

⊖bgc`j Ybn`XYf': cgYb!K YfZh.
J YfnÖ[Yfi b[Yb`VY]`XYf`GUb]Yfi b[`XYf`
; fY]Z

8]Y`GUb]Yfi b[`XYg`GY[Y`gWxi `gWk]ZZg'~; fY]Z" `]b`GhfU`gi bX
ghcW_h'k Y[Yb`⊖bgc`j Ybn`XYf': cgYb`GhfU`gi bX'; a V<"
K Y]hYfY`J YfnÖ[Yfi b[Yb`Xfc\Yb"

8]Y`GUb]Yfi b[`XYg`GY[Y`gWxi `gWk]ZZg'~; fY]Z" žXUg`Y]bY`Ub[Y
HfUX]h]cb`ja `a Uf]h]a Yb`9fVY`XYf`<UbgYghUXh'; fY]Zgk U`X
j Yf_ÖfdYfhž'g]Y\h'g]Wk`XYfnY]h'a]h`Yf\YV`]WkYb`J YfnÖ[Yfi b[Yb
_cbZfcbh]Yfh"DfcV`Ya Uh]gWk`]gh`X]Y`G]hi Uh]cb`fi bX`i a `X]Y': cgYb
GhfU`gi bX'; a V<ž`X]Y`a]h`]\fYf`⊖bgc`j Ybn`Ua `8cbbYfghU[`X]Y
⊖bYbghUXh]b`5i ZfY[i b[`j YfgYhnhY`i bX`Ui Wk`5i gk]f_i b[Yb`Ui Z
X]Y`5fVY]hYb`Ub`XYf`~; fY]Z" `Uh"

8 Ug`hfUX]h]cbgfY]WkY`GWk]ZZVY]Z]bXYh'g]Wk`]b`XYf`[fc»Yb
GWk]ZZVUi `U`Y`XYf`J c`_gk YfZh]b`GhfU`gi bXž`k c`Y]bY
i a ZUb[fY]WkY'; YbYfU`gUb]Yfi b[`Xi fWk[YZØ\fh'k]fX""8]YgY
[YgWk]WkghfÅWk]h[Yb`FYdUfUhi fYb`g]bX`ZØf`XUg'(ž*) `A]`]cbYb
9i fc`hYi fY`Dfc`Y`_h`YbhgWkY]XYbXž`k cVY]'6i bXž`@UbX`i bX`X]Y
GhUXh'; fY]Zgk U`X`U`g`9][YbhØa Yf`]b`X]Y':]bUbn]Yfi b[
Y]b[YVi bXYb`g]bX""B UWkXYa `VYfY]hg]`ja `: YVfi Uf`XYf
A i hhYf_cbnYfb': cgYb`MfX`5G`⊖bgc`j Ybn`Uba Y`XYhYž`ghY`hY`g]Wk
X]Y`GhUXh] Yfk U`hi b[`bi b`XUfUi ZY]bž`XUgg`Ui Wk`X]Y
HcWk hYf[YgY`gWk UZh'a]h[fc»Yb`GWk]Yf][_Y]hYb`ni `Äa dZYb`Uh"

5_hi Y`Yf`GhUbX`XYf`5fVY]hYb

Ni fnY]h]gh`X]Y`GUb]Yfi b[`XYf`GWkcbYfVf][[`bi f`ni f`<Ä`ZhY
UV[YgWk`cggYb""C ZZ]n]Y`Yb`5b[UVYb`ni Zc`[Y`\UVYb`Yhk U`+)
DfcnYbh`XYf`bchk YbX][Yb`l a VUi UfVY]hYbž`k]Y`X]Y`9fbYi Yfi b[

XYg`Fi a dZYgi bX`X]Y`ϕghU`U]cb`XYf`A UghYbž`VYfY]hg`VY[cbbYbž
k i fXYb`YXcW`Xi fW`X]Y`A`Y`Xi b[`XYf`ϕgc`j Ybn`k YgYbh`]W
_ca d`n]YfhYf`"Gck Y]h`X]Y`GhUXhj Yfk U`hi b[`]bZcfa`]Yfh`]ghž`ghY`Yb
bcW`k`]W`h][Y`5fVY]hYb`Ubž`X]Y`bi b`]b` : fU[Y`[YghY`h`k YfXYb
a ØggYb"

