

< YfbY 'Yf`YVYb.'j cb'5`hghUXh'i k Y`Yb'V]g ni '_i `]bUf]gWXYb'<][\ `][\ hg</pre>

9bhXYW_Yb^G]Y^X]Y^j]Y^ZÀ`h][Yb^:UWYhhYb^jcb^<YfbY. \]ghcf]gWXY^5`hghUXhžgWX`ObY^DUf_gž'_i`]bUf]gWXY^<][\`][\hg ibX^_i`hifY^`Y^GWX`AhnY^kUfhYb^UiZ^G]Y^

< YfbYžY]bY`WXUfa UbhY`GhUXh`]a `< YfnYb`XYg`Fi \f[YV]Yhqž`]gh`cZh</pre> Y]b i bYbhXYW_hYg i k Y`'Ui Z'XYf'@UbX_UfhY'8Yi hgW\`UbXg" KÀ\fYbX'j]Y`Y'FY]gYbXY'bUW\'XYb'[fc»Yb'AYhfcdc`Yb'ghfYVYbž $V]YhYh' < YfbY'Y]bY': \emptyset``Y'| cb'9f`YVb]qqYbž'X]Y'qckc\``X]Y'cXYf'XYb$ [YgWX]WXhq`]YVYbXYb Hci f]ghYb 'U`g'Ui WX 'X]Y'; Ybi gga YbgWXYb $VY[Y]ghYfb^kYfXYb^{"}9[U^*z^cV^Xi^X]Y^{]ghcf]gWXYb^; UggYb^XYf$ $5 \cdot hghUXhYf_i bXYbžX]Yfi \ | [YbDUf_gibXPf\cib[g[YV]YhY]$ [Yb]Y»YbcXYf]bX]Y_i `hi fY``YJ]Y`ZU`hXYfAigYYbii bX'H\YUhYf Y]bhUi W\Yba ÒW\hYghž<YfbY^\Uh^ZØf^YXYb^Yhk Ug^ni ^V]YhYb"^I bX k Ybb XYf < i b [Yf _ca a hžk]fgh Xi ']b XYf GhUXh _i `]b Uf]gW Y < O\Ydib_hY'YbhXYW_YbžX]Y'XY]bYa ; Ui a Yb'gW\a Y]W\Y`b"@Ugg ibg'[YaY]bgUa'X]Y'5VYbhYiYf']a':fY]nY]hdUf_'Yf`YVYb'ibX'X]Y YVYbX][$YbYUbghUhib[YbYbhXYW_YbžX]YXUg@YVYbYbYbYbYbY$ gc 'Vi bh'i bX 'UVk YWX g`i b[gfY]WX 'a UWX Yb" 'A UWX 'X]WX 'VYfY]h'ZØf Y]bY'FY]gY']b'Y]bY'GhUXhžX]Y'HfUX]h]cb'i bX'A cXYfbY'Ui Z kibXYfVUfY'KY]gY'jYfV]bXYh°

$9bhXYW_Y'X]Y'\setminus]ghcf]gWXY'5`hghUXh'jcb'< YfbY$

<YfbYžY]bY'GhUXh']a '<YfnYb'XYg'Fi\f[YV]Yhgž'V]YhYh'gc'j]Y`
a Y\f'U`g'a Ub'Ui Z'XYb'YfghYb'6`]W_'Yfk UfhYb'_ObbhY"'8]Y
\]ghcf]gWXY'5`hghUXh']gh'Y]b'k U\fYg'¾k Y`'i bX'Y]b'Cfhž'Ub'XYa
; YgWX]WXhYž'?i`hi f'i bX'a cXYfbYg'@YVYb'Ui ZY]bUbXYfhfYZZYb"
6Y]a '6i a a Y`b'Xi fWX'X]Y':i»[Åb[YfncbY'_ca a Yb'6Ygi WXYf']b
XYb'; Ybi gg'Y]bYf'A]gWXi b['Ui g'\]ghcf]gWXYb'i bX'a cXYfbYb</pre>

9]b'< \dot{O} \Ydi b_h'XYf'5`hghUXh']gh'X]Y'A Ufh]bg_]fW\YžY]b VYY]bXfi W_YbXYg'6Ui k Yf_ž'XUg'VYfY]hg']a '%' "'\$\J\f\i bXYfh Yff]W\hYh'k i fXY"'8]Y'?]fW\Y']gh'b]W\h'bi f'Y]b'Cfh'XYf'5bXUW\hž gcbXYfb'Ui W\'Y]b'UfW\]hY_hcb]gW\Yg'A Y]ghYfk Yf_"'8]Y'a Uf_UbhYb: YbghYf'i bX'XYf']a dcgUbhY'Hi fa 'g]bX'VY`]YVhY': chca ch]j Y'i bX`UXYb'XUni 'Y]bž']bbYni \U`hYb'i bX'X]Y'Fi \Y'XYg'CfhYg'ni [Yb]Y"Yb"

6Y]'Y]bYa 'GdUn]Yf[Ub['Xi fW\'X]Y'5`hghUXh'_Ubb'a Ub'bYVYb'XYf A Ufh]bg_]fW\Y'Ui W\'nU\`fY]W\Y'W\Ufa UbhY'GhfU» Yb'YbhXYW_Yb" 8]Y'< Ui dhghfU» Y'a]h']\fYb'hfUX]h]cbY``Yb': UW\k Yf_\Ài gYfb'i bX_`Y]bYb'; YgW\ÀZhYb'V]YhYh'Y]bY'dYfZY_hY'?i`]ggY'ZØf'Y]bYb YbhgdUbbhYb'9]b_Ui ZgVi a a Y`"'K Yf'Y]b'GhØW_'XYf'\YfbYf; YgW\]W\hY'Yf`YVYb'a ÒW\hYž'gc``hY'Ui W\'XUg'\Y]`][Y'; fUV'i bX X]Y'U`hY'GhUXhgW\i `Y'VYg]W\h][Yb' 'nk Y]'VYXYi hYbXY'6Ui k Yf_Yž X]Y'Y]bXfi W_gj c``j cb'XYf'; YgW\]W\hY'XYf'GhUXh'YfnÀ\`Yb"

9]b'k Y]hYfYg'<][\`][\hi]gh'XYf'F Uh\ Ui gd`Uhnž'XYf'XUg
UXa]b]ghfUh]j Y'< Yfn'j cb'< YfbY'V]`XYh'''<]Yf'Z]bXYb'fY[Y`a À»][
A Àf_hY'i bX'J YfUbghU`hi b[Yb'ghUhhž'X]Y'XUg'; Ya Y]bgW\ UZhg[YZØ\`
XYf'GhUXh'ghÀf_Yb'''=a 'Gca a Yf'k]fX'XYf'D`Uhn'ni a '@YVYb'Yfk YW_h
Xi fW\ i bhYfgW\]YX`]W\ Y': YghYž'k c'`c_U`Y'? Ògh`]W_Y]hYb'i bX
\UbX[Ya UW\hY'DfcXi _hY'Ub[YVchYb'k YfXYb'''5i Z'X]YgYa 'D`Uhn
YfZÀ\fh'a Ub'X]Y'\Yfn`]W\Y'; UghZfYi bXgW\ UZh'XYf'9]bk c\bYf'i bX
X]Y'`YVYbX][Y'5ha cgd\ÀfYž'X]Y'< YfbY'Ui gnY]W\bYh''

