

=XYbh]hÀh'XYg']a 'CVYf\Ufn'[YZi bXYbYb GWX ÀXY`g'YbX`]WX'[Y_`Àfh°

=a 'C VYf\Ufn'k i fXY'X]Y'=XYbh]hÀh'Y]bYg'&\$&' 'j Yfa]gghYb A UbbYg'Xi fW\'8 B 5!5bU`mgY'Y]bYg']a 'A U]'&\$&('[YZ|bXYbYb GW\ÀXY`g'[Y_`Àfh"



7`Ui gh\ U`!NY``YfZY`Xž*8 Yi hgW\`Ub X !!=a `C VYf\ Ufn`\ Uh'Y]b
: i bXž'XYf']a `A U]'&\$&(`ZØf'5i ZfY[i b[`gcf[hYž'Yhnh'Y]bY`hfUi f][Y
5i Z_`Àfi b[`[YZ bXYb"`K UbXYfYf`gh]Y» Yb `XUa U`g`]b Y]bYa
UV[Y`Y[YbYb`K U`XghØW_`bU\ Y`7`Ui gh\ U`!NY``YfZY`X`Ui Z`Y]bYb
g_Y`Yhh]YfhYb`a YbgW\`]W\ Yb `GW\ ÀXY`"`8]Yg`ghY``hY`X]Y`Dc`]nY]'j cf
Y]bY'<YfUi gZcfXYfi b[ž'X]Y`X]Y`8i fW\ gi W\ i b[`XYg`; YV]Yhg`ØVYf
a Y\ fYfY`HU[Y`\]bk Y[`YfZcfXYf`]W\ `a UW\ hY"`8 cW\ `hfchn`]bhYbg]j Yf
Gi W\ Y`_cbbhYb`_Y]bY`k Y]hYfYb`, VYffYghY`[YZ bXYb`k YfXYb"`5a
%\"'* b]`\&\\)) _Ua `gW\`]Y»`]W\ `6Yk Y[i b[`]bg`; YgW\ Y\Ybž'U`g`X]Y
Dc`]nY]]bgdY_h]cb`; cg`Uf`X]Y`=\XYbh]h\h`XYg`HchYb`Xi fW\ `Y]bYb`8 B5!
5V[`Y]W\ _`\AfYb`_cbbhY"`8Yf`GW\ AXY``k i fXY`ni f`A YX]n]b]gW\ Yb
<cW\ gW\ i `Y`<Ubbcj Yf`[YVfUW\ hz`k c`FYW\ hga YX]n]bYf`XUg
[YbYh]gW\ Y`A UhYf]U``g]W\ YfhYb"

8]Y'9f[YVb]ggY'XYg'8B5!5V['Y]W\g'nY][Yb'XYi h']W\Y': cfhgW\f]hhY
]b'XYf'a cXYfbYb'?f]a]bU'hYW\b]_"' 8B5!5bU'mgYb'g]bX'cZh'XYf
GW\'\OggY\'ni f'\RYbh]Z]n]Yfi b['i bVY_UbbhYf'JYfghcfVYbYb ž
Yf'\Ai hYfh'XUg'6i bXYg_f]a]bU'Ua h"'8]YgY'HYW\bc'c[]Yb'_\ObbYb
gY'Vgh'Ui g'[Yf]b[ghYb'AYb[Yb'V]c'c[]gW\Yb'AUhYf]U'g'k]Y'6'i h
cXYf'<UUfYb'kYfhj c''Y'\DZcfaUh]cbYb'[Yk]bbYb'i bX'gca]h'ni f
5i Z_'\Afi b['j cb'JYfa]gghYbZ\'Yb'VY]hfU[Yb''\Racksarrack

