8]YgY`X]YVY`]b`GhYa k YXY. '- \$\$`@]hYf ? fUZhghc ZZ' [Yghc \ `Yb`

I bVY_UbbhY`HÄhYf`\UVYb`]b`GhYa k YXY`fi bX`- \$\$`@]hYf
8]YgY`Ui g'a Y\FYfYb` : U\fnYi [Yb` [ Yghc \ `Yb`"< ]bk Y]gY`ni f
HUhg]bX`k ]`_ca a Yb`"

⊕`XYf`_`Y]bYb` ; Ya Y]bXY`GhYa k YXYž`X]Y`ZØf`]\fY
`UbXk ]fhgW UZh]WYb`5_hj]hÄhYb`VY\_Ubbh`]ghž`\Uh`g]W`Ua
j Yf[Ub[YbYb`K cWYbYbXY`Y]b`\_f]a ]bY`Yf`J cfZU`YfY][bYhž`XYf
X]Y`Øfh]WYb`@UbXk]fhY`]b`5`Ufa VYfY]hgW UZh`j YfgYhnh"
I bVY_UbbhY`HÄhYf`\UVYb`]b`XYf`NY]h`j cb` : fY]hU[ UVYbX`V]g
A cbhU[a cf[Yb`Ui g`j]Yf` : U\fnYi [ Yb`Y]bgW`]Y»`]W`XfY]`HfU_hcfYb
i bX`Y]bYa`6U[[Yf`Y]bY`VYa Yf`\_Yb`gk YfhY`A Yb[ Y`Ub
8]YgY`hfY]VghcZZYb`hk YbXYh`"⊕g[ YgUa`h`k i fXYb`_bUdd`- \$\$`@]hYf
XYg`k Yfhj c`Yb`? fUZhghc ZZ' [ Yghc \ `Yb`ž`Y]b`Yf`YV`]WYf`J Yf`i gh`ZØf
X]Y`VYhfcZZYbYb`6Ui`!`i bX`@UbXk ]fhgW UZh`gVYhf]YVY`"

8Yf`HUhc`fh`VYZUbX`g]W`Ui ZY]bYa`i a nÄi bhYb`GhY`d`Uhn`Ub`XYf
?fYi ni b[`8fc`bYf`GhfU»Y`i bX`6c`a hYf`GhfU»Y`"Gc`WY
G]W`hgW`i hnUb`U[ Yb`g]bX`bcfa U`Yfk Y]gY`Y]b`F c`ghc ZZ`i a
8]YVghÄ`Y`ni`j Yf`bXYfb`"8cW`c`ZZYbg]W`h]W`k UfYb`X]Y`8]YVY
[i`hj cfVYfY]hYhi bX`gW`bY`ž`k Ug`]\fY`9bhgW`cggYb`Y]h`nY][h`8Yf
J cfZU`k ]fZh` : fU[Yb`ØVYf`X]Y`G]WYf`Y]h`j cb`@UbXa UgW`]bYb`i bX
X]Y`XUfUi Z`UV[Ygh]a a hY`G]WYf`Y]hghYW`b]\_`Ui Z`"

9]b`i b [ Yk Ò\ b`]WYf`8]YVghU\` `]b`XYf`F Y []cb

8]Y`HUhgUWYž`XUgg`ØVYf`- \$\$`@]hYf`8]YgY`\_fUZhghc ZZ' [ Yghc \ `Yb
k i fXYbž`]gh`b]W`h`bi f`ZØf`X]Y`VYhfcZZYbYb`@UbXk]fhY`j cb
6YXYi hi b["9g`nY][ h`Ui W`Y]bYb`VYgcf[b]gYffY[YbXYb`HfYbXž`XYf
a Ò[`]WYf`k Y]gY`Ui ZY]bY`Ni bU`a Y`j cb`8]YVghÄ`Yb`]b`ÄbX`]WYb

; YV]YhYb` \ ]bk Y]gYb`_ÖbbhY" HfY]VghcZZ]gh:ZÖf`X]Y`@UbXk]fhgWUZh
YggYbn]Y`ž`i bX` \ c` \ Y`? fUZhghcZdfY]gY`j YfghÄf`\_Yb`XUg`6YXÖfZb]gž
`YXY`F Yggci fW`ni`gW`ØhmYb`"8]YgY`ž`XYf`bcfa`U`Yfk`Y]gY`U`g
i`bj`Yfn]W`hVUfYf`F`c` \ ghc`ZZ`[]`hž`k`]fX`]b`XYf`@UbXk]fhgWUZh`i`bX`]a
6Ui`k`YgYb`]b`[`fc`»`Ya` `A`U`»`ghUV`VYb`Öh][`h`Gc`W`Y`8]YVghÄ` \ `Y
_ÖbbYb`b`]W`h`bi`f`Z]bUbn]Y`"gW`a`Yfn` \ UZh`gY]bž`gcbXYfb`Ui`W`XYb
6Yhf]YV`XYf`i`bhYfbY` \ a`Yb`Yf` \ YV`]W`ghÖfYb"

