

B Yi 'fY [ ]ghf]Yfh. 'Gc 'U\_h]j ]YfYb 'G]Y '≠ f  
6 Ybi hnYf\_c b hc 'gW\ bY ``'i bX 'Y ]b ZUW\

9fZU\ fYb 'G]Yž'k ]Y '8 Ybb]g'GfVYbm]b 'XYf'GU]gcb 'Y]bY  
VYY]bXfi W\_YbXY 'HfYZZYfei chY 'j cb '\* 'HcfYb 'ZØf'XYb 'G7  
DUXYfVc fb 'Yfn]Y 'hY"

8]Y 'Ui ZfY [ YbXY 'Gh]a a i b [ 'fi bX 'i a 'XYb 'G7 'DUXYfVc fb ]gh]b  
'YhnhYf'NY]h'Xi fW\ 'X]Y 'VYY]bXfi W\_YbXYb '@Y]ghi b [ Yb 'j cb '8 Ybb]g  
GfVYbm]ghUf\_ 'Ub [ Ygh]Y [ Yb "'8 Yf'hU'Ybh]YfhY 'GhØfa Yf '\Uh]b 'XYf  
j Yf [ Ub [ YbYb 'GU]gcb 'b]W\ h'bi f'VYk ]YgYbž'XUgg 'Yf'Y]b  
i bj Yfn]W\ hVUfYf'6 YghUbXhY] 'XYg'HYUa g ]ghž'gcbXYfb 'Ui W\ ž'XUgg  
Yf'XUg'DchYbn]U '\Uhž'ni 'Y]bYa 'XYf'VYghYb 'Gd]Y'Yf'XYf '@ [ U'ni  
k YfXYb"

GfVYbmž'XYf'VYfY]hg'U'g'Y]bYf'XYf'j ]Y'j Yfgd fYW\ YbXghYb 'Gd]Y'Yf  
[ ]hž'Yfn]Y 'hY ]b 'X]YgYf'GU]gcb ]bg [ YgUa h '\* 'HcfY 'ZØf'XYb 'J YfY]b"  
8]Yg ]gh'Y]bY 'VYa Yf\_Ybgk YfhY '@Y]ghi b [ ž'X]Y 'gck c '\X]Y : Ubg'U'g  
Ui W\ 'X]Y 'J YfY]bgZØ\ fi b [ 'ni 'gW\ ÀhYb'k ]ggYb "'GY]bY 'HcfY '\UVYb  
YbhgW\ Y]XYbX'XUni 'VY][ YhfU [ Ybž'XUgg'DUXYfVc fb ]b 'XYf'HUVY ``Y  
bUW\ 'cVYb '\_YhYfb '\_cbbhY "'8]YgY '9bhk ]W\_ 'i b [ '\YVh'b]W\ h'bi f  
gY]bYb 'Fi Z'U'g'Gd]Y'Yfž'gcbXYfb'ghfU\ 'h'Ui W\ 'Ui Z'XUg '[ YgUa hY  
HYUa 'Ui g"

## 8 Yf '5i Zgh]Y [ 'XYg 'G7 'DUXYfVc fb

9]b '6 ]W\_ 'Ui ZX]Y 'U\_hi Y ``Y 'HUVY ``Y 'nY][ hž'XUgg'XYf'G7 'DUXYfVc fb  
g]W\ ]b 'Y]bYf'gc` ]XYb 'Dcg]h]cb 'VYZ]bXYh "'9g ]gh'VYa Yf\_Ybgk Yfh'ni  
gY\Ybž'k ]Y 'XYf'J YfY]b 'a ]h'hU'Ybh]YfhYb 'Gd]Y'Yfb'k ]Y 'GfVYbm  
i a [ Y\h' '≠gVYgcbXYfYž'k ]Y 'X]Y '≠hY [ fUh]cb '† b [ Yf'Gd]Y'Yf' ]b 'X]Y  
A UbbgW\ UZh'XYb 'Gd]Y'gh]'i bX'X]Y '8 mbUa ]\_ 'XYg'HYUa g'dcg]h]j  
VYY]bZi ggh '\Uhž' ]gh'Y]bY'g [ b]Z\_ UbhY '9bhk ]W\_ 'i b [ "'8]Y 'Bi hni b [

