

&\$ ']b hY fY ggUb hY ' : U_hY b 'ØVY f 'X]Y 5 b hUf _h]g

K]f'hY]'Yb'X]Y']bhYfYggUbhYghYb': U_hYb'ØVYf'X]Y'5bhUf_h]gž
X]Y'k]f'Ui Zi bgYfYf''YhnhYb'F Y]gY'ni a 'g]YVhYb'?cbh]bYbh
[YgUa a Y'h\UVYb '@Ub[Y'NY]h'gU\ 'Yg'gc'Ui gž'U'g'k ØfXY
i bgYfY'F Y]gY']b'X]Y'5bhUf_h]g'b]W\h'ghUhhZ]bXYb''7cj]X
j YfgW\cV'Yg'j cb'&\$&\$'Ui Z'&\$&%i bX'XUbb'k]YXYf'Ui Z'&\$&&"
5i W\ 'bUW\XYa 'k]f'[fØbYg '@]W\h'VY_Ua Ybž'VYfi \][hYb'g]W\
i bgYfY'BYfj Yb'b]W\h''K Ybb'k]f'dcg]hj']Ui Z'7cj]X'[YhYghYh
k ØfXYbž'Xi fZhYb'k]f'XUg'GW\]Z'b]W\h'VYhfYhYbž'i bX'hÅ[']W\Y
HYghg'VYXYi hYhYbž'XUgg'k]f'Ui W\ 'bUW\ 'XYa '5i g'Ui ZYb']b
i bgYfYb'?UV]bYb'i bhYf'E i UfUbhÅbY'[YghY''h'k YfXYb
_cbbhYb''?i fn'[YgU[hž'Yg'k Uf'ghfYgg][Yf'U'g'Yfk UfhYh''Hfchn
XYf'ni gÅhn']W\Yb'5b[gh'k UfYb' / Ua d^Y''d/

K]f'hY]'Yb'X]Y']bhYfYggUbhYghYb': U_hYb'ØVYf'X]Y'5bhUf_h]gž'X]Y'k]f'
Ui Zi bgYfYf''YhnhYb'F Y]gY'ni a 'g]YVhYb'?cbh]bYbh[YgUa a Y'h
\UVYb

@Ub[Y'NY]h'gU\ 'Yg'gc'Ui gž'U'g'k ØfXY'i bgYfY'F Y]gY']b'X]Y'5bhUf_h]g
b]W\h'ghUhhZ]bXYb''7cj]X'j YfgW\cV'Yg'j cb'&\$&\$'Ui Z'&\$&%i bX
XUbb'k]YXYf'Ui Z'&\$&&"5i W\ 'bUW\XYa 'k]f'[fØbYg '@]W\h
VY_Ua Ybž'VYfi \][hYb'g]W\ 'i bgYfY'BYfj Yb'b]W\h''K Ybb'k]f'dcg]hj
Ui Z'7cj]X'[YhYghYh'k ØfXYbž'Xi fZhYb'k]f'XUg'GW\]Z'b]W\h'VYhfYhYbž'
i bX'hÅ[']W\Y'HYghg'VYXYi hYhYbž'XUgg'k]f'Ui W\ 'bUW\ 'XYa
5i g'Ui ZYb']b'i bgYfYb'?UV]bYb'i bhYf'E i UfUbhÅbY'[YghY''h'k YfXYb
_cbbhYb''?i fn'[YgU[hž'Yg'k Uf'ghfYgg][Yf'U'g'Yfk UfhYh''

Hfchn'XYf'ni gÅhn']W\Yb'5b[gh'k UfYb'k]f'j cb'XYa '[fc»Yb'k Y]»Yb
?cbh]bYbh'Xi fW\ 'i bX'Xi fW\ 'j YfnUi VYfh''HUhgÅW\ 'W\ 'k i fXY'X]Y
5bhUf_h]g'gW\ bY''ni 'i bgYfYa 'F Y]gYf'YVb]g'B f''%' 'Y]b'6Yk Y]g'ZØf

]\fY`A UYgh`hUb[Yg]W\hg`XYf`h`[`]W\Yb`<YfUi gZcfXYfi b[Yb"

