

: U\ fYb `c \ bY : Ø\ fYfgW X Y]b. `*) ! Å\ f][Yf
`Y]ghYh`K]XYfghUbX `[Y[Yb `Dc `]nY]

5`ZY`X`fd]YŁ` `9]b`J`cfZU``]a`VYgW X Ui `]W X Yb`5`ZY`X`\ Uh`Ua
8]YbghU[a`cf[Yb`X]Y``c`_U`Y`Dc`]nY`]b`5i`ZfY[i`b[`j`YfgYhnh`
I`a`%\$.&)`I`\f`VYZUbX`g]W X`Y]b`)`*!`Å\ f][Yf
Dc`]nY]j`c``ni`[gVYUa`hYf`Ub`Y]bYf`; YZU\ fYbghY``Y`Ui`ZXYf
@(`,`,`]b`XYf`; Ya`Uf`_i`b[`K`YghYfVYf[ž`U`g`Yf`Ui`ZY]bYb
*)`!`Å\ f][Yb`A`Ubb`Ui`Za`Yf`_gUa`k`i`fXYž`XYf`c`\bY`[Ø`h][Y
: U\ fYf`Ui`Vb]g`]b`Y]bYa`D_k`i`bhYfk`Y[g`k`Uf``8Yf
Dc`]nY]VYUa`hYž`XYggYb`

5`ZY`X`fd]YŁ` `9]b`J`cfZU``]a`VYgW X Ui `]W X Yb`5`ZY`X`\ Uh`Ua
8]YbghU[a`cf[Yb`X]Y``c`_U`Y`Dc`]nY`]b`5i`ZfY[i`b[`j`YfgYhnh`I`a
%\$.&)`I`\f`VYZUbX`g]W X`Y]b`)`*!`Å\ f][Yf`Dc`]nY]j`c``ni`[gVYUa`hYf`Ub
Y]bYf`; YZU\ fYbghY``Y`Ui`ZXYf`@(`,`,`]b`XYf`; Ya`Uf`_i`b[
K`YghYfVYf[ž`U`g`Yf`Ui`ZY]bYb`*)`!`Å\ f][Yb`A`Ubb`Ui`Za`Yf`_gUa
k`i`fXYž`XYf`c`\bY`[Ø`h][Y : U\ fYf`Ui`Vb]g`]b`Y]bYa`D_k`i`bhYfk`Y[g
k`Uf``8Yf`Dc`]nY]VYUa`hYž`XYggYb`5i`Z[UVY`Yg`k`Ufž`X]Y`G]W X`Yf\`Y]h
Ub`X]YgYf`GhY``Y`ni`[Yk`Å\ f`Y]ghYbž`_c`bbhY`gc`gW X`bY``b]W X`h`U\`bYbž
XUgg`X]Y`G]h`Uh]cb`Yg`_U`Y]fYb`k`ØfXY`

8Yf`*)`!`Å\ f][Yž`XYf`XYf`Dc`]nY`]VYfY]hg`VY`_Ubb`h`k`Ufž`fYU[]YfhY`Ui`Z
X]Y`5bgdfUW X`Y`XYg`6YUa`hYb`U``Yg`UbXYfY`U`g`_c`cdYfUh]j`" `GhUh
Ubni`U`hYbž`VYgW X`Yi`b][hY`Yf`d`Òm`]W X`i`bX`YfZUgghY`XUVY]`XYb
6YUa`hYb`Ua`fYW X`hYb`i`bhYfUfa`ž`k`Ug`ni`Y]bYf`Y]W X`hYb`J`Yf`Yhni`b[
ZØ\ fhY``8]YgY`k`U[\U`g][Y : `i`W X`h`k`Uf`b]W X`h`bi`f`[YZ`Å\ f`]W X`ZØf`XYb
Dc`]n]ghYbž`gcbXYfb`ghY``hY`Ui`W X`Y]b`[fc»Yg`F`]g]_c`ZØf`UbXYfY
J`Yf`_Y\`fghY]`bY\`a`Yf`XUf`

