

# 9]bVfi W\ `]b `L UbhYbYf`? ]hU. `Dc`]nY]`V]hhYh i a `< ]bk Y]gY `j cb `NYi [ Yb

⊕ `L UbhYb `Ua `Yg`ni `Y]bYa `9]bVfi W\ `]b `Y]bY  
? ]bXYfhU[ Yggh`hY" `Dc`]nY]`gi W\ h`NYi [ Yb `ZØf`a Ø[ `]W\ Y  
< ]bk Y]gY `Ui ZXYb `H`hYf"

⊕ `XYf`B UW\ hj cb `A ]hkh cW\ ž`XYb `&%" `5i [ i gh`&\$&( ž`Ui Z  
8 cbbYfghU[ ž`XYb `&&" `5i [ i gh`&\$&( ž`YfY][ bYhY `g]W\ `Y]b `9]bVfi W\ `]b  
Y]bY`? ]bXYfhU[ Yggh`hY] `]b `L UbhYb ž`VY] `XYa `V]g`Ub[ `i bVY `UbbhY  
H`hYf`Xi fW\ `Y]b `Ui Z[ YVfcW\ YbYg` : YbghYf`]b `X]Y`9]bf]W\ hi b[  
Y]bXfUb[ Yb" `8 Ug`9fY][ b]g` \ Uh`gck c\ `VY] `XYb `J YfUbhk cfh]W\ Yb  
XYf`? ]hU `U`g`Ui W\ `VY] `XYb `5bk c\ bYfb `6Ygcf[ b]g`Ui g[ Y`Øgh"

8 Yf`9]bVfi W\ `ZubX`nk ]gW\ Yb`%\*.` ` \$`I ` \f`Ua `A ]hkh cW\ `i bX`\$+.`%)  
I ` \f`Ua `8 cbbYfghU[ `ghUhh"@Ui h`XYb `YfghYb `9fa ]hhi b[ Yb`XYf  
Dc`]nY]`a UW\ hY `XYf`H`hYf`g]W\ `nk Uf`ja ` ; YV`Ai XY`ni `gW\ UZZYbž  
V`]YV`YXcW\ `c\ bY`6Yi hY" `9]b `GW\ fUb`\_k i fXY`ja `⊕ bYfYb `XYf`? ]hU  
Ui Z[ YVfcW\ Ybž`k Ug`Ui ZY]bY` [ Yd`UbhYž`UVYf`Y`hnh]W\ `YfZc` [ `cgY  
HUh` \]bXYi hYh"

# 8 ]Y `Gi W\ Y `bUW\ `NYi [ Yb

8 ]Y`?f]a ]bU`dc`]nY]`]gh`bi b`Ui ZXYf`Gi W\ Y `bUW\ `NYi [ Ybž`X]Y  
< ]bk Y]gY `Ui ZXYb `H`hYf`cXYf`j YfX`ÅW\ h][ Y`6YcVUW\ hi b[ Yb`]b`XYf  
I a [ YVi b[ `XYf`<Y]bf]W\ !@Ybg]b[ !GhfU» Y`[ Ya UW\ h` \ UVYb"  
9]bVfi W\ gX]YVgh`Å`Yž]bgVYgcbXYfY`]b `9]bf]W\ hi b[ Ybž`X]Y`XYf  
? ]bXYfVYhfYi i b[ `X]YbYbž`k YfXYb `U`g`VYgcbXYfg`gYbg]VY`  
VYhfUW\ hYhž`XU`g]Y `b]W\ h`bi f`a UhYf]Y`Y`GW\ `ÅXYb`j Yfi fgUW\ Ybž  
gcbXYfb `Ui W\ `XUg`G]W\ Yf` \Y]hg[ YZØ` \``]b `XYf` ; Ya Y]bgW\ UZh  
i bhYf[ fUVYb`\_ØbbYb"