8]Y`Bchk YbX][_Y]h`Y]bYg`bYi Yb`5i ZhfU[bY`a Yfg`]Y[h`Ui Z`XYf
<UbX/gcVU`X`Y]b`ϕgc`j Ybnj Yfk U`hYf`VYghY`h`]ghž`k`]fX` ; fY]Zgk U`X
_`ÄfYbž`cV`i bX`]b`k`Y`W`Ya` i`a`ZUb[`X]Y`5fVY]hYb`Ub`XYf`~; fY]Z`
Zcfh[YgYhnh`k`YfXYb`_`ÖbbYb`"8Yf`V]g`Yf][Y`NY]hd`Ub`ZØf`X]Y
GUb]Yfi b[`ghUbX`]a` i`<YfVgh`&\$&) ži`a`XUg`GW`]ZZ`k`]YXYf`j`c`
Y]bgUhnVYfY]h`ini`a`UW`Yb`"8cW`X]YgY` : f]gh`k`]fX`g]W`a`]h`U`Yf
K`U`fgW`Y]b`]W`_Y]hj`YfgW`]YVYbž`k`Ug`VY]`XYb`ni`gh`ÄbX][Yb
6Y`\`ÖfXYb`i`bX`XYa` : ÖfXYf`_fY]g`ZØf`XUg`GW`]ZZ`ZØf`6Ygcf[b]g`gcf[h`

:]bUb n]Y`Y`i` b`hYfghØhni b[`i`b`X`hYW`b`]gW`Y
6YXYi hi b[

8]Y`~; fY]Z`" `k`]fX`b]W`h`bi`f`Z]bUb n]Y`i` b`hYfghØhnhž`gcbXYfb`i`]`h
ni`XYa`i`U`g`hYW`b]gW`Yg`8Yb`_a`U`j`cb`bUh]cbU`Yf`6YXYi hi b["
8]YgY`5bYf`_Ybbi b[`j`YfXYi`h`]W`h`X]Y` \`]ghcf]gW`Y`F`Y`Yj`Ub n`XYg
GW`]Zg`ZØf`8Yi`hgW`UbXž`XU`Yg`U`g`6Y]gd]Y`ZØf`hfUX]h]cbY`Y
GW`]ZZU`fhg`_i`bgh`i`bX`!hYW`b]_`[`]h`"BYVYb`Z]bUb n]Y`Y`b`A`]hY`b
j`cb`XYf`8Yi`hgW`Yb`Gh]Zhi b[`8Yb`_a`U`gW`i`hn`i`bX`j`YfgW`]YXYbYb
GdUf`_UggYb!Gh]Zhi b[Yb`hfU[Yb`Ui`W`d`f]j`UhY`GdYbXYb`ni`f
F`YghUi`f]Yfi b[`VY]"

8]Y`GhUXhj Yfk U`hi b[` \`Uh`Ub[Y[YVYbž`XUgg`X]Y`j`cfnY]h][Y
6YYbX][i b[`XYg`DUW`hj YfhfU[g`a`]h`XYf` : cgYb`K`YfZi` ; a`V`<
bchk YbX][` [Yk`cfXYb`]ghž`i`a`k`Y]hYf` \`UbX`i`b[gZ` \`][`ni`V`Y]VYb`"
A`]h`X]YgYb`GW`f]hYb`j`Yfgi`W`Yb`X]Y`J`YfUbhk`cfh`]W`Ybž`X]Y
?cbh]bi`]h`Äh`XYf`fi`bXYb`5fVY]hYb`ni`g]W`Yfbž`XcW`X]Y
I`b[Yk`]gg`Y]h`ØVYf`X]Y`Ni`_i`bZi`XYf` : cgYb`GhfU`gi`bX` ; a`V`<
YfgW`k`Yfh`X]Y`G]hi`Uh]cb`ni`g`Äh`n`]W`"8Ug` : Y` \`Yb`Y]bYg`_`UfYb
K`Y[Yg`ni`f`J`c`gh`ÄbX][_Y]h`XYf`5fVY]hYb`Vf]b[h`F]g]_Yb`a`]h`g]W`ž
XU`X]Y`gcf[Z`Ä`h][Y`9f` \`U`hi`b[`Y]bYg`gc`W`VYXYi`hYbXYb`9fVYg`ZØf
U`Y`6YhY]`][hYb`j`cb`[fØ`hYf`K`]W`h][_Y]h`]gh"

