GWk YfYf' l bZU`Ui Z'XYf'@(' . '7UVf]c
ØVYfgW`À [ h'g]W`VY] , VYf\c`a UbØj Yf

GWk YfYf' J Yf_Y\ fgi bZU`Ui Z'XYf'@(' 'VY]'<Y]Xk Y]'Yf. 'Nk Y]
ϕgUggYb'gWk Yf'j Yf'Yhnhž' B chX]YbghY'ja '9]bgUhnž' GhfYW_Y
[YgdYffh"

5a 'gdÀhYb'BUW`a ]hU[ 'XYg'&("5i [ i gh'&\$&( 'YfY][ bYhY'g]W`Y]b
gWk YfYf' J Yf_Y\ fgi bZU`]'b'XYf' BÀ\Y'j cb'<Y]Xk Y]'Yfž'XYf'X]Y
[YgUa hY'FY []cb]'b'5i ZfY[i b ['j YfgYhnhY" 'l a '%+.%) 'l \f'k Uf'Yg
Ui Z'XYf'@(' ži ba]hY'VUf'Ua 'CfhgUi g[Ub['j cb'<Y]Xk Y]'Yf]'b
F]W`hi b[ '8fY]gž'ni 'Y]bYa 'XfUa Uh]gW`Yb'JcfZU`'[ Y\_ca a Ybž'U`g
Y]b'7UVf]c'VY]a , VYf\c`Yb'X]Y'?cbhfc`Y'j Yf'cf"

8Yf': U\fyf'XYg'7UVf]cg'j Yfgi W`hYž'Y]b'Ub[gUa YfYg': U\fnYi ['ni
ØVYf\c`Ybž'k Ug'ni 'XYa 'j Yf\Àb[ b]gj c`Yb' l bZU`'ZØ\fhY" 'K À\fybX
XYg'9]bZÀXY'bg' [YgW`U\ 'XUg' l bXYb\_VUfY. '8Ug'7UVf]c'ØVYfgW`i [
g]W`i bX'k i fXY'ni f'hØX`]W`Yb': U`Y'ZØf'gY]bY'ϕgUggYb"
HfU[]gW`Yfk Y]gY'k i fXYb'VY]XY'DYfgcbYb'Ui g'XYa ': U\fnYi [
[YgW`Yi XYfh'i bX'Yf']hYb'gWk YfghY'J Yf'Yhni b[ Yb"8Yf'GW`fYW_
i bX'X]Y'8fUa Uh]'XYf'G]hi Uh]cb'g]bX'i bVYghfY]hVUf'i bX'ny][Yb'X]Y
; YZU\fybž'X]Y'VY]gc`W`f]g_UbhYb': U\fa UbØj Yfb'Ui ZhfYhYb
_ØbbYb"

F Yhhi b [ga U» bU\ a Yb 'i bX '9]bgUhn_fÀZhY

BUW`XYa ' l bZU`'fØW_hYb'X]Y': Yi Yfk Y\ f'<Y]Xk Y]'Yf'i bX
8]YfgW`Y]X'a]h'Yhk U'%) '9]bgUhn_fÀZhYb'Ui gž'i a 'VY]'XYf'FYhhi b[
XYf'6YhY][[hYb'ni '\Y'Zyb"8]Y'GnYbYb'Ub'XYf' l bZU`ghY`Y'k UfYb
W`Uch]gW`ž'XU'a Y\fyfY'FYhhi b[gX]YbghY' ['Y]W`nY]h]['Y]bhfUZYb"
Ni gÀhn`]W`k i fXYb'nk Y]'FYhhi b[g\i VgW`fUi VYf'YbhgUbXhž'i a 'X]Y
gWk Yf'j Yf'YhnhYb'ϕgUggYb'gW`bY`gha Ø[`]W`]b'Y]b'?fUb_Yb\Ui g

ni`hfUbgdcfhjYfYb"5i W`X]Y`Dc`nY]`K ]h]W`k Uf`j cf`C fh`i bX
i bhYfghØhnhY`X]Y`F Yhhi b[ga U» bU`a Ybž`VY[`Y]hY`h`j cb`Y]bYa
<i VgW`fUi VYf`XYf`Dc`nY]ž`XYf`ni f`G]W`Yf`Y]h`XYf`fYhYbXYb
A U» bU`a Yb`VY]hfi ["

8]Y`@(` `a i gghY`ZØf`fi bX`XFY]`Ghi bXYb`_ca d`Yhhi[ YgdYffh`k YfXYbž
i a `XYb`F Yhhi b[g_f`ÄZhYb`XYb`i bY]b[ YgW`f`Äb`_hYb`Ni [ Ub[ `ni
Yfa Ø[`]W`Yb`i bX`X]Y`I bZU`gdi fYb`ni `g]W`Yfb"8]Yg`ZØ`fhY`ni
a Ugg]j Yb`J Yf`_Y`fgVY`]bXYfi b[Yb`]b`XYf`I a [ YVi b[ ž`XU
I a `Y]hi b[ Yb`Y]b[Yf]W`hY`h`k YfXYb`a i gghYb" `Gc`W`Y`9]bg`Äh`nY
nY][Yb`XUg`[fc» Y`9b[ U[ Ya Yb`h`XYf`F Yhhi b[gX]YbghY`i bX`X]Y
K]W`h][ `_Y]h`X`Y`g`J`c`f`ZU`g`

K]W`h][ `_Y]h`X`Y`g`J`c`f`ZU`g`

8 Ug`; YgW`Y`Y`b`Ub`X]YgYa `5i [ i ghU[ `]gh`b]W`h`bi`f`Y]b
5`Ufa nY]W`Yb`ZØf`J Yf`\_Y`fghY]`bY`a Yfž`gcbXYfb`Ui W`Y]bY
Y]bXf]b[`]W`Y`A U`bi b[" , VYf`c`a UbØ] Yf`VYf[ Yb`]a a Yf`Y]b
[Yk]ggYg`F]g]\_cž`XUg`cZhi bhYfgW`Ähnh`k ]fX"8]Y`HUhgUW`Yž`XUgg
VY]`X]YgYa `J`c`f`ZU`g`[ `Y]W`nk`Y]`DYfgcbYb`gW`k Yf`j Yf`Yhnh`k i fXYbž
k]fZhi: fU[Yb`ni `G]W`Yf`Y]h`i bX`J`c`fg]W`h]ja `GhfU» Ybj Yf`\_Y`f`Ui`Z`
J Yf`\_Y`f`gg]W`Yf`Y]h`gc`h`Y]ja a Yf`Ub`YfghYf`GhY`Y`ghY`Ybž`i bX
gc`W`Y`J`c`f`Z`Ä`Y`i bhYfghfY]W`Yb`X]Y`B`ch`k`YbX][ `_Y]h`j`cb`Yf`f`Ø`h`Ya
6Yk i gghgY]b`i bX`J`c`fg]W`h`VY]a `: U`f`Yb"

8 Yf`9]bgUhm`j`cb`F`Y`hhi b[g`i VgW`fUi VYfb`]gh`Y]b`k`Y]hYfYg
k]W`h][ Yg`H`Y`a`U"8]YgY`gW`bY`Yb`HfUbgdcfha ]hY`_`Ø`bbYb
YbhgW`Y]XYbX`gY]bž`k`Yb`b`Yg`XUfi`a`[ Y`hž`J`Yf`YhnhYb`V]bbYb
_ØfnYghYf`NY]h`X]Y`b`ch`k`YbX][Y`a`YX]n]b]gW`Y`J`Yf`gc`f`[i b[
ni`\_ca`a`Yb`ni`\_`UggYb"8]Y`?`cc`f`X]bUh]cb`nk`]gW`Yb`: Yi Yfk`Y`fž
Dc`nY]`i bX`a`YX]n]b]gW`Yb`F`Y`hhi b[g_f`ÄZhYb`]gh`XUVY]`i bYf`Ägg`]W`
i bX`nYi [ h`j`cb`Y]bYa`[ i h`c`f[ Ub]g]YfhYb`GmghYa`ni`f`6Yk`Ä`h][i b[
j`cb`B`ch`Z`Ä`Yb"

