



ARTS1032

HY\Y`@]HYfUhi fY`@UVcfUhc fm`K f]h]b[`6Ymc bX`@]a]hg

HYfa `Hk c` `##`&\$%-



GWXcc`cZHAY`5ftg`UbX`A YX]U`#`I BGK `..5ftg`UbX`GcW]U`GWYbWYg

7ci fgY`Cj Yfj JYk

`GHUZZ7cbhUWih8YHJ`g`

`7cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]hcb	D\cbY
<Y`Yb`; fch	\`[fch4 i bgk "YXi "Ui	Hi YgXUm%%d%&	K YVghYf`&&\$	Z`*%&`-' ,) (, *(

`@YWi fYfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]hcb	D\cbY
>i`]Ub`A i fd\Yh	^a i fd\Yh4 i bgk "YXi "Ui	A cbXUm&! (K YVghYf`&(*7	- ' ,) () &%

`Hi hcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]hcb	D\cbY
A YhY`>U_cVgYb	a "U_cVgYb4 i bgk "YXi "Ui	H65	F cca `&`%@z` F cVYfh K YVghYf`	- ' ,) * \$%*
9`]nUVYh`?]b[Y`_]b[4 i bgk "YXi "Ui			

GW\cc``7cbhUWih`bZcfa Uh]cb

F cca ` ` %&Z`Yj Y`` `F cVYfhK YVghYf`6i]X]b[

D\cbY. f\$&L`-' ,) `(,) *

9a U]`: [gUa 4 i bgk "YXi "Ui](#)

K YVghYf: [\`h\]g #gUa "Uf\]g"i bgk "YXi "Ui](#)

H\Y`GW\cc``cZhY`5f]g`UbX`A YX]U`k ci `X``_Y`h`F YgdYWZ` ``m5W_bck`YX[Y`hY`HfUX]h]cbU``7i g]hX]UbgZ`
hY`6YXY[U`fP`Ybg]b[hcb`WJa di gLz`; UX][U`f7]mUbX`5f]h` `8Yg][b`7 Ua di gYgk`UbX`hY`B [i bbUk U`
dYcd`Y`f5i g]fU]Ub`8YZYbWV`: cfW`5WUXYa m]b`7 UbVYffUk`cZhY`UbXg`k \YfY`YUW`WJa di g`cZI`BGK`]g`
`cW]hYX`"

7ci fgY'8YHJ`g

7fYX]hDc]bqg`*`

Gi a a UfmicZ\hY'7ci fgY

Gi VYWh5fYU.7`Y`eZ

'H\]g`Wci fgY`WU`U`gc`VY`gh`X]YX`]b`hY`Z`ck`]b[`gdYW]U`]gUh]cb.5d\SF[hWI`d[f`Y

H\]g`]b]fcXi`Wc`fmWci`fgY`WX`U`Yb[`Yg`mci`hc`h\]b_`UVci`hk`f]h]b[`Ug`YI`dYf]a`Yb]U`Z`k`cF`X!`Vi`]X]b[`Z`
UX]`Yb]h`fci`gZ`WX`U`Yb[`]b[`Z`fUX]WU`Z`UbX`Yj`Yb`X`Ub[`Yfci`gZ`UbX`hc`k`f]h`Ug`h\ci`[`h`WU]b`WX`Ub[`Y`hY`k`Um`
h\]b[`g`UfY`" `#`hY`UWX`Yg`h`U`h`]hY`fU`h`fY`Ug`VY`Yb`hY`Yb[`]bY!`fcca`cZa`UbmicZ\]g]h`fmg`a`cgh`XY`W]g]j`Y`
WX`Ub[`Yg`hc`gc`W]U`Z`W`h`fU`Z`]X`Yc`c[`]WU`Z`UbX`VY`Uj`]ci`fU`bcfa`g`"8]j`]YX`]b]hc`Zci`f`d]a`Ufma`cXi`Yg`-`
I`hc]U]b`GdYW`U]h]cb`Z`H\Y`I`f[`Yb`W]ic`Z`B`ck`Z`6`Y`mb`X`:`cfa`UbX`:`cfa`Y`ggb`Y`gg`Z`F`Y`hc`f]W]c`Z`H\Y`#`li`a`Ub`
-`]hYI`dcg`Yg`mci`hc`gca`Y`cZ`hY`a`cghYI`W]h]b[`UbX`i`b`Wc]b]Y`b]h]cb`U`k`f]h]b[`]b`9b[`]g`Z`UbX`YeI`]dg`mci`k`]h`
gca`Y`cZ`hY`g_]`g`bY`W]gg`Ufmi`hc`fYg]gh`hY`W`h`fU`Wc`b`Z`fa`]hYg`h`U`h`X`Y`U`X`Y`b`hY`a`]bX`" `HfY`U]h]b[`]hY`fU`h`fY`
Ug`d`fc`W]gg`Z`]b]hY`f]Y`b]h]cb`Z`UbX`YI`dYf]a`Yb]h`hY`Wci`fgY`Ug`_`mci`hc`gY`Y`k`f]h]b[`Ug`U`]Z`c]b[`Y`Xi`WU]h]cb`]b`
ck`!`hc`i`gY`GUa`i`Y`6`Y`W]Y`h]g`d`U`fUgY`!`hc`Z]`VY`hY`f`"

7ci fgY`@YUfb]b[`Ci`hWc`a`Yg

%`h\]b_`UbX`k`f]hY`UVci`h`]hY`fU`h`fY`]b`]h]g`gc`W]U`Wc`b]hY`hg`
&`h\]b_`UbX`k`f]hY`UVci`h`]hY`fU`h`fY`Ug`Ub`cb[`c]b[`d`fc`W]gg`
'`" `fY`Wc[`b]gY`UbX`X]g`W]gg`hY`c]b[`f`UX]h]cb`c`ZYI`dYf]a`Yb]U]h]cb`]b`9b[`]g`Z`]hY`fU`h`fY`
(`" `dU`f]W]dU`hY`]b`hY`YI`dYf]a`Yb]U`d`fc`Y`W]ic`Z`]hY`fU`fmi`d`fc`Xi`W]h]cb`"

HYUWX`]b[`G`h`f`U`hY`[`]Yg`

H\]g`Wci`fgