

K UggYfdfcV`Ya Y`]b`² h][ \Y]a .  
GhUXhk Yf\_Y`UfVY]hYb`Ub`gWλ bY`Yf`@Øgi b [

⊕`² h][ \Y]a`\_Ua`Yg`Ua`A ]hk cWλ a cf[ Yb`ni`[ fc» ZÀWλ ][ Yb  
GhØfi b[ Yb`XYf`K UggYfj Yfgcf[ i b[ /GhUXhk Yf\_Y`UfVY]hYb`Ub  
XYf`6Y\YVi b[ "

5a`A ]hk cWλ a cf[ Yb`ghY\h`X]Y`K UggYfj Yfgcf[ i b[ `]b`² h][ \Y]a  
j cf`Y]bYf`Yfbgh\ UZhYb`< YfUi`gZcfXYfi b[ "J ]Y`Y`5bk c\`bYf`gY\Yb  
g]Wλ`d`Øh`]Wλ`a`]h`XYa`DfcV`Ya`\_cbZfcbh]Yfhž`\_Y]b`K UggYf`a`Y\`f  
ni`UVYb`"8]YgY`[ fc» ZÀWλ ][ Y`GhØfi b[ `k ]fZh: fU[ Yb`Ui`Zi`bX`Vf]b[ h  
X]Y`GhUXhk Yf\_Y`?Uf`gfi` \Y`]b`5\_h]cb"

K Ug`[ YbUi`dUgg]Yfh`]ghž`V`Y]Vh]`cfYfghi`b`\_Uf`"Ni`XYb`[ YbUi`Yb  
l fgUWλ Yb`XYf`GhØfi b[ `g]bX`bcWλ`\_Y]bY`⊕Zcfa`Uh]cbYb  
j YfØZYb`h`]Wλ`h`k`cfXYb`"9g`]gh`YXcWλ`VY`\_Ubbhž`XUgg`X]Y  
GhUXhk Yf\_Y`?Uf`gfi` \Y`a`]h`<cWλ`Xfi`W`\_XUfUb`UfVY]hYb`ž`X]Y  
G]hi`Uh]cb`ni`VY\YVYb`i`bX`X]Y`K UggYfj Yfgcf[ i b[  
k ]YXYf\Yfni`ghY`Yb"

### 5 fVY]hYf`]a`'9]bgUhn

8]Y`GhUXhk Yf\_Y`?Uf`gfi` \Y`ž`X]Y`ZØf`X]Y`K UggYfj Yfgcf[ i b[ `]b`XYf  
FY[ ]cb`ni`gh`ÀbX][ `g]bX`ž`\UVYb`ØVYf`Y]bY`6UbXUbgu[ Y`]bZcfa`]Yfhž  
XUgg`g]Y`VYfY]hg`U`\_h]j`g]bX`ž`i`a`X]Y`GhØfi b[ `ni`UbU`mg]YfYb`i`bX`ni  
VY\YVYb`"8]YgY`d`fcU`\_h]j`Y`?ca`a`i`b[\_Uh]cb`]gh`k`]Wλ`h][`ž`i`a  
g]Wλ`Yfni`ghY`Yb`ž`XUgg`X]Y`6Yj`Ø`\_Yfi`b[ `]b`9Wλ`hY]h`ØVYf`X]Y  
9bhk`]W`\_i`b[ Yb`]bZcfa`]Yfh`k`]fX"

⇒ `A`ca`Yb`h`]gh`XUg`[ YbUi`Y`5i`ga`U`»XYf`GhØfi b[ `bcWλ`b]Wλ`h  
j`c`gh`ÀbX][`YfZUgg`"GWλ`Àmi`b[ Yb`ni`Zc`[ Y`g]bX`nU`\fY]Wλ`Y  
<Ui`g`U`hY`]b`X]ZYfYbn]YfhYb`6YfY]Wλ`Yb`j`cb`² h][ \Y]a`VYhfcZZYb"

