

6]hWc]b`YfgWk ØhhYfh`X]Y` ; Y`Xj Yfgcf[i b[
]b`A]hhY`Ua Yf]_U`i bX`5Zf]_U`fC d!9XŁ

8]Y`6Ya Ø\i b[Ybž`X]Y`9bhk]W`i b[`i bX`9]bZØ\fi b[`j cb
6]hWc]b`]b`5Zf]_U`i bX`A]hhY`Ua Yf]_U`Ui gni k Y]hYbž`[Y\Yb
k Y]hYf`"8Yf`A Uf_h`g]Y\h`U`gc`bUWk`XYa`"GWk`Y]hYfb`XYf`G"]Wc`b`J`U`Y`mi`6Ub`_
i bX`UbXYfYf`a`]h`?fmdhc!9b[U[Ya Ybh`n]Ya`"Wk`ni`Zf]YXYb`a`]h`6H7`Ui`g`"B`UWk`XYa`"g]Y`5b`ZUb[`Y`hnhYb`A`cb`Uhg`?
i bXYbž`A`Àf`_hY`i bX`5i`Zg]Wk`hgVY\`ÖfXYb`gWk`c`W_]Yfh`\`UhhYbž`gWk`Y]bYb`]\fY`5i`gk`]f`_i`b[Yb`Ui`Z`XYb`A`Uf`_hk`Yfh`j`cb`6H7`]b`X]Y`8mb`Ua`_]`Y]b[YdfY]gh`ni`gY]b`"K`À`fYbX`XUg`?fmdhc!
9fhfU[ggmg`hYa`"UVgh`Øfn`hi`bX`6Ub`_`Fi`bg`XYb`DfY]g`j`cb`6]hWc]b`b`]Wk`h`b`YXf][`U`hYb`_`c`b`bhYbž`hfY]Vh`i`\`b`Yhk`Ug`b`UWk`c`VYb`"8`Ug`]gh`6f`Ub`Wk`Yb`Ybhk`]W`i`b[`i`bX`6Ybi`hnYfU`_nYdh`Ub`nž`X]Y`Ui`Z`XYf`[`Ub`nYb`K`Y`h`gh`UhhZ]b`XYh`"Nk`Y]`XYf`j`]Y`j`Yfgd`fY`Wk`Yb`XghYb`F`Y[`]cb`Yb`ZØf`?fmdhc!
K`UWk`ghi`a`"g]bX`5Zf]_U`i bX`/`Ua`d`^`Y`"j`d`/`

8]Y`6Ya Ø\i b[Ybž`X]Y`9bhk]W`i b[`i bX`9]bZØ\fi b[`j cb`6]hWc]b`]b`5Zf]_U`i bX`A]hhY`Ua Yf]_U`Ui gni k Y]hYbž`[Y\Yb`k`Y]hYf`"

8Yf`A Uf_h`g]Y\h`U`gc`bUWk`XYa`"GWk`Y]hYfb`XYf`G"]Wc`b`J`U`Y`mi`6Ub`_`i bX`UbXYfYf`a`]h`?fmdhc!9b[U[Ya Ybh`n]Ya`"Wk`ni`Zf]YXYb`a`]h`6H7`Ui`g`"B`UWk`XYa`"g]Y`5b`ZUb[`Y`hnhYb`A`cb`Uhg`?
i bXYbž`A`Àf`_hY`i bX`5i`Zg]Wk`hgVY\`ÖfXYb`gWk`c`W_]Yfh`\`UhhYbž`gWk`Y]bYb`]\fY`5i`gk`]f`_i`b[Yb`Ui`Z`XYb`A`Uf`_hk`Yfh`j`cb`6H7`]b`X]Y`8mb`Ua`_]`Y]b[YdfY]gh`ni`gY]b`"

K`À`fYbX`XUg`?fmdhc!9fhfU[ggmg`hYa`"UVgh`Øfn`hi`bX`6Ub`_`Fi`bg`XYb`DfY]g`j`cb`6]hWc]b`b`]Wk`h`b`YXf][`U`hYb`_`c`b`bhYbž`hfY]Vh`i`\`b`Yhk`Ug`b`UWk`c`VYb`"8`Ug`]gh`6f`Ub`Wk`Yb`Ybhk`]W`i`b[`i`bX`6Ybi`hnYfU`_nYdh`Ub`nž`X]Y`Ui`Z`XYf`[`Ub`nYb`K`Y`h`gh`UhhZ]b`XYh`"Nk`Y]`XYf`j`]Y`j`Yfgd`fY`Wk`Yb`XghYb`F`Y[`]cb`Yb`ZØf`?fmdhc!K`UWk`ghi`a`"g]bX`5Zf]_U`i bX`/`Ua`d`^`Y`"j`d`/`

5Zf]_U'i bX`A]hhY`Ua Yf]_U"

⊕`5Zf]_Už`k c`g]W`Y]b][Y`XYf`Àfa ghYb`@ÀbXYf`XYf`K Y`h`VY]bXYbž
\UVYb`Yi hY`fi bX`) \$`i`XYf`9]bk c`bYf`_Y]bY`6Ub_j YfV]bXi b["
8 Ug`VYXYi hYhž`XUgg`g]Y`b]Y`Y]b`;]fc`_cbhcž`Y]bY`?fYX]h_UfhY`cXYf`
Ni [Ub[`ni`6Ub_X]YbghY]ghi b[Yb`\UhhYbž`i bX`6]hWc]b`VY\YVh`X]Yg
]b`j`Y`Yf`Y`<]bg]W`h"

K UW`ghi a`]b`5Zf]_U'i bX`A]hhY`Ua Yf]_Už
6]hWc]b`F ØW_Ybk]bX

5bXfYk`@c_YbUi h\ž`5i hcf`XYg`VY`]YVhYb`⊕j YghcfYb!BYk`g`YhhYfg
: `i`Ybh]b`:]bUbW`ž`_Øfn`]W`[YgW`f]YVYbž`J]Y`Y`UZF]_Ub]gW`Y
@ÀbXYf`Yf`YVYb`Y]bY`\c`Y`⊕ZUh]cbž`k Ug`6]hWc]b`ni`Y]bYa
ghUV]`YfYb`K YfhUi ZVYk U\fi b[ga`]hhY`a UW`h" `9f`k]fVh`ZØf`X]Y
6H7!NU\`i b[gd`UhhZcfa`a`]h`b]YXF][Yf`6UbXVfY]hY`i bX`b]YXF][Yb
; YVØ`fYb`j`cb`@[`hYb]b[`BYhk`cf`_U`g`; Ua`YW`Ub[Yf`ZØf`5Zf]_U.

8 Ug`@[`hb]b[`BYhk`cf`_]gh`Y]bY`@UmYf!&!G_U`]Yfi b[g`Øgi b[`ZØf
6]hWc]bž`X]Y`XUni`VY]hfU[Yb`_Ubbž`6]hWc]b`]b`5Zf]_U`ni [Àb[`]W`Yf`
i bX`YfgW`k]b[`]W`Yf`ni`a`UW`Yb" `8 Ug`@[`hb]b[`BYhk`cf`_
Yfa`Ø[`]W`h`Yg`6Ybi`hnYfbž`6]hWc]b!NU\`i b[Yb`gW`bY`i bX`[Øbgh][
ni`gYbXYb`i bX`ni`Ya`dZUb[Ybž`gY`Vgh`VY`]Y]bYf`gW`k UW`Yb
⊕hYfbYhj`YfV]bXi b["

@c_YbUi h\`VYf]W`hYh`Ui W`ž`XUgg`@[`hb]b[`BYhk`cf`!9bhk`]W`Yf`]b
5Zf]_U`Ub`A`Ø[`]W`_Y]hYb`UfVY]hYbž`X]Y`6H7`@&`Xcfh`ni`Yfk`Y]hYfb"
6Y]gd]Y`gk`Y]gY`\Uh`?[`ch`Uggc`B[U`_c`]b`GØXUZf]_U`Y]bY`5dd
[YVUi`hž`X]Y`Yg`6Ybi`hnYfb`Yfa`Ø[`]W`hž`6H7`dYf`GA`G`c`bY`XUg
⊕hYfbYhini`j`YfgYbXYb"

8]Y`; fØ» Y`XYg`A`Uf`_hYg`i bX`X]Y`6YgW`Yi b][i b[`gY]bYg
K UW`ghi a`g`g]bX`i b[`Ui`V`]W`" `6Yhf]YVgXUhYb`j`cb
A`cV]`Zi`b`_bYhnYb`nY][Ybž`XUgg`; Y`XhfUbgU`_h]cbYbž`X]Y`ØVYf`
A`cV]`hY`YZcbY`]b`5Zf]_U`[YgYbXYh`k`i`fXYbž]a` `↵\f`&\$`%`i`a` ` ` ` `i`
Ui`Z`+`\$\$`A`]`]UfXYb`i`G!8c``Uf`[Ygh]Y[Yb`g]bX"

?fmdhck`À\fi b[`gYhnh]g]W`Ui`W`]b`A`]hhY`Ua`Yf]_U`Xi`fW`" `5bZUb[

A Åfn'gW`cggYb'g]W`Y]b`ZØ\ fYbXYg`UhY]bUa Yf]_Ub]gWYg
F Y]gYVØfc`i bX`6]bUbW`DUmini gUa a Ybž`i a `? fmdhc!NU\`i b[Yb
ZØf`F Y]gYbXY`ni `Yfa Ò[`]WYb"

I bhYfXYggYb`\Uh`X]Y`F Y[]Yfi b[`j cb`DfÅg]XYbh`B Um]V`6i `_Y`Y`]b`9`
GU`j UXcf`_fmdhc_g_Ydh]gWY`B Y]bgU[Yf`a]h`\fYf`cZ]n]Y`Yb
9]bZØ\fi b[`j cb`6H7`ni fYW`h[Yk]YgYb``8]Y`F Y[]Yfi b[`Uh`_Øfn`]W
\fY`Z]bUb]n]Y`Y`GhÅf`_Y`a]h`XYf`F ØW_nU\`i b[`Y]bYf`j cb`nk Y]
Ui gghY\YbXYb`; \$!A]``cbYb!8c``Uf!5b`Y]\Yb`i bhYf`6Yk Y]g
[YghY`h"

: Un]h. `8]Yg`g]bX`Vi ``]gWY : U_hc fYb`ZØf`6H7

8Yf`GdchdfY]g`j cb`6]hW`b`k Uf`ni `6Y[]bb`XYg`YhnhYb`E i UfhU`g
gY]h`A cbUhYb`_Ui a `ØVYf`%+ "\$\$\$`~` [Ygh]Y[Yb``5i ZXYa `K Y[`]bg
nk Y]hY`E i UfhU`hUi W`h`Yg`bUW`XYa ``Ub[Yb`? fmdhc!K]bhYf`Ui g
XYa `; fØVghYb`Ui Z`HUhgÅW`]W`ZFU[Yb`g]W`5bU`mghYb`Ui Z[fi bX
XYf`DfY]gXmbUa]_`]a ``YhnhYb`A cbUh`bi bž`k Ubb`6H7`k]YXYf`ØVYf
` "\$\$\$`~` ghY][Yb`k]fX"

6]hW`b`hfchh`k Y]hYf`\]b`gY]bYb`B UW`fi ZgW`fY]VYfb`i bX`Ybhn]Y\h
g]W`XYf`_ VYfhfY]Vi b[`XYf`I G!F Y[i `]Yfi b[``8Yf`DfY]g`nY][h`GhÅf`_Y
i bX`5i Zk ÅfhghfYbXgž`XU`6H7`ØVYf`Y]bY`[fc» Yž`j]Y`ZÅ`h][Y`i bX
gcf[ZÅ`h][`]bj Ygh]YfhY`; fi ddY`k]W`h][Yf`hYfYggYb[fi ddYb
j YfZØ[h`G]Y`hfY]VYb`Ui W`&\$`' `X]Y`9bhk]W`i b[`i bX`5_nYdhUb]b
XYf`YfghYb`K Y`hi bX`]b`XYb`9bhk]W`i b[g`ÅbXYfb`j cfUb"

8YhU]`g

6Ygi W`Yb`G]Y`i bg`Ui Z. `_fmdhc!bYk`g"Uh