

ϕX]gWΛ Y '@YVYbg[YgWΛ]WΛ hYb ']b
?]hn]b [Yb . '9]b '6`]W_]b 'X]Y
J Yf[Ub [Yb \ Y]h

Jca ' + "'V]g' & * "'GYdhYa VYf'nY][h'XYf': ÒfXYfj YfY]b 'XYf
Y\Ya U`][Yb 'GmbU[c [Y' ?]hn]b [Yb 'ϕX]gWΛ Y
@YVYbg[YgWΛ]WΛ hYb ']b 'XYf'5`hYb 'GmbU[c [Y"

ϕ'XYf'5`hYb 'GmbU[c [Y']b' ?]hn]b [Yb'k]fX'j ca ' + "'V]g' & * "
GYdhYa VYf'Y]bY'VYgcbXYfY'5i gghY''i b ['ni 'gY\Yb'gY]bž'X]Y'g]WΛ
a]h'ϕX]gWΛYa '@YVYb'i bX'XYggYb'; YgWΛ]WΛ hY']b 'XYf'FY []cb
VYgWΛ ÅZh][h"i bhYf'XYa 'H]hY'' 5b'a Y]bYb'; YVi fhgcfh'XYb_Y']WΛ
bcWΛ \Yi hY' [Yfb'ni fØW_ ϕX]gWΛ Y '@YVYbg[YgWΛ]WΛ hYb 'Ui g'XYf
FY []cb' ?]hn]b [Yb 'ghY''h'XYf': ÒfXYfj YfY]b 'XYf'Y\Ya U`][Yb
GmbU[c [Y'Y]bY'gcf [ZÅ'h][Y'5i gk U\`j cb'6]c [fUZ]Yb'ni gUa a Ybž
X]Y'j YfgWΛ]YXYbY'9dcWΛYb'i bX'@YVYbgk Y [Y'UVV]'XYb" HÀ [`]WΛ
j cb' % \$ 'V]g' % + 'i \f' \UVYb' ϕhYfYgg]YfhY'X]Y'A Ò [`]WΛ_Y]hž'X]YgY
Y]bn][Ufh][Yb'; YgWΛ]WΛ hYb'ni 'YbhXYW_Yb"

8]Y'5i gghY''i b ['nY][h'Ui ZVYfØ\fybXY'K Y]gYž'k]Y'j]Y'ZÅ'h]['i bX
VYXYi hYbX'XUg'ϕX]gWΛ Y '@YVYb']b' ?]hn]b [Yb'i bX'la [YVi b ['k Uf"
9g]gh'b]WΛ h'bi f'Y]bY'F ØW_gWΛ Ui 'Ui Z'X]Y'J Yf[Ub [Yb \ Y]hž'gcbXYfb
Ui WΛ 'Y]bY'5i Zzc'fXYfi b [ž'X]Y'9f]bbYfi b ['Ub'XUg'ϕX]gWΛ Y'9fVY
'YVYbX]['ni '\U'hYb"8]Y'; YgWΛ]WΛ hYb']b 'XYf'5i gghY''i b ['YfnÅ\`Yb
j cb' < cZZbi b [Ybž' < YfUi gZc'fXYfi b [Yb'i bX'XYa 'i bUi Z\Øf']WΛ Yb
GhfYVYb' bUWΛ 'ϕYbh]hÅhi bX'Ni [Y\Øf][_Y]h"

K Yfh'XYf'9f]bbYfi b [gUfVY]h

9f]bbYfi b [gUfVY]h'gh'j cb'YbhgWΛ Y]XYbXYf'6YXYi hi b [ži a 'X]Y
; YgWΛ]WΛ hYb'j cb'A YbgWΛ Yb'ni 'VYk U\fybž'X]Y'Xi fWΛ
[YgY'`gWΛ UZh]WΛ Y'l a k Å'ni b [Yb'i bX'J YfZc` [i b [']b']\fyf'9l]ghYbn

VYXfc\h'k UfYb"8]Y`DfÀgYbhUh]cb`V]YhYh'XYb`6Ygi WXYfb`X]Y
A Ò[`]W_X]hž'g]W`a]h'XYf'; YgW]W`hY`Ui`gY]bUbXYfni`gYhnYb`i`bX
Y]bY`h]YZYfY`K`YfhgW`Àhni`b[`ZØf`X]Y`_i`hi`fY`Y`J`Y`ZU`h`ni
Ybhk`]W_Y`bž`X]Y`?`]hn]b[`Yb`]a`@Ui`ZY`XYf`X\`f\`i`bXYfhY`[`YdfÀ[`h`\`Uh`
8Ug`ž`XYbhi`a`h`\`Uhž`k`]Y`j`]Y`Y`UbXYfY`?`i`hi`fYb`Ui`W`ž`ni`Y`]bYa
FY]W`hi`a`Ub`HfUX]h]cbYb`i`bX`; YgW]W`hYb`VY][`YhfU[`Ybž`X]Y`Yg
k`Yfh'g]bXž`YfnÀ`h`i`bX`[`Y\`Öfh`ni`k`YfXYb"

