

## : cfhgWXf]hh'XYf'bYi Yb'?]hU']b'HfUi bghY]b. CVYfVØf[Yfa Y]ghYf'VY[Y]ghYfh

⇒ 'HfUi bghY]b 'k YfXYb 'U\_hi Y```k ]WXh][ Y`GWXf]hhY'i bhYfbca a Ybž
i a 'XYf'ghY][ YbXYb 'B UWX ZfU[ Y`bUWX '6YhfYi i b[ gd`ÀhnYb 'ZØf
? `Y]b\_]bXYf'[ YfYWXh'ni 'k YfXYb"'8Yf'6Ui 'Y]bYf'bYi Yb
? ]bXYfhU[ YgghÀhhY 'Ub 'XYf' ⇒ bghfU» Yž'XYf'j cb 'XYf'GhUXh'Z]bUbn]Yfh
i bX'j cb 'XYf'5K C 'VYhf]YVYb 'k ]fXž'j Yf'Ài Zh'd `Uba À» ][ "'6Y]'Y]bYa
CfhghYfa ]b 'a UWXhY'g]WX 'C VYfVØf[ Yfa Y]ghYf'8f"'7\f]gh]Ub
< Øa a Yf'Y]b'6]`X'j cb 'XYb': cfhqWXf]hhYb"
</p>

#### 9]bXfiW\_gjc``Y~6UiZcfhgWXf]hhY

 $\label{eq:continuous} $$ C VYfVØf[Yfa Y]ghYf`8f"`7 f]gh]Ub`< \emptyset a a Yf`nY][hY`g]W \\ cdh]a ]gh]gW `ØVYf`XYb`6Ui j Yf`Ui Z'i bX`VYhcbhY`X]Y`6YXYi hi b[`XYfbYi Yb`9]bf]W hi b[`ZØf`X]Y`: Ua ]`]Yb`]b`HfUi bghY]b"`@Ui h`XYa \\ 5fW ]hY_hYb`5bXfYUg`@Ycb\UfX``]Y[h`XUg`DfcY_h` gY\f`[i h`]a \\ NY]h!`i bX`?cghYbd`Ub "`N]Y``]gh`Ygž`X]Y`?]hU`dØb_h`]W `ni a \\ $$ $$ $$ $$ $$ YW gY``ni `ØVYf[YVYbž`k Ug`ZØf`X]Y`GhUXh`Y]bY`k ]W h][Y ; fi bX`U[Y`ZØf`ni _ØbZh][Y`6YhfYi i b[gd`AhnY`XUfghY``h"$ 

#### <sup>2</sup> \_c`c[]gW\Y`6Ui k Y]gY`]a :: c\_i g

9]b 'nYbhfu`Yg '5b`]Y[Yb 'XYg 'Dfc Y\_hYg ']gh'X]Y 'i a k Y`hZfYi bX`]W\Y; YghU`hi b["'8]Yg 'k ]fX 'Xi fW\ 'X]Y 'J Yfk YbXi b[ 'bUW\ \U`h][Yf A UhYf]U`]Yb 'i bX 'XYb '5bgW\`i gg 'Ub 'XUg '6]ca UggY!<Y]nk Yf\_']b; Y]» ]b[ 'YffY]W\h" '9]bY 'bYi ']bghU``]YfhY 'D\chcj c`hU]\_Ub`U[Y 'Ui Z XYa '8 UW\ 'XYg '6YghUbXg[YVÀi XYg 'k]fX 'ni XYa 'XYb

