

< cdZYbYfbhY`]b`HYhnbUb [ . ; i hY`9fhfÅ[ Y  
hfc hn`k YW\ gY` \ UZhYa `K YhhYf

⇒`HYhnbUb [ `VY[ ]bbh`X]Y`<cdZYbYfbhY`a ]h`c`Yf  
9fbhYfYfk Ufhi b[ ""6Ui Yfb`fYW\ bYb`a ]h`ØVYf`), "\$\$\$`NYbhbYfb  
`Y]b`6]YfgW\ Uhn`ZØf`&\$&( °

8]Y`NY]h`XYf`<cdZYbYfbhY` \ Uh]b`XYf`fY[ ]cb`i`a`HYhnbUb[ žX]Y`]a  
6cXYbgYY`fY]g`]Y[ hž`VY[ cbbYb""8]Y`@UbXk ]fhY`]b`X]YgYf`; Y[ YbX  
ghUfhYb`]b`X]YgYf`K`cW\Y`a ]h`XYf`9fbhY`i`bX`nY][ Yb`g]W\  
ni`j`Yfg]W\h`]W\`VYnØ[ `]W\`XYf`9fhfÅ[ Y``Hfc`hn`XYg`i`bVYgh`ÅbX][ Yb  
K`YhhYfg`]b`XYb`Y`hnhYb`A`cbUhYb`fYW\ bYh`a`Ub`a ]h`Y]bYf`9fbhY`ž`X]Y  
]b`XYf`E`i`U`]h`Å`hi`bX`A`Yb[ Y`ØVYf`XYb`J`cf`U`fYgnU` \`Yb`]Y[ Yb`k`]fX"

8]Y`YfghYb`HfU`\_hc`fYb` \ UVYb`VYfY]hg`X]Y`<cdZYbZY`XYf`YffY]W\h"  
8]Yg`]gh`Y]bY`[ YgW\`ÅZh][ Y`NY]h`ZØf`X]Y`6Ui`Yfb`ž`X]Y`X]Y` \`cdg][ !  
[ fØbYb`DZUb`nYb`YfbhYb`""6YgcbXYfg`VYY]bXfi`W`YbX`]gh`X]Y  
j`cf`Å`i`Z][ Y`GW\`Å`ni`b[ ž`XUgg`ØVYf`), "\$\$\$`NYbhbYf`Ub`9fhfU[ `ni  
Yfk`UfhYb`g]bX""8]Yg`Yb`hgd]W\h`Y]bYf`GhY][ Yfi`b[ `j`cb`a`Y`f`U`g  
%\$"\$\$\$`NYbhbYfb`]a`J`Yf[ `Y]W\`ni`&\$&`ž`k`Ug`X]Y`c`\_`U`Y  
<cdZYbdfcXi`\_h]cb`ni`Y]bYa`k`]W\h][ Yb`K`]fhgW\`UZh`gZU`\_hc`f`]b`XYf`  
fY[ ]cb`a`UW\h"

## 6YgcbXYf\Y]hYb`XYg`HYhnbUb [ Yf`<cdZYbg

I`bhYf`XYb`<cdZYbgcfhYb`ž`X]Y`X]YgY`GU]gcb`[ YYfbhYh`k`YfXYb`ž`fU[ h  
XYf`HYhnbUb[ Yf`<cdZYb` \`YfUi`g""8]YgY`VYgcbXYfY`GcfhY`]gh`Y]bY  
XYf`YfghYb`ž`X]Y`[ YYfbhYh`k`]fX`ž`i`bX`]gh`Ui`ggW\`]Y»`]W\`]b`HYhnbUb[  
i`bX`i`a`[ YVi`b[ `VY`Y]a`UhYh""8Yf`HYhnbUb[ Yf`<cdZYb`[ ]`h`U`g`gY`f  
Ufca`Uh]gW\`i`bX`]gh`ZØf`j`]Y`Y`6fUi`Yf`i`bj`Yfn]W\h`VUf""5bXYfY  
GcfhYb`ž`XUfi`bhYf`X]Y`<cW\U`d`Ugc`fY`<Yf`\_i`Yg`ž`k`YfXYb`Yfgh`ni  
Y]bYa`gd`Å`hYfYb`NY]hdi`b`\_h[ YYfbhYh""Øf[ Yb`K`Y]g\Ui`dhž