: YghbU\ a`Y`i`bX`fYW X`h`]W X`Y`?`cbgYe`i`YbnYb

8]Y : `i`W X`h`YbXYhY`YXcW X`b]W X`h`Ub[Y`XUbUW X``8Yf : U\ fYf`_c`bbhY

Ui ZY]bYa 'DUF_d`Uhn`XYg`B D!A Uf_hYg`]b': fYXYb`Ui Z[Y[f]ZZYb
k YfXYb" <]Yf`VY[Ubb`XUg`b`ÅW`ghY`? Ud]hY`XYg`J cfZU`g. ; Y[Yb
XYb`A Ubb`k`i fXYb`9fa`]h`i`b[gj`YfZU`fYb`Y]b[Y`Y]hYhž`gck`c`
k Y[Yb': U`fYbg`c`bY': U`fYf`Ui Vb]g`U`g`Ui W`k`Y[Yb`K`]XYfghUbXg
[Y[Yb`J`c`ghfYW`i`b[gVYUa`hY`"Gc`W`Y`J`cfZ`Å`Y`g]b`X`b]W`h`bi`f`Y]bY
< YfUi`gZcfXYfi`b[`ZØf`X]Y`Dc`nY]ž`gcbXYfb`k`YfZYb`Ui`W`': fU[Yb
bUW`XYf`G]W`Yf`Y]h`]a`GhfU» Ybj`Yf`_Y`f`Ui`Z"

≠`8Yi`hgW`UbX`]gh`XUg': U`fYb`c`bY': U`fYf`Ui Vb]g`Y]bY`gW`k`YfY
GhfUZ`hž`X]Y`]b`XYf`FY[Y`a`]h`c`bYb'; Y`XghfUZ`b`i`bX`a`Ø[`]W`Yb
: fY`\Y]hgghfUZ`b`[YU`bXYh`k`]fX`"8UfØVYf`\]bUi`g`k`]fX`K`]XYfghUbX
[Y[Yb`J`c`ghfYW`i`b[gVYUa`hY`]b`XYf`FY[Y`Y`VYbZU`g
ghfUZ`fYW`h]W`j`YfZc`[hž`U`Yf`K`U`fgW`Y]b`]W`_Y]h`bUW`k`]fX`XYf
*)!`Å`f][Y`]b`XYb`_ca`a`YbXYb`HU[Yb`a`]h`fYW`h]W`Yb
?cbgYei`YbnYb`fYW`bYb`a`ØggYb"

8 Yf`I`a`[`Ub[`a`]h`gc`W`Yb`G]hi`Uh]cbYb

Dc`nY]VYUa`hY`g]bX`c`Zi]b`VfYbn`][Yb`G]hi`Uh]cbYb`[YZcfXYfhž`]b
XYbYb`gW`bY`Yg`i`bX`ØVYf`Y[hYg`< UbXY`b`[YZfU[h]gh`"8Y
HUhgUW`Yž`XUgg`XYf`6YUa`hY`Ua`fYW`hYb`i`bhYfUfa`j`Yf`Yhnh
k`i`fXYž`]i`ghf]Yfh`X]Y'; YZU`fž`XYf`g]Y`]b`]fYa`6Yfi`ZgU`hU[
Ui`g[YgYhnh`g]bX`"9g`]gh`ni`XYa`VYa`Yf`_Yb`gk`Yfhž`XUgg`hf`chn`X]YgYf
GW`fYW`_Yb`gg]hi`Uh]cb`Y]bY`VY`hc`b`h`d`fc`ZY`gg]cbY`Y`F`YU`_h]cb`j`cb
GY]hYb`XYf`Dc`nY]j`cf`U[ž`X]Y`XYb`J`cfZU`gW`bY`Y]b[fYbnYb
_c`bb`hY"

8]Y`a`Ø[`]W`Y`J`Yf`Ufa`c`gi`b[`j`cb`J`Yf[Y`Yb`k`]Y`XUg': U`fYb`c`bY
: U`fYf`Ui Vb]g`i`bX`XUg'; Y[YbØVYfgh`Y`Yb`XYf`Dc`nY]c`bY
F`YgdY`_h]gh`Y]b`Ub`U`hYbXYg`Dfc`V`Ya`"9g`YfZcfXYfh`b]W`h`bi`f`X]Y
5i`Za`Yf`_gUa`_Y]h`XYf`6Y`ØfXYbž`gcbXYfb`Ui`W`Y]b`k`UW`gYbXYg
6Yk`i`gghgY]b`]b`XYf`5`[Ya`Y]bVYj`Ø`_Yfi`b["8Ug`6Yk`i`gghgY]b`ni
gW`ÅfZYbž`k`Y`W`Y`?cbgYei`YbnYb`gc`W`fØW`_g]W`hg`c`gYg`J`Yf`U`hYb
bUW`g]W`n]Y`hž`_Ø`bb`hY`X`Uni`VY]hfU[Ybž`X]Y`GhfU» Yb`g]W`Yf`Yf`ni
a`UW`Yb"