9][YbjYfVfUiWX'jcb'Ghfca'ibhYfghØhnYb'ibX'X]Y'7C&!6]`Ubn'XYfbYiYb'?]hU'dcg]h]j'VYY]bZiggYb"'@Uih'F]WXUfX'<U[YbUiYfž'XYa@Y]hYf'XYg'GhUXhVUiUahgž']gh'X]YgYg'6Uijcf\UVYb'Y]b'6Y]gd]Y`'ZØf[Y`ib[YbY'GUb]Yfib[Yb']a'5`hVYghUbXž'XUg'XYb?ZK!))!GhUbXUfX'YfZØ``h'ibX'gca]h': ÒfXYfib[Yb']b'<Ò\Y'jcb@VYf'Y]bYf'J]YfhY`a]``]cb'9ifc'YfaÒ[`]WXh'\Uh"

## FÀia`]WXY'5iZhY]`ib['ZØf'cdh]aU`Y'Bihnib[

8 Yf'I a VUi 'XYg'VYghY\YbXYb'; YVÀi XYgž'Y]bYa 'Y\Ya U`][Yb 6Ui Yfb\cZi a ZUggh'a Y\fYfY'Bi hni b[gY]b\Y]hYb'ZØf'X]Y?]bXYfVYhfYi i b["=a '9fX[YgW\cgg'g]bX'9a dZUb[ž
9`hYfbk UfhYVYfY]W\gck]Y'X]Y'6Øfcg'XYf'?]hU!@Y]hi b[i bhYf[YVfUW\h''8]Y'CVYf[YgW\cggY'VY\YfVYf[Yb'[fc»nØ[][Y;fi ddYbfÀi a Yž'X]Y'YZZY\_h]j Y'Bi hni b['j cb'D`Uhn'i bX:i b\_h]cbgfÀi a Yb'Yfa Ò[`]W\Yb"'9]b'5i Zni ['gcf[h'ZØfVUff]YfYZfY]Yb'Ni [Ub['ni 'U``Yb'9hU[Yb"

### $8Yf'[YgY^gWXUZh^gWXY'9]bZ^igg$

 $8 ]Y `b Yi Y ??] b XYfhU[YgghÀhhY `]b `HfUi bghY]b `]gh `b]W h `bi f `Y] b UfW ]hY_hcb]gW Yg `Dfc Y_hž `gcb XYfb `\ Uh `Ui W `Y]bYb `VYXYi hYb XYb gcn]U `Yb `9]b Zi gg " 5 b [Yg]W hg `XYg `k UW gYb XYb `6YXUf Zg `Ub ei U `]Z]n]YfhYb `6YhfYi i b [gd `AhnYb `]gh `X]Y `9f Ò ZZbi b [ `XYf `?]hU `Y]bY k ]``_ca a YbY `A U » bU\a Yž i a : Ua ]`]Yb `ni `i bhYfghØhnYb " 8]YgY 9b hk ]W_`i b [`nY][hž `XUgg `X]Y `GhUXh `HfUi bghY]b `dfcU_h]j `Ui Z `X]Y 6Y X Øf Zb ]ggY `]\fYf `6 Øf [Yf `Y]b [Y\h"$ 

5VgWX`]Y» YbX``Àggh`g]WX`ZYgh\U`hYbž`XUgg`XYf`6Ui `XYf`bYi Yb`?]hU
Ub`XYf`\DbghfU» Y`]b`HfUi bghY]b`Y]b`i a ZUggYbXYg`Dfc^Y\_h`XUfghY``hž
XUg`gck c\``UfWX]hY\_hcb]gWX`U`g`Ui WX`[YgY``gWXUZh`]WX`j cb`[fc» Yf
6YXYi hi b[`]gh"`A]h`gY]bYf`bUWX\U`h][Yb`6Ui kY]gY`i bX`XYf
i a ZUggYbXYb`D`Ubi b[`k]fX`X]YgYf`Cfh`b]WXh`bi f`ni `Y]bYa `bYi Yb
Ni\Ui gY`ZØf`X]Y`?`Y]bYbž`gcbXYfb`Ui WX`ni `Y]bYa `6Y]gd]Y``ZØf
ni \_ØbZh][Y`6Ui dfc^Y\_hY`]b`XYf`FY[]cb"

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