8 Ug'GW]W_gU`XYf`~; fY]Z" `nY][h]b`X]YgYb`hi fVi `YbHYb`NY]hYbž`k]Y
ZfU[]`gc`WXY`F YghUi f]Yfi b[gdfc`Y`_hY`gY]b`_ÖbbYbž]bgVYgcbXYfY
k Ybb`g]Y`Ui Z`X]Y`F Yggci fW`b`Y]bYg`Y]bnY`bYb`i bhYfbY`a Ybg
Ub[Yk]YgYb`g]bX" `K `A`fYbX`X]Y`GhUXh; fY]Zgk U`X`i bX`X]Y
[YgUa hYb`a Uf]h]a Yb`@YV\UVYf`cZYbž`XUgg`g]W`X]Y`G]hi Uh]cb
`Äfhž`V`Y]Vh`UVni k UfhYbž`k]Y`X]Y``g`j`Ybn`i bX`X]Y
B`c`h`k`Y`b`X][`_Y]hž`b`Yi`Y`J`Y`f`h`U[`g`d`U`f`h`b`Y`f`ni`Z]b`X`Y`b`ž`X]Y`N`Y]h`d`Ä`b`Y
X`Y`f`G`U`b]Y`fi`b[`V`Y`Y]b`Z`i`g`g`Y`b`"

9]b`>`]ghc`f]gW`X`Y`g`9fV`Y`V`Y`k`U`f`Y`b`

8]Y`G`W`k`]Y`f][`_Y]hYb`V`Y]`X`Y`f`G`U`b]Y`fi`b[`X`Y`f`~;`f`Y]Z" `j`Y`f`X`Y`i`h`]W`X`Y`b`
X]Y`<`Y`f`U`i`g`Z`c`f`X`Y`fi`b[`Y`b`ž`X]Y`a`]h`X`Y`f`9`f`\`U`h`i`b[`>`]ghc`f]gW`X`Y`f`
G`W`X]Z`Y`j`Y`f`V`i`b`X`Y`b`g]b`X" `9`g`V`Y`X`U`f`Z`_`c`b`h]b`i`]Y`f`]W`X`Y`f`
N`i`g`U`a`a`Y`b`U`f`V`Y]hž`i`b`h`Y`f`g`h`Ø`h`n`i`b[`i`b`X`_`f`Y`U`h]j`Y`f`@`Ø`g`i`b[`Y`b`ž`i`a`
g]W`X`Y`f`n`i`g`h`Y`Y`b`ž`X`U`g`g`X]Y`g`Y`g`a`U`f]h]a`Y`9`f`V`Y`b]W`X`h`j`Y`f`c`f`Y`b`[`Y`\`h`
8]Y`Y`h`n][`Y`@U[`Y`V`Y`h`f]Z`h`b]W`X`h`b`i`f`X`U`g`G`W`X]Z`g`Y`V`g`hž`g`c`b`X`Y`f`b`U`i`W`X`
X]Y`9`f]b`b`Y`fi`b[`i`b`X`X`U`g`J`Y`f`g`h`Ä`b`X`b]g`Z`Ø`f`a`U`f]h]a`Y`H`f`U`X]h]c`b`Y`b`ž`X]Y`
X`i`f`W`X`D`f`c`Y`_`h`Y`k`]Y`X]Y`g`Y`g`Y`V`Y`b`X][`V`Y]V`Y`b`g`c`Y`b`"

