

B Uh]cbU`dUf_g`]b`K U`Yg. `K Y`W\Yf`]gh`XYf` F]W\h][Y`ZØf`G]Y 3

K Ybb`Yg`i a `; fc»Vf]hUbb]Ybg`5hYa`dUi`gYb`[Y`hž`
_cb_i`ff]YfYb`X]Y`B Uh]cbU`dUf_g`]b`K U`Yg`a`]h`XYb`6YghYb`"
<]Yf`Yf`_`ÄfYb`k`]f`k`Ufi`a``K U`Yg`]gh`Ui`Z`XfY`]`GY]hYb`j`ca``A`YYf`
i`a`[`YVYb`i`bX`Y]b`HfUi`a`n]Y`ZØf`C`i`hXccf!9bh\i`g]UghYb`"8`Ug`
h]Y`ZghY`K U`Yg`]gh`nk`Uf`b]W\h`gc`fUi``k`]Y`G`W\ch`h`UbX`c`XYf`
fca`Ubh]gW`k`U`f[`Ybca`a`Yb`k`]Y`f`UbX`ž`UVYf`Yg`]gh`[`YbUi`gc`
j`YfZØ`fYf]gW`"9g`[`]Vh`j`]Y`Y`Y]bgUa`Y`9W`Yb`Ui`Z`
XfUa`Uh]gW`Yb`6Yf[`d`ÄggYb`ž`h]YZYb`:`i`ggh`Ä`Yfb`i`bX`
k`Y`hhYf[`YdY]hgW`hYb`?`]ddYb`"B`U`h`c`g`ØVYf`X]Y`
B`U`h`i`f`UbX`gW`U`Zh`j`Y`f`gh`f`Y`i`h`]Y[`Yb`K`U`Vi`f[`Yb`Ui`g`XYf`
9]gYbnY]hž`f`Öa`]gW`Y`F`i`]bYb`i`bX`ØVYf`*`\$\$`6`i`f[`Yb`i`a`Y`f`
d`fc`?`cd`Ž`gc``Y]»`h`Y`g`ž`U`g`]b`Y`XYa``UbX`Y`f`Yb`@`UbX`X`Y`f`K`Y`h`
G`Ua`ch`#G`i`h`h`Y`f`gh`c`W`_`7`cbk`m`7`Ugh`Y`]b`K`U`Yg`8`Yf`
/`Ua`d`^`Y`d`/`

K Ybb`Yg`i a `; fc»Vf]hUbb]Ybg`5hYa`dUi`gYb`[Y`hž`_cb_i`ff]YfYb`
X]Y`B Uh]cbU`dUf_g`]b`K U`Yg`a`]h`XYb`6YghYb`"<]Yf`Yf`_`ÄfYb`k`]f`
k`Ufi`a`

K U`Yg`]gh`Ui`Z`XfY`]`GY]hYb`j`ca``A`YYf`i`a`[`YVYb`i`bX`Y]b`HfUi`a`n]Y`
ZØf`C`i`hXccf!9bh\i`g]UghYb`"8`Ug`h]Y`ZghY`K U`Yg`]gh`nk`Uf`b]W\h`gc`fUi`
k`]Y`G`W\ch`h`UbX`c`XYf`fca`Ubh]gW`k`U`f[`Ybca`a`Yb`k`]Y`f`UbX`ž`UVYf`
Yg`]gh`[`YbUi`gc`j`YfZØ`fYf]gW`"

