

# NYi [ Yb '[ Ygi Wk h. 'I bZU`Z'i Wk hYb ' ]b BYi \Uf` ]b [ Yfg]Y`'i bX`K ]hha i bX

⊕`BYi \Uf` ]b [ Yfg]Y`'i bX`K ]hha i bX`YfY][ bYhYb`g]Wk`nk Y ]  
I bZU`Z'i Wk hYb" < ]bk Y]gY`V]hhY`Ub`X]Y`Dc` ]nY]"

⇒ @UbX\_fY]g`K ]hha i bX`\Uh'g]Wk`\_Øfn`]Wk`Y]bY`FY]\Y`j cb  
JYf\_Y\fgi bZÄ`Yb`YfY][ bYhž`X]Y`gck c`\`Ui ZXYa`DUF\_d`Uhn`5a  
< UZYb`K Ygh]b`BYi \Uf` ]b [ Yfg]Y`U`g`Ui Wk` ]b`XYf`⊕Xi`ghf]YghfU» Y` ]b  
K ]hha i bX`ghUhhZUbXYb" ⊕`VY]XYb` : Ä`Yb`ZØWk hYhYb`X]Y  
JYfi fgUWkYf`j cb`XYf`I bZU`ghY`Yž`k Ug`X]Y`Dc` ]nY]`XUni`'j YfUb`Ugghž  
bUWk`NYi [ Yb`ni`'gi WkYb"

5a`'8]YbghU[ ž[ Y[ Yb`Yhk U`%&. ( ) 'I \fž`\_Ua`'Yg` ]b`BYi \Uf` ]b [ Yfg]Y`  
ni`Y]bYf`I bZU`Z'i Wk h"9]b`V]g`Ub[ 'i bVY`\_UbbhYf` : U\fyf`Y]bYg  
g]`VYfbYb`6A K`'' Yfg`hci Wk ]YfhY`Y]Wk h`Y]bYb`cfUb[ YZUFVYbYb  
Gi ni`\_]`Gk ]Zhž`XYf`Ui ZXYa`DUF\_d`Uhn`5a`' < UZYb`K Ygh[ YdUf`\_h'k Uf`  
BUWk`XYa`Ni`gUa`a`Ybghc` » j Yf`Y»`XYf` : U\fyf`X]Y`I bZU`ghY`Yž`  
c\bY`gY]bY`?cbhU`hXUhYb`ni`'\ ]bhYf`UggYb"8]Y`Dc` ]nY]`9gYbg` \Uh  
9fa ]hhi b[ Yb`Y]b[ Y`Y]hYhi bX` ]gh`ZØf`gUWk X]Yb` ]Wk Y` < ]bk Y]gY`i bhYf  
XYf`Bi`a`a`Yf`\$(- +%`- &\*) \$\$`YffY]Wk VUF" Gc`Wk Y`J`cfZÄ`Y`g]bX  
b]Wk h`bi`f`Äf[ Yf`]Wk ž`gcbXYfb`k YfZYb`Ui Wk` : fU[ Yb`ni`f  
JYfUbhk`cfhi b[ 'ja`'GhfU» Ybj Yf\_Y\`f`Ui Z"

## K Y]hYfY`I bZU`Z'i Wk h` ]b`K ]hha i bX

9]b`k Y]hYfYf`J`cfZU`YfY][ bYhY`g]Wk`Ua`'A ]h'k cWk` ]b`K ]hha i bX" ⇒  
NY]hfUi`a`nk ]gWkYb`%\$.%) 'I \f`i bX`%\$.') 'I \f`gh]Y»`Y]b  
i bVY`\_UbbhYf`5i`hcZU\fyf` ]b`XYf`⊕Xi`ghf]YghfU» Y` [ Y[ Yb`Y]bYb  
V`Ui Yb`J`K`'6cfU"8Yf`J`YfUbhk`cfh]Wk Y`Z` \f`YVYbZU`g`i bYf`Ui Vh  
XUj`cb"8]Y`Dc` ]nY]`K ]hha i bX`V]hhYh`Ui Wk`\Yf`i`a`'A ]h\`ZY`Ui`g`XYf  
6Yj`Ò`\_Yfi b[ 'i bX`Yfa`i`h][ h`NYi [ Ybž`g]Wk`i`bhYf`XYf`Bi`a`a`Yf

\$( (\* & - % % \$ ' ni ' a Y`XYb" '8]YgY`5fhj cb`J cfZ`Yb`Yf\O\h`X]Y  
G]W`Yf\Y]hgV`YXYb`\_Yb`Ui Z`DUf\_d`ÀhnYb`i bX`]b`K c`b[ YV]YhYb`ž`k c  
j ]Y`Y` : U`fYf`cZ`i bV`YUi Zg]W`h][ h`dUf`\_Yb"

