

# 7 GI !5V [ YcfXbYhYf' ? cbfUX '6Ui f' \_f]h]g]Yfh 7G8!A chhc ' ]b 'HfUi bghY]b

7GI !Dc`h]\_Yf'? cbfUX '6Ui f' \_f]h]g]Yfh'XUg'A chhc 'XYg  
HfUi bghY]bYf'7G8 ž'YbhÀi gW h'ØVYf'X]Y'GdU`hi b[ ' ]b 'XYf  
7ca a i b]hm"

⊕ 'HfUi bghY]b'k ]fX'j cf'XYa 'X]Yg'À\ f][ Yb'7\ f]ghcd\Yf'GhfYYh'8Um  
f7G8 Ł'Ua ' &( "5i [ i gh'\ ]hn][ 'XYVUh]Yfh"8Yf'@UbXhU[ gUV[ YcfXbYhY  
XYf'7GI ž' ? cbfUX '6Ui f'ž'\Uh]g]W'j Y\Ya Ybh[ Y[ Yb'XUg'A chhc 'XYf  
JYfUbghU`hi b[ 'Ui g[ YgdfcWYbž'k Y'WYg`Ui hYh' A ]U'gUb'A ]U"A ]U  
gUb'ei YfYf"A ]U[ Y[ Yb'fYW'hg" '6Ui f'g]Y\h]b'X]YgYa 'A chhc 'Y]bY  
i bni `Àgg][ Y'dc`h]gWY'5i g[ fYbni b[ ž'X]Y'ZØf'Y]bY'JYfUbghU`hi b[ ž  
X]Y'Hc`YfUbn'i bX'J ]Y'ZU'h'dfcdU[ ]YfYb'a ØW'hYž'\_cbhfUdfcXi \_h]j  
gY]"

8Yf'7G8 ž'XYf' ]b'X]YgYa 'š\ f'VYfY]hg'ni a 'ZØbZhYb'A U` ]b  
HfUi bghY]b'ghUhhZ]bXYhž'gc`Y]b'NY]WYb'ZØf'5\_nYdhUbn'gYhnYbž  
XcW'6Ui f' \_f]h]g]Yfhž'XUgg'Xi fW'X]Y': cfa i`Y]fi b[ ' A ]U[ Y[ Yb  
fYW'hg 'b]W'h'bi f'Y]bY'dc`h]gWY'Dcg]h]cb'Y]b[ Ybca a Ybž'gcbXYfb  
Ui W'A YbgWYb'Ui g[ YgW'cggYb'k ØfXYbž'X]Y'b]W'h'XYbgY'VYb  
dc`h]gWYb'5bg]W'hYb'Zc`[ Yb" A ]h' A ]U[ Y[ Yb'fYW'hg'k ]fX  
]a d`n]Yfhž'XUgg'Yg[ Y[ Yb'U`Yg[ Y\hž'k Ug'b]W'h'XYf'Y][ YbYbž  
`b\_Yb'A Y]bi b[ 'Ybhgd]W'h ž'gc'6Ui f' ]b'gY]bYf'DfYggYa ]hY]`i b[ "  
GY]bYf'A Y]bi b[ 'bUW'gc`hY'XUg'7G8 'Y]b'D`Uhn'ZØf'U`Y'gY]bž  
i bUV\Àb[ ] [ j cb'XYfYb'dc`h]gWYb', VYfnYi [ i b[ Yb"

## ? f]h]\_ 'Ub 'XYf'GdU`hi b [

6Ui f'\YVh\Yfj cfž'XUgg'X]Y'gYI i Y`Y'Cf]Ybh]Yfi b[ '\_Y]bY'dc`h]gWY  
9]bghY`i b[ 'gY]" ⊕ 'gY]bYf'5f[ i a YbhUh]cb'ghY`h'Yf' ]b': fU[ Yž'cV  
VY]gd]Y`gk Y]gY'\_cbgYfj Uh]j Y'\ca cgYI i Y`Y'A YbgWYb'VY]a

HfUi bghY]bYf'7G8'ØVYf\Ui dh:U\_nYdh]Yfh'k ÅfYb"8]YgY'G]W\hk Y]gY  
k ]fX'j cb'A UI ]a ]]Ub'6Ø'hž'XYa' ] cfg]hnYbXYb'XYf'ž b[ Yb'; fi ddY  
]b'XYf'7GI !@UbXhU[ gZfU\_h]cbž'i bhYfghØhnh"6Ø'hž'XYf'gY'Vgh  
\ca cgYI i Y''i bX'j Yf\Y]fUhYh'jghž'Åi » Yfhž'XUgg'Yf'X]Y' ]XYc`c[ ]gW\  
a ch]j ]YfhY'GdU'hi b[ ]bbYf\U'V'XYf'7G8!6Yk Y[ i b[ ]\_f]h]gW\g]Y\h"  
9f'j Yfk Y]gh'XUfUi Zž'XUgg'X]Y'7GI 'VY]a' A ØbW\byf'7G8  
fci h]bYa Å» ][ 'Ui g[ YgW\`cggYb'k YfXYž'k Ug'Y]bYa' bY[ Uh]j Yb  
HfYbX'VYhfYZZYbX'ž \_i g]cb'j cb'j YfgW\]YXYbYb'dc`h]gW\Yb  
A Y]bi b[ Yb' ] c fgW\i V`Y]ghY"

9g'g]bX' ]a a Yf'X]Y' [ `Y]W\Yb'@Yi hYž'X]Y'VY]'8Ya cg'[ Y[ Yb'F YW\hg  
Ui Z]\fYb'D'U\_UhYb'ghY\Yb ž'VYa Yf\_h'6Ui fž'k Å\fybX'Yf'Ui Z  
UbXYfY'6Yk Y[ i b[ Yb'k ]Y': f]XUmg'Zcf': i hi fY'j Yfk Y]gh"8]YgY  
K ]YXYf\c'i b[ ž'gc'6Ui fž'ZØ\fh'XUni ž'XUgg'\_cbghfi \_h]j Yf'8]U`c[  
i bhYf'XYb'j YfgW\]YXYbYb'dc`h]gW\Yb'@U[ Yf'UVb]a a h'9f'k Ufbh  
XUj cfž'XUgg'X]Yg'ni `Y]bYf'GdU'hi b[ ]b'XYf'; YgY`gW\UZh'VY]hfU[ Yb  
\_ØbbhYž'X]Y'`YhnhYbX`]W\YI hfYa ]gh]gW\Y'5bg]W\hYb'ghÅf\_hYb"

; YZU\ fYb'Xi fW\`ei YYfZY]bX`]W\Y'GhfUZhUhYb

9]b'k Y]hYfYf'\_f]h]gW\Yf'Di b\_hž'XYb'6Ui f'Ubgd]f]W\hž' ]gh'X]Y  
Ni bU\ a Y'j cb'ei YYfZY]bX`]W\Yb'GhfUZhUhYbž'X]Y'g]W\ ]j cb'&\$&&'Ui Z  
&\$&'`a Y\ f'U'g'j YfXcddY'h'\UVYb"6Ui f'g]Y\h'\]Yf]b'Y]bYb  
U'Ufa ]YfYbXYb'HfYbX'i bX'\YVh'\Yfj cfž'XUgg'j ]Y`Y'X]YgYf'HUhYb  
j cb'DYfgcbYb'a ]h'A ][ fUh]cbg\]bhYf[ fi bX'Ui g[ Y\Yb"8Ua ]h  
fYW\by'Yf'VYb'gc'a ]h'Y]bYf' Ni k UbXYfi b[ ]j cb  
E i YYfZY]bX`]W\\_Y]h ž'X]Y'Xf]b[ YbX'dc`h]gW\`Ub[ Ygd'fcW\Yb'k YfXYb  
a ØggY"6Ui f'd`ÅX]Yfh'ZØf'Y]bY'\_UfYž'fYW\hg!cf]Ybh]YfhY  
Dcg]h]cb]Yfi b[ ] [ Y[ Yb'9I hfYa ]ga i g'i bX'g`Ua ]ga i gž'X]Y'gY]bYf  
A Y]bi b[ ]bUW\`VY]a'7G8': Y\`Ua' D'UhnY' ]gh"

