

Gcf[ YbZfY]Y`GWxi`Vi W\Ui g`Y]\Y. `GdYmYf  
a Y]ghYfh`c f[ Ub]gUhc f]gW\Y`< ØfXYb

8]Y`GWxi`Vi W\Ui g`Y]\Y`]b`GdYmYf`a Y]ghYfh`c [ ]gh]gW\Y  
<YfUi gZcfXYfi b[ Ybžk Å\fybX`?U]gYfg`Ui hYfb`&\$&'  
GW\k ]Yf][ \_Y]hYb`Yf`YVh"

⊕`GdYmYf`[ ]VhYg]b`X]YgYa`⋄\f`YfZfYi`]W\Y`B UW\ f]W\hYb`]a  
Ni gUa a Yb\Ub[ `a ]h`XYf`GWxi`Vi W\Ui g`Y]\Y``8]YgY`gY]h`⋄\fYb  
VYghY\YbXY`⊕gh]hi h]cb`\Uh]g]W\`U`g`ghÅbX][ Y`<YfUi gZcfXYfi b[ `]a  
cf[ Ub]gUhc f]gW\Yb`6YfY]W\`Yfk Y]gh`i bX`j YfifgUW\h`cZh  
?ca`d`\_]Uh]cbYb`]b`XYf`J YfhY`]i b[ `XYf`@\fa UhYf]U`]Yb``8cW\`]a  
; Y[ YbgUhn`ni`XYb`GW\k ]Yf][ \_Y]hYbž`X]Y`UbXYfY`GhÅXhY`k ]Y  
?U]gYfg`Ui hYfb`]a`⋄\f`&\$&` \UhYbž`gW\Y]bh`GdYmYf`X]YgYg`⋄\f  
Ui ZY]bYa`j Yf[ `Y]W\gk Y]gY`fi` \][ Yb`?i fg`ni`bUj ]][ YfYb"

8]Y`GWxi`Vi W\Ui g`Y]\Yž`X]Y`Yg`XYb`GW\Ø`Yf]bbYb`i bX`GW\Ø`Yfb  
Yfa`Ø[ `]W\hž`\_cghYb[ Øbgh][ `Ub`X]Y`bchk YbX][ Yb`@\fa ]hY`ni  
[ Y`Ub[ Ybž]gh]j`cb`nYbhfU`Yf`6YXYi hi b[ `ZØf`j ]Y`Y` : Ua` ]]Yb``: Øf  
j ]Y`Y`]gh`Yg`Y]bY`9f`Y]W\hYfi b[ ž`b]W\h`YXYg`⋄\f`bYi Y`GWxi`VØW\Yf  
\_Ui ZYb`ni`a`ØggYb``8cW\`X]YgYf`DfcnYgg`k ]fX`j`cb`XYb`6Y\ØfXYb  
cZh`U`g`c [ ]gh]gW\Y`<YfUi gZcfXYfi b[ `VYhfUW\hYh``8]Y`C f[ Ub]gUh]cb  
XYf`5i g`Y]\Y`]gh`\_Y]b`Y]bZUW\Yg`i bhYfZUb[ Yb`/Yg`YfZcfXYfh`dfÅn]gY  
D`Ubi b[ `i bX`j ]Y``?ccfX]bUh]cb"

@c [ ]gh]gW\Y`? ca`d`YI ]hÅh

8]Y`Xi fW\`X]Y`5i g`Y]\Y`YbhghUbXYbY`?ca`d`YI ]hÅh`gd]Y[ Y`h`g]W\`]b  
XYb`j YfgW\]YXYbYb`5gdY`\_hYb`XYf`J Yfk U`hi b[ `i bX`@c [ ]gh]\_`k ]XYf`  
8Uni` [ Y\Øfh`X]Y`fYW\hY]h][ Y`6YghY``i b[ `XYf`6ØW\Yfž`X]Y  
Ni k Y]gi b[ `Ub`X]Y`GWxi`Yb`i bX`X]Y`F ØW\_[ UVY`Ua`9bXY`XYg  
GWxi`U\fyg``C ZhYbhghY\Yb`VY]`X]YgYf`J ]Y`nU\`Ub`5V`Åi ZYb` : Y\`Yf

cXYf`A ]ggj Yfgh`AbXb]ggY"8]Y`GhUXhj Yfk U`hi b[ `j cb`GdYmYf`\Uh]b  
X]YgYa `đ\`f`YXcW`Df`Aj Ybh]j a U» bU\`a Yb`Yf[ f]ZYbž`X]Y`Yg  
Yfa Ò[ `]W`Ybž[ fÒ» YfY`DfcV`Ya Y`ni `j Yfa Y]XYb"