8 Ug`l a ZU`fYb`j cb`l bZU`ghY`Yb`ž`c`bY`g]W`i a`a` Ò[ `]W`Y  
GW`ÀXYb`ni`\_`Øa`a`Yfb`ž`V`Y]Vh`Y]b`YfbghYg`DfcV`Ya`]a`XYi hgW`Yb  
J Yf`\_Y`f`gk`YgYb" '8]Y` ; YgYhnY`g]bX`\_`Uf.`B`UW`Y]bYa`i`l bZU`ž`Y[ U`  
k ]Y`\_`Y]b`ž`]gh`XYf` : U`fYf`j`YfdZ]W`hYh`ž`gY]bYb`B`Ua`Yb`i bX`gY]bY  
5bgW`f]Zh`Ubni [ YVYb`cXYf`X]Y`Dc`]nY]ni`]bZcfa`]YfYb" '8cW`j ]Y`Y  
gW`Y]bYb`g]W`b]W`h`XUfUb`ni`\_`U`hYb`ž`k Ug`ni g`Àhn`]W`Y  
6Y`Ughi b[ Yb`ZØf`X]Y` ; YgW`ÀX][ hYb`a`]h]g]W`Vf]b[ h`ž`X]Y`cZ`i`Ui Z`XYb  
?cghYb`ZØf`F`YdUfUhi`fYb`g]hnYb`V`Y]VYb"

8]Y`U`\_hi`Y`Yb`J`cfZ`Y`nY][ Yb`Ui W`Y]bY`VYgc f[ b]gYffY[ YbXY  
HYbXYbnž`XUgg`J`Yf`\_Y`fghY]`bY`a`Yf`ni bY`a`YbX`fØW`g]W`hg`cg  
\UbXYb" '8]Y`Dc`]nY]`UddY`]Yfh`Ub`U`Y`5i hcZU`fYf`ž`J`YfUbhk`cfhi`b[  
ni`ØVYfbY`a`Yb`i bX`g]W`VY]l bZ`Yb`ni`a`Y`XYb" '8 Ug`J`Yf`U`hYb  
XYg`J`Yfi`fgUW`Yfg`\_Ubb`b]W`h`bi`f`fYW`h]W`Y`?`cbgYei`YbnYb  
\UVYb`ž`gcbXYfb`Ui W`XUg`J`YfhfUi`Yb`]b`X]Y` ; Ya`Y]bgW`UZh  
i`bhYf[ fUVYb"

NYi [ Yb`\_`UVYb`]b`gc`W`Yb` : À`Yb`Y]bY`Yb`hgW`Y]XYbXY`F`c`Y`ž`XU`g]Y  
cZ`iXYb`Yb`hgW`Y]XYbXYb`<`]bk`Y]g`[ YVYb`\_`ØbbYb`ž`XYf`ni`f  
=XYbh]Z]n]Yfi`b[ `XYf` : U`fYf`ZØ`fh" '5bk`c`bYf`i bX`DUf`\_VYgi`W`Yf  
g]bX`Y]b[ Y`UXYb`ž`k`UW`gUa`ni`gY]b`i bX`VY]j`YfX`ÀW`h][ Yb  
5\_h]j ]h`ÀhYb`cXYf`XYa`A`]hYf`YVYb`Y]bYg`l bZU`g`gcZc`fh`X]Y`Dc`]nY]  
ni`]bZcfa`]YfYb"

8]Y`6Y`\_`ØfXY`VYa`Ø`h`g]W`ž`X]Y`G]W`Yf\Y]h`Ui Z`XYb`GhfU`»`Yb`i bX  
DUf\_d`ÀhnYb`\_`cb]bi ]Yf`]W`ni`j`YfVYggYfb" '8]Y`5i Z`Àfi`b[ `ØVYf  
XUg`f]W`h][ Y`J`Yf`U`hYb`b`UW`Y]bYa`i`l bZU`V`Y]Vh`Y]b`nYbhfU`Yf  
6YghUbXhY]`XYf`Df`Àj`Ybh]cbgUfVY]h`XYf`Dc`]nY]"`»XY`A`Y`Xi`b[ ž`Y[ U`  
k ]Y`\_`Y]b`g]Y`YfgW`Y]bYb`a`U[ ž`\_Ubb`Y]bYb`l`bhYfgW`Y]X`a`UW`Yb  
i bX`\_`Y`ZYb`ž`gc`W`Y`J`cfZ`Y`]b`Ni`\_i`bZ`ini`j`Yfa`Y]XYb"

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