8]Y'8]g\_i gg]cb'i a'XYb'7G8' ]b'HfUi bghY]b'nY][ hž'XUgg'; YbXYf!  
i bX'8]j Yfg]hÅhgh\Ya Yb'Ui W\ ]b'XYf'Dc`h]\_`Y]\_Y'i bX'dc`Uf]g]Yfh  
g]bX" ]cb'\_f]h]gW\Yb'Gh]a a Yb'V]g`\]b'ni' i bhYfghØhnhYbXYb  
A Y]bi b[ Yb' ]gh'XUg'GdY\_hfi a'k Y]h[ YZÅW\Yfh'i bX'[ ]Vh'5i ZgW\`i gg  
XUfØVYfž'k ]Y'i bhYfgW\]YX`]W\`X]Y'5bg]W\hYb'ØVYf'Hc`YfUbn'i bX  
5\_nYdhUbn' ]b'XYf'\Yi h][ Yb'; YgY`gW\UZh'g]bX"

8 ]Y`6YXYi hi b[ `XYg`7G8!A chhc g

8Yf`GhfY]hi a `XUg`7G8!A chhc`]b`HfUi bghY]b`a UW h`XYi h`]Wž`k ]Y  
k YgYb h`]W`GdfUWXY`i bX`Gma Vc`\_]`b`XYf`dc`]h]gWYb  
5i gY]bUbXYfgYhni b[ `g]bX" `9]b`A chhcž`XUg`i fgdfØb[ `]W`ZØf  
5\_nYdhUn`ghY`hž`\_Ubb`Ui W`ni `Y]bYa `dc`]h]gYfhYb`?Ua dZd`Uhn  
k YfXYbž`k Ybb`Yg`b]W`h`U`Y`Gh]a a Yb`i a ZUggh" `6Ui f`i bX`UbXYfY  
?f]h\_]Yf`Uf[ i a Ybh]YfYbž`XUgg`8]j Yfg]h`h`b]W`h`bi f`]b`XYf`gYI i Y`Yb  
Cf]Ybh]Yfi b[ ž`gc bXYfb`Ui W`]b`dc`]h]gWYb`A Y]bi b[ Yb`D`Uhn  
`UVYb`gc`hYž`i a `ZØf`Y]bYb`YW`hYb`8]U`c[ `ni`gc f[ Yb" `8]Y` : fU[ Y  
V`Y]Vhž`k ]Y`J YfUbghU`hi b[ Yb`k ]Y`XYf`7G8`]b`Ni `i bZ`ic f[ Ub]g]Yfh  
k YfXYb`\_ØbbYbž`i a `]b`\_i g]j`i bX`ni [ `Y]W`Ui g[ Yk c[ Yb`ni`gY]bž  
c`bY`UbXYfY` ; fi ddYb`Ui gni [ fYbnYb"

< ]ghc f]gWY`J Yf[ `Y]WY

8Yf`7`f]ghcd`Yf`GhfYYh`8Umif7G8E`U`h`gY]bYb`i fgdfi b[ `]b`XYb  
DfchYghYb`[ Y[ Yb`8]g\_f]a ]b]Yfi b[ `i bX` ; Yk U`h`[ Y[ YbØVYf`XYf  
@, `6HE Ž`! ; Ya Y]bgW`UZhž`X]Y`]b`XYb`%- \* \$Yf`X`fYb`k`À`fYbX`XYf  
GhcbYk U`!i bfi `Yb`]b`BYk`Mcf`\_7]hm`YI d`cX]YfhYb" `8]YgY  
9fY][ b]ggY`[ Y`hYb`U`g`K`YbXYdi b`\_h`ZØf`X]Y  
@, `6HE Ž`!F YW`hgVYk Y[ i b[ " `Y`b`]W`k ]Y`Yi hY`k i fXY`XUa U`g`X]Y  
I bni Zf]YXYb`Y]h`ØVYf`[ YgY`gW`UZh]W`Y`Bcfa Yb`i bX`dc`]h]gWY  
F YdfYgg]cb`Ui h`Ufh]\_i `]Yfh" `8]Y`GhcbYk U`!i bfi `Yb`i bX`X]Y  
`Yi h][ Yb`DfchYghY`hY]`Yb`XUg`5b`]Y[ Ybž`8]g\_f]a ]b]Yfi b[ `ni  
VY`\_Aa dZYbž`YXcW`g]bX`X]Y`gdYn]Z]gWYb`?cbhYI hY`i bX`X]Y  
dc`]h]gWYb`@UbXgW`UZhYb`i bhYfgW`]YX`]W"

