

$6Yhf\emptyset[Yf']b'=bn][_cZYb.', %! > A \setminus f][Yf'k]fX$ CdZYf'XfY]ghYf'AUgWXY

5a 'A]hhk cWkbUWka]hhU['[Y[Yb'%("%) 'I \f`k i fXY'Y]b', %! 'À\f][Yf A Ubb']b' \pm n][_cZYb'CdZYf'Y]bYf'6Yhfi [ga UgWkYž'X]Y'j cb'Y]bYf; fi ddY'j cb'XfY]'A ÀbbYfb'Xi fWk [YZØ\fh'k i fXY"'8]YgY'a Ug_]YfhYb g]Wk'[YgWk]W_h'U`g'< UbXk Yf_Yf'i bX'VchYb'XYa 'À`hYfYb'< YffYb'Ubž gY]bY'8 UWkf]bbYb'ni 'fY]b][Yb'i bX'Ui gni hUi gWkYb"' \pm a 'YfghYb; YgdfÀWk'Y]b][hYb'g]Wk'X]Y'6YhfØ[Yf'i bX'XYf'< Ui gVYg]hnYf'Ui ZY]bYb'Xi fWkUi g'[YfYWkhYbž'XfY]ghY``][Yb'6YhfU['ZØf'X]Y Ub[YVchYbYb'5fVY]hYb"

8] Y Dc`]nY] [fY]Zh gW bY``Y]b

8 Ub_'XYg'<]bk Y]gYg'Xi fW\'X]Y'6Ub_Ub[YghY``hY'_cbbhYb'X]Y Dc`]nY]VYUa hYb'nØ[]['U[]YfYb'i bX'X]Y'HUhj YfXÀW\h][Yb']b'XYf BÀ\Y'XYg'<Ui gYg'UbhfYZZYb"'6Y]'XYf': YghbU\a Y'k i fXYb'X]Y'XfY] A ÀbbYf'j cf`Ài Z]['ZYgh[Ybca a Yb'i bX'ghY\Yb'bi b']a 'J YfXUW\h XYg'6UbXYbVYhfi [g"'8]YgYg'J cf[Y\Yb'_ObbhY'U`g'6Y]gd]Y`'ZØf Y]bY'[fO`» YfY'6Yhfi [ga UgW\Y'Ub[YgY\Yb'k YfXYbž'X]Y'A`hYfY A YbgW\Yb']bg'J]g]Yf'b]a a h"'Gc`W\Y'HU_h]_Yb'g]bX'`Y]XYf'b]W\h bYi ž'XU'6YhfØ[Yf'cZh'[Yn]Y`h'GYb]cfYb'UbgdfYW\Ybž'X]Y a O[`]W\Yfk Y]gY'k Yb][Yf'9fZU\fi b[Yb'a]h'gc`W\Yb A UW\YbgW\UZhYb'\UVYb"

9gʻ]ghʻb]W\h'bi fʻk]W\h][žʻgc`W\Yʻ6Yhfi [gj Yfgi W\YʻUbni nY][Ybž gcbXYfb'Ui W\'X]Yʻ2 ZZYbh`]W_Y]hʻØVYfʻX]Yʻj YfgW\]YXYbYbʻA UgW\Yb ni ʻ]bZcfa]YfYbž'X]Yʻj cbʻ6YhfØ[Yfbʻj Yfk YbXYhʻk YfXYb"ʻ9]bY \Ài Z][YʻGhfUhY[]YʻVYghY\hʻXUf]bž'a]hʻgW\Y]bVUfʻ`Y[]h]a Yb 8]Ybgh`Y]ghi b[Ybʻni ʻk YfVYbʻi bXʻXYbʻDfY]gʻbUW\'XYa '5VgW\`i gg XYfʻ5fVY]hYbʻYl cfV]hUbhʻni ʻYf\Ò\Ybʻ 'Y]bʻ_`Ugg]gW\Ygʻ6Y]gd]Y``ZØf HÀi gW\i b['i bX'A Ub]di `Uh]cb"

8]Y : c [Yb ZØf X]Y 6YhfcZZYbYb

 $8 \ Ug'; \ YgWXYYYb']b' \Rightarrow n][\ _cZYb'nY][\ hž'k\]Y'gWXbY```XUg'J YfhfUi YbY]bYg'A YbgWXYb'Ui g[\ Ybi hnh'k YfXYb'_Ubb'''8Yfž'Ui Z'XYb'YfghYb6`]W_'YUfa `cgYž'J cfgWX`U['Y]bYf'8 UWX f]bbYbfY]b][i b[Ybhk]\ W_Y`hY'g]\ W']b'_\@fnYghYf'NY]h'ni 'Y]bYa 'dchYbn]Y``YbZ]bUbn]Y``Yb'8 YgUghYf'Z\ f'XYb', \%!\A\f][Yb'''9g']gh'j cb'[f\)\ hYf 6YXYi hi b[\ ž'XUgg'\ Y'hYfY'i bX'Ui \W'\\ Db[YfY'A YbgWXYb'\ ØVYf'gc`\WYF]g]_Yb'']bZcfa]\ Yfh'k YfXYb\ Z'XUa]h'g]Y']b'XYf'\ @U[Y'g]bX\ Z'g]\ W'[Y[Ybgc`\WXYSb[f]ZZY'ni 'k UddbYb''$

