: U\ ffUXX]YVghU\`i bX`J Yf_Y\ fgi bZÄ`Y.
Dc`]nY]`Y[h`U\_hi Y`Y : Ä`Y`c ZZYb

8]Y`Dc`]nY]`VYf]W hYh`ØVYf` : U\ ffUXX]YVghU\`ž : U\ fYb`c\`bY
: U\ fYf`Ui Vb]g`i bX`J Yf\_Y\ fgi bZU`Zi W h`ja `A U]b!HUi bi g!
? fY]g"

⊕`XYb`YhnhYb`HU[ Yb`k i fXYb`]b`a Y\ fYfYb`GhÄXhYb`]a `A U]b!
HUi bi g! ? fY]g`VYa Yf\_Yb`gk YfhY`J cfZÄ`Y`[ Ya Y`XYhž`X]Y`gck c\`
GhfUZfYW h`U`g`Ui W`J Yf_Y\ fgfYW h`VYhfY ZZYb`"6YgcbXYfg`Ui ZÄ`][
k UfYb`XfY]`gYdUfUHy`9fY][ b]ggYž`X]Y`Yk Y]`g`i bhYfgW ]YX`]W Y
GhfUZhUHyb`VY]b\ U`hYhYb`"8]YgY`J cfZÄ`Y`nY][Yb`X]Y`6UbXVfY]hY
j cb`8Y`_hYbž`X]Y`XYb`5`hU[`XYf`6Øf[Yf`VYY]bZi ggYb`_ÖbbYb"
<]Yf`g]bX`X]Y`8YhU]`g`ni `XYb` ; YgW Y\`b]ggYb.

: U\ ffUXX]YVghU\`]b`? Y`\_`Y]a

5a`GUa`ghU[ž`XYb`i& ("5i [i gh&\$&(ž`nk ]gW Yb`%&.%\$`I \f`i bX
%`.\$\$`I \f`k i fXY`]b`? Y`_`Y]a `Y]b`b]W h`UV[YgW`cggYbYg
A ci bhU]bV]_Y`Ybhk YbXYh`8 Ug` : U\ ffUXž`XUg`]a `6Yg]hn`Y]bYg
; YgW ÄX][hYb`k Ufž`ghUbX`Ui ZXYggYb` ; fi bXghØW`\_]b`XYf
: Y`XVYf[ ghfU» Y`"8 UVY]`U`bXY`h`Yg`g]W`i a `Y]b`A cXY`XYf`A Uf_Y
9I hY`]b`XYb`Ui ZÄ`][Yb` : UfVYb`gW k Ufn`i bX`V`Ui "8]Y`Dc`]nY]
? Y`\_`Y]a `U`h`X]Y`9fa]h`i b[ Yb`Ui Z[Ybca`a Yb`i bX`V]hYh
a Ö[`]W Y`NYi [Ybž`g]W`i bhYf`XYf`HY`Y Zcbbi a a Yf`\$*%-)`#\*+( -`
\$`ni `a Y`XYb`" : U\ ffUXX]YVghÄ`Y`_ÖbbYb`]b`j]Y`Yb`ghÄXh]gW Yb
; YV]YhYb`Y]b`YfbghYg`DfcV`Ya `XUfghY`Ybž`i bX`gc`W Y`J Yf[Y\`Yb
k YfXYb`\Äi Z[ `j cb`XYf`Dc`]nY]`j YfZc`[ hž`i a `X]Y`? f]a]bU`]hÄ`hni
fYXi n]YfYb"

: U\ ffUXVYg]hnYf`gc`hYb`ghYhg`XUfUi ZUW hYbž`]\fY`F ÄXYf
Ub[Ya YggYb`UVni g]W Yfbž`j cf`U`Ya `]b`U`g`dchYbn]Y`[ YZÄ`fXYh

[Y`hYbXYb`6YfY]W\Yb"8]Y`DfÅgYbn`XYf`Dc`nY]`]b`gc`W\Yb` : Å`Yb`
_Ubb`dchYbn]Y`Y`HÅhYf`UVgW`fYW\_Yb`i`bX`nY][hž`XUgg`X]Y
6Y\`ÖfXYb`U_hj`i`[Y[Yb`8]YVghÅ`Y`j`cf[Y\Yb`"

