

# GdUhnYb`i bhYf`Y[ Yb` : cfhi bU`8ØggY`XcfZ. 6]hhYfY`< Y]a b]YXYf`U[ Y`a ]h`%.&

GGJ`I`a`j`Yf`Yfh`%.&[ Y[ Yb` : cfhi bU`8ØggY`XcfZ`hfchn  
: Ø\fi b[ "9bhÅi gW\YbXY`< Y]a b]YXYf`U[ Y`a` " "Gd]Y`XYf`&"  
6i bXYg`][ U"

⇒ `8cbUi ghUX]cb`U`h`XYf`GGJ`I`a`%, (\*` : i » VU`Y]bY`YfVY  
B]YXYf`U[ Y`Yf`]hhYbž`X]Y`ZØf`X]Y`↑ b[ Y`GU]gcb`]b`XYf`&"6i bXYg`][ U  
j cb`[ fc» Yf`6YXYi hi b[ `]gh"BUW`Y]bYf`j ]Y`j YfgdfYW\YbXYb`YfghYb  
<U`VnY]hi bX`Y]bYf` : Ø\fi b[ `j cb`%.\$`[ Y[ Yb` : cfhi bU`8ØggY`XcfZ  
YbXYhY`X]Y`DUfh]Y`a` ]h`Y]bYa`YbhhÅi gW\YbXYb`%.&`ZØf`X]Y`I`a` Yf`  
8]Y`A`UbbgW\UZh`j cb`HfU]bYf`H\ca` Ug`K`Öf`Y`nY][ hY`XUVY]`Y]b][ Y  
[ i hY`5bgÅhnYž`\_cbbhY`YXcW`Y`hnh]W\`b]W`h`Di`b`\_hYb"

⇒ `XYf`YfghYb`<`Ä`ZhY`\_cbbhYb`X]Y`I`a` Yf` : Ubg`j`Yf`A`UbbgW\UZh  
ni gW\Ui Ybž`X]Y`a` ]hj`j]Y`9`Ub`]b`X]Y`DUfh]Y`ghUfhYhY`"BUW`Y]bYa  
9]bk`i`fZ]`cb`?`Y`Yf`k`Uf`Yg`?`c`VYž`XYf`]b`XYb`YfghYb`A`]bi`hYb`Y]bYb  
YfghYb`GW`i`gg`j`Yfgi`W`hYž`XcW`XYf`8ØggY`XcfZYf`Hcfk`Ufh  
?`UghYba`Y]Yf`\_cbbhY`X]YgYb`UVk`Y`Yf`b`"GhY`Ybk`Y]gY  
XYa`cbghf]YfhYb`X]Y`I`a` Yf`Xi`fW`]`f`]b`hYbg]j`Yg` : Y[ YbdfYgg]b[ ž  
XUgg`g]Y`[ Yk`]`h`k`UfYbž`X]Y`Di`b`\_hY`]b`I`a``ni`VY`U`hYb`"G]Y`Y]Y» Yb  
XYb` : ÄghYb`\_Ui`a`F`Ui`a`ž`i`a`]`f`Gd]Y`ni`Yb`hZU`hYb`i`bX  
\_ca`V]b]YfhYb`[ i`h"

## GdUbbYbXY`K`YbXi`b[ Yb`]b`XYf`nk`Y]hYb < U`VnY]h

8 Ug`Hcf`ZØf`X]Y` : Ugh[ YVYf`Z]Y`VY]bU`Y`hfchn`XfØW`\_YbXYf  
8ØggY`XcfZYf` , VYf`Y[ Yb`Y]h`\_i`fn`j`cf`XYf`<U`VnY]hdUi`gY`"Ghfca`dZ  
k`i`fXY`]a`GYW`n`Y`bYf`[ YZci`hž`k`Ug`GW`]YXgf]W`hYf`K`Y]ggVUW  
\_Y]bY`UbXYfY`K`U`Y]Y» ž`U`g`Ui`ZXYb`9`Za`YhYfdi`b`\_h`ni`nY][ Yb"