9]bY'XYf'gW\ObghYb'A\O[`]W_Y]hYbž'X]Y'5`hghUXh'ni 'Yf_i bXYbž']gh Y]bY': Ø\fi b['a]h'Y]bYa 'cfhg_i bX]['Yb'; i]XY"'Gc`W\Y'Hci fYb g]bX'cZh']bX]j]Xi Y``'Ub['YdUggh'i bX'Yf`Ui VYb'Ygž'j YfVcf['YbY GW\AhnY'i bX'X]Y'; YgW\]W\hYb'\]bhYf'XYb'\]ghcf]gW\Yb'; YVÀi XYb ni 'YbhXYW_Yb"'CV'U`g'; fi ddY'cXYf'U``Y]bYž'X]Y': Ø\fi b[Yb'g]bX Y]b'i bhYf\U`hgUa Yg'9f`YVb]gž'XUg'h]YZYfY'9]bV`]W_Y']b'X]Y GhUXh['YgW\]W\hY'V]YhYh"

9]b '6Ygi W\ ']b 'XYf'\]ghcf]gW\ Yb '5`hghUXh']gh'b]W\ h'bi f'Y]b '6`] W_- ']b X]Y 'J Yf[Ub[Yb\ Y]hž'gcbXYfb 'Ui W\ 'Y]bY 'gdUbbYbXY

 $9bhXYW_i b[gfY]gY\check{z}X]Y'j]Y`Y``c_U`Y'; YgWX \grave{A}ZhY'i bX'7 UZ\mathring{A}g'i a ZUggh'' <]Yf'Y]b][Y'H]ddg'ZØf'XY]bYb'5i ZYbh\U`h$

- 7 UZÅ 'Ua 'A Uf_h.'; Yb]Y» Yb'G]Y'`c_U`Y'GdYn]U`]hÀhYb'i bX \Ui g[Ya UW\hYb'?i W\Yb"
- 5 bh]ei]hÀhYb!@UXYb 'NY]h`cg. '9bhXYW_Yb 'G]Y Y]bn][Ufh][Y 'GW ÀhnY 'i bX '9f]bbYfi b[gghØW_Y"
- A Uf_h'Ua '8]YbghU['i bX': fY]hU[. '? Ui ZYb'G]Y 'Zf]gWXY DfcXi _hY'j cb'`c_U`Yb'9fnYi [Yfb"

: Øf; YgWk]Wk hg]bhYfYgg]YfhY []VhYYg'Ui Wk 'XUg'GhUXhUfWk]j ž'XUg Y]bY'i a ZUggYbXY'GUa a `i b['j cb'8c_i a YbhYb'i bX'6]`XYfb'ni f; YgWk]Wk hY'j cb'< YfbY'V]YhYh"'9g'`c\bh'g]Wk ž'Y]bYb'6`]W_'XUfUi Z'ni k YfZYbž'VYgcbXYfg'k Ybb'a Ub'a Y\f'ØVYf'X]Y'9bhk]W_`i b['XYfGhUXh']a '@Ui ZY'XYf'*J\fY'YfZU\fYb'a ÒWk hY'"'<]Yf'Z]bXYh'a Ub]bhYfYggUbhY'5i gghY``i b[Yb'i bX'_Ubb'VY]'gdYn]Y``Yb J YfUbghU'hi b[Yb'h]YZYf']b'X]Y'GhUXh[YgWk]Wk hY'Y]bhUi Wk Yb"

8]Y'5`hghUXh'j cb'<YfbY']gh'b]W\h'bi f'Y]b'Cfhž'i a 'ni fØW_ni V`]W_Ybž gcbXYfb'Ui W\'i a 'XUg'a cXYfbY'@YVYb'ni '[Yb]Y»Yb"'NU\`fY]W\Y' JYfUbghU`hi b[Yb'i bX': Ygh]j U`g'Z]bXYb'\]Yf'ghUhhž'X]Y'X]Y _i `hi fY``Yb'5b[YVchY'XYf'GhUXh'VYfY]W\Yfb"'9[U`ž'cV'?cbnYfhYž H\YUhYfUi ZZØ\fi b[Yb'cXYf'GhfU»YbZYghY''X]Y'5`hghUXh']gh'XYf dYfZY_hY'Cfhž'i a 'XUg'di`g]YfYbXY'@YVYb']b'<YfbY'ni 'Yf`YVYb"

 $: \emptyset f'k Y]hYfY' + DZcfa Uh]cbYb' \emptyset VYf'X]Y'GhUXh'i bX'] \setminus fY'5b[YVchYž VYgi WXY'X]Y'cZZ]n]Y``Y'K YVg]hY'j cb' < YfbY''8]YgY'V]YhYh'Y]bYbi a ZUggYbXYb', VYfV`]W_' Ø VYf'9j Ybhgž'GY \Ybgk Ø fX][_Y]hYb'i bXj]Y`Yg'a Y\f''$

8]Y $gWX ObghYb DUf_g i bX 9f c i b[g[YV]YhY]b XYf FY[]cb$

<YfbYžY]b[YVYhhYhi]a '<YfnYb'j cb'BcfXf\Y]b!K YghZU`Ybž'V]YhYh
b]W\h'bi f'Y]bY'W\Ufa UbhY'5`hghUXhž'gcbXYfb'Ui W\'Y]bY'J]Y`nU\`
j cb'DUf_g'i bX'9f\c`i b[g[YV]YhYbž'X]Y'ni a '9bhgdUbbYb'i bX
9f\c`Yb'Y]b`UXYb"'CV'ZØf'Y]bYb'YbhgdUbbhYb'GdUn]Yf[Ub[ž'Y]b
D]W_b]W_a]h': fYi bXYb'cXYf'qdcfh`]W\Y'5_h]j]h\hYb''X]Y'[fØbYb</pre>

9]bYf'XYf'VY_UbbhYghYb'DUf_g']b'< YfbY']gh'XYf'GhfØb_YXYf
DUf_"'A]h'gY]bYb'k Y]h'Ài Z][Yb'F UgYbZÀWXYbž'U'hYb'6Ài a Yb'i bX
gWYb]WGdUn]Yfk Y[Yb']gh'X]YgYf'DUf_'Y]b'VY`]YVhYf'C fh'ZØf
: Ua]`]Yb'i bX'BUhi fZfYi bXY"'6YgcbXYfg']a': fØ\`]b['i bX'Gca a Yf
V'Ø\Yb'\]Yf'nU\`fY]WXY'DZUbnYb'i bX'6Ài a Yž'X]Y'Y]b'k i bXYfVUfYg
5a V]YbhY'gWXUZZYb"'9]b'_`Y]bYf'hY]WX'i bX'j YfgWX]YXYbY
Gd]Y'd`ÀhnY'a UWXYb'X]YgYb'DUf_']XYU`'ZØf'Y]bYb': Ua]`]YbUi gZi ["

