

## DfcZ"'8f"'=b[U'Ac\f'ghÀf\_h 5[fUfk]fhgWXUZhg!GhiX]ia'Ub'XYf'8<6K FUjYbgVif[

DfcZ".8f"  $\Rightarrow$  [ U.A c\f.`Y\fh.Ub.`XYf.8 < 6K `F Uj YbgVi f[ '5[ fUf! i bX.'@YVYbga ]hhY`a Uf\_Yh]b[ 'gck ]Y '5[ fUfhci f]ga i g'ZØf'X]Y 5[ fUfk ]fhgW\UZh"

5b XYf 8 < 6K 'F Uj YbgVi f[ '\UhrgY]h' > b] Y]bY 'VYXYi hYbXY

J Yf Ab XYfi b[ ']a 'Ghi X]Yb[ Ub[ '5[ f Ufk ]f hg W \ UZh gh Uhh[ Y Z b XYb " A ]h

XYf 6 Yfi Z b[ 'j cb 'Dfc Z" 8 f" + b[ U 'A c \ f 'k ]f X 'XYf : c\_i g 'Ui Z

A Uf\_Yh]b[ ghf UhY[ ]Yb 'i b X 'X]Y 'j ]Y `gY]h][ Yb '5 gd Y\_hY 'XYf '5[ f Uf! 'i b X

@Y VYbga ]hhY `k ]f hg W \ UZh [ Y `Y[ h" 8 ]YgY '9 b hk ] W\_`i b[ ']gh 'V Ygc b XYfg

k ]W \ h][ ž X U 'A Uf\_Yh]b[ ']b 'XYf '\Yi h][ Yb 'NY]h Y]bY 'G W `ØggY `fc ``Y 'VY]

XYf 'J Yfk Yf hi b[ 'i b X 'XYa 'J Yf hf]Y V ``Ub Xk ]f hg W \ UZh `]W \ Yf 'Dfc Xi \_hY

gd]Y `h" + b[ U 'A c \ f ž X]Y 'ni j cf 'U `g 'A Uf\_Yh]b[ `Y]hi b[ 'ZØf X]Y 'C Vgh

j ca '6c XYbgYY 'J Yf hf]Y Vg[ YgY ``g W UZh 'h A h][ 'k Uf ž Vf]b[ h

fY]W \ U `h][ Y '9f ZU \ fi b[ ']b 'XYb 'G hi X]Y b[ Ub[ 'Y]b"

JYfa]hh`ib['jcb': UWkk]ggYb

#Di]\fYfibYi YbiFc``YiUbiXYfi8 < 6K iF UjiYbgVi f[i]ghYgi#b[U'Ac\fgN]YiZiGhi X]YfYbXYbib]Wkhibi fiX]Yi[fi bXiY[YbXYbi?Ybbhb]ggYiXYf 5[fUfk]fhgWkUZhini ij Yfa]hhYibzigcbXYfbiUi WkiX]Yi?i bghiXYg A Uf\_Yh]b[gii bXiXYfiJiYfa Uf\_hi b[ii8]Ygi[YgWk]Y\hi]biYb[Yf Ni gUa a YbUfVY]hia]hiXYa iGhi X]YbnYbhfi a iZØfiHci f]ga i gž < chYiYf]Yii bXi; Ughfcbca]Yžik UgiY]bYi]bhYfYggUbhYiJiYfV]bXi b[jcbi5[fUfk]fhgWkUZhii bXiHci f]ga i giXUfghYiihii: ØfiAc\fi]ghiX]Y 8]j Yfg]Z]\_Uh]cbij cbi6Yhf]YVYbi]bbYf\UiViXYfi5[fUfk]fhgWkUZhiY]bnYbhfUYfiDi b\_hžiXYfini bY\a YbXiUbi6YXYi hi b[i[Yk]bbhii 8]Y JYfnU\bi b[ij cbi5[fUfk]fhgWkUZhii bXiHci f]ga i gi[YZÀihia]fiUb XYfi8 < 6K iF UjiYbgVi f[iVYgcbXYfgi[i h žiZcfa i i]Yfhig]YiYgia]h 6Y[Y]ghYfi b[ii

