U_cb]Y'VYk YfVYb"

♣D:BcfXf\Y]b!K YghZU`Yb`g]bX`X]Y`GhY``YbUbnY][Yb`XYf
?U]gYfgk Yfh\Yf`8]U_cb]Y`Y]b`gdUbbYbXYg`H\Ya U`ZØf`U``Yž`X]Y`]b
XYf`<cW\gW\i`j Yfk U`hi b[`UfVY]hYb`a ÒW\hYb"`8YfnY]hik]fX`Y]b
A]hUfVY]hYf`ZØf`XUg`DfØZi b[gUa h`fk #a #XŁ`]b`?fYZY`X`[Ygi W\h"
8]YgY`Dcg]h]cb`V]YhYh`b]W\h`bi f`X]Y`A Ò[`]W_Y]hž`X]Y`Y][YbYb
: À\][_Y]hYb`]a `Di V`]WA UbU[Ya Ybh`i bhYf`6Yk Y]g`ni `ghY``Ybž
gcbXYfb`Ui W\`dfU_h]gW\Y`9fZU\fi b[Yb`]b`Y]bYf`XmbUa]gW\Yb
I a[YVi b[`ni `gUa a Y`b"

 $8 \ Ug' Df \varnothing Z \ b [\ gUa \ h']gh'Y]bY'k \]Wk h][\ Y' \Rightarrow gh]hi \ h]cb']bbYf \ U'V'XYf \\ < c \ Wk gWki \ 'j \ Yfk \ U'hi \ b [\ z'X]Y' Z \ f'X]Y' C f [\ Ub]gUh]cb'i \ bX \\ 8 i \ fWk Z \ hi \ b [\ 'j \ cb' Df \varnothing Z] \ b [\ Yb' j \ Yf Ubhk \ cfh']Wk']gh'' \ \Rightarrow \ XYf \\ Ui \ g [\ YgWk \ f]YVYbYb' GhY''Y'k \]fX'Y]b'Yb [\ U[\]YfhYf'A \]hUfVY]hYf \\ [\ Ygi \ Wk hz'XYf'X]Y'fY]Vi \ b [\ g`cgY'8 i \ fWk Z \ hi \ b [\ 'X]YgYf' Df \varnothing Z] \ b [\ Yb [\ Yk \ A \ f'Y]ghYh'''Ni [\ 'Y]Wk'k \]fX'Yfk \ UfhYhz'XUgg'XYf'bYi Y'A \]hUfVY]hYf \\ g]Wk' U_h]j' \ 'a \]h'j \ YfgWk]YXYbYb' \ \Rightarrow H! Hcc `g'XYf' < cWk gWki `j \ Yfk \ U`hi \ b [\ Ui \ gY]bUbXYfgYhnh'' \ 8]Yg']gh'VYgcbXYfg'fY`Yj \ Ubh']b'NY]hYbz']b \\ XYbYb'X]Y'X][\]hU'Y' HfUbgZcfa \ Uh]cb']b'6]`Xi \ b [\ gY]bf]Wk'hi \ b [\ Yb \ cfUbgWk fY]hYh''$

?ca a i b]_Uh]j Y : À\][_Y]hYb

9]b 'nYbhfu`Yf'6YghUbXhY]``XYf'Fc``Y']a 'DfØZ b[gUa h'k]fX'X]Y?ca a i b]_Uh]cb'a]h'Ghi X]YfYbXYb'i bX'8cnYbhYb'gY]b"; i hY_ca a i b]_Uh]j Y': À\][_Y]hYb'g]bX'XU\Yf'i bYf`Àgg`]W\"'8]Y6Yk YfVYf'gc``hYb'Y]bY'dfcU_h]j Y'<U`hi b['Y]bbY\a Ybži a 'Y]bY

_`UfY'i bX'YZZY_h]j Y'?ca a i b]_Uh]cb']bbYf\U`V'XYf <cW\gW\i`j Yfk U`hi b['ni 'ZÒfXYfb"