8]YgY`G]hi Uh]cb`nk ]b[ h`b]W`h`bi f`X]Y`GhUXhk Yf\_Yž`gW`bY``ni  
\\UbXY`bž`gcbXYfb`Ui W`X]Y`VYhfcZZYbYb`5bk c`bYfž`g]W`a ]h  
9]bgW`f`Äb`\_i b[ Yb`]b`]\fYa`5``hU[ `Ui gY]bUbXYfni gYhnYb``8Yf  
Ni [ Ub[ `ni`K UggYf`ZØf`U``hÄ[ `]W`Y`6YXØfZb]ggY`]gh`YggYbh]Y``ž`i bX  
X]Y`d`Øh`]W`Y`i bhYfVfYW`i b[ `\_Ubb`i bUbbY`a `]W`\_Y]hYb`a ]h]g]W`  
Vf]b[ Yb`"

8]Y`GhUXhk Yf\_Y`g]bX`bi b`]b`Y]bYa`K Yh`Ui Z`[ Y[ Yb`X]Y`NY]hž`i a  
XUg`DfcV`Ya`gc`gW`bY``k ]Y`a`Ø[ `]W`ni ``ØgYb```b`gc`W`Yb  
G]hi Uh]cbYb`nY][ h]g]W`cZi`X]Y`6YXYi hi b[ `j`cb`[ i`h`cf[ Ub]g]YfhYb  
BchZU``d`ÄbYb`i bX`XYf`gW`bY``Yb`FYU`\_h]cbgZ`Ä`][ `\_Y]h]j`cb  
GhUXhk Yf\_Yb``Gc``hYb`g]W`k`Y]hYfY`bZcfa Uh]cbYb`Yf[ YVYbž`k ]fX  
X]Y`2`ZZYb`h]W`\_Y]hi a [ Y`YbX`]bZcfa ]Yfh`6]g`XU`]b`V`Y]Vh`X]Y  
5bgdUbbi b[ `gdØfVUfž`k`Ä`fYbX`X]Y`5fVY]hYf`i bYfa`ØX`]W`XUfUb  
UfVY]hYbž`X]Y`K UggYfj Yfgcf[ i b[ `bUW`2`h][ `Y]a`ni fØW`ni Vf]b[ Yb`"

9]bY`gc`W`Y`GhØfi b[ `]gh`b]W`h`bi f`Y]b``c[ ]gh]gW`Yg`DfcV`Ya`ž  
gcbXYfb`Ui W`Y]b`HYgh`XYf`7ca`a`i`b]hm`FYg]`]Ybn`K ]Y`[ i`h`X]Y  
5bk c`bYf`a ]h`XYb`<YfUi gZcfXYfi b[ Yb`i`a [ Y`Ybž`\_ØbbhY  
k`YgYbh]W`XUj`cb`UV`Äb[ Ybž`k ]Y`gW`bY``X]Y`GhUXhk Yf\_Y`X]Y  
G]hi Uh]cb`i bhYf`?cbhfc``Y`VY`\_ca`a`Yb``8]Yg`[ YgW`]Y`h`i]b`XYf  
<cZbi b[ ž`XUgg`X]Y`K UggYfj Yfgcf[ i b[ `VU`X`k ]YXYf`ghUV]`]gh`i bX  
g]W`X]Y`@YVYbgei`U]h`Äh`XYf`6Yk`c`bYf`b]W`h`k`YgYbh]W`  
j`YfgW`Y`W`hYfh`"

8]Y`b`ÄW`ghYb`Ghi bXYb`\_ØbbhYb`YbhgW`Y]XYbX`gY]bž`i`a  
ZYghni ghY``Ybž`k ]Y`gW`bY``X]Y`i fgUW`Yb`]XYbh]Z]n]Yfh`i bX`VY`c`VYb  
k`YfXYb`\_ØbbYb``8]Y`GhUXhk Yf\_Y`?Uf`gfi`Y`ghY`Yb`i bhYf`8fi`W`ž  
]\fY`9ZZY`\_h]j ]h`Äh`i bhYf`6Yk`Y]g`ni`ghY``Ybž`k`Ä`fYbX`g]Y`[ `Y]W`nY]h][  
g]W`YfghY``Yb`a`ØggYbž`XUgg`X]Y`?ca`a`i`b]\_Uh]cb`a ]h`XYb  
5bk c`bYfb`hfUbgdUfYbh`i bX`j`YfUbhk`cfhi b[ gj`c``V`Y]Vh`"

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