↑ b[ Yf`HU`YbhY`Yfa` Ò[ `]W`h`Yg`XYa` `J`YfY]bž`ZYI` ]VY`i` bX  
UbdUggi` b[ gZ`À\`][ `]a` `Ui` ZYbXYb`K` YhhVYk` YfV`ni` `gY]b"

8]Y`I` bhYfghØhni` b[ `XYf`i` Ub[ Ya` Y]bXY`gd]Y`h`YVYbZU`g`Y]bY  
k` ]W`h][ Y`F`c`Y`]b`X]YgYa` `9fZc`[ " `6Y]`YXYa` `<Y]a` gd]Y`k` ]fX`XYf  
A`UbbgW`UZh`Y]bY`Ybh`i` g]Ugh]gW`Y`5ha` cgd`ÀfY`[ YVchYbž`X]Y`g]Y`ni  
<ÒW`ghY]ghi` b[ Yb`UbhfY]Vh`8]Y`J`YfV]bXi` b[ `nk` ]gW`Yb`Gd]Y`Yfb  
i`bX`i` Ubg`]gh`gdØfVUfž`i` bX`YXYf`HcfYfZc`[ `j`cb`8Ybb]g`GfVYbm  
k` ]fX`a` ]h`[ fc»Ya` `š`VY`[ YZY]Yfh`8]YgY`I` bhYfghØhni` b[ `]gh`Y]b  
YbhgW`Y]XYbXYf`A`ch]j` Uhcfž`XYf`b]W`h`bi`f`GfVYbmž`gcbXYfb`XYa  
[ YgUa` hYb`HYUa` `ni` `;` i`hY`\_ca` a`h`

## 8]Y`6YXYi`hi` b[ `XYf`HcfY`ZØf`XUg`HYUa

8]Y`%\*`HcfY`j`cb`8Ybb]g`GfVYbm]g]bX`b]W`h`bi`f`NU`Yb`Ui`ZY]bYa  
6`Uhh`DUd]Yf`/g]Y`g]bX`5i`gXfi`W`\_gY]bYf`i`À`][`\_Y]hYb`i`bX`gY]bYg  
9b[ U[ Ya`Ybhg`GhØfa`Yf`g]bX`c`Zi`X]Y`<Y`XYb`Ui`Z`XYa` `D`Uhnž`i`bX  
ZØf`GfVYbm`k`Uf`Yg`k` ]W`h][ ž`X]YgY`J`YfUbhk`cfhi` b[ `ni` `hfU[ Yb`" `>XYg  
Hcf`U`h`b]W`h`bi`f`XYb`Di`b`\_hY!GhUbX`VYY]bZi`gghž`gcbXYfb`Ui`W`  
XUg`GY`Vgh]Yf`hfUi`Yb`XYg`HYUa`g`[ Ygh`Àf`\_h`K`Ybb`Y]b`Gd]Y`Yf  
fY[ Y`a`À`][ `hf]Zhž`k` ]f`\_h]g]W`X`Ug`dcg]h]j` `Ui`Z`XUg`[ YgUa`hY  
A`UbbgW`UZh]g[ YZØ[ Y`Ui`gž`XU`X]Y`?`cb`\_i`ffYbnZ`À\`][`\_Y]h`[ YghY][ Yfh  
k` ]fX"

8Ugg`Yf`U`g`Hcf`gW`ØhnYb`\_Øb][ `]hž`]gh`g]W`Yf`]W` `Ui`W` `Y]b`5bgdcfb  
ZØf`gY]bY`A` ]hgd]Y`Yf`"G]Y`k` ]ggYbž`XUgg`g]Y`Ui`Z`]b`n`À`Yb`\_ØbYbž  
k`Ybb`Yg`XUfUi`Z`Ub`\_ca`a`h`8Ug`U`h`XUg`HYUa` [ YZØ`X`[ Y`\_f`ÀZh][ h  
i`bX`XYb`Ni`gUa`a`Yb`U`h`[ YZØfXYfh`"G]W`Yf`]W` `k` ]fX`X]Y  
J`YfY]bgZØ`fi`b[ `gY]bY`9bhk` ]W`\_i`b[ `k`Y]hYf`Y]b`Ui`Za`Yf`\_gUa  
VYcVUW`hYbž`XU`Gd]Y`Yf`k` ]Y`GfVYbm`ZØf`X]Y`Ni`\_i`bZi`XYg`7`i`Vg`j`cb  
YbhgW`Y]XYbXYf`6YXYi`hi`b[ `]g]bX"

