

: Ua]`YbhfU[ÒX]Y`]b`7c`cfUXc.`8fY]`@YVYb
VY]`I bZU``j Yf`cfYb

9]bY`Wc`ca V]Ub]gWXY: Ua]`Y`ghUfV`VY]`Y]bYa`hfU[]gWXYb
I bZU``]b`7c`cfUXcž`k`À`fYbX`g]Y`]\fY`<cW`nY]hgfY]gY
ZY]YfhYb"

9]b`hfU[]gWXYf`J Yf`_Y`fgi bZU``]b`7c`cfUXcž`I G5ž`U`h`K`Y``Yb`XYf
HfUi Yf`Ui g[Y`Òghž`XU`XUVY]`XfY]`A YbgWXYb`Ui`g`Y]bYf
Wc`ca V]Ub]gWXYb: Ua]`Y`i bX`Y]b`A`YI]_UbYf`i`a`g`@YVYb`_Ua`Yb"
8]Y`: Ua]`Y`k`Uf`Ui`Z`XYa`K`Y[ž`i`a`Y]bY`<cW`nY]h`ni`ZY]Yfbž`U`g
XUg`I`b[`ØW`_`[YgW`U`"8Yf`J`cfZU``YfY][bYhY`g]W`Ua`A`cf[Yb`XYg
%) ""5i [i ghž`U`g`g]Y`g]W`Ui`Z`Y]bYf`XYf`<Ui`dhj`Yf`_Y`fgghfU»`Yb
bcfXÒgh]W`j`cb`8Ybj`Yf`VYZUbXYb"

8Yf`I`bZU``k`i`fXY`Xi`fW`Y]bYb`i`a`[YghØfnhYb`@Ughk`U[Yb
j`Yfi`fgUW`hž`XYf`Ui`Z`XYf`b`hYfghUHy`+\$`i`bhYfk`Y[g`k`Uf`"8Yf`K`U[Yb
hfUbgdcfh]YfhY`[fc»Yž`gW`k`YfY`F`c`fYž`X]Y`VY]a`Ni`gUa`a`YbVfi`W`
Ui`Z`X]Y`GhfU»`Y`Z]Y`Yb`"8]YgY`F`c`fY`k`c[Yb`Y`k`Y]`g`Yhk`U`&&+
?]`c[fUa`a`ž`k`Ug`Yf`YV`]W`Yg`NYfgW`YfVYb`i`bX`GW`ÀXYb`Ub
UbXYfYb: U`fnYi [Yb`ni`f: c`[Y`U`hY`"8Yf`Dc`nY]`ni`Zc`[Y`hfUZ`Y]b
gc`W`Yg`F`c`f`XUg`5i`hc`XYf: Ua]`Y`X]fY`_h`i`bX`ZØ`fHY`ni`XYa
hfU[]gWXYb`9f`YVb]g"

8]Y`C`d`ZYf`XYg`I`b[`ØW`_g

8]Y`X]Ybh]Z]n]YfhYb`HcXYgcdZYf`g]bX`F`i`VÅb`F`c`XfÉ`i`Ynž`Y]b
'`'`!`À`f][Yf`A`YI]_UbYfž`i`bX`X]Y`VY]XYb`7c`ca V]UbYf]bbYb`i`ž`]UbU
D`UhU`A`UfhÉb`Yn`fi`+`Ł`i`bX`@`n`A`Y`VU`A`UfhÉb`Yn`fi`\$`Ł`ž`X]Y`Yfgh`k`Yb][Y
HU[Y`ni`j`cf`]b`X]Y`I`G5`Y]b[YfY]gh`k`UfYbž`i`a`X]Y`<cW`nY]h`]`fYf
HcW`hYf`ni`ZY]Yfb`"@`n`A`Y`VU`A`UfhÉb`Yn`k`Uf`]b`]`fYf`<Y]a`U`h`U`g
;`YgW`À`žgZØ`fYf]b`]b`;`]fi`bž`GUbhUbXYfž`VY`_Ubbh"

