8][]hU`Y`? ca dYhYbnYb`ZØfXYfb.`BYi Y Ga Ufhd\cbY!?! fgY`]b`6Yf`]b

9bhXYW_Yb`G]Y`i bgYfY`dfUI ]gbU\Yb`?i fgY`ZØf`5bZÄb[Yf`i bX
: cfh[YgWf]hhYbY`]a`l`a` [Ub[`a`]h`Ga Ufhd\cbYg`i bX`HUV`Yhg`
9f`YfbYb`G]Y`X]Y` ; fi bX`U[ Ybž`bØh`n`]WXY`5ddg`i bX
]bX]j]Xi Y``Y`9]bghY``i b[Yb`]b`6Yf`]b`"HYfa`]b.`YXYb`A`cbhU[
UV`\$-`"\$-`"&\$&(``A`Y`XYb`G]Y`g]WXY`Yhnh`Ub`i bX`j`YfVYggYfb`G]Y
⇒fY`X][ ]hU`Y`?ca dYhYbn`°

8 Ug`?ca`a`i`b`\_Uh]cbgnYbhfi`a`Ua`CghdfYi`»YbXUa`a`]b`6Yf`]b
V]YhYh`UV`XYa``\$-`"\$-`"&\$&( `gdYn]Y``Y`?i fgY`ZØf`Ga Ufhd\cbY!`i bX
HUV`Yh!Bi`hnYf`Ubž`X]Y`g]WXY`gck`c`\`Ub`5bZÄb[Yf`U`g`Ui`WXY`Ub
: cfh[YgWf]hhYbY`f]WXY`hYb`"8]YgY`?i fgY`g]bX`]XYU`ZØf`U`Yž`X]Y`]\fY
X][]hU`Yb`:`Ä\][ \_Y]hYb`Yfk`Y]hYfb`a`ÖWXYb``Y[U`ž`cV`G]Y`[YfUXY
Yfgh`UbZUb[ Yb`cXYf`VYfY]hg`ØVYf`[ fi bX`Y[YbXY`?Ybbhb]ggY
j`YfZØ[ Yb`"

⇒a`5bZÄb[ Yf!?! fg`YfbYb`HY]`bY\`a`Yfž`k`]Y`g]Y`X]Y`:`i`b`_h]cbYb
]\fYf`Ga Ufhd\cbYg`i bX`HUV`Yhg`VYggYf`bi`hnYb`_ÖbbYb`"9g`k`]fX
h\Ya`Uh]g]Yfž`k`]Y`a`Ub`5ddg`]bghU``]Yfh`i`bX`XY]bghU``]Yfž`i`bX`Yg
k`]fX`l`bhYfghØhmi`b[`ni`f`GY`Vgh\`]ZY`[YVchYb`"8UVY]`ghY`h`X]Y
: fU[Y`]a`F`Ui`a`ž`k`Y`WXY`bØh`n`]WXYb`5bk`YbXi`b[Yb`Yg`[]Vh`i`bX
k`Y`WXY`9]bghY``i b[ Yb`\`]ZfY]WXY`gY]b`\_ÖbbhYb`"N]Y``]gh`Ygž`XYb
HY]`bY\`a`YbXYb`b]WXY`h`bi`f`X]Y` ; fi bX`U[Ybž`gc`bXYfb`Ui`WXY
k`Y]hYfZØ\`fYbXY`H\Ya`Yb`b`Ä\`Yfni`Vf]b[Ybž`X]Y`Ub`j`\fY
]bX]j]Xi Y``Yb`6YXØfZb]ggY`Ub[YdUggh`k`YfXYb`"

5bdUggi b[`Ub`]bX]j]Xi Y``Y`5bZcfXYfi b[Yb

9]b`VYgcbXYfYg`A`Yf\_a`U`X]YgYf`?i fgY`]gh`X]Y
5bdUggi b[gZÄ\][_Y]h`8]Y`⇒\U`hY`XYf`A`cXi`Y`cf]Ybh]YfYb`g]WXY`Ub