⇒ XYb`b`ÀW`ghYb`Gd]Y`Yb`k` ]fX`VYcVUW`hY`h`k`YfXYbž`cV`Yf`XUg`c`Y  
@Y]ghi`b[ gb]j`YUi` `U`hYb`\_Ubb`"8]Y`<YfUi`gZcfXYfi`b[ ž`8fi`W`\_ni  
VYk`À`h][ Yb`i`bX`\_cbghUbh`[ i`hY`@]ghi`b[ Yb`ni`YfVf]b[ Ybž`ZcfXYfh  
GhØfa`Yf`b]W`h`bi`f`d`mg]gW`ž`gcbXYfb`Ui`W` `dgmW` ]gW`"8Yf`8fi`W`ž  
]b`YXYa` `Gd]Y`Y]bY`5bhk`cfhi`Ui`Z`X]Y`9fk`Ufhi`b[ Yb`ni` `]YZYfbž`\_Ubb  
[ fc»`gY]bž`UVYf`GfVYbm`U`h`V]g`Yf`[ YnY][ hž`XUgg`Yf`XYb

5bZcfXYfi b[ Yb`[ Yk UWgYb`]gh"

8Yf`9fZc`[ `j cb`8Ybb]g`GfVYbm]gh`a Y`f`U`g`bi f`Y]bY`dYfg`Ob`]WXY  
9ffi b[ YbgWUZh`9f`gma Vc`]g]Yfh`X]Y`Ni `i bZh`XYg`G7`DUXYfVc`fbž  
X]Y`g]W`a ]h`YXYa`Hcf`k Y]hYf`Ui ZVUi h`8]Y`A`Ò[ `]W`\_Y]hYb`g]bX  
j ]Y`ZÀ`h][ ži`bX`X]Y`b`ÀW`ghY`D`UgY`]b`gY]bYf`?Uff]YfY`\_`ÒbbhY  
YbhgWXY]XYbX`gY]b"

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

8]Y`\_ca`a YbXYb`Gd]Y`Y`k YfXYb`YbhgWXY]XYbX`gY]b`ZØf`GfVYbmg  
i bX`XYf`A`UbbgWUZh`g`K Y]hYfYb`hk ]W`\_i b[ "Gc`hY`Yf`k Y]hYf`]b  
X]YgY`VYY]bXfi W`\_YbXY` : cfa`nY][ Ybž`\_`ÒbbhY`Yf`b]W`h`bi f`ZØf`XYb  
G7`DUXYfVc`fb`Y]b`GhUf`k YfXYbž`gcbXYfb`j ]Y`Y]W`h`gc[ Uf`]b  
`Ò\YfY`@[ Yb`Ui ZghY][ Yb`cXYf`]b`XYb`6`]W`\_XYf  
B`Uh]cb`U`a`UbbgWUZh`f`ØW`\_Yb`" `b`Y]bYf`NY]hž`]b`XYf`hU`Yb`h]YfhY  
Gd]Y`Yf`gY`f`[ YZfU[ h`g]bXž`\_`ÒbbhY`GfVYbmg`F`Y]gY`XYf`6`Yk Y]g`XUZØf  
gY]bž`XUgg`a`Ub`a`]h`UfhYf`5fVY]h`i bX`<]b[ UVY` : fc»Yg`YffY]W`Yb  
\_`Ubb"

