

9f`YVYb`G]Y`Y]b`i`bj`Yf[`Ygg`]W\Yg  
K`Y]\bUW\hg\_cbnYfh`a` ]h`7`Ui`X]U`?`cfYW\_

7`Ui`X]U`?`cfYW\_`hf]hh`Ua``%(`"8YnYa`VYf`&\$&(`i`a``&\$`i`\f`]b  
XYf`GhUXh\U`Y`A`Uf\_hfYXk` ]hn`a` ]h`Y]bYa``Y]bn][`Ufh][`Yb  
K`Y]\bUW\hg\_cbnYfh`Ui`Z`

8]Y`VUmYf]gW\Y`@]YXYfa`UW\Yf]b`7`Ui`X]U`?`cfYW\_`\Uh]g]W\`a` ]h]\fYf  
Y]bn][`Ufh][`Yb`A`i`g]\_`Y]bYb`BUa`Yb`[`Ya`UW\h`5a`GUa`ghU[`ž`XYa  
%(`"8YnYa`VYf`&\$&(`ž`k`]fX`g]Y`Y]b`[`Ubn`VYgcbXYfYg  
K`Y]\bUW\hg\_cbnYfh]b`XYf`GhUXh\U`Y`A`Uf\_hfYXk` ]hn`[`YVYb`"8Yf  
5i`Zhf]hh`ghUfhYh`i`a``&\$`i`\f`ž`9]b`Ugg`]gh`VYfY]hg`Y]bY`Gh`i`bXY`Zf0\Yfž  
i`a``%-`i`\f`"cfYW\_`Vf]b[`h`Y]bY`5ha`cgd\`ÄfY`a` ]hž`X]Y`Ui`Z  
hfUX]h]cbY`Y`b`?`Äb[`Yb`VUg]Yfhž`UVgY]hg`XYg`hmd]gW\Yb  
K`Y]\bUW\hg`hf`i`VY`g`"

8]Y`GhUXh\U`Y`ž`[`Y`Y[`Yb`]b`XYf`6Ui`YfghU»`Y`%\$ž`k`]fX`ni`Y]bYa``C`fh  
XYf`VYg]bb`]W\Yb`?`Äb[`Yž`XU`?`cfYW\_`a` ]h]\fYb`@]YXYfb`Y]bY`[`Ubn  
VYgcbXYfY`GY\bgi`W\h`bUW\Y]bYf`i`bj`YfZ`Ä`gW\hYb`K`Y]\bUW\h  
j`Yfa` ]hY`b`a`ÖW`hY`" `A`Y]bY`@]YXYf`g]bX`b]W\h`ØVYf`UXYb`a` ]h  
6`]b[`V`]b[`i`bX`>]b[`Y`6Y`g`ž`VYgW\fy]Vh]g]Y`]\fYb`Gh]"`GhUhhXYggYb  
gYmh]g]Y`Ui`Z`YfX][`Yž`Y`f`]W\Y`?`Äb[`Yž`X]Y`:`c`!`9`Ya`YbhY`i`bX  
U`i`gh]gW\Y``b`ghfi`a`YbhY`]b`XYb`J`cfXYf[`fi`bX`ghY`Y`b`"

### 9]b`?`cbnYdh]j`c`Yf`9a`ch]cbYb

6YgcbXYfg`\Yfj`cfni`\YVYb`]gh`Y]b`?`cbnYdhU`Vi`a`ž`XUg`7`Ui`X]U  
?`cfYW\_`Y][`Ybg`Z0f`X]Y`K`Y]\bUW\hgnY]h`Yb`hk` ]W\_`Y`h`\Uh`8]YgYg  
5`Vi`a``]gh`Xi`fW\Xfi`b[`Yb`j`cb`d`Yfg0b`]W\Yb`9f]bbYfi`b[`Yb`i`bX  
9a`dZ]bXi`b[`Yb`ž`X]Y`g]Y`a` ]h`XYa`:`Ygh]`YfV]bXYh`9g`k`]fX`Y]bY  
FY]gY`Xi`fW\`]\fY`:`YXUb`\_Ybk`Y`hž`X]Y`XUg`Di`V`]\_i`a`ZYggY`b`i`bX  
ni`a`BUW`XYb`\_Yb`Ub`fY[`Yb`gc`""Ni`XYa`k`]fX`g]Y`Y]b][`Y`bYi`Y`

GhØW\_Y'Ui g']\fYa 'U\_hi Y''Yb'Dfc\_Y\_h' ?U`YbXYf 'j cfghY''Ybž'X]Y  
XYb'?'cbnYfhUVYbX'bcWk'UVk YWk'g'i b[ gfY]WkYf'[ YghU`hYb"

