



7ci fgY`Cj Yfj]Yk

GHJZ'7cbHJW`8YHJ]`g

7cbj Ybcfg

7 ci fgY'8YHJ]`g

7 fYX]hDc]bhtg`*`

Gi a a UfmicZhY'7 ci fgY

H\]g`Wci fgY`YI d`cfYg`XYVUH`g`WcbWfb]b[`fUbgbUH]cbU`]ga žfY[]cbU`]gUH]cb`UbX[`cVU`]gUH]cb`]b`hY`
WcbhYI hcZ5g]U`DUWZ]Wa`YX]U`gmgHYa`g`Mci`k`]`Wcbg]XYf`YI`Ua`d`Yg`cZ`ck`bUH]cbg`k`]h`]b`hY`5g]U`DUWZ]W`
i`gY`a`YX]U`hc`fYg]ghW`h`fU`ca`c[`Yb]nUH]cb`UbX`dfcj`]XY`cWU`fYg]ghUbW`hc`hY`Zc`fW`g`cZ[`cVU`]gUH]cb`
HU_]b[`Ug`U`dc]bhicZfYZfYbW`hY`f]gY`cZ5g]Ub`a`cXYfb]hYg`UbX`YgdYW]U`m7`bUf]fY`Wbha`Uf`Yh`
]VYfU`]gUH]cbž`hY`Wci`fgY`YI`Ua`]bYg`hY`]bWYUg]b[`fY[]cbU`]bHY[fUH]cb`cZ`hY`5g]U`DUWZ]W`h`fci [`hY`
Zck`g`cZ`hY`a`YX]U`UbX`dcdi`Uf`W`h`fU`dfcXi`Wg`

7 ci fgY`@YUfb]b[`Ci hWca Yg

%`I`bXYfghUbX`fYW`bhhY`cf]Yg`]b[`cVU`]gUH]cbž`fY[]cbU`]ga`UbX`fUbgbUH]cbU`gh`X]Yg`
&`F`YWc[]b]gY`UbX`UbU`mgY`X]ZYfYbhdUH]fYb]g`cZ`UXcd]cbž`UXUd]UH]cb`UbX`]bHY[fUH]cb`cZa`YX]U`Zcfa`g`
UbX`dfUW]W]g`]b`hY`5g]U!DUWZ]WfY[]cb`
'`" `XYb]h]mUbX`i`gY`cZU`k`]XY`j`Uf]YmicZfYgYUfW`a`UH]f]U`g`UbX`Yb[U[Y`Wca`dYH`bhmik`]h`cb`]bY`
gci`fW]g`UbX`XUH]UVgYg`k`]h`X]gWY]h]cb`UbX`W]h]W`Uk`UfYbYgg`
(`" `7ca`a`i`b]W]hY`UbX`fYdcfhWca`dYbH`bhmVch`cfU`mUbX`]b`k`f]h]b[

HYUW]b[`GhfUH[]Yg`

5ddfcUW]hc`YUfb]b[`UbX`hYUW]b[.

h`h]g`Wci fgY`]h]g`YI dYWYX`h`Uhigh`XYbhtg`k`]`Yb[U[Y`k`]h`hY`YUfb]b[`dfcW]gg`h`fci [`X]fYW`
dUfh]W]dUH]cb`]b`hY`WUggfcca`Ybj`]fcb`a`YbhUbX`k`]`U`gc`hU`Y`Wcbg]XYfUV`Y`fYgdcbg]V`]mZc`f`hY]f`ck`b`
YUfb]b[`YI`dYf]YbW`h`fci [`Vch`df]`UH`gh`XmiUbX`[`fci`d`k`cf`"@YUfb]b[`YI`dYf]YbW]g`k`]`VY`
WcbhYI`h`U`]gYX`k`]h`fYZfYbW`hc`hY`X]gW]d`]bUfmZ]Y`X`Ug`k`Y`Ug`a`cfY[`YbYfU`i`bXYfghUbX]b[`g`]b`hY`fa`g`cZ`
[`YbYfU`_bck`YX[`Y`UbX`VfcUXYf`Yb[U[Ya`Ybhtg`k`]h`[`YbYfU`UbX`X]gW]d`]bUfm_bck`YX[Y`"@YUfb]b[`]g`Ub`
YggYb]U`mWc`UVcfUH]`Y`YI`dYf]YbW`fYei`]f]b[`h[`h`Y]`Y`g`cZ]U`c[`i`Y`VY`h`Y`Yb`gh`XYbhtg`h`Ya`gY`j`Ygž`Ug`
k`Y`Ug`hYUW]b[`]ghUZZUbX`gh`XYbhtg`Gh`XYbhtg`ck`b`YI`dYf]YbW]g`UbX`]bHYfYg]fY`UfY`Wcbg]XYfYX`U`a`U`cf`
fYgci`fW]`]b`hY`XYj`Y`cda`YbhicZ`hY`YUfb]b[`UbX`hYUW]b[`Ybj`]fcb`a`Ybh`

HYUW]b[`ghfUH[]Yg.