: U\`fYb`c`\`bY` : U\`fYf`Ui`Vb]g`]b`<`UhhYfg\`Y]a

9]b`k`Y]hYfYf`J`cfZU`Y`fY][bYhY`g]W\`]b`XYf`B`UW`h]j`cb`GcbbhU[ž`XYb`
&)"5i`[ i`gh`&\$&(ž`i`a`'\$%`'`)`i`\`f`]b`<`UhhYfg\`Y]a`Ua`A`U]b`<`]Yf`
k`i`fXY`Y]bY`U`[ Yf]gW`Y`GhUUhgUb[ Y\`Öf][Y`j`cb`Y]bYf`GhfY]ZY`XYf`
Dc`nY]ghUh]cb`<`cZ`Y]a`i`_`cbhfc`Yfh`8`UVY]`ghY`hY`g]W\`YfUi`gž`
XUgg`g]Y`_Y]bY`[ Ø`h][Y` : U\`fYf`Ui`Vb]g`\`UhhY`" `ϕ`XYf` : c`[ Y`k`i`fXY`
Y]b`GhfU]Y`fZU\`fYb`Y]b[Y`Y]hYh`Ni`XYa`ZUbXYb`X]Y`6YUa`hYb`VY]
XYf`\_`VYfd`fØZ`b[`XYf`DYfg`cb`Y]bYb`c`ZY`bYb`<`UZhVYZ\`j`cfž`k`Ug`
ni`i`\`fYf` : YghbU\`a`Y`ZØ\`fhY`8]Yg`nY][hž`k`]Y`k`]W`h][
J`Yf`_Y\`fg`_`cbhfc`Yb`g]bXž`i`a`g]W\`Yfni`ghY`Ybž`XUgg`XUg` : U\`fYb`
i`bhYf`XYb`f]W`h][Yb`6YX]b[ i`b[Yb`i`bX`a`]h`XYb`b`chk`YbX][Yb`
8c`\_i`a`Yb`hYb`YfZc`\`h`"

8`Ug` : U\`fYb`c`\`bY` : U\`fYf`Ui`Vb]g`]gh`Y]bY`Yfb`gh\`UZhY`
5b[Y`Y`[Yb\`Y]h]b`8Yi`hgW`U`bX`i`bX`_`Ubb`ni`c\`Yb` ; Y`XghfUZ`Yb`
gck`]Y`k`Y]hYfYb`fYW`h]W\`Yb`?`cbgYe`i`YbnYb`ZØ\`fYb`8]Y`Dc`nY]
b]a`a`h`X]YgY`J`YfghØ`Y`gY\`f`Yfb`gh`i`bX`UfVY]hYh`XUfUbž`X]Y`GhfU`Yb`
g]W\`YfYf`ni`a`UW\`Yb`"

J`Yf`_Y\`fgi`bZU`Z`i`W\`h`]b`Gi`nVUW\`

5a`G`Ua`ghU[ ž`XYb`&("5i`[i`gh`&\$&(ž`[ Y[ Yb`%-`.\$`\$`i`\`fž`k`i`fXY`Y]b`
J`Yf`_Y\`fgi`bZU`]b`Gi`nVUW\`[Ya`Y`XYhž`XYf`ni`Y]bYf`i`bYf`Ui`VhYb`
I`bZU`Z`i`W\`h`ZØ\`fhY`9]b`↑`[YbX`]W\`Yf`9!F`c`YfZU\`fYf`k`Uf`j`ca`
6Øf[YfghY][`]b`XYb`Z]Y`YbXYb`J`Yf`\_Y\`f`Y]b[ YZU\`fYb`i`bX`
_`c`X]YfhY`a`]h`Y]bYa`D?`K`"8Yf`F`c`YfZU\`fYf`ghØfnhY`XUVY]i`bX`
nc[`g]W\`Ui`[ YbgW\`Y]b`]W\`J`Yf`Yhni`b[ Yb`Ua`i`l`bhYfUfa`ni`"
B`UW\`XYa`XYf`D?`K`!` : U\`fYf`X]Y`i`bZU`ghY`Y`[Yg]W\`Yfh`\`UhhY`ž`
Yb`hgW\`c`gg`g]W\`XYf`F`c`YfZU\`fYf`ž`i`bYf`Ui`Vh`ni`ZØW`hYb`8Yf`
GUW`gW`UXYb`Ua` : U\`fnYi`[`VY`Åi`Zh]g]W\`Ui`Za`Y\`fYfY`hUi`gYbX`
9i`fc`8]Y`Dc`nY]`gi`W\`h`bi`b`NYi`[ Yb`XYg`J`cfZU`g`DYfg`cb`Ybž`X]Y`
ϕ`Zcfa`Uh]cb`Yb`[YVYb`\_`Öbb`Ybž`k`YfXYb`[YVYhYbž`g]W\`a`]h`XYa`
F`Y`[]cb`U`Yb`J`Yf`\_Y\`fgX]Yb`gh]b`<`cZ`Y]a`i`bhYf`XYf`HY`Y`Zcbbi`a`a`Yf`