8 Yf`5V`Ui`Z`X]YgYf`hfU[ ]gW`Yb`G]hi`Uh]cb`\_`Ø`bb`hY`U`g`Y]b`HY]`
i`bgYfYf`; YgY`gW`U`Zhi`VYhfUW`hY`h`k`YfXYbž`XYf`nY][hž`k`]Y`gW`bY`
g]W`gW`Y]bVUf`U`h`Ä[ `]W`Y`G]hi`Uh]cbYb`]b`Yfbghni`bY`a`YbXY
; YZU`f`Yb`j`Yfk`UbXY`b`\_`Ø`bbYb" `G]W`Yf`Y]h]ja`GhfU» Ybj Yf`_Y`f`

gc`hY`XU\Yf`ghYhg`Y]b`nYbhfU`Yg`5b`Y[Yb`ZØf`i bg`U`Y`gY]b`"8]YgY
GhfU» YbgnYbY`]b`<Y]Xk Y]Yf`\Uh`b]W`h`bi f`X]Y`6YhY`][hYbž
gcbXYfb`Ui W`X]Y`[ YgUa hY` ; Ya Y]bgW`UZh`VYhfc ZYb"

`J cb`XYf`FYXU_h]cb

I fgUW`Yb`ZØf`J Yf`_Y`f`gi bZ`Ä`Y`

J Yf`\_Y`f`gi bZ`Ä`Y`k]Y`XYf`Ua`i`&(`"5i [ i gh`&\$&(`Ui Z`XYf`@(`'`_ÖbbYb
Xi fW`j`YfgW`]YXYbY` : U_hcfYb`j`Yfi fgUW`h`k`YfXYb`"
; YgW`k`]bX`][ \_Y]hgØVYfgW`fY]hi b[Ybž`5V`Yb`\_i b[ Yb`Xi fW`
A cV]`hY`YZcbY`i bX` : U`fZY`\`Yf`n`Ä`\`Yb`ni` `XYb`\`Äi`Z][ghYb
I fgUW`Yb`" `j`]Y`Yb` : Ä`Yb`g]bX`Ui W`K`]hYfi b[gVYX]b[i b[Ybž
k]Y`n`6`"FY[ Yb`cXYf`BYVY`ž`Ui ggW`U[[YVYbX`"@Ui h`XYf
8Yi hgW`Yb`J Yf`\_Y`f`gg]W`Yf`Y]hgfUh`fB`J`F`Ł`g]bX`' \$`i` `U`Yf`I bZ`Ä`Y`
Ui Za`YbgW`]W`Yg`J YfgU[Yb`ni fØW`ni ZØ`fYb`"8]Y`5bU`mgY`i bX
XUg`J Yfgh`ÄbXb]g`X]YgYf` : U_hcfYb`g]bX`Yb`hgW`Y]XYbXž`i a
dfÄj`Ybh]j`Y`A`U»bU`a`Yb`ni f`J YfVYggYfi b[`XYf
J Yf`\_Y`f`gg]W`Yf`Y]h`ni` `Yb`hk`]W`Y`b`"

8]Y`F`c`Y`XYf`J Yf`_Y`f`gYfn]Y`i`b`[

9]bY`i`a`ZUggYbXY`J Yf`\_Y`f`gYfn]Y`i`b`[`gd]Y`h`Y]bY`Yb`hgW`Y]XYbXY
F`c`Y`XUVY]ž`XUg`6Yk`i`gghgY]b`ZØf`g]W`YfYg` : U`fYb`ni` `gW`ÄfZYb`"
8]YgY` `j]h]Uh]j`Yb`f]W`hYb`g]W`gck`c`\`Ub`↑`b[Y` : U`fYf`U`g`Ui`W`Ub
YfZU`fYbY`?`fUZhZU`fYfž`i`a` [ YZ`Ä`f`]W`Yg`J Yf`U`hYbž`k`]Y`f]g`Ub`hYg
,`VYf`c`Ybž`ni` `a` ]b]a`]YfYb`"8 ]Y`J Yf`\_Y`f`gg]W`Yf`Y]hg`_Ua`dU[bYb
XYf`8`J`F`nY][Yb`dcg]h]j`Y`9ZY`_hY`.'I`a``%\$`i` `gUb`_`X]Y`5bnU`\`XYf
gW`k`YfYb`J Yf`_Y`f`gi bZ`Ä`Y`]b`XYb`Y`h`hYb`ZØbZ`Ä`fYb`"

