

## 9bhXYW\_Y'X]Y'i bhYfgW\AhnhYb GW\Ob\Y]hYb.'9i fcdUg'i bVY`]YVhYghY =bgY`b°

9bhXYW\_Y'X]Y'XfY]'i bVY`]YVhYghYb' $\oplus$ gY`b'9i fcdUg.'@YgVcgž Dcfhc'GUbhc'i bX'Gma ]"'9f\_i bXY'i bVY\_UbbhY'FY]gYn]Y`Y'ZØf Y]bn][ Ufh][ Y'9f`YVb]ggY"



@YgVcgž; f]YWXYb`UbX'!'9i fcdUg'\gY'b'n]Y\Yb''À\f`]WX
A ]``]cbYb'j cb'FY]gYbXYb'Ubž''YXcWX'[]Vh'Yg'nU\`fY]WXY'k Yb][Yf
VY\_UbbhY'CfhYž'X]Y'Ui Z[fi bX']\fYf'5V[YgWX]YXYb\Y]hž
a Ub[Y`bXYf'\d\dZfUghfi \_hi f'cXYf'[Yf]b[Yf'6Y\_Ubbh\Y]h'cZh
ØVYfgY\Yb'k YfXYb"'9]bY'I bhYfgi WXi b['j cb'5j ]g'\Uh'X]Y
i bVY`]YVhYghYb'Yi fcdÀ]gWXYb'\d\gY'b'Ub\UbX'j cb'Gi WXj c`i a Yb
i bX'\d\ghU[fUa!<Ug\hU[g'UbU`mg]Yfh"'8]Y'9f[YVb]ggY'nY][Ybž'XUgg
FY]gYbXY'b]WXh'bi f'Ub'XYb'VY`]YVhYb'8Ygh]bUh]cbYb']bhYfYgg]Yfh
g]bXž'gcbXYfb'Ui WX'gY`hYbYfYž'i bYbhXYW\_hY'\ddotx k Y`Yb'Yf\_i bXYb
a OWXhYb"

 $8 ]Y `XfY] `ibVY`]Y VhYghYb `+bgY`b `]b `9i fcdU `g]bX `@YgVcgž `Dcfhc GUbhc `ibX `Gma ]" `K AB `VYf]WX hYhž `XUgg `@YgVcgž `[Y`Y[Yb `]b `XYf bcfX `Ogh`]WXYb `Y [A]g `ibX `VY_Ubbh `ZØf `]\fY `C`]j Yb\U]bYž aU`Yf]gWXYb `8 `OfZYf `ibX `_i`hifY``Yb `HfUX]h]cbYbž `XUg ibVY`]YVhYghY `FY]gYn]Y` `ibhYf `XYb `YifcdA]gWXYb `+bgY`b `]gh" `8]Y +bgY``]gh'b]WXh'bif `X]Y `;YVifhgghAhhY `XYf `8]WXhYf]b `GUdd\cž gcbXYfb `V]YhYh'UiWX `Y]bY `VYY]bXfiW_YbXY ``UbXgWX UZh`]WXY `J]Y`ZU`h a]h' < Ø[Y`bž'6iWXhYb'ibX`\Y]» Yb `EiY``Yb"$ 

8 Ugʻnk Y]hYʻN]Y`Ui ZʻXYfʻ@jghYʻ]ghʻDcfhcʻGUbhcžʻY]bYʻ]hU`]Yb]gWXY

±bgY`žʻX]YʻbcfXÒgh`]WXʻj cbʻA UXY]fUʻ]a ʻ5h`Ubh]gWXYbʻCnYUbʻ`]Y[h"

G]Yʻ]ghʻVYfØ\a hʻZØfʻY]bYbʻbYi bʻ?]`ca YhYfʻ`Ub[Ybžʻ[c`XZUfVYbYb

GUbXghfUbXʻi bXʻnY][hˈg]WXʻ]bʻY]bYfʻ`UbXgWXUZh`]WXʻ\_Uf[YbžʻUVYf

]bhYfYggUbhYbʻ?i`]ggY"'8]Yʻ<Ui dhghUXhʻJ]`Uʻ6U`Y]fUʻ\UhʻVYgcbXYfY
\]ghcf]gWXYʻ6YXYi hi b[žʻXUʻg]YʻYb[ʻa]hʻXYaʻ@YVYbʻj cbʻ7\f]ghcd\
?c`i a Vi gʻj YfVi bXYbʻ]gh"ʻFY]gYbXYʻZ]bXYbʻ\]YfʻFi\Yʻi bXʻY]b

a ]`XYgʻ?`]a Užʻ]XYU``ZØfʻ9f\c`i b[ggi WXYbXY"