9g`[`]Vh`j`]Y`Y`Y]bgUa`Y`9W`Yb`Ui`Z`XfUa`Uh]gW`Yb`6Yf[`d`ÄggYb`ž`
h]YZYb`:`i`ggh`Ä`Yfb`i`bX`k`Y`hhYf[`YdY]hgW`hYb`?`]ddYb`"B`U`h`c`g`ØVYf`
X]Y`B`U`h`i`f`UbX`gW`U`Zh`j`Y`f`gh`f`Y`i`h`]Y[`Yb`K`U`Vi`f[`Yb`Ui`g`XYf`
9]gYbnY]hž`f`Öa`]gW`Y`F`i`]bYb`i`bX`ØVYf`*`\$\$`6`i`f[`Yb`i`a`Y`f`d`fc`
?`cd`Ž`gc``Y]»`h`Y`g`ž`U`g`]b`Y`XYa``UbX`Y`f`Yb`@`UbX`X`Y`f`K`Y`h`

G`Ua`ch`#G`i`h`h`Y`f`gh`c`W`_`7`cbk`m`7`Ugh`Y`]b`K`U`Yg`

8 Yf'A YbgW\`UhX]YgYb`C fh`ØVYf`đ\fhUi gYbXY`[YdfÀ[h`5`g
gc`WY`dfÀ[Yb`fÀhgY`\`UZhY`Fi]bYb`X]Y`@UbXgWUZh"GhY]b_fY]gYž
8c`a Yb`i bX`A Yb`\]fY`k i fXYb`Ub[Y`j cf`XYb`6i f[Yb`Yff]W`hYh"

8]YgY`VYnUi VYfbXY`A]gW`i b[`Ui g`BUhi f`i bX`; YgW]W`hY`n]Y\`h
6Ygi W`Yf`Ui g`XYf`[UbnYb`K Y`h`Ubž]bgVYgcbXYfY`]b`X]Y`XfY]
BUh]cbU`dUf_g]b`K U`Yg. `Gbck Xcb]Už`6fYW`b`6YUW`bg`i bX
DYa Vfc_Yg\]fY" <]Yf`ghY`Yb`k]f`U`Y`XfY]j cfž`i a `ΔbYb`VY]`XYf
5i gk U\`XYg`ZØf`G]Y`dUggYbXYb`ni `Y`ZYb"9[U`ž`cV`G]Y`g]W`ZØf
7Ua`d]b[ž; `Ua`d]b[`cXYf`Yf]Yb\`Ai gYf`]b`K U`Yg`Yb`hgW`Y]XYbž`G]Y
k YfXYb`g]W`Yf`Y]bYb`dUggYbXYb`C fh`Z]bXYb"

Gbck Xcb]U!BUh]cbU`dUf_

5a `VYghYb`[YY][bYh`ZØf.`?`YhhYfb`i bX`K UbXYfb`C fh`; k mbYXX
i bX`7cbk mž`K U`Yg; fØ»Y.`&"%+*`_a &; Y[fØbXYh`%-)`%`K YVg]hY.
gbck Xcb]U"[cj "k U`Yg

Gbck Xcb]U`k]fX`j cb`gW`fcZYb`;]dZY`b`Xca]b]Yfhi bX`]gh`XYf
[fØ»hY`BUh]cbU`dUf_]b`K U`Yg"<]Yf`Z]bXYb`G]Y`Gbck Xcb`f%`\$,)`a
#`")`*`\$`Złž; fc»Vf]hUbb]Ybg`a`ÀW`h][ghYb`;]dZY`gØX`]W`j cb
GW`chh`UbX"8]Y`a`YggYfgW`UfZY`7f]V`; cW`!F`ci`hY`ni`a`;]dZY`]gh
Y]bY`XYf`\UUf][ghYb`F`ci`hYb`XYg`@UbXYg" `a`K]b`hYf`V]Y`hYh
Gbck Xcb]U`Yfgh`_Ugg][Yg`?`YhhYfb`]a`U`d]bYb`Gh]"`HUhg`ÀW`]W`
hfU]b]Yf`hY`G]f`9Xa`i`bX`<]`Ufm`\]Yf`ZØf`gY]bY`VYfØW`h][hY`F`Y]gY
ni`a`9j`YfYgh"

