

HfU[]gWXYfIbZU``. NkY]AØbWXbYfixib[YbghYfVYb'Ua'BcfXgYYghfUbX

Nk Y]' is b[Yb'Ui g'A ØbWXYb'ghUfVYb'hfU[]gWX'Ua 'GhfUbX']b 8ÀbYa Uf_'Xi fWX'Y]bYb'9fXfi hgWX"'8YhU]`g'ni a 'I bZU```i bX 9fa]hh`i b[Yb"

#D 'Y]bYa 'hfU[]gWX Yb 'J cfZU`` ž'XYf'XUg' < Yfn'U``Yf'VYk Y[hž'g]bX'nk Y]

*I b[Yb']a '5`hYf'j cb'bYi b'i bX'nk Ò`Z'*J\fYb'VY]a 'Gd]Y`Yb'Ub

Y]bYa 'BcfXgYYghfUbX']b'8ÀbYa Uf_'i a g'@YVYb'[Y_ca a Yb"'8]Y

VY]XYb'?]bXYfž'X]Y'Ui g'XYa 'F Ui a 'A ØbWXYb'ghUa a Ybž'k i fXYb

j cb'Y]bYf'd`Òhn`]WXYb'GUbX`Uk]bY'k À\fYbX']\fYg'Gd]Y`g

ØVYffUgWX h"'8]Y'G]hi Uh]cbž'X]Y'g]WX'Ua 'a U`Yf]gWXYb'GhfUbX'j cb

BÔffY'J cfi dÔf'YfY][bYhYž'\Uh'b]WX h'bi f']\fY': Ua]`]Ybž'gcbXYfb

Ui WX'X]Y'[YgUa hY'; Ya Y]bgWX UZh'YfgWX ØhhYfh"

8 Yf'J cfZU``'YfY][bYhY'g]W\'Ub'Y]bYa 'GcbbhU[ž'U`g'X]Y'VY]XYb

\$\delta b[Yb\delta'VY[Y]ghYfh'j cb'XYb'A \O[`]W_Y]hYb'XYg'GhfUbX`YVYbg\delta']b

XYb'8 \ObYb'gd]Y`hYb"'@Ui h'5b[UVYb'XYf'X\delta b]gW\Yb'Dc`]nY]'[fi VYb

g]Y'UbgW\Y]bYbX'Y]bY'5fh'<\O\`Y']b'XYb'GUbX\delta'k Ug'a \O[`]W\Yfk Y]gY

ni f'\delta ghUV]`]h\delta h'XYfGUbXa UggY'Z\O\fhY'i bX'gW\`]Y\righta']b'Y]bYa

_UhUghfcd\U`Yb'9fXfi hgW\'a \ObXYhY''

9]b XfUa Uh]gWXYf FYhhi b[gj Yfgi WX

BUWX XYa 'XYf'5`Ufa 'Ui g[Y`Ògh'k i fXYžgYhnhYb'nU\`fY]WXY 9]bgUhn_fÀZhY'U``Yg'XUfUbž'X]Y' \Rightarrow b[Yb'Ui g'XYf'GUbXa UggY'ni VYZfY]Yb"' \Rightarrow b'Y]bYa 'K Yhh`Ui Z'[Y[Yb'X]Y'NY]h'UfVY]hYhYb FYhhi b[ghYUa g'i bX'ZfY]k]``][Y'<Y`ZYf'ni gUa a Ybž'i a 'bUWX'XYb j Yfi b[`ØW_hYb'?]bXYfb'ni '[fUVYb"' \Rightarrow fY'5bghfYb[i b[Yb'\UhhYb gWX`]Y»`]WX'9fZc`[ž'Yhk U'(\$'A]bi hYb'bUWX'XYa 'YfghYb'5`Ufa _cbbhYb'X]Y' \Rightarrow b[Yb'Ui g']\fYb'VY\Y`Zga À»][Yb'; fÀVYfb'VYZfY]h

k YfXYb"'@Y]XYf'k Uf'X]Y': fYi XY'ØVYf']\fY'FYhhi b['bi f'j cb'_i fnYf 8 Ui Yf/'X]Y'VY]XYb'k i fXYb'gcZcfh'a]h'_f]h]gW\Ya ; Ygi bX\Y]hgni ghUbX'dYf'<i VgW\fUi VYf']b'Y]b'?fUb_Yb\Ui g [YVfUW\h"