8 Yf Xi U`Y Ghi X]Yb[ Ub[ '5[ fUfk ]fhgW\UZh`\Uh'g]W\']b 'XYf FY[ ]cb VYfY]hg 'YhUV`]Yfh'i bX 'YfZfYi h'g]W\'Y]bYg '[ Yk U`h][ Yb '\delta hYfYggYg" , VYf') \$ ``UbXk ]fhgW\UZh`]W\Y'6Yhf]YVY'i bX 'I bhYfbY\a Yb '\UVYb g]W\'U`g 'DUfhbYfYb[ U[ ]Yfh'i bX 'k c``Yb 'X]Y Ghi X]YfYbXYb']a FU\a Yb'j cb'dfUl ]gbU\Yb'5i gV]`Xi b[ gd\UgYb'VY[ `Y]hYb"'8]Yg nY][ h'X]Y FY`Yj Ubn'XYg'Ghi X]Yb[ Ub[ gž'XYf'gck c\``H\Ycf]Y'U`g Ui W\'dfU\_h]gW\Y'5gdY\_hY'a ]hY]bUbXYf'j YfV]bXYh"

I fgdfØb[`]WX 'Ui g'C VYfhYi f]b[Yb'ghUa a YbXž'\Uh'\b[U'A c\f']\fY U\_UXYa]gWXY'@Ui ZVU\b'Ua '6cXYbgYY'Y]b[YgWX`U[Yb"'Gck c\`']\f 6UWXY`cf'U`g'Ui WX'XYf'A UghYf'i bX'X]Y'Dfca ch]cb'k i fXYb'Ub'XYf NYddY`]b'I b]j Yfg]hÀh']b': f]YXf]WXg\UZYb'UVgc`j ]Yfh'''<Yi hY''YVh'g]Y ]b'A YYfgVi f['a]h']\fYa '9\Ya Ubb'i bX'nk Y]'?]bXYfb'''\b\fY fY JYfVi bXYb\Y]h'ni f'FY[]cb'i bX'ni f'@UbXk]fhgWXUZh'gd]Y[Y`h'g]WX Ui WX']b']\fYa '9b[U[Ya Ybh'ZØf'X]Y'5i gV]`Xi b['\_ØbZh][Yf : UWX\_fÀZhY'k]XYf"

8]Y 8 < 6K 'F Uj YbgVi f[ '\Uh'a ]h'XYf'9]bZØ\fi b[ 'XYg'Ghi X]Yb[ Ub[ g 5[ fUfk ]fhgW\UZh'Y]bYb'BYfj ']b'XYf'FY[ ]cb'[ YhfcZZYbž'i bX'XUg \div hYfYggY'Ub'X]YgYa 'bYi Yb'5i gV]'Xi b[ gk Y[ ']gh'VYUW\h']W\"'8]Y ?ca V]bUh]cb'j cb'h\YcfYh]gW\Ya 'K ]ggYb'i bX'dfU\_h]gW\Yb 9fZU\fi b[ Yb'V]YhYh'XYb'Ghi X]YfYbXYb'Y]bY'gc`]XY'; fi bX`U[ Yž'i a ]a '6YfY]W\'XYf'5[ fUfk ]fhgW\UZh'cXYf'XYg'5[ fUfa Uf\_Yh]b[ g YfZc`[ fY]W\'ni 'gY]b"

## K UW ghi a 'i b X '=bbcj Uh]cb']b'XYf 5[fUfk]fhgW UZh

± [ U A c \ f · g]Y \ h · ]b · ] \ f Y a · b Y i Y b · 5 i Z[ U V Y b [ Y V ] Y h · X] Y · A Ò [ ` ] W \_ Y ] h ž K U W ghi a · i b X · ± b c j U h ] c b · ] b · X Y f · 5 [ f U f k ] f h g W U Z h j c f U b n i h f Y ] V Y b " 8 ] Y · < Y f U i g Z c f X Y f i b [ Y b ž a ] h · X Y b Y b · X] Y · 6 f U b W Y · \_ c b Z f c b h ] Y f h · ] g h ž Y f Z c f X Y f b · \_ f Y U h ] j Y · @ Ò g i b [ Y b · i b X · b Y i Y g · 8 Y b \_ Y b ž · ] b g V Y g c b X Y f Y ] a · 6 Y f Y ] W · A U f \_ Y h ] b [ " · 9 g · [ ] · h ž · X] Y · @ U b X k ] f h g W U Z h · b ] W h · b i f · U · g f Y ] b Y · 9 f n Y i [ i b [ ž · g c b X Y f b · U i W · U · g · A U f \_ Y · n i · V Y h f U W · h Y b ž X] Y · a ] h X Y b · 9 f k U f h · b [ Y b · i b X · 6 Y X Ø f Z b ] g g Y b · X Y f · J Y f V f U i W · Y f · ] b h Y f U [ ] Y f h ' A ] h · ] \ f Y a · Z b X ] Y f h Y b · K ] g g Y b · i b X · ] \ f Y f · 9 f Z U \ f i b [ · k ] f X · g ] Y g ] W · Y f · ] w · Y ] b Y b · k Y f h j c · ` Y b · 6 Y ] h f U [ · ` Y ] g h Y b · i b X · X ] Y · G h i X ] Y f Y b X Y b X U n i · Y f a i h ] [ Y b ž X ] Y g Y · 8 Y b \_ k Y ] g Y · n i · Ø V Y f b Y \ a Y b "