8]Y'Dc`nY`\Uh'X]Y'5b[ Y'Y[ Yb\Y]h'Yfbgh[ Ybca a Yb'i bX'fi Zh'X]Y  
6Øf[ Yf'j cb`L UbhYb'Ui Zž'g]W\`ni `a Y`XYbž'k Ybb'g]Y'Yhk Ug`VYa Yf\_h  
\UVYb"<]bk Y]gY`\_ÖbbYb'Ub`X]Y'Dc`nY]k UW\Y`K Ygh'ib`?Ua d!  
@]bhZcfh'i bhYf`XYf`HY`YZcbbi a a Yf`\$&, (&!-' (!\$`k Y]hYf[ Y[ YVYb  
k YfXYb""9g`k ]fX'Ub[ Ybca a Ybž`XUgg`X]Y`² ZYb'h]W\`Y]hgUfVY]h'ib  
X]YgYf'5b[ Y'Y[ Yb\Y]h'XUni `VY]hfU[ Yb`\_Ubbž'bYi Y`ϕZcfa Uh]cbYb  
ni `[ Yk ]bbYb'i bX'a Ò[ `]W\Yfk Y]gY`XYb`HÀhYf`ni `]XYbh]Z]n]YfYb"

9]b'gc`W\Yf`J cfZU``k ]fZh'k ]W\h][ Y': fU[ Yb'Ui Zž']bgVYgcbXYfY`ja  
<]bV`]W`Ui ZX]Y`G]W\Yf\Y]hgj cf`\_Y\fi b[ Yb`]b`?]bXYfhU[ YggHÀhYb"  
J]Y`Y`9`hYfb'i bX`A ]hUfVY]hYbXY`]b`?]hUg`ZØ`Yb'g]W\  
a Ò[ `]W\Yfk Y]gY`i bg]W\Yf`i bX'gcf[ Yb'g]W\`i a `XUg`K c\`Yf[ Y\Yb  
XYf'?]bXYf""9]bf]W\hi b[ Yb'g]bX`\Ài Z][ `XUfUi ZUi g[ Y'Y[ hž`Y]bYb  
[ YgW\ØhnhYb`FUi a `ni `V]YhYbž'i bX`k ]Y`]b`X]YgYa `: U`ž`\_ÖbbYb  
9]bVfØW\Y`XUg`J YfhfUi Ybgj Yf\`À`hb]gž`XUg`X]Y`; Ya Y]bgW\UZ`ni  
X]YgYb`ϕgh]hi h]cbYb`\Uhž`ghØfYb"

## 8]Y`6YXYi hi b[ `j cb`G]W\Yf\Y]hga U» bU\ a Yb

9]bVfØW\Y`]b`6`]Xi b[ g!`i bX`6YhfYi i b[ gY]bf]W\hi b[ Yb'g]bX`b]W\h  
bi f`Y]b`J Yfghc» [ Y[ Yb`XUg`; YgYhn`/g]Y`ghY``Yb'Ui W\`Y]bYb'h]YZYb  
J YfhfUi YbgVfi W\`XUf""9g`]gh`YbhgW\Y]XYbXž`XUgg`?]hUg[ YY][ bYhY  
G]W\Yf\Y]hga U» bU\ a Yb`Yf[ fY]ZYbž'i a `g]W\`gY`Vgh`ni `gW\ØhnhYb"  
8]YgY`\_ÖbbYb`j cb`XYf`ϕghU`Uh]cb`j cb`5`Ufa Ub`U[ Yb'i bX  
G]W\Yf\Y]hg\_Ua YfUg`V]g`\]b`ni `]bhYbg]j YfYb`GW\i `i b[ Yb`XYg  
DYfgcbU`g`i bX`fY[ Y`a À» ][ Yb`G]W\Yf\Y]hgØVYfdØZ b[ Yb`fY]W\Yb"

Ni XYa `]gh`XYf`J cfZU``Y]b`<]bk Y]g`XUfUi Zž`k ]Y`k ]W\h][ `X]Y  
5i Za Yf\_gUa \_Y]h'i bX`K UW\gUa \_Y]h'XYf'5bk c\`bYf`]gh`C Zha U`g  
g]bX`Yg`X]Y`BUW\VUfbž`X]Y`U`g`YfghY`j YfXÀW\h][ Y`5`\_h]j ]hÀhYb  
VYa Yf`\_Yb'i bX`X]Y'Dc`nY]`U`Ufa ]YfYb`\_ÖbbYb""9]bY`Yb[ Y  
; Ya Y]bgW\UZ`ž`X]Y`g]W\`[ Y[ YbgY]h][ `i bhYfghØhnh'i bX`VY]  
j YfXÀW\h][ Yb`J cfZÀ``Yb'Ui Za Yf\_gUa `]ghž`\_Ubb`XUni `VY]hfU[ Ybž  
gc`W\Y`9fY][ b]ggY`ni `j Yf\]bXYfb"