`U`h1` Gbck Xcb`]gh; fc»Vf]hUbb]Ybg`a`ÀW`h][ghYf`;]dZY`gØX`]W`
j`cb`GW`chh`UbX" 25bXfYk`A`Uddci`fUg`#G\i`hhYfghc`W`_Gbck Xcb`]gh
; fc»Vf]hUbb]Ybg`a`ÀW`h][ghYf`;]dZY`gØX`]W`j`cb`GW`chh`UbX

B`UhØf`]W`[]Vh`Yg`]b`Gbck Xcb]U`a`Y`f`U`g`bi`f`6Yf[Y"G]Y`k`YfXYb
Ui`W`ØVYf" +`_a`XfUa`Uh]gW`Y`?ØghYž`a`U`Yf]gW`Y`8`ØfZYfž`ghY]`Y
: `i`gggW`i`W`hYbž`K`UggYfZ`Yž`VYk`U`XYhY`H`À`Yfž`Hc`fZ[YV]Y`hY`i`bX
A`ccf`UbXgW`UZhYb`Z]bXYb"

K`Yb][`ØVYffUgW`YbX`k`i`fXY`Gbck Xcb]U`]b`Y]bYf`F`Y]\`Y`j`cb`:]`a`Yb
j`Yfk`YbXYh`<][\`UbXYf`k`i`fXY`Ua`GmW`b`Ubh`DUgg`]b`7cbk`m

[YXfY\hž'XYf'g]W\Xi fW\Y]bYb'; fc» hY]'j cb'BcfX!Gbck Xcb]U
gW`Ab[Y`hž'k À\fybX`8]bcfk]WG`UHy`E i Uffm]b`HUFnUbž`7`Ug\`cZ
h\Y`H]hUbg'i bX`Hca V`F U]XYf'j Yfk YbXYh'k i fXY"

6YfbX`6f0[[Ya Ub#G\i hhYfghcW_`8]bcfk]gWYf`GW]YZYfVfi W

Gbck Xcb]U]gh`YXcW`b]W\h'bi f`Y]bY`\ØVgWY`?i`]ggY/A Y\`f`U`g
&*"\$\$\$\$`A YbgWYb`YVYb`]a`DUf_ž`j cb`XYbYb`*`&`i` `K U`]g]gW
f7ma fUY[Ł'gdfYWYbž`XUg`U`g`À`hYghY`GdfUWY` ; fc» Vf]hUbb]Ybg
[]`h"

:]bXYb`i bX`Vi WYb`G]Y` : Yf]Yb\`Ài gYf`]b`XYf` ; Y[YbX`j cb
Gbck Xcb]U

6fYWĉb!6YUWĉbg!B Uh]cbU`dUf_

5a`VYghYb`[YY][bYh`Z0f. `@]W\hYfY`K UbXYfi b[Yb`i bX`gUbZhY
<0[Y`@U[Y. `7Ufa Ufh\Ybg\]fYž`Dck mg`i bX`A cba ci h\g\]fYž
K U`Yg; f0»Y. `%"(+`_a &; Y[f0bXYh`%-) +K YVg]hY. VYUWĉbg!
bdU"[cj`"i _

8Yf`6fYWĉb`6YUWĉbg`B Uh]cbU`dUf_]gh`VYf0\`a h`Z0f`gY]bY
gdY_hU_i`Àfyb`<cW`UbXZcfa Uh]cbYb`gck]Y`<cW`a ccfyž
;`YhgW\YfgYYbž`\0[Y`][Y`<Y]XY`UbXgW`UZhYb`i bX`VYY]bXfi W_YbXY
K UggYfZÀ`Y` `XUfi bhYf`X]Y`<Ybf\mX` : U`gž`X]Y`nk Y]ZUW`VYf0\`a h
g]bX``9g`]gh`XYf`\0W`ghY`K UggYfZU``]b`K U`Yg`i bX`k i fXY`Ui W`]b
H\Y`8Uf_`?b][\hF]gYg`U`g`9]b[Ub[`ni`6Uha Ubg`<0\`Y`j Yfk YbXYh"