X`d`U!]b`Z`c`W`c`a` `;`a`V`<

8]Y`H`i`f`V`i`Y`b`n`Y`b`]a` `G`W`X]Z`V`U`i`_`Ö`b`b`Y`b`U`i`Z`V`f`Y]h`Y`f`Y`k`]f`h`g`W`X`U`Z`h]W`X`Y`
<`Y`f`U`i`g`Z`c`f`X`Y`fi`b[`Y`b`>`]b`k`Y]g`Y`b`ž`X]Y`X]Y`6`f`U`b`W`X`Y`V`Y`U`g`h`Y`b" `8]Y`
b`c`f`k`Y[]g`W`X`Y`c`g`Y`b`M`U`f`X`5`G`\`U`h`h`Y`]b`X`Y`b`Y`h`h`Y`b`Ä`U`f`Y`b`a`]h`
Z]b`U`b`n]Y`Y`b`G`W`k`]Y`f][`_Y]hYb`n`i`_`Ä`a`d`Z`Y`b`ž`k`U`g`]b`
_`g`c`j`Y`b`n]Y`f`Z`U`f`Y`b`a`Ø`b`X`Y`h`Y" `8]Y`g`Y`G]h`i`U`h]c`b`]g`h`b]W`X`h`Y]b`n][`U`f]h][`
i`b`X`Z`Ø`f`h`n`i`X`Y`f`f`U[`Y`ž]b`k`]Y`Z`Y`f`b`]b`U`b`X`Y`f`Y`b`@`Ä`b`X`Y`f`b`Ä`\`b`]W`X`Y`
D`f`c`V`Y`a`Y`]a` `G`W`X]Z`V`U`i`V`Y`c`V`U`W`X`h`Y`h`k`Y`f`X`Y`b" `5`i`W`X`]b`8`Y`i`h`g`W`X`U`b`X`
[`U`V`Y`g`]b`X`Y`f`J`Y`f[`U`b[`Y`b`\`Y]h`G`W`X]Z`g`f`Y`Y`X`Y`f`Y]Y`b`i`b`X`K`Y`f`Z`h`Y`b`ž`X]Y`
U`i`Z[`f`i`b`X`k`]f`h`g`W`X`U`Z`h]W`X`Y`f`_`g`h`U`V]`]h`Ä`h`_`g`c`j`Y`b`n`U`b`a`Y`X`Y`b`
a`i`g`g`h`Y`b`"

9]b`6`Y]g`d]Y`g]b`X`X]Y`<`Y`f`U`i`g`Z`c`f`X`Y`fi`b[`Y`b`ž`X`Y`b`Y`b`X]Y`8`Y`i`h`g`W`X`Y`
K`Y`f`Z`h`i`b`X`X]Y`<`c`k`U`X`h`g`k`Y`f`_`Y!`8`Y`i`h`g`W`X`Y`K`Y`f`Z`h]b`X`Y`b`%`-`-\$`Y`f`
Ä`U`f`Y`b`[`Y[`Y`b`Ø`V`Y`f`g`h`U`b`X`Y`b`ž`U`g`X`Y`f`G`W`X]Z`V`U`i`]b`8`Y`i`h`g`W`X`U`b`X`
]a`a`Y`f`k`Y`b][`Y`f`_`c`b`_`i`f`f`Y`b`n`Z`Ä`\][`[`Y[`Y`b`Ø`V`Y`f`]b`h`Y`f`b`U`h]c`b`U`
c`d`Y`f]Y`f`Y`b`X`Y`b`K`Y`f`Z`h`Y`b`k`i`f`X`Y" `8]Y`f`Y`g`h`f]_`h]j`Y`b`k`]f`h`g`W`X`U`Z`h]W`X`Y`b`

6YX]b[i b[Yb'i bX'X]Y'g]b_YbXY'BUWkZfU[Y'bUWk'bYi Yb'GWk]ZZYb
Z0\fhYb'ni`Y]bYf'FY]\Y'j cb'`bgc`j YbnYb'i bX': i g]cbYb`]b`XYf
6fUbWkY"Y\`b`]Wk`k]Y`Yi hYžk c`X]Y'GUb]Yfi b[`j cb` ; fY]Z `Xi fWk
X]Y'`bgc`j Ybn`XYf': cgYb'GhfU`gi bX'; a V< `[YZÀ\`fXYh]ghž`k i fXYb
XUa U`g`j]Y`Y`Dfc`Y`_hY`Ui Z[fi bX`Z]bUbn]Y`Yf'GWk k]Yf][_Y]hYb
i bhYfVfcWkYb"