⊕`XYa`hfU[]gWYb`i bZU` [UV`Yg`Ui W` , VYf`VYbXY. `8 Ub]Y`ž`Y]b
Y]b`Å`f][Yf`ž` b[Yž`XYf`Gc`b`j`cb`Fi`VÅb`i`bX`ž` `]UbUž`gck`]Y`7Uf`cg
⊗Uei`⊕`D`UhUž`ž` `]UbUg`J`UhYfž`k`i`fXYb`gWk`Yf`j`Yf`Yhnh`i`bX`]b`Y]b
?fUb`_Yb`\\Ui`g`[YVfUW`h`B`UW` `]`fYf`6Y`\\UbX`i`b`[`Xi`fZhYb`g]Y`XUg
?fUb`_Yb`\\Ui`g`k`]YXYf`j`Yf`UggYbž`XcW`X`Yf`J`Yf`i`gh`\\fYf
5b[Y`\\Öf][Yb`k`]Y[hgWk`Yf`Ui`Z`\\fYf`GW`i`hYf"

8]Y`HfU[ÖX]Y`YffY[hY`b]W`h`bi`f`]b`XYf`VYhY`][hYb` : Ua`]Y`[fc»Yg
6YXUi`Yfbž`gcbXYfb`Ui`W`VY`]XYf`VfY]hYb`²`ZYb`h`]W`_Y]h`5i`Z
gcn]U`Yb`A`YX]Yb`ghUfhYhYb` : fYi`bXY`i`bX`5b[Y`\\Öf][Y`Y]bY
GdYbXYb`_Ua`dU[bYž`i`a`-)`"\$\$\$`8c`Uf`ni`gUa`a`Y`bž`i`a`X]Y
6YghUhh`i`b[g_cghYb`i`bX`X]Y`b`ch`k`YbX][Y`i`bhYfghØhni`b[`ZÖf`8 Ub]Y`ž
XYb`_Y]bYb`Gc`b`XYf`J`Yfghc`fVYbYbž`ni`XYW`_Yb"

F`YU`_h]c`b`Y`b`i`b`X`i`b`h`Y`f`g`h`Ø`h`n`i`b`[`X`Y`f`
;`Y`a`Y]b`g`W`U`Z`h`

8]Y`c`_U`Y`Dc`nY]`a`UW`hY`]b`Y]bYf`c`Z]n]Y`Yb`GhY`i`b[bU`a`Y
XYi`h`]W`ž`XUgg`\\f`A`]h[YZÖ`\\`a`]h`XYb`VYhfc`ZYb`Yb` : Ua`]Yb
Ub[Yg]W`hg`X]YgYg`Z`fW`hVUfYb`9fY][b]ggYg`i`bYfa`Ygg`]W`gY]"
I`bgYfY`<`YfnYb`g]bX`VY`]XYb` : Ua`]Ybž`X]Y`Xi`fW`X`Yb`J`Yf`i`gh
VYY]bZi`ggh`k`i`fXYbž`k`i`fXY`]b`XYb`gcn]U`Yb`A`YX]Yb`j`Yfa`Yf`_h`
8]YgY`K`cfhY`gd]Y[Y`hYb`X]Y`HfUi`Yf`i`bX`X]Y`Gc`XUf]g]Yfi`b[`XYf`
;`Y`a`Y]b`g`W`U`Z`h`i`h`XYb`6Yhfc`ZYb`Yb`k`]XYf"

⊕`XYf` : c`[Y`[UV`Yg`nU`\\fY]W`Y`6Y]hfÅ[Y`Ui`Z`D`Uh`Zcfa`Yb`k`]Y
: UW`Vcc`_ž`]b`XYbYb`A`]h[YZÖ`\\`i`bX`6Y`]Y]X`VY`_i`bXYh`k`i`fXYb`"
6Ybi`hnYf`\\]bhYf`Y»Yb`?ca`a`YbhUfY`k`]Y`K`Ug`ZÖf`Y]bY`hfUi`f][Y
B`UW`f]W`h`i`bX`A`Ö[Y` ;`ch`XYf` : Ua`]Y`?fUZh[YVYb`]b`X]YgYf`NY]h
XYg`J`Yf`i`ghYgž`k`Y`W`Y`X]Y`9a`dUh`\\Y`ZÖf`X]Y`<]bhYfV`]YVYbYb
nY][Yb"

Ni`gÅh`]W`k`i`fXY`VY`_Ub`bž`XUgg`XYf`J`Yf`_Y`f`gi`bZU`Ui`W`k`Y]hYfY
: U`fnYi`[Y`Ui`Z`XYf`GhfU»Y`VYhfc`ZYb`\\Uh`⊕`g[YgUa`h`k`i`fXYb`
gYW`g`5i`hcg`Xi`fW`X]Y`i`a`\\YfZ]Y[YbXYb`F`c`fY`]b`A`]hY]XYbgW`U`Z`h`
[Ync[Ybž`k`Ug`X]Y` ;`YZÅ`\\f`]W`_Y]h`i`bX`XUg`5i`ga`U»`XYg`J`cfZU`g`
j`YfXYi`h`]W`h"