8 Yf'j Yfa]gghY'*)!≯\\f][Y

 $8]Y Yfa]hhY`bXYb`6YUa hYb`k UfYb`j cb`5bZUb[`Ub`VYa \emptyset\hž`X]Y <]bhYf[fØbXY`XYg`: U``g`ni `Yf\Y``Yb`i bX`U``Y`YfZcfXYf`]W\Yb A U» bU\a Yb`ni f`5i Z_`Àfi b[`ni `hfYZZYb"`Hfchn`XYf`Y]b[Y`Y]hYhYb I bhYfgi W\i b[Yb`V`]YV`XYf`GW\ÀXY`ži a `XYb`Yg`gc``Ub[Y`[]b[ž`X]Y Y]bn][Y`Gdi f"`<]bhYf[fi bX]bZcfa Uh]cbYb`ni f`8B5!5bU`mgY i bhYfa Ui Yfbž`k]Y`k]W\h][`X]YgY`HYW\bc`c[]Y`ZØf`X]Y`\XYbh]Z]_Uh]cb]ghži bX`XUgg`g]Y`]b`XYf`\Yi h][Yb`?f]a]bU`]hÀhgVY_Àa dZi b[`Y]bYb cZh`i bj Yfn]W\hVUfYb`D`Uhn`Y]bb]a a h"$

5 V g W `i g g `X Y f '9 fa] hh`i b [Y b

BUWX '5VgWX `i gg'XYf'9fa]hh`i b[Yb'k i fXY'XYf'GWXÀXY``bi b'ni f 6Y]gYhni b['ZfY][Y[YVYb"'8]Yg']gh'ZØf'X]Y '5b[Y\Òf][Yb'Y]bY k]WX h][Y'9f`Y]WX hYfi b[ž'XU'g]Y']\fY'HfUi Yf'i a 'XYb'JYfghcfVYbYb bi b'Ui Z'Y]bY'k ØfXYj c``YfY'K Y]gY'UVgWX`]Y» Yb'_ÒbbYb"'Hfchn'XYf hfU[]gWXYb'I a ghÀbXY'nY][h'XYf': U``'XYi h`]WXž'k]Y'k Yfhj c`` a cXYfbY'HYWXbc`c[]Y']b'XYf'5i Z_`Àfi b['j cb'JYfa]gghYbZÀ``Yb']gh

i bX k]Y 'g]Y '\Y `ZY b '_Ubbž``Ub[Y 'j Y fa]gghY 'A Y bg\\\ Y b 'Y bX`]\\\\ ni $f\emptyset$ W_ 'ni ']\fY b ': Ua]`]Y b 'ni '\V f]b[Y b"

: Øf'U``Yž'X]Y'a Y\f'ØVYf'X]Y'hYW\b]gW\Yb'5gdY_hY'XYf'8B5!
5bU`mgY'YfZU\fYb'a ÒW\hYbž'V]YhYh'XUg'6i bXYg_f]a]bU`Ua h
i a ZUggYbXY' ≠bZcfa Uh]cbYb"'8Yf'YfZc`[fY]W\Y'5V[`Y]W\']b'X]YgYa
: U```]gh'b]W\h'bi f'Y]b'k Y]hYfYf'6Yk Y]g'ZØf'X]Y'A Ò[`]W_Y]hYb'XYf
_f]a]bU`hYW\b]gW\Yb'8]U[bcgh]_ž'gcbXYfb'Ui W\'Y]b'@]W\hV`]W_'ZØf
j]Y`Y': Ua]`]Ybž'X]Y'Ui Z'YbhgdfYW\YbXY'5bhk cfhYb'k UfhYb"

 $: \emptyset f'k Y]hYfZ\emptyset \land fYbXY' + bZcfa Uh]cbYb'ni 'X]YgYa 'a mghYf] OgYb': ibX `YgYb'G]Y'X]Y'5fh]_Y``VY]'bYk g', "XY'ibX'bXf"XY"$

8 Y hU]`g	
Cfh	7`Uigh\U`!NY``YfZY`Xž'8YihgW\`UbX
EiY``Yb	• k k k "b Y k g' , "X Y
	• k k k "bXf"XY
	• k k k "V_U"XY

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