XYb`5bZfU[ Yb`i bX`6YXØfZb]ggYb`XYf`HY]`bY\`a Yf]bbYb`i bX
HY]`bY\`a Yf``8 Ug`VYXYi hYhž`XUgg`YXYf`?`i fgVYgi W\`Y]bY
]bX]j]Xi Y``Y`@YfbYfZU\`fi b[ `XUfghY``h``9[U`cV`G]Y` : fU[ Yb`ni
gdYn]Y``Yb`Dfc[ fUa` a Yb`\UVYb`cXYf`<`]ZY`VY]`Y]bYa` `VYgh]a` a hYb
DfcV`Ya` `gi W\`Ybž: fUi` `GWk YfXhbYfž`X]Y`?`i fg`Y]hYf]bž`k ]fX`Ui Z
=fY`5b`Y[Yb`Y]b[ Y\Yb`i bX`X]Y`6YhfYi i b[`YbhgdFYW\`YbX
[YghU`hYb`"

8]Y`HY]`bY\`a Yf`k YfXYb`Yfa` i h][hž]`\f`dYfgØb`]W\`Yg; YfÅh
a]hni Vf]b[Yb` `gY]`Yg`Y]b`Ga Ufhd`cbY`cXYf`Y]b`HUV`Yh``8]YgY
gc``hYb`YXcW\`j`c``Ui Z[Y`UXYb`gY]bž`i a` `Y]bY`cdh]a` U`Y`Bi`hni`b[
]a`?`i fg`ni` `[ Yk`Å`\f`Y]ghYb``5`hYfbUh]j` `ghY\`Yb`Ui` W\`HUV`Yhg`ni`f
J YfZØ[i b[ž`ZU`g`Y`a` UbX`_Y]b`Y][ YbYg; YfÅh`a` ]hVf]b[ Yb`_Ubb`"
8Yf`?`i fg`ZØf`5bZÅb[Yf`Z]bXYh`YXYb`A`cbhU[`j`cb`%\$. \$\$`V]g`%%.\$ \$
I` \f`ghUhh`i`bX`i`a` ZUggh]bg[ YgUa` h`gYW\`g`Ghi`bXYbž`X]Y`ØVYf`gYW\`g
K`cW\`Yb`j`YfhY]`h`g]bX`"

: Øf`X]Y` : cfh[YgW\`f]hhYbYb`V]YhYh`XUg`?`ca` a` i` b]_Uh]cbgnYbhfi` a
YVYbZU`g`Y]bYb`?`i fg`Ubž`XYf`gdYn]Y``Ui` ZHY]`bY\`a` Yf`UV[ Ygh]a` a` h
]ghž`X]Y`VYfY]hg; fi`bX`_Yb`hb]ggY`\UVYb`i`bX`[ Yn]Y`hY` : fU[ Yb`ni
_ca`d`YI`YfYb`5bk`YbXi`b[Yb`ghY``Yb`a` ØW\`hYb``8]Y`GWk`Yfdi`b`_hY
]a` : cfh[ YgW\`f]hhYbYb!`?`i fg`g]bX`YVYbZU`g`ZYI`]VY``i`bX`_ØbbYb`Y
bUW\`6YXUfZ`XYf; fi`ddY`j`Uf]]YfYb``HY]`bY\`a` Yf`YfbYbž`bcW\`
VYggYf`a`]h]\fYb; YfÅhYb`ni`UfVY]hYbž`bYi`Y`Dfc[ fUa` a` Y`ni
Yb`hXYW`_Yb`i`bX`]\fY`?`ca` a` i` b]_Uh]cbgZÅ\][`\_Y]hYb`ni` `j`YfVYggYfb`"