; YgWÅZhgz\ fYf'XYg' < cdZYbdZUbnyfj YfVUbXYg'HYhnbUb[ ž'VYhcbh  
X]Y'K ]W h][ \_Y]h'XYf'GcbbY'ZØf'XYb'9fhfU[ 'i bX'X]Y'6]hhYfghcZZY.  
→XYf'GcbbYbhU[ 'ghY][ Yfh'XYb'; Y\U'h'Ub'XYb'ZØf'XUg'6]YfVfUi Yb  
k ]W h][ Yb'6]hhYfghcZZYb"

8]Y'[ i hYb'9fhfÅ[ Y'g]bX'ZØf'X]Y'FY[ ]cb'j cb'[ fc»Yf'6YXYi hi b[ ž'XU  
< cdZYb'b]W h'bi f'ZØf'X]Y'DfcXi \_h]cb'j cb'6]Yf'i bYf'Àgg']W 'jghž  
gcbXYfb'Ui W'XUg'k ]fhgW'UZh']W Y': i bXUa Ybh'ZØf'j ]Y'Y'c\_U'Y  
6Yhf]YVY'V]X'Yh"A ]h]bg[ YgUa h'%) ' < cdZYbVUi Yfb']b'XYf  
I a [ YVi b[ 'j cb'HYhnbUb[ 'V'Y]Vh'X]Y'FY[ ]cb'Y]b'VYXYi hYbXYf  
Gd]Y'Yf'Ui Z'XYa 'XYi hgW'Yb' < cdZYba Uf\_hž'XYf'ZØf'6]YfVfUi Yf']b  
U'Yf'K Y'hj cb' ðhYfYggY'jgh"

8]Y' < cdZYbYfbhY'ghY'h'Y]bYb'k ]W h][ Yb'HY]'XYg  
@UbXk ]fhgW'UZh'U\ fYg'XUf'i bX'VYY]bZi ggh'b]W h'bi f'X]Y  
9fnYi [ Yfž'gcbXYfb'Ui W'X]Y'6fUi YfY]Ybž'X]Y'Ui Z'c\_U'Y'DfcXi \_hY  
Ub[ Yk ]YgYb'g]bX'"9]b'YfZc'[ fY]W Yf'9fbhYj Yf'Ui Z'Vf]b[ h  
C dh]a ]ga i gž'b]W h'bi f'i bhYf'XYb'6Ui Yfbž'gcbXYfb'Ui W'VY]'XYb  
6]YfVfUi Yfbž'X]Y'X]Y'E i U]h'Ah'i bX'XYb'; YgW'a UW\_] \ fYf'DfcXi \_hY  
g]W Yfb'a ÒW hYb"

8]Y'GWÅhn\_ca a ]gg]cbž'X]Y'A ]hY'5i [ i gh'X]Y' < cdZYb[ ÅfhYb  
VYg]W h][ hYž'gWÅhnhY'XYb'9fhfU[ 'Ub\UbX'[ YbUi Yf  
6YcVUW h' b[ Ybž'X]Y'Ui Z'9fZU\ fi b[ gk YfhYb'i bX'U\_hi Y''Yb  
K YhhYfVYX]b[ i b[ Yb'VUg]YfYb'"8]Y' < cZbi b[ 'Ui Z'Y]bY'YfZc'[ fY]W Y  
9fbhY'gdY]gh'g]W 'Ui g'X]YgYb'9]bgWÅhni b[ Yb'i bX'XYb'dcg]h]j Yb  
9fZU\ fi b[ Yb'Ui g'XYb'Jcf'U\ fYb"

## 9fbhYnY]h'i bX'Ni \_i bZh

8]Y'9fbhYnY]h'VYXYi hYh'b]W h'bi f'\UfhY'5fVY]hž'gcbXYfb'Ui W  
JcfZfYi XY'Ui Z'X]Y'DfcXi \_hYž'X]Y'Ui g'XYa 'Zf]gW '[ YfYb'hYhYb  
< cdZYb'YbhghY\Yb'k YfXYb'"J ]Y'Y'XYf'@UbXk ]fhY'j b'XYf'FY[ ]cb  
V']W\_Yb'cdh]a ]gh]gW'j b'X]Y'Ni \_i bZhž'XU'g]W 'X]Y'BUW'ZFU[ Y'bUW  
ei U]hU]j '\cW'k Yfh][ Ya ' < cdZYb'bUW'k ]Y'j cf'ghUf\_'nY][ h'"8]Y  
9bhk ]W\_ i b[ 'XYf'6fUi \_i 'hi f']b'8Yi hgW'UbX'i bX'XUfØVYf'\]bUi g  
V]YhYh'XYb'6Ui YfYb'nU\ fY]W Y'A Ò[ ' ]W \_Y]hYb"