9]b'k Y]hYfYg'k i bXYfVUfYg'5i gZi [gn]Y``]gh'XYf'GhUXh[UfhYbž'XYf]a 'NYbhfi a 'j cb'< YfbY'`]Y[h"8]YgYf'DUf_'V]YhYh'b]W\h'bi f'Y]bYb FØW_ni [gcfh']b'XYf'BUhi fž'gcbXYfb'Ui W\'j YfgW\]YXYbY'_i `hi fY``Y JYfUbghU`hi b[Yb'i bX'?cbnYfhYž'X]Y'fY[Y`a À»]['ghUhhZ]bXYb"'8]Y [YgW\ki b[YbYb'K Y[Y'i bX'[Ya Øh`]W\Yb'G]hnV\hb_Y``UXYb'Y]bž'X]Y GYY`Y'VUi a Y`b'ni ``UggYb'i bX'XUg'Vi bhY'HfY]VYb'XYf'GhUXh'ni VYcVUW\hYb"

: Øf 'gdcfh']W\ '5_h]j Y ']gh'XYf'K UbbY!9]W_Y`Yf'DUf_ 'Y]bY ']XYU`Y C dh]cb" '8 Yf'DUf_ ']gh'b]W\ h'bi f'ZØf'gY]bY'k i bXYfgW\ ÒbY @UbXgW\ UZh'VY_Ubbhž'gcbXYfb'V]YhYh'Ui W\ 'nU\`fY]W\ Y Gdcfha $\dot{O}[\ ']W_Y]hYb'k]Y'FUXZU\fYbž' <math>\approx [\ [Yb'ibX': i \ "VU``gd]Y`Yb'' C V'U``Y]b'cXYf'a]h': fYi bXYb' '\]Yf'_Ubb''YXYf'gY]bYb @]YV`]b[ggdcfh'Ui gØVYb'i bX'[`Y]W\ nY]h]['X]Y'Zf]gW\ Y'@|Zh [Yb]Y\"Yb''$

K Ybb'G]Y'Ui Z'XYf'Gi W\Y'bUW\'Y]bYa 'Yhk Ug'[fÒ» YfYb 9f\c`i b[g[YV]Yh'g]bXž'gc``hYb'G]Y'XYb'F Yj]YfdUf_'; mgYbVYf[VYgi W\Yb"'8]YgYf'UhhfU_h]j Y'DUf_']gh'Y]b'k U\fYg': fY]nY]hdUfUX]Yg a]h'gY]bYb'k Y]h'Ài Z][Yb'; fØbZÀW\Ybž'Y]bYa'[fc»nØ[][Yb : fY]VUXžY]bYa 'A]b][c`Zd`Uhn'i bX'gc[Uf'Y]bYa 'H]Yf[Y\Y[Y"'8]Y?]bXYf'k YfXYb'j cb'XYb'Gd]Y`d`ÀhnYb'i bX'XYb'H]YfY'VY[Y]ghYfh gY]bž'k À\fYbX'9fk UWXgYbY'X]Y'Fi\Y'i bX'X]Y'gWXÒbYb'; ÀfhYb [Yb]Y»Yb'_ÒbbYb"

<]Yf'g]bX'Y]b][Y'kY]hYfY'Ya dZY\`YbgkYfhY'DUf_g']b'i bX'i a < YfbY.

- DUghcfUhgdUf_. '9]b'_`Y]bYfž'UVYf'ZY]bYf'DUf_'a]h'gW\`ObYf 6YdZUbni b['i bX'nU\`fY]W\Yb'G]hn[Y`Y[Yb\Y]hYb"
- ; mgYbVYf['DUf_.'=XYU`'ZØf': Ua]`]Yb'a]h'j]Y`Yb Gd]Y`a Ò[`]WX_Y]hYb"
- K U`XdUf_. '9]b'[i hYf'Cfh'ZØf'YbhgdUbbYbXY GdUn]Yf[Àb[Y']b'XYf'BUhi f"
- 6]Yf[UfhYb]a 'GhUXh[UfhYb.; Yb]Y» Yb 'G]Y 'Y]b '_U`hYg ; YhfÀb_']a ': fY]Yb"

8]Y'DUf_g']b'<YfbY'g]bX'b]W\h'bi f'[fØbY'FØW_ni [gcfhYžgcbXYfbUi W\'CfhY'XYf'6Y[Y[bi b["'J]Y'Y'V]YhYb'gdYn]Y``Y
JYfUbghU'hi b[Ybž'j ca ':]`a UVYbX']a ':fY]Yb'V]g'\]b'ni 'gU]gcbU`YbA Àf_hYbž'X]Y'X]Y'; Ya Y]bgW\UZh'ni gUa a YbVf]b[Yb"'\DZcfa]YfYbG]Y'g]W\'ØVYf'U_hi Y``Y'HYfa]bYž'i a 'X]Y'5ha cgd\AfY'XYf'GhUXh\Ui hbU\'ni 'Yf`YVYb"

: Øf'k Y]hYfY' ±bZcfa Uh]cbYb'ØVYf'X]Y'DUf_g']b'< YfbY'i bX'XYfYb JYfUbghU`hi b[Yb'VYgi WXYb'G]Y'X]Y'cZZ]n]Y``Y'K YVgY]hY'j cb'< YfbY. \YfbY"XY"

? i `]bUf]gWX Y '<][\ `][\ hg. '9ggYb 'i bX 'Hf]b_Yb]b '< YfbY</pre>

<YfbYžY]bY`GhUXh`]a `<YfnYb`XYg`Fi\f[YV]Yhgž\Uh`b]W\h`bi f`Y]bY</pre>

fY]WXY; YgWX]WXhYž:gcbXYfb:Ui WX:Y]bY;]Y`ZÀ`h][Y'_i`]bUf]gWXYGnYbYž:X]Y:Yg'ni:YbhXYW_Yb:[]`h":6Ygi WXYfb:k]fX:Y]bY:gdUbbYbXYA]gWXib[:Ui g'hfUX]h]cbY``Yf'XYi hgWXYf'?ØWXYž:]bhYfbUh]cbU`Yf; Ughfcbca]Y:ibX:acXYfbYb:HfYbXg:[YVchYb":<]Yf:g]bX:Y]b][YXYf'_i`]bUf]gWXYb:<][\`][\hgž:X]Y:<YfbY:ni:V]YhYb:\Uh"

HfUX]h]cbY``Y; Yf]WXhY'Ui g'XYfFY[]cb

 $8] Y \cdot 9 g g_i `hi f'] b' < Y f b Y \cdot] g h' g h U f_' j \ c b `X Y f' k Y g h Z h`] g W X Y b `H f U X] h] c b [Y d f h`[h'' 8] Y `f i g h]_U`Y `? Ø W Y `V] Y h Y h' n U \`f Y] W X Y `f Y [] c b U`Y G d Y n] U`] h h Y b ž' X] Y `a U b `g] W `b] W h Y b h [Y \ Y b `` U g g Y b `g c ``h Y "`N i `X Y b V Y _U b b h Y g h Y b '; Y f] W h Y b `[Y \ O f Y b .$

- K YghZÀ`]gWX Yf'? bcWX YbgWX]b_Yb. '9]b'\Yfn\UZh [YfÀi WXYfhYg': 'Y]gWX ž'XUg'cZh'a]h'6Ui YfbVfch'i bX \Ui g[Ya UWXhYb'D]W_`Yg'gYfj]Yfh'k]fX"
- Di a dYfb]W_Y`. '8]YgY'Xi b_`Yž'k Øfn][Y'6fchj Uf]UbhY']gh
 Y]b'Aigg'ZØf'YXYb'6fch`]YV\UVYf"
- fØb_c\``i bX`D]b_Y`. '\=b'XYf'K]bhYfnY]h'Y]b'VY`]YVhYg
 Yf]W\hž'XUg'a]h'Y]bYf'gdYn]Y``Yb'K i fgh'i bX'?UfhcZZY`b
 gYfj]Yfh'k]fX"