GYVUgh]Yb`7cY`#G\i hhYfghcW_`<Ybf\mX`k i fXY`]b`H\Y`8Uf_`?b][\h
F]gYg`j Yfk YbXYh

⇒a`BcfXk YghYb``]Y[h`@mb` : Ub`mi: UW`ž`Y]b`&\$`\$\$\$`\$J\fy`U`hYf
;`YhgW\YfgYYž`XYf`]b`Y]bYa`Y][YbYb` :]a`j cf_ca`a h`GhUfXi gh
j cb`&\$`\$+`a`]h`A]W\Y`Y`DZY]ZYf`bi hnhY`XYb`GYY`Z0f`gY]bY

DYa Vfc_Yg\]fY`V]YhYh`Ui W`Ui g[YnY]W`bYhY`H]YfVYcVUW`hi b[Yb"
5V`XYa` : fØ\`b[`g]b[Yb`X]Y`?`]ddYb`j cb`; f]`Ybžk Å\`fYbX
GYYj Ò[Y`ØVYf`]\`bYb`_fY]gYb"DudU[Y]YbhUi W`Yf`_Y\`fYb`ni a
B]ghYb`Ui Z`X]Y`ϕgY`b`7U`XYmž; fUgg\`c`a ž`G_c_\`c`a ž`G_ca Yf`i bX
FUa gYmini fØW`"A Ubl !Ghi fa hUi W`Yfž`A]`UbY`i bX` : U`_Yb`hUi W`Yb
YVYbZU`g`Ui Zžk Å\`fYbX`8Y`Z]bY`i bX`F cVYb`]b`?ØghYbbÅ\`Y
gd]Y`Yb"

FUa cb`<Uf_Ya U#G\i hhYfghcW_`9]b`DudU[Y]YbhUi W`Yf`fi \`h`Ui Z
Y]bYf`?`]ddY`Ui Z`G_ca Yf`ϕ`UbX`]b`K U`Yg

9g`[]Vh`XUg`[Ubny`ϰ\`f`ØVYf`Y]bYb`6i gž`XYf`X]Y`?ØghY`j YfZc`[hž
gcXUgg`K UbXYfYf`XYb`K Y[`Xcfh`Ui ZbY`a Yb`_ØbbYbž`k c`g]Y`Yg
VYj cfni [Ybž`UbghUhh`X]Y`[YgUa hY`@Åb[Y`ni` [Y\`Yb`"B UHØf`]W`
k ÅfY`Yg`ϰ`bYb`j Yfn]Y\`Ybž`Ub`Y]bYa`Y]bn][Yb`Cfh`ni`V`Y]VYbž
k Ybb`Y]b`[fc» Ufh][Yf`GhfUbX`U`Yg`]ghž`k Ug`G]Y`VfUi W`Yb`" <]Yf`[]Vh
Yg`j]Y`ni`hi b"

Gi W`Yb`i bX`Vi W`Yb`G]Y` : Yf]Yb`Åi gYf`]b`XYf`; Y[YbX`j cb
DYa Vfc_Yg\]fY

@c bY`m`D`UbYh`K U`Yg`]gh`Y]b`i a ZUggYbXYf`F Y]gYZØ`fYf`ni `XYb
BUh]cbU`dUf_g`]b`K U`Ygž`]XYU`ZØf`X]Y`Yb][Ybž`X]Y`gck c\`X]Y
k]W\h][ghYb`GY`Ybgk ØfX][_Y]hYb`Yf_i bXYb`U`g`Ui W`k Yb][Yf
VYZU`fYbY`GhfU» Yb`k Å`Yb`a ÒW`hYb"

<Ui dhV]`X. `5bXfYUW+`#G\i hhYfgbcW_

.

8YhU]`g

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