K`À`fYbX`X]Y`XUa U`][ Yb`DfchYghY`]b`Y]bYa`?`]a U`XYf`k Y]h  
j YfVfY]hYhYb`?f]a ]bU`]g]Yfi b[ `i bX`Gh][ a Uh]g]Yfi b[ `j cb  
<ca cgYI i U]h`h`ghU`hZUbXYbž`fYdf`ÀgYbh]YfYb`a cXYfbY  
8Ya cbghfUh]cbYb`k ]Y`XYf`7G8`]b`HfUi bghY]b`Y]bY`5\_h]j ]h`hž`X]Y`]b  
j ]Y`Yb`k Ygh]W`Yb`@AbXYfb`Ui Z`Y]bY`i bhYfghØhni b[ `Xi fW`X]Y  
; YgY`gW`UZh`ghØ» h" <Yi h][ Y`GdUbbi b[ Yb`Yf[ YVYb`g]W`\_`Ai Z[  
Y`Yf`Ui g`dc`]h]gWYb`8]ZYfYbnYb`]bbYf`U`V`XYf  
@, `6HE Ž`! ; Ya Y]bgW`UZhž`k ]Y`X]Y`?f]h]\_`Ub`6Ui f`nY][ hž`U`g`Ui g  
ghfUZfYW`h]W`Yb`F YdfYggU`]Yb"

Dc`h]gW Yf`i bX`[ YgY`gW UZh`]W Yf

<]bhYf[ fi bX

8]Y`5i gY]bUbXYfgYhni b[ Yb`fi bX`i a`XYb`7G8`]b`HfUi bghY]b`g]bX  
b]W h`]gc`Yfhz`gcbXYfb`Y]b[ YVYhhYh`]b`Y]bYb`[ fO» YfYb  
[ YgY`gW UZh`]W Yb`8]g\_i fg`ØVYf`XYbh]h`hgdc`]h]\_`i bX`8]j Yfg]h`h"  
`8Yi hgW`UbX`[ ]Vh`Yg`]b`XYb`YhnhYb``U`fYb`Y]bY  
VYa Yf`Ybgk YfhY`Ni bU`a Y`Ub`8YVUhhYb`ØVYf  
; YgW`YW hYf[ YfYW h]`[\_Y]h`gYI i Y`Y`C f]Ybh]Yfi b[ `i bX`X]Y  
F Ydf`AgYbhUh]cb`j YfgW`]XYbYf`[ YgY`gW UZh`]W Yf`; fi ddYb"

8]Y`7GI ž`X]Y`Y]bYb`[ fc» Yb`HY]`XYf`VUmYf]gW Yb`Dc`]h]\_`Xca`]b]Yfhz  
g]Y`h`g]W`]bhYfb`i bX`YI hYfb`\_f]h]gW Yb`Gh]a`a Yb`[ Y[ YbØVYfz`X]Y  
Ui ZY]bY`ni bY`a YbXY`fU[ a Ybh]Yfi b[ `XYf`; YgY`gW UZh  
`]bk Y]gYb`" `Y]bYf`NY]h`z`]b`XYf`\_cbgYfj Uh]j Y`K YfhY`cZi`]a  
K ]XYfgdfi W`ni `dfc[ fYgg]j Yb`c: cfXYfi b[ Yb`ghY`Ybž`gd]Y`h`X]Y  
8]g\_i gg]cb`ØVYf`XYb`7G8`]Y]bY`nYbhY`U`Y`F`c`Y`"Dc`]h]gW Y`5`\_hYi fY  
k ]Y`6Ui f`i bX`6Ø`h`a Ub]ZYgh]YfYb`X]Y`GdUbbi b[ Yb`]bbYf`U`V`XYf  
Y][ YbYb`DUfhY]ž`k`A`fYbX`g]Y`[ `Y]W`nY]h][ `XYb`8]U`c[ `a`]h`XYf  
@, 6HE Ž`!; Ya Y]bgW UZh`igi W`Ybž`i a`Y]bY`VfY]hYfY`5`\_nYdhUb`n`ni  
ZØfXYfb`"