8]Y'Dc`nY`\Uh`VYfY]hg`X]Y`9fa ]hhi b[ Yb'Ui Z[ Ybca a Ybž`XcW\`XYf  
9fZc`[ `XYf'5i Z`\_Àfi b[ `Àb[ h'Ui W\`j cb`XYf`A ]h\]`ZY`XYf  
6Yj Ò`\_Yfi b[ `UV""9g`V`Y]Vh`UVni k UfhYbž`cV`X]Y`<]bk Y]gYž`X]Y`VY]

XYf'Dc`nY]Y]b[ Y\Ybž'ni f'→XYbh]Zn]Yfi b[ 'XYg'HÀhYfg'ZØ\ fYb  
k YfXYb"5VYf'Y]bYg'ghY\h'ZYgh.'Gc`WXY'J cfZÀ`Y'g]bX`b]W'h'bi f'Y]b  
DfcV`Ya 'ZØf`X]Y'6Yhfc'ZYbYbž'gcbXYfb'VYhfY'ZYb`X]Y' [ YgUa hY  
; Ya Y]bgW'UZh"; Ya Y]bgUa '\_Ubb'a Ub'j ]Y`Y]W'h'Y]bYb'VYggYfYb  
GW'i hn'YffY]W'Yb"

9]bVfi W' ]b`6]`Xi b[ gY]bf]W'hi b[ Yb.`9]b  
@Y]hZUXYb`ØVYf`X]Y`G]W'Yf\Y]hg`U[ Y

9]b`9]bVfi W' ]b`Y]bY`?]bXYfhU[ YgghÀhY`ghY`h'b]W'h'bi f'Y]bYb  
J Yfghc» '[ Y[ Yb`XUg'; YgYhn'XUfž'gcbXYfb`\Uh'Ui W'k`Y]hfY]W'YbXY  
dgmW'c`c[ ]gW'Y'i bX'gcn]U`Y`→a`d`\_Uh]cbYb"6]`Xi b[ gY]bf]W'hi b[ Yb  
g]bX`C fhY`XYg'J YfhfUi Yb'gž']b`XYbYb`?]bXYf'i bX`9'hYfb`g]W'g]W'Yf  
ZØ\`Yb`gc`hYb"9]b`J cfZU`k ]Y`X]YgYf`\_Ubb`XU\Yf`XUg  
G]W'Yf\Y]hg[ YZØ\` ]b`XYf'; Ya Y]bgW'UZh'VYY]bhfÀW'h][ Yb"9]b  
j Yf[ `Y]W'VUfYf'J cfZU`ž`XYf']a`→\f`&&%]b`Y]bYf`GW'i `Y` ]b  
8ØggY`XcfZ'ghUhhZUbXž'ZØ\fhY`ni` ]b'hYbg]j Yb`8]g\_i gg]cbYb`ØVYf`X]Y  
G]W'Yf\Y]hga U» bU\`a`Yb` ]b`6]`Xi b[ gY]bf]W'hi b[ Yb"

F YU\_h]cbYb`j`cb`9`hYfb`i`bX  
9fn]Y\`i`b[ gVYfYW'h][ hYb

→F YU\_h]cb`Ui`Z'gc`WXY'J cfZÀ`Y`Ài` » Yfb`j ]Y`Y`9`hYfb`6Ygc f[ b]g  
ØVYf`X]Y`G]W'Yf\Y]h]\`fYf`?]bXYf"9`hYfb[ fYa ]Yb`i`bX`GW'i`Yb  
ghY\Yb`c`Zi`i`bhYf`8fi`W`ž`ni`g`Àhn`]W'Y`G]W'Yf\Y]hg]cf\_Y\fi`b[ Yb`ni  
hfY'ZYb"8Uni` [ Y\`ØfYb`i`bhYf`UbXYfYa`X]Y`→ghU`Uh]cb`j`cb  
, VYfk`UW'i`b[ g\_Ua`YfUg`i`bX`X]Y`8i`fW'ZØ\fi`b[ `j`cb  
G]W'Yf\Y]hgØVi`b[ Yb"8]Yg`\_ØbbhY`Ui`W' ]b`L`UbhYb`ni`f`8]g\_i`gg]cb  
\_ca`a`Ybž`bUW'XYa`XYf`9]bVfi`W' ]b`X]Y`?]bXYfhU[ YgghÀhY  
VY`\_Ubb`h`k`i`fXY"