Ni`gUa`a`Yb[YZUggh`nY][h`X]YgYf`J`cfZU`X]Y`< YfUi`gZcfXYfi`b[Ybž
X]Y`X]Y`Dc`nY]j`a`]h`i`bg]W`YfYb`J`Yf`_Y`f`gg]hi`Uh]cbYb`ni`VYk`Å`h][Yb

\Uh"; `Y]W\hY]h][`fi Zh`Yf`XUni `Ui Z`X]Y `GhfU» Ybj Yf_Y\fgcfXbi b[
Yfbgh`ni `bY\`a Yb`i bX`X]Y `F YW\hY`i bX`DZ]W\hYb`U`Yf
J Yf_Y\fgfY]`bY\`a Yf`ni `fYgdY_h]YfYb"

9]b`5i Zfi Z`ni f`F ØW_g]W\hbU\`a Y`]a GhfU» Ybj Yf_Y\`f

⇒ `5bVYhfUW\h`XYf`U_hi Y`Yb`; YgW\Y\`b]ggY`k]fX`XYi h]W\ž`k]Y
k]W\h][`Yg`]ghž`j YfUb`k cfhi b[gj`c``Ua `GhfU» Ybj Yf_Y\`f
hY]`ni bY\`a Yb``→XYg: Y\`j Yf\U`hYb`_Ubb`b]W\h`bi f`Y][YbY
J Yf`Yhni b[Yb`bUW\`g]W\`n]Y\Ybž`gcbXYfb`Ui W\`i bgW\i`X][Y`8f]hhY
[YZ\`fXYb``8 Ug`6Y]gd]Y`XYg`*) !→\f][Yb`j YfXYi h]W\h`XUVY]`Ui Z
YfgW\fYW_YbXY`K Y]gYž`k]Y`gW\`bY``Ui g`Y]bYf`j Yfa Y]b`h]W\
\Ufa `cgYb`G]hi Uh]cb`Y]bY`[YZ\`f]W\Y`k YfXYb`_Ubb``9]b
fYgdY_hj`c``Yf`I a [Ub[`]a `GhfU» Ybj Yf_Y\`f]gh`b]W\h`bi f`Y]bY
DZ]W\hž`gcbXYfb`Y]b`k YgYb`h]W\Yf`6YghUbXhY]`ZØf`X]Y`G]W\Yf\`Y]h
U`Yf"

F YW\hg`U[Y`ni a` : U\`fYb`c\`bY` : U\`fYf`Ui Vb]g

⇒ `8Yi hgW\`UbX`]gh`XUg: U\`fYb`c\`bY`[Ø`h][Y` : U\`fYf`Ui Vb]g`Y]bY
ghfUZVUFY`< UbX`i b[ž`X]Y`bUW\`z`&%`XYg`GhfU» Ybj Yf_Y\`fg[YgYhmYg
fGhJ ; Ł`[YU\`bXYh`k]fX``8]Y`GhfUZb`fY]W\Yb`j cb`; Y`XVI » Yb`V]g`\]b
ni` : fY]\`Y]hgghfUZbž`]bgVYgcbXYfY`k Ybb`Yg`ni`Y]bYf`; YZ\`fXi b[
UbXYfYf`J Yf_Y\`fgfY]`bY\`a Yf`_ca`a`h``9]b`gc`W\Yf: U`ž`k]Y`XYf`]a
J cfZU``]b`5`ZY`Xž`k]fX`b]W\h`bi f`X]Y` : U\`fYf`Ui Vb]g`XYg`HÅhYfgž
gcbXYfb`Ui W\`gY]bY`ni _ØbZ]h][Yb`A Ò[`]W\`_Y]hYbž`Y]bYb
: Ø\`fYfgW\Y]b`ni`Yf`Ub[Ybž`Yf\`YV`]W\`VYY]bZi`ggYb"

Ni gÅh`]W\`_Ubb`XYf`J Yfghc»`[Y[Yb`[Y`hYbXY
J Yf_Y\`fgj`cfgW\`f]ZhYb`ni`Di`b`hYb`]b: `YbgVi`f[`ZØ\`fYbž`X]Y`g]W\
bY[Uh]j`Ui ZX]Y` : U\`fY][bi`b[`XYg: U\`fYfg`Ui`gk]f_Yb``9fa Ò[`]W\`h
XYf`J cfZU``Ui W\`Y]bY`K]XYfghUbXg\`UbX`i b[`]Y[Yb
Dc`]nY]VYUa`hYž`_Ubb`X]Yg`X]Y`fYW\`h]W\Yb`?cbgYei`YbnYb
j YfgW\`ÅfZYb`i bX`ghfYb[Yf`VYghfUZi`k YfXYb"

