

H\Y`7fmdhc`8U]`m` `A cj Yfg`UbX`G\U\_Yfg`  
&' "5i [ i gh`&\$&%

6]hWc]bž6H7`ni`l`G8ž`gh]Y[ `Ua`GcbbhU[ `i a`ž , i`"6]hWc]b`  
\_Y\fhY`Ua`GUa`ghU[ `Y]bYb`FØW\_[ Ub[ `j cb`%ž\$%a` `i a`i bX`  
VYYbXYhY`X]Y`K`cWY`a` ]hY]bYa`D`i`g`j`cb`(`ž++i` `Ui`Z`  
(-`&\*`\*`ž\$`l`G8`"B`UW`Y]bYa` `Ub`Y]bY`GdUbbY`[`YVi`bXYbYb`  
GhUfh]b`XYb`HU[ `gh]Y[ `6]hWc]b`Ui`ZY]b`gd`ÅhYg`A`cf[`Yb`cW`  
j`cb`(-`"(`\*`-`ž\$`l`G8`ž`VYj`cf`Yg`XYb`FØW\_k`Åfhg[`Ub[ `Y]bgW`i`[`"  
6]hWc]b`j`YfZY`\`hY`XUg`YfghY`[`fc»`Y`K` ]XYfghUbXgb]j`YUi`j`cb`  
(-`"\*`++`i`G8`i`bX`Z]Y`Ui`ZY]b`b`hfUXUm`H]YZ`Ua` `B`UW`a` ]hU[`  
j`cb`(`,`"\$`,\*`ž\$`l`G8`"6]hWc]b`Z]Y`Xi`fW`XUg`YfghY`[`fc»`Y`  
l`bhYfghØhni`b[`gb]j`YUi`VY](`\*`"%\$,`~`j`cf`Y]bYf`gd`ÅhYb`F`U`mY`  
Ui`ZY]b`b`hfUXUm`<`cW`VY](`-`"(`,`ž\$`~`"6]hWc]b`j`YfZY`\`hY`  
k`Y]hYf\]b`XUg`YfghY`[`fc»`Y`K` ]XYfghUbXgb]j`YUi`/`Ua`d`^Y`d`/`

6]hWc]bž6H7`ni`l`G8ž`gh]Y[ `Ua`GcbbhU[ `i a`ž , i`"6]hWc]b`\_Y\fhY`  
Ua`GUa`ghU[ `Y]bYb`FØW\_[ Ub[ `j cb`%ž\$%a` `i a`i bX`VYYbXYhY`X]Y`  
K`cWY`a` ]hY]bYa`D`i`g`j`cb`(`ž++i` `Ui`Z`(-`&\*`\*`ž\$`l`G8`"

B`UW`Y]bYa` `Ub`Y]bY`GdUbbY`[`YVi`bXYbYb`GhUfh]b`XYb`HU[ `gh]Y[`  
6]hWc]b`Ui`ZY]b`gd`ÅhYg`A`cf[`Yb`cW`j`cb`(-`"(`\*`-`ž\$`l`G8`ž`VYj`cf`Yg`  
XYb`FØW\_k`Åfhg[`Ub[ `Y]bgW`i`[`"

6]hWc]b`j`YfZY`\`hY`XUg`YfghY`[`fc»`Y`K` ]XYfghUbXgb]j`YUi`j`cb`(-`"\*`++`

I G8 i bX Z]Y`Ui ZY]b`bhfUXUm!H]YZ'Ua`B UW a ]hhU[ `j cb` ( , "\$, \*ž\$  
I G8"

6]hWc]b`Z]Y`Xi fW`XUg`YfghY`[ fc»Y`I bhYfghØhni b[ gb]j YUi`VY]  
( \*"%\$, `j cf`Y]bYf`gdÅhYb`F U`mY`Ui ZY]b`bhfUXUm!<c W`VY]  
( - "( , , ž\$` " "

6]hWc]b`j YfZY`hY`k Y]hYf`b`XUg`YfghY`[ fc»Y`K ]XYfghUbXgb]j YUi  
i bX`gW`k ÅW`hY`g]W`k ]YXYf`UVž`i a`XYb`HU[ `Ui Zi bhYf`(- "\$ \$  
I G8`ni`VYYbXYb"

