

## K UggYf\_bUdd\Y]h`]b`B]YXYfgUWXgYb. 5`Ufa ghi ZY`Fch`ZØf`&%`@UbX\_fY]gY°

B]YXYfgUW\gYb`\_Àa dZh'a]h'U\_i hYf'K UggYf\_bUdd\Y]h''(+IXYf'?fY]gY'VYhfcZZYb"'Ghi X]Y'nY][h'I fgUW\Ybž'A U» bU\a YbibX': c`[Yb'XYf'8ØffY"



8]Ygʻ]ghʻVYgcbXYfgʻUʻUfa ]YfYbXžʻXUʻB]YXYfgUW\gYbʻni ʻXYb

b]YXYfgWX`U[gÀfa ghYb`FY[]cbYb`]b`8Yi hgWX`UbX`[Y\Òfh"8]Y
Ghi X]Y`nY][hz`XUgg`&%'j cb`()`@UbX\_fY]gYb`j cb`XYf

K UggYf\_bUdd\Y]h`VYhfcZZYb`g]bX"'=b`%)`X]YgYf`@UbX\_fY]gY`]gh`X]Y
@U[Y`gc`Yfbghz`XUgg`XYf`K UggYfa Ub[Y``U`g`U\_i h`VYnY]WXbYh

k YfXYb`\_Ubb"'8]Yg`VYhf]ZZh`i bhYf`UbXYfYa `X]Y`@UbX\_fY]gY
7`cddYbVi f[z`J YWXhU`i bX`8]Yd\c`nz`k c`X]Y`; fi bXk UggYfdY[Y`
nk ]gWXYb`&\$%&`i bX`&\$&%`ghUf\_`[Ygi b\_Yb`g]bX"'8Yf`< Ui dhUbhf]YV
ZØf`X]YgY`9bhk ]W\_`i b[`g]bX`\_`]a Uh]gWXY`JYfÀbXYfi b[Ybz`Y]b

k UWXgYbXYg`6Yj O`\_Yfi b[gUi Z\_ca a Yb`i bX`k]fhgWXUZh`]WXY
5\_h]j ]hÀhYb"

## 8]YI fgUWXYb XYf K UggYf\_bUdd\Y]h

5 VYf'k Ug'ghYW\_h'\]bhYf'X]YgYa 'XfUa Uh]gW\Yb'K UggYfa Ub[Y`3' B8F'bYbbh'X]Y']bhYbg]j Y'@UbXk]fhgW\UZh']b'gUbX][Yb'6\OXYb'ibX X]Y'\_ca a Yfn]Y``Y'; fi bXk UggYfbi hni b['U`g'< Ui dh[f\ØbXY'''\delta\B]YXYfgUW\gYb'k]fX'XYf'; fc\nky]`'XYg'; fi bXk UggYfg'Z\Øf'X]Y Hf]b\_k UggYfj Yfgcf[ib['ibX'X]Y'`UbXk]fhgW\UZh`]W\Y'6Yk\AggYfib[YgYhnh'''5i W\X]Y'\delta\Xighf]Y\Z']bgVYgcbXYfY'X]Y'GhU\`dfcXi\_h]cb a '?fY]g'GU`n[]hhYf\Z'[fY]Zh'h]YZ']b'X]Y'K UggYffYggci fWYb''