H\Y`Wci fgY`k`]`VY`h]i [`h]b`U`YW`h`fY`UbX`gYa`]bUf`Zcfa`UH`@YW`h`fYg`k`]`YI`d`cfY`hY`h`Y`cfY]h]W`UbX`
`]g]hc]f]W]U`gdYW]g`hc`hY`hc]d]W]g`X]gW`ggYX`YUW`k`YY`"@YW`h`fYg`k`]`U`gc`gW]YYb`fY`Yj`UbhYI`Ua`d`Yg`hc`gYh`
i`d`Z`f`hY`f`X]gW`gg]cb`]b`hY`gYa`]bUfg`GYa`]bUfg`k`]`df]a`Uf]m]bj`c`j`Y`XYU`]b[`k`]h`Wci fgY`a`UH]f]U`g`
h`fci [`h`hc]f]U`g]mY`X]gW`gg]cbgž`Wc`UVcfUH]`Y`Yj`Ybhtg`]b`hY`WUggfcca`UbX`cb`]bY`XYa`cbghfUH]cbg`cZ`
fYgci`fW]g`H\YgY`a`cXYg`k`]`gi`ddcf]gh`XYbh`YUfb]b[`ci`hWca`Yg`]b`hY`fa`g`cZ`Zcgh]f]b[`U`j`Uf]YmicZ`YUfb]b[
YI`dYf]YbW]g`UbX`dfcj`X]b[`U`fUb[`Y`cZa`UH]f]U`g`UbX`UddfcUW]Yg`h`Uhigh`XYbhtg`W]b`XYj`Y`cd`]b`hY`fa`g`cZ`
hY]f`ck`b`dUfh]W`Uf`UV`]h]Yg`UbX`]bHYfYg]fY`; `fci`d`DfYgYb]h]cbg`UfY`Ub`YggYb]U`UgdYW]h`cZgi`W]W]gg`]b`h]g`
Wci fgY`UbX`U`gh`XYbhtg`UfY`YI`dYWYX`hc`Wc`UVcfUH]`k`]h`hY]f`; `fci`d`dUfh]Yfg`]b`UW]Yj`]b[`Wca`a`cb`
[`cU`g`

5ggYgga Ybh

D`YUgY`bchY`h`Uhmci`ia`i`ghia`U`Y`U`gYf]ci`g`U`H`Ya`dh`U`h`h`Y`h`k`c`Z`c`fa`U`k`f]h`Y`b`U`gg`Y`gga`Y`bh`h`U`g`_`g`f`B`gg`Y`gga`Y`bh`g`%`/`" `E`h`c`V`Y`Y`][`J`V`Y`h`c`d`U`gg`h`h`g`W`c`i`fg`Y`"

5ggYgga YbhHUG_g

5ggYgga YbhHUG_g	K`Y`][` \`h`	8`i`Y`8`U`H`Y`	G`h`X`Y`b`h`@`Y`U`f`b`]`b`[`C`i`h`W`c`a`Y`g`5`gg`Y`gg`Y`X`
F`Y`g`Y`U`f`W`X`D`U`d`Y`f`	(`)`i`	&`#`%`#`\$`\$`\$`\$`-`.\$`\$`5`A`	%`z`&`Z`z`{`
H`i`h`c`f`]`U`";`f`c`i`d`D`f`Y`g`Y`b`h`h`]`c`b`	&`\$`i`	K`Y`Y`_`g`" `!`%`\$`	%`z`&`Z`z`{`
A`J`X`I`H`Y`f`a`'`9`I`U`a` `	'` `) `i`	%`&`#`\$`#`\$`\$`\$`\$`-`.\$`\$`5`A`	%`z`&`

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh%`F`Y`g`Y`U`f`W`X`D`U`d`Y`f`

G`h`U`f`h`X`U`H`Y` `B`c`h`5`d`d`]`W`V`Y`

@`Y`b`[`h`.`&`)`\$`\$`k`c`f`X`g`

8`Y`h`J`]`g`.

G`h`X`Y`b`h`g`f`Y`W`j`j`Y`k`f]h`Y`b`Z`Y`X`V`U`W`_]`b`H`i`f`b`]`h`b`"

&`z`)`\$`\$`k`c`f`X`g`"

5XX]h]cbU`XYHJ]`g.