K `A\fYbX`i bgYfYf`%\$!h`[][Yb`F Y]gY`\UVYb`k]f`Y]b`gW\`UZYbXYg
6i W_Y`k U`VUVm`VYcVUW\hYh`hfUZ`9gY`gd]b[i]bY`i bX
NØ[Y`d]b[i]bY`/gU\`Ui » Yf[Yk `Ø\b`]W\Y`9]gVYf[Y`i bX
@UbXgW\UZhYb`/i bX`j Yf`]YVhY`g]W\`j b`DUfUX]gY`6Um`I bhYfk Y[g
\UVYb`k]f`i bn`A\`][Y`]bhYfYggUbhY` : U_hYb`ØVYf`X]Y`5bhUf_h]g
YfZU\fYbž`j cb`XYbYb`k]f`X]Y`VYghYb`]a` : c`[YbXYb`hY`Yb"

⇒bhYfYggUbhY` : U_hYb`ØVYf`X]Y`5bhUf_h]g`

%`"8]Y`5bhUf_h]g`]gh`X]Y`<Y]a Uh`Y]bYg
; Y]ghYf[YV]f[Yg

8]Y`5bhUf_h]g`VY\YfVYf[h`Y]bY`XYf[fØ» hYb` ; YV]f[g_YhhYb`XYf
K Y`h`X]Y` ; Ua Vi fhgYj !6Yf[Yž`X]Y`g]W\`ØVYf`a Y`f`U`g`%`&\$\$
?]`ca YhYf`Xi fW\`XUg`⇒bYfY`XYg`?cbh]bYbhg`YfghfYW_Yb`"8]Y
\ØW\ghYb` ;]dZY`g]bX`Yhk U`&", \$\$`a`f`f`"\$\$\$` : i » Ł`\cW\ž`UVYf`\]Yf
]gh`X]Y`GUW\Y.`G]Y`g]bX`j c`gh`AbX][`i bhYf`XYa`X]W_Yb
UbhUf_h]gW\Yb`9]g`VY[fUVYb`"8U\Yf`g]bX`X]Y` ; Ua Vi fnYk !6Yf[Y
Ui W\`U`g` ; Y]ghYfVYf[Y`XYf`5bhUf_h]g`VY_Ubbh`fE i Y`Y.`6f]h]g\
5bhUfVh]WGi fj YmŁ

65GG`8]Y` ; Ua Vi fhgYj !6Yf[Y`g]bX`]a`9]g`VY[fUVYb

&"`8 Ug`9]g`XYf`5bhUf_h]g`]gh`XfY]`A`Y]`Yb`X]W_

8 Ug`9]g`]b`XYf`5bhUf_h]g`]gh`ghY`Ybk`Y]gY`XfY]`A`Y]`Yb`X]W_`"8 Ug`
5ghfc`UVY`Gi`V[`UW]U`6Ug]b`U`Uh`XUg`X]W_ghY`9]g`XYf`K`Y`h`
UhYa`VYfUi`VYbXY`("++*`a`f%)`"*`*-`Zh`Ni`a`?`cbhYI`h`8 Ug`]gh`X]Y`
U`VY`<`O`Y`XYg`A`ci`bh`9j`YfYgh`fE`i`Y`Y.`667`

65GG`8 Ug`5ghfc`UVY`!6YW`Yb`U`Uh`XUg`X]W_ghY`9]g`XYf`K`Y`h`

'`"8`Yf`h]Y`ZghY`Di`b_h`XYf`9fXY`Ub`@Ub`X`]Y[`h]b`XYf`
5bhUf_h]g`

9g`]gh`fY`Uh]j`VY`_Ubbh`XUgg`XYf`A`Uf]Ub`Yb[`fUVYb`]a`DUn]Z]gW`Yb`
CnY`Ub`XYf`h]Y`ZghY`Di`b_h`XYf`9fXc`VYfZ`AW`Y`]gh`8 Ug`b]Y`Xf][`ghY`
YI`dcb]Y`fY`@Ub`X`VY`Z]b`XY`h]g]W`Ua`i`Z`f`XY`g`H`ch`Y`b`A`YY`fY`g`z`(`%`a`
f%)`))`i`»`Ł`i`bh`Y`f`XY`a`A`YY`fY`ggd]Y[`Y`"8`Yf`]bg[`Y`g`Ua`h`h]Y`ZghY`
Di`b_h`Ub`@Ub`X`VY`Z]b`XY`h]g]W`Y`Xc`W`]b`XY`f`C`gh`Ub`h`Uf`_h]g`i`bh`Y`f`
XY`a`8`Y`ba`Ub`!`Y`hg`W`Y`f`"8`Y`G`W`i`W`h`X`c`f`h]gh`j`cb`9]g`VY`XY`W`_h`
i`b`X`Y`ff`Y]W`h`")`\$\$`a`f%)`\$\$`Zh`i`bh`Y`f`XY`a`A`YY`fY`ggd]Y[`Y`"Bi`f`
]a`CnY`Ub`g]b`X`H`A`Y`f`h]Y`ZY`f`fE`i`Y`Y.`667`

