



LING5005

H\Y'; fUa a Uf'cZ9b[`]g\

HYfa `Cby`#`&\$&%

GWXcc`cZ<i a Ub]hYg`UbX`@Ub[i U[Yg`#`! BGK `5ftg`UbX`GcWU`GWYbWg

7ci fgY`Cj Yfj]Yk

GhJZ`7cbhJW`8YhJ]`g

7cbj Ybcfg

B Ua Y	9a Uj`	5j U]UV]]m	@cWjhcb	D\cbY
8YVfU`5Ufcbg	X"Uufcbg4 i bgk "YXi "Ui	H\i fgXUm%da `! &.`\$da `cf`Vm Uddc]bha Ybh`	D`YUgY`W`bHJW` j]U`Ya U]`"	D`YUgY W`bHJW`j]U Ya U]`"

GWXcc``7cbhJW`#Zcfa Uhjcb

7 ci fgY'8YHJ]`g

7 fYX]hDc]bHg`*`

Gi a a UfmicZ`h`Y'7 ci fgY

H\]g`Wci fgY`dfcj]XYg`U`ghYd!VmgHd`UWwci bhicZ9b[`]g\` [fUa a Uf`Wcj Yf]b[`h`Y`a cgh]a dcfhUbhUbX
W`bhfU`Wcbgrfi W]cbg`UbX`W]HY [cf]Yg" Mci `k]`YUfb`UVci h`h`Y`U`H`gh`h`Y`cf`Y`h]W]`UXj UbW`g`]b`]b[i]gh]Vg
UbXz`VmiUbU`mg]b[`]b`H`f`Y`g]b[`Yi Ua d`Y`g`Z`ca `d`f`Y`g`Y`bh`X`Um`9`b[`]g\`z`mci `k]`Yi d`c`f`Y`k`Um`g`]b`k` \]W`h`Y`
h`f`U`X`]h`cb`U` [fUa a Uf`c`Z`9`b[`]g\`]g`W`X`Ub[]b["

7 ci fgY`@YUfb]b[`Ci h`Wca Yg

%`GmgH`a`U`h]W]`m`Yi`Ua`]b`Y`h`Y`j`Uf]ci`g`W]H`Y`[`cf]Y`g`c`Z`Ub[`i`U`[`Y`f`a`c`f`d`Y`a`Y`g`z`k`c`f`X`g`z`d`f`U`g`Y`g`Ub`X`
W]U`i`g`Y`g`f`Ub`X`h`Y`f`Y`U`h]c`b`g`d`g`h`Y`g`Y`U`f`Y`U`V`Y`h`c`Y`b`H`f`]b`h`c`]b`9`b[`]g\`"
&"`I`g`Y`d`f`Y`W]g`Y`]b[`i`]gh]W]H`Y`fa`]bc`c`[`m`Z`c`f`h`Y`X]g`W`g`g]c`b`c`Z`h`Y`U`V`c`j`Y`"
'`" `8`Y`g`W]`Y`Y`Ub`X`Ub`U`mg`Y`X]Z`Y`f`Y`bh`W]U`i`g`Y`Ub`X`g`Y`b`H`b`W]`h`m`d`Y`g`]b`9`b[`]g\`"
(`" `5`b`U`mg`Y`]b[`i`]gh]W]X`U`h]`Ub`X`U`f`[`i`Y`h`Y`a`Y`f]h`g`c`Z`h`Y`Ub`U`mg]g`

HYUW]b[`G`h`f`U`H`Y`[]Yg`

H\]g`]g`U`" `*` \`ci`f`Wci`fgYz`XY`]]`Y`f`Y`X`h`f`ci`[` \`Y`W]i`f`Y`g`Ub`X`h`h`c`f]U`g`"@Y`W]i`f`Y`g`]b`h`c`Xi`W]`a`U`H`f]U`U`V`ci`h`
]b[`i`]gh]W]U`d`d`f`c`U`W]X`Y`g`h`c`9`b[`]g\`[`f`Ua`a`U`f`" `h`h`c`f]U`d`f`Y`d`U`f`U`h]c`b`k`c`f`_`z`U`g`g`Y`g`g`a`Y`b`h`g`Ub`X`h`h`c`f]U`g`z`mci`
k`]`d`f`U`W]g`Y`Ub`X`U`d`d`m`h`Y`g`Y`h`Y`W]b]ei`Y`g`Ub`X`]b`h`Y`d`f`c`W]g`g`mci`k`]`V`Y`Wca`Y`Wca`d`Y`H`b]b]b`h`Y`X`Y`g`W]d]h]c`b`
Ub`X`Ub`U`mg]g`i`g`Y`X`]b`h`Y`]b[`i`]gh]W]U`d`d`f`c`U`W]X`h`c`9`b[`]g\` ;`f`Ua`a`U`h]W]`g`h`i`W]i`f`Y`" <U`j`]b[`U`d`d`]Y`X`Ub`X`
d`f`U`W]g`Y`X`h`Y`g`Y`h`Y`W]b]ei`Y`g`mci`k`]`Vi`]X`U`g`h`f`c`b[`h`Y`c`f`Y`h]W]`Z`ci`b`X`U`h]c`b`Z`c`f`Z`h`f`Y`U`d`d`]W]h]c`b`"

