

### Hf]b\_k UggYfdfcV`Ya Uh]\_']b'6UbXY`]b [Y`Ògh.'5V\_cWXYb'b]WXh'a Y\f'bÒh][°

8 UgʻHf]b\_k UggYfʻ]bʻ6UbXY`]bžJcfdca a Yfb!; fY]Zgk U`Xʻ]gh k ]YXYfʻgUi VYf"'5V\_cWXbʻ]ghʻb]Wkha Y\fʻbÒh][ž'XU a ]\_fcV]c`c[ ]gWXYJYfi bfY]b][ i b[ YbʻVYqY]h][ h`k i fXYb"

a @UbX\_fY]g'Jcfdca a Yfb!; fY]Zgk U'X'gcf[ h'Y]bY'YfZfYi `]WXY K YbXi b[ 'ZØf'9f`Y]WX hYfi b[ 'i bhYf'XYb'6Yk c\bYfb"'8 Ug; Ygi bX\Y]hgUa h'\Uh'Ua '%- "\$, "&\$&( 'VY\_Ubbh'[ Y[ YVYbž'XUgg'X]Y Hf]b\_k UggYfj Yfgcf[ i b[ ']b'a Y\fYfYb'CfhYbž'XUfi bhYf'6UbXY`]bž? Ua a ]b'i bX'GhfYgck ž'k ]YXYf'Y]bk UbXZfY]']gh"'8]Y'6Øf[ Yf'a ØggYbg]WX'bi b'b]WXh'a Y\f'i a 'X]Y'Ei U']hAh']\fYg'@Y]hi b[ gk UggYfggcf[ Yb'i bX'\_ObbYb'Yg'VYXYb\_Yb`cg'bi hnYbž'c\bY'Yg'j cf\YfUV\_cWXYb'ni 'a ØggYb"

BUWX Y]bYf'fci h]bYa À» ][Yb?cbhfc``Y'ki fXYb']b'XYf

j Yf[Ub[YbYb'K cWXY'a ]\_fcV]c`c[]gWXY'JYfi bfY]b][i b[Yb

ZYgh[YghY``hž'X]Y'6Ygcf[b]g'Ui g`ÒghYb"'8]Y'VYhfcZZYbYb

; Ya Y]bXYb'ki fXYb'gWXbY```]bZcfa ]Yfh'i bX'X]Y'5V\_cWXUbcfXbi b[
j Yf\Àb[hži a 'X]Y'; Ygi bX\Y]h'XYf'6Yk c\bYf'ni 'gWXØhnYb"'8]YgY

A U» bU\a Y'k Uf'VYgcbXYfg'k]WXh][ž'XU'X]Y'Ei U`]hÀh'XYg

Hf]b\_k UggYfg'ZØf'X]Y'ÒZZYbh']WXY'; Ygi bX\Y]h'j cb'[fÒ» hYf

6YXYi hi b[']gh"'<m[]YbYj Yf\À`hb]ggYž'X]Y'Y]bY

Hf]b\_k UggYfj Yfi bfY]b][i b['VY[Øbgh][Ybž'g]bX'Y]b'YfbghYg

DfcV'Ya 'i bX'\_ÒbbYb'[fUj]YfYbXY': c`[Yb'ZØf'X]Y'6Yj Ò`\_Yfi b[\VYb"

### I fgUWX Y XYf J Yfi bfY]b][i b[ 'V `Y]Vh i b\_`Uf

 $8 ] Y `[ YbUi Y `I fgUW Y `ZØf `X] Y `Hf] b\_k UggYfj YfgW `a i hni b[ `]gh `V] g \ Yfb cW `i b[ Y\_` Afh " 8 Ug '; Ygi bX \ Y] hgUa h `\ Uh `Y X cW `V Y hcbhž `X Ugg `X] Y$ 

