

BYhUb'U\i g'FYXY.'Dc`]h]gWXY'DfcdU[UbXUcXYf': U_hYbjYfnYffib[3

BYhUb'U\i g'FYXY']a 'I G!?cb[fYgg.'9]b'?ca a YbhUf'ni f dc`]h]gW\Yb'DfcdU[UbXU'i bX'XYb'HUhgUW\Yb'ØVYf'XYb'; UnU!?cbZ]_h"

8] $Y \cdot dc$]h]gWX $Y \cdot F \setminus Y \cdot hcf$]_'i bX']\fY =a d`]_Uh]cbYb'ZØf'XYb'BU\cgh!?cbZ`]_h

6Yf`]b'fbhgŁ

8]Y 'Øb[ghYb'Ÿi » Yfi b[Yb'j cb'6Yb'Ua]b'BYhUb'U\i 'j cf'XYa 'l G!?cb[fYgg'\UVYb'b]W\h'bi f'ZØf'5i ZfY[i b['[Ygcf[hž'gcbXYfbk YfZYb'Ui W\'Y]b'@]W\h'Ui Z'X]Y'_ca d`Yl Yb'A YW\Ub]ga Yb'XYfdc`]h]gW\Yb'?ca a i b]_Uh]cb']a '?cbhYl h'XYg'BU\cgh!?cbZ']_hg"'8]YFYXY'XYg']gfUY`]gW\Yb'DfYa]Yfg'ghY``h'Y]bYb'Y]bXfi W_gj c``Yb5i gXfi W_j cb'dc`]h]gW\Yf'DfcdU[UbXU'i bX'Y]bYf'VYk i gghYbJYfnYffi b['j cb': U_hYb'XUf"

K U\fbY\a i b['j cb 'HUhgUW\Yb'i bX']\fY K U\f\UZh][_Y]h

9]b 'nYbhfu`Yg'H\Ya U']b'BYhUb'U\i g'FYXY'k Uf'X]Y'6Y\Ui dhi b[\emptyset VYf'X]Y'NU\`'XYf'[YhÒhYhYb'N]j]`]ghYb']a '; UnUghfY]ZYbž'gdYn]Y``']b XYf'GhUXh'FUZU\"'8UVY]'[]Vh'Yg'nU\`fY]W\Y'6Yf]W\hYž'X]Y'XUg ; Y[YbhY]`'VY`Y[Ybž']bgVYgcbXYfY'Xi fW\'6Yf]W\hY' \emptyset VYf'?]bXYfž'X]Y]b'NY`h`U[Yfb'Ni Zi W\h'gi W\hYb"'Gc`W\Y' \Rightarrow Zcfa Uh]cbYb _cbhfUgh]YfYb'ghUf_'a]h'BYhUb'U\i g'8UfghY``i b['i bX'k YfZYb : fU[Yb'ni f'; YbUi][_Y]h'gY]bYf'5i ggU[Yb'Ui Z'''9g']gh'b]W\h

 $\label{eq:continuous} i b [Yk O\b^]W\ \check{z}'XUgg'dc^]h]gW\ Y': \emptyset\ fYf'a Ub]di `Uh]j 'a]h': U_hYb i a [Y\Yb\check{z}'VYgcbXYfg']b'_f]h]gW\ Yb'NY]hYb''$

$9]b < UZhVYZY \setminus b X gY]bY 6YXYi hi b[$

9]b k Y]hYfYf k]WXh][Yf 5gdY_hž XYf]b X]YgYa ?cbhYl h b]WXh][bcf]Yfh k YfXYb gc ``hYž]gh XYf < UZhVYZY\ ``XYg \Rightarrow hYfbUh]cbU `Yb GhfUZ[Yf]WXhg\cZg [Y[Yb BYhUb 4 U\i k Y[Yb Ub[YV `]WXYf ?f]Y[gj YfVfYWXYb "8]Yg nY][h X]Y]bhYfbUh]cbU `Y 8]a Ybg]cb XYg ?cbZ]_hg i bX X]Y J YfUbhk cfhi b[\ddot{z} X]Y Ui \ddot{z} XYb GWX i `hYfb XYf dc `]h]gWXYb : Ø\fYf ``UghYh" Gc `WXY fYWXh`]WXYb GWX f]hhY i bhYfghfY]WXYb X]Y ?ca d `Yl]hÀh XYf J YfUbhk cfhi b[ii bX X]Y a cfU `]gWXYb : fU[Yb \ddot{z} X]Y a]h a]`]hÀf]gWXYb < UbX `i b[Yb]b VØf[Yf `]WXYb ; YV]YhYb j YfVi bXYb g]bX"