8]Y` : fU[ Ybž`X]Y`VYU`bhk`cfhYh`k`YfXYb`_ØbbYbž`\Åb[ Yb`ghUf`\_j`cb
XYb`]bX]j]Xi Y``Yb`=bhYfYggYb`XYf`HY]`bY\`a` Yf`UVž`gcXUgg`YXYf`
?`i fgVYgi W\`Y]bYb`\c\Yb`K`Yfh`V]YhYh``5i`W\`\]Yf`]gh`Yg
YfZcfXYf`W\`ž`Y]b`j`c``Ui`Z[ Y`UXYb`Yg; YfÅh`a` ]hni`Vf]b[ Yb``8Yf`
 : cfh[YgW\`f]hhYbYb!`?`i fg`Z]bXYh`X]fY`_h]a` `5bgW\`i`gg`Ub`XYb
5bZÅb[Yf`\_i`fgž`j`cb`%%.%)`_V]g`%&.%` `I` \fž`ghUhh``8]Y`?`cghYb
VY`Ui`ZYb`g]W\`]b`VY]XYb` : Å``Yb`Ui`Z`&( ž\$`\$` `dfc`DYfgcb`ZØf`X]Y
[YgUa` hY`?`i fgXUi`Yf`"

DfU_h]gW\`Y`9]bnY`\`Y]hYb`i`bX`5ba`Y`Xi`b[

Ni`gUa`a`YbZUggYbX`]gh`XYf`?`i fg`]a` `?`ca` a` i` b]_Uh]cbgnYbhfi`a` `Y]bY

\Yfj cffU[YbXY'; Y`Y[ Yb\Y]h'Z0f`U`Yz`X]Y`g]W`]b`XYf`K` Y`h`XYf`
Ga Ufhd\cbYg'i bX`HUV`Yhg`VYggYf`ni fYW`hZ]bXYb`a` 0W`hYb`"8]Y
dYfg0b`]W`Yb`6YX0fZb]ggY`ghY`Yb`]a` `J`cfXYf[ fi bX`z`k`cXi`fW`X`Yf`
?i fg`Y]bY`a` U» [ YgW`bY]XYfhY`@YfbYfZU`fi b[`V]YhYh`"8]Y
5ba Y`Xi b[ `YfZc`[ h`X]fY`\_h`VY]: fUi`G`W`k`YfX`hbYfz`X]Y`Ui`W`[ `YfbY`
5i g_0bZ`hY`0VYf`XYb`?i fg]b`U`h`i`bX`X]Y`G`hfi`_h`i`f`[ `]Vh`G]Y`]ghi`bhYf`
XYf`HY`Y`Zcbbi`a`a`Yf`\*`+-`&`),`'+-`YffY]W`VUf"

8]Y`?i fgY`Z]bXYb`]b`Y]bYf`Y]b`UXYbXYb`i`a` [ YVi`b[`ghU`h`z`X]Y`Z0f`
Y]b`Ub[ YbY`a` Yg`@Yfb`\_]a` U`gc`f[h`"5W`hYb`G]Y`XUfUi`Z`Z`A`fY`
5ba Y`Xi b[ `fYW`h`nY]h][`j`cfni`bY`a`Yb`z`i`a`HY]`X]YgYg`k`Yfhj`c`Yb`
@YfbUb[YV`chg`ni`k`YfXYb`"8Yf`?i fg`ghU`fhY`h`Ua` `-\$`-\$`-\$`&\$`&(`i`bX`
XUi`Yfh`V]g`ni`a` `%(`"\$`\$`&\$`&(`z`Y]b`NY]hfU`a`Yb`z`XYf`[Yb0[YbX`
F`Ui`a` `Z0f`DfU`_h]_Yb`i`bX`J`Yfh]Y`Zi`b[Yb`V]YhYh"

8 Ub`\_`XYf`Zc`fhgW`fY]hYbXYb`8] []hU`]g]Yfi`b[`g]bX`gc`W`X`Y`5b[YV`chY`
j`cb`[`fc»Yf`6YXYi`hi`b["`8 ]Y`:`A`^][`\_]h`z`g]W`]b`XYf`X][]hU`Yb`K`Y`h`
ni`fYW`h`ni`Z]bXYb`z`hfA`[ h`b]W`h`bi`f`ni`f`dYfg0b`]W`Yb`9b`hk`]W`_i`b[
VY]z`gcbXYfb`]gh`Ui`W`b`ch`k`YbX][`z`i`a` `]b`XYf`ni`bY`a`YbX`
j`YfbY`h`hYb`]; YgY`g`W`U`Z`h`YfZc`[ fY]W`ni`gY]b"