6Y]`XYf`5ba`Y`Xi b[ `ni`C`b`]bY!8]YbghYb`]gh`Yg`b]W`h  
i b[ Yk`Ò\`b`]W`ž`Ui Z`j YfgW]YXYbY`<YfUi`gZcfXYfi b[ Yb`ni`ghc»Ybž  
X]Y`j cb`hYW`b]gW`Yb`DfcV`Ya`Yb`V]g`]\]b`ni` : fU[ Yb`XYf  
8`UhYbg]W`Yf`Y]h`fY]W`Yb`"8]Y`F`Y[ ]ghf]Yfi b[ `Y]bYg`6`Ybi`hnYf`\_`cb`hc`g  
\_`Ubb`Y]bYa`c`dh]a`]YfhYb`Dfc`nYgg`i`bhYf`]Y[ Ybž`XYf`k`]f`\_]W`  
VYbi`hnYfZfYi`bX`]W`\_]gh";`Y]W`nY]h][ `V`Y]Vh`X]Y` : Yk`À`fi b[ `XYg  
Ni [ Ub[ g`ni`gYbg]V`Yb`i`bhYfbY`a`Ybg!`cXYf`dYfg`Ob`]W`Yb  
`bZcfa`Uh]cbYb`Y]bY`k`YgYbh]W`Y` , VYf`Y[ i b[ "

9]b`nYbhfU`Yf`5gdY`\_h`VY]`XYf`?`cbhcU`\_h]j ]Yfi b[ `]gh`X]Y`J`U`]X]Yfi b[  
j cb`9!A`U]!5XfYggYb`"8]Yg`gc`f[ h`XUZØfž`XUgg`XYf`6`Ybi`hnYf  
hUhg`ÀW`]W`\_Ni [ f]ZZ`Ui Z`X]Y`Ub[ Y[ YVYbY`9!A`U]`U`h`i`bX`]Zž  
GdUa`!`?`cbhYb`ni`j`Yf`]\]bXYfb`"GhUh]gh]\_Yb`nY][ Ybž`XUgg`ØVYf`) \$ı  
U`Yf`C`b`]bY!F`Y[ ]ghf]Yfi b[ Yb`Xi`fW`b]W`h`U`\_h]j ]YfhY`?`cbhYb`b]W`h  
c`dh]a`U`\_][ Ybi`hnh`k`YfXYb`"8`U`Yf`]gh`Yg`YbhgWXY]XYbXž`XYb  
F`Y[ ]ghf]Yfi b[ gdfcnYgg`gc`ni` [ YghU`hYbž`XUgg`Yf`Y]bZUW`\_i`bX  
X]fY`\_h`]gh"

## 8 ]Y 'F c ``Y 'XYf' ðhYfbYh! G]W\ Yf\ Y]h

ð'XYf'X][ ]hU'Yb'K Y'h'g]bX'6Ybi hnYf\_cbhYb'dchYbn]Y''N]Y'Y'Z0f  
7mVYfUub[ f]ZY''@Ui h'Y]bYf'Ghi X]Y'j cb'GhUh]ghU'\UVYb'(' i 'XYf  
VYZfU[ hYb'i bhYfbY\ a Yb'ja ''YhnhYb'ð\ f'7mVYfUub[ f]ZY'YfZU\ fYbž  
X]Y'Ui ZX]Y'i bni fY]W\YbXY'G]W\Yfi b[ 'j cb'6Ybi hnYf\_cbhYb  
ni f0W\_ni Z0\ fYb'g]bX''8U\Yf''gh'Yg'k ]W\h][ ž'XUgg'Bi hnYf'g]W\XYf  
G]W\Yf\Y]hga U» bU\ a Yb'VYk i ggh'g]bXž'X]Y'g]Y'gW\0hnYb''8]Y  
J Yfk YbXi b[ 'ghUf\_Yf'DUggk 0fhYfž'Nk Y]!: U\_hc f!5i h\Yb h]Z]n]Yfi b[  
i bX'fY[ Y'a Å» ][ Y'DUggk cfhÅbXYfi b[ Yb'g]bX'VYk Å\fhY'DfU\_h]\_Yb"