<][`hfUh'Ub`i bX`j Yfk UbXY`hY`XYb`GhfUZghc»`i b`U`hVUf`ni a`%.\$  
ZØf`l`a`f( & £"8 Ug`gWk]Yb`X]Y`l`a`Yf`A UbbgWk UZh`ni`VYZØ[ Y`bž  
XcWk`X]Y`nk Y]hY`<`Å`ZhY`gd]Y`hY`g]Wk`[ Ub`n`UbXYfg`UV"

A ]h`K ]YXYfUbdZ]Z`\_Ua`'8ØggY`XcfZ`g]Wk`h]Wk`a`chj] ]YfhYf`Ui`g`XYf  
?UV]bY`i bX`XfØW`hY`a`Y`f`Ui`Zg`HYa`dc""9]bY`YfghY`[ i`hY`7`UbWk  
`]Y»`YXcWk`Ui`Z`g]Wk`k`UfhYb`'`]b`XYf`)`)"`A`]bi`hY`j`Yf[ UVYb`X]Y  
: cfhi`bYb`Yhk`Ug`[ `ØW`\_]Wk`"8YbbcWk`gWk]Yb`Ygž`U`g`cV`X]Y`l`a`Yf  
J`YfhY]X][ i`b[ `Yfgh`Y]ba`U`ghUV`]`gY]b`\_cbbhY`" `b`XYf`+\$`"A`]bi`hY  
k`i`fXY`Yg`XUbb`ZØf`X]Y`l`a`Yf`VfYbn`][ ž`U`g`?`Ui`g`a`]h`Y]b`Ya  
k`i`Wk]h][ Yb`GWk`i`ggž`XYf`Xi`fWk`Y]bYb`DZcghYbhfYZZYf`bcWk`]a`Gd]Y`  
V`]YVž`ZØf`5i`ZfY[ i`b[ `gcf[ hY"

8Yf`K`YbXYdi`b`\_h`\_Ua`'YXcWk`]b`XYb`YhnhYb`nY`b`A`]bi`hYb`XYf  
6Y[ Y[ bi`b[ ""Ni`b`ÅWk`gh`k`i`fXY`Y]b`ghf]hh][ Yf`<`UbXY`Za`YhYf`[ Y[ Yb  
X]Y`l`a`Yf`J`YfhY]X][ i`b[ `j`Yf`Åb[ hž`i`bX`æ`\_Yf`DY`W]bcj`]WfhU`h`Ubž  
i`a`XYb`GhfUZghc»`Ui`gni`ZØ`fYb`f[ %£"CVk`c`C`fhU[ `XYb  
DZcghYbgWk`i`gg`UVk`Y`fYb`\_cbbhYž`k`Uf`DY`W]bcj`]WgWk`bY`ni`f  
GhY`Y`i`bX`bYhnhY`XYb`5VdfU`Yf`ni`a`%`%`Y]b`8UfUi`Z`]b`Zc`[ hY`Y]b  
k`Y]hYfYf`GWk`cW`\_ZØf`X]Y`l`a`Yf.`Bi`f`Y]bY`A`]bi`hY`gd`ÅhYf`[ Y`Ub[  
GWk`a`]Xh`XUg`&.`%`ZØf`: cfhi`bU`Xi`fWk`Y]bY`ZUWk`Y`<`YfY]b[ UVYž`X]Y  
ni`a`YbhgWk`Y]XYbXYb`HfYZZYf`k`i`fXY`"Hfc`h`Y]b][ Yf`j`Yfgi`Wk`hYf  
FYU`\_h]cbYb`gY]hYbg`l`a`]b`XYf`GWk`i`ggd`UgY`V`]YV`Yg`VY]a  
V]hhYfYb`9bXghUbX"