9]b g]WX YfYf I a [Ub['a]h XYb '[Àb[][Yb 'A G 'C ZZ]WY! Dfc [fUa a Yb]gh YVYb ZU ``g 'J cfUi ggYhni b ["'? Ybbhb]ggY ']b '9 I WY `ž 'K cfX 'i b X Dck YfDc]bh 'g]b X '[Y ZfU[hž i a 'UXa]b]ghfUh]j Y '5 i Z[UVYb 'Y ZZ]n]Ybh 'n i Yf `YX][Yb 'i b X 'X]Y 'h A [`]WX Y '5 fVY]h 'n i 'Yf `Y]WX h Yfb "'N i XYa 'k]f X Y]b Y 'ghfi _hi f]Yfh Y '5 fVY]hgk Y]g Y 'gck]Y 'H Y Ua ZA \][_Y]h j cfUi g[YgYhnhž i a 'g]WX '[i h ']b 'X Ug 'V Ygh Y \ Yb XY 'H Y Ua 'n i]bh Y[f]Yf Yb 'i b X 'X]Y '[Ya Y]bg Ua Yb 'N]Y `Y 'n i 'Yff Y]WX Yb "

5bZcfXYfib[YbibX7\UbWb

8]Y'A Ò[`]W_Y]hž'ni a '6Y]gd]Y`'bYi Y'HYW\bc`c[]Yb'ni 'Yf'YfbYb i bX'X]YgY']b'X]Y'hÀ[`]W\Yb'5fVY]hgUV`Ài ZY'ni ']bhY[f]YfYbž'a UW\h X]YgY'Dcg]h]cb'VYgcbXYfg'UhhfU_h]j "'Ghi X]YfYbXYž'X]Y'g]W\']b'XYf <cW\gW\i`j Yfk U`hi b['Yb[U[]YfYb'k c``Ybž'Z]bXYb'\]Yf'Y]bY']XYU'Y; Y`Y[Yb\Y]hž'b]W\h'bi f': Yfh][_Y]hYb'Ui g']\fYa 'Ghi X]i a Ubni k YbXYbž'gcbXYfb'Ui W\'Y]bYb'dcg]h]j Yb'9]bZi gg'Ui Z'X]Y 5i gV]`Xi b['ni _ØbZh][Yf': UW_fÀZhY'ni 'bY\a Yb"

?fYZY`X`U`g`GhUbXcfh`V]YhYh`Ui W\`Y]bY`]bhYfYggUbhY`I a [YVi b[`ZØfU``Yž`X]Y`]a '6]`Xi b[gVYfY]W\`hÀh][`g]bX"'8]Y`GhUXh`_ca V]b]Yfh`Y]bYfY]W\Y`; YgW\]W\hY`a]h`]bbcj Uh]j Yb`6]`Xi b[gUbgÀhnYb`i bX`_ÒbbhYZØf`j]Y`Y`^1 b[Y`: UW_fÀZhY`XYf`dYfZY_hY`5i g[Ub[gdi b_h`gY]b"

6Yk YfVi b[gdfcnYgg'i bX?Uff]YfYa Ò[`]WX_Y]hYb

 $8] YgY `Dcg]h]cb `U`g`A] hUfVY]hYf`]a `DfØZ b[gUa h`]gh`b]WAh`bi f`Y]bY k] WAh][Y`5i Z[UVY`]bbYf\U`V`XYf` < cW.gWAi `j Yfk U`hi b[ž`gcbXYfb Ui WA`Y]bY`7 \UbWYž`g]WA`k Y]hYfni Ybhk] W_Y`b`i bX`X]Y`Y][YbY? Uff]YfY`]a `6YfY]WA`Di V`]WA UbU[Ya Ybh`j cfUbni hfY]VYb"$

Ni _i b Zhgd Y fgd Y _h]j Yb ']b 'X Y f < c W g W i 'j Y f k U 'hi b [

8]Y'Fc``Y']a 'DfØZ b[gUa h']gh'Y]b'j]Y'j YfgdfYWXYbXYf'GWXf]hh'ZØf U``Yž'X]Y'Y]bY'?Uff]YfY']a 'ÒZZYbh']WXYb'8]Ybgh'UbghfYVYb'''8]Y [YgUa a Y`hYb'9fZU\fi b[Yb']b'XYf'<cWXgWXi `j Yfk U`hi b['gck]Y XYf'I a [Ub['a]h']bbcj Uh]j Yb'HYWXbc`c[]Yb'V]YhYb'k Yfhj c``Y 9fZU\fi b[Ybž'X]Y']b'j]Y`Yb'6YfY]WXYb'XYf'ÒZZYbh`]WXYb'J Yfk U`hi b[j cb'6YXYi hi b['g]bX"