8]Y'Dc`nY]\Uh]\fY'9fa]h`i b[Yb'ni 'XYb'[YbUi Yb'l a ghAbXYb
XYg'l bZU`g`Y]b[Y`Y]hYh`k cVY]'VYfY]hg'ZYgh[YghY`h`k i fXYž`XUgg
XUg'i a ghØfnYbXY': U\fnYi ['i b_cbhfc``]Yfh`X]Y`@Ughj Yf`cf"9g
V`Y]Vh`UVni k UfhYbž`k Y`WXY`A U»bU\`a Yb`Yf[f]ZYb`k YfXYbž`i a
gc`WXY`hfU[]gWXYb`J cfZÄ`Y`]b`XYf`Ni _i bZh`ni `j Yf\]bXYfb"

8Yf`J Yf`i ghj`cb`F i VÄbž`ž`]UbU`i bX`@ n`A Y`VU`Uh`b]W`h`bi`f`]b
]\fYf` : Ua `]`Yž`gcbXYfb`Ui W`]b`XYf` ; Ya `Y]bgW`UZh`[fc»Y`@ØW`Yb
\]bhYf`UggYb" ÆfY` ; YgW`]W`hY`k i fXY`j]fU`j YfvfY]hYh`k Ug`X]Y
B`chk YbX][_Y]h`nY][hž`ZØf`X]Y` , VYf`YVYbXYb`ni `gcf[Yb`i bX
; YXYb`_Yb`ZØf`X]Y`J Yfghc`fVYbYb`ni `Yf\`U`hYb"

9]bY`hfU[]gWXY` ; YgW`]W`hY

8]Y`ni`h]Y`Zgh`hfU[]gWXY` ; YgW`]W`hY`X]Y`gYf` : Ua `]`Yž`X]Y`g]W`Ui`ZY]bY
: fYi`XY`j`cfVYfY]hYhYž`YbXYh]b`Y]bYf`i`bZUggVUfYb
J`Yf`i`gh[YgW`]W`hY"8]Y` ; Ya `Y]bgW`UZh`nY][h`Y]bY`ghUf`_Y`Gc`]XUf]h`Ah
]b`X]Y`gYf`gW`k`YfYb`NY]h`i`bX`V]Y`hY`h`I`bhYfghØ`hni`b[`Ui`Z
j`YfgW`]YXYbYb`9VYbYb`Ub"5b[Yg]W`hg`X]Y`gYf`J`cfZÄ`Y`V`Y]Vh
UVni`k`UfhYbž`k]Y`c`_U`Y`G]W`Yf\Y]hga`U»bU\`a`Yb`Ub[YdUggh
k`YfXYbž`i`a`]b`Ni`_i`bZh`Ä`b`]W`Y`HfU[ØX]Yb`ni`j`Yf\]bXYfb`i`bX`X]Y
GhfU»Yb`g]W`YfYf`ni`a`UWXYb"

8Yf`hfU[]gWXY`l`bZU``]a`i`6i`bXYgghUUh`7c`cfUXc`\Uh`b]W`h`bi`f`X]Y
VYhfcZYbY` : Ua `]`Yž`gcbXYfb`Ui W`X]Y` ; Ya `Y]bXYb`]b`VY]XYb
@ÄbXYfb`ghUf`_VYfØ\fh"8Yf`J`cfZU``\Uh` : fU[Yb`ni`f`G]W`Yf\Y]h]a
GhfU»Ybj`Yf`_Y\`fž`]bgVYgcbXYfY`]a`<]bV`]W`Ui`ZXYb`HfUbgdcfh
gW`k`YfYf` ; ØhYfž`Ui`Z[Yk`cfZYb"8]Y`l`a`ghAbXYž`X]Y`ni`X]Y`gYa
gW`fYW`]W`Yb`9fY][b]g`ZØ\fhYbž`a`ØggYb`Xf]b[YbX`i`bhYfgi`W`h
k`YfXYbž`i`a`ni`_ØbZh][Y`J`cfZÄ`Y`X]Y`gYf`5fh`ni`j`Yf\]bXYfb"