8]Y'Dc`]nY]'UddY``]Yfh'Ub'X]Y'6Øf[Yfž'j cfg]W\h]['ni 'gY]b'i bX'VY] j YfXÀW\h][Yb'5b[YVchYb']a a Yf'Y]bYb'nk Y]hYb'6`]W_'XUfUi Z'ni k YfZYb"'Ni XYa 'gc``hYb'g]Y'g]W\'b]W\h'gW\Yi Ybž']\fYb'JYfXUW\h Y]bYf'j YfhfUi Ybgk ØfX][Yb'GhY``Y'ni 'a Y`XYb"'9]bY'[i hY?ca a i b]_Uh]cb']gh']b'gc`W\Yb': À``Yb'XYf'GW\`ØggY`ž'i a 'UbXYfY j cf'À\b`]W\Yb'G]hi Uh]cbYb'ni 'gW\ØhnYb'i bX'X]Y'HÀhYf'ni f FYW\YbgW\UZh'ni 'n]Y\Yb"

9]b 5i Zfi Zini f K UW gUa _Y]h

 $8]YgYf^{-}JcfZU^{\cdot\cdot\cdot}]gh^{\cdot}Y]b^{\cdot}Y]bXf]b[^{\cdot}]W_{A}Yf^{\cdot}5i~Zfi~Z^{\cdot}ni~f^{\cdot}K~UW_{A}gUa~\underline{\ }Y]h^{\cdot}]b$

i bgYfYf"; YgY``gW\UZh" K À\fYbX '< UbXk Yf_YfUfVY]hYb bchk YbX][
i bX 'c Zh'i bYf`Àgg`]W\ 'g]bXž'_Ubb 'XYf'bU]j 'YfgW\Y]bYbXY'I a [Ub[
a]h'X]YgYb '5b[YVchYb 'gW\bY```ni 'Y]bYa '_cghgd]Y`][Yb': Y\`Yf
k YfXYb" '9g']gh'k]W\h][ž'X]Y '5i [Yb 'c ZZYb 'ni '\U`hYb'i bX'gY]bY
Gcf[Yb'ni 'hY]`Ybž'VYj cf'a Ub 'gc`W\Y'F]g]_Yb'Y]b[Y\h"8]Y
DfÀj Ybh]cb'i bX 'XUg'fYW\hnY]h][Y'<UbXY`b'j cb'6Øf[Yfb'i bX
6YUa hYb'g]bX'YbhgW\Y]XYbXž'i a '[Y[Yb'gc`W\Y'VYhfØ[Yf]gW\Yb
A UW\YbgW\UZhYb'j cfni [Y\Yb"

I a 'XUg'D\Àbca Yb'XYg'6Yhfi [g'VYggYf'ni 'j YfghY\Ybž']gh'Yg k]W\h][ž'g]W\X]Y 'A Yh\cXYb'i bX'GhfUhY[]Yb'Ubni gY\Ybž'X]Y 6YhfØ[Yf'cZh'Ubk YbXYbž'i a ']\fY'CdZYf'ni 'hÀi gW\Yb" ≠bgVYgcbXYfY']a ': U``'j cb'<UbXk Yf_VYhfØ[YfY]Yb']gh'X]Y J cf[Y\Ybgk Y]gY'\Ài Z]['À\b`]W\"6YhfØ[Yf'YfgW\Y]bYb'cZh i fd`Òhn`]W\'i bX'V]YhYb'j Yfa Y]bh`]W\'bchk YbX][Y'8]Ybgh`Y]ghi b[Yb ni 'UhhfU_h]j Yb'DfY]gYb'Ub"'8]YgY'HU_h]_'`Yb_h'X]Y'5i Za Yf_gUa _Y]h XYf'; YgW\ÀX][hYb'Ui Z'j Yfa Y]bh`]W\Y'8f]b[`]W_Y]h'i bX'YbhZYfbh X]Y'A Ò[`]W_Y]hž'DfY]gY'i bX'8]Ybgh`Y]ghi b[Yb'ni 'j Yf[`Y]W\Yb"'8]Y 5b[fY]ZYf'[Yk]bbYb'XUXi fW\'Ub'JYfhfUi Yb'i bX'_ObbYb']\fY CdZYf`Y]W\hYf'ØVYf`]ghYb"