?cfYW\_]gh'VY\_Ubbh'ZØf']\fY': Å\][\_Y]hž'k Å\fybX']\fYf'@j Y!  
5i Zhf]hhY'Y]bY'VYY]bXfi W\_YbXY' ðhja ]hÅ'h'ni 'gWk UZZYb"G]Y'k ]fX  
ni gUa a Yb'a ]h']\fyb'hU`Ybh]YfhYb'A i g]\_Yfb'Y]b'?'cbnYfh'V]YhYbž  
XUg'[ YdfÅ[ h']ghj'cb'l bhYf\U`hi b[ ž'9]bZØ\`gUa \_Y]hi bX'Y]bYf  
ghUf\_Yb'Gh]a a Y''8 Ug'Di V']\_i a '\_Ubb'g]Wk'Ui Z'Y]bY'Yf[ fY]ZYbXY  
8UfV]Yhi b[ 'ZfYi Ybž'X]Y'gck c\`'a i g]\_U`]gWk'U`g'Ui Wk'Ya ch]cbU`  
h]YZVYfØ\fh"

## H]W\_Yhg'i bX'J YfUbghU`hi b[ g]bZcfa Uh]cbYb

?UfhYb'ZØf'XUg'?cbnYfh'g]bX'VYfY]hg'Yf\Å'h]Wk'' ðhYfYgg]YfhY  
\_ØbbYb']\fY'H]W\_Yhg'ØVYf'X]Y'K YVgY]hY'k k k "c\_h]W\_Yh'XY'cXYf  
X]fY\_h'VY]'XYf'Hci f]gh'ðZcfa Uh]cb']b'A Uf\_hfYXk ]hn'Yfk YfVYb''8Yf  
DfY]g'ZØf'X]YgYg'i bj Yf[ Ygg']Wk'Y'9f'YVb]g']gh'U`g'ZU]f'Y]bni ghi ZYbž  
]bgVYgcbXYfY'k Ybb'a Ub'X]Y'E i U]hÅ'h'XYf'8UfV]Yhi b[ 'j cb'7`Ui X]U  
?cfYW\_'i bX']\fYf'6UbX'VYXYb\_h"

8Ug'VYj cfghY\YbXY'?'cbnYfh'ghY''h'b]Wk'h'bi f'Y]bYb'a i g]\_U`]gWkYb  
<Ø\Ydi b\_h'ZØf'7`Ui X]U'?cfYW\_'XUfž'gcbXYfb']gh'Ui Wk'Y]bY  
A Ø[ 'j]Wk\_Y]h'ZØf'X]Y'Ni \ØfYfž']b'Y]bY'UbXYfYž'VYg]bb']Wk'Y'K Y`h  
Y]bni hUi WkYb'i bX'XYb'Hfi VY'XYf'J cfk Y]\bUWk hgnY]h'\]bhYf'g]Wk  
ni ''UggYb''9g]gh'Y]bY'9]b`UXi b[ ž'K Y]\bUWk hg']YXYf']b'Y]bYa  
bYi Yb'@]Wk'h'ni 'Yf'VYb'i bX'X]Y'GY'Y'VUi a Y'b'ni ''UggYb"

8]Y'VUmYf]gWk'Y'@]YXYfa UWkYf]b'\Uh'VYfY]hg'nU\`fY]Wk'Y'DfY]gY  
[Yk'cbYb'i bX'g]Wk'Y]bYb'D`Uhn']b'XYf'A i g]\_`UbXgWk UZh'YfcVYfh'  
b]Wk'h'ni 'Yhnh'Xi fWk']\f'VY\_UbbhYghYg'@]YX' :']Ub[ ž'XUg'&\$+\$+ 'j cb  
6UmYfb'' 'YbhXYW\_h'k i fXY'' ÆfY'?Uff]YfYfY]gY'nY][hž'k ]Y'k ]Wk]h[  
5i h\Ybh]n]hÅ'h'i bX'Ya ch]cbU`Y'H]YZY']b'XYf'A i g]\_`g]bXž'VYgcbXYfg  
]b'XYf'cZh'\Y\_h]gWkYb'NY]hi a 'X]Y': Y]YfhU[ Y"

A ]h']\fYa 'K Y]\bUWk hg\_cbnYfh']b'A Uf\_hfYXk ]hn'gYhnh'7`Ui X]U  
?cfYW\_'bYi Y'A U» ghÅVY'ZØf'X]Y'?'cbnYfhgnYbY']b'XYf'F Y[ ]cb'i bX  
j Yfgdf]Wk'h'Y]bYb'5VYbX'j c''Yf'VYfØ\fybXYf'A i g]\_`i bX  
Yf[ fY]ZYbXYf'A ca YbhY"