⇒bhYfbUh]cbU`Y '9]bZ`ØqqY

- HØf_]gWX Y '? YVUd!@AXYb. '8 ObYfgd]Y» Y 'i bX 'D]XY 'g]bX
 \]Yf'VYqcbXYfq'VY`]YVh'i bX'k YfXYb'cZh'Zf]qWX'ni VYfY]hYh"
- =hU`]Yb]gWXY'HfUhhcf]Yb.'<Ui g[Ya UWXhY'DUghU'i bX D]nnU'a]h'\cWXkYfh][Yb'Ni hUhYb'g]bX'Y]bY'ZYghY'; fÒ»Y']b <YfbY"
- 5g]Uh]gWX Y 'K c_g'i b X 'Gi g\]'6Ufg. '8]Y 'J]Y `ZU`h'XYf 5g]Yb_ØWX Yž'j cb 'Gi g\]'V]g'ni 'Ufca Uh]gWX Yb '7i ffmgž']gh']b < Yfb Y 'k Y]h'j YfVfY]hYh"

7UZÅgʻi bXʻ6ÀW_YfY]Yb

- 7 UZÅ ']a 'GhUXh[UfhYb. '9]b 'VY`]YVhYf 'HfYZZdi b_h 'ZØf ? UZZYY`]YV\UVYf 'a]h 'YW_YfYb '?i WXYb 'i bX 'Y]bYf 'gWX ÒbYb HYffUggY"
- HfUX]h]cbY``Y'6ÀW_YfY]Yb. '=b'< YfbY'Z]bXYb'G]Y'Y]b][YXYf'VYghYb'6ÀW_YfY]Ybž'X]Y'Zf]gWX'[YVUW_YbYg'6fchž6fYnY`b'ibX'_Ògh`]WXY'HY]`WXYb'UbV]YhYb"
- JY[UbY'7UZÅg.'9]bY'k UW\gYbXY'NU\``jcb'7UZÅg'V]YhYhbib'UiW\'jY[UbY'Cdh]cbYbž'X]Y'\Yfn\UZh'ibX'gØ»'g]bX"

@c_U`Y`A Àf_hY`i bX`J YfUbghU`hi b[Yb

8]Y'_i`]bUf]gWXY'GnYbY'k]fX'XifWX'`c_U`Y'AÀf_hY'ibX

JYfUbghU`hib[Yb'VYfY]WXYfhž'kc'Zf]gWXY'DfcXi_hY'ibX'_fYUh]jY
?cWX]XYYb']a 'JcfXYf[fibX'ghY\Yb"'8Yf'KcWXYbaUf_h']b

<YfbY']gh'Y]b'VY`]YVhYf'5b`UiZdib_h'ZØf'Zf]gWXY'fY[]cbU`Y
@YVYbga]hhY`"'<]Yf'Z]bXYb'G]Y.

HU[I \fnY]h	Cfh
A]hhkcWX	+.\$\$' '%' .\$\$	A Uf_hd`Uhn' <yfby< th=""></yfby<>
GUa ghU[+.\$\$``%'.\$\$	A Uf_hd`Uhn' <yfby< th=""></yfby<>

Ni gàhn`]W\`ni `XYb`A Àf_hYb`[]Vh`Yg`X]j YfgY`J YfUbghU`hi b[Yb`k]Y XUg`< YfbYf`GW\`Ya a YfZYghž'k c``c_U`Y`?ÒW\Y`]\fY`VYghYb; Yf]W\hY`dfÀgYbh]YfYb"'<]Yf`_Ubb`a Ub`b]W\h`bi f`YggYbž'gcbXYfbUi W\`Ub`?cW_i fgYb`hY]`bY\a Yb`i bX`XYa `HfY]VYb`]b`XYf`GhUXh ni gW\Ui Yb"

6Y`]YVhY`FYghUi fUbhgʻi bX`6Ufg

<YfbY`\Uh'Y]bY``YVYbX][Y`FYghUi fUbh!'i bX`6Uf!GnYbYž'X]Y`gck c\`
ZØf': Y]bgW\a YW_Yf'U`g'Ui W\'ZØf'[Y`Y[Ybh`]W\Y'; Yb]Y»Yf'Yhk Ug'ni</pre>

 $V]YhYb \ \ Uh" \ Ni \ XYb \ VY`]YVhYghYb F YghUi fUbhg [Y\OfYb.$

- FYghUi fUbh'?ia dY`. '6Y_Ubbh'ZØf'gY]bY'XYZh][Y
 k YghZÀ`]gWXY'?ØWXY'i bX'Y]bY'ia ZUb[fY]WXY'6]YfUi gk U\`"
- HfUhhcf]U'8U'J]bW]. '9]b']hU`]Yb]gWXYg'FYghUi fUbh'a]h
 Y]bYa ': c_i g'Ui Z': f]gWXY'i bX'5i h\Ybh]n]hÀh"
- 8]Y '6Uf']a 'GhUXh[UfhYb. '9]b'[fc» Ufh][Yf'C fh'ZØf 7cW_hU]`g'i bX'Y]b'YbhgdUbbhYg'5a V]YbhY"

JYfghYW_hY'GWXÀhnY

5 VgY]hg'XYf'hmd]gW\Yb'FYghUi fUbhg'[]Vh'Yg'Ui W\'j]Y`Y'j YfghYW_hY; Ughfcbca]Yh]ddg']b'< YfbYž'X]Y'XYb'5i ZYbh\U`h'i bj Yf[Ygg`]W\ a UW\Yb.

- : ccXhfi W_g. 'CZh'Ui Z'j YfgWX]YXYbYb'J YfUbghU`hi b[Yb i bX'A Àf_hYb'ni 'Z]bXYbž'V]YhYb'g]Y'_fYUh]j Y'i bX'`YW_YfY GhfYYhZccX!Cdh]cbYb"
- : Ua]`]Yb[YZØ\fhY; Ugh\Ài gYf. '8]YgY'cZh'hfUX]h]cbY``
 Y]b[Yf]W\hYhYb'@c_U`Y'V]YhYb'Y]bY'[Ya Øh`]W\Y
 5ha cgd\ÀfY'i bX'Ui h\Ybh]gW\Y'; Yf]W\hY"

8]Y'_i`]bUf]gW\Y'J]Y`ZU`h']b'< YfbY']gh'U`gc'b]W\h'bi f'Y]b': Ygh'ZØf
XYb'; Ui a Ybž'gcbXYfb'Ui W\'Y]bY'9]b`UXi b[ž'X]Y'`c_U`Y'?i`hi f'i bX
; UghZfYi bXgW\UZh'ni 'Yf`YVYb"'9[U`ž'cV'G]Y'Ui Z'XYf'Gi W\Y'bUW\
Y]bYf'\Yfn\UZhYb'A U\`nY]h'cXYf'Y]bYa 'gØ» Yb'@YW_YfV]ggYb'g]bXž
<YfbY'\Uh'ZØf'YXYb'; YgW\a UW_'Yhk Ug'ni 'V]YhYb"