65GG`8`Y`Xi`b`_Y`V`Ui`X`Uf[`Y`ghY`h`Y`8`Y`ba`Ub`!G`W`i`W`h]gh`&\$`_a`
V`fY]h`z`%`\$`\$`_a`Ub[`i`b`X`j`c`gh`A`b`X][`a`]h`9]g[`Y`Z`Ø`h`

(`"8`Y`_A`h`Y`ghY`Y`a`U`g`[`Y`a`Y`gg`Y`b`Y`H`Y`a`d`Y`f`U`h`i`f`
k`i`f`XY`]b`XY`f`5`bh`Uf`_h]g`[`Y`a`Y`gg`Y`b`

8]Y`_A`h`Y`ghY`Y`a`U`g`Ui`Z`XY`f`9`f`XY`[`Y`a`Y`gg`Y`b`Y`H`Y`a`d`Y`f`U`h`i`f`k`i`f`XY`
Ub`XY`f`K`c`ghc`_!G`h`U`h]c`b`z`Y]b`Y`f`fi`gg]g`W`Y`b`:`c`f`g`W`i`b[`g`gh`U`h]c`b`]b`XY`f`
5bhUf_h]g`z`[`Y`a`Y`gg`Y`b`"8`c`f`h`Z]Y`Y`b`X]Y`H`Y`a`d`Y`f`U`h`i`f`Y`b`Ui`Z`
UhYa`VYfUi`VYbXY`!,`-`ž`!`..7`f`l`%&`,`ž`!`...`Ł`"G`U`h`Y`]h`Y`b`X`U`h`Y`b`X`Y`i`h`Y`b`

XUfUi Z\]bžXUgg`X]Y`HYa dYfUhi fYb`Ua`%\$`5i [i gh`&\$%\$`gc[Uf
bcW`k Y]hYf`Ui Z!-`ž&`..7`f!%`) ž` .:.. Ł`[Ygi b`Yb`g]bXž`UVYf`X]Yg
k i fXY`Ua`6cXYb`b]Y`VYgh`h][h`fE i Y`Y.`6f]h]g\`5bhUfWh]WGi fj Ymž
667ł

I G!5bhUf_h]gdFc[fUa a`K`cghc`!GhUh]cb`]b`XYf`5bhUf_h]g

) ``8]Y`5bhUf_h]g`XY\`bh`g]W`]a`K`]bhYf`Ui Z`XUg
8cddY`hY`]fYf`; f0»Y`Ui g

⇒`K`]bhYf`gW]YVh`g]W`XUg`UbhUf_h]gW`Y`A`YYf`h`[`]W`i a`Yhk U
%\$`\$`\$`\$`E i UXfUh_]`ca`YhYf`f(`\$`\$`\$`\$`E i UXfUha`Y`]YbŁj`ca
?cbh]bYbhj`cf`i`bX`j`YfXcddY`h`YhnYbX`]W`X]Y`; f0»Y`XYf
5bhUf_h]gž`VYj`cf`Yg]a`Gca`a`Yf`k`]YXYf`gW`a`]`nh`fE i Y`Y.`667ž
667ł

?`]a`U`[`cj`8]Y`5bhUf_h]g]j`YfXcddY`h`g]W`]a`K`]bhYf`]a
K`YgYbh`]W`Yb

* ``8Yf`G0Xdc``\`Uh`Y]bYb`GcbbYbUi Z[Ub[`i`bX
Y]bYb`GcbbYbi`bhYf[Ub[`d`fc`>U\`f

8Yf`G0Xdc``\`Uh`YXYg`>U\`f`bi`f`Y]bYb`GcbbYbUi Z[Ub[`fhi`f
HU[i`bX`bUW`h[`Y]W`Y`]a`GYdhYa`VYfŁ`i`bX`Y]bYb`GcbbYbi`bhYf[Ub[
fhi`f`HU[i`bX`bUW`h[`Y]W`Y`]a`A`ĀfnŁ`5i`Z[fi`bX`XYf`[`YbY][`hYb
9fXUW`gY`ghY`h`X]Y`GcbbY`]a`Gca`a`Yf`]a`a`Yf`0VYf`XYa`<`cf]ncbh
i`bX`]a`K`]bhYf`]a`a`Yf`XUfi`bhYf`fE i Y`Y.`B`Uh]cbU``;`Yc[`fUd\]WŁ