J`cf`U`Y`a`]b`NY]hYbž`]b`XYbYb`X]Y`HYbXYbn`ni`f`5i`g[`fYbni`b[`i`bX
`bhc`YfUbn`k`]YXYf`ni`b]a`a`hž`]gh`Yg`k`]W`h][`ž`@Y`fYb`Ui`g`XYf
J`Yf[`Ub[`Yb`Y]h`ni`n]Y`Yb"8]Y`@YVYbg[`YgW]W`hYbž`X]Y`]b`XYf
5i`gghY`i`b[`dfÀgYbh]Yfh`k`YfXYbž`ghY`Yb`Y]b`nY]h`cgYg`9fVY`XUfž
XUg`b]W`h]Y`f`c`fYb`[`Y`Yb`XUfZ`8]Y`J`YfUbhk`c`fh]W`Yb`XYg
:`ÖfXYfj`YfY]bg`UXYb`X]Y`6Yj`Ö`_Yfi`b[`Y]bž`b]W`h`bi`f`X]Y
5i`gghY`i`b[`ni`VYgi`W`Ybž`gcbXYfb`Ui`W`]bg'; Ygd`f`À`W`ni
_ca`a`Yb`i`bX`X]Y`H`Ya`Yb`j`cb`X`Yb]h]h`À`hi`bX`Ni`[`Y\`Öf][`_Y]h
]b`hYbg]j`ni`X]g`_i`h]YfYb"

8]Y`5`hY`GmbU[`c[`Y`V]YhYh`a`]h]\`fYf`\]ghc`f]gW`Yb`5fW]hY`_hi`f`XYb
dYfZY`_hYb`F`U`a`Yb`ZØf`X]YgY`5i`gghY`i`b[`"9g`]gh`b]W`h`bi`f`Y]b`C`fh
XYf`9f]bbYfi`b[`ž`gcbXYfb`Ui`W`Y]b`F`Ui`a`ž`XYf`ni`a`B`UW`XYb`_Yb
i`bX`F`YZY`_h]YfYb`Ub`fY[`h"8]Y`6Ygi`W`Yf`_ÖbbYb`b]W`h`bi`f`X]Y
5i`gghY`i`b[`[`Yb]Y»`Ybž`gcbXYfb`Ui`W`X]Y`5ha`cgd`\`À`fY`Y]bYg`C`fhYg
Yf`YVYbž`XYf`ZØf`j`Y`Y`; YbYfUh]cbYb`j`cb`ž`XYb`Y]b`NYbhfi`a`XYg
@YVYbg`i`bX`XYg`; `Ui`VYbg`k`Uf"

`b`Y]bYf`NY]hž`]b`XYf`Yg`k`]W`h][`]ghž`Ui`g`XYf'; YgW]W`hY`ni`Y`fbYbž
\`Uh`X]Y`5i`gghY`i`b[`XUg`DchYbn]U`ž`6fØW`Yb`ni`V`Ui`Yb`i`bX
A`YbgW`Yb`ni`gUa`a`Ybni`Vf]b[`Ybž`i`a`X]Y`J`Y`ZU`h`XYg`@YVYbg`ni
ZY]Yfb"8 Yf':`ÖfXYfj`YfY]b`XYf`Y`Ya`U][`Yb`GmbU[`c[`Y`Y]ghYh`\]Yf
Y]bYb`k`Yfh]c`Yb`6Y]hfU[`i`bX`]gh`Y]b`k`]W`h][`Yf`5`_hYi`f`]b`XYb
6Ya`Ø`i`b[`Ybž`X]Y`; YgW]W`hYbž`X]Y`i`bg[`YdfÀ[`h`\`UVYbž`YVYbX][
ni`h`U`hYb"

A`h`XYf`5i`gghY`i`b[`k`]fX`b]W`h`bi`f`Ui`ZX]Y`6YXYi`hi`b[`XYf
`ØX]gW`Yb`; Ya`Y]bgW`UZhi]b`XYf`F`Y[`]cb`\]b[`Yk`]YgYbž`gcbXYfb
Ui`W`Ui`ZX]Y`B`chk`YbX][`_Y]hž`Y]bUbXYf`ni`ni`\`ÖfYb`i`bX`X]Y
i`bhYfgW]YX`]W`Yb`@YVYbgk`Y[`Y`ni`k`ØfX][`Yb"b`b`Y]bYf`K`Y`hž`X]Y

cZij cb' ?cbZ]_hYb'i bX'GdUbbi b[Yb' [YdfÄ[h]ghž'_ÖbbYb'gc`WXY
Dfc`Y_hY` \Y`ZYbž`XUg'J YfghÄbXb]g'ZØfY]bUbXYf'ni`ZØfXYfb'i bX'XUg
6Yk i gghgY]b'ZØf`X]Y'[Ya Y]bgUa Yb'a YbgWÄ`]WXYb'9fZU\fi b[Yb'ni
gWÄÄfZYb"

8YhU]`g

6Ygi WXYb'G]Y'i bg'Ui Z.'b!U["XY