A YX]n]b]gW`Y`J Yf`g`c`f`[i b[`b`UW`

J Yf`\_Y`f`gi bZ`Ä`Y`b`

B UW`gW`k`YfYb`J Yf`\_Y`f`gi bZ`Ä`Y`b`\_ca`a`hYg`c`Zh`ni` `Y]bYf`X]fY`_hYb
a`YX]n]b]gW`Yb`J Yf`g`c`f`[ i b[ `Xi`fW`f`Y`h`i`b[g`\_f`Ä`ZhY`" `j`X]YgYa` : U`
k`i`fXY`XYf`FY`h`i`b[ gX]Ybgh`a` ]h`ink`Y]`<`i`VgW`fUi`VYfb`Ub[YZcfXYfhž
k`Ug`Ui`ZX]Y`GW`k`YfY`XYf`J Yf`Y`h`i`b[Yb`XYf` `j`gUggYb`\]bk`Y]gh`"

@Ui h`XYa `GhUh]gh]gW`Yb`6i bXYgUa h`[ UV`Yg`]a `f`&\$\$%`]b
8Yi hgW`UbX`ØVYf`' '\$\$\$`\$`\$`\$`J Yf`_Y`f`gi bZ`A`Y`ž`k cVY`]X`]Y
BchZU`j`Yfgcf`[ i b`[`c`Z`h`Y`bhgW`Y`]XYbX`ZØf` , VYf`YVYbgW`UbW`b`]gh`
9]b`gW`b`Y`Y`g`9]b`[ fY`]Z`Y`b`]gh`VYgcbXYfg`k`]W`h`[ž`i`a` `V`Y`]VYbXY
GW`ÅXYb`ni` `j`Yfa`Y`]XYb`"

F Y hhi b [g_YhhY`i bX`B`chZU`a`UbU`[Ya`Ybh

9]bY`[ i h`cf`[ Ub]g]YfhY`F Y hhi b [g_YhhY`]gh`Ui`ggW`U`[ [ YVYbX`ZØf`XYb
9fZc`[ `VY`]XYf`J Yfgcf`[ i b`[`j`cb`i`b`ZU`cdZYfb`"8`]YgY`i`a`ZUggh`X`]Y
5`Ufa`]Yfi b`[ ž`X`]Y`5bfY]gY`XYf`F Y hhi b [gX`]YbghY`i`bX`XYb`HfUbgdcfh
]b`?`]b`\_Yb`"8`]Y`?`ccfX`]bUh]cb`nk`]gW`Yb` :`Yi`Yfk`Y`f`ž
F Y hhi b [gX`]Ybghi`bX`Dc`nY`]`]gh`]b`gc`W`Yb`G]hi`Uh]cbYb`j`cb`[ fc`»`Yf
6YXYi`hi`b`[ ž`i`a` `X`]Y`j`Yf`Y`h`h`Y`b`DYfgcbYb`gW`b`Y`gha` Ò`[`]W`ni
ghUV`]`]g]YfYb`i`bX`]b`Y`]bY`[YY`][ bYhY`a`YX`n]b]gW`Y`9]b`f]W`hi`b`[`ni
Vf]b`[ Yb`"

