GWX U`\_Y`\$ (. 'GYVUgh]Ub`Dc`hYf`hfYbbh'g]WX bUWX`nk Y]`>U\ fYb`j ca`?'`i V

GYVUgh]Ub`Dc`hYf`i bX`GWX U`\_Y`\$ ('\ UVYb`g]WX`Ui Z`Y]bY
j cfnY]h][Y`J YfhfU[ gUi Z`Øgi b['[YY]b][h`Dc`hYf`VYXUb`h'g]WX
ZØf`X]Y`NY]h`VY]a`J YfY]b"

GYVUgh]Ub`Dc`hYf`i bX`XYf` : 7`GWX U`\_Y`\$ ('[Y\Yb`bi b`cZZ]n]Y`
[YhfYbbhY`K Y[ Y`"8Yf`ZfØ\YfY`GhØfa Yf`XYg`FYj]Yf`\_i Vg`k Uf
VYfY]hg`gY]h`Y]b][Yf`NY]h`b]WX`h`a Y\`f`HY]`XYf`GhUfhY`Z`i bX`ghY\`h
bi b`b]WX`h`a Y\`f`]a`8]Ybghj`cb`GWX U`\_Y`"8]YgY`9bhgWX`Y]Xi b[
k i fXY`Ua`8`cbbYfghU[ a`cf[Ybž`XYa`&"5i [i gh&\$&(ž]b`Y]bYf
DfYggYa`]hhY]i b[ `XYg`J YfY]bg`j Yf`ØbXYh`8Yf`Gd]Y`Yfž`XYf
i fgdfØb[`]WX`V]g`ni a`Gca`a Yf`&\$&) i bhYf`J YfhfU[ `ghUbXž`\Uh'g]WX
a`h`XYa`?'`i V`Ui Z`Y]bY`j cfnY]h][ Y`J YfhfU[gUi Z`Øgi b[ '[ YY]b][ h`
8YhU]`g`ni f`9]b][ i b[ `V`]YVYb`]bXYg`i bhYf`J YfgWX`i gg"

6Yj`cf`Yg`ni`X]YgYf`9bhgWX`Y]Xi b[`Ua`ž`\UhY`GWX U`_Y!
GdcfhX]fY`\_hcf`A UfWK`]`a`chg`Y]b`c`ZZYbYg` ; Ygdf`ÄWX`a`]h`Dc`hYf`
[YZØ\`fh`" K]f`\ UVYb`]a`bUWX`XYf`YhnhYb`GU]gcb`\_`Uf[Ya`UWX`hž
XUgg`gY]bY`9]bgUhnWX`UbWX`b`]b`X]YgYf`GU]gcb`Y\`Yf`[Yf]b[`g]bXž
Yf`\_`ÄfhY`K ]`a`chg`"5i WX`k Ybb`Dc`hYf`g]WX`k`Ä`fYbX`XYf`
J`cfVYfY]hi b[ `]bg`HfU]b]b[ `Y]bVfUWX`hY`i bX`gc[ Uf`Y]bYb`\_i`fnYb
9]bgUhn`[ Y[ Yb`6fUi`bgWX`k`Y][ `Yf\`Y`hž`X]YbhY`XUg`Yhnh`WX`b]WX`h`U`g
Gdfi b[Vfyh`h`ZØf`Y]bY`F`ØW`_`Y`f`]bg`HYUa`" `a`G]bbY`XYf`
gdcfh]WX`Yb`B`Yi`Ui`gf]WX`hi b[`gY]`X]Y`J`YfhfU[gUi Z`Øgi b[ `XYf`VYghY
GWX`f]h`[Yk`YgYbž`gc`K ]`a`chg`k`Y]hYf"

9]b`K`Y[[Ub[`j`c`Yf`9f]bbYfi b[Yb

: Øf`Dc`hYf`gY`Vgh`k`Uf`X]YgYf`5VgWX]YX`a`]h[Ya`]gWX`hYb` ; YZØ\`Yb
j`YfVi`bXYb`" `b`gY]bYf`5VgWX]YX`gYf`_`Äfi b[ `Äi`»`YfhY`Yfž`k`Y