8Yf'5i Zhf]hhj cb'7`Ui X]U? cfYW\_ ]gh'Y]b` \Yfj cffU[ YbXYg'6Y]gd]Y`  
XUZØfž'k ]Y`a i g]\_U`]gWXY`J YfUbgH`hi b[ Yb`[ YfUXY`ni f  
K Y]\bUW hgnY]h`Ui g`XYf`A UggY` \YfUi gghYWXYb`\_ÖbbYb" ` ðXYa`g]Y  
g]W`j cb`XYf`hmd]gWXYb`K Y]\bUW hga i g]\_ZYfb`À`hž`gW UZZh]g]Y`Y]b  
bYi Yg`9f`YVb]gž`XUg`XYb`Ni` \ÖfYfb`gck c` \`B cghU`[ ]Y`U`g`Ui W  
Zf]gWXY`9f`YVb]ggY`V]YhYh" `8]Y`J YfV]bXi b[ `Ui g`hfUX]h]cbY`Y`b`i bX  
a cXYfbYb`9`Ya YbhYb`k ]fX`g]WXYf`]WXY]b`Di V`\_i a` UbgdFYWXYbž  
XUg`bUW`YW`hYa ž`Ya ch]cbU`Ya` ð` \U`h`gi W`h"

7`Ui X]U? cfYW\_ ]gh`b]W`h`bi f`U`g`? Øbgh`Yf]b`VY`\_Ubbhž`gcbXYfb  
Ui W`ZØf`]\fY`h]Y`Z`j Yfk i fnY`hYb`VUmYf]gWXYb`HfUX]h]cbYbž`X]Y`g]W  
]b`]\fYf`A i g]\_k ]XYfgd]Y[ Y`b" `8]YgY`J Yf`\_bØdZ b[ `ni f`<Y]a Uh]gh  
ZØf`g]Y`VYgcbXYfg`k ]W`h][ ž`XU`g]Y`]b`Y]bYa` \_i` `hi fY`Y`b`? cbhYI h  
Ui Z[ Yk UW`gYb`]ghž`XYf`ghUf`\_Xi fW`J c`\_ga i g]\_i bX`fY[ ]cbUY  
A Y`cX]Yb`[ YdfÀ[ h`]gh" ` ÆfY`@]YXYf`j YfV]bXYb`dYfgÖb`]WXY  
; YgW]W`hYb`a ]h`VfY]hYfYb`\_i` `hi fY`Y`b`H`Y`a Ybž`k Ug`g]Y`ni` `Y]bYf  
k ]W`h][ Yb`Gh]a a Y`]b`XYf`a cXYfbYb`VUmYf]gWXYb`A i g]\_gnYbY  
a UW`h" ` ð` Y]bYf`NY]hž`]b`XYf`j ]Y`Y`? Øbgh`Yf`XYb` : c`\_i g`Ui Z  
a UggYbhUi [ `]WXY`A i g]\_`Y[ Ybž`[ Y`h`? cfYW\_ ]\fYb`Y][ YbYb`K Y[  
i bX`V`Y]Vh`XUVY]`Ui h`Y`bh]gW`i bX`bU`VUf"

## 9]b`6`]W\_`Ui Z`7`Ui X]U? cfYW\_g`a i g]\_U`]gWXYg GW`UZZYb

GY]h`]\fYa` `8i fW`Vfi W` \U`h`7`Ui X]U? cfYW\_ `a Y` \fYfY`5`VYb  
j YfÖZYbh]W`hž`X]Y`gck c` \`? f]h]\_Yf`cV`U`g`Ui W`XUg`<Yfn`]\fYf` : UbG  
[ Yk cbbYb` \UVYb" ` Æf`8YVØhU`Vi a` `6UmYfb` `k i fXY`&\$+\$  
j YfÖZYbh]W`h`i bX`ghY`hY`XYb` ; fi bXghY]b`ZØf`]\fY`? Uff]YfY`XUf"  
8UfUi Z`Zc`[ hYb`5`VYb`k ]Y` ? cfYW\_ ž`XUg`&\$%%YfgW]Yb`i bX`]\fY  
a i g]\_U`]gWXY`9bhk ]W`\_i b[ `k Y]hYf`ZYgh][ hY" `? cfYW\_ `\_ca V]b]Yfh]b  
]\fYb`Gcb[ g]j YfgW]YXYbY`A i g]\_gh]Yž`XUfi bhYf` : c`\_ž`Dcd`i bX  
FcW\_ž`i bX`gW`UZZh`gc`Y]bY`UVk YW`g`i b[ gfY]WXY`? `Ub[ dU`Y`hY"