8 Ug`đ\`f`&\$&' `VfUW`hY`ZØf`j ]Y`Y`Gh`AXhY`[ fc» Y`< YfUi gZcfXYfi b[ Yb  
a ]h]g]W`ž]bgVYgcbXYfY`ZØf`? U]gYfg`Ui hYfbž`k c`X]Y  
GW`i `Vi W`Ui g`Y]\Y`UbgW`Y]bYbX`b]W`h`c`d`h]a U`i a [ YgYhnh`k i fXY`  
6Yf]W`hY`ØVYf`J Yfk ]ffi b[ Yb`i bX`J YfnÒ[ Yfi b[ Yb`gW`Y]bYb`Y]b  
YfghYg`@]W`h`Ui Z`X]Y`DfcV`Ya Y`ni `k YfZYbž`a ]h`XYbYb`Xcfh`X]Y  
GW`i `Yb`\_`Àa dZYb`a i gghYb" `a `J Yf[ `Y]W`XUni `k ]f`\_h`GdYmYf`ZUgh  
k ]Y`Y]b`J`c`fV]`X`]a `VYghYb`I a [ Ub[ `a ]h`XYb`bchk YbX][ Yb  
cf[ Ub]gUhc`f]gW`Yb`<ØfXYb"

9]b`k ]W`h][ Yg`9`Ya Ybh]b`XYf`GdYmYfYf`GhfUhY[ ]Y`]gh`X]Y`Yb[ Y  
Ni gUa a YbUfVY]h`nk ]gW`Yb`GW`i `Ybž`9`hYfb`i bX`XYf  
GhUXhj Yfk U`hi b[ "8]YgYg`BYhmk Yf`\_`ZØfXYfh`b]W`h`bi f`XYb  
`bZcf`a`Uh]cbgZi ggž`gcbXYfb`gcf[ h`Ui W`XUZØfž`XUgg`YXY`VYhY][ hY  
DUfhY]`ØVYf`]\fY`F`c`Y`]a `5i g`Y]\dfcnYgg]bZcf`a ]Yfh]gh`9]b  
hfUbgdUfYb`hYg`?ca a i b]\_Uh]cbggmghYa `a ]b]a ]Yfh  
I bgh]a a ][ \_Y]hYb`i bX`gYb`\_h`XYf`K U\fgW`Y]b`]W`\_Y]h]j cb  
DfcV`Ya Yb`Yf\`YV`]W`"

- : fØ`nY]h][ Y`D`Ubi b[ `XYf`6i W`VYghY``i b[ Yb
- ?ccfX]bUh]cb`nk ]gW`Yb`GhUXhi bX`GW`i `Y
- 9Z]n]YbhY`F`ØW`\_ [ UVYdfcnYggY
- HfUbgdUfYb`hY`?ca a i b]\_Uh]cb`a ]h`9`hYfb

## J cb`? U]gYfg`Ui hYfb`YfbYb

8]Y`9fZU\`fi b[ Yb`Ui g`? U]gYfg`Ui hYfb`X]YbYb`GdYmYf`U`g`k Yfh] c`Y  
@Y`\_h]cb" `A ]gg]W`Y`I a gh`AbXY`k ]Y`j Yfgd`AhYhY`6ØW`Yf`cXYf  
ZY\`YbXY`A UhYf]U`]Yb`\_`ØbbYb`j Yf\]bXYfh`k YfXYbž`k Ybb  
j YfUbhk`cfhi b[ gVYk i ggh`a ]h`XYb`<YfUi gZcfXYfi b[ Yb  
i a [ Y[ Ub[ Yb`k ]fX"8]Y`5i ZUfVY]hi b[ `XYf`DfcV`Ya Y`Xcfh`\_`ØbbhY  
Ui W`ZØf`UbXYfY`Gh`AXhY`Y]b`NY]W`Yb`gY]bž`YZZY`\_h]j Y`A U» bU\`a Yb  
ni f`J YfVYggYfi b[ `XYf`5i g`Y]\Y`ni `]a d`Ya Ybh]YfYb"