A Ò[`]WX\_Y]hY]bYf'[Yn]Y`hYb'GUVchU[Y'Ui g[YgWX`cggYb'k YfXYb\_Ubb":8]YgY'\dzcfa Uh]cb']gh'VYfi\][YbXz'XU'g]Y'Nk Y]ZY``Ub'Y]bYfUVg]WXh`]WXYb'; YZÀ\fXi b['XYf'K UggYfei U`]hÀh'Ui gfÀi a h"I a k Y`h!i bX'; Ygi bX\Y]hgVY\ÒfXYb'\UVYb'g]WX'bUWX'6Y\_Ubbhk YfXYb'XYfUYfi bfY]b][i b[Yb'i a [Y\YbX'i a 'Y]bY'@Ògi b['VYa Ø\hz'i a 'X]YG]WXYf\Y]h'XYf'K UggYfj Yfgcf[i b['g]WXYfni ghY``Yb"

8 Ub\_'gW\bY``Yf'i bX`YZZY\_h]j Yf'GcZcfha U\\bU\a Yb'\_cbbhY`Y]bY fUgW\Y`FØW\_\_Y\f'ni f'Bcfa U`]h\\ah'YffY]W\h'k YfXYb"'BUW\\Y]b[Y\YbXYb'I bhYfgi W\i b[Yb'k i fXYb'X]Y'a ]\_fcV]c`c[]gW\Yb?cbhUa]bUh]cbYb'VYgY]h][h"'8Yf'@UbX\_fY]g'\Uh'X]Y'6Yj \(\Omega\)\_Yfi b[\\\OMega\Yf'X]YgY'9bhk]\\\\\_`i b[Yb']bZcfa]Yfhii bX'VYhcbh\\omega\XUgg'U\_hi Y``Y\\\\DfcVYb'nY][Yb\\omega\XUgg'XUg'Hf]b\_k UggYf'bi b'a]\_fcV]c`c[]gW\\Y]bk UbXZfY]']gh"

 $8 ]Y `VYhfc ZZYbYb `C fhY ž`XUfi bhYf`bYVYb `6UbXY`]b `Ui W. ?i bhnck ž GW.a c`Xck ž`GhfYgck `i bX`GhfYgck !G]YX`i b[ ž'_ÒbbYb `bi b`k ]YXYf c\bY `9]bgW.k fÅb_i b[ Yb `Ui Z']\f`@Y]hi b[ gk UggYf`ni [ fY]ZYb"`9g`]gh k ]W.h][ `ZØf`X]Y `5bk c\bYfž`g]W. `ØVYf`gc`W.Y`9bhk ]W_`i b[ Yb `]a ?`UfYb `ni `gY]bž`XU`g]Y `Y]bYb`X]fY_hYb`9]bZi gg`Ui Z']\fYb`5``hU[ `i bX]\fY`; Ygi bX\Y]h`\UVYb`_ÒbbYb"`9]bY`gW.bY``Y`?ca a i b]_Uh]cb i bX`hfUbgdUfYbhYg`<UbXY`b`g]bX`]b`gc`W.Yb`: À``Yb`i bYf`Àgg`]W."$ 

# Ni gUa a YbUfVY]h'j cb'; Ygi bX\Y]hgVY\ÒfXYb i bX'; Ya Y]bXY

8]Y'[YgUa hY'G]hi Uh]cb'nY][hž'k]Y'k]W\h]['X]Y'Ni gUa a YbUfVY]h nk]gW\Yb'; Ygi bX\Y]hgVY\ÒfXYbž'?ca a i bYb'i bX'XYb'6Øf[Yfb]gh"8]Y'\Dzcfa Uh]cbgk Y]hYf[UVY'Xi fW\'XUg'; Ygi bX\Y]hgUa h'k Uf YbhgW\Y]XYbXž'i a '; YfØW\hY'ni 'j Yfa Y]XYb'i bX'X]Y'5bk c\bYf ØVYf'X]Y'F]g]\_Yb'i bX'X]Y'Y]bni 'Y]hYbXYb'A U» bU\a Yb'ni ]bZcfa ]YfYb"'