 $8 ]Y `VYj \ cfghY \setminus YbXYb `9bhk \ ]W_`i \ b[\ Yb `Ub `XYf' < cW, gWki `Yj YfgdfYWk Yb `Y \setminus f[\ Y]n][\ Y `DYfgdY_h]j \ Yb `ZØf `X]Y `Ghi \ X]YfYbXYb `i bX X]Y `[\ YgUa \ hY `F Y[\ ]cbž ]bXYa `g]Y `XYb `GhY ``Ybk Yfh XYg `A Uf_Yh]b[ g ]b `XYf `5[ fUfk ]fhgWk UZh `bYi `XYZ]b]YfYb `i bX `X]Y `J YfV]bXi b[ Yb `ni UbXYfYb `6YfY]Wk Yb `ghÀf_Yb'' <math>\Rightarrow$ b[ U `A c\f']gh `VYfY]hž `X]YgY < YfUi gZcfXYfi b[ `Ubni bY\a Yb `i bX `XYb `Ghi X]YfYbXYb `XUg `bOh][ YFØghnYi [ `a ]hni [ YVYbž `i a `]b `Y]bYf `g]Wk `ghÀbX][ `k UbXY `bXYb 6fUbWk Y `YfZc` [ fY]Wk `ni `U[ ]YfYb''

#D[U'Ac\f g'9b[U[Ya Ybh']b'XYf'5[fUfk]fhgW\UZh'\_ca a h'ni 'Y]bYa
NY]hdi b\_hž'Ub'XYa 'X]Y'6fUbW\Y'j cf'VYXYi hYbXYb
< YfUi gZcfXYfi b[Yb'ghY\h''H\Ya Yb'k]Y'BUW\\U`h][\_Y]hž
DfY]gghUV]`]hÀh'i bX'X]Y'5bdUggi b['Ub'XYb'?`]a Uk UbXY`'g]bX
\Yi hni hU[Y'nYbhfU`Y'5b`]Y[Yb'XYf'@UbXk]fhY''8]Y'Bchk YbX][\_Y]hž
O\_c`c[]gW\'bUW\\U`h][Y'AYh\cXYb'ni ']bhY[f]YfYbž']gh'ZØf'X]Y
ni \_ØbZh][Y'9bhk]W\_`i b['XYf'5[fUfk]fhgW\UZh'i bYf`Agg`]W\''8Yf
5bVUi 'j cb'CVgh']b'gØXXYi hgW\Yb'5bVUi fY[]cbYb'a i gg'b]W\h'bi f
dfcXi \_h]j ž'gcbXYfb'YVYbgc'i a k Y`hj YfhfA[`]W\'gY]bž'i a 'X]Y
FYggci fW'b'ZØf'ni \_ØbZh][Y'; YbYfUh]cbYb'ni 'VYk U\fYb"</pre>

8]Y'BUW\ZfU[Y'bUW\fY[]cbU`Yb'i bX'bUW\\U`h]['dfcXi n]YfhYb@YVYbga]hhY`b']gh']b'XYb'`YhnhYb'\\J\fYb'ghYh]['[Ygh]Y[Yb"'@Ui hY]bYf'9f\YVi b['XYg'6i bXYga]b]ghYf]i a g'ZØf'9fbÀ\fi b['i bX@UbXk]fhgW\UZh'[UVYb'\&\&\@VYf'+\\$'i 'XYf'6YZfU[hYb']b