8 Yf`5i`Zgh]Y[`XYf`Ga`Ufhd\cbY!Bi`hni`b[

0`XYb`Y`h`hYb`Z`U`fYb`U`h`X]Y`Bi`hni`b[ `j`cb`Ga`Ufhd\cbYg`i`bX`
HUV`Yhg`Yi`dcbYbh]Y``ni`[ Ybca`a`Yb`z`k`cVY]`Ui`W`Y`h`YfY`
ni`bY`a`YbX`X]YgY`HYW`bc`c[ ]Yb`UXUdh]YfYb`"@Ui`h`Y]bYf`G`h`X]Y`
XYf`6]h`ca` `Ui`g`XYa` `Z`U`f`&\$`&` `VYg]h`nYb`]b`8Yi`hgW`UbX`Y`hk`U`
-) i`XYf`6Yj`0`_Yfi`b[ `Y]b`Ga`Ufhd\cbY`"8 ]Yg`nY][`h`Y]bYb`\_`UfYb`
HfYbX`^]b`ni`X][ ]hU`Yf`J`YfbY`hni`b[z`X]Y`Ui`W`Z0f`5`h`Yfg[ fi`ddYb`z`
X]Y`k`Yb][Yf`h`YW`b]\_UZZ]b`k`UfYb`z`]a`a`Yf`ni`[ A`b[`]W`Yf`k`]fX"

8]Y`Bi`hni`b[ `a`cV]Yf`; YfA`hY`U`h`b]W`h`bi`f`9]bZi`gg`Ui`Z`X]Y`
?ca`a`i`b[\_U]cbg[ Yk`c`b`Y]hYb`z`gcbXYfb`Ui`W`Ui`Z`X]Y`5f`hi`bX`
K`Y]gY`z`k`]Y`0`Zcfa`U]cbYb`_cbgi`a`]Yf`hi`bX`j`YfUfVY]hY`h`k`YfXYb`"9g`
k`]fX`Yfk`UfY`h`z`XUgg`X]Y`Bi`hni`b[`j`cb`Ga`Ufhd\cbYg`]b`XYb`
_ca`a`YbXYb`Z`U`fYb`k`Y]hYf`UbghY][Yb`k`]fX`z`k`Ug`Y]bYb`^`0`YfYb`
6YXUfZ`Ub`?i fgYb`k`]Y`XYb`Ub[YV`chYbYb`gW`UZZh"

6YXUfZ'Ub`X][ ]hU`Yf`5`d\UVYh]g]Yfi b[

8]Y`b]h]Uh]j Yb`ni f`GWXi`i b[`]b`X][]hU`Yf`5`d\UVYh]g]Yfi b[ ž`k]Y`XYf
\]Yf`VYgWkf]YVYbY`?i fgž`g]bX`j cb`nYbhfU`Yf`6YXYi hi b["'9l dYfhYb
Uf[i a Ybh]YfYbž`XUgg`X]Y` : Å\][ \_Y]hž`X][]hU`Y` ; YfÅhY`YZZY\_h]j`ni
bi hnYbž`]b`XYf`\Yi h][ Yb` ; YgY``gWUZh]j Yf[`Y]WVUf`]gh`a ]h`XYf
hfUX]h]cbY`Yb`6]`Xi b[ "'@Ui h`Y]bYf`6YfU[ i b[ `XYg`b]gh]hi hg`ZØf
8Ya cg_cd]Y`5``YbgVUW`Ui g`XYa` `d\`f`&\$&&`gY`Yb`Yhk U`+, i`XYf
6YfU[hYb`X]Y`Bchk YbX][_Y]hž`X][ ]hU`Y`?ca dYhYbnYb`ni`ZØfXYfbž
i a`XYb`gcn]U`Yb`i bX`k ]fhgWUZh]WYb`5bgW`i gg`b]W`hni
j Yf`]YfYb"

8UfØVYf`\]bUi g`k]fX`VYhc b hž`XUgg`?Yb`hb]ggY`ØVYf`Ga Ufhd`cbYg
i bX`HUV`Yhg`b]W`h`bi f`ZØf`U`hÅ[`]WY`5i Z[UVYbž`k ]Y`XUg
?ca a i b]n]YfYb`a ]h: Ua ]`]Y`i bX` : fYi bXYbž`gcbXYfb`Ui W`ZØf`X]Y
HY]`bU`a Y`Ub` [YgY``gWUZh]WYb`5\_h]j ]hÅhYb`YggYbn]Y``g]bX`"8]Y
8][]hU`]g]Yfi b[gk Y``Y`YfZcfXYfh`Y]bY`i a`ZUggYbXY`5i Z`Åfi b[`ØVYf
G]WYf\Y]hgUgdY`hY`i bX`Bi hni b[ ga Ò[ `]W`\_Y]hYbž`i a`XYb`Bi hnYfb
GY`Vghj YfhfUi Yb`]b`XYb`l a [Ub[`a ]h`HYW`bc`c[]Y`ni` [YVYb"

5bdUggi b[`XYf`6]`Xi b[ gUb[ YVchY`Ub
Bi hnYfVYXØfZb]ggY

9]b`k YgYb`h]WYf`5gdY`h`XYf`Ub[YVchYbYb`?i fgY`]ghž`XUgg`g]Y`g]W
bUW`XYb`]bX]j]Xi Y``Yb`6YXØfZb]ggYb`XYf`HY]`bY`a Yf`f]W`hYb`"
8]Yg`]gh`VYgcbXYfg`k ]W`h][ž`XU`b]W`h`YXYf`Bi`hnYf`XUggY`VY
Jcfk]ggYb`cXYf`X]YgY`VYb`5bZcfXYfi b[Yb`\Uh`"8]Y
6YfØW_g]W`h][ i b[ `j cb` : YYXVUW`i bX`5bZfU[ Yb`XYf`HY]`bY`a Yf
Yfa Ò[`]W`h`Ygž`X]Y`@Y`f]b`U`hY`Ubni dUggYb`i bX`fY`Yj Ub`hYf`ni
[YghU`hYb"

8]Y`X]XU\_h]gWYb`5bgÅhY`j Uf]]YfYbž`gcXUgg`gck c`\`5bZÅb[ Yf`U`g
Ui W` : cfh[ YgW`f]hYbY`j cb`XYb`?i fgYb`dfcZ]h]YfYb`\_ØbbYb`"
K Å\`fYbX`5bZÅb[Yf`cZi[ fi bX`Y[YbXY` : i b\_h]cbYb`Yf`YfbYbž
_ØbbYb` : cfh[ YgW`f]hYbY`g]W`a]h`gdYn]Z]gWYb`5bk YbXi b[gZÅ`Yb
VYgW`ÅZh][ Ybž`k]Y`VY]gd]Y`gk Y]gY`XYa`g]WYfYb`l a [ Ub[ `a]h
gcn]U`Yb`A YX]Yb`cXYf`XYf`J Yfk U`hi b[`dYfgØb`]WYf`8UhYb`"Gc

k]fX`g]W\Yf[ YghY`hž`XUgg`X]Y`HY]`bY\ a Yf`]b`XYf`gW\ bY`YV][Yb
X][]hU`Yb`K`Y`h`]a a Yf`Ui Z`XYa `bYi YghYb`GhUbX`V`Y]VYb"

8YhU]`g

6Ygi W\Yb`G]Y`i bg`Ui Z.`X]Y!bUW\ f]W\ hYb"bYh