9]b 'YfZU\fYbYf'?f]gYba UbU[ Ya YbhdfcnYgg'k i fXY']a d`Ya Ybh]Yfhž i a 'X]Y 'G]hi Uh]cb 'gWkbY``'i bhYf'?cbhfc``Y'ni 'VY\_ca a Yb"'8]YgY 6Ya Ø\i b[ Yb 'g]bX'Y]b '[ i hYg'6Y]gd]Y``XUZØfž'k ]Y '6Y\ÒfXYb']b \_f]h]gWkYb 'G]hi Uh]cbYb 'fYU[ ]YfYb 'gc``hYb"'5i Wk 'k Ybb'X]Y [ Ygi bX\Y]h`]WkYb '5i gk ]f\_i b[ Yb'XYf'J Yfi bfY]b][ i b[ 'b]Wkh'ni

 $\label{eq:continuous} i \ bhYfgWX \ \grave{A}hnYb \ "g]bX \ \check{z} \_Ubb \ "X]Y \ "gWX \ bY \ "Y \ "F Y U\_h]cb \ "i \ bX \ "X]Y \\ cfXbi \ b[\ g[\ Ya \ \grave{A} \ Y \ "9bhk \ Ufbi \ b[\ "U \ "g"] \ cfV] \ "X \ "WY \ "VY \ hfUWX \ hYh \ "k \ YfXYb"$ 

±b`Y]bYf`NY]hž`]b`XYf`Hf]b\_k UggYfg]WXYf\Y]h`a Y]gh
gY`Vghj YfghÀbX`]WX`YfgWXY]bhž`i bhYfghfY]WXYb`gc`WXY`J cfZÀ``Y`X]Y
B chk YbX][\_Y]h`ghÀbX][Yf`?cbhfc``Yb`i bX`gcZcfh][Yf`A U» bU\a Yb
VY]`I bfY[Y`a À»][\_Y]hYb"`8]Y`5bk c\bYf`g]bX`bi b`k]YXYf`VYfi \][h
i bX`\_ÒbbYb`]\f`K UggYf`c\bY`9]bgWXfÀb\_i b[Yb`[Yb]Y»Yb"`

### K ]WX h][Y'9f\_Ybbhb]ggY'Ui g'XYf'G]hi Uh]cb

5VgW\`]Y» YbX`V`Y]Vh'ZYghni \U`hYbž'XUgg'XUg'Jcf[Y\Yb'XYg; Ygi bX\Y]hgUa hYg'i bX`X]Y`FYU\_h]cb'XYf'; Ya Y]bXYb'Y]bY k]W\h][Y`@Y\fY`]b'di bWhc'?f]gYba UbU[Ya Ybh'XUfghY``Yb"'9]bY hfUbgdUfYbhY'?ca a i b]\_Uh]cb'i bX'gW\bY``Y'<UbX`i b[Yb'g]bX`VY] XYfUfh][Yb'JcfZ\``Yb'i bj Yfn]W\hVUf"'Gc`W\Y'9fY][b]ggY'gc``hYb'i bg U``Y'gYbg]V]`]g]YfYb'ZØf'X]Y`E i U`]h\h'j cb'Hf]b\_k UggYf'i bX'X]Y 5bghfYb[i b[Ybž'X]Y'bchk YbX]['g]bXž'i a 'Yg'ni '[Yk \h'Y]ghYb"'9]b\c\Yg'A U»'Ub'K UW\gUa \_Y]h'i bX'JYfUbhk cfhi b[g[YZØ\`'V`Y]Vhbchk YbX]['ži a 'X]Y'; Ygi bX\Y]h'XYf'6Yj Ò`\_Yfi b['`Ub[Zf]gh]['ni gW\ØhnYb"