8]Y`: Ub`g`XYg`GGJ`l`a`a`i`gghYb`XUa`]h`Y]ba`U`a`Y`f`a`]h`YYfYb  
<`ÅbXYb`XUg`GhUX]cb`j`Yf`UggYbž`i`bX`X]Y`A`UbbgWk`UZh`U`h`k`Y]hYf`]\b  
\_Y]bYb`Di`b`\_h`]b`X]YgYf`GU]gcb`Ui`ZXYa`'?`cbhc""6YgcbXYfg  
Åf[ Yf`]Wk`]gh`X]Y`HUhgUWk`Yž`XUgg`X]Y`l`a`Yf`hf`c`h`Y]bYf`gc`]XYb  
@Y]ghi`b[ `]b`XYf`YfghYb`<`U`V`nY]h`X]Y`[ fØ»`hY`7`UbWk`Ui`Z`Y]bYb  
Di`b`\_h[ Yk`]bb`b]Wk`h`bi`h`Yb`\_cbbhYb""5bghUhh`a`]h`Zf]gWk`Ya`K`]bX  
Ui`ZX]Y`b`ÅWk`ghYb`5i`Z[ UVYb`ni`ni`[ Y`Ybž`ghYW`\_Yb`X]Y`GdUhnYb`bi`bž  
bUWk`XfY]`Gd]Y`Yb`c`b`Y`n`Å`V`UfY`9fZc`[ Yž`]a`HUVY`Yb`\_Y`Yf`XYf`&"  
6i`bXYg`][ U`ZYgh"

Gdcfh`]Wk`Y`<`YfUi`gZcfXYfi`b[ Yb`ZØf`XYb`GGJ  
l`a`

8 Yf`Ubgh\YbXY`Gd]Y`hU[ `Ua ` \_ca a YbXYb`GcbbhU[ `k ]fX`Z0f`X]Y  
I `a Yf`U`Yg`YbhgW\Y]XYbXž`k Ybb`g]Y`XYb`G7`DUXYfVcfb  
Ya dZUb[ Yb"5bdZ]Z]gh`i a `%' .` \$`I `f"8]Y`A UbbgW\UZh`gh\`hi bhYf  
8fi W`\_i bX`VfUi W\h`Xf]b[ YbX`Di b`\_hYž`i a `g]W\`Ui g`XYf  
gW\k ]Yf][ Yb`G]hi Uh]cb`ni `VYžFY]Yb"8]Y`7\UbW`Ui Z`Y]bY`K YbXY  
]gh`XU` `a i gg`XYf`GGJ`bi b`nY][ Ybž`XUgg`g]Y`Ui g`XYb  
gW\ a Yfn\UZhYf`9fZ\`fi b[ Yb`YfbYb`i bX`\_0bZh][ `Y`UggYbYf`i bX  
YbhgW\`cggYbYf`Ui ZhYhYb`\_0bbYb"8]YgY`\_ca a YbXYb`HYghg  
k YfXYb`YbhgW\Y]XYbX`gY]bž`i a `XUg`J YfhfUi Yb`ni f0W`\_Ui Z`XYb  
D`Uhn`ni `Vf]b[ Yb`i bX`X]Y`V]g\Yf][ Y`GU]gcb`ni `fYhYb"

## 5`\_hi Y`Y`G]hi Uh]cb`XYf`&"`6i bXYg`][ U

8]Y`&"`6i bXYg`][ U]gh`VY`\_Ubbh`Z0f`]\fY`\c\Y  
K YhhVYk YfVgZ\][ [\_Y]hi bX`8mbUa ]\_`\_`b`X]YgYf`GU]gcbž`X]Y  
&\$&' #&\$&( `ja `5i [ i gh`VY[ Ubbž`\_Àa dZYb`%, `A UbbgW\UZhYb`i a  
XYb`5i Zgh]Y[ `]b`X]Y`6i bXYg`][ U`gck ]Y`i a `Y]bYb`D`Uhn]a `i bhYfYb  
A ]hhY`ZY`Xž`i a `XYb`5Vgh]Y[ `ni `j Yfa `Y]XYb"8]Y`@[ U`k Uf`]b`XYb  
`YhnhYb`\_X\`fYb`ghUf`\_]a `K UbXY`i bX`ghY`hY`Z0f`j ]Y`Y`HYUa gž  
Y]bgW\`Y»`]W\`XYg`GGJ`I `a `%, ( \*ž`Y]bY`<YfUi gZcfXYfi b[ `XUf"8]Y  
A UbbgW\UZhYbž`X]Y`g]W\`[ i hij Yfgh`Àf`\_h`\UVYbž`g]bX`cZi]b`XYf`@U[ Yž  
]b`XYf`HUVY`Y`Ui Zni ghY][ Ybž`k `À\`fYbX`UbXYfYž`k ]Y`X]Y`I `a Yfž`g]W\  
]b`Y]bYf`gW\k ]Yf][ Yb`@U[ Y`k ]YXYfZ]bXYb`\_0bbYb"