8 Uf0VYf\]bUi g'gc``hY'X]Y'D'UhhZcfa ž'Ui Z'XYf'XUg'?cbhc'YfghY''h  
k ]fXž'Y]bY'\_UfY'8UhYbgW\i hnf]W\h']b]Y'\UVYbž'X]Y'XYb'Bi hnYfb  
XYhU]''YfhY'ðZcfa Uh]cbYb'0VYf'XYb'i a [ Ub[ 'a ]h]\fYb'8UhYb  
V]YhYh''9]bY'hfUbgdUfYbhY'?ca a i b]\_Uh]cb'VYn0[ ' ]W\XYf  
J Yfk YbXi b[ 'dYfg0b`]W\Yf'ðZcfa Uh]cbYb'\_Ubb'XUg'J YfhfUi Yb'XYf  
6Ybi hnYf'ghÅf\_Yb"

## H]ddg'ni f'YfZc`[ fY]W\Yb'?cbhc k Ufhi b[

I a 'g]W\Yfni ghY''Ybž'XUgg'XUg'6Ybi hnYf\_cbhc''Ub[ Zf]gh][  
Zi b\_h]cb]Yfhi bX'g]W\Yf'V'Y]Vhž'gc``hYb'Y]b][ Y'[ fi bX'Y[ YbXY  
K Ufhi b[ gdfU\_h]\_Yb'VYZc`[ h'k YfXYb.

- 5\_hi U`g]Yfi b[ 'XYf'?cbhc]bZcfa Uh]cbYb. '<U'hYb'G]Y  
 ÆfY'dYfg0b`]W\Yb'8UhYb'U\_hi Y''ž'i a 'DfcV'Ya Y'VY]'XYf  
 ?cbhc k ]YXYf\YfghY''i b[ 'ni 'j Yfa Y]XYb"
- , VYfd f0Zi b[ 'j cb'?cbhcY]bghY''i b[ Yb.'K YfZYb'G]Y  
 fY[ Y'a Å» ][ 'Y]bYb'6`]W'\_Ui ZX]Y'8UhYbgW\i hnY]bghY''i b[ Yb  
 i bX'dUggYb'G]Y'X]YgY'bUW\ '6YXUfZ'Ub"
- G]W\YfY'J Yfk YbXi b[ 'j cb'DUggk 0fhYfb.'9fghY''Yb'G]Y  
 \_ca d'YI Y'DUggk 0fhYf'i bX'ÅbXYfb'G]Y'X]YgY'fY[ Y'a Å» ][ ž  
 i a 'i bVYZi [ hYb'Ni [ f]Z]ni 'j Yf\]bXYfb"
- 6YcVUW\hi b[ 'j cb'5\_h]j ]hÅhYb.'5W\hYb'G]Y'Ui Z  
 i bbcfa U'Yfk Y]gY'Ni [ f]Z]gd fchc\_c``Y'i bX'a Y'XYb'G]Y  
 j YfXÅW\h][ Y'5\_h]j ]hÅhYb'gcZcfh"

Ni gUa a YbZUggYbX''Aggh'g]W\gU[ Ybž'XUgg'X]Y'9fghY''i b[ 'Y]bYg

6Ybi hnYf\_cbhcg'b]W\h'bi f'Y]bY': fU[ Y'XYf'5\_hj] ]Yfi b[ ' ]ghž'gcbXYfb  
Ui W\XYf'G]W\Yf\Y]h'i bX'fY[ Y'a À» ] [ Yb'K Ufhi b[ ž'i a 'Y]bYb  
fY]Vi b[ g`cgYb'i bX'g]W\YfYb'Ni [ Ub[ 'ni ' [ Yk À\ f'Y]hYb"@Ui h'XYa  
6i bXYgUa h'ZØf'G]W\Yf\Y]h'i]b'XYf' bZcfa Uh]cbghYW\ b]\_g]bX  
6Ybi hnYf'XYf'YfghY'GW\i hngW\]X' [ Y[ Yb'7mVYf\_f]a ]bU`]hÅh"G]W\  
ØVYf'a Ø[ `]W\Y'F]g]\_Yb'i bX'VYk À\fhY'A Yh\cXYb'ni ' ]bZcfa ]YfYbž  
]gh'gca ]h'b]W\h'bi f'fUhgUa ž'gcbXYfb' bchk YbX][ "

8YhU]`g

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