

K Ygha YW\_`YbVi f[ . 'G]YVYb `Dfc ^Y\_hY `ZØf  
9b[ U[ Ya Ybh`VY`c\`bh' `DfY]g[ Y`XYf  
j Yf[ YVYb

G]YVYb`J YfY]bY`Ui g`K Ygha YW\_`YbVi f[ `k YfXYb`]a  
K YhVYk YfV`/ ei ch/a UWYb`&\$&(/ ei ch/ZØf`]\fY`Dfc`Y\_hY  
a ]h`DfY]g[ Y`XYfb`Ui g[ YnY]W`bYh"

⇒a `FU\`a Yb`XYg`K YhVYk YfVg` a UWYb`&\$&(`XYf`8Yi hgW`Yb  
Gh]Zi b[ `9b[ U[ Ya Ybhi`bX`9`fYbUa`h`k`i`fXYb`g]YVYb`Dfc`Y\_hY`Ui`g  
K Ygha YW\_`YbVi f[ `Ui`g[ YnY]W`bYh`"8]YgY`≠]h]Uh]j Y`\Uh`XUg`N]Y`ž  
XUg`9b[ U[ Ya Ybhi`bX`X]Y`≠bcj`Uh]cbg`fUZh]b`XYb`"ÀbX`]W`Yb  
FY[ ]cbYb`C`ghXYi`hgW`UbXg`ni`ZØfXYfb`"8]Y`DfY]gj`Yf`Y`\i`b[ `k`Uf  
Y]b`VYXYi`hYbXYf`A`ca`Ybh`ZØf`X]Y`VYhY]][`hYb`J`YfY]bY`ž`X]Y  
k ]W`h][`Y`6Y]hf`À[`Y`ni`f`;`Ya`Y]bg`W`UZh`Y]ghYb"

9]b`\YfUi`gfU[`YbXYg`Dfc`Y\_h`k`Uf`XYf`J`YfY]b`@]W`h`Ua``<cf]ncbh  
K ]ga`Uf`ž`XYf`a`]h`Y]bYa`DfY]g[`Y`X`j`cb`%\$`\$\$\$`9i`fc`]b`XYf  
?`UhY[`cf]Y`9b[`U[`Ya`Ybh`ZØf`X]Y`9f]bbYfi`b[`Ub`X]Y  
9ffi`b[`Ybg`W`UZhYb`XYf`Zf]YX`]W`Yb`FYj`c`i`h]cb`[`YY`\fh`k`i`fXY`"  
8]YgY`\c`\Y`5i`gnY]W`bi`b[`gd]Y[`Y`h`X]Y`6YXYi`hi`b[`XYg`J`YfY]bg  
k ]XYf`ž`XYf`g]W`]bhYbg]j`a`]h`XYf`;`YgW`]W`hY`i`bX`XYa  
J`Yfa`ÀW`hb]g`XYf`K`YbXYnY]h`Ui`gY]b`UbXYfgY`hnh"

J ]Y`ZÀ`h][`Y`Dfc`^Y\_hY`]b`K`Ygha`YW\_`YbVi`f[

B`YVYb`XYa`];`Yk`]bbYfj`YfY]b`Yf`\]Y`hYb`Ui`W`UbXYfY`^c`\_U`Y  
≠]h]Uh]j`Yb`Z]b`Ubn]Y`Y`i`bhYfghØmi`b[`"8Yf`J`YfY]b`5W]cbhci`fYb  
`YfbYb`"YVYb`]a`Y`\Ya`U][`Yb`;`i`hg\Ui`g`K`Y`n]b`k`]fX`a`]h)`"\$\$\$  
9i`fc`df`Àa`]Yfh`"8]YgYf`J`YfY]b`cf[`Ub]g]Yfh?]bXYfZYf]Yb`U[`Yf`ž`VY]  
XYbYb`X]Y`?`Y]bYb`U\_h]j`Ua`K`]YXYfUi`ZVUi`XYg`;`i`hg\Ui`gYg  
VYhY]][`h`g]bX";`Y]W`nY]h][`YfbYb`g]Y`X]Y`BUhi`f`\_YbbYb`i`bX