?i`hifY``Y`GW\ÀhnY.`AigYYb`ibX`H\YUhYf Yf`YVYb

<YfbYžY]bY'GhUXhžX]Y'cZh'U`g'i bYbhXYW_hYg'¾k Y``]a 'Fi\f[YV]Yh
[]`hž'V]YhYh'Y]bY'VYY]bXfi W_YbXY'DU`YhhY'_i `hi fY``Yf'GW\ÀhnYž'X]Y
gck c\``9]b\Y]a]gW\Y'U`g'Ui W\'6Ygi W\Yf']b']\fYb'6Ubb'n]Y\Yb"
8]Y'A i gYYb'i bX'H\YUhYf']b'<YfbY'g]bX'b]W\h'bi f'NYbhfYb'XYf
6]`Xi b['i bX'?fYUh]j]hÀhž'gcbXYfb'Ui W\'CfhYž'Ub'XYbYb'X]Y
; YgW\]W\hYž'HfUX]h]cbYb'i bX'X]Y'`YVYbX][Y'?i bghgnYbY'XYf
FY[]cb'nY`YVf]Yfh'k YfXYb"</pre>

9]b 'UVgc `i hYg' <][\ `][\ h']gh XUg'K YghZÀ `]gW Y '@Ub XYga i gYi a ZØf '=b Xi ghf]Y_i `hi f"'? `Y]b 'i b X 'ZY]bž X]YgYg'A i gYi a 'j Yfa]hhY `h Y]b Xfi W_gj c `` X]Y ']b Xi ghf]Y ``Y 'J Yf[Ub [Yb \ Y]h XYf FY[]cb " GhÀ XhYfY]gYb XY '_Obb Yb '\]Yf 'X]Y '9b hk]W_`i b ['XYf '=b Xi ghf]Y ']a Fi \ f[YV]Yh b UW j c ``n]Y \ Yb 'i b X 'n U \ `fY]W Y '9I dcb UhY 'V YghUi b Yb ž XUfi bhYf 'U hY 'A UgW]b Yb 'i b X 'cf][]b U Y : UVf]_[Y[Ybgh b XY " FY[Y`a À»][Y Gcb XYf Ui gghY ``i b [Yb 'gcf[Yb 'Ui » Yf XYa 'X U ZØf ž X Ugg Yg']a a Yf Yhk Ug'B Yi Yg'ni 'YbhXY W_Yb' []Vh"

9]b k Y]hYfYf i `hi fY``Yf 5bn]Y\i b[gdi b_hi]gh XUg : fUbn! <]hnY!
< Ui gž XUg b]Wkh bi f 'U`g A i gYi a 'X]Ybhž gcb XYfb 'Ui Wk 'U`g
J YfUbgh U`hi b[gcfh \mathbb{Z} Øf _i `hi fY``Y '9j Ybhg" <]Yf k]fX 'X]Y ; YgWk]WkhY
< Yfb Y a]h nU\`fY]Wk Yb '5 i gghY ``i b[Yb i b X : Ø\ fi b[Yb i`YVYb X][
[Ya UWkh" 8]Y]bh YfU_h]j Yb '9 Ya Ybh Y f]Wkh Yb 'g]Wk 'V Ygcb XYfg 'Ub
: Ua]`]Yb 'a]h '?]b XYfb z X]Y 'gd]Y `Yf]gWk '`Yfb Yb 'a ÒWkh Yb "`Ni XYa
V]Yh Yh XUg < Ui g 'fY[Y`a À»]['K cf_g\cdg i b X 'J cfh f À[Y 'Ub z X]Y
h]Y ZYfY '9]b V`]W_Y ']b 'V Ygh]a a h Y 'H\Ya Yb 'Yfa Ò[`]Wk Yb "

8 UgʻH\YUhYfcfhYbʻ]bʻ< YfbYʻV]YhYh'Y]bYʻYVYbX][Y
H\YUhYf`UbXgW\UZhžX]Yʻj cbʻfYbca a]YfhYbʻDfcXi _h]cbYbʻV]gʻ\]b
ni ʻ`c_U`YbʻHU`YbhYbʻfY]W\h''8 UgʻH\YUhYfʻ< YfbYʻ]ghʻXYfʻnYbhfU`Y
CfhʻZØfʻH\YUhYf`]YV\UVYfʻi bXʻV]YhYh'Y]bʻUVk YW\gʻi b[gfY]W\Yg
Dfc[fUa a žʻXUgʻj cbʻ_`Ugg]gW\YbʻGhØW_YbʻØVYfʻa cXYfbYʻ8fUa Yb
V]gʻ\]bʻni ʻa i g]_U`]gW\Ybʻ5i ZZØ\fi b[YbʻfY]W\h''<]Yfʻ_ÒbbYb
6Ygi W\Yfʻb]W\h'bi fʻX]Y'8 UfV]Yhi b[YbʻUi ZʻXYfʻ6Ø\bYʻ[Yb]Y»Ybž
gcbXYfbʻUi W\XX]YʻY]bXfi W_gj cʻ`Yʻ5fW\]hY_hi fʻXYgʻ; YVÀi XYg
VYk i bXYfb''

Cfh	Hmd	6YgcbXYf\Y]hYb
K YghZÀ`]gWXYg	AigYia	±bXighf]Y_i`hifY``Y
@UbXYgaigYia ZØf		91 dcbUhY 7
⇒Xighf]Y_i`hif]bhYfU_h]jY
		5i gghY``i b[Yb
: fUbn!<]hnY! <ui g<="" td=""><td>; YgWX]WXhgaigYia</td><td>: Ua]`]YbZfYi bX`]WX /</td></ui>	; YgWX]WXhgaigYia	: Ua]`]YbZfYi bX`]WX /
		fY[Y`aÀ»][Y
		K cf_g\cdg
$H \setminus Y \cup hY f' < Y fb Y$	H\YUhYf	J]Y`ZÀ`h][Yg
		Dfc[fUa a 7

Cfh	Hmd	6YgcbXYf\Y]hYb
		VYY]bXfiW_YbXY
		5fWA]hY_hif

: Øf:?i bghi]YV\UVYf'\Uh'< YfbY 'YVYbZU``g'Y]b][Yg'ni 'V]YhYb":8]Y`
?i bghj YfY]bY'i bX'; U`Yf]Yb']b'XYf'GhUXh'ghY``Yb'b]W\h'bi f
`c_U`Y'? ØbghiYf'Ui gž'gcbXYfb'V]YhYb'Ui W\FUi a 'ZØf'bYi Y'HU`YbhY"
\[A\f`]W\Y'?i bghUi gghY``i b[Yb'i bX'Dfc Y_hY'ZÒfXYfb'XYb'8]U`c[
nk]gW\Yb'? ØbghiYfb'i bX'XYf'; Ya Y]bgW\UZh"'6Ygi W\Yf'_ÒbbYb
\]Yf'cZh'a]h'XYb'? ØbghiYfb']bg'; Ygdf\AW\'_ca a Yb'i bX'9]bV`]W_Y']b
XYb'_fYUh]j Yb'DfcnYgg'Yf\U`hYb"</pre>