Æ`XYb`Y`hnhYb`Æ\`fYb`[UV`Yg`nU`\`fY]W`Y`8]g`_i`gg]cbYb`ØVYf`X]Y
G]W`Yf\Y]h]j`cb`@_k`!HfUbgdcfhYb`]b`XYb`l`G5"@"Ui`h`8UhYb`XYg
BUh]cbU`<][\k`Um`HfUZZ]WGUZYhm`5Xa`]b]ghfUh]cb`fB`<HG5Ł`g]bX
, VYf`Ughi`b[Yb`i`bX`i`bgUW`[Ya`Ä»Y`@UXi`b[gg]W`Yfi`b[`Äi`Z[Y
l`fgUW`Yb`ZØf`gW`k`YfY`J`Yf`_Y\`fgi`bZÄ`Y" `Gc`W`Y`l`bZÄ`Y`ZØ\`fYb
b]W`h`bi`f`ni`J`Yf`Yhni`b[Yb`i`bX`HcXYgZÄ`Ybž`gcbXYfb`Ui`W`ni
Yf\`YV`]W`Yb`a`UhYf]Y`Yb`GW`ÄXYb`i`bX`[YgY`gW`UZh`]W`Yb

HfUi a UhU"

8]Y`FYU_h]cbYb`Ui Z`X]Y`HfU[ÒX]Y`fY]WkYb`j cb`HfUi Yf`i bX
A]h[YZØ\`V]g\`]b`ni` : cfXYfi b[Yb`bUWk`ghfYb[YfYb
G]WkYf\Y]hgj cfgWk f]ZhYb`ZØf`XYb`HfUbgdcfhj`cb` ; YZU\ f[ØhYfb`" ð
gcn]U`Yb`BYhnc Yf_Yb`\UVYb`j]Y`Y`A YbgWkYb`] \fY`i bhYfghØhni b[
ZØf`X]Y`<]bhYfV`]YVYbYb`ni a`5i gXfi W_`[YVfUWk hž`k Å`fYbX
9l dYfhYb`Ui g`XYa`6YfY]Wk`J Yf_Y\fgg]WkYf\Y]h`X]Y`Bchk YbX][_Y]h
VYhcbYbž`VYghY\YbXY`@Y]h]b]Yb`ni`ØVYfdfØZYb`i bX
[Y[YVYbYbZU`g`ni`j YfgWk ÅfZYb"

8]Y`5i hc f]hÅhYb`]b`8Ybj Yf`\UVYb`VYfY]hg`Ub[Y_ØbX][hž`X]Y
l a ghÅbXY`XYg`l bZU`g`Y]b[Y\YbX`ni`i bhYfgi WkYb`"9]b
[YgYhn[YVYf]gWkYf`F U\ a Yb`_ØbbhY`[YgWk UZZYb`k YfXYbž`i a
g]WkYfni ghY`Ybž`XUgg`VY]a`HfUbgdcfhj`cb`gWk k YfYb`A UhYf]U`]Yb
k]Y`F c\YfYb`gdYn]Z]gWkY`G]WkYf\Y]hgghUbXUfXg`Y]b[Y`U`hYb
k YfXYbž`VYgcbXYfg`k Ybb`[fØ» YfY`@UghYb`Ui Z`VY`YVhYb`GhfU» Yb
VYk Y[h`k YfXYb"

l a`X]Y`<]bhYf[fØbXY`XYg`l bZU`g`VYggYf`ni`j YfghY\Ybž`]gh`Yg
Ui Wk`k]Wk h][ž`X]Y`9fZU\fi b[Yb`UbXYfYf`J Yf_Y\fgi bZÅ`Y`ni
VYhfUWk hYb`"J Yf[Ub[Yb\Y]h`i bX` ; Y[Ybk Ufh`nY][Ybž`XUgg`Ui Wk`]b
Å\b`]WkYb` : Å`Ybž`]b`XYbYb`gWk k YfY` ; ØhYf`hfUbgdcfhj]Yfh`k i fXYbž`
cZh`i bni fY]WkYbXY`G]WkYf\Y]hgj cf_Y\fi b[Yb`Y]bY`F c`Y`gd]Y`hYb`"
l bZÅ`Y`X]YgYf`5fh`YfZcfXYfb`i a ZUggYbXY`6Yf]Wk hYfghUhi b[`i bX
ghfUhY[]gWkY`A U» bU\ a Yb`XYf`G]WkYf\Y]hgVY\ØfXYbž`i a`XUg
6Yk i gghgY]b`ZØf`g]WkYfYfY`HfUbgdcfha Yh\cXYb`ni`gWk ÅfZYb"

8YhU]`g

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