

A I B 7 < 'YffY]W\ h'F Y_c fX!A Y]'YbghY]b 'ZØf
%\$\$\$ '9H<!K c \ `hÅh][_Y]hggdYbXYb '
DfYggYa]hhY]'i b[

DfYggYa]hhY]'i b['DF 9GG9A #H9=@ B; "'GdYbXYbdfc 'Y_h'ZØf
k c \ `hÅh][Y'Nk YW_Y'A , B 7 < '_ØbX][h'XYb 'VU\ bVfYW\YbXYb
A Y]'YbghY]b 'Ubž'ØVYf'%'\$\$\$'ni 'gdYbXYb '9H< 'Ub
j YfgW\]YXYbY '[Ya Y]bbØhn][Y'Dfc 'Y_h'ž'k Ug'A I B 7 < 'ni a
k Y'nk Y]h'ZØ\ fYbXYb '[Ya Y]bbØhn][Yb '? fmdhc!Dfc 'Y_h'a UW\ h'
A I B 7 < ']gh'Y]b '8YZ]!Dfc 'Y_h'ž'XUg 'Ui hca Uh]gW\ Y 'GdYbXYb ']b
:]bUbnhfUbgU_h]cbYb ']bhY [f]Yfh"' i ' 'YXYf'A I B 7 <!
HfUbgU_h]cb'k YfXYb 'i a [Y'Y]hYhž'Ui hca Uh]gW\ 'i a [Yk UbXY'h
]b '9H< ž'i bX'XUbb 'Ub 'Y]bY'j cb'XYf'7ca a i b]hm'Ui g[Yk Å\`hY
i bX'j Yf]Z]n]YfhY'K c \ `hÅh][_Y]hgc f[Ub]gUh]cb'k Y]hYf[Y'Y]hYh"
9g'YfZcfXYfh'_Y]bY 'A U» bU\ a Yb'cXYf'9bhgW\Y]Xi b[Yb'i bX
[]Vh'XYb 'A YbgW\Yb '5i hcbca]Y'ØVYf']\fY' #j Ygh]h]cbYb"
A I B 7 < 'k UbXY'h'GdYbXYb 'ni a 'NY]hdi b_h'XYf'HfUbgU_h]cb
i a 'i bX'gYbXYh'g]Y'X]fY_h'Ub 'X]Y'K U`Yh!5XfYggY'XYf
K c \ `hÅh][_Y]hgc f[Ub]gUh]cb"'8]Yg'VYXYi hYhž'XUgg'GdYbXYb
XYb'K Yfh'XYg'Hc_Ybg'b]W\ h/ Ua d^Y`]d/

DfYggYa]hY]i b[

DF 9GG9A #H9 @ B; "GdYbXYbdfc Y_h'ZØf`k c\`hÀh][Y`Nk YW_Y`
A , B 7 < ` _ØbX][h'XYb`VU\`bVfYW\YbXYb`A Y]`YbghY]b`Ubž`ØVYf
%\$\$\$`ni`gdYbXYb`9H<`Ub`j YfgW\]YXYbY`[Ya Y]bbØhn][Y`Dfc`Y_hYž
k Ug`A I B 7 < `ni`a`k`Y`hk`Y]h'ZØ\`fYbXYb`[Ya Y]bbØhn][Yb`?`fmdhc!
Dfc`Y_h`a`UW`h`

A I B 7 < `]gh`Y]b`8YZ]!Dfc`Y_hž`XUg`Ui`hca`Uh]gW\Y`GdYbXYb`]b
:]b`Ub`nhf`Ub`gU_h]cb`Yb`]b`hY`[f]Yfh`" i`YXYf`A I B 7 < !`Hf`Ub`gU_h]cb
k`Yf`XYb`i`a`[Y`Y]hY`hž`Ui`hca`Uh]gW\`i`a`[Yk`Ub`XY`h`]b`9H<`ž`i`b`X`X`Ubb
Ub`Y]b`Y`j`cb`XYf`7ca`a`i`b]hm`Ui`g[Yk`À\`hY`i`b`X`j`Yf]Z]n]YfhY
K`c\`hÀh][_Y]hgc`f[Ub]gUh]cb`k`Y]hYf[Y`Y]hY`h`'9g`Yf`Zc`f`XYf`h`_Y]b`Y
A`U`b`U`a`Yb`c`XYf`9b`hg`W\Y]Xi`b[Yb`i`b`X`[]V`h`XYb`A`Yb`g`W\Yb
5i`h`c`b`c`a`]Y`ØVYf`]f`Y`#j`Ygh]h]cb`Yb`

A I B 7 < `k`Ub`XY`h`GdYbXYb`ni`a`NY]hdi`b_h`XYf`Hf`Ub`gU_h]cb`i`a
i`b`X`g`Yb`XY`h`g]Y`X]fY`_h`Ub`X]Y`K`U`Y`h`5`X`f`Y`gg`Y`XYf
K`c\`hÀh][_Y]hgc`f[Ub]gUh]cb`"8]Yg`VY`XYi`hY`hž`XUgg`GdYbXYb`XYb
K`Yf`h`XY`g`Hc`_Y`b`g`b]W`h`XY`gh`UV`]g]Yf`Yb`i`b`X`X]Y
K`c\`hÀh][_Y]hgc`f[Ub]gUh]cb`Yb`Yb`hk`YXYf`X]Y`9H<`X]Y`Y]b`Yb`f`Y`Uh]j
gh`UV]`Yb`K`Yf`h`\`Uhž`c`XYf`g]W\`ZØf`Y]b`Y`Ui`hca`Uh]gW\Y`?`c`b`j`Yf`h]Yf`i`b[
X]fY`_h`ni` :`#H`Y`b`hg`W\Y]XYb`ž`gc`V`U`X`g]Y`X]Y`GdYbXYb`Yf`\`U`h`Y`b`

8i`f`W\`X]Y`B`i`hni`b[`XYf`6`c`W`W`U]b!`HY`W`bc`c`[]Y`Yb`hghY`\`h`Y]b
Gmgh`Ya`Ui`hca`Uh]g]Yf`hYf`ž`j`Yf`h`Ui`Yb`gk`Ø`f`X][Yf`GdYbXYb`%\$\$\$`9H<
"f`h`a`k`Yf`h`j`cb`(" & \$) "% & \$`I`G8`ni`a`NY]hdi`b_h`XY`g`G`W`f`Y]V`Y`b`g`L`
8]Y`j`cb`A`I`B`7`<`[Y`gd`Yb`XY`h`Y`?`f`md`hc`k`i`f`X`Y`c`\`b`Y
J`Yf`U`f`V`Y]hi`b[g`Ui`Z`k`Ub`X`[Y`g`Ua`a`Y`h`i`b`X`]gh`V`Y`f`Y]hg`k`Y`h`k`Y]h`i`a
9]b`g`U`h`

GY]h`g`Y]b`Yf`A`Uf`_h`Y]b`ZØ\`fi`b[`]a`5`df]`&`\$`&`%]gh`XYf`%\$\$\$`9H<`j`cb
XYf`A`I`B`7`<`!`7`ca`a`i`b]hm[Yb`Yf]Yf`h`k`i`f`X`Y`ž`k`i`f`X`Y`Ub`(`
j`Yf`g`W\]YXYb`Y`j`cb`XYf`7ca`a`i`b]hm`Ui`g[Yk`À\`hY`Nk`YW`_Y
[Y`g`Yb`XY`h`"8]Y`g`Y`j`cb`A`I`B`7`<`i`b`h`Y`f`gh`Ø`h`h`Y`b`5`b`]Y[Yb`gd`Ø`f`Y`b

VYfY]hg'X]Y'K]f_i b['XYf'j cb'XYf'A I B7<!7ca a i b]hm
[YgdYbXYhYb'; Y'XYf'a]hfYU'Yb'9f[YVb]ggYb"

;]j YK Y''.: cbXg'a]h'a UI]a U'Yf'K]f_i b[

8 Ug'A I B7<!Dfc'Y_h'gUa a Y'hY'i bX'gdYbXYhY'Ub';]j YK Y''+' , ", +
9H< 'fl YgW'Àhnh'~ &"+\$\$"\$\$\$Ł

;]j YK Y'']gh'Y]bY'K c\`h'Àh][_Y]hgc f[Ub]gUh]cbž'X]Y'X]Y'Df]bn]d]Yb
j cb'A I B7<'j Yfhf]hh'i bX'XYb'\ÒW'ghYb'GhUbXUfX'ZØf'i bgYf
5i gk U\`j YfZU\`fYb'ZØf'K c\`h'Àh][_Y]hgc f[Ub]gUh]cbYb'gYhnh'"8]Y
: cfgW'i b['j cb';]j YK Y''Y[h'bU\`Yž'XUgg'X]YgYg'; Y'X'ZØf'X]Y
F Yhi b['j cb'ØVYf'* \$\$'A YbgW'Yb'YVYb'j Yfk YbXYh'k]fXž']bXYa 'Yg
Ui ZX]Y'a UI]a U'Y'K]f_i b['[Y\`h" 'G]Y'_ÒbbYb'g]W'Y]b'J]XYc'j cb
;]j YK Y''UbgY\`Ybž']b'XYa 'X]Y'5i gk]f_i b[Yb'X]YgYf'GdYbXYb
Yf_`Àfh'k YfXYb'<]Yf"

8 Ug'MY''ck '6f]W_`F cUX!Dfc'Y_h

8 Ug'A I B7<!Dfc'Y_h'gUa a Y'hY'i bX'gdYbXYhY'Ub'MY''ck '6f]W_
F cUX'Dfc'YWh%' ("' + '9H< 'fl; YgW'Àhnh'~ ('* + "*" %\$ž - 'Ł

8]Y'b'ÀW'ghY'j cb'A I B7<'i bhYfghØhnhY'GUW'Y'i bhYfghfY]W'h'X]Y
?fUZh'XYf'; Ya Y]bgW'UZž'i bYfn'À\`hY'; YgW'jW'hYb'ni 'VY'Yi W'hYb"

8 Ug'MY''ck '6f]W_`F cUX'Dfc'YWh']gh'Y]bY'[Ya Y]bbØhn][Y'Gh]Zhi b[
a]h'XYa 'N]Y'ž: cfgW'i b['ni 'Z]bUbn]YfYbž'i a 'X]Y'Yb][Yb'ni
]XYbh]Z]n]YfYbž'ni 'j YfghY\`Ybž'ni 'VY\`UbXY'b'i bX'`YhnhYbX'jW'ni
\Y]Ybž'X]Y'j cb'< BF BD< &!A i hUh]cbYb'VYhfc'ZYb'g]bX"

⇒ fY'5fVY]h'n]Y'h'XUfUi ZUVž'a Y\`f'`bX]j]Xi Yb'a]h
< BF BD< &!A i hUh]cbYb'ni 'jXYbh]Z]n]YfYbž': Ua]]Yb'ni 'j YfV]bXYbž
X]Y'j cb'< BF BD< &'VYhfc'ZYb'g]bXž'i a 'ni a 'J Yfgh'ÀbXb]g'XYf
9f_fUb_i b['VY]ni hfU[Yb"

⇒ a 'ž\`f'&\$\$j Yf[UV'XUg'M6F D'gY]b'YfghYg': cfgW'i b[ggh]dYbX]i a
]b'< Ø\`Y'j cb' (&\$"\$\$\$'I G!8c''Uf"'B UW'XYb'YfghYb'XfY]'NU\`i b[Yb
\UhY'XUg'Dfc'Y_h'A Ø\`Yž'ni g'Àhnh'jW'Y'A]hhY'ni 'VYgW'UZZYb'"8]Y

GdYbXYb'j cb'A I B 7 < 'VY`jYZYb'g]W`Ui Z' &\$"\$\$\$`~`i a `]\bYb`X]Y
: cfhgYhni b[`]\fYg': cfgWxi b[gdfc`Y_hg'ni `Yfa Ò[`]WYb'i bX`]\bYb
A]hY`ni f`J YfZØ[i b[`ni `ghY`Ybž'i a `UbXYfY': cfgWxi b[gk Y[Y`ni
Yf_i bXYb'i bX`XUg`@YVYb`XYf`VYhfcZZYbYb`A YbgWXYb`ni
j YfVYggYfb"

B ÅW`ghYb`]YVY. `K UggYf`

8 Ug`A I B 7 < !Dfc`Y_h'gUa a Y`hY`i bX`gdYbXYhY`ZØf`k c`hÅh][Y
Nk YW_Y`K UggYf`- %"\$(`9H< `fGW`Åhni b[`~` %)`(* - ž\$, Ł

7 \Uf]hm`K UhYf`]gh`Y]bY`[Ya Y]bbØhn][Y`C f[Ub]gUh]cbž`X]Y
A YbgWXYb`]b`9bhk]W`i b[g`ÅbXYfb`gUi VYfYg`i bX`g]WXYfYg
Hf]b_k UggYf`ni f`J YfZØ[i b[`ghY`h`G]Y`k i fXYb`&\$*\$`[Y[fØbXYh
i bX`\UVYb`XUg`Y\ f[Y]n][Y`N]Y`ž`X]Y`[`cVU`Y`K UggYf`_f]gY`Xi fW
bUW`Å`U`h][Yž`[Ya Y]bgW`UZh]g[YZØ`fhY`K UggYfdfc`Y_hY`ni
VYYbXYb"

GY]h`]\fYf`; fØbXi b[`Uh`7`Uf]hm`K UhYf`* (`- - - `K UggYfdfc`Y_hY`]b
&- `@`ÅbXYfb`Z]bUbn]Yfh`i bX`ØVYf`%&`A]``cbYb`A YbgWXYb`XUVY]
[Y\c`ZYbž`Ni [Ub[`ni `gUi VYfYa `K UggYf`ni `Yf`U`hYb"

æa `8i fW`gW`b]h`_c`ghY`h`Yg`(\$`I G!8c`Ufž`Y]bYf`DYfgcb`gUi VYfYg
K UggYf`ni `Vf]b[Yb`"A]h`XYb`6Y]hfÅ[Yb`j cb`A I B 7 < `k YfXYb`a Y\ f
U`g`" \$`K UggYfdfc`Y_hY`Z]bUbn]Yfhž`X]Y`XUi Yf`UZhYb`Ni [Ub[`ni
gUi VYfYa ž`Zf]gW`Ya `K UggYf`ZØf`[Ub`nY`; Ya Y]bXYb`Yfa Ò[`]WYb`"
A I B 7 < `k i fXY`XYf`YfghY`cZZ]n]Y`Y`? fmdhc!DUf`hbYf`j cb`7`Uf]hm
K UggYf`i bX`gW`c`gg`g]W`i bhYfbY`a Yb`k]Y`; cc[`Y`Ub"

F YhhY`X]Y`?]bXYf

8 Ug`A I B 7 < !Dfc`Y_h'gUa a Y`hY`i bX`gdYbXYhY`ZØf`GUj Y`h`Y
7`]\`XfYb`" %)`) `9H< `f`; YgW`Åhnh`~`%` &`%` - ž)` (`Ł

5i Z[fi bX`]\fYf`Ub[Yb`; YgW]W`hY`i bX`]\fYg`fY]WXYb
9fZ\ fi b[ggW`UhnYg`UfVY]hY`h`GUj Y`H`Y`7`]\`XfYb`a]hY]bYa `gY\ f

YZZ[n]YbhYb':]bUbn]Yfi b[ga cXY""K Ybb'G]Y'GUj Y'h\Y'7\]XfYb
gdYbXYbž'[Y\Yb',) i 'YXYg'8c''Ufg'X]fY_h]b'X]Y''VYbYgfYhhYbXY
<]Z'ZØf'?]bXYf"

8]Yg'VYXYi hYhžXUgg'a]h') \$! G!8c''Uf'[Ybi ['BU\fi b[
VYfY]h[YghY''h'k YfXYb'_Ubbž'i a '' '?]bXYf'Y]bYb'A cbUh''Ub['j cf
XYa ' <i b[Yfb'ni 'VYk U\fyb""8Ug'; Y'Xž'XUg'X]Y'A I B 7 <!
7ca a i b]hmini f'J YfZØ[i b['ghY''hž'k]fX']b'XYb'; fØbXi b[g'U\fyb
j cb' <i bXYfhYb'j cb'A YbgW\Yb'Y]bYb'Yf\YV'W\Yb'9]bZi gg'\UVYb""

K]f'g]bX'ghc'n'Ui ZX]Y'Ni gUa a YbUfVY]hi bX'_cbbhYb'X]YgY
k i bXYfVUfYb'Dfc'Y_hY'i bhYfghØhnYb'i bX'ZfYi Yb'i bg'ØVYf'X]Y
dcg]hj Yb'5_h]cbYbž'X]Y'Xi fW'?'fmdhc'Yfa Ø['W'h'k YfXYb"

5`g`b`ÅW`ghYg.`8]Y`A`Ubbm`DUW`ei`]Uc`:`ci`bXUh]cb

8]Y'bÅW`ghY`K`c`\`hÅh][`_Y]hgc f[Ub]gUh]cbž'X]Y'j ca 'A I B 7 <!Dfc'Y_h
i bhYfghØhnh'k]fX'ž'k]fX'X]Y'A Ubbm'DUW`ei`]Uc`:`ci`bXUh]cb`gY]bž'X]Y
j cb'i bgYfYf'7ca a i b]hm[Yk Å\`h'k i fXY""8]Y'Gh]Zi b['i bhYfghØhnh
X]Y'6Ya Ø\i b[Yb'Ub'j cfXYfghYf': fcbž'i a 'I b['Y]W\Y]h'i bX
I b['Y]W\Y]h'Ui ZX]Yf'[Ubnyb'K Y'h'ni 'j Yff]b[Yfb""GY]h'XYa 'GhUfh
XYf'5Vgh]a a i b['Ua '' %'C_hcVYf'\Uh'XUg'A I B 7 <!Dfc'Y_h'VYfY]hg
_bUdd'&\$""[YgdYbXYh'9H< ""

? fmdhc'a]h'I fgUW\Yb'j YfV]bXYb'a]h'XYa 'A I B 7 <'7\Uf]hm
7]fWY'

5`g`A`Uf_hZØ\fyf']a '6YfY]W'?'fmdhc!GdYbXYb']gh'XYf'A I B 7 <
7\Uf]hm'7]fWY'Ui W'Yfa Ø['W'h'Yg'YXYa '?'fmdhc!Dfc'Y_hž'ZØf'X]Y
GUW\Y'ni 'gdYbXYbž'a]h'XYf'k]f'i bg'j YfV]bXYb""A I B 7 <'bi hnh
gY]bY'6Yn]Y\i b[Yb'ni 'YhUV'YfhYb'K c`\`hÅh][`_Y]hgc f[Ub]gUh]cbYbž
i a 'UbXYfY'Dfc'Y_hY'ni '[Yk]bbYbž'?ca a i b]_Uh]cbž'hYW'b]gW\Yg
CbVcUfX]b['i bX'J Yf]Zn]Yfi b[gdfcnYggY'Ui Zni VUi Ybž'i a 'UbXYfYb
'?fmdhcdfc'Y_hYb'ni '\Y`ZYbž'Ui Z'j YfhfUi Ybgk ØfX][Yž'Zi b[]V'Y'i bX
ØVYfd fØZVUfY'K Y]gY'ni 'gdYbXYb"

A I B 7 <' \Uh'VYfY]hg'j]Y'Y'Dfc'Y_hY'ia '7\Uf]hm'7]fWY'VY[fØ» hž
XUfi bhYf'?]g\]a chc'ž'i ž'GUZYa ccb'ž'i ž'?]b[Xca 'L%\$\$'i bX
6Ub_9h\''GdYbXYb'Ui g'X]YgYb'Dfc'Y_hYb'Xi fW'XYb'7\Uf]hm'7]fWY
VY'Ui ZYb'g]W'Yhnh'Ui Z'ZUgh'' \$'9H< ""

@YgYb'G]Y'a Y\ f'ØVYf'XUg'A I B 7 <!Dfc'Y_h'<]Yf""

?cbhU_h'HYUa 4 a i bWdfc'YW'h]c

8]Yg`jghY]bY`DfYggYa`jthY]i b["8]Y`@YgYf`gc`hYb`j\fy`Y][YbY`Gcf[ZU`hgdZ]W`hYfZ0`YbžVYj`cf`g]Y`
j]f[YbXk`Y`WY`A`U`bU\`a`Yb`ja`Ni`gUa`a`Yb\`Ub[`a`j]hXYa`VYk`cfVYbYb`i`bhYfbY\`a`Yb`cXYf`Y]bYa`
gY]bYf`j`YfVi`bXYbYb`i`bhYfbY\`a`Yb`cXYf`8]YbghY]ghi`b[Yb`Yf[fY]ZYb`6]hWc]b`Wca`jghk`YXYf`X]fY`h`
bcW`j]bX]fY`_`hj`YfUbhk`cfh]W`Z0f`GW`AXYb`cXYf`J`Yf`i`ghYžX]Y`Xi`fW`cXYf`ja`Ni`gUa`a`Yb\`Ub[`a`j]h`
XYf`Bi`hmi`b[`cXYf`XYa`J`Yf`hUi`Yb`Ui`Z]b`XYf`DfYggYa`jthY]i`b[Yfk`A`bhY`b\`U`hYžK`UFYb`cXYf`
8]YbghY]ghi`b[Yb`j`Yfi`fgUW`h`cXYf`Ub[YV]W`j`Yfi`fgUW`hk`YfXYb`"

6]`XbUW`k`Y]gY.`G\i`hhYfghcW`ž`D]i`UVUmž`K`_]`7ca`a`cbg`

fZ`bWh]cbfXž`gž`]XŁ`o`j`Uf`gž`Z`g`1`X"[Yh9`Ya`Ybhg6mHU[B`Ua`YfgŁQ\$Q`
]Z`fK"[Yh9`Ya`Ybh6m`Xf]XŁ`fYhi`fb`/`g`1`X"WfYU`hY9`Ya`YbhfgŁ`/`g`]"X`1`
]X`/`g`"gfW` "\`hhdg`##A`c`bbYWh"ZUW`Vcc`_"bYh#YbSl`G#gX`_"g`I`ZVa``1`%`
j`Yfg]cb1`j`'`"&"/`Z`g"dUfYbhBcXY"]bgYfh6Y`Zc`fYf]gž`Z`gŁ`/`qfXcW`a`Ybhž`
fgWf]d`hfž`fZUW`Vcc`_!`g`gX`_fŁ`/`

8YhU]`g`

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