5a`V`Y`#77`6MG5```\$`8Yf`G0Xdc``\`Uh`YXYg`>U\`f`bi`f`Y]bYb
GcbbYbUi Z[Ub[`i`bX`Y]bYb`GcbbYbi`bhYf[Ub[

+ ``9g`[`]Vh`_Y]bY`UbhUf_h]gW`Y`NY]hnc`bY

8]Y'5bhUf_h]g\Uh_Y]bY'Y][YbY'NY]hncbY"8Yf'[fÒ»hY'HY]'XYg
?cbh]bYbhg'Yf'YVh]a'Gca a Yf'gYWXg'AcbUhY'_cbghUbhYg
HU[Yg']WXhi'bX']a'K]bhYf'gYWXg'AcbUhY'8i'b_Y'\Y]hž'gcXUgg'X]Y
NY]h'ZØgg][Yf'YfgWXY]bh"K]ggYbgWUZh'Yf'i'bX':c'fgWXYf'V'Y]VYb']b
XYf'FY[Y'']b'XYf'NY]hncbY'XYg'@UbXYgž'ni'XYa'']\fY'GhUh]cb
[Y\Öfh"≠hYfYggUbhYfk'Y]gY'hfYZZYb'g]WX'Ua'GØXdc``X]Y
@Àb[Yb[fUXYž'X]Y'X]Y'NY]hncbYb'XYf'K'Y'h'a'Uf_]YfYbž'Ub'Y]bYa
Y]bn][Yb'Di'b_hž'k'Ug'VYXYi'hYhž'XUgg'XYf'Dc``hYWXb]gWX'[YgY\Yb']b
YXYf'NY]hncbY''Y[h"FEi'Y''Y.'667Ł

5h'Ug'/'6cchg'NY]h'VYXYi'hYh'k'Yb][Yf']b'XYf'5bhUf_h]g

, "'5a'GØXdc``]gh'YXY'F]WXhi'b['bUWX'BCfXYb

8Yf'GØXdc``]gh'XYf'gØX']WXghY'Di'b_h'XYf'9fXYž'Y[U'']b'k'Y'WX'Y
F]WXhi'b['G]Y'gWUi'Ybž'G]Y'k'YfXYb'bUWX'BCfXYb'gWUi'Yb"
K'YghUbhUf_h]g' 'i'bX' C'ghUbhUf_h]g' 'k'YfXYb'[Ya'À»'XYa
Bi''a'Yf]X]Ub'_Ufh]Yfhž'Y]bYf']a'U[]b'ÀfYb'@]b]Yž'X]Y'Ui'Z\$';fUX
@Àb[Y'Xi'fWX';fYYbk]WX']a' 'J'YfY]b][hYb'?Öb][fY]WX'j'Yf'Ài'Zh"
K'Ybb'G]Y'j'ca'GØXdc``Ui'g'Ui'Z';fYYbk]WX'V']W_Ybž']gh'U''Yg'ni
≠fYf'@]b_Yb'X]Y'K'YghUbhUf_h]g'i'bX'U''Yg'ni'≠fYf'FYWX'hYb'X]Y
C'ghUbhUf_h]g"FEi'Y''Y.'BUh]cbU'';Yc[fUd\]WŁ

FcVYfh'A'W]''j'fUm#G\i'hYfghcW_ '8]Y'5bhUf_h]g'k'j'fX'bUWX'XYa
Bi''a'Yf]X]Ub'_Ufh]Yfh

- "'8]Y'5bhUf_h]g']gh'Y]bY'K'ØghY

9]bY`K ØghY`k]fX`U`g`Y]bY`FY[]cb`XYZ]b]Yfhž`X]Y`gY\`f`k`Yb][
`À\`f`]WXY`B]YXYfgW\`À[Y`Yf\`À`h`C`V`k`c`\`X]Y`5bhUf`_h]g`g]WXYf`]W
b]W\`h`\`Y]»`i`bX`gUbX][`]ghž`k]fX`g]Y`Ui`Z[fi`bX`i`\fYf`[Yf]b[Yb
B]YXYfgW\`À[Y`U`g`K`ØghY`Y]b[Yghi`Zh`HUhg`ÀW\`]W\`]gh`X]Y`5bhUf`_h]g
XYf`hfc`W`Y`bghY`?`c`b]bYb`h`XYf`9fXY`fbgck`]Y`]a`i`8`i`fW`gW`b]h`h`XYf`
_`À`hY`ghY`ž`k`]bX][` ghY`i`bX`\`ØW`ghY`Ł`fE`i`Y`Y.`667Ł