9]b 'k Y]hYfYg'<][\`][\h']gh'XUg'< Yf_i `Yg'H\YUhYfž'XUg'g]W\'Ui Z nY]h[YbÒgg]gW\Y'H\YUhYfdfcXi _h]cbYb 'gdYn]U`]g]Yfh'\Uh"'9g']gh'Y]b _`Y]bYfž']bh]a Yf'J YfUbghU`hi b[gcfhž'XYf'cZh'U`hYfbUh]j Y'GhØW_Y'i bX YI dYf]a YbhY``Y'DYfZcfa UbWYg'nY][hž'X]Y'Y]b''Øb[YfYg'Di V`]_i a UbgdfYW\Yb"'8]Y'5ha cgd\ÀfY'\]Yf']gh'Xi fW\'X]Y'BÀ\Y'XYf Ni gW\Ui Yf'ni f'6 \emptyset \bY'VYgcbXYfg'Y]bXfi W_gj c``"

B]Wkhini `Yhnhi]ghi < YfbY `Ui Wki < Y]a Uhi XYgʻFi \fZYgh]j U`gžiXUg
U``A`\f`]WkinU\`fY]WkY'_i `hi fY``Y'J YfUbghU`hi b[Ybʻi bX
5i ZZØ\fi b[Yb'V]YhYhžiXUfi bhYfʻA i g]_žiHUbnii bXiH\YUhYf"'8Ug
: Ygh]j U``n]Y\h'A YbgWkYb'Ui gʻXYfʻ[YgUa hYbʻFY[]cb'Ubii bX'V]YhYh
Y]bY'D`UhhZcfa 'ZØf']bhYfbUh]cbU`Y'? Øbgh`YfžiX]Y'XUgʻ_i `hi fY``Y'9fVY
XYgʻFi \f[YV]Yhgʻa]hia cXYfbYb'9]bZ`ØggYb'j YfV]bXYb"

8]Y'?i bgh!'i bX'?i `hi fgnYbY']b'< YfbY']gh'U`gc'b]W\h'bi f'j]Y`ZÀ`h][žgcbXYfb'Ui W\h]YZ'j Yfk i fnY`h']b'XYf'; YgW\]W\hY'XYf'FY[]cb"'Jcb A i gYYbž'X]Y'X]Y'JYf[Ub[Yb\Y]h'Xc_i a Ybh]YfYbž'V]g'\]b'ni `YV\UZhYb'5i ZZØ\fi b[Yb'i bX'5i gghY``i b[Ybž'X]Y'XYb'Di `g'XYf; Y[Ybk Ufh'k]XYfgd]Y[Y`b'']b'< YfbY'k]fX'YXYf'?i `hi f`]YV\UVYf ZØbX][°

: Øf'k Y]hYfY' ±bZcfa Uh]cbYb'ØVYf'X]Y'_i `hi fY``Yb'5_h]j]hÀhYb']b < YfbY'Ya dZY\`Yb'k]f'Y]bYb'6Ygi W\'XYf'cZZ]n]Y``Yb'K YVgY]hY' < YfbY"XY"

5VYbhYi Yf`]a : fY]nY]hdUf_.`GdU» ZØfX]Y [UbnY: Ua]`]Y

<YfbY']gh'b]Wkh'bi f'ZØf'gY]bY'\]ghcf]gWkY'5`hghUXh'i bX'_i `hi fY``Yb
5hhfU_h]cbYb'VY_Ubbhž'gcbXYfb'Ui Wk'U`g'Y]b'gdUbbYbXYg'N]Y``ZØf
: Ua]`]Ybž'X]Y'bUWk'5VYbhYi Yf'i bX'GdU»'gi WkYb"'8Yf'
: fY]nY]hdUf_'< YfbY'V]YhYh'Y]b'i a ZUb[fY]WkYg'5b[YVch'Ub
5hhfU_h]cbYb'i bX'5_h]j]hÀhYbž'X]Y'gck c\``?]bXYf'U`g'Ui Wk
9fk UWkgYbY'VY[Y]ghYfb"'9[U`'cV'5XfYbU`]b'h b_]Y'cXYf
`Y]XYbgWkUZh`]WkYf'; Yb]Y»Yf' '\]Yf'Z]bXYh''YXYf'X]Y'dUggYbXY
I bhYf\U`hi b["</pre>

 $8 \ Yf': fY]nY]hd \ Uf_']gh']XYU`'ZØf'Y]bYb''HU[YgUi gZi ["'5i Z']bg[YgUa h @VYf'' $'5hhfU_h]cbYb'_ObbYb''6Ygi WXYf']b'X]Y''Ui ZfY[YbXY''K Y`h XYf': U\f[YgWX\AZhY'Y]bhUi WXYb'''Jcb''fUgUbhYb''5WXhYfVU\bZU\fhYbV]g'\]b'ni 'gUbZhYb''? Uffi ggY``g' 'XYf'DUf_'\Uh'ZØf''YXY 5`hYfg[fi ddY'Yhk Ug'ni 'V]YhYb'''<]Yf'g]bX'Y]b][Y'<][\`][\hg.$

- 8]Y'K]`XY'A Ui g. '9]bY'XYf'VY`]YVhYghYb'5W\hYfVU\bYb]a 'DUf_ž'X]Y'a]h']\fYb'gW\UfZYb'?ifjYb'ibX'd`Òhn`]W\Yb5VZU\fhYb'ZØf'BYfjYb_]hnY`'gcf[h"
- 8 Ug'F]YgYbfUX. '9]b'YbhgdUbbhYf'FibXia V`]W_'ØVYf'XYb

 DUf_'ibX'X]Y'Ia[YVib['']XYU`'ZØf': Ua]`]Ybž'X]Y'Yg'Yhk Ug

 fi\][Yf'Ub[Y\Yb'`UggYb'a ÒW\hYb"
- 8 Ug '?]b X Y f`Ub X. 'Gd Y n]Y`` 'ZØf'X]Y '_`Y]b ghY b '; ÀghY [YghU`hY hž'V]Y hY h'Y g'Y]b Y 'J]Y`nU\`'Ub ']b hY fU_h]j Y b Gd]Y`[YfÀhY b ž'? `YhhY fa Ò[`]WX_Y]hY b 'i b X ; YgWX]W_`]WX_Y]hqqd]Y`Y b "

9]b 'VYgcbXYfYg' <][\`][\h']a :: fY]nY]hdUf_' < YfbY']gh'XYf'6YfY]W\
K UggYfk Y`h "' <]Yf'_ObbYb'6Ygi W\Yf'Ui ZfY[YbXY
K UggYffi hgW\Yb'i bX'gdf]hnYbXY'5hhfU_h]cbYb'Yf`YVYbž'X]Y'Ub
\Y]» Yb'Gca a YfhU[Yb'ZØf'9fZf]gW\i b['gcf[Yb"'CV'VY]a
[Ya Y]bgUa Yb'D`UbgW\Yb'cXYf'VY]a 'K Yhh`Ui Z'Ui Z'XYf'Fi hgW\Y'
X]Y'K UggYfk Y`h'[UfUbh]Yfh'GdU» 'ZØf'X]Y'[UbnY': Ua]`]Y"

8 Yf'DUf_']gh'Ui W\'VY_Ubbh'ZØf'gY]bY'j YfgW\]YXYbYb J YfUbghU'hi b[Yb'i bX'5_h]cbYbž'X]Y'XUg'[UbnY'*J\\f'ØVYf ghUhhZ]bXYb""8Uni [Y\ÒfYb.