\$*%- &#&\$+- ' '\$\$]b'J YfV]bXi b['ni 'gYhnYb"

I bZU`Zi W hYb`g]bX`b]W h`bi f[YgYhn`]W`VYghfUZh`gcbXYfb
\]bhYf`UggYb`Ui W`cZh`GW`AXYb`Ub`XYb`VYhfcZYbYb` : U\fnYi [Yb
i bX`\_ObbYb`XUg`J YfhfUi Yb`]b`X]Y`J Yf`Y\fgg]W Yf\Y]h
i bhYf[fUVYb`'9g`]gh`k ]W h][ ž`XUgg`U`Y`J Yf`Y\fghY`]bY\`a Yf
J YfUbhk cfhi b['ØVYfbY\`a Yb"

K]W h][_Y]h`XYf`Dc`nY]UfVY]h`]b`XYf`F Y[]cb

8]YgY`J cfZ`Y`j YfXYi h`]W Yb`X]Y`<YfUi gZcfXYfi b[Ybž`a ]h`XYbYb
X]Y`Dc`nY]`]a`A U]b!HUi bi g!`fY]g`_cbZfcbh]Yfh`]gh"8i fW`[Yn]Y`hY
?cbhfc`Yb`i bX`9fa ]h`i b[Yb`j Yfgi W Yb`X]Y`6YUa hYbž`8Y`\_hY`ni
j Yf\]bXYfb`i bX`XYb`6Øf[ Yfb`DfchY`\_h]cb`ni`V]YhYb"8]Y
Ni gUa`a YbUfVY]h`nk]gW Yb`Dc`nY]`i bX`N]j]VYj`Ø`_Yfi b[`]gh
YbhgW Y]XYbX`ZØf`X]Y`G]W Yf\Y]h`i bX`XUg`K`c\`VYZ]bXYb`XYf
; Ya`Y]bgW UZh"

<Ai Z][_Y]h`j`cb` : U\ffUX!8]YVghA\`Yb`]b
8Yi hgW`UbX

8Yf`8]YVghU\`j`cb` : U\ffAXYfb`]gh`Y]b`k`Y]h`j`YfVfY]hYhYg`DfcV`Ya
]b`8Yi hgW`UbX"@Ui h`Y]bYf`GhUh]gh]_`XYf`Dc`nY]`]W Yb
?f]a]bU`ghUh]gh]\_`k`i`fXYb`]a`U\`f`&\$&&`Yhk`U" "\$"\$\$\$
: U\ffUX]YVghA\`Y`[Ya`Y`XYh"8]Yg`Yb`hgd]W h`Y]b`Ya`5bgh]Y[ `j`cb
+ž%`i`]a`J Yf[ `Y]W`ni`a`J cf`U\`f"6YgcbXYfg`]b`gh`Xh]gW Yb
; YV]YhYbž`k`c`X]Y`8]W h`Y`Ub` : U\ffAXYfb`i bX`dchYbn]Y`Yb`8]YVYb
\cW`]ghž`_ca`a`h`Yg`\Ai Z][`ni`gc`W Yb`J cfZ`Yb"8]Y
Dc`nY]VY\`ØfXYb`fUhYb`XU\Yfž` : U\ffAXYf`]a`a`Yf`UVni`gW`]Y»Yb
i bX`ni`g`h`W`G]W Yfi b[ Yb`k`Y]`?UVY`!`cXYf`I`!GW`ØggYf`ni
j Yfk`YbXYbž`i`a`XUg`F]g]\_c`Y]bYg`8]YVghU\`g`ni`a`]b]a`]YfYb"
K`Y]hYfY`bZcfa`Uh]cbYb`ni`?f]a ]bU`h`h`gghUh]gh]_Yb`Z]bXYb`g]W`Ui`Z
XYf`<ca`YdU[Y`XYg`6i`bXYg`_f]a]bU`Ua`hYg"