XU b_VUf`Yf`ZØf`X]Y`NY]h`VY]`GW`U`_Y`]gh" Æ`a` Ò`W`h`Y`a`]W` \`Yfn`]W`
VY]a` ]`J`YfY]b`a` ]h`U` ``gY]b`Yb` [fc» Ufh][Yb` :` Ubg`ZØf`X]Y`nk` Y]` ð` \`fY`
VYXU b`\_Yb" `GW`U`_Y`]gh`i` b`X`V`Y]Vh`ZØf`a` ]W` `Y]b`Yf`XYf`
Hcd!` ]`J`YfY]b`Y` ]b` `8`Yi` hg`W` `Ub`X" `GY]b`Ghc`nž`ZØf`X]Y`g`Yb`
HfUX]h]cb`gj`YfY]b`Ui`Z`XYa` `D`U`hn` [Y`gh`Ub`XYb`ni` \`UVYb`ž`]gh`
i` b`Ø`V`Y`fg`Y` \`V`Uf" Æ`a` `b`Y` \`a` Y`j`]Y`Y` [fc» Ufh][Y` `9f]bb`Yfi` b` [ Yb`a` ]h`
i` b`X`k` Ø`bg`W`Y`XYa` `7`i` V`i` b`X`XYf`A` Ub`bg`W`U`Z`h`ZØf`X]Y`Ni` \_i` b`Z`h`U` `Y`g`
;` i` h`Y"

Dc`h`Yf`k` Uf`Yf`gh]a` `Gca` a` Yf`&\$&&`j` cb`J`Z@`6c`W`i` a` `ni` `GW`U`\_Y`
[Yk`Y`W`g`Y`h`K` Æ` \`f`Y`b`X`g`Y]b`Yf`NY]h`VY]`XYb`?`Øb][gV`Ui`Yb`\_Ua` `XYf`
` `!` Æ` \`f][ Y` `Ui` Z` `) `DZ]W`hg`d]Y`Y` ]b`XYf`%"`i` b`X`&"`6i` b`XYg`][ U" `8`UVY`]
_`c`b`b`h`Y`f`]bg[ Y`g`Ua` h`ZØ`b`Z`Hc`f`Y`Yfn]Y`Yb`i` b`X`Y` [ h`Y`g`Y`W`g`k` Y]h`Yf`Y`
Hf`Y`Z`Y`f`Ui` Z`K` c`XYf`Yf`Z`U` \`f`Y`b`Y`Gh`Ø`fa` Yf`bi` b`g`Y]b`Y`?`Uff]Yf`Y`
Zc`fh`g`Y`hn`Yb`k` ]f`X`ž`]gh`XY`fn`Y]h`bc`W` `i` b`\_`Uf" `8`]Y`i` bg]W`Y`f` \`Y]h`Ø`V`Y`f`
XU`g`b`Å`W`gh`Y`?`Ud]h`Y` `g`Y]b`Yf`@`Ui` Z`V`U` \`b`\_`Ø`b`b`h`Y`Y]b`Y` ]b`h`Y`f`Y`gg`Ub`h`Y`
K`Yb`Xi` b` [`V`Y`f`Y]h` \`U`h`Y`b"

8]Y` < ]b`h`Y`f` [ f`Ø`b`X`Y` `X`Y`f` `9`b`hg`W`Y`]X`i` b` [

8]Y` `9`b`hg`W`Y` ]X`i` b` [`ni` f`J`Y`fh`f`U` [g`U`i` Z`Ø`gi` b` [ `gd]Y` [ Y`h`X]Y`
J`Y`f`Å`b`X`Y`fi` b` [ Yb`k` ]X`Y`f`ž`X]Y`GW`U`_Y`\$` (`]b`XYf`U`_hi`Y` `Y`b`GU]g`cb`
Xi`f`W` `À`i` Z`h" `5i` Z[ fi`b`X`XYf`gdc`fh]W`Y`b`GW`k` ]Yf][ \_Y]h`Yb` ]b`XYb`
j`Yf[ Ub[ Yb`Yb` ð` \`f`Y`b`]gh`Y]b`Y`B`Yi`Ui`gf]W`hi`b` [ i`b`Yf`À`gg`]W`ž`i`a`
XU`g`H`Y`Ua` `k` ]Y`XYf` ]b`X]Y` `9`f`Zc` [ gg`di` f`ni` `Vf]b` [ Yb" `8` ]Y`
J`Y`f`Ub`hk`c`fh]W`Y`b` ]a`]`J`Y`f`Y]b`g`]b`X` [Y`Zc`f`X`Y`fh`ž`Zf]g`W`Y` `a` di` `g`Y`]bg`
H`Y`Ua` `ni` `]b`h`Y` [ f]Y`f`Y`b`ž`i`a` `g`ck`c` \`X]Y`@]gh`i` b` [ `U`g`Ui` W` `X]Y`
D`Y`fg`d`Y`\_h]j`Yb`ni` `j`Y`f`V`Y`gg`Y`fb" `8`]Y`g`Y`f`GW`f]h`i]b`F`]W`hi`b` [ `Y]b`Y`f`
`Uf`Y`b`gdc`fh]W`Y`b`J`]g]cb``Ø`b`b`h`Y`ZØf`X`Y`b`J`Y`f`Y]b`j`cb`
Y`b`hg`W`Y` ]X`Y`b`X`Y`f` `6`Y`X`Y`i` hi` b` [ `g`Y]b"

