



7ci fgY`Cj Yfj]Yk

GhJZ`7cbhJW`8YhJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]UV]]m	@cW]h]cb	D\cbY
A Uth\Yk `?YUfbYg	a "_YUfbYg4 i bgk "YXi "Ui	6miUddc]bha Ybh	A 6' *)	D`YUgY`Ya U]` ei Yf]Yg"

GW\cc``7cbhJW`bZcfa U]h]cb

GW\cc``cZ<i a Ub]h]Yg`UbX:@Jb[i U[Yg

@cW]h]cb. `GW\cc``C Z]W`ZA cfj Yb`6fck b`6i]X]b[ž@Yj Y`&ž&),

CdYb]b[`<ci fg. `A cbXUm! : f]XUmž - Ua `!) da

7ci fgY'8YHJ]`g

7fYX]hDc]bqg`*`

Gi a a UfmicZ\hY'7ci fgY

H\]g`Wci fgY`]bffcXi Wg'mci`hc`hY`\]gfcf]WU`žgcW]U`UbX`W`h`fU`]a`d`]WU]cbg`cZ`hY`k`UghYg`[`YbYfU`hY`X`Vm
\i`a`Ub`gcW]Ym`"8]a`Ybg]cbg`UbX`hcd]Vg`mci`gfi`Xm]bW`XY`"]Z`W`WYg`cZa`U`hY`f]U`gž`ck`k`Y`a`U`_Y
`_bck`YX[`Y`UVci`hk`UghY`ž`hY`gcW]U`]a`d`]WU]cbg`cZk`UghY`a`UbU[`Ya`Yb`hY`W`bc`c[`]Ygž`fY[`]U`W`f]ggi`Yg`UbX
`hY`f`W`cb]gU]cb`cZ`hY`Z`h`fYfVmk`UghY`g`"C`i`f`k`UghY`g`fY`Ua`YI`Ua`d`Yg`]bW`XY`d`UghY`gž`k`U`hY`f`UbX
`gYk`U[`Yž`bi`WYUf`a`U`hY`f]U`gž`]bXi`g`f]U`g`YU`Xi`a`d]b[`ž`]b`hY`fb`U]cbU`h`f`UXY`]b`h`c`I`]Wk`UghY`gž`Xca`Ygh]W`UbXZ`ž
`UbX`hY`W`Y`U]cb`cZ`f`k`UghY`UbX`g`f]UbX`W`cb`h`Ja`]b`U`hY`X`g`]hY`g`"M`ci`YI`d`c`fY`gc`i`h`c`bg`h`c`h`Y`[`YbYfU]cb`cZ
`k`UghY`g`Vm`gh`Xm]b[`h`Y`d`fY`W]i`h`c`b`U`f`m`d`f]b`W]d`Y`ž`Y`bj`]f`c`ba`Y`b`h`U`"↑`gh]W`ž`]b`hY`fb`U]cbU`k`UghY`W`cbj`Y`b`h`c`bg

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UHŸ	Ghi XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
9ggUmi	')	%* #/\$#&\$&\$'%%\$\$'DA	%ž&ž ž)
K UghŸ: i hi fYg'!': fci d DfYgYbhUH]cb`	&\$	Bch5dd`]WUVY	%ž ž(
K UghŸ: i hi fYg'!':]bU` F Ydcfh	()	&+ #/\$#&\$&\$'%%\$\$'DA	%ž&ž ž(ž)

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%9ggUm

GHUfhXUHŸ. Bch5dd`]WUVY

@Yb[h. % \$\$'k cfxg

8YHU]`g.

8Yg][b'mci fYggUmhcd]WŸc U`ck 'mci 'hc 'Udd'mihŸY fYUX]b[g'hc WcbŸYa dcfUfm]ggi Yg'cZk UghŸ"

hX]j]Xi U`ZYXVUW`k]`VY'dfcj]XYX'VmihŸY`YWh fYf#i hc f"

Hi fb]hb'gYH]b[. H\]g Ugg][ba Ybh]g'gi Va]hŸX'h'fci [\ 'Hi fb]hb'UbX'ghi XYbŸg'WUbb'gYY'Hi fb]hb'g)a]Uf]m
fYdcfŸg %o

5 hYbXUbW F Yei]fYa Ybhg

Gh XYbhg UFY gfhcb[mYbWci fU[YX'hc UHhYbX'U''WUggYg UbX'fYj]Yk ''YWhi fY'fYWcfX]b[g"

7 ci fgY'GWXYXi `Y

[J \]Yk WUgg'ha YhUVY](#)