8Yf`\_i fnZf]gh][ Y`5i Zk ÅfhghfYbX`V`YV`]bHU`hž`i bhYfghØhnh`Xi fW`X]Y  
Øb[ ghY`F ØW`\_Y`f`Ui ZY]b`B]j YUi`j cb`(- "\$\$\$`I G8`": Øf`X]Y`6ÅfYb  
VfÅi W`hY`6]hWc]b`Y]bYb`Ub`U`hYbXYb`F ØW`[ Ub[ `Xi fW`X]Y`\* &`i  
: =6`j cb`&+"&`+`ž`i a`Y]bYb`\_i fnZf]gh][ Yb`5V`k ÅfhghfYbX`ni`V`XYb"

## 8 Yf`F Ygh`XYg`DU`Yhg

6Y]`XYb`UbXYfYb`A U`c`fg`k Uf`Yg`Y]b`Xi fW`k UW`gYbYf`HU[ `Ua  
GcbbhU[ "

6]bUbW`7c]b`fl\$ž\$( i Łž`6]hWc]b`7Ug`GJ`fl\$ž) &i Łž`7fmdhc"Wc`a  
7c]b`fl\$ž%`i Łi bX`Dc`\_UXch`fl%ž( ) i Ł`gU`Yb`Ub`X]YgYa`HU[ `fch"

: Øf`XYb`F Ygh`XYf`A U`c`fg`k Uf`Yg`Y]b`Vi`gW`Yf`HU[ "

7UfXUbcg`585`Y[ hY`i a`%%ž%\$i`ni ž`i a`X]Y`: Ø\fi b[ `ni  
ØVYfbY`a`Yb"

7\U]b`b`\_fž`\$ž) %i Łž`9h`YfYi a`fž`\$ž( +i Łž`@]hYWc]b`fž`ž( , i Łi bX  
F]dd`Y`g`L`F`D`fž`\$ž- %i Ł`ZUbX`YVYbZU`g`i bhYfghØhni b[ "

: Øf`X]Y`K`cW`Y`V]g`&&<sup>bX</sup>`5i [ i gh`k Uf`Yg`Ui W`ZØf`X]Y`A U`c`fg`Y]bY  
Xi fW`k UW`gYbY`K`cW`Y"

7UfXUbcg`585`gdfUb[ `i a`&( ž`+i ž`i a`X]Y`: Ø\fi b[ `ni  
ØVYfbY`a`Ybž`k`cVY]`Dc`\_UXch`i a`%( ž\$`\*i`ni`Y[ hY"

6]bUbW'7c]b'fĹ , "" &i Ĺž'7\U]b`b\_`fĹ \$ž( +i Ĺi bX'7fmdhc"Wĉa  
7c]b'fĹ ' ž%- i Ĺ'gW\`cgg'g]W\`Ui W\`6]hWĉ]b`ja`[ fØbYb'6YfY]W\`Ub"

: Øf'X]Y'UbXYfYb'A Uĉfg'k Uf'Yg'YXcW\`Y]bY'fØW\_`Āi Z][ Y'K cW\`Y"

6]hWĉ]b'7Ug\`fl&ž\$\*`i Ĺž'9h\YfYi a`fl&ž%\$`i Ĺž`@]hYWĉ]b'fl\$ž\*)`i Ĺ  
i bX'F]dd`Y g`LFD`fl( ž ) i Ĺ'VYYbXYhY`X]Y'K cW\`Y]a`A ]bi g"

⇒ XYf'K cW\`Y]Z]Y`XYf'?fmdhc!; YgUa`ha Uf\_h`Ui ZY]b'A ]hĉk cW\`H]YZ  
j cb`%", ' &A fX"i G8žVYj cf'Yf'Ui ZY]b'GUa`ghU[ g\cW\`j cb`&"%&(A  
fX"i G8`gh]Y[ ""Ni a`iNY]hdi b\_h`XYg`GW`fY]VYbg`U[ `X]Y  
; YgUa`ha Uf\_h`Ud]hU`]g]Yfi b[ `VY]`&"\$, &A ]`]UfXYb`i G!8c`Uf"

8]Y'8ca`]bUbn`j cb'6]hWĉ]b`Z]Y`Ui ZY]b'8]YbghU[ !H]YZj cb`(' ž\* +i ž  
VYj cf'g]Y'Ui ZY]b'A ]hĉk cW\`!<cW\`j cb`() ž ) i`gh]Y[ ""Ni a  
NY]hdi b\_h`XYg`GW`fY]VYbg`U[ `X]Y'8ca`]bUbn`j cb'6]hWĉ]b`VY]  
( ( ž ) \* i "