- 8]Y'Gca a YfZYghgd]Y`Y.'9]bY'FY]\Y'j cb'@j Y!G\ck gž Aig]_XUfV]Yhib[Yb'ibX'[Ughfcbca]gW\Yb'5b[YVchYbž'X]Y X]Y'k Ufa Yb'A cbUhY'VY[`Y]hYb"
- < U``ck YYb!9j Ybh. =a 'C_hcVYf'j Yfk UbXY`h'g]W\ XYf
 : fY]nY]hdUf_']b'Y]b'gW\Ui f][Yg'5VYbhYi Yf`UbX'a]h
 ; fi gY`UhhfU_h]cbYb'i bX'gdYn]Y``Yb'BUW\hÒZZbi b[Yb"</pre>
- K Y]\bUW\hga Uf_h`]a `DUf_.`=b`XYf`Jcfk Y]\bUW\hgnY]h
 YfghfU\`h`XYf`DUf_`]b`ZYgh`]W\Ya `@]W\h`i bX`V]YhYh`bYVYb
 : U\f[YgW\AZhYb`Ui W\`Gh\AbXY`a]h`fY[]cbU`Yb
 ? Ogh`]W_Y]hYb"

: Øf:: Ua]`]Yb'a]h''Øb[YfYb'?]bXYfb'V]YhYh'XYf'DUf_'Ui WX
nU\`fY]WXY'_]bXYfZfYi bX`]WXY'5b[YVchY"'Gc'[]Vh'Yg'gdYn]Y``Y
: Ua]`]YbdUi gWXU`Ybž'X]Y'XYb'9]bhf]hh'i bX'ni gÀhn`]WXY
JYf[Øbgh][i b[Yb'VY]b\U`hYb"': Øf'Y]bYb'ghfYggZfY]Yb'6Ygi WX
_`ObbYb'H]W_Yhg'Ui WX'VYei Ya 'cb`]bY'[YVi WXh'k YfXYb"

I a 'XYb'HU['dYfZY_h'UVni fi bXYbž'`c\bh'g]W\'Y]b'6Ygi W\']b'XYb [Ughfcbca]gW\Yb'9]bf]W\hi b[Yb'XYg'DUf_g"'Jcb'_`Ugg]gW\Yb =a V]ggghÀbXYb'V]g'ni '[Ya Øh`]W\Yb'FYghUi fUbhg' '\]Yf'Z]bXYh'YXYf Yhk Ug'bUW\'gY]bYa'; YgW\a UW_"'6Y`]YVhY'Cdh]cbYb'g]bX.

- 8 Ug: Ua]`]YbfYghUi fUbh. 6]YhYh'Y]bY'[fc»Y'5i gk U\`'Ub; Yf]W\hYbž'X]Y'gdYn]Y``'Ui Z'X]Y'6YXØfZb]ggY'j cb'?]bXYfb UV[Ygh]a a h'g]bX"
- 8]Y 'GbUW_!6i XYb. '=XYU` 'ZØf'Y]bY 'gWX bY``Y 'GhÀf_i b[
 nk]gWXYb 'XYb': U\f[YgWX À ZhYb'a]h 'Dcaa Ygž'K i fgh'i bX
 Gc ZhXf]b_g"
- ? UZZYY! 7 c fb Y f. ": Øf "X]Y "9 hY fb ž "X]Y "Y]b Y '_ `Y]b Y
 ? UZZYYdUi gY "Y]b `Y[Yb 'a ÒW hY b ž 'k À\fY b X 'X]Y "?]b XY fgd]Y `Yb"

 $8 \ Uf \emptyset V Y f`\] b \ Ui \ g``Y[\ h`XYf`: fY]nY] h d \ Uf_`[\ fc \ Yb`K \ Yfh`Ui \ Z`G]W X Y f \ Y]h i b X`< m[\] Y b Y " 8 \ Ug`HY Ua \ gcf[\ h`Z\ Øf`fY[\ Y`a \ A \)][\ Y`? cbhfc``Yb`XYf : U\f[\ YgW \ AZhY`i b X`\ Uh`ghfYb[\ Y`< m[\]YbYj cfgW \ f]ZhYb`Y]b[\ YZ\ M\fb`Y]b[\ YZ\ M\fb`Y]\ M\fb`Y]b[\ YZ\ M\fb`Y]\ M$

9]bY'5bfY]gY'ni a ': fY]nY]hdUf_']gh'Y]bZUW\ž'Y[U``cV'a]h'XYa '5i hccXYf'ÒZZYbh`]W\Yb'JYf_Y\fga]hhY`b"'9g'g]bX'Ui gfY]W\YbX
DUf_a Ò[`]W_Y]hYb'j cf\UbXYbž'i bX'X]Y'5bV]bXi b['Ubg
BU\jYf_Y\fgbYhn'Yfa Ò[`]W\h'Y]bYb'ghfYggZfY]Yb'Ni [Ub['ZØf
6Ygi W\Yf'Ui g'XYf'[YgUa hYb'FY[]cb"

 $\pm g[YgUa h'V]YhYh'XYf': fY]nY]hdUf_'< YfbY'Y]bY'dYfZY_hY'A]gWXib[Uig'BYfjYb_]hnY'ž'GdU*ibX'ZUa]`]ÀfYa '5a V]YbhY''CV'ZØf'Y]bYb5igZi['Ua'KcWXYbYbXY'cXYf'Y]bY'`Àb[YfY'5bfY]gY''\]YfkYfXYb'9f]bbYfib[Yb'[YgWXUZZYbž'X]Y'bcWX'`Ub[Y']b'XYb'?ÒdZYbXYf'_`Y]bYb'ibX'[fc*Yb'5VYbhYifYf'V`Y]VYb''$

J YfUbghU`hi b[Yb i bX : YghY . '8 Ug '@YVYb]b < YfbY 'ZY]Yfb</pre>

 $< YfbYžY]bY`GhUXh`]a``< YfnYb`XYg`Fi`\f[YV]Yhgž`\Uh`Y]bY \\ di`g]YfYbXY`?i``hi fgnYbYžX]Y`XUg`[UbnY`$U\f`ØVYf`nU\`fY]WXY \\ JYfUbghU`hi b[Yb`i bX`: YghY`V]YhYh''`8]YgY`5b``AggY`g]bX`b]WXh`bi f Y]b`k Y]hYfYf`; fi bXž'X]Y`GhUXh`ni `VYgi WXYbž'gcbXYfb`Ui WX`Y]bY \Yfj cffU[YbXY`; Y`Y[Yb\Y]hž'X]Y``c_U`Y`?i``hi f`i bX`; Ya Y]bgWXUZh ni `Yf`YVYb''`<]Yf`g]bX`Y]b][Y`XYf`<Ò\Ydi b_hYž'X]Y`Xi``b]WXh j YfdUggYb`gc``hYgh''$

%"GhUXhZYgh' < YfbY

8 UgʻGhUXhZYghʻ]ghʻY]bYgʻXYfʻ[fÒ» hYbʻi bXʻVY_UbbhYghYbʻ9j Ybhgʻ]b < YfbY" *XYgʻXJ\fʻ]a ʻGca a Yfʻj Yfk UbXY`hʻg]W\ X]Yʻ*bbYbghUXhʻ]b Y]bʻVi bhYgʻ: Ygh]j U`[Y`AbXY" A]hʻ@j Y!A i g]_žʻGhAbXYbʻj cbʻ`c_U`Yb ?Øbgh`Yfbʻi bXʻ?i`]bUf]_!5b[YVchYbʻ]ghʻZØfʻYXYbʻYhk UgʻXUVY]" 8 Ugʻ: YghʻVf]b[h'b]W\h'bi fʻX]Yʻ6Yk c\bYf'ni gUa a YbžʻgcbXYfb n]Y\h'Ui W\nU\`fY]W\Yʻ6Ygi W\YfʻUi gʻXYfʻI a [YVi b['Ub"