8]Y'<cdZYbVUi Yfb'j cb'HYhnbUb[ 'ghY\Yb'j cf'XYf  
<YfUi gZcfXYfi b[ ž]\fY'6Yhf]YVY'k Y]hYf'Ubni dUggYb'i bX'X]Y  
E i U']hÀh']\fYf'DfcXi \_hY'ghYhg'ni 'ghY][ Yfb'"5i W\X]Y'5bdUggi b[ 'Ub  
\_]a Uh]gW\Y'J YfÀbXYfi b[ Yb'i bX'bUW\U'h][ Y'5bVUi a Yh\cXYb  
k ]fX'j b'XYb'\_ca a YbXYb'ž\Yb'ja a Yf'k ]W'h][ Yf'"8]Y'FY[ ]cb'\Uh  
XYb'J cfhY]žXUgg'g]Y'Xi fW'HFUX]h]cbž'K ]ggYb'i bX'9fZ\fi b[ 'j b  
XYf'<cdZYbdfcXi \_h]cb'[ i h'Ui Z[ YghY''h]gh"

K ]Y'g]W\X]Y'9fbhY'i bX'X]Y'E i U']hÀh'XYg'HYhnbUb[ Yf'<cdZYbg'Ui Z  
X]Y'6]YfdfcXi \_h]cb'Ui gk ]f\_Yb'k YfXYbž'V'Y]Vh'UVni k UfhYb'"9]bg  
ghY\h'YXcW'ZYgh'8]Y'<cdZYbYfbhY'j b'HYhnbUb[ 'gh'b]W'h'bi f'Y]b  
'UbXk ]fhgW\UZh]W\Yg'9fY][ b]gž'gcbXYfb'Ui W\Y]b'\_i 'hi fY''Yg'i bX  
k ]fhgW\UZh]W\Yg'F U''mYž'XUg'5i gk ]f\_i b[ Yb'Ui Z'6]Yf'YV\UVYf'k Y]h  
ØVYf'X]Y'; fYbnYb'XYf'FY[ ]cb'\]bUi g'\Uh"

8]Y'6YXYi hi b[ 'XYg'HYhnbUb[ Yf'<cdZYbg'ZØf  
X]Y'6fUi \_i 'hi f

8Yf'HYhnbUb[ Yf'<cdZYb']gh'b]W'h'bi f'ZØf'X]Y'9fbhY'VYXYi hYbXž  
gcbXYfb'gd]Y'h'Ui W\Y]bY'nYbhfU'Y'F c''Y ]b'XYf'6]YfdfcXi \_h]cb"  
8]YgY'gdYn]Y''Y'<cdZYbgcfhY'k ]fX'j cf'U''Ya 'ZØf'X]Y'<YfghY''i b[  
j cb'@U[ Yf!'i bX'D]gV]YfYb'j Yfk YbXYh"; YgW\ a UW\_]W\ 'nY]W\ bYh  
g]W\XYf'HYhnbUb[ Yf'Xi fW'gY]bY'a ]'XYbž'V'i a ][ Yb'i bX''Y]W\ h  
k Øfn][ Yb'5fca Yb'Ui g'"9f'gh[ Àb[ ][ Yf'6YghUbXhY]'fYbca a ]YfhYf  
6]YfY'i bX'j Yf'Y]\h']\bYb'X]Y'W\UfU\_hYf]gh]gW\Y'BchYž'X]Y  
6]Yf'YV\UVYf'gW\ÀhnYb"

⇒XYb''YhnhYb'ž\Yb'\Uh'XYf'HFYbX'ni '7fUZh!6]YfYb'ni gÀhn']W\ 'ni f  
6Y']YVh\Y]h'XYg'HYhnbUb[ Yf'<cdZYbg'VY][ YhfU[ Yb'"6fUi Yf'gi W\Yb  
bUW\ fY[ ]cbU'Yb'Ni hUhYbž'i a ]\fYb'DfcXi \_hYb'Y]bY'VYgcbXYfY  
⇒Ybh]hÀh'ni 'j Yf'Y]\Yb'"8Yf'HYhnbUb[ Yf'<cdZYb'V]YhYh'XUZØf  
cdh]a U'Y'J cfUi ggYhni b[ Yb'i bX'k ]fX'ni bY\ a YbX'\cW\ [ YgW\Àhnh"