± Y]bYf'NY]hž']b'XYf'X]Y'8][]hU`]g]Yfi b['U``Y'@YVYbgVYfY]WXY
Xi fWXXf]b[hž']gh'X]Y': À\][_Y]hž'bYi Y'±H!Hcc`g'ni 'bi hnYb'i bX
YZZ]n]Ybh'ni '_ca a i b]n]YfYbž'j cb'YbhgWXY]XYbXYf'6YXYi hi b["'K Yf
g]WX']b'X]YgYf'Dcg]h]cb'k c\`ZØ\`hž'\Uh'X]Y'A Ò[`]WX_Y]hž'Y]bYb
VYXYi hYbXYb'6Y]hfU['ni a '6]`Xi b[ggY_hcf'ni 'Y]ghYb'i bX
ni _ØbZh][Y'; YbYfUh]cbYb'j cb'Ghi X]YfYbXYb'dcg]h]j 'ni
VYY]bZi qqYb"

8]Y'Dcg]h]cb'U`g'A]hUfVY]hYf']a 'DfØZ b[gUa h'V]YhYh'b]W\h'bi f'X]Y
A Ò[`]W_Y]hž'dfU_h]gW\Y'9fZU\fi b[Yb'ni 'gUa a Y`bž'gcbXYfb'Ui W\
9]bV`]W_Y']b'X]Y'U_hi Y``Yb'<YfUi gZcfXYfi b[Yb'XYf
<cW\gW\i`j Yfk U`hi b["'8]Y'8][]hU`]g]Yfi b['i bX'X]Y'HfUbgZcfa Uh]cb
XYf'6]`Xi b[g`UbXgW\UZh'ghY``Yb'bYi Y'5bZcfXYfi b[Yb'Ub
JYfk U`hi b[g_fÀZhY"'8]Y'?U]gYfgk Yfh\Yf'8]U_cb]Y']gh'Y]bY
VYXYi hYbXY'&gh]hi h]cbž'X]Y'g]W\'Ui Z'X]Y'&hY[fUh]cb'X]YqYf

 $8]Y \cdot 6YXYi \ hi \ b[\ Y]bYf \cdot dfc \ ZYgg]cbY \cdot Yb \cdot < cW gWXi \cdot Yfk \ U \cdot hi \ b[\ Yhh b b]WXh i bhYfgWX Ahnhik YfXYb" \ < cWX gWXi \ Yb \ g]bX \cdot]b \cdot XYb \ `YhhhYb \ \ \ \ \ Yb \ Thi \ bY \ a \ YbX \ i \ bhYf \ 8fi \ W_ \ [\ YfUhYb \ ZYZ]n]YbhY \ 8]Ybgh \ Y]ghi \ b[Yb \ Ubni \ V]YhYb \ i \ bX \ [\ Y]WXhY]h][\ XYb \ 6YXØfZb]ggYb \ XYf \ Ghi \ X]YfYbXYb \ [YfYWXh ini \ k \ YfXYb \ "8]Y \ '9ZZ]n]Ybn \]b \ XYf \ DfØZi \ b[gcf[Ub]gUh]cb \ ini \ a \ '6Y]gd]Y \ `]gh YbhgWXY]XYbX \ Z'i \ a \ 'XYb \ \ c\ Yb \ '5bZcfXYfi \ b[Yb \ XYg \ 6] \ Xi \ b[ggY_hcfg \ [YfYWXh ini \ k \ YfXYb \ "1 \ a \ 'ZØf \ gc \ `WXY \ < YfUi \ gZcfXYfi \ b[Yb \ [Yk \ Uddb Yh ini \ 'gY]b \ Z'g]bX \ gck \ c\ `hYWXb]gWXY \ : \ A\][\ _Y]hYb \ U \ `g'Ui \ WX \ X]Y \ : \ A\][\ _Y]h ini \ f \]bhYfX]gn]d \ `]bAfYb \ Ni \ gUa \ a \ YbUfVY]h'[YZfU[h'']$