$"K Y] bUW hga Uf_h < YfbY$

8]Y 'ZYgh`]W\Y '\J\fYgnY]h'k]fX']b'< YfbY 'a]h'Y]bYa 'hfUX]h]cbY``Yb K Y]\bUW\hga Uf_h'[YZY]Yfh''8Yf'A Uf_h'YfghfYW_h'g]W\'ØVYf'X]Y \DYbghUXh'i bX'V]YhYh'U``Yg'j cb'\UbX[YZYfh][hYa '?i bgh\UbXk Yf_ V]g'ni '_i `]bUf]gW\Yb'? Ogh`]W_Y]hYb''8]Y'gh]a a i b[gj c``Y 6Y`Yi W\hi b['i bX'X]Y'ZYgh`]W\Y'A i g]_'hfU[Yb'ni f'Y]bn][Ufh][Yb 5ha cgd\AfY'VY]"'<]Yf'_Ubbgh'Xi 'X]W\']b'X]Y'k Y]\bUW\h`]W\Y Gh]a a i b['j YfgYhnYb'i bX'YXYb': fY]hU['i bX'GUa ghU[']b'XYb; Ybi gg'j cb'@j Y!5i Zhf]hhYb'_ca a Yb"

' "'?i `hi f']b 'XYf': i » [Àb [YfncbY

D'XYb'k Ufa Yb'A cbUhYb'[]Vh'Yg'fY[Y'a À»]['_i `hi fY``Y

J YfUbghU'hi b[Yb']b'XYf'<YfbYf': i » [Àb[YfncbY"'GhfU» Yba i g]_Yf
i bX'?Øbgh`Yf'gcf[Yb'ZØf'Y]b'`YVYbX][Yg'5a V]YbhYž'k À\fYbX'Y]bY

5i gk U\``Ub'9ggYbgghÀbXYb'X]Y'; YgW\a UW_gbYfj Yb'j Yfk Ò\bh"

6YgcbXYfY'HU[Y'ZØf'gc`W\Y'JYfUbghU`hi b[Yb'g]bX':Y]YfhU[Y'i bX
`c_U`Y':Y]YfhU[YžX]Y'XYb'6Yk c\bYfb'i bX'6Ygi W\Yfb'Y]b'k Yb][

9f\c`i b['j cb'XYf'Fci h]bY'V]YhYb"

("8]Y < YfbYfFY]hYfhU[Y

9]b'k Y]hYfYg'<][\`][\hžXUg'YXYg'\J\f'ghUhhZ]bXYhž'g]bX'X]Y'<YfbYfFY]hYfhU[Y"'8]YgY'JYfUbghU`hi b['n]Y\h'FY]hYf'i bX'DZYfXY`]YV\UVYfUi g'XYf'[YgUa hYb'FY[]cb'Ub"'BYVYb'gdUbbYbXYb'K Yhh_Àa dZYb[]Vh'Yg'Ui W\'nU\`fY]W\Y'5_h]j]hÀhYb'fi bX'i a 'XUg'H\Ya U'DZYfXžXUfi bhYf'K cf_g\cdg'i bX'JcfZØ\fi b[Ybž'X]Y'gck c\``ZØf9fk UW\gYbY'U`g'Ui W\'ZØf'?]bXYf']bhYfYggUbh'g]bX"

) " A i g]_ i b X H \ Y U h Y f] a G ca a Y f

<YfbY'cf[Ub]g]Yfh'Ui W\']a 'Gca a Yf'Y]bY'FY]\Y'j cb
: fY]`i Zh_cbnYfhYb'i bX'H\YUhYfUi ZZØ\fi b[Yb"'8]YgY

J YfUbghU`hi b[Yb'Z]bXYb'cZh']b'XYb'Òfh`]W\Yb'DUf_g'ghUhhž'k c'X]Y
6Ygi W\Yf'Ub'Y]bYa 'gW\ÒbYb'Gca a YfUVYbX'VY]'Y]bYa 'D]W_b]W_
X]Y'8UfV]Yhi b[Yb'[Yb]Y»Yb'_ObbYb"'9]b'<][\`][\hig]bX'X]Y
G\U_YgdYUfY!5i ZZØ\fi b[Ybž'X]Y'cZh'[fc»Y'Ni gW\Ui YfnU\`Yb
Ubn]Y\Yb"</pre>

* "'Gdcfh`]WXY'J YfUbghU`hi b[Yb

Gdcfh`]W\`VY[Y]ghYfhY`6Ygi W\Yf`_ÒbbYb`XUg`[UbnY`\J\f`ØVYf jYfgW\]YXYbY`gdcfh`]W\Y`9jYbhg`VYgi W\Ybž'k]Y`VY]gd]Y`gkY]gY : i » VU``gd]Y`Y`XYg`Ofh`]W\Yb`JYfY]bg`cXYf
@Y]W\hUh\`Yh]_j YfUbghU`hi b[Yb"'6YgcbXYfg`VY`]YVh`g]bX`Ui W\`X]Y
A UfUh\cbg`i bX`@Ui ZhU[Yž`X]Y`gck c\``5a UhYi fY`U`g`Ui W\
DfcZ]Uh\`YhYb`UbgdfYW\Yb"'8]YgY`9j Ybhg`g]bX`Y]bY`hc``Y
; Y`Y[Yb\Y]hž`X]Y`; Ya Y]bgW\UZh`ni `ghÀf_Yb`i bX`Y]bYb`U_h]j Yb
@YVYbggh]``ni `ZOfXYfb"

 $<]Yf'[]Vh'Yg'Ui Wk'Y]bY'_`Y]bY'HUVY``Y'a]h'XYb'k]Wkh][ghYb \\ J YfUbghU`hi b[Yb']b'< YfbY.$

JYfUbghU`hib[AcbUh	Cfh
GhUXhZYgh'< YfbY	[` k	⇒ bYbghUXh
K Y]\bUW\hga Uf_h	8YnYa VYf	⇒ bYbghUXh
< Yfb Yf F Y]hYfhU[Y	5i[igh	$DZYfXY \setminus cZ' < YfbY$
: fY]`i Zh_cbnYfhY	Gca a Yf	² fh`]WXY DUf_g
GdcfhYj Ybhg fh"6"	JYfgWX]YXYbY	JYfgWX]YXYbY ⁻ CfhY
A UfUh\cbŁ	AcbUhY	

CV'Xi 'X]Y'GhUXh'Y]bZUW\'bi f'VYgi W\gh'cXYf'Xcfh'`YVghž'XUg
9b[U[Ya Ybh'XYf'9]bk c\bYfž']\fY'?i `hi f'i bX']\fY'HfUX]h]cbYb'ni
ZY]Yfbž']gh'gdØfVUf"'8]Y'JYfUbghU`hi b[Yb'Vf]b[Yb'X]Y'A YbgW\Yb
ni gUa a Ybž'ZY]Yfb'XUg'@YVYb'i bX'V]YhYb'i bj Yf[Ygg`]W\Y
9f`YVb]ggY"

8 YhU]`g

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'Y]bY!fY]gY "XY