GhUh]gh]gW'Y`8`UhYb`ni`f`?`f]a` ]bU`]hÀh`[ Y[ Yb  
6]`Xi`b[ gY]bf]W'hi`b[ Yb

@Ui`h`GhUh]gh]\_Yb`XYg`6i`bXYg\_f]a` ]bU`Ua`hYg`f6?`5Ł`g]bX  
6]`Xi`b[ gY]bf]W'hi`b[ Yb` ]b`8Yi`hgW'`UbX`\`Ài`Z][ `N]Y`j`cb  
9]bVfØW'Yb"→a`→\f`&&&k`i`fXYb`ØVYf`\*"\$\$\$: `À`Y`j`cb

9]bVfØWYb`j]b`GWi`Yb`i`bX`?`]hUg`fY[ `]ghf]Yfh"8 Ug`g]bX`fi`bX`nY`b  
DfcnYbh'a`Y`f`U`g`]a` `]c`f`U`f"8]YgY`NU`Yb`j`YfXYi`h]WYbž`XUgg  
9]bVfØWY`b`6]`Xi`b[ `gY]bf]W`hi`b[ `Yb`Y]b`Ub`U`hYbXYg`DfcV`Ya  
XUfghY`Yb"

8Yf`5bgh]Y[ `]j`cb`9]bVfØWYb`\_`Ubb`Ui`Zj`YfgW]YXYbY`:`U`\_`hcfYb  
ni`fØW\_[ `YZØ`fh`k`YfXYbž`XUfi`bhYf`5fa`i`hž`gcn]U`Y`i`b[ `Y]W`Y]hYb  
i`bX`]b`a`UbWYb`FY[ `]cbYb`Ui`W`Y]bY`Ø`YfY`?`f]a`]bU`h`h`hg`fU`hY"  
8]Yg`a`UW`h`X]Y`B`chk`YbX][ `]\_Y]h`VYggYfYf`GW`i`hna`U»`bU`a`Yb  
i`a`gc`Xf]b[ `]W`Yf"

Df`Aj`Ybh]cb`ga`U»`bU`a`Yb`ni`f`J`YfVYggYfi`b[ `X`Yf  
G]W`Yf`Y]h

- 9]bZØ`fi`b[ `]j`cb`5`Ufa`Ub`U[ `Yb`i`bX`G]W`Yf`Y]hg`\_`Ua`YfUg
- Ni`gUa`a`YbUfVY]h`a`]h`c`\_`U`Yb`Dc`]nY]VY`Ø`fXYb`ni`f`  
8i`fW`ZØ`fi`b[ `]j`cb`G]W`Yf`Y]hg`Ub`U`mgYb
- 5i`Z`\_`À`fi`b[ `i`bX`GW`i`i`b[ `]j`cb`A`]hUfVY]hYfb`]b  
G]W`Yf`Y]hg`ZfU[ `Yb
- Cf[ `Ub]g]Yfi`b[ `]j`cb`G]W`Yf`Y]hg!`K`cf`\_`g`cdg`ZØf`9`hYfb  
i`bX`?]bXYf

8i`fW`gc`W`Y`A`U»`bU`a`Yb`\_`Ø`bbhYb`9]bf]W`hi`b[ `Yb`k`]Y`X]Y  
?]bXYfhU[ `Yggh`h`hY`]b`L`Ub`hYb`k`Yb][ `Yf`Ub`Z`À`][ `ZØf`9]bVfØWY  
k`YfXYb"Ni`XYa`\_`À`hYb`X]Y`9`hYfb`i`bX`?]bXYf`Y]b`gh`À`\_`YfYg  
;`YZØ`X`Yf`G]W`Yf`Y]h"9g`]gh`k`]W`h][ `ž`XUgg`X]Y`;`Ya`Y]bgW`UZh  
ni`gUa`a`YbUfVY]hYhž`i`a`gc`W`Y`J`c`f`Z`À`Y`ni`j`Yf`]bXYfb`i`bX`XUg  
J`YfhfUi`Yb`]b`6]`Xi`b[ `gY]bf]W`hi`b[ `Yb`k`]YXYf`Yfni`ghY`Yb"

8YhU]`g

6Ygi`W`Yb`G]Y`i`bg`Ui`Z.`X]Y!`bUW`f]W`hYb"bYh