9]b`Y]hYbX``Àggh`g]WX`gU[Ybž`XUgg`X]Y`6Yhfi [ga UgWXYž`X]Y`]b

\dipn][_cZYb`ghUhhZUbXž`]b`j]Y`Yb`GhÀXhYb`Y]b`k Y]h'j YfVfY]hYhYg

D\Abca Yb`]gh"`@Ui h`XYa `6i bXYg_f]a]bU`Ua h`g]bX`6Yhfi [gXY`]_hYž
]bgVYgcbXYfY`gc`WXY`]b`JYfV]bXi b[`a]h'<UbXk Yf_gX]YbghYbž`]b

XYb``YhnhYb`\d\fYb`[Ygh]Y[Yb"'<]YfVY]`g]bX`\Ai Z][`A`hYfY

A YbgWXYb`X]Y`N]Y`[fi ddYž`XU`g]Y`cZha U`g`k Yb][Yf`a]gghfUi]gWX
g]bX`i bX`Y]bY`[fÒ»YfY`BY][i b[`\UVYbž'<]`ZY`j cb`: fYa XYb

Ubni bY\a Yb"

$A Yh \ c X Yb \ X Yf \ 6 Yhf \emptyset [Yf]$

8]Y'A Yh\cXYb'XYf'6YhfØ[Yf'g]bX'Ui g[YgdfcW\Yb'j]Y`ZÀ`h][ž'YXcW\
'Àggh'g]W\'Y]bY'_`UfY'Ghfi _hi f'Yf_YbbYb"'CZha U`g'UfVY]hYb'X]Y
HÀhYf'a]h'dgmW\c`c[]gW\Yb'Hf]W_g"'G]Y'gd]Y[Y`b'XYa 'CdZYf'Y]b
; YZØ\`'j cb'Bchk YbX][_Y]h'cXYf'8f]b[`]W_Y]h'j cf'i bX'gYhnYb'Yg
i bhYf'8fi W_ž'gW\bY``ni 'fYU[]YfYb"'9g'k YfXYb'\Ài Z]['K ÒfhYf'k]Y
BchX]Ybgh 'cXYf' GcbXYfUb[YVch 'j Yfk YbXYhž'i a 'X]Y'CdZYf

8 UfØVYf`\]bUi g'bi hnYb'j]Y`Y'6YhfØ[Yf'XYb'?ia dY`!9ZZY_h'G]Y YfgWXY]bYb'ZfYi bX`]WX'i bX'\]`ZgVYfY]hž'k Ug'XUg'JYfhfUi Yb'XYg CdZYfg'ghÀf_h"'8]YgY'5fh'XYf'HÀi gWXi b['_Ubb'VYgcbXYfg'ZØf À`hYfY'A YbgWXYb'[YZÀ\f`]WX'gY]bž'X]Y'cZh'Ui Z[fi bX'j cb'9]bgUa _Y]h i bX'XYa '6YXØfZb]g'bUWX'gcn]U`Yf'=bhYfU_h]cb'Ya dZÀb[`]WXYf'g]bX"

FYU_h]cbYb^XYf^6Y\ÒfXYb^i bX DfÀj Ybh]cbga U»bU\a Yb

8]Y'JcfZÀ``Y'k]Y'XYf']b'=bn][_cZYb'\UVYb'Ui W\'ni 'Y]bYf
j YfghÀf_hYb'GYbg]V]`]g]Yfi b['XYf'6Y\ÒfXYb'[YZØ\fh"'9g'[]Vh
nU\`fY]W\Y'5i Z_`Àfi b[g_Ua dU[bYbž'X]Y'XUfUi Z'UVn]Y`Ybž'X]Y
6Yj Ò`_Yfi b['ØVYf'X]Y'; YZU\fYb'gc`W\Yf'6YhfØ[YfY]Yb
Ui Zni _`ÀfYb"'8]Y'Dc`]nY]'fÀhž'ghYhg'g_Ydh]gW\'ni 'gY]bž'k Ybb
i bj Yf`Ub[h'8]Ybgh`Y]ghi b[Yb'Ub[YVchYb'k YfXYb'i bX'g]W\']a
Nk Y]ZY``]a a Yf'Ub'j YfhfUi Ybgk ØfX][Y'<UbXk Yf_gVYhf]YVY'ni
k YbXYb"

8 Yg K Y]hYfYb V]YhYb j]Y Y; Ya Y]bXYb

± Zcfa Uh]cbgj YfUbghU`hi b[Yb]b GYb]cfYb\Y]a Yb cXYf
; Ya Y]bgWX UZhgfÀi a Yb Ubži a 'À`hYfY A YbgWXYb ØVYf]\fY FYWXhY
i bX X]Y J cf[Y\Ybgk Y]gYb j cb 6YhfØ[Yfb ni ']bZcfa]YfYb" 8]YgY
dfÀj Ybh]j Yb A U» bU\a Yb _ObbYb YbhgWXY]XYbX XUni 'VY]hfU[Ybž
XUqq k Yb][Yf A YbgWXYb CdZYf qc `WXYf A UWXYbgWX UZhYb k YfXYb"

8 Y h J] ` c

6Ygi WXYb G]Y i bg Ui Z b!U["XY