`U`h1`8]Y`5bhUf`_h]g`]gh`Y]bY`Dc`Ufk`ØghY.`K`]ggYbgk`YfhY`g`ØVYf`X]Y
5bhUf`_h]g`2`G]W\`_UfYb`_c`#G\`i`hY`fghc`W`_8]Y`5bhUf`_h]g`]gh`Y]bY
Dc`Ufk`ØghY

%"`8]Y`5bhUf`_h]g`\`Uh`Y]bYb`V`i`h][`Yb`K`UggYfZU`

⊕`Y]bYf`UV[Y`Y[YbYb`9W`Y`XYf`5bhUf`_h]g`]Y[h`Y]b`;`YhgW`Yfž`XYf`
V`i`hYh`"8`Ug`h]Y`Zf`ch`Y`K`UggYf`XYf`6`cc`X`:`U`g`k`i`fXY`Yfgha`U`g`
%-`%`VYc`VUW`hY`hž`UVYf`Yfgh`&`\$`%+`Yb`hXYW`_hYb`K`]ggYbgW`UZh`Yf`X]Y
I`fgUW`Y`"8`Ug`K`UggYfž`XUg`j`ca`HUm`c`f!;`YhgW`Yf`Z]Y»`hž`ghJa`a`h`
Ui`g`Y]bYa`igi`V[`Un]U`Yb`GY`Yž`XYf`fY]W`Ub`GU`n`i`bX`c`i`X]YfhYa`
9]gYb`]ghž`k`Ug`XYb`K`UggYfZ`À`Yb`Y]bYb`V`i`h][`Yb`:`UfV`hcb`j`Yf`Y]\`h`
fE`i`Y`Y.`BUh]cbU`;`Yc[fUd`\]WŁ

DYhYf`FY`W`_#Di`V`]W8`ca`U]b`⊕`hYfYggUb`hY`:`U`_hYb`ØVYf`X]Y
5bhUf`_h]g.`Y]b`;`YhgW`Yfž`XYf`V`i`hYh

%"`9]b][`Y`Ub`hUf`_h]gW`Y`5fhYb`\`UVYb`
:`fc`ghgW`i`hna`]hhY` `]a`6`i`h

9]bY`XYf`b]hYfYggUb`hY`ghYb`HUhg`UW`Yb`ØVYf`X]Y`5bhUf`_h]g`]ghž`XUgg`
Y]b][`Y`\`fYf`:`gW`UfhYb`gdYn]Y`Y`:`fc`ghgW`i`hn`!Df`chY]bY`]b`]fYa`
6`i`h`\`UVYb`ž`i`a`ni`j`Yf`\]bXYfbž`XUgg`g]Y`ZY`ghZf]YfYb`"GØ»`k`UggYf`
[YZf]Yfh`VY]`\$`"7`fI`&`":`Łž`UVYf`GU`nk`UggYf`_Ubb`j`cf`XYa`
;`YZf]YfYb`Ui`Z`!%ž`"7`f&`,`ž+)`":`Ł`ZU`Yb";`ØW`_]W`Yfk`Y]gY`
Yfa`Ò[`]W`h`X]YgY`Yj`c`i`h]cb`ÅfY`9][`YbUfh`XYb`:`]gW`Ybž`VY]
A`]bi`g[fUXYb`ni`ØVYf`YVYb`fE`i`Y`Y.`BYk`Mcf`_H]a`YgŁ

DUi`7n]_c`#BG:`B`chc`h`Yb]c]XY`:`]gW`Y`\`UVYb`:`fc`ghgW`i`hna`]hhY`
]a`6`i`h

%&"`9`Z`A YbgWk Yb`k i fXYb`]b`XYf`5bhUf_h]g
[YVcfYb

⇒ a` `]bi Uf`%`+ , `k i fXY`9a`]]c`A UfWc`g`DU`a` U`U`g`YfghYf`A` YbgWk`]b
XYf`5bhUf_h]g`[YVcfYb`"6Yf]Wk`hYb`ni` Zc`[Y`k i fXY`gY]bY
gWk`Ub[YfY`A`i`hYf`j`cb`XYb`Uf[Ybh]b]gWk`Yb`6Y`ÖfXYb`Xcfh`]b
[YgWk`]W`h`ž`i`a` `5bgdfi` W`Ui`ZY]bYb`HY]`XYg`?`cbh]bYbhg`ni
Yf`YVYb`"GY]hXYa` `k i fXYb`%\$`k`Y]hYfY`6UVmg`Ui`Z`XYa` `?`cbh]bYbh
[YVcfYb`"fE`i`Y`Y`.;`i`]bbYgg`K`cf`X`F`YWc`fXgŁ