< YfUi gZcfXYfi b[ Yb'ZØf'X]Y'<cdZYbVUi Yfb

Hfchn'XYf'dcg]h]j Yb'9fbhYdfc[ bcgYb'ghY\Yb'X]Y'<cdZYbVUi Yfb'j cf  
j YfgW]YXYbYb'<YfUi gZcfXYfi b[ Yb'"J YfÀbXYfi b[ Yb'ja '?]a Už

k ]Y`YI hfYa Y`K YhhYfVYX]b[ i b[ Yb`i bX`i bj cf\YfgY\VUfY  
HYa dYfUhi fgWk Ub\_i b[ Ybž`\UVYb`]b`XYb`YhnhYb`š\Yb`9]bZi gg  
Ui ZX]Y`<cdZYbdfcXi \_h]cb`[ Y\UVh`b`X]YgYa`š\Yf`\_cbbhYb`X]Y  
@UbXk ]fhY`YXcW\`VY\Yfnh`cdh]a ]gh]gW\`V`Y]VYbž`XU`XUg`K YhhYf`]b  
XYf`YbhgWY]XYbXYb`K UW\ghi a gd\UgY`ØVYfk ]Y[ YbX`[ Øbgh][ `k Uf`

9VYbZU`g`]gh`XYf`Ni [ Ub[ `ni`K UggYffYggci fWb`Y]b`k ]W\h][ Yg  
H\Ya Uz`XU`XYf`<cdZYb`U`g`hmd]gWY`?i`hi fdZUbny`j ]Y`K UggYf  
VYbØh][ h`@UbXk ]fhY`a ØggYb`ni bY\`a YbX`]bbcj Uh]j Y  
6Yk ÀggYfi b[ gj YfZU\Yb`]a d`Ya Ybh]YfYbž`i a`a ]h`k YW\gY`bXYb  
K YhhYfVYX]b[ i b[ Yb`i a ni [ Y\Yb`"8Yf`9]bgUhn`j cb`bUW\`U`h][ Yb  
A Yh\cXYb`]gh`YbhgWY]XYbXž`i a`X]Y`E i U`]h`h`i bX`E i Ubh]h`h`XYf  
<cdZYbYfbhY`Ub[ Zf]gh][ `ni`g]WYfb`

## J cfVYfY]hi b[ Yb`Ui Z`]bhYfbUh]cbU`Y`A`Àf`\_hY

A ]h`XYf`ghY][ YbXYb`BUW\ZfU[ Y`bUW\`ei U`]hUh]j` \cWk Yfh][ Ya  
<cdZYb`Ui Z`]bhYfbUh]cbU`Yb`A`Àf`\_hYb`gY\Yb`X]Y`@UbXk ]fhY`]b`XYf  
FY[ ]cb`HYhbUb[ `Ui W\`bYi Y`7\UbWb`"8]Y`9fØZbi b[ Yb`]cb  
<UbXY`gUV`\_ca`a Yb`i bX`XYf`k UW\gYbXY`5VgUhn`j cb`6]cV]YfYb  
\_ØbbhYb`XUni`ZØ\Ybž`XUgg`a Y\`f`HYhbUb[ Yf`<cdZYb`Yi dcfh]Yfh  
k ]fX`"I a`g]W`Ui Z`]bhYfbUh]cbU`Yf`9VYbY`ni`VY\Ui dhYbž`UfVY]hYb  
X]Y`@UbXk ]fhY`Yb[ `a ]h`i: cfgW\i b[ gY]bf]W\hi b[ Yb`ni gUa`a Ybž`i a  
X]Y`E i U`]h`h`\YfY`DfcXi \_hY`k Y]hYf`ni`Yf\Ø\Yb`i bX`Ui ZX]Y  
5bZcfXYfi b[ Yb`XYg`A Uf`\_hYg`ni`fYU[ ]YfYb`

8]Y`9fbhY`]b`X]YgYa`š\Yf`\_ØbbhY`gca ]h`Ui W\`Y]b`Gdfi b[ VfYhh`ZØf  
\_ØbZh][ Y`5VgUhn`a Ø[ `]W\`\_Y]hYb`XUfghY`Ybž`]bgVYgcbXYfY`ZØf  
\_`Y]bYfY`6fUi YfY]Ybž`X]Y`Ui Z`fY[ ]cbU`Y`Ni hUhYb`i bX  
BUW\`U`h][ \_Y]h`gYhnYb`"J cf`U`Ya`XYf`6]c!<cdZYbgY`hcf`[ Yk ]bbh  
Ub`6YXYi hi b[ ž`XU`J YfVfUi W\Yf`ni bY\`a YbX`K Yfh`Ui Z  
i a k Y`hZfYi bX`]W\`dfcXi n]YfhY`@VYbga ]hhY`Y[ Yb`

6Ygi W\Yb`G]Y`i bg`Ui Z.`b!U[ "XY