9]b`ni g`À`h`]W`Yg`\]bni ZØ[ Yb`a YX]n]b]gW`Yf`i bX`hYW`b]gW`Yf

<]Zga ]hhY`\_ÖbbhY`X]Y`GWXi`Vi`WUi`g`Y]\Y`Ui`W`]b`XYf`Ni`\_i`bZh  
fYj`c`i`h]cb]YfYb" ` ðbcj`Uh]j`Y`GcZhk`UfY`Ögi`b[`Yb`ni`f`J`Yfk`U`hi`b[  
i`bX`F`ØW\_j`YfZc`[`i`b[`XYf`Ui`g[`Y`Y\YbYb`6ØWYf`V]YhYb`Y]bY  
a`cXYfbY`5`hYfbUh]j`Y`ni`Y`f\_Öa`a`]WYb`DfcnYggYb" `8]Y  
[`fi`bX`Y[`YbXYb`<`YfUi`gZc`fXYfi`b[`Yb`YXcW`V`Y]VYb.`X]Y  
?ccfX]bUh]cb`nk`]gWYb`U`Yb`6YhY][`hYb`i`bX`X]Y`c[`]gh]gWY  
9ZZ]n]Ybn" `K`Ybb`GdYmYf`Ui`W`]b`Ni`\_i`bZh]Y]b`gc`fY]Vi`b[`g`c`gYg  
J`YfZU\`fYb`VYk`À`h][`hž`\_ÖbbhY`X]YgY`GhUXh`ni`a`A`i`ghYfVY]gd]Y`ZØf  
GWXi`Vi`WUi`g`Y]\Yb`k`YfXYb"

9g`]gh`ni`k`ØbgWYbž`XUgg`Ui`W`UbXYfY`?ca`a`i`bYb`Ui`g`XYf  
dcg]h]j`Yb`9fZU\`fi`b[`]b`GdYmYf`YfbYb`i`bX`X]Yg`ni`Y]bYf  
U`[`Ya`Y]bYb`J`YfVYggYfi`b[`]b`XYf`GWXi`Vi`WUi`g`Y]\Y`ZØ`fh" `8]Yg  
k`]fX`b]W`h`bi`f`XYb`Ua`]Y]b`ni`[`i`hY`\_ca`a`Ybž`gcbXYfb`Ui`W`X]Y  
F`Yggci`fW`bbi`hni`b[`Xi`fW`X]Y`GWXi`Yb`cdh]a`]YfYb"

8]Y`GWXi`Vi`WUi`g`Y]\Y`U`g`DfcnYgg`nY][`hž`XUgg`gY`Vgh`VYk`À`fhY  
GmghY`a`Y`gh`À`bX][`Yb`5bdUggi`b[`Yb`VYXØfZYbž`i`a`YZZY`\_h]j`ni  
V`Y]VYb" `8U\Yf`]gh`Y]b`gh`À`bX][`Yf`8]U`c[`nk`]gWYb`XYb`6YhY][`hYb  
ZØf`Y]bY`YfZc`[`fY]WY`I`a`gYhni`b[`i`bj`Yfn]W`hVUf"

<]bhYf[`fi`bX]bZcfa`Uh]cbYb`ni`f  
GWXi`Vi`WUi`g`Y]\Y

8]Y`GWXi`Vi`WUi`g`Y]\Y`]b`8Yi`hgW`UbX`]gh`Y]b`k`]W`h][`Yg  
ðghfi`a`Yb`h`ni`f`I`b`hYfghØ`hni`b[`j`cb`GW`Ø`Yfb`i`bX`Ua`]Y]b" `8]YgY  
ð]h]Uh]j`Y`Yfa`Ö[`]W`h`Yg`GW`Ø`Yfbž`X]Y`VYb`Øh][`hYb  
@Y\`fa`]hhY`\_cghYb`ni`fYXi`n]YfYbž`]bXYa`g]Y`X]Y`6ØWYf`]a  
F`U\`a`Yb`Y]bYg`5i`g`Y]\`gmghY`a`g`j`Yfk`YbXYb" `8]Y`XYY`]\`bhYf`XYf  
GWXi`Vi`WUi`g`Y]\Y`VUg]Yf`h`Ui`ZXYa`Df]bn]d`XYf  
7\`UbW`b[`Y]W\`Y]h`U`Y`GW`Ø`Yfž`i`bUV\`À`b[`][`j`cb`XYf`gcn]U`Yb  
<`Yf`\_i`bZh`XYf`Ua`]Y]ž`gc`hYb`Ni`[`Ub[`ni`ei`U`]hUh]j`c`W`k`Yf]h][`Yf  
6]Xi`b[`\`UVYb"