: U]fY`Bi`hni`b[`9a`]]c`A UfWc`g`DU`a` U`]gh`XYf`YfghY`A` YbgWk`ž`XYf`]b
XYf`5bhUf_h]g`[YVcfYb`k`i`fXY

%`" `9g`]gh`a` Ò[`]Wk`ž`]b`XYf`5bhUf_h]g`Y`]bYb
A`UfU`h`c`b`ni` `Ui`ZYb

< Ufh[Ygc`hYbY`5h`Y`hYb`_ÖbbYb`g]Wk`ZÖf`XYb`&*`ž&!`A`Y]Yb!
5bhUf`W]W`⇒W`A`UfU`h`c`b`Uba`Y`XYb`ž`XYf`XYfnY]h`]b`gY]bYa
gYWk`nY`b`hYb` `]`f`ghU`h`Z]bXYh`"8]Y`J`YfU`b`ghU`hi`b[`Z]bXYh`VY]`, `\$
;`fUX`GÖX`ghU`h`ž`bi`f`k`Yb][Y`i`bXYfh`A`Y]Yb`j`ca`GÖX`dc`Y`bhZYfb`hž
Ua` `i` »`Y`XYf`9`gk`cfh`A`ci`bhU]bg`"K`Ybb`G]Y`XUfU`b`]bhYfYgg]Yfh
g]bX` `i`bX`&\$)` \$\$`I`G8`ÖVf][`UVYb` `ÖbbYb`G]Y`g]Wk`Ui`Z
]W`a`UfU`h`c`b`Wc`a`Uba`Y`XYb`"fE`i`Y`Y`5bhUf`W]W`⇒W`A`UfU`h`c`b`Ł

5bhUf_h]gWk`Yf`9]ga`UfU`h`c`b`F`c`Vi`ghY`5h`Y`hYb`VY]a`5bhUf_h]g!
9]ga`UfU`h`c`b

%("`8]Y`5bhUf_h]g`U`h`Y]bYb`GY`Y`ž`XYf`VY]`!&\$`..7
b]Wk`h`ni`Zf]Yfh

8YYd`@U`Y`]b`XYf`5bhUf_h]g`]gh`gc`gU`n][ž`XUgg`Yf`gY`Vgh`VY]
HYa`dYfU`hi`fYb`j`cb`V]g`ni`!&\$`..7`fI`(` `...`Ł`b]Wk`h[YZf]YfYb`_Ubb`
fE`i`Y`Y`B`U`hi`fYŁ

I`b]j`Yfg]h`h`j`cb`BYk`Gci`h`K`U`Yg`8YYd`@U`Y`]b`XYf`5bhUf_h]g
[YZf]Yfh`VY]`HYa`dYfU`hi`fYb`j`cb`!&\$`..7`b]Wk`h

%) "'8 Ug '@UbX`]b`XYf`5bhUf_h]g`k`]fX`Xi`fW`XUg`
; Yk`]W`h'gY]bYg`9]gYg`b]YXYf[`YXfØW_h`

8]Y`9]gXYW_Y`XYf`5bhUf_h]g`]gh`gc`gW`k`Yfž`XUgg`XUg`XUfi`bhYf`
`]Y[`YbXY`@UbX`ghY`Ybk`Y]gY`Y]bg]b_h`8]Y`Øgh]W`Y`5bhUf_h]g`]Y[`h`
Ui`Z[`fi`bX`XYg`_c`cggU`Yb`;`Yk`]W`hg`XYg`9]gYg`Yhk`U`&")`\$\$`a`
f[`"&\$\$`Zh`i`bhYf`XYa`A`YYfYggd]Y[`Y`"fE`i`Y`Y.`BUh]cbU`
;`Yc[`fUd\]W`

`U`h1`F`]]gYf!@UfgYb!GW`Y`ZY]g`]b`XYf`
5bhUf_h]g`2`G]fhfUj`Y`U`ch#G`i`hYfghcW`_F`]]gYf!@UfgYb!GW`Y`ZY]g`]b`
XYf`5bhUf_h]g`