## < Yi hY`A cf[ Yb

Ni a`iNY]hdi b\_h`XYg`GW`fY]VYbg`gh]Y[ `6]hWĉ]b`i a`\$ž\$-`i`Ui Z  
( - "" %\$ž\$`i G8""9]b`[ Ya`]gW`hYf`GhUfh]b`XYb`HU[ `ZØ\fhY`XUni ž`XUgg  
6]hWĉ]b`Ui ZY]b`H]YZUa`ZfØ\Yb`A cf[ Yb`j cb`(- "&( \* ž&`i G8`Z]Y`ž  
VYj cf'Yg`Ui ZY]b`<cW\`j cb`(- "( ' - ž-`i G8`gh]Y[ "

6]hWĉ]b`Y»`X]Y`k ]W\`h[ ghYb`i bhYfghØhni b[ g!`i bX  
K ]XYfghUbXgb]j YUi g`ZfØ\`nY]h[ `i b[ YhYghYh"

5b`UbXYfYf`GhY`Y`k Uf'Yg`Y]b`Vi`gW\`Yf`GhUfh]b`XYb`HU[ "

Ni a`iNY]hdi b\_h`XYg`GW`fY]VYbg`k Uf'7fmdhc"Wĉa`7c]b`k Uf`i a  
%ž`' i`[ Ygh]Y[ Ybž`i a`X]Y` : Ø\fi b[ `ni`ØVYfbY\`a`Yb"

: Øf`XYb`VYj c fghY\YbXYb`6]hWc]b!HU[

6]hWc]b`a ØgghY`XYb`D]j chj cb`(`, "- (+`~`j Yfa Y]XYbž`i a`XUg`YfghY  
[ fc»Y`K ]XYfghUbXgb]j YUi`VY]`(-", \$+`~`]bg`Gd]Y`ni`Vf]b[ Yb"

8Ua ]h`6]hWc]b`k ]YXYf`Ui ZY]b`B]j YUi`j cb`(-") \$\$`I G8  
Xi fWVfYWYb`\_Ubbž`k ÅFY`I bhYfghØhni b[ `j ca`VfY]hYfYb`A Uf\_h  
YfZcfXYf`]W"

5V[ YgY\Yb`j cb`Y]bYf`VfY]h`Ub[ Y`Y[ hYb`? fmdhc!F U`mY`k ØfXYb`XUg  
YfghY`[ fc»Y`K ]XYfghUbXgb]j YUi`i bX`XYf`K ]XYfghUbX`VY]) "\$\$\$  
I G!8c`Uf`k U\fgWY]b`]W`YXYb`5i Zk ÅfhghfYbX`VY[ fYbnYb"

⇒a : U`Y`Y]bYf`Ui g[ YXY\bhYb`? fmdhc!F U`mY`\_ØbbhY`6]hWc]b`XYb  
K ]XYfghUbX`VY]a`&`ž`ı : ⇒j cb`) \$(+`~`hYghYbž`VYj cf`Yg`ni  
Y]bYa`Di`VUW`\_ca`a h`8]Y`nk Y]hY`[ fc»Y`K ]XYfghUbXga Uf\_Y  
]Y[ h`VY]) \$" (-`I G!8c`Uf"

9]b: U`Xi fW`XYb`D]j chj cb`(`, "- (+`I G!8c`Uf`k ØfXY`XUg`YfghY  
[ fc»Y`I bhYfghØhni b[ gb]j YUi`VY]`(`, "( \$) `I G!8c`Uf`]bg`Gd]Y`  
Vf]b[ Yb"

5V[ YgY\Yb`j cb`Y]bYa`Äb[ YfYb`5i gj Yf`Ui Z`Ub`X]YgYa`HU[ `gc`hY  
6]hWc]b`g]W`j cb`i bhYf`(+ "\$\$\$`I G8`ZYfb`U`hYb" `8 Ug`nk Y]hY`[ fc»Y  
I bhYfghØhni b[ gb]j YUi`j cb`(+") () `I G!8c`Uf`gc`hY`X]Y  
5Vk ÅfhgVYk Y[ i b[ `VY[ fYbnYb"

8YhU]`g

6Ygi WYb`G]Y`i bg`Ui Z.`\_fmdhc!bYk`g"Uh