5`\_hi Y`Y`G]hUh]gh]\_Yb`nY][ Ybž`XUgg`X]Y`][ U`k Y]hYb`Ni gW\Ui YfnU\`Yb  
ghUV]`g]bX`i bX`XUg`\_`bhYfYggY`Ub`XYb`Gd]Y`Yb`k Y]hYf\]b`\cW\  
V`Y]Vh"8]Y`Z]bUbni]Y`Y`G]hi Uh]cb`j ]Y`Yf`7`i Vg`\Uh`g]W\`YXcW\`bUW\  
XYf`7CJ`-8!%-!DUbXYa ]Y`j Yf`ÀbXYfhž`k Ug`g]W\`Ui Z`X]Y`HfUbgZYfg  
i bX`XUg`Gd]Y`Vi X[ Yh`Ui gk ]f`\_h"8]Y`[ YgUa hY`@[ U]gh`gY\`f  
\_cb`i ffYbnZ\][ ž`i bX`\_Y]bghY`Y\`Yf`\_0bbYb`0VYf`G]Y[ `cXYf  
B]YXYf`U[ Y`YbhgW\Y]XYb"8]Y`I `a Yf`ghY\`Yb`gca ]hi bhYf`8fi W`ž  
]\fY`@]ghi b[ `ni `j YfVYggYfbž`i a `]b`XYf`HUVY`Y`b]W\`h`k Y]hYf  
UVni fi hgW\Yb"

8]Y`6YXYi hi b[ `XYf

GW\ ]YXgf]W\ hYfYbhgW\Y]Xi b[ Yb

9]b`k ]W\h][ Yf': U`hc fž`XYf`]b': i » VU``gd]Y`Yb`cZn`X]g\_i h]Yfh`k ]fXž  
g]bX`X]Y`9bhgW\Y]Xi b[ Yb`XYg`G\W]YXgf]W\hYfg" `a`Gd]Y``[ Y[ Yb  
: cfhi bU`8ØggY`XcfZ`gcf[ hY`X]Y`9bhgW\Y]Xi b[ ž`Y]bYb`GhfUZghc» `ZØf  
X]Y`8ØggY`XcfZYf`bUW\`Y]bYf`< UbXgd]Y`!8]g\_i gg]cb`ni`[ YVYbž`ZØf  
5i ZfY[ i b[ `i bhYf`XYb': Ubg" `G\W]YXgf]W\hYfYbhgW\Y]Xi b[ Yb  
\_ØbbYb`XYb`5i g[ Ub[ `Y]bYg`Gd]Y`g`ghUf`\_VYY]bZi ggYb`i bX`g]bX  
\Äi Z][ ; Y[ YbghUbX`j cb`?cbhfcj YfgYb" `#`X]YgYf`GU]gcb`\Uh`X]Y`&"  
6i bXYg`][ U`ni XYa`XUg`J 5F!GmghYa`fU]XYc!5gg]ghYbh`Y]b[ YZØ\fhž  
i a`ghf]hh][ Y`GnYbYb`[ YbUi Yf`ni`VYk YfhYb" `5`YfX]b[ g`]gh`X]Y  
Bi hni b[ `XYg`J 5F`b]W\h`ZfY]`j cb`?f]h]\_Ybž`XU`Ui W\`]\Yf  
9bhgW\Y]Xi b[ Yb`i a`ghf]hhYb`gY]b`\_ØbbYb"