8]Y`Dc`nY]` \ Uh`X]Y`9fa`]h`i`b`[`Yb`Ui`Z`[`Ybca`a`Yb`i`bX`V]hYh`X]Y
²`ZZYbh]W`_Y]h`i`a` `A`]h` \ `]Z`" <]bk Y]gY`k`YfXYb`i`bhYf`XYf
HY`Y`Zcbbi`a`a`Yf`f`\$`)+%&`'` ,` \*` *` \$`Ybh[`Y`[`Yb`[`Ybca`a`Yb`" >`XYf
<]bk Y]g`\_ÖbbhY`Yb`hgW`Y]XYbX`gY]bž`i`a` `X]Y`HÄhYf`ni`ZUggYb`i`bX
ni`\_ÖbZh][`Y`8]YVghÄ` \ `Y`ni`j`Yf` \]bXYfb"

5i`gk`]f`\_i`b`[`Yb`XYg`8]YVghU` \ `g`Ui`Z`@UbXk`]fhY

8]Y`5i`gk`]f`_i`b`[`Yb`X]YgYg`8]YVghU` \ `g`_ÖbbhYb`h]YZfY`K`Y`Yb`]b
XYf` ;`Ya`Y]bXY`n]Y` \ Yb`" @UbXk]fhY`i`bX`@\_k`!` :`U` \ fYf`g]bX`Ui`Z
ni`j`Yf`Ägg][`Y`HfY]VghcZZ`Yfgcf`[`i`b`[`Ub`[`Yk`]YgYbž`i`a` `]` \ fY
hÄ[`]W`Yb`5i`Z`UVYb`ni`YfZÖ`Yb`"9]b`d`Öhn`]W`Yf`J`Yf`i`ghž`k`]Y`XYf
`Y`hnh`Yf`]hYbYž`\_ÖbbhY`XUni`ZÖ` \ fYbž`XUgg`5i`ZhÄ[`Y`j`YfnÖ`[`Yfh
k`YfXYb`c`XYf`5fVY]hg`\_fÄZhY`b]W`h`f]W`h][` `Y]b`[`YgYhnh`k`YfXYb
_ÖbbYb`"8]Y`VYhfcZZYbYb`i`]fa`Yb`k`YfXYb`bi`bi`[`Ynk`i`b`[`Yb`gY]bž
XYb`GW`UXYb`Z]bUbn]Y`"ni`VYk`YfhYb`i`bX`a`Ö[`]W`Yfk`Y]gY
ni`gÄhn`]W`Y`G]W`Yf` \ Y]hga`U`»`bU` \ a`Yb`ni`]a`d`Ya`Ybh]YfYbž`i`a
_ÖbZh][`Y` ,`VYf`[`f]ZZY`ni`j`Yfa`Y]XYb`"8]Yg`\_ÖbbhY`Y]bY`k`Y]hYfY
Z]bUbn]Y`Y`6Y`Ughi`b`[`XUfghY`Ybž`X]Y`]b`j`]Y`Yb`i`Ä`Yb`b]W`h
Y]b`[`Yd`Ubh`k`Uf`i`bX`gca`]h`ni`gÄhn`]W`Y`6Y`Ughi`b`[`Yb`ZÖf`X]Y
6Yhf]YVY`j`Yfi`fgUW`Yb`_ÖbbhY"

8]Y`9fa`]h`i`b`[`Yb`gY]hYbg`XYf`Dc`nY]`k`YfXYb`a`]h` \ ÖW`ghYf
Df]cf]hÄh`VY` \ UbXY`hž`i`bX`X]Y` ;`Ya`Y]bXY` \ c`Zhž`XUgg`Xi`fW`X]Y
l`bhYfghØhni`b`[`XYf`²`ZZYbh]W`\_Y]h`X]Y`J`YfUbhk`cfh]W`Yb`gW`bY`"ni`f
FYW`Yb`gW`UZh`[`Ync`[`Yb`k`YfXYb`_ÖbbYb`" Æ]h]Uh]j`Y`ni`f`5i`Z`\_Äfi`b`[
ØVYf`G]W`Yf` \ Y]hgdFU`_h]_Yb`\_ÖbbhY`YVYbZU`"g` \ `]ZfY]W`gY]bž`i`a
Ä` \ b`]W`Y`J`cfZÄ`Y`]b`Ni`\_i`bZh`ni`j`Yf` \]bXYfb"