GhUh]gh]gW`Y`8`UhYb`ni` `J`Yf`_Y`f`gi`bZ`A`Y`b

@Ui h`XYa `GhUh]gh]gW`Yb`6i bXYgUa h`k`i`fXYb`]a` `f`&\$\$&`]b
8Yi hgW`UbX`fi`bX`' '\$\$\$`\$`\$`\$`J Yf`\_Y`f`gi bZ`A`Y`fY`[ ]ghf]Yfhž`k`cVY`]
a`Y`f`U`g`' ") '\$\$`A`YbgW`Yb`i`a`g`@YVYb`\_Ua`Yb`"8`]YgY`NU`Yb
j`YfXYi`h`]W`Yb`X`]Y`B`ch`k`YbX`][ \_Y`]h`j`cb`A`U`»`bU`a`Yb`ni`f`GhY`][Yfi`b`[
XYf`J`Yf`\_Y`f`gg]W`Yf`Y`h`' , VYf`(`) "\$\$\$`DYfgcbYb`k`i`fXYb`]b`X`]YgYa
f`gW`k`Yf`j`Yf`Y`h`h`ž`Y`]bY`NU`X`]Y`]a` `?`cbhYI`h`XYf`cVYb
[YbUbbhYb`i`b`ZU`i`fgUW`Yb`i`bX`XYf`F`c`Y`XYf`J`Yf`_Y`f`gYfn]Y`i`b`[
VYhfUW`hYh`k`YfXYb`a`i`gg`"

J`Yf`_Y`f`gg`hUh]gh]\_Yb`]a` `]b`hYfbUh]cbU`Yb`J`Yf`[ `Y`]W`

⇒a` `J`Yf`[`Y`]W`ni` `UbXYfYb`Yi`fcd`À]gW`Yb`@`À`bXYfb` `Uh`8Yi`hgW`UbX
Y]bY`fY`Uh]j` `b`]YXf`[Y`i`b`ZU`ghYfV`]W`_Y`]h`" @Ui`h`XYf`9i`fcd`À]gW`Yb
?`ca`a`]gg]cb`U`[ `X`]Y`J`Yf`_Y`f`gh`c`h`Y`bnU` `]b`8Yi`hgW`UbX`]a` `f`&\$\$&`
&\$\$&`VY`]Yhk`U`(`ž` `d`f`c`%`\$`\$`\$`\$`9]bk`c`b`Yfž`k`À`fYbX`g`]Y`]b
@`À`bXYfb`k`]Y`6i` ` [ Uf]Yb`i`bX`F`i`a`À`b]Yb`XYi`h`]W` ` `Ò`Yf`U`[ "8`]YgY
I`bhYfgW`]YXY`\_`Ò`b`Yb`Ui`ZX`]Y`i`bhYfgW`]YX`]W`Yb
J`Yf`_Y`f`gg]W`Yf`Y`]hgghfUhY`[]Yb`]b`XYb`Y`]bnY`bYb`@`À`bXYfb
ni`fØW`[YZØ`f`h`k`YfXYb`"

B UWÅ 'Y]bYf'9f\YVi b['j cb'9i fcgUZYž'Y]bYa 'Yi fcdÀ]gWÅYb
B Yhmk Yf_ 'ZØf'J Yf_Y\fgg]WÅYf\Y]hgZc fgWÅi b[ž'nY]['h'g]WÅž'XUgg
dfÀj Ybh]j Y'A U» bU\ a Yb'k]Y'; YgWÅk]bX][_Y]hg_cbhfc``Yb'i bX
i a ZUggYbXY'J Yf_Y\fgYfn]Y\i b['Y]bY'g][b]Z]_UbhY'5i gk]f_i b['Ui Z
X]Y'FYXi n]Yfi b['j cb'J Yf_Y\fgi bZÀ``Yb'\UVYb'_ÖbbYb"K Ybb
X]YgY' ð]h]Uh]j Yb'_cbh]bi]Yf`]WÅ'i bhYfghØhnh'i bX'i a [YgYhnh
k YfXYbž'_ÖbbhY'X]Y'NU\``XYf'I bZÀ``Y']b'Ni _i bZh'k Y]hYf'[YgYb_h
k YfXYb"

8 YhU]`g

6 Ygi WÅ Yb 'G]Y'i bg'Ui Z. 'b!U["XY