9]bZi gg`j cb`8fc[Yb`i bX`5`_c\`c``Ui Z`X]Y

J Yf_Y\fgg]Wk Yf\Y]h

9]b`k]Wk h][Yf`5gdY_h`VY]`J Yf[Y\Yb`]a `GhfU» Ybj Yf_Y\f`]gh`XYf
9]bZi gg`j cb`8fc[Yb`i bX`5`_c`c`"9]b`g][b]Z_UbhYf`5bhY]`Ub
J Yf_Y\fgi bZ`Y`b`]gh`Ui Z: U\fyfb`ni fØW_ni ZØ\fybž`X]Y`i bhYf`XYa
9]bZi gg`gc`Wk Yf`Gi VghUbnYb`ghY\Yb" `@Ui h`Y]bYf`Ghi`X]Y`XYf
8Yi hgWk Yb`<Ui dhghY`Y`ZØf`Gi Wk hZfU[Yb`Y"J`"Ui g`XYa `Ÿ\`f`&\$&%
]gh`X]Y`NU\`XYf`8fc[YbZU\fhYb`]b`8Yi hgWk`UbX`ghUf`_Ub[Ygh]Y[Ybž
k Ug`X]Y`: fU[Y`XYf`J Yf_Y\fgg]Wk Yf\Y]hj Yfgh`f`h`Ui Zk]fZ"

æa` : U`Y`XYg`J cfZU`g`]b`5`ZY`X`[]Vh`Yg`_Y]bY`i ba]hhY`VUfYb
<]bk Y]gY`Ui Z`8fc[Yb!`cXYf`5`_c`c`_cbgi a`XYg`VYgWk i`X][hYb
: U\fyfg"8YbbcWk`]gh`ni`Yfk`Å\bYbž`XUgg`gc`Wk Y`: U_hcfYb`]b
Å\b`]Wk Yb`G]hi Uh]cbYb`cZiY]bY`Fc`Y`gd]Y`Yb`i bX`X]Y`; YZ`Å\fxi b[
]a`GhfU» Ybj Yf_Y\f`Yf\YV`]Wk`Yf\Ø`Yb`_ØbbYb"

2 ZZYbh`]Wk Y`K U\fbY\ a i b[`i bX

A YX]YbVYf]Wk hYfghUhi b[

8]Y`ØZYbh`]Wk Y`K U\fbY\ a i b[`j cb`J Yf_Y\fgg]Wk Yf\Y]hi bX`XYf
Bchk YbX][_Y]hž`X]Y`GhfU» Yb`ZØf`U`Y`J Yf_Y\fghY]`bY\ a Yf`g]Wk Yf`ni
\U`hYbž`]gh`ghUf`_[YdfÅ[hij cb`A YX]YbVYf]Wk hYb`ØVYf`i bZ`Y`i bX
J YfghØ» Y`"C Zh`k YfXYb`gc`Wk Y`J cfZ`Y`]b`XYb`BUWk f]Wk hYb
Ui Z[Y[f]ZZYbž`k Ug`ni`Y]bYa`Yf\Ø`hYb`G]Wk Yf\Y]hgVYk i gghgY]b`]b
XYf`6Yj Ø`_Yfi b[`ZØ\fh" `b`Y]bYf`i a ZfU[Y`XYg`8Yi hgWk Yb
J Yf_Y\fgg]Wk Yf\Y]hgfUHYg`fB J F Ł[UVYb`*, i`XYf`6YZfU[hYb`Ubž
XUgg`g]Y`g]Wk`Ui Z[fi bX`j cb`6Yf]Wk hYb`ØVYf`J Yf_Y\fgi bZ`Y`
g]Wk YfYf`ZØ\`Ybž`k Ybb`g]Y`gY`Vgh`ZU`fYb"

8]Y`A YX]Yb`_ØbbYb`gca]h`Y]bYb`YbhgWk Y]XYbXYb`9]bZi gg`XUfUi Z
\UVYbž`k]Y`gc`Wk Y`J cfZ`Y`k U\f[Ybca a Yb`k YfXYb`i bX`k Y`Wk Y
DfÅj Ybh]cbga U» bU\ a Yb`]b`XYf`; YgY`gWk UZh`X]g_i h]Yfh`k YfXYb"
8]Yg`gWk`Å[h`g]Wk`cZi`b`]bhYbg]j Yb`8YVUhhYb`ØVYf
J Yf_Y\fgYfn]Y\i b[`i bX`ghfYb[YfY`; YgYhnY`k]XYf"

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