8]Y` :` Ubg`XY`g` :` 7`GW`U`\_Y`\$` ( ` \`UVYb`g]W` `j` cf`U` `Ya` `Ui`Z`X]Y`
Dfca` ]b`Y`bn` \`f`Y`g`J`Y`f`Y]bg`j`Y`f`U`gg`Y`b`ž`i`a` `Ui`g`XYf` `5`V`k` Å`fh`gg`d]f`U`Y`
XYf`Y`hn`h`Y`b` ð` \`f`Y` \`Y`f`Ui` gni` \_ca` a` Yb" `8`Yf` `5`V[Ub[`Y]b`Y`g`
Y`f`Z`U` \`f`Y`b`Yb`Gd]Y`Y`fg`k` ]Y`Dc`h`Y`f`a` U[ `]b`XYb`b`Å`W`gh`Y`b`K`c`W`Y`b`i`b`X`
A`cb`Uh`Y`b` :` fU[Yb`Ui`Zk`Y`f`Z`Y`b`ž`V]Y`h`Y`h`Y`X`c`W` `Ui`W` `X]Y` `A` Ò[`]W`_Y]hž`
b`Yi`Y`H`U`Y`b`h`Y`ni`ZØf`X`Y`f`b`i`b`X`Zf]g`W`Y` `X`mb`Ua` ]g`W`Y`Gd]Y`Y`f` ]b`X]Y`
A`Ub`bg`W`U`Z`h`ni` `]b`h`Y` [f]Y`f`Y`b"

⊕`X]YgYa `Zcfhk Å\FYbXYb`K UbXY`V`Y]Vh`X]Y` : fU[ Yž`k]Y`g]W
GWU`\_Y`\$(`i bX`GYVUgh]Ub`Dc`hYf`]b`XYb`\_ca a YbXYb`A cbUhYb
Ybhk]W_Y`b`k YfXYb" `Dc`hYfg`<cZbi b[ `Ui ZY]bY`cZZYbh]W`dcg]hj Y
K YbXi b[`i bX`X]Y`A Ò[ `]W`\_Y]hž`gY]b`HU`Ybh`bcW`k cUbXYfg`ni
nY][Ybž`gdf]W`h`ZØf`gY]bYb`?Ua`dZ[Y]gh" `9g`k]fX`gdUbbYbX`gY]b`ni
VYcVUW`hYbž`k]Y`g]W`X]Y`?Uff]YfY`j cb`Dc`hYf`Ybhk ]W\_Y`b`k ]fX`i bX
k Y`W`Y`Gd]Y`Yf`X]Y`@ØW_Yž`X]Y`Yf`\]bhYf`Àgghž`ZØ`Yb`_ÒbbYb"

GY]bY`NY]h`VY]a `: 7`GWU`\_Y`\$(

GYVUgh]Ub`Dc`hYf`\_Ua` `]a`Gca a Yf`&\$&&`ni a `: 7`GWU`\_Y`\$(ž
bUW`XYa`Yf`ni j cf`VY]a`J Z@6cW`i a`gd]Y`hY" `⊕`gY]bYf`YfghYb
GU]gcb`VY]`XYb`?Òb][ gV`Ui Yb`k Uf`Yf`HY]`Y]bYg`HYUa`gž`XUg`bUW
XYa`K ]YXYfUi Zgh]Y[ `]b`X]Y`6i bXYg`][ U`gY]bYb`D`Uhn`VY`U`i dhYb
k c`hY" `Dc`hYfž`VY`\_Ubbh`ZØf`gY]bY`d`mg]gW`Y`Gd]Y`k Y]gY`i bX
gY]bYb`9]bgUhnk ]`Ybž`\_Åa`dZhY`i a`Gd]Y`nY]hi bX`hfi [`]b`XYf
YfghYb`GU]gcb`YbhgW`Y]XYbX`ni`XYb`6Ya`Ø`i b[Yb`XYg`J YfY]bg
VY]"`⊕`]bg[YgUa`h`) `DZ]W`hgd]Y`Yb`Yfn]Y`hY`Yf`ZØbZ`HcfY`i bX`[UV
gYW`g`J cf`U[ Ybž`k Ug`XUfUi Z`]\bXYi hYhž`XUgg`Yf`hfc`hn`XYf
<YfUi gZcfXYfi b[Ybž`X]Y`X]Y`[ YgUa`hY`A UbbgW`UZh`Yf`YV`hYž`Y]bYb
[Yk]ggYb`9]bZi`gg`UhhY"