8Yf`J`cfZU`" ]b`GhYa`k`YXY`]gh`Y]bY`9f]bbYfi`b`[`XUfUbž`k`]Y

j Yfk i bXVUf`Ui W`gWXY]bVUf`g]WXYfY`UbXk]fhgWUZh]WXY
9]bf]W hi b[Yb`gY]b`_ObbYb" "b`Y]bYf`NY]hž]b`XYf`X]Y`? cghYb`ZØf
X]Y`@UbXk ]fhgWUZh`c`bY\]b`\cW`g]bXž]gh`YXYf`J Yf`i ghj cb
? Ud]hU`ž`gY]`Yg`Xi fW`8 ]YVghU`cXYf`UbXYfY` : U_hcfYbž`VYgcbXYfg
gW`a Yfn`]W`"

8]Y`F ØW\_a Y`Xi b[Yb`Ui g`XYf` ; Ya Y]bXY`nY][Ybž`XUgg`Yg`Y]b
ghUf_Yg`6Yk i gghgY]b`ZØf`X]Y`Bchk YbX][_Y]h`[ ]Vhž`gc`WXY`8Y`_hY
ni`j Yf\]bXYfb`i bX`ni`U`bXYb"9]b` ; YZØ\`XYf`Gc`]XUf]hÅhi bhYf
XYb`@UbXk ]fhYb`_ObbhY`g]W`Ybhk]W_Y`bž`k Ybb`g]Y`g]W
ni gUa a YbgW`Y]» Ybž`i a` ]\fY`G]WXYf\Y]h`ni`j YfVYggYfb`i bX`X]Y
Dc`]nY] ]b`]\fYf`5fVY]h`ni`i bhYfghØhnYb"

8 YhU]` ]YfhY`5 bU`mgY`XYf`8 ]YgY`_f]a]bU`]hÅh

8]Y`9bhk YbXi b[ ]cb`8]YgY`\_fUZhghcZZ`ghY`h`Y]b`k UW`gYbXYg
DfcV`Ya`]b`8Yi hgW`UbX`XUf" Gc`WXY`8 ]YVghÅ`Y`g]bX`cZi`XUg
FYgi`hUh]cb`Y]bYf`?ca V]bUh]cb`Ui g`ghY][ YbXYb`?fUZhghcZZdfY]gYb
i bX`XYf`i bg]WXYf\Y]h]b`XYf`5 [fUfk]fhgWUZh`@UbXk ]fhY`i bX
6Ui i bhYfbY`a Yf`g]bX`VYgcbXYfg`VYhfcZZYbž`XU`g]Y` [ fc» Y`A Yb[Yb
8]YgY` ]\fY`A UgW`]bYb`VYb`Øh][ Yb"8 ]Y`?f]a]bU`]hÅh]a
Ni gUa a Yb\Ub[`a ]h`8]YgY`X]YVghÅ`Yb`\Uh]b`XYb`YhnhYb`>\fYb
g][b]Z]_Ubh`ni [ Ybca a Ybž`k Ug`U`Ufa]YfYbXY`5i ga U» Y
Ub[Ybca a Yb`\Uh"

9]b`k YgYbh]WXYf` : U_hcf`]gh`X]Y`5bcbma ]hÅhž`X]Y`8]YVYb
a Ò[`]WXYfk Y]gY`ni [i hY`\_ca a h"5i Z6Ui ghY`Yb`cXYf`]b
@UbXk]fhgWUZh`gVYhf]YVYb`g]bX`cZi[ fc» Y` ; YV]YhY`]a` : fY]Ybž`X]Y
bi f`gW`k Yf`ni`ØVYfk UW`Yb`g]bX"5i W`X]Y`HUhgUW`Yž`XUgg`X]Y
j Yf`\_Ui ZhYb`A Yb[Yb`Ub`8]YgY`\_fUZhghcZZ`b]W`h]a a Yf` [fØbX`]W
bUW`j c`nc[Yb`k YfXYb`_ObbYbž`a UW`h`Yg`ZØf`X]Y`HÅhYf`Y]bZUW`Yfž
i bYbhXYW`\_h`ni`V`Y]VYb"