#### FY`Yj UbhY; Ygi bX\Y]hga U»bU\a Yb

I a `X]Y`E i U`]hÀh`XYg`Hf]b\_k UggYfg`g]W\Yfni ghY``Ybž`g]bX
j YfgW\]YXYbY'; Ygi bX\Y]hga U» bU\a Yb`YfZcfXYf`]W\"\8]Y
[YgYhn`]W\Y'; fi bX`U[Y`V]`XYh`XUg`K UggYf\Ui g\U`hg[YgYhnž'XUg
XYb`GW\i hn'j cb'; Yk ÀggYfb`fY[Y`hi bX`g]W\YfghY``hž`XUgg
Hf]b\_k UggYf`[Ygi bX\Y]h`]W\`i bVYXYb\_`]W\`]gh"?ca a i bU`Y
; Ygi bX\Y]hgÀa hYf`g]bX'j YfUbhk cfh`]W\`ZØf`X]Y`, VYfk UW\i b[`i bX
X]Y`8 i fW\ZØ\fi b[`j cb'fY[Y`a À»][Yb'?cbhfc``Yb'XYg`K UggYfg"
8]YgY`i a ZUggYb`a ]\_fcV]c`c[]gW\Y`HYghgž`W\Ya ]gW\Y`5bU`mgYb
i bX`X]Y`6Yk Yfhi b[`XYf`\DZfUghfi \_hi f`XYf`K UggYf`Y]hi b[Ybž'i a
J Yfi bfY]b][i b[Yb`ZfØ\nY]h][`ni `Yf\_YbbYb"

BUWX 'XYf': YghghY``i b[ 'XYf'J Yfi bfY]b][i b[ ']b'Jcfdca a Yfb!; fY]Zgk U`X'k i fXYb'gcZcfh][ Y'A U» bU\a Yb'Yf[ f]ZZYbž'i a 'X]Y G]WXYf\Y]h'XYg'Hf]b\_k UggYfg'k ]YXYf\Yfni ghY``Yb"'8 Uni 'nÀ\`hYb i bhYfʻUbXYfYa ʻY]bYʻi a ZUggYbXYʻ±bZcfa Uh]cbg\_Ua dU[bYžʻi a ʻX]Y 6Øf[YfʻØVYfʻX]YʻG]hi Uh]cbʻi bXʻbchk YbX][YʻJcfg]WXhga U»bU\a YbV]gʻni fʻ9bhk Ufbi b[ʻUi Zni \_`ÀfYb"

## GhUh]gh]\_Yb'ni f'Hf]b\_k UggYfei U`]hÀh']b 8Yi hgWX`UbX

: Øf`XYb`@UbX\_fY]g`Jcfdca a Yfb!; fY]Zgk U`X`]gh`Yg`YbhgW\Y]XYbXž Ui Z`X]YgY`dcg]h]j Yb`U``[ Ya Y]bYb`HfYbXg`ni `UW\hYbž`k À\fYbX VYgcbXYfY`G]hi Uh]cbYb`k ]Y`X]Y`\_Øfn`]W\Y`JYfi bfY]b][ i b[ `U\_h]j Ub[ Y[ Ub[ Yb`k YfXYb"`8]Y`gW\bY``Y`FØW\_\_Y\f`ni f`bcfa U`Yb K UggYfj Yfgcf[ i b[ `i bhYfghfY]W\h'X]Y`9ZZ]n]Ybn`XYf`FYU\_h]cb`XYf `c\_U`Yb`6Y\ÒfXYb"

## 5 i gk ]f\_i b[ Yb 'Ui Z'X]Y '; Ya Y]bXY i bX 'XUg J YfhfUi Yb ']b 'X]Y 'K UggYfj Yfgcf[ i b[

I a 'XUg'J YfhfUi Yb'k ]YXYf\Yfni ghY``Ybž']gh'Yg'k ]W\h][ ž'XUgg'X]Y 6Y\ÒfXYb'hfUbgdUfYbhY' ±bZcfa Uh]cbYb'ØVYf'X]Y'I fgUW\Yb'XYf JYfi bfY]b][i b['i bX'X]Y'Xi fW\[YZØ\fhYb'A U» bU\a Yb'ni f 6Y\YVi b[ 'XYg'DfcV`Ya g'VYfY]hghY``Yb"'FY[ Y`a À» ][ Y'I dXUhYg g]bX'YbhgWXY]XYbXž'i a 'XUg'G]WXYf\Y]hg[ YZØ\``XYf'6Yj Ò`\_Yfi b[ 'ni ghÀf\_Yb'i bX'ni 'nY][ Ybž'XUgg'X]Y'K UggYfei U`]hÀh'ghYhg'ØVYfk UWXh k ]fX"

8 Y hU]`c

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