9]bY`NY]h`XYf`<YfUi gZcfXYfi b[Yb

⊕`XYf`XUfUi Zc`[ YbXYb`GU]gcb`YXcW`ÅbXYfhYb`g]W`X]Y
6YX]b[i b[Yb`ZØf`Dc`hYf`YbhgW`Y]XYbX" `5i Z[fi bX`Y]bYf
?ca V]bUh]cb`Ui g`j Yf`Yhni b[ gVYX]b[ hYb`F`ØW`gW`À[ Yb`i bX`XYf
j Yfgh`Åf`_hYb`?cb`_i ffYbn`]a`?UXYf`ZUbX`Yf`g]W`ni bY`a`YbX`Ui Z
XYf`6Ub`_k]YXYf" `8]Y`<YfUi gZcfXYfi b[ž`Y]bY`k]W`h][ Y`F`c`Y`]a
HYUa`ni`gd]Y`Ybž`k i fXY`ZØf`]\b`]a`a`Yf`gW`k ]Yf][ Yfž`k Ug
`YhnhYbX`]W`ni`f`9bhgW`Y]Xi b[`ZØ`hYž`gY]bYb`J YfhfU[`Ui Zhi`ÒgYb"
8Yf`: 7`GWU`\_Y`\$(`gYhnhY`Ui ZY]bY`gdcfh]W`Y`BYi Ui gf]W`hi b[`i bX
\c`hY`bYi Y`Gd]Y`Yfž`X]Y`a`Y`f`Gd]Y`nY]hi bX`9]bZi`gg`]a`?UXYf
j YfgdfUW`Yb"

?cb`\_i ffYbn`]a`J YfY]b

8Yf`: 7`GWU`\_Y`\$(`g]Y`h`g]W`b]W`h`bi`f`]a`<]bV`]W`_Ui Z

DYfgcbU`ghfUH[Y]Y`<YfUi gZcfXYfi b[Yb`[ Y[ YbØVYfž`gcbXYfb`Ui W
]a`F U\ a Yb`XYg`U`[Ya Y]bYb`K YhhVYk YfVg`]b`XYf`6i bXYg`][ U`A]h
nU\`fY]WYb`J YfY]bYbž`X]Y`c\Y`5bgdfØWY`]a`?Ua dZi a`X]Y
cVYfYb`HUVY`Ybd`ÀhnY`ghY`Ybž`]gh`X]Y`?cb_i ffYbn`i a
GhUa a d`ÀhnY`Yi hfYa`cW`"8]YgY`9bhk ]W`i b[`YfZcfXYfhj cb
Gd]Y`Yfb`k]Y`Dc`hYfž`g]W`gh`ÀbX][ `Ubni dUggYb`i bX`XYb`Y][YbYb
@Y]ghi b[gghUbX`ni `Yf\Ø\Ybž`i a`_cb_i ffYbnZÀ\][`ni `V`Y]VYb"

Ni _i bZhj cb`GYVUgh]Ub`Dc`hYf`

B UW`XYb`bi ba Y\`f`j`c`nc[YbYb`J Yf`ÀbXYfi b[Yb`]a`J YfY]b`k]fX
X]Y`Ni \_i bZhj cb`GYVUgh]Ub`Dc`hYf`a`]h`hYfYggY`VYcVUW`hYh`J]Y`Y
: Ubg`ZfU[ Yb`g]W`ž`k Y`W`Y`C dh]cbYb`Yf`bi b`j]b`6YhfUW`h`n]Y\Yb
k]fX`"CV`Yf`]b`XYf`6i bXYg`][U`V`Y]VYb`cXYf`j]Y`Y]W`h`Y]bY`bYi Y
<YfUi gZcfXYfi b[`]a`5i g`UbX`gi W`Yb`k]fXž`]gh`XYfnY]hi b`\_Uf`"8]Y
`YhhYb`nk Y]`š\`fY`VY]`GW`U`_Y`k UfYb`gck c`\`[Ydf`À[hij cb
<cZbi b[Yb`U`g`Ui W`j cb`GW`k]Yf][_Y]hYbž`i bX`bi b[`]h`Yg`ZØf
Dc`hYfž`bYi Y`K Y[ Y`ni`Z]bXYbž`i a`gY]bY`?Uff]YfY`Zcfhni gYhnYb`"