ð`j`]Y`Yb`6i`bXYg`À`bXYfb`k`]fX`X]Y`5i`g`Y]\Y`Xi`fW`X]Y`Yk`Y][`Yb  
GWXi`VY\`ØfXYb`cf[`Ub]g]Yf`hž`k`cXi`fW`Y]bY`J`Y`nU\`Ub`fYW`h`]WYb  
i`bX`c[`]gh]gWYb`fU[`Yb`Ui`Z`\_ca`a`Yb" `8]Y`J`YfUb`hk`cfh]W`\_Y]hYb  
g]bX`i`b`hYfgW`]YX`]W`[`YfY[`Y`hž`k`Ug`X]Y`C`f[`Ub]gUh]cb`XYf`5i`g`Y]\Y

]b`Y]b][ Yb`GhÅXhYb`\_ca d`n]YfhYf`a UW`h`<Åi Z][ `gd]Y`h`Ui W`X`Yf  
Z]bUbn]Y`Y`5gdY`\_hY]bY`YbhgW`Y]XYbXY`F c`Y/j ]Y`Y`?ca a i bYb  
UVYb`Ui Z[ fi bX`j cb`<Ui g`U`hgYb[ d`ÅggYb`G`W`k ]Yf][ \_Y]hYbž  
Ui gfY]W`YbX`A ]hY`Z`f`X]Y`6YfY]hghY`i b[ `i bX`5bgW`UZZ b[  
YfbYi YfVUfYf`@Y`fa ]hY`VYfY]hni ghY`Yb"

## 5\_hi Y`Y`GhUh]gh]\_Yb`ni f`G`W`i`Vi W`U`i`g`Y]\Y

@Ui h`Y]bYf`I a ZFU[ Y`X`Yg`GhUh]gh]gW`Yb`6i bXYgUa hg`bi hnYb`Yhk U  
( \$i`X`Yf`G`W`Ø`Yf`]b`8Yi hgW`UbX`XUg`5b[ YVch`X`Yf  
G`W`i`Vi W`U`i`g`Y]\Y" ð`a Y`f`Yf`Yb`6i bXYg`ÅbXYfbž`k ]Y  
VY]gd]Y`gk Y]gY`F`Y]b`UbX!DZU`nž`]gh`X]Y`HY]`bU`a Y`Ub`X`Yf`5i`g`Y]\Y  
]a`J`Yf[ `Y]W`ni`J`cf`U`f`Yb`[ Ygh]Y[ Yb`8]YgY`Ni bU`a Y`\_`Ubb`U`g  
F`Y`U`\_`h]cb`Ui`Z`X]Y`ghY][ YbXYb`?cghYb`Z`f`G`W`i`a`U`h`Yf]U`Y]b  
]bhYfd`f`Yh]Yfh`k`Yf`X`Ybž`X]Y`j`Y`Y`i`Ua`]Y]b`VY`UghYb"

Ni XYa`[ ]Vh`Yg`Ghi`X]Ybž`X]Y`nY][ Ybž`XUgg`Y]bY`f`Y`W`h`nY]h][ Y  
6YfY]hghY`i b[ `j`cb`G`W`i`V`Ø`W`Yfb`Ø`V`Yf`X]YgY`5i`g`Y]\`gmghY`a`Y`X]Y  
@YfbYf[ YVb]ggY`X`Yf`G`W`Ø`Yf`g][ b]Z`\_`Ub`h`d`c`g]h]j`Y`V`Y`Y]b`Z`i`ggYb  
\_`Ubb`"9]bY`I`bhYfgi`W`i`b[ `X`Yf`6Yf`h`Y`ga`Ubb`Gh]Zhi`b[ `U`h`Yf[ YVYbž  
XUgg`G`W`Ø`Yfž`X]Y`f`Y[ Y`a`Å»][ `Ni`[ `Ub[ `ni`X`Yb`V`Yb`Ø`h][ h`Yb  
A`U`h`Yf]U`]Yb`UVYbž`V`Y`gg`Y`f`Y`B`ch`Yb`]b`i`Å`W`Yfb`k`]Y`A`U`h`Y`a`U`h]\_`  
i`b`X`8Yi`hgW`Y`fn]Y`Yb`U`g`Y`b`Yž`X]Y`X`U`f`U`i`Z`j`Y`fn]W`h`Yb`a`Ø`ggYb"