F YW h`g`U[Y`VY]` : U\fYb`c`bY` : U\fYf`Ui`Vb]g
]b`8Yi hgW`UbX

⊕'8Yi hgW\`UbX`]ghXUg: U\fyf`c\`bY: U\fyf`Ui Vb]g`Y]bY`GhfUZhUhž
X]Y`[ Ya`À»`z`&%`XYg`GhfU»`Ybj`Yf`\_Y\fg[ YgYhnYg`fGhJ; Ł[YU\`bXYh
k`]fX"K`Yf`c\`bY`[ Ø`h][Y: U\fyf`Ui Vb]g`Y]b`? fUZhZU\`fnYi [`ZØ\`fhž
f]g_]Yfh`b]W\`h`bi`f`Y]bY; Y`XghfUZY`ž`gcbXYfb`Ui`W\`: fY]\`Y]hgghfUZY`b
j`cb`V]g`ni`Y]bYa`'⊕\`f"8]Y`Dc`nY]`\`Uh]b`gc`W\`Yb: Å`Yb`XUg
FYW\`hž`XYb`VYhfY`ZY`bXYb: U\fyf`ZY`ghni`bY\`a`Ybž`]bgVY`gcbXYfY
k`Ybb`Y]b`c`ZY`bYf`<`UZhVY`ZY`\`[Y[Yb`X]Y`DYfgcb`j`cf]Y[h"8]Y
fYW\`h]W\`Yb`?`cbgYei`YbnYb`i`bX`XYf`a`Ò[`]W\`Y`J`Yf`i`gh`XYg
: Ø\`fyfgW\`Y]bg`VY]Y]bYa`j`Yfi`fhY]`hYb`8Y`\_`h`i`bhYfghfY]W\`Yb`X]Y
9fbgh\`UZh][`_Y]h`X]YgYf`GhfUZhUh" `B`Å\`YfY`⊕`Zcfa`Uh]cbYb`ni`f
fYW\`h]W\`Yb`@U[ Y`_`ØbbYb`Ui`Z`XYf`<`ca`YdU[ Y`XYg`8Yi`hgW\`Yb
5bk`U`h]`YfY]bg`[YZ`bXYb`k`YfXYb"

J Yf`\_Y\`fgi`bZ`Å`Y`i`bX`XYfYb: c`[Yb

J Yf`\_Y\`fgi`bZ`Å`Y`ž`k`]Y`XYf`VYgW\`f]YVYbY`J`cfZU`"a`]h`XYa`'9!F`c`Yfž
\`UVYb`c`ZhigW\`k`Yfk`]Y[YbXY: c`[ Yb" `GhUh]gh]_Yb`nY][ Ybž`XUgg
`Å\`f`]W\`HUi`gYbXY`j`cb`A`YbgW\`Yb`Xi`fW\`J`Yf`\_Y\`fgi`bZ`Å`Y`j`Yf`Yhnh
k`YfXYb" `a`'⊕\`f`&\$&&`j`Yfi`b[`ØW\`hYb`ØVYf" `\$\$"\$\$\$`DYfgcbYb`]a
GhfU»`Ybj`Yf`\_Y\`fž`k`cVY]`X]Y`\`Ai`Z][ghYb`J`Yf`Yhni`b[Yb: fU`\_`hi`fYb
i`bX`DfY`i`b[Yb`VYhfY`ZY`b"8]Y`9f\`YVi`b[`j`cb`8`UhYb`ØVYf
J Yf`\_Y\`fgi`bZ`Å`Y`]b`8Yi`hgW\`UbX`k`]fX`j`cb`j`YfgW\`YXYbYb
⊕gh]hi`h]cbYb`Xi`fW\`[YZØ\`fhž`i`a`[Yn]Y`hY`Df`Å`Ybh]cbga`U»`bU\`a`Yb
ni`Yb`hk`]W\`Yb" `Ni`XYb`A`U»`bU\`a`Yb`[Y\`ØfYb`i`bhYf`UbXYfYa`X]Y
J YfVYggYfi`b[ `XYf`J`Yf`\_Y\`fgVYX]b[i`b[ Yb`i`bX
5i`Z`_`Åfi`b[g`\_`Ua`dU[ bYb`ØVYf`g]W\`YfYg`J`Yf\`U`hYb`]a
GhfU»`Ybj`Yf`\_Y\`f"8YhU]`"Yfhy`6Yf]W\`hY`ØVYf`J`Yf`\_Y\`fgi`bZ`Å`Y`g]bX
Ui`Z`XYf`<`ca`YdU[ Y`XYg`GhUh]gh]gW\`Yb`6i`bXYgUa`hYg
ni`[`Åb[`]W\`"

8YhU]`g

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