<]bhYf[fi bX]bZcfa Uh]cbYb`ni f`]`Y[ U`Yb
HfY]VghcZZYbhbU`a Y

⇒Y[U`Yf`HfY]VghcZZ]YVghU`\`]gh`b]W`h`bi f`Y]b`DfcV`Ya`XYf

?f]a]bU`]hÀhž'gcbXYfb`Ui Wk`Y]b`Yf\YV`]WkYg`k]fhgWkUZh`]WkYg
5b`]Y[ Yb"8]Y`@UbX!`i bX`6Ui k]fhgWkUZh`hfÀ[ h`Y]bY`k YgYbh`]WkY
Fc`Y`]b`XYf`XYi hgWkYb`K ]fhgWkUZhž`i bX`YXYf`8]YVghU\`_Ub
k Y]hfY]WkYbXY`Z]bUbn]Y`Y`5i gk ]f\_i b[ Yb`ZØf`X]Y`VYhfcZZYb
l bhYfbY\`a Yb`\UVYb"8]Y`ghY][ YbXYb`6Yhf]YVg_cgYb`nk]b[Yb
j]Y`Y`l bhYfbY\`a Yb`XUni ž`G]WkYf\Y]hga U» bU\`a Yb`ni`Yf[fY]ZYbž
i a`]\fY`5b`U[ Yb`i bX`@U[ YffÀi a`Y`VYggYf`ni`gWkØhnYb"

Ni gÀhn`]Wk`\Uh`X]Y`7cj]X!%- !DUbXYa]Y`XUg`5fVY]hgi a ZY`X`]b
j]Y`Yb`6fUbWkYb`j YfÀbXYfhž`k Ug`a Ò[`]WkYfk Y]gY`ni`Y]bYa
5bgh]Y[`XYf`?f]a]bU`]hÀh[ YZØ\fh`\Uh" `@cW\_Xck bg`i bX
9]bgWk fÀb_i b[Yb`\UVYb`ni`Y]bYa`5bgh]Y[`XYf`5fVY]hg`cg][_Y]h
i bX`XUa ]h`Ui Wk`ni`Y]bYf`\Ø\YfYb`A ch]j Uh]cb`ZØf`_f]a]bY`Y
5_h]j]hÀhYb`[ YZØ\fh"9]b`k Y]hYfYf`5gdY`h`]gh`XUg`j YfÀbXYfhY
?cbgi a j Yf\U`hYbž`XUg`Ui Wk`XYb`A Uf`_h`ZØf`]`Y[ U`Y`DfcXi`_hY
VYY]bZi ggh"

GhUh]gh]_`i bX`8UhYb`ni`8]YgY`X]YVghÀ\`Yb

GhUh]gh]_Yb`nY][ Ybž`XUgg`]b`8Yi hgWk`UbX`X]Y`NU\`XYf`8]YVghÀ\`Y
j cb`8]YgY`_fUZhghcZZ]a`J\`f`&\$&\$`i a`&\$i`]a`J Yf[ `Y]Wk`ni`a
J cf`U\`f`[ Ygh]Y[ Yb`]gh"8]YgY`8UhYb`ghUa`a Yb`j cb`XYf
Dc`]nY`]WkYb`?f]a ]bU`ghUh]gh]_`fD?Głž`X]Y`À\`f]Wk`YfghY`h`k]fX"8Yf
; YgUa`hk Yfh`XYg`[ Yghc`\`YbYb`8]YgY`g`VYhfÀ[h`GWk`Àhni`b[Yb
ni Zc`[ Y`A`j`]cbYb`9i fcž`k Ug`X]Y`6YXYi hi b[`XYg`DfcV`Ya`g
i bhYfghfY]Wk`h"

Ni XYa`]gh`ni`VYcVUWk`hYbž`XUgg`X]Y`HUhc`fhY`g]Wk`ni`bY\`a YbX`]b
`ÀbX`]WkYb`; YV]YhYb`_cbnYbhf]YfYb"8]Y`8]YVY`bi`hnYb`cZh`X]Y
8i b_Y`\Y]hi bX`]gc`]YfhY`GhUbXc`fhY`ž`i a`]\fY`HUhYb`ni`j YfØVYb"
@Ui h`6Yf]Wk`hYb`g]bX`j cf`U`Ya`\_UbXk ]fhgWkUZh`]WkY`6Yhf]YVY`i bX
6Ui ghY`Yb`VYhfcZZYb"8]Y`Dc`]nY]`fÀh`XU\`Yf`XYb`6Yhf]YVYbž`\fY
G]WkYf\Y]hgj cf`\_Y\`fi b[Yb`ni`ØVYfd`fØZYb`i bX`[ Y[ YVYbYbZU`g`ni
j YfghÀf`_Yb"

: Øf`k Y]hYfY`≠Zcfa Uh]cbYb`i bX`i a`\_U`hi`Y`Y`GhUh]gh]_Yb
Y]bni gY\`Ybž`VYgi WkYb`G]Y`V]hY`X]Y`6i bXYgdc`]nY]`cXYf`X]Y`
Dc`]nY`]WkY`?f]a ]bU`ghUh]gh]_`"

8YhU]g

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