6YgcbXYfg'VYhfcZZYb'g]bX'X]Y'FY[]cb'<Ubbcj Yf'i bX'XYf
<Y]XY\_fY]gž'k c'X]Y'gUbX][Yb'6ÒXYb'XUg'K UggYf'gWX'YWXh
gdY]WXYfb'\_ObbYb"'8]Y'8ØffYdYf]cXYb'i bX'X]Y'XUa ]h
Y]b\Yf[Y\YbXYb'K UggYfYbhbU\a Yj YfVchY'ZØf'; UfhYbVYg]hnYfž
Gdcfhj YfY]bY'i bX'@UbXk ]fhY'nY][Yb'VYfY]hg'Yhnh'X]Y
YfgWXfYW\_YbXYb'5i ga U»Y'XYf'K UggYf\_bUdd\Y]h'Ui Z''Ni XYa
k YfXYb'X]Y'@UbXk ]fhY'j cf'<YfUi gZcfXYfi b[Yb'[YghY'`hž'XU'XUg
CVYfj Yfk U`hi b[g[Yf]WXh'@ØbYVi f['YbhgWXY]XYb'gc``ž'cV'XUg
8Øb[Yb'VY]'VY`UghYhYa'; fi bXk UggYf'j YfVchYb'k YfXYb'\_Ubb"

## A U» bU\a Yb i bX DYfgdY\_h]j Yb

9I dYfhYb ZcfXYfb XU\Yf Xf]b[YbX ghfYb[YfY A U» bU\a Yb ni a GWXi hn XYg; fi bXk UggYfg" @UbX\_fY]gY k]Y K c`ZYbVØhhY`\UVYb VYfY]hg YfghY GWXf]hhY i bhYfbca a Ybži a 'X]Y K UggYfYbhbU\a Y ni fY[i`]YfYb" ⇒ < Ubbcj Yf k i fXY Y]b 6Yk ÀggYfi b[gj YfVch ZØf; fØbZÀWXYb VY] HYa dYfUhi fYb j cb &+; fUX cXYf a Y\f

Y]b[YZØ\fh"6Ygi W\Yf"XYf"I a [YVi b[ 'a ØggYb'g]W\"U`gc'Ui Z'Y]bY j YfÀbXYfhY'@UbXgW\UZh'Y]bghY``Yb"

 $B ] YXYfgUWX gYb 'd`Ubh'ni XYa 'Y]bYb 'A UghYfd`Ub 'K UggYfž'XYf']b 'XYfnk Y]hYb '\lambda \lambda \forall hY \cdot \forall h$ 

#bg[YgUa hinY][hig]Wk žiXUggiX]Yi< YfUi gZcfXYfi b[YbiXYf
K UggYf\_bUdd\Y]hij ]Y`gWk]Wkh][ig]bX"'8]Y``Ub[Zf]gh][YbiGhfUhY[]Yb
ni fiJ YfVYggYfi b[iXYfiK UggYfj Yfgcf[i b[ia ØggYbiUi ZiX]Y
fY[]cbU`Ybi; Y[YVYb\Y]hYbiUV[Ygh]a a hik YfXYb"'Bi figci\_Ubb
Ui Wki]biNi\_i bZhig]WkYf[YghY``hik YfXYbžiXUggiK UggYfiZØfiU``Y
Bi hnYf[fi ddYbini fiJ YfZØ[i b[ighY\h"'8]Y'NY]hiXfAb[hžiXYbbiX]Y
\_`]a Uh]gWkYbi6YX]b[i b[Ybia UWkYbib]Wkhi\U`hij cfiXYfibAWkghYb
8 ØffYdYf]cXY"</pre>

9g'V`Y]Vh'ni '\cZZYbž'XUgg'gckc\``Dc`]h]\_Yf'U`g'Ui W\'X]Y 6YhfcZZYbYb'Y]b'[i hYg'<ÀbXW\Yb'\UVYbž'i a 'X]Y'K UggYf\_f]gY']b XYb'; f]ZZ'ni 'VY\_ca a Yb'i bX'bUW\\U`h][Y'@Ògi b[Yb'i a ni gYhnYb"

8 YhU]`g	
Cfh	< Ubbcj Yfž'8 Yi hgW\`UbX
EiY``Yb	• k k k "\bU"XY
	• k k k "bXf"XY
	• k k k "i a k Y`hVi bXYgUa h"XY

6 Ygi WX Yb G]Y i bg Ui Z X]Y!bUWX f]WX hYb "Wca