5`\_hi Y`Y`GhUh]gh]\_Yb`ni f

@, 6HE Ž`!; Ya Y]bgW UZh

8]Y`G]W Yf`Y]h`i bX`XUg`K c`VYZ]bXYb`XYf`@, 6HE Ž`!; Ya Y]bgW UZh  
]gh]U`\_hi Y`Y]b`Y]» `i a ghf]hhYbYg`H`Ya U`" @Ui h`XYf`Ghi X]Y  
@, 6HE Ž`]b`8Yi hgW`UbX`&\$&' ž`Xi fW [ YZØ`fhj cb`XYf  
5i Z`Àfi b[ g\_Ua dU[ bY` , GUm`h`@ci X ž`[ UVYb`fi bX`) \$i `XYf  
6YZfU[ hYb`Ubž`a ]bXYghYbg`Y]ba U`]b`]fYa`@YVYb  
8]g\_f]a ]b]Yfi b[ `Yf`YVh`ni `UVYb`"8UfØVYf`]bUi g`VYf]W hYhYb  
a Y`f`U`g`\*) i `XYf`@, 6HE Ž`!DYfgcbYb`XUfØVYfz`XUgg`g]Y`g]W`]b  
XYf`² ZZYbh]W`\_Y]h`Ui Z[ fi bX`]fYf`gYI i Y`Y`C f]Ybh]Yfi b[ `i bg]W Yf  
ZØ`hYb"

9]b`k Y]hYfYf`HY]`XYf`Ghi X]Y`nY][ hz`XUgg`ei YfZY]bX`]W Y  
GhfUZhYhYb`]a`U`f`&\$&' ]a`J Yf[ `Y]W`ni a`J cf`U`f`i a`" \$i

Ub[ Ygh]Y[ Yb'g]bX"8]YgY'GhUh]gh]\_Yb'j YfXYi h]WXYb'XYb  
Ub\U'hYbXYb'<UbX'i b[ gVYXUfZ']b'XYf"; YgY`gWUZh'ž DfcnYggY'XYf  
5\_nYdhUbn'i bX'ϕhY[ fUh]cb'j cfUbn' hfY]VYb"6Ui f'k Y]gh'i]b'gY]bYb  
Ÿi »Yfi b[ Yb'Ui Z'X]Y'dchYbn]Y`Yb'; YZU\ fYb'\]bž'X]Y'j cb  
8]g\_f]a ]b]Yfi b[ 'i bX'Gh][ a Uh]g]Yfi b[ ž'Ui W' ]bbYf\U'V'XYf'j cb  
]a '\_f]h]g]YfhYb'dc`h]gWXYb'; fi ddYbž'Ui g[ Y\Yb"9]bY  
i a ZUggYbXY'5bU'mgY'X]YgYf'8 UhYb'i bX'XYfYb'æ d`\_Uh]cbYb'k ]fX  
ni bY\ a YbX'YfZcfXYf'W'ž'i a 'Y]b'VYggYfYg'J YfghAbXb]g'ZØf'X]Y  
<YfUi gZcfXYfi b[ Yb'ni '[ Yk ]bbYbž'a ]h'XYbYb'X]Y  
@, 6HE Ž !; Ya Y]bgWUZh'\_cbZfcbh]Yfh]gh"

8YhU]`g

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