8Yf~fUb~U~g~ghÀbX][Yf~GØbXYbVcW_

 $8]Y'k]YXYf\c`hY'6Yhcbib['XYg'\eq Ubg'U`g'< Uidhj YfifgUWXYf'XYf DfcV`YaY']a'BU\Yb'CghYb']gh'Y]b'kY]hYfYf'Dib_hž'XYb'BYhUb'U\ib]WXh'Uig`]Y\named "\eq XYa'Yf'XYb': c_i g'UiZ'XYb'\eq Ub'`Yb_hž'[Y`]b[h'Yg]\a\ \dot Z'X]Y'BUffUh]cb'ni'_cbhfc``]YfYb'ibX'jcb']bhYfbYb'?cbZ]_hYbUVni`Yb_Yb''8]YgY'HU_h]_'_\ObbhY'XUni'[Ybihnh'kYfXYb\dot X]YBchkYbX][_Y]h'Y]bYf'ghUf_Yb'FYU_h]cb'UiZ'XYb'\eq Ub'ni fYWXhZYfh][Yb'ibX'[`Y]WXnY]h]['X]Y'8]g_i gg]cb'\OVYf'X]Y'FYWXhY'XYfDU`\dot ah]bYbgYf'ni'ibhYfXf\OW_Yb''$

6`]W_']b'X]Y'Ni_i bZh.'K Ug'VYXYi hYh'XUg'ZØf XYb': f]YXYb3

 $8]Y F Yhcf]_ž X]Y]b X]Y gY b dc`]h]gWX Y b Y i * Y fi b [Y b [Y b i hnh k]f X z Y b Y fi b [Y b X Y S i gk]f_i b [Y b U i Z X]Y K U Y f b Y a i b [X Y g B U \ cgh!? cb Z]_hg i b X X]Y]b hY f b U h]c b U Y b 6 Y a Ø \ i b [Y b I i a s f]Y X Y b " 8 Y f 9] b g U hn j cb : Y]b X V]`X Y f b I i b X X]Y [Y n]Y `h Y J Y f n Y f f i b ['j cb b U W k Y]g V U f Y b H U h g U W Y b _ U b b J Y f h f U i Y b] b X]d`ca U h]g W Y D f c n Y g g Y I b h Y f [f U V Y b I i b X X Y b 8] U `c ['nk]g W Y b X Y b ? cb Z]_hd U f h Y] Y b K Y]h Y f Y f g W k Y f Y b "$

GWX i ggZc `[Yfib[

8]Y'FYXY'j cb'6Yb'Ua]b'BYhUb'U\i 'j YfXYi h']W\h'X]Y
< YfUi gZcfXYfi b[Ybž'X]Y'a]h'XYf'dc`]h]gW\Yb'?ca a i b]_Uh]cb']a
BU\cgh!?cbZ]_h'j YfVi bXYb'g]bX"'GhUhh'Y]bYf'gUW\`]W\Yb
8]g_i gg]cb'ØVYf'@Ògi b[Yb'i bX'?ccdYfUh]cb'ghY\h'\Ài Z]['X]Y
A Ub]di `Uh]cb'j cb' & Zcfa Uh]cbYb']a 'J cfXYf[fi bX"' & Y]bYf'NY]hž']b
XYf': f]YXYb'i bX'G]W\Yf\Y]h']b'XYf'FY[]cb'j cb'YbhgW\Y]XYbXYf
6YXYi hi b['g]bXž'V`Y]Vh'X]Y': fU[Yž'k]Y'`Ub[Y'X]YgY'HU_h]_Yb'bcW\
hfU[ZÀ\]['g]bX'i bX'k Y`W\Y'`Ub[Zf]gh][Yb'?cbgYei YbnYb'g]Y'ZØf'X]Y
6Yn]Y\i b[Yb']b'XYf'FY[]cb'\UVYb'k YfXYb"

B 5;

8 Y hU]`g

6Ygi WXYb 'G]Y 'i bg 'Ui Z. 'a Y]b!VYf`]b "bYh