:`i`f`h`Y`f`X`Y`H`J`]`g`c`Z`h`h`g`U`gg`][`b`a`Y`b`h`k`j`"V`Y`d`f`c`j`]`X`Y`X`]`b`h`Y`W`c`i`fg`Y`a`c`c`X`Y`"

G`i`V`a`j`g`g`]`c`b`b`c`h`Y`g`.6`Y`g`i`f`Y`h`c`W`X`Y`W`_`m`c`i`f`Z`Y`k` \`Y`b`m`c`i` `g`i`V`a`j`h`"G`i`V`a`j`g`g`]`c`b`g`7`5`B`B`C`H`V`Y`f`Y`d`U`W`X`U`Z`Y`f`h`Y`X`i`Y`X`U`H`d`U`gg`Y`g`"K` \`U`h`j`Y`f`m`c`i` \`U`j`Y`g`i`V`a`j`h`Y`X`k`j`"V`Y`c`W`Y`X`]`b`U`h`h`Y`h`j`a`Y`h`Y`X`i`Y`X`U`H`d`U`gg`Y`g`"M`c`i` `W`b`b`c`h`W`X`U`b`[`Y`g`h`h`g`"Z`m`c`i` `]`b`h`b`X`h`c`g`i`V`a`j`h`U`h`Z`U`b`X` \`U`j`Y`d`f`Y`j`]`c`i`g`m`g`i`V`a`j`h`Y`X`U`X`f`U`Z`z`

GhUfhXUH. Bch5dd`]WV`Y

@Yb[h.) \$`a]bi hYg

8YhU]`g.

		VYtk YYb`a cV]Y`d\cbY`]bXi gf]Yg`UbX`hLY`Yj c`j]b[W`h`fYg`cZa cV]Y`i`gY`k`]h.]b`h`Y`fY[]cb"
K YY_`-`-`Bcj Ya VYf!	@YWh`fY`	5g]Ub` ; Ua]b[`7i` `h`fYg`
%`Bcj Ya VYf`	Hi hcf]U`	K`Y`k`]`X]gW`gg`h`Y`f]gY`cZcb`]bY`UbX`a`cV]Y` [Ua]b[žUg`k`Y`Ug`YGdcftg`]b`gca`Y`5g]Ub`

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

- K YVg]h' - 5""cZhY`fYUX]b[g`Zcf`hY`Wci fgY`UfY`Uj U]UV`Y`cb`]bY`j]U`hY`Wci fgY`A ccX`Y`g]h'"

F YWca a YbXYX`F Ygci fWg

5g`hY`Wci fgY`]g`fYgYUfW`VUgYXz`mci`k`j`VY`YI`dYW`X`hc`a`U`_`Y`i`gY`cZ`hY`gW`c`Uf`mX`U`h`U`V`U`g`Y`g`c`Z`fY`g`Y`U`f`W`U`f`h`]`W`Y`g`f`Y`Y`j`Ub`h`c`h`Y`W`c`i`fg`Y`" `H`Y`g`Y`k`j`" `V`Y`X`]`g`W`gg`Y`X`Xi`f`]`b`[`h`Y`g`Y`gg`]`cb`z` \`c`k`Y`j`Y`f`g`h`i`X`Y`b`h`g`

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

Hi fb]h]b 'Gi Va]gg]cb

5 WUXYa]W< cbYgmiUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i`g]b[`h`Y`k`c`f`X`g`c`f`]X`Y`U`g`c`Z`c`h`Y`f`g`i`U`b`X`d`f`Y`g`Y`b`h]b[`h`Y`a` `U`g`m`c`i`f`c`k`b`" `#`W`U`b`h`U`_`Y`a` `U`b`m`
Z`c`f`a`g`Z`Z`c`a` `X`Y`]V`Y`f`U`h`Y` `W`X`Y`U`h]b[`h`c` `U`W`W`Y`X`Y`b`h`U` `m`i`W`c`d`m]b[`Z`c`a` `U`g`c`i`f`W` `k`]h`c`i`h`U`W`_`b`c`k` `Y`X[`Y`a` `Y`b`h`

I`B`G`K` `[`f`c`i`d`g`d`U[]Uf]ga `]b`h`c` `h`Y` `Z`c` `c`k`]b[`W`U`h`Y`[`c`f`]Y`g.

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5W'W'dhUV'Y'I gY'cZ I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dY'W'X'cZYj Yfmcby']b'h'Y'I BGK 'W'a a i b]m
- 'cW'W'h'gYfj]W'g'UbX']bZ'fa U]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZ'Y'gY'UfY'Ug'k]''VY'ZJa]]Uf'hc'mci ž'c'h'Y'fg'k]''VY'bYk "'; U]b]b['U'gc`]X'i bXYfghUbx]b['cZU''h'Y fY'U'Y'X'UgdY'W'g'cZ9@-G9'k]''\Y'd'mci 'a U_Y'h'Y'a cghicZmci f'gh X]Yg'Uhl BGK ""

[\h'hd.##gi V'Y'W'i \]X'Y'g" \]VfUfm'i bgk "Y'X'i "U'i #' \]gY#\]Vci h' \]gY](#)

5 WUXYa]W**ϕ**Zcfa Uh]cb

: cf`YggYbh]U`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`tc.