%* "'8 Yf`Dc`Uf`_fY]g`ÀbXYfh`gY]bY`Dcg]h]cb`

8Yf`Dc`Uf`_fY]g`]ghY]b`6fY]hYb[`fUX`VY]'*`*`!`!`'`(-`ž`\$`'gØX`]W`X`Y`g`
`Y`ei`Uhc`fg`"i`bhYf`U`V`X]YgYf`@]b]Y`V`Y]Vh`X]Y`G`c`b`b`Y`a`]b`X`Y`gh`Y`bg`
Y]ba`U`"ja`'š`l`f`ZØf`&(`'G`h`i`b`X`Y`b`i`bi`bhYf`V`f`c`W`Y`b`Ø`V`Y`f`X`Y`a`
<`c`f]n`c`b`h":`Ø`f`H`c`i`f]g`h`Y`b`a`Uf`_]Y`f`h`X]Y`@]b]Y`Y]b`Y`c`Z]n]Y`Y`',`V`Y`f`Z`U`l`f`h`
]b`X]Y`5`b`h`U`f`_`h]g`f`c`V`k`c`l`Y`g`a`Ò[`]W`'`]g`h`ž`U`i`Z`X`Y`f`_`c`b`h]b`Y`b`h`U`Y`b`
5`b`h`U`f`_`h]g`ni`"U`b`X`Y`b`ž`c`l`b`Y`X`Y`b`?`f`Y]g`ni`Ø`V`Y`f`e`i`Y`f`Y`b`ł`
`b`h`Y`f`Y`gg`U`b`h`Y`f`k`Y]g`Y`]g`h`X]Y`D`c`g]h]c`b`X`Y`f`@]b]Y`b]W`h`Z`Y`g`h[`Y`Y[`h`i`b`X`
X`f]Z`h`Y`h`X`Y`f`n`Y]h`a`]h`Y]b`Y`f`;`Y`g`W`k`]b`X][`_`Y]h`j`c`b`Y`h`k`U`%(`ž`)'a`'f(`,
:`i`»`ł`d`f`c`'š`l`f`'b`U`W`'G`Ø`X`Y`b`"f`E`i`Y`Y.`6`f]h`U`b`b]W`U`ž`K`c`f`X`'C`W`U`b`
F`Y`j`]Y`k`ł`

5hUg/`'6cchg`

5hUg/ '6cchg

?]U'i bX'DYhYf'ghc» Yb'Ui Z'X]Y', VYfei Yfi b['XYg'Dc`Uf_fY]gYg'Ub

%+" '6Y]'@Ub[nY]hUi ZYbh\U`hYfb'a i gg'XYf
6`]bXXUfa 'YbhZYfbh'k YfXYb

9]bY'XYf']bhYfYggUbhYghYb'HUhgUWXYb'ØVYf'X]Y'5bhUf_h]g'VYhf]Zzh
J]'`Ug'@Ug'9ghfY`Ugž'Y]bY'G]YX'i b['Ui Z?]b[; Ycf[Y'g`UbX'i bX
Y]bYf'XYf'k Yb][Yb'c fhY'Ui Z'XYa ' ?cbh]bYbhž'Ub'XYa 'A YbgWXYb
Y\Yf'X\Y'U'g'A cbUH'Y`YVYb'_ØbbYb"l a 'g]W'Xcfh
b]YXYfni `UggYbž'a i gg'XYb'6Yk c\bYfb'XYf'6`]bXXUfa 'YbhZYfbh
k YfXYbž'i a 'XUg'F]g]_c'a YX]n]b]gWXYf'BchZ`Y'ni 'a]b]a]YfYb"
l bX'g]Y'g]bX'b]W'h'X]Y'Y]bn][Yb"ŸfnhYž'X]Y'Ub'Ui ghfU'gWXYb
5bhUf_h]gghUh]cbYb'ØVYfk]bhYfbž'a ØggYb'g]W'YVYbZU`g'XYa
J YfZU\Yb'i bhYfn]Y\Yb"fe i Y`Y.'667ž'667ž'5i ghfU']Ub'5bhUfW]W
Dfc[fUa Ł

77'6MG5'' "\$'J]'`Yb'@Ug'9ghfY`Ug']b'XYf'5bhUf_h]g

%, "8]Y'8fU_Y'DUggU[Y']gh'Y]bY'XYf'hØW_]gW ghYb
; Yk ÅggYf

8]Y'a Y]ghYb'6Ygi WXYf'XYf'5bhUf_h]g'a ØggYb'X]Y'8fU_Y!DUggU[Y
ØVYfei YfYbž'Y]b'VYfØW_h][hYg; Yk ÅggYf'nk]gW Yb'XYa
W]Yb]gW Yb'? Ud'<ccfb'i bX'XYb'GØX']W Yb'G\Yh'UbX]bgY'bž'k c
XfY]'CnYUbY'Ui ZY]bUbXYfhfYZZYb'i bX'X]Y'K Y''Yb'%&'a'f(\$':i»Ł
ØVYfgWfY]hYb'_ØbbYbž'i b[Y\]bXYfhj'cb'@UbXa UggYb'"8]Y'8fU_Y
[]'h'U'g'Y]bY'XYf'hØW_]gW ghYb'F Y]gYb'ZØf'GW]ZZY"'fE i Y''Y.
6f]hUbb]WUž'BDfŁ

5h'Ug'/'6cchg'?]U'V']W_h'Ui Z'X]Y'8fU_Y'DUggU[Y

%- "8]Y'5bhUf_h]g']gh'X]Y'<Y]a Uh'U_h]j Yf'J i'`_UbY

8Yf'A ci bh'9fYVi g']b'XYf'5bhUf_h]g']gh'Y]bYf'XYf'U_h]j ghYb'J i'`_UbY
XYf'K Y'h"5i Z'F cgg'g'UbX'[Y'Y[Ybž'\Uh'Yg'Y]bY';]dZY'\Ø\Y'j cb
'"+-('a'f%&"((, 'ZŁ'i bX'VY\YfVYf[h'Y]bYb'XYf'k Yb][Yb
XUi Yf\UZhYb'@Uj UgYYb'XYf'K Y'h"9fYVi g']gh'VYa Yf_Ybgk Yfhž'XU
gY]bY'[Yf]b[Yž'UVYf'Ub\U'hYbXY'5_h]j]hÅh'Yg'J i'`_Ubc'c[Yb
Yfa Ø[`]W hž'XUg'ghfca Vc`]Ub]gW Y'9fi dh]cbggmghYa'gY\fbU\Y'Ub
XYb'U_h]j Yb'GW'chYb'fX""\ "<i bXYfhY'j cb'A YhYfbŁ'ni
i bhYfgi WYb"'fE i Y''Y. 'B5G5Ł

HfUi a nY]h'8Yf'A ci bh'9fYVi g']gh'Y]bYf'XYf'U_h]j ghYb'J i'`_UbY'XYf
K Y'h

&\$"8]Y'5bhUf_h]g']gh'Xi fW'XYb'5bhUf_h]gj YfhfU[
[YgWØhnh

8Yf'Ua' '&' "':b]%- *%:]b'?'fUZh[YhfYhYbY'5bhUf_h]gj YfhfU['\Uh
XUZØf[Ygcf[h'XUgg'X]Y'5bhUf_h]g'Y]b'Zf]YX`]W'Yf'C fh'V'Y]Vh'Ub
XYa'X]Y'l a k Y'h[YgWØhnh'k]fX'i bX'X]Y'k]ggYbgWUZh]W'Y
: cfgW'i b['J cffUb['\Uh" 'A]]hÅf]gW'Y'5_h]j]hÅhYb'Ub'@UbX'cXYf'Ui Z
GW'Y'ZY]g'i bhYf'*\$'; fUX'GØX'g]bX'j YfVchYbž'i bX'X]Y']b'XYf
5bhUf_h]g'hÅh[Yb'@AbXYf'VYfUhYb'g]W'ØVYf'X]Y'Bi hni b['XYg
[YgUa hYb'?'cbh]bYbhgž'a]h'XYf'J YfdZ]W'hi b[ž'XUgg'Yf'b]W'hini a
GW'Ui d'Uhn'cXYf'; Y[YbghUbX'j]bhYfbUh]cbU'Yf'Nk]YhfUW'h'k]fX"
fE i Y`Y.'6f]h]g\ '5bhUfWh]Wl a ZfU[YŁ

FYZcfa !: i f`), %G\i hhYfghcW_8]Y'5bhUf_h]g']gh'Xi fW'XYb
5bhUf_h]gj YfhfU['[YgWØhnh

<Ui dhV]`X.'FYZcfa !: i f`), %G\i hhYfghcW_

6Ygi W\ Yb 'G]Y 'i bg 'Ui Z. 'Y]bY!fY]gY"XY