6YgcbXYfg`VYa Yf`\_Ybgk Yfh`]gh`]\f`9b[ U[ Ya Ybh`ZØf`gcn]U`i bX  
dc`]h]gW`fY`Yj UbhY`H`Y`a Yb" ` ð` j ]Y`Yb`] \fYf`HYI hY`h`Y`a Uh]g]Yfh]g]Y  
gcn]U`Y`i b[ `Y]W` \Y]hž`i a k Y`hgW`i hn`i bX`X]Y`Gi WXY`bUW  
ÆYbh]h`h" `8]YgY`? ca V]bUh]cb`Ui g`a i g]\_U`]gWXYa`HU`Ybh`i bX  
gcn]U`Yf`J YfUbhk cfhi b[ `a UW`h`g]Y`ni` `Y]bYf`VYXYi hYbXYb` : ][ i f`]b

XYf`VUmYf]gWkYb`A i g]\_`UbXgWkUZh" `Δf`9]bZi gg`YfghfYW`hig]Wk  
XUVY]`ØVYf`X]Y`A i g]\_`\\]bUi g/g]Y`Yb[ U[ ]Yfhig]Wk`Ui Wk`]b  
j YfgWk]YXYbYb`ϕ]h]Uh]j Yb`i bX`Dfc`Y`\_hYbž`X]Y`g]Wk`ZØf`\_i`hi`fY`Y  
6]Xi b[ `i bX`gcn]U`Y` ; YfYWk]h[ \_Y]h`Y]bgYhnYb"

## 8 UhYb`i bX`GhUh]gh]\_Yb`ni f`VUmYf]gWkYb A i g]\_gnYbY

8]Y`6YXYi hi b[ `XYf`@]YXYfa UWkYfY]`]b`6UmYfb`gd]Y[ `Y`hig]Wk`]b`XYb  
JYf`\_Ui ZgnU`Yb`i bX`Di V`\_]i a gnU`Yb`k ]XYf" `@Ui h`Y]bYf`l a ZFU[ Y  
XYg`6i bXYgj YfVUbXYg`A i g]\_]bXi ghf]Y`k Uf`XYf`l a gUhn`j cb  
fY[ ]cbU`gdYn]Z]gWkYf`A i g]\_]b`8Yi hgWk`UbX`&&&`i a`%)`i  
[ Ygh]Y[ Ybž`k cVY]`Y]b` ; fc» hY]`XUfUi Z`ni fØW`ni ZØ`fYb`k Ufž`XUgg  
?ØbghYf`k ]Y`?cfYW`\_Y]bY`6fY]hY`j cb`9a`ch]cbYb`i bX`H`Ya`Yb  
UbgdfYWkYb" `8]Y`@]j Y!9j Ybhgž`X]Y`X]YgY`?ØbghYf`j YfUbgU`hYbž  
`UVYb`YVYbZU`g`Y]bYb`dcg]h]j Yb`HfYbX`[ YnY][ h`]a` `Δ`f`&&&  
VYgi Wk`hYb`ØVYf`+\$`i` `XYf`6YZFU[ hYb`a`]bXYghYbg`Y]b`?cbnYfh  
Y]bYg`fY[ ]cbU`Yb`?ØbghYfgž`k Ug`Ui ZXYb`Ub`U`hYbXYb`<`i b[ Yf  
bUWk`@]j Y!A i g]\_`i bX`dYfgØb`]WkY`6Y[ Y[ bi b[ Yb`\\]bk Y]gh"

8]YgY`GhUh]gh]\_Yb`j YfXYi h]WkYbž`k ]Y`k ]Wk]h[ `X]Y`l bhYfghØhni b[  
`c`\_U`Yf`?ØbghYf`k ]Y`7`Ui X]U`?cfYW`\_ZØf`X]Y`\_i`hi`fY`Y`@UbXgWkUZh  
]gh" `ΔfY`?cbnYfhY`V]YhYb`b]Wk`h`bi`f`Y]bY`D`UhhZcfa`ZØf  
\_ØbghYf]gWkYg`GWkUZZYbž`gcbXYfb`ZØfXYfb`Ui Wk`XUg  
; Ya`Y]bgWkUZhg[ YZØ`\\`i bhYf`XYb` : Ubg" `8i fWk`XYb`6Ygi Wk`gc`WkYf  
JYfUbgU`hi b[ Yb`gh`Åf`\_Yb`X]Y`Ni gWkUi Yf`X]Y`c`\_U`Y`?i`hi`fi`bX  
`Y`ZYbž`X]Y`HfUX]h]cbYb`i bX`K`YfhYž`ZØf`X]Y`?ØbghYf`k ]Y`?cfYW`  
ghY`Ybž`YVYbX][ `ni` `U`hYb" `ϕZcfa Uh]cbYb`ni`\_U`hi`Y`Yb  
9bhk ]W`\_i b[ Yb`]b`XYf`A i g]\_]bXi ghf]Y`]b`8Yi hgWk`UbX`Z]bXYb`g]Wk  
Ui ZXYf`<`ca YdU[ Y`XYg`6i bXYgj YfVUbXYg`A i g]\_]bXi ghf]Y"

8YhU]`g

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