## I b V Y \_ Ub b hY 'G W Ob \ Y ]hY b

K Y]hYfY'i bVY`]YVhY' ⇒gY`bž'X]Y'`Ui h'XYf'5bU`mgY'j cb'5j ]g'U`g k Yb][Yf'VYgi Wkh'[Y`hYbž'i a ZUggYb'G\_cdY`cgž'7fYgž'5bXfcgž ?UfdUh\cgž'6fUWŽ'@U'A UXXU`YbU'i bX'H\Uggcg"'8]YgY'CfhY'V]YhYb cZh'Y]bY'FØW\_ni [ga Ò[`]Wk\_Y]h'j cb'XYb'ØVYfZØ``hYbž'VY\_UbbhYfYb 8Ygh]bUh]cbYb']b'9i fcdU"

## $6Y^{Y}YVhYFY]gYn]YY']a JYf[Y]W$

 $\exists a \ ; \ Y[\ YbgUhn`XUni \ ghY \ Yb`X]Y`VY`]YVhYghYb` \\ \exists bgY`b`]b`9i \ fcdUž`X]Y$ 

k À\fYbX`XYf`<cW\gU]gcb`\Ài Z][ 'ØVYfZØ``h`g]bX"'H]a Yci h

VYf]W\hYhž`XUgg`⇒/]nU`X]Y`a Y]ghVYgi W\hY`⇒gY``]ghž`a ]h`ØVYf`&\$
A ]``]cbYb`<Ug\hU[ g`i bX`ZUgh`&`A ]``]cbYb`a cbUh`]W\Yb
Gi W\UbZfU[ Yb"`A U`hU`i bX`A U``cfWU`Zc`[ Yb`Ui Z`XYb`D`ÀhnYb`nk Y]
i bX`XfY]"'<]Yf`Y]b`\_VYfV`]W\_'ØVYf`X]Y`hcd`%\$`VY`]YVhYghYb`⇒gY`b.

D`Uhn	⇒bgY`
%	⇒V]nU
&	A U`hU
ı	A U C f WU
(	HYbYf]ZY
)	GUbhcf]b]
*	A UXY]fU
+	G]n]`]Yb
1	; fUb <sup>-</sup> 7UbUf]U
-	GUfX]b]Yb
%\$	A m_cbcg

 $= X]fY_hYb'JYf[Y]WX'nY][Yb'g]WX'X]Y'IbhYfgWX]YXY'nk]gWXYb'XYb ghUf_'ZfYeiYbh]YfhYb'ibX'XYb'kYb][Yf'VY']YVhYb' <math>= bgY'b'XYih']WX''$  K\[A\fYbX'X]Y'VY']YVhYb' = bgY'b'CZh'a]h'A\[YbgWXYba\[Yb[Yb'ibX]DUfhm'YVYb'Uggcn]]Yfh'k\[YfXYbz'V]YhYb'X]Y'k\[Yb][Yf'VYgi\[WXhYb\] 8\[Ygh]bUh]cbYb'Y]bY'YbhgdUbbYbXY'5ha\[cgd\AfY'ibX'X]Y\[YYY[Yb\Y]hz'X]Y'i\[bVYfØ\fhY'BUhif'ni'[Yb]Y\[Yb''8Ug'DchYbn]U'\[ZØf'ibj\Yf[Ygg']WXY'9f'YVb]ggY'Ui\[Z'X]YgYb'fi\][Yb' = bgY'b']gh'b]WXh\[ni'i\[bhYfgWX\[AhnYb'']\]

8 Y hU]`g	
Cfh	@YgVcgž; f]YW\Yb`UbX
EiY``Yb	• k k k "k a b"XY
	• k k k "h]a Yci h"Wca

6Ygi WXYb G]Y i bg Ui Z Y]bY!fY]gY "XY