H]a YhUV`Y`

8UhY	HmdY	7cbhYbh
K YY_%`%(`GYdhYa VYf! %`GYdhYa VYf	GYa]bUf	K \Uh]g`k UghY3` 7 ci fgY`cj Yfj]Yk . :`bhfci Xi W]cb'hc`k UghY"A UHhYf]b[" F YUX]b[g`Uj U]UV`Y`j]U`Wci fgY``Y[Ubhc`g]hY"
	C b`]bY`5W]j]hm	C b`]bY`UW]j]hYg`Uj U]UV`Y`j]U`hY`Wci fgY`a ccX`Y`g]hY"
K YY_&.`&%GYdhYa VYf! &)`GYdhYa VYf	GYa]bUf	H\Y`F cUf]b[`-%`&\$g.`b] Ybh]b[`hY`7cbgi a Yfz` F Y]bj Ybh]b[`K UghY`fDfcZ`B]Wc`Ug`F Uga i ggYbE` F YUX]b[g`Uj U]UV`Y`j]U`Wci fgY``Y[Ubhc`g]hY"
	C b`]bY`5W]j]hm	C b`]bY`UW]j]hYg`Uj U]UV`Y`j]U`hY`Wci fgY`a ccX`Y`g]hY"
K YY_` .`&.`GYdhYa VYf! &`C`Wc`VYf	GYa]bUf	K UghYfYX`E`hY`c`fm` F YUX]b[g`Uj U]UV`Y`j]U`Wci fgY``Y[Ubhc`g]hY"
	C b`]bY`5W]j]hm	C b`]bY`UW]j]hYg`Uj U]UV`Y`j]U`hY`Wci fgY`a ccX`Y`g]hY"
K YY_(`.)`C`Wc`VYf!`-` C`Wc`VYf	<ca Yk cf_	DI 6@7`<C@85M` .
	GWYYb]b[5gmbWkfcbei g`gYa]bUf!`[Yc[fUd\]Yg`cZi fVUb` XYWUm`
	C b`]bY`5W]j]hm	C b`]bY`UW]j]hYg`Uj U]UV`Y`j]U`hY`Wci fgY`a ccX`Y`g]hY"
K YY_) .`%&`C`Wc`VYf!`%*` C`Wc`VYf	GYa]bUf9j YfmXUmik UghY`d` G]W]f]m]g`Umik UghY`dfUW]W]g`	G]W]f]m]g`Umik UghY`dfUW]W]g` .
	C b`]bY`5W]j]hm	C b`]bY`UW]j]hYg`Uj U]UV`Y`j]U`hY`Wci fgY`a ccX`Y`g]hY"

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

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

Ʒmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b['hc'gi Va]hmc i f'Ugg][ba YbhiH'fci [\ 'Hi fb]h]bž'd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'-',) " ' ' %cf'Ya U] 'H'Ya 'cb'YI HYfbU'HY'ggi ddcfh4 i bgk "YXi "Ui "'Gi ddcfh
\ci fg'UfY', .\$\$Ua '—%\$.\$\$da 'cb'k YY_XUmg'UbX'-. \$\$Ua '—) .\$\$da 'cb'k YY_YbXg'fI *) 'XUmg'U'm'YUfI" Ʒmci
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmUdd'm'Zcf'Ub'YI HYbg]cbž'Vi hmc i
a i ghfYHU]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]H'UbmcH'Yf'fY'Yj UbhXcW a YbHgE'hc
]bWi XY'Ug'Yj]XYbVW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd'jW]h]cb" Ʒmci 'Ya U] '9I HYfbU'Gi ddcfhmc i 'k]
Ui 'ca UH]WU'm'fYW]j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'HY'Yd\cbY'mci 'k]'b'YX'hc'gdYW]Z]WU'mUg_ 'Zcf'cbY"
Hi fb]h]b 'U'gc'dfcj]XYg'i dXUH'g'cb'H'Y]f'gmgh'Ya 'ghU'g'cb'Hk]HYf"

; YbYfU'mž'UggYgga YbhiHUg_g'a i ghVY'gi Va]HYX'Y'YWfcb]WU'mj]U'Y]H'Yf'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba YbH' 'b]bgHUbVW'g'k \YfY'H'g]g'bgchdcgg]V'Yž]hk]'VY'ghUH'X'cb'mci f'Wci fgY'g'A ccX'Y'g]H'k]H
U'HYfbUH] Y'gi Va]gg]cb'XYHU]g"

: cf]bZ'fa UH]cb'cb'\ck 'hc'gi Va]hUgg][ba YbHg'cb]bY'j]U'A ccX'Y. \hhdg.#gh XYbH'i bgk "YXi "Ui #ck!
gi Va]hUgg][ba YbH'a ccX'Y

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'j]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 cgh'cZ'mci f'gh X]Yg'Uhl BGK ""

[\h'hd.##gi V'Y'W'i \]X'Yg" \]VfUfm'i b'gk "Y'Xi "U'i #' \]gY#\]V'ci h' \]gY](#)

5 WUXYa]WbZcfa Uh]cb

: cfYggYbh]U`gh XYbh]bZcfa Uh]cb fY`Uh]b[`tc.

- fYei Yghg`Zcf`YI H`bg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZYmidc`]WYg/
- YI Ua]bUh]cb`dfcW`Xi fYg/
- gdYW]U`W`bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- gh XYbhYei]m]UbX`X]gUV`]m/
- UbX`chYf`YggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\ftdg.#k k k "Uftg"i bgk "YXi "Ui #W ffYbh\]gh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchW`g`\[i \]XY`\]bYg#](#)

⇒ U[Y`7 fYX]h

D\chc`Vm>]VYfh9VfU\]a]`cb]_bgd`Ug\

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$\$- ;

5W_bck `YX[Ya Ybhcz7ci bhfm

K Y`UW_bck `YX[Y`hY`6YXY[U`dYcd`Y`k \c`UfY`hY`fUX]h]cbU`W`ghcX]Ubg`cZ`hY`UbXg`cb`k \]W`I BGK
? Ybg]b[hcb`W]a di g`]g`cW]hYX"