8 Yi hgWX`UbX`Ubž`VY]a '9]b\_Ui Z`Ui Z`X]Y`< Yf\_i bZh`XYf`DfcXi \_hY`ni UWX hYb"`8]YgY`9bhk ]W\_`i b[ 'V]YhYh`ZØf`X]Y`5[ fUfk ]fhgWX UZh`i bX gdYn]Y```ZØf`X]Y`C VghdfcXi \_h]cb`VYXYi hYbXY`7\UbWYbž`YfZcfXYfh YXcWX`Ui WX`JYfÀbXYfi b[ Yb`]b`XYf`JYfa Uf\_hi b[ gghfUhY[ ]Y`i bX ]a `DfcXi \_hUb[ YVch"

## Ni gUa a YbUfVY]h'nk ]gWXYb'5i gV]`Xi b['i bX DfUl ]g

 $8 ] Y : 8 < 6K `F Uj YbgVi f[ `j YfZc`[ hY]b`]bbcj Uh]j Yg`? cbnYdhž XUg H\Ycf]Y `i bX`DfUl ]g`a ]hY]bUbXYf`j YfY]bh" = a `F U\a Yb`XYg`Xi U`Yb Ghi X]i a g`\UVYb`X]Y`Ghi X]YfYbXYb`X]Y`A <math>O[`]WX_Y]hž`X]fY_h`]b$ `UbXk ]fhgW\UZh`]W\Yb`6Yhf]YVYb`dfU\_h]gW\Y`9fZU\fi b[ Yb`ni gUa a Y`b" 8]YgY`5bgAhnY`g]bX`YbhgW\Y]XYbXž`i a `XYb`ni \_ObZh][ Yb: UWX\_fAZhYb`XUg`bOh][ Y`K ]ggYb`i bX`X]Y`dfU\_h]gW\Yb`: A\][ \_Y]hYb a ]h`Ui Z`XYb`K Y[ `ni `[ YVYbž`X]Y`g]Y`]b`Y]bYf`g]W\`gW\bY`` j YfAbXYfbXYb`6fUbW\Y`VYbOh][ Yb"

8]Y`\c\Y`5bnU\``j cb`ØVYf`) \$`DUfhbYfi bhYfbY\a YbžX]Y`VYfY]hg
Ub`XYa `Xi U`Yb`Ghi X]Yb[Ub[`hY]`bY\a YbžVY`Y[h'X]Y`Yb[Y
JYfV]bXi b[`nk]gWXYb`U\_UXYa]gWXYa `K]ggYb`i bX`dfU\_h]gWXYf
5bk YbXi b["`Gc`WXY`?ccdYfUh]cbYb`g]bX`b]WXh'bi f`ZØf`X]Y
Ghi X]YfYbXYb`j cb`J cfhY]`ž'gcbXYfb`ghÀf\_Yb`Ui WX`X]Y
I bhYfbY\a Ybž']bXYa `g]Y`Ni [Ub[`ni `\cWXei U`]Z]n]YfhYb`HU`YbhYb
Yf\U`hYbž'X]Y`gdYn]Z]gWXY`?Ybbhb]ggY`ØVYf`X]Y`bYi YghYb
9bhk]W\_`i b[Yb`i bX`HfYbXg`]b`XYf`5[fUfk]fhgWXUZh`a]hVf]b[Yb"

## 8]YFc``YjcbAUf\_Yh]b[']a'5[fUfgY\_hcf

6Y]gd]Y`gk Y]gY`nY][ h`X]Y '9fZc`[ g[ YgWk]Wk hY`XYf`A Uf\_Y` C Vgh'j ca 6c XYbgYY ž'XUgg`Xi fWk 'Y]b`\_fYUh]j Yg`6fUbX]b[ 'i bX`Xi fWk XUWk hY ? Ua dU[ bYb`XUg`6Yk i gghgY]b`i bX`X]Y`B UWk ZfU[ Y`ZØf`fY[ ]cbU`Y DfcXi \_hY`[ YghY][ Yfh`k YfXYb`\_ObbYb"`Gc`Wk Y`GhfUhY[ ]Yb`g]bX`b]Wk h bi f`ZØf`XYb`5VgUhn`j cb`6YXYi hi b[ ž'gcbXYfb`Ui Wk`ZØf`X]Y 9f\U`hi b[ `XYf`fY[ ]cbU`Yb`=XYbh]hÀh`i bX`?i`hi f"

8 YhU]`g

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