## J`Y`f[ `Y]W`a`]h`Å`b`]W`Yb`G`m`g`h`Y`a`Y`b`]b UbXYfYb`@ÅbXYfb

⇒ ]bhYfbUh]cb`U`Yb`J`Yf[ `Y]W`nY][ h`g]W`ž`XUgg`j`]Y`Y`@ÅbXYf`Y]b  
Å`b`]W`Y`g`G`m`g`h`Y`a`ni`f`J`Y`f`V`Y`gg`Y`f`i`b[ `X`Y`g`Ni`[ `Ub[ `g`ni  
6]Xi`b[ gfYggci`f`W`b`]a`d`Ya`Ybh]Yfh`UVYb" ð`G`W`k`Y`X`Y`b  
VY]gd]Y`gk Y]gY`[ ]Vh`Yg`Y]b`ghUUh]W`Z]bUbn]YfhYg`Dfc[ fUa`a`ni`f  
6YfY]hghY`i b[ `j`cb`G`W`i`a`U`h`Yf]U`ž`X`U`g`U`g`J`c`f`V]`X`Z`f`j`]Y`Y  
Yi`f`c`d`Å]g`W`Y`G`h`U`h`Yb`X]Yb`h`8Yf`<Ui`d`hi`bhYfgW`]Y`X`i`Y[ h`Y`X`c`W`]b  
X`Y`f`i`]b`U`b`n]Y`f`i`b[ `K`Å`f`Y`b`X`X]Y`a`Y]ghYb`X`Y`i`hgW`Yb`G`h`Å`X`h`Y`Ui`Z  
`c`\_`U`Y`<Ui`g`U`h`ga`]hY`Ub[ Yk`]Y`g`Yb`g]b`X`ž`k`]f`X`]b`G`W`k`Y`X`Y`b`X]Y  
5i`g`V]Xi`b[ g`c`ghYb`k`Y]h[ Y`Y`b`X`Xi`f`W`n`Y`b`h`f`U`Y`gh`U`U`h]W`Y`i`cb`X`g  
[ Y`X`Y`W`\_`h"

9]b`k Y]hYfYf`VYa Yf\_Ybgk YfhYf`J Yf[ `Y]W`\_Ubb`a ]h`XYa `A cXY``]b  
: ]bb`UbX`Ub[ YghY``h`k YfXYb``8cfhg]bX`GW`i `a UHYf]U`]Yb`HY`]`XYg  
@Y`fd`Ubg`zi bX`X]Y`?cghYb`Z0f`@Yfba ]hhY`k YfXYb`j c`gh`AbX][ `j cb  
XYf`FY[ ]Yfi b[ `0VYfbca a Yb``8]YgYg`GmghYa `Z0`fh`ni `Y]bYf  
[ `Y]W`a `A»][ Yb`J YfhY`]i b[ `j cb`FYggci fW`b`i bX`fYXi n]Yfh`X]Y  
cf[ Ub]gUhc]gW`Yb`<YfUi gZcfXYfi b[ Yb`z`X]Y`VY`]`XYf`5i g`Y]\Y`]b  
8Yi hgW`UbX``Ai Z][ `Ui ZhfYhYb`

8]YgY`j YfgW`]YXYbYb`5bg`AmY`ni f`6YfY]hghY``i b[ `j cb`@Y`fa ]hhY`b  
k YfZYb`]bhYfYggUbhY`: fU[ Yb`Ui Z`\]bg]W`h`]W`XYf`:]bUbn]Yfi b[ `i bX  
Cf[ Ub]gUh]cb`XYf`gW`i`]gW`Yb`FYggci fW`b`]b`8Yi hgW`UbX`

8YhU]`g

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