8][]hU`Y`HfUbgZcfa Uh]cb`]b`XYf <cW.gW.i `j Yfk U`hi b[

8]Y'X][]hU'Y'HfUbgZcfa Uh]cb'VYhf]ZZh'U`Y'6YfY]WXY'XYg
<cWXgWXi`VYhf]YVgž'Ui WX'X]Y'JYfk U'hi b["'=a a Yf'a Y\f
<cWXgWXi`Yb'gYhnYb'Ui Z'+!!@Ògi b[Ybž'i a 'UXa]b]ghfUh]j Y
DfcnYggY'ni 'cdh]a]YfYb"'8]YgY'9bhk]W_`i b['nY][h'g]WX
VY]gd]Y`gk Y]gY']b'XYf'9]bZØ\fi b['j cb'X][]hU'Yb
DfØZi b[gd`UhhZcfa Ybž'X]Y'gck c\`'XYb'NY]hUi Zk UbX'XYf
A]hUfVY]hYbXYb'j Yff]b[Yfb'U`g'Ui WX'XYb'Ghi X]YfYbXYb'Y]bYb
Y]bZUWXYfYb'Ni [Ub['ni '+bZcfa Uh]cbYb'Yfa Ò[`]WXYb"'8]Y
?U]gYfgk Yfh\Yf'8]U_cb]Y'j YfZc`[h'\]YfVY]'Y]bY'dfc[fYgg]j Y
GhfUhY[]Yž'i a 'X]Y'bOh][Yb'FYggci fWYb'i bX'GWXi`i b[Yb

8 i fW. 'X]Y ' + bhY [fUh]cb 'bYi Yf'HYW.bc `c[]Yb 'k]fX 'b]W.h'bi f'XYf 5fVY]hgU``hU['Yf`Y]W.hYfhž'gcbXYfb 'Ui W. 'X]Y Ei U`]hÀh'XYf JYfk U`hi b[gX]Ybgh`Y]ghi b[Yb 'j YfVYggYfh" '6YgcbXYfY '6YXYi hi b[_ca a h'\]YfVY]'XYf'8 UhYbg]W.Yf\Y]h'i bX'XYa '8 UhYbgW.i hn'ni ž'XU X]Y 'J YfUfVY]hi b['j cb 'Ghi X]YfYbXYbXUhYb 'ghfYb[Yb 'F]W.h`]b]Yb i bhYf`]Y[h" 'A]hUfVY]hYbXY']a 'DfØZi b[gUa h'a ØggYb 'XU\Yf'Y]b 6Yk i gghgY]b 'ZØf'X]YgY'5gdY_hY'Ybhk]W_Y`b 'i bX'g]W.YfghY``Ybž XUgg'U``Y'J cf[UVYb'Y]b[Y\U`hYb'k YfXYb"

6Yfi Z`]WX Y '9bhk]W_`i b[ga Ò[`]WX _Y]hYb

Ni gàhn`]W\`V]YhYh`X]Y`fY[Y`a à»][Y`HY]`bU\a Y`Ub`K cf_g\cdgʻi bX?cbZYfYbnYb`Y]bY`A O[`]W_Y]hž`U_hi Y``Y`HfYbXgʻi bX`6Ygh DfUWh]WYgʻ]b`XYf`<cW\gW\i`j Yfk U`hi b[`_YbbYbni `YfbYb"`8]YgY 9fZU\fi b[Yb`_ObbYb`gck c\``X]Y`dYfgOb`]W\Y`9bhk]W_`i b[`U`g Ui W\`X]Y`E i U`]hàh`XYf`[Y`Y]ghYhYb`5fVY]hij YfVYggYfb"`8]Y?U]gYfgk Yfh\Yf`8]U_cb]Y``Y[h`[fc»Yb`K Yfh`Ui Z'X]Y`K Y]hYfV]`Xi b[\Yf`A]hUfVY]hYbXYb`i bX`i bhYfghØhnh`g]Y`XUVY]ž`]\fY`?Uff]YfYn]Y`Y ni `YffY]W\Yb"

8 Y hU1`a

6 Y gi W Y b 'G] Y 'i b g 'U i Z 'b ! U ["X Y