Hi fb]h]b`gYh]b[.`H\]g`]g`bchU`Hi fb]h]b`Ugg][ba Ybh

5 hYbXUbW F Yei]fYa Ybhg

A UfW		F Yj]g]cb'cZWbHbhWb] YfYX']b'K YY_g'%'!') "
K YY_+. '&- 'A UfW '! '& 5df]	@YWh fY	A cFY'cb'J YfVg.'5i l]]UfmJ Dg" DUfh=
	Hi hcf]U'	7 cbgfi W]cbg'hUhXYdYbX'cb'5i l]]Uf]Yg F YUX]b['7\UdhYf'* 'DUfh= Hi hcf]U'5W]j]hYg d""% - 'bi a VYf% d""% - 'bi a VYf'&
K YY_ ; . :) '5df]'! - '5df]	@YWh fY	H\Y 'Bci b'D\fUgY
	Hi hcf]U'	Hi hcf]U' F YUX]b[7\UdhYf'* 'DUfh= Hi hcf]U'5W]j]hYg d""%(\$ 'bi a VYf'(d""%(\$ 'bi a VYf')
	5ggYgga Ybh	HYgh=Xi f]b['h\Y'YWh fY'dYf]cX
K YY_- . '%&'5df]'! '%* 5df]	@YWh fY	H\Y 'Bci b'D\fUgY
	Hi hcf]U'	F YUX]b['7\UdhYf'+ Hi hcf]U'5W]j]hYg d""%*' 'GYh'ž'ž'==
K YY_%\$. '%- '5df]'! '& 5df]	@YWh fY	GYbhYbW'g'k]h]b'GYbhYbW'g
	Hi hcf]U'	F YUX]b['7\UdhYf', Hi hcf]U'5W]j]hYg' d""%- ('bi a VYf% d""%-) 'bi a VYf'&

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[`hY`k cfXg`cf]XYUg`cZcH.Yfg`UbX`dFYgYb]b[`hYa`Ug`mci`f`ck`b`" #WUb`hU`Y`a`Ubm`
Zcfa`gZ`Zca`XY`]VYfUH`VX`YU]b[`hc`UW]XYb]U`m`Wc]dm]b[`Zca`U`gci`fW`k`]h`ci`hUW`bck`YX[Ya`Yb]f`

I`BGK`]`fci`dg`d`U[]Uf]ga`]b]c`hY`Zc`ck`]b[`W]hY[`cf]Yg.

7`cdm]b[.`i`g]b[`hY`gUa`Y`cf`j`Yfmg]a`]Uf`k`cfXg`hc`hY`cf][`]bU`hY`hcf`]XYU`k`]h`ci`hUW`bck`YX[]b[`hY`
gci`fW`cf`i`g]b[`ei`c]h]cb`a`Uf`g`"H\`g`U`gc`Udd`]Yg`hc`]a`U[YgZ`Uf]h]UbX`XYg][` b`dfc`YW]gZ`Ug`k`Y`Ug`
dfYgYb]h]cbg`k`YfY`gca`YcbY`dFYgYb]g`Ubch`Yf`g`]XYUg`cf`k`cfXg`k`]h`ci`hWYX]f`

#Uddfc]df]U]h`dUfUd`fUg]b[.`7`U]b[]b[`U`ZYk`k`cfXg`UbX`d`fUgYg`k`Y`a`cghm]fY]h]b]b[`hY`cf][`]bU`
gh]f`W`fY`UbX`#`cf`dfc[`fYgg]cb`cZ]XYUg`cZ`hY`cf][`]bU`Z`UbX`]bZcfa`U]cb`k`]h`ci`hUW`bck`YX[Ya`Yb]f`H\`g`U`gc`
Udd`]Yg`]b`dfYgYb]h]cbg`k`YfY`gca`YcbY`dUfUd`fUgYg`Ubch`Yf`g`]XYUg`cf`k`cfXg`k`]h`ci`hWYX]h]UbX`hc`
d]YW]b[`hc[`Y`h`Yf`ei`c]h]g`UbX`dUfUd`fUgYg`]b]c`U`bYk`k`c`Yz`k`]h`ci`hUddfc]df]U]h`fYZYfYbW]b["

7`c`i`g]cb.`k`cf_]b[`k`]h`c]hYfg`Vi`hdUgg]b[`cZ`hY`k`cf`_`Ug`U`dYfgcb`g`]bX]j`]Xi`U`k`cf`_"7`c`i`g]cb`U`gc`
]bWi`XYg`dfcj`]X]b[`mci`f`k`cf`_`hc`Ubch`Yf`g]h`XYbhVYZc`fY`hY`Xi`Y`XU]h`Zc`f`Zc`f`hY`di`fdcgY`cZ`hY`a`
d`U[]Uf]g]b[`Uh]Ubmi]ja`Yz`dUm]b[`Ubch`Yf`dYfgcb`hc`dYfZcfa`Ub`UWUXYa`]W]h]g`_`Z`gh]U`]b[`cf`UW]i`]f]b[
Ubch`Yf`dYfgcb`g`UWUXYa`]Wk`cf`_`UbX`Wc]dm]b[]h`cZ]Yf]b[`hc`Wc`a`d`Y`h`Ubch`Yf`dYfgcb`g`k`cf`_`cf`gYY_]b[

- i bXYfgHUbX'mci f'f][\hg'UbX'fYgdcbg]V]]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ
I BGK '⇒H'F Ygci fW'g'Dc`]Wñ

5 WUXYa]W]bZcfa Uh]cb

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

- fYei Ygh]Zcf`YI H`bg]cb/
- `Uh`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I B GK `<YU`h`UbX`GUZY`midc`]W]Yg/
- 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 ffYbhgh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchW`g!\[i \]XY`\]bYg#](#)