9]b`k Y]hYfYf'fY`Yj UbhYf'5gdY_h'g]bX'X]Y`Z]bUbn]Y`Yb
FU\`a YbVYX]b[i b[Ybž`X]Y`Z0f`X]Y`GUb]Yfi b[`XYg`HfUX]h]cbggWk]Zg
; fY]Z `VYb0h][h`k YfXYb"8]Y'; YgUa h_cghYb`Z0f`XUg
GUb]Yfi b[gdfc`Y`_h`VY`Ui ZYb`g]Wk`Ui Z(ž*) `A]`cbYb`9i fc`i bX
gYhnYb`Ui ZY]bY`j]Y`ZÀ`h][Y':]bUbn]Yfi b[ž`X]Y`gck c`\`0ZZYbh`]WkY
A]hY`U`g`Ui Wk`df]j UhY`GdYbXYb`i a ZUggh"8]YgY`5fh`j cb
:]bUbn]Yfi b[`]gh`hmd]gWk`Z0f`Dfc`Y`_hY`ž`X]Y`b]Wk`h`bi f`XYb
hYWk`b]gWkYbž`gcbXYfb`Ui Wk`XYb`_i`hi fY`Yb`K Yfh`Y]bYg`9fVYg
VYhcbYb"8Ug`VYgcbXYfY`5i [Yba Yf`_Ui ZX]Y`GWk`cbYfVf][[ž`X]Y
U`g`hYWk`b]gWkYg`8Yb_a U`j cb`bUh]cbU`Yf`6YXYi hi b[`[]hž`nY][h`X]Y
K YfhgWk`Àmi b[ž`X]Y`gc`WkYb`\]ghcf]gWkYb`GWk]ZZYb`ni hY`]k]fX"
² ZZYbh`]WkY`bgh]hi h]cbYbž`Y]bgWk`Y»`]Wk`XYf`8Yi hgWkYb`Gh]Zhi b[
8Yb_a U`gWk`i hnž`gd]Y`Yb`Y]bY`YbhgWkY]XYbXY`Fc`Y`VY]`XYf
I bhYfgh0hni b[`X]YgYf`b]h]Uh]j Yb"

:]bUbn]Y`Y`I bhYfgh0hni b[`i bX`6YhY]`][i b[

8]Y':]bUbn]Yfi b[`XYg`Dfc`Y`_hg`Z0f`X]Y` ; fY]Z `gc`hY`Ui Wk`]a
?cbhYI h`XYf`fY[]cbU`Yb`k]fhgWk`UZh]WkYb`9bhk]W`_i b[`VYhfUWk`hYh
k YfXYb"8]Y`GUb]Yfi b[`_0bbhY`5fVY]hgd`ÀhnY`]b`XYf`FY[]cb
`Ub[Zf]gh][`g]WkYfb`i bX`Z0fXYfbž`]bgVYgcbXYfY`k Ybb`Y]b`bYi Yg
I bhYfbY`a Yb`X]Y`bcWk`cZZYbYb`5fVY]hYb`0VYfb]a a h"8]Yg`_0bbhY
Ui Wk`XUg`k]fhgWk`UZh]WkY`² _cgmghYa`]b`GhfU`gi bX`ghÀf`Yb"

8]Y`DfcV`Ya Y`VY]`XYf': cgYb`K YfZh`g]bX`Y]bY`A U\bi b[`Z0f`U`Y`Ub
XYf`GWk]ZZU\`fhi bX`Ub`a Uf]h]a Yb`9fVY`b`hYfYgg]YfhYb"9g`]gh
k]Wk`h][ž`XUgg`BUWk`U`h][_Y]hi bX`k]fhgWk`UZh]WkY`GhUV`]hÀh`<UbX
]b`<UbX`[Y\Ybž`i a`gc`WkY`hfUX]h]cbY`Yb`GWk]ZZY`ni`VYk`U\`fYb"
8Yf`J`Yf`i gh]j cb`K YfZhYb`\Uh`b]Wk`h`bi f`5i gk]f`_i b[Yb`Ui Z
9]bnY`dfc`Y`_hY`k]Y`X]Y` ; fY]Z ž`gcbXYfb`Ui Wk`Ui ZXUg`[YgUa hY
a Uf]h]a Y`9fVY`XYg`@UbXYg"

8YhU]g

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