h`X]YgYa`Ni gUa a Yb\Ub[`\_ØbbhY`Dc`hYfg`b`ÀW`ghY`9bhgW`Y]Xi b[
YbhgW`Y]XYbX`ZØf`XYb`k Y]hYfYb`J Yf`Ui Z`gY]bYf`gdcfh]W`Yb
@Ui ZVU`b`gY]b`"CV`Yf`]b`Y]bYf`@[ U`gd]Y`hž`X]Y`k Yb][ Yf`8fi W`
Ui gØVh`cXYf`]b`Y]bYa`I a Z`Xž`XUg`]a`a Y\`f`Gd]Y`nY]h[UfUbh]Yfhž
_ØbbhY`a U» [ YV`]W`XUni `VY]hfU[Ybž`gY]bY`@Y]ghi b[`ni
fY\UV]`h]YfYb`i bX`k ]YXYf`]b`: cfa`ni `\_ca`a`Yb"

GW`U`_Y`\$( `i bX`XYf`?Ua dZi a`X]Y`F ØW`\_Y\`f`]b`X]Y`6i bXYg`][U

GW`U`_Y`\$( `U`h`]b`XYb`Y`hnhYb`š\`fYb`a`]h`j`YfgW`]YXYbYb
<YfUi gZcfXYfi b[Yb`ni`_`Àa dZyb`[Y\UVh`"B UW`X`Ya
K]YXYfUi Zgh]Y[`]b`X]Y`6i bXYg`][U`ghY`h`XYf`J YfY]b`bi b`j`cf`XYf
<YfUi gZcfXYfi b[ž`g]W`k]YXYf`]b`XYf`\ØW`ghYb`XYi hgW`Yb
Gd]Y`\_UggY`ni`VY\Ui dhYb`"8Yf`J Yf`i ghj cb`Gd]Y`Yfb`k ]Y`Dc`hYf
_ØbbhY`gck c`\`Ui Z`XYf`gdcfh]W`Yb`U`g`Ui W`Ui Z`XYf`Ya`ch]cbU`Yb
9VYbY`gdØfVUf`gY]b`": Ubg`i bX`9i dYfhYb`ZfU[Yb`g]W`ž`k ]Y`X]Y
A UbbgW`UZh`bUW`X]YgYb`J Yf`ÀbXYfi b[ Yb`fYU[]YfYb`k ]fX`i bX`cV
X]Y`B`Yi Ui gf]W`hi b[ `XYg`J YfY]bg`X]Y`[ Yk ØbgW`hYb`9f[YVb]ggY
Vf]b[Yb`_Ubb"

A]h'XYa : c_i g'Ui ZX]Y'9bhk]W_`i b[ '↑ b[ Yf'HU`YbhY`i bX`X]Y
FY_fi h]Yfi b[`bYi Yf'Gd]Y`Yf`\_ÒbbhY`GW`U`_Y`\$( `XYbbcW`ZØf`X]Y
Ni _i bZh`[ i h'Ui Z[ YghY`h'gY]b"9g`V`Y]Vh`UVni k UfhYbž`]bk]YZfb`X]Y
9bhgW`Y]Xi b[ Yb`XYg`J YfY]bg`]b`XYb`_ca a YbXYb`A cbUhYb
: fØW`hY`hfU[Yb`k YfXYb`i bX`cV`g]Y`]b`XYf`@U[ Y`g]bXž`]\fY`Dcg]h]cb
]b`XYf`6i bXYg`][ U`ni `ZYgh][Yb"

: Øf`k Y]hYfY`ϕZcfa Uh]cbYb`ØVYf`XYb` : 7`GW`U`_Y`\$( `i bX`gY]bY
9bhk]W_`i b[ Ybž`VYgi W`Yb`G]Y`X]Y`cZZ]n]Y`Y`K`YVg]hY`j`cb
GW`U`_Y`\$("

8YhU]`g

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