9]bY`Ghi X]Y`XYg`8Yi hgW\Yb': i » VU``!6i bXYg`fB: 6E`\Uh`[ YnY][ hž  
XUgg`X]Y`5\_nYdhUn`XYg`J 5F`i bhYf`XYb': Ubg`i bhYfgW\]YX`]W`]gh"  
K Ä\fybX`Y]b][ Y`X]Y`HYW\b]\_`U`g`bchk YbX][ `YfUW\hYbž`i a`X]Y  
: U]fbYgg`]a`Gd]Y``ni`Yf\Ø\Ybž`[ ]Vh`Yg`Ui W\`j ]Y`Y': Ubgž`X]Y`XYb  
a YbgW\]W\Yb': Y\`Yf`]a`G\W]YXgf]W\hYfk YgYb`gW\ÄhnYb`i bX`XUZØf  
d`ÄX]YfYbž`ni fØW`\_ni`XYb`hfUX]h]cbY`Yb`Gd]Y`fY[ Y`b`ni`\_Y\fyb"  
8]Y`8]g\_i gg]cb`i a`XYb`9]bZi gg`XYg`J 5F`k ]fX`X]Y`\_ca`a YbXYb  
GU]gcb`k Y]hYf`VY[ `Y]hYbž`]bgVYgcbXYfY`k Ybb`Yg`i a  
YbhgW\Y]XYbXY`G]hi Uh]cbYb`k ]Y`9`Za`YhYf`i bX`D`Uhnj Yfk Y]gY`[ Y\`h"

8]Y`F c``Y`XYg`GGJ`I`a`%, (\*`]b`XYf  
: i » VU``\ ]ghcf]Y

8Yf`GGJ`I`a`%, (\*`\Uh`Y]bY`fY]W\Y'; YgW\]W\hY`]a`XYi hgW\Yb  
: i » VU``ž`X]Y`V]g`]bg`%-`" `š\`f\i bXYfh`ni fØW`\_fY]W\h" `8Yf`J YfY]b  
[ Ybcgg`]b`XYb`%-`-\$Yf`š\`fYb`gY]bY`YfZc`[ fY]W\ghYb`š\`fYž`U`g`Yf  
ZØf`a`Y\`fYfY`GU]gcbg`]b`XYf`6i bXYg`][ U`gd]Y`Yb`\_cbbhY" `8]Y  
`YhnhYb`š\`fY`j Yf`]YZYb`YXcW\`hi fVi`Ybh`a`]h`\Äi Z][ Ya`5i Z`i bX  
5Vgh]Y[ `nk ]gW\Yb`XYf`&" `6i bXYg`][ U`i bX`XYf`F Y[ ]cbU``[ Už`k Ug  
]\fY`XYfnY]h][ Y`G]hi Uh]cb`Yf`\_`Äfh"

<]ghcf]gW\`[ YgY\Yb`\Uh`hY`XYf`J YfY]b`Y]b][ Y`VYa`Yf`\_Ybgk YfhY  
Gd]Y`Yf`i bX`HfU]bYfž`X]Y`ni f`9bhk ]W`\_i b[ `XYg`: i » VU``g`]b`XYf  
F Y[ ]cb`VY][ YhfU[ Yb`\UVYb" `8]Y`< YfUi`gZcfXYfi b[ `ZØf`I`a`VYghY\`h  
XUf]bž`g]W\`k ]YXYf`U`g`ZYghYb`6YghUbXhY]`XYf`&" `6i bXYg`][ U`ni  
YhUV`]YfYb`i bX`a`Ø[ `]W\Yfk Y]gY`XYb`Gdfi b[ `ni fØW`\_]b`X]Y

9`hY\_`UggY`ni`gW\UZZYb"8]Y`@cmU`hÅhXYf': Ubg`i`bX`X]Y  
I`bhYfghØhni`b[`i`Xi`fW\`X]Y`c`\_U`Y'; Ya`Y]bgW\UZh`\_`ÒbbhYb  
YbhgW\Y]XYbX`gY]bž`i`a`i`]b`XYf`Ui`ZYbXYb`GU]gcb`YfZc`[`fY]W\`ni  
gY]b`i`bX`X]Y`Ub[`YghfYVhYb`Di`b`hY`i]b`XYb`\_ca`a`YbXYb`Gd]Y`Yb`ni  
gUa`a`Y`b"

8YhU]`g

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