 $\label{thm:bhybg} Hfchn: \cite{thm:bhybg} for a YX]n]b]gWXYfJYfgcf[ib[ijYfghUfVYb:X]Y: \cite{thm:bhybg} b]Yfa YX]n]b]gWXYfJYfgcf[ib[ijYfghUfVYb:X]Y: \cite{thm:bhybg} b]YgYib]UWXf]WXhihfUZ: b]WXhibif: X]YVYhfcZZYbYb: Ua]`]YbžigcbXYfb: UiWX: X]Y: \cite{thm:bhybi} bXXYf: \cite{thm:bhybi} bYXYf: \cite{thm:bhybi} bYXYf:$

9]b 6`]W_ Ui Z'X]Y I a ghÀbXY

8]Y'9`hYfb'XYf'VY]XYb'\$ b[Yb'k UfYb'VY]'XYa 'JcfZU``'Ubk YgYbXžk Ug'X]Y'HfU[]_'XYf'G]hi Uh]cb'j YfghÀf_h'''8]YgY'gWkfYW_`]WkYb; YgWkY\b]ggY'k YfZYb'Y]bYb'GWk UhhYb'Ui Z'XUg'gcbgh'gc'ZfÒ\`]WkYGca a Yfj Yf[bØ[Yb'Ub'XYf'?ØghY'''9g']gh'Yfk À\bYbgk Yfhž'XUggnY]h[`Y]Wk'Ub'Y]bYa 'UbXYfYb'Cfh']b'XYf'FY[]cb'8ÀbYa Uf_g'Y]bk Y]hYfYf'JcfZU``'ghUhhZUbXž'VY]'XYa 'Y]b'nY\b'À\f][Yf'XYi hgWkYf b[Y'[Y[Yb'Y]bY'GWk`Ua a `Uk]bY'[Yf]Yh''; `ØW_`]WkYfk Y]gY'k i fXYYf'fYWkhnY]h]['VYZfY]h'i bX'V`]YV'i bj Yf`Yhnh''

8]Y'9fY][b]ggY']b'8ÀbYa Uf_``UggYb'X]Y'8f]b[`]WX_Y]h'j cb
G]WXYf\Y]hga U»bU\a Yb'Ub'GhfÀbXYb'i bX']b'XfÀb[YbXYb
G]hi Uh]cbYb'k]Y'X]YgYb'\Yfj cfhfYhYb"'JYfUbghU`hYf'i bX'6Y\ÒfXYb
g]bX'bi b'Ui Z[Yfi ZYbž'K U`X!'i bX'GUbXghfi _hi fYb'gck]Y'X]Y
K YhhYfg]hi Uh]cb']b'X]YgYb'; YV]YhYb'bÀ\Yf'ni 'VYcVUWXhYb'i bX
[YY][bYhY'G]WXYf\Y]hgj cf_Y\fi b[Yb'ni 'hfYZZYb"'8]Y'GWXUZZi b[
j cb'*bZcfa Uh]cbYb'i bX'6]`Xi b[ga U»bU\a Yb'_ÒbbhYb'XUni
VY]hfU[Ybž'À\b`]WXY'JcfZÀ``Y']b'XYf'Ni _i bZh'ni 'j Yf\]bXYfb"

8]YgY'HfU[OX]Y'k]fX'kU\fgW\Y]b`]W\'bcW\'`Ub[Y']b'XYb
9f]bbYfib[Yb'XYf'AYbgW\Yb'\UZhYb'V`Y]VYb"'8]Y'9fXVYkc\bYf
ibX'If`UiVYf']b'XYf';Y[YbX'aOW\hYb'X]Y':Ua]`]Yb'XYf'\$\daggerb[Yb']b
]\fYb';YXUb_Yb'ibX';YVYhYb'ibhYfghØhnYb"'\daggerb[C`W\'gW\kYfYb

NY]hYb']gh'Yg'k]W\h][ž'XUgg'; Ya Y]bgW\UZhYb'ni gUa a YbghY\Ybžia 'XYb'HfUi YfbXYb'Hfcgh'ni 'gdYbXYb"

8 YhU]`g

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