YfZU\ fYb`Xi fW` [ Ya Y]bgUa Y`5\_hj ]hÅhYb`j ]Y`ØVYf`HYUa UfVY]h  
i bX`9b[ U[ Ya Ybh`Gc`WXY`Dfc`Y\_hY`ZØfXYfb`b]W`h`bi f`XUg  
J YfUbhk cfhi b[ gVYk i gghgY]bž`gcbXYfb`Ui W`XYb`Ni gUa a Yb\U`h  
]bbYf\U`V`XYf` ; Ya Y]bgW`UZh"

ÿ`b`]W`YfZc` [ fY]W`k Uf`XYf`7Uf`!K ]`XY!J YfY]b`]b`GhYfbVYf[ ž`XYf  
YVYbZU`g` ) "\$\$\$`9i fc`Yf\]Y`h`5i W`X]Y` 8cfZVUbUi gYb`Ui g  
7Ua Vgž`XYf`J YfY]b` K ]ga Uf`\`Zh ž`XYf`GJ`D`UhY`gck ]Y`X]Y  
[ Ya Y]bbØhm][ Y`?i`hi fgY[ Y` ; a V<`]b` ; UXYVi gW`k i fXYb  
Ui gnY]W`bi b[ gk ØfX][ `VYZ`bXYb`i bX`Yf\]Y`hYb`Yk Y]g`&") \$\$  
9i fc`"8]YgY`≠]h]Uhj Yb`nY][ Ybž`k ]Y`VfY]hYg`9b[ U[ Ya Ybh`]b`XYf  
F Y[ ]cb`j YfUb`\_Yfh]gh`"9]b`DfY]g[ Y`X`Yfa`Ò[ `]W`h`X]YgYb`J YfY]bYbž  
\fY`Dfc`Y\_hY`ni`fYU`]g]YfYb`i bX`k Y]hYf`Ui gni VUi Yb"

## 9b[ U[ Ya Ybh`ZØf`X]Y` ; Ya Y]bgW`UZh

Ni gÅm`]W`k i fXY`XYf`?fY]g↑ [ YbXf]b[ `@ Xk ][ g`i gh]DUfW]a`ZØf  
X]Y`6]Xi b[ `Y]bYg`?fY]g↑ [ YbXfUhYg`d`fÅa`]Yfh`"8]YgY  
5i gnY]W`bi b[ `i bhYfghfY]W`h`X]Y`6YXYi hi b[ `XYf  
‡ [ YbXVYhY]`][ i b[ `]b`XYf`\_ca`a i bU`Yb` ; YghU`hi b[ `i bX  
9bhgW`Y]Xi b[ gZ]bXi b[ "8]Y` ; ØfXYfi b[ `↑ b[ Yf`A YbgW`Yb`]gh  
YbhgW`Y]XYbXž`i a`\_ØbZh][ Y` ; YbYfUh]cbYb`ZØf`gcn]U`Y`H\Ya Yb`ni  
gYbg]V`]g]YfYb`i bX`g]Y`]b`X]Y`J YfUbhk cfhi b[ `ni`bY\`a Yb"

≠g[ YgUa h`k i fXYb`VY]a` a UW`Yb`°&\$&( !K YhVYk YfV`a Y`f`U`g  
&\$`Dfc`Y\_hY`Ui g[ YnY]W`bYhž`X]Y`g]W`U\_hj]`ZØf`XUg` ; Ya Y]bk c\`  
]b`ÅbX`]W`Yb`F Y[ ]cbYb`Y]bgYhnYb`"8]YgY`J ]Y`ZU`h`Ub`Dfc`Y\_hYb  
nY][ h`b]W`h`bi f`XUg`9b[ U[ Ya Ybh`XYf`A YbgW`Yb`]cf`C fhž`gcbXYfb  
j YfXYi h`]W`h`Ui W`X]Y`\_fYUh]j Yb`5bgÅmY`ni f`@Øgi b[ `fY[ ]cbU`Yf  
<YfUi gZcfXYfi b[ Yb"

8]Y`DfY]gj Yf`Y]\i b[ `U`h`b]W`h`bi f`X]Y` ; Yk ]bbYfdfc`Y\_hY`]b`XYb  
J cfXYf[ fi bX`[ YfØW`hž`gcbXYfb`Ui W`X]Y`K ]W`h][ \_Y]h`XYg  
9\ fYbUa hg`i bX`XYf`c`\_U`j YfUb`\_YfhYb`≠]h]Uh]j Yb`Yfj cf[ Y\cVYb`  
≠`ÅbX`]W`Yb` ; YV]YhYb`k ]Y`K Ygha YW`\_YbVi f[ `g]bX`gc`W`Y  
9b[ U[ Ya Ybhg`j cb`i bgW`ÅmVUfYa`K Yfhž`XU`g]Y`XUni`VY]hfU[ Ybž  
XUg`gcn]U`Y` ; YZØ[ Y`ni`ghÅf`\_Yb`i bX`Y]bYb`U\_hj] Yb`5i ghUi gW`  
i bhYf`XYb`6Yk c\`bYfb`ni`ZØfXYfb"

9]b`6`]W\_]b`X]Y`Ni`\_i`bZh

8]Y`dUfh]W]dUbh]YfYbXYb`J`YfY]bY`i`bX`Dfc`Y`\_hY`nY][`Ybž`XUgg  
VØf[`YfgW`UZh`]W`Yg`9b[`U[`Ya`Ybhj`]Y`Z`h][`i`bX`]bbcj`Uhj`gY]b  
\_Ubb``8]YgY`5i`gnY]W`bi`b[`Yb`V]YhYb`Y]bYb`5bfY]nž  
k`Y]hYfni`a`UW`Yb`i`bX`VfY]hYfY`B`Yh`k`Yf`\_Y`ni`gW`UZZYbž`X]Y`bcW`  
a`Y`f`A`YbgW`Yb`]b`X]Y`;`Ya`Y]bgW`UZh]gUfVY]h`Y]bV]bXYb``8]Y  
A`]hY`ž`X]Y`Y`f`ni`f`J`YfZØ[`i`b[`]YghY``h`k`YfXYbž`g]bX`b]W`h`bi`f`  
Z]bUb]Y``Y`i`bhYfghØhni`b[`ž`gcbXYfb`Ui`W`Y]b`NY]W`Yb`XYf`  
K`YfhgW`Åhni`b[`ZØf`X]Y`UfhY`5fVY]h`i`bX`XUg`9b[`U[`Ya`Ybhž`XUg`  
j]Y`Y`A`YbgW`Yb`]b`]fY`<Y]a`Uh[`Ya`Y]bXYb`ghYW`Yb``

††9]b`[`Y[`YbgY]h][`Yf`5i`ghUi`gW`j`cb`XYYb`i`bX`i`bhYfghØhni`b[  
\_Ubb`YbhgW`Y]XYbX`XUni`VY]hfU[`Ybž`X]Y`@YVYbgei`U`]h`h]b  
`ÅbX`]W`Yb`FY[`]cbYb`bUW`U`h][`ni`j`YfVYggYfb`i`bX`gck`c``Y]bYb  
\_i`hi`fY``Yb`U`g`Ui`W`gcn]U`Yb`Ni`gUa`a`Yb`U`h`ni`YfnYi`[`Yb`††

8]Y`6YXYi`hi`b[`]XYg`K`YhhVYk`YfVg

a`UW`Yb`°`&`\$`&(`

8Yf`K`YhhVYk`YfV`a`UW`Yb`°`&`\$`&(`XYf`8Yi`hgW`Yb`Gh]Zhi`b[  
9b[`U[`Ya`Ybhi`bX`9`fYbUa`h]gh`Y]b`VYXYi`hYbXYg`Dfc`Y`hž`XUg`  
J`YfY]bY`i`bX`≠]h]Uhj`Yb`]b`ÅbX`]W`Yb`FY[`]cbYb`C`ghXYi`hgW`UbXg`  
i`bhYfghØhnh``N]Y``XYg`K`YhhVYk`YfVg`]gh`Ygž`XUg`VØf[`YfgW`UZh`]W`Y`  
9b[`U[`Ya`Ybhni`ZØfXYfb`i`bX`g]W`hVUf`ni`a`UW`Yb``8i`fW`X]Y`  
DfÅa`]Yfi`b[`]j`cb`YfUi`gfU[`YbXYb`Dfc`Y`\_hYb`k`]fX`b]W`h`bi`f`X]Y`  
[`Y`Y]ghYhY`5fVY]h[`]Yk`ØfX][`hž`gcbXYfb`Ui`W`Y]b`5bfY]n[`]YgW`UZZYbž`  
k`Y]hYfY`gcn]U`Y`i`bX`\_i`hi`fY``Y`≠]h]Uhj`Yb`ni`Ybhk`]W`Y`b``

≠g[`YgUa`h`k`i`fXYb`ØVYf`&`\$`\$`Dfc`Y`\_hY`Ui`g[`]YnY]W`bYhž`k`Ug`nY][`hž`  
k`]Y`ghUf`\_`XUg`9b[`U[`Ya`Ybh`]b`X]YgYb`FY[`]cbYb`]gh``8]Y`  
DfY]g[`]Y`XYf`X]YbYb`XUni`ž`XYb`Ui`g[`]YnY]W`bYhYb`J`YfY]bYb`i`bX`  
≠]h]Uhj`Yb`Y]bY`Z]bUb]Y``Y`;`fi`bX`U[`]Y`ZØf`X]Y`K`Y]hYfZØ`fi`b[`]fYf`  
5fVY]h`ni`V]YhYb``8]Yg`]gh`VYgcbXYfg`k`]W`h][`]b`ÅbX`]W`Yb`  
;`YV]YhYbž`k`c`c`Zi`X]Y`A`]hY``ZØf`gcn]U`Y`Dfc`Y`\_hY`VY[`]fYbnh`g]bX``

Gcn]U`Y`Dfc`Y`\_hY`]b`K`Ygha`YW`YbVi`f[

8]Y`Dfc`Y\_hYž`X]Y`ja`F`U\`a`Yb`XYg`K`YhhVYk`YfVg`Ui`g[`YnY]W`bYh`  
k`i`fXYbž`ghUa`a`Yb`Ui`g`j`YfgW`X]YXYbYb`6YfY]W`Yb`"8Yf`J`YfY]b`  
5W]cbhci`fYb`YfbYb`"YVYb`VY]gd]Y`gk`Y]gY`\_ca`V]b]Yfh`  
?]bXYfZYf]Yb`U[`Yf`a`]h`Y]bYa`k`]W`h][`Yb`gcn]U`Yb`6Y]hfU[`.XYb`  
K`]YXYfUi`ZVUi`Y]bYg`\]ghcf]gW`Yb`;`i`hg\Ui`gYg`"8]YgY`5fh]`cb`  
Dfc`Y\_hYb`gW`UZh`b]W`h`bi`f`Y]bYb`X]fY\_hYb`Bi`hnYb`ZØf`X]Y`  
;`Ya`Y]bgW`UZh`gcbXYfb`ZØfXYfh`Ui`W`XUg`6Yk`i`gghgY]b`XYf`?]bXYf`  
ZØf`XUg`\_i`hi`fY`Y`9fVY`i`bX`X]Y`J`YfUbhk`cfhi`b[`.Y[`YbØVYf`\`fYf`  
I`a`[`YVi`b[`"

8Yf`7Uf`!K`]`XY!J`YfY]b`]b`GhYfbVYf[`ž`XYf`YVYbZU`g`Ui`g[`YnY]W`bYh`  
k`i`fXYž`nY][`hž`k`]Y`j`]Y`ZÄ`h][`XUg`9b[`U[`Ya`Ybh]b`XYf`FY[`]cb`]gh`  
8]Y`8cfZVUbUi`gYb`]b`7Ua`Vg`i`bX`K`]ga`Uf`\`]Zh`g]bX`6Y]gd]Y`Y`  
ZØf`c`\_U`Y`b]h]Uhj`Ybž`X]Y`g]W`U`\_h]j`i`a`<`]ZgUb[`YVchY`\_Øa`a`Yfbž`  
gY]Yg`Xi`fW`gcn]U`Y`8]Ybgh`Y]hi`b[`Yb`cXYf`\_i`hi`fY`Y`  
J`YfUbgh`U`hi`b[`Yb`"8]YgY`J`]Y`ZU`h`XYf`Dfc`Y\_hY`nY][`hž`k`]Y`ghUf`\_XYf`  
;`Ya`Y]bgW`UZh`g[`YXUb`\_Y`i`bX`XYf`K`i`bgW`bUW`J`YfVYggYfi`b[`XYf`  
@YVYbgi`a`ghÄbXY`]b`K`Ygha`YW`\_YbVi`f[`]j`YfUb`\_Yfh`g]bX`"

### < YfUi`gZc`fXYfi`b[`Yb`ZØf`ÄbX`]W`Y`FY[`]cbYb`

Hfchn`XYf`dcg]h]j`Yb`9bhk`]W`\_i`b[`Yb`[`]Vh`Yg`nU`\`fY]W`Y`  
<YfUi`gZc`fXYfi`b[`Ybž`a`]h`XYbYb`ÄbX`]W`Y`FY[`]cbYb`\_cbZfcbh]Yfh`  
g]bX`"6Yj`Ø`\_Yfi`b[`gfØW`\_U[`ž`5Vk`UbXYfi`b[`XYf`ž`[`YbX`i`bX`Y]bY`  
U`hYfbXY`;`YgY`gW`UZh`ghY`Yb`X]Y`;`Ya`Y]bXYb`j`cf`DfcV`Ya`Y`]b`XYf`  
5i`ZfYW`hYf`\`U`hi`b[`]j`cb`bZfUghfi`\_hi`fi`bX`gcn]U`Yb`  
8]Ybgh`Y]ghi`b[`Yb`"

GhUh]gh]\_Yb`nY][`Ybž`XUgg`X]Y`ÄbX`]W`Yb`;`YV]YhY`]b`8Yi`hgW`UbX`  
k`Y]hYf\]b`a`]h`Y]bYa`g][`b]Z`\_UbhYb`FØW`\_U[`XYf`6Yj`Ø`\_Yfi`b[`  
\_Äa`dZYb`"@Ui`h`Y]bYf`Dfc[`bcgY`XYg`GhUh]gh]gW`Yb`6i`bXYgUa`hYg`  
k`]fX`V]g`&\$`\$`X]Y`6Yj`Ø`\_Yfi`b[`]b`j`]Y`Yb`ÄbX`]W`Yb`FY[`]cbYb`i`a`  
V]g`ni`&\$`i`g]b`\_Yb`\_Øb`bhYb`"8]Yg`a`UW`h`XUg`9b[`U[`Ya`Ybh]`cb`  
J`YfY]bYb`i`bX`b]h]Uhj`Yb`i`a`gc`k`]W`h][`Yfž`XU`g]Y`XUni`VY]hfU[`Ybž`  
gcn]U`Y`Ghfi`\_hi`fYb`Ui`ZfYW`hni`Yf`\`U`hYb`i`bX`X]Y`@YVYbgei`U`hÄh]`c`f`  
C`fhi`ni`j`YfVYggYfb`"

Ni`gUa`a`Yb[`YZUggh`k`]fX`Xi`fW`XYb`K`YhhVYk`YfV`a`UW`Yb`°&\$&(`

b]W h'bi f'XUg'VØf[ YfgW UZh']W Y'9b[ U[ Ya Ybh[ Yk ØfX][ hž'gcbXYfb  
Ui W'XYf'; fi bXghY]b'ZØf'Y]bY'bUW\U'h][ Y'9bhk ]W\_i b[ 'XYf  
; Ya Y]bgW UZhYb']b'K Ygha YW\_YbVi f[ '[ Y'Y[ h"8]Y  
Ui g[ YnY]W bYhYb'Dfc'Y\_hY'ghY''Yb'Y]b'NY]W Yb'XYf'<c Zbi b[ 'XUf  
i bX'VY'Y[ Ybž'XUgg'Ui W'']b'gWk ]Yf][ Yb'NY]hYb'XUg'A ]hY]bUbXYf  
i bX'X]Y'Gc`]XUf]hÅh'nk ]gW Yb'XYb'A YbgW Yb'Y]bYb'dcg]h]j Yb  
K UbXY''\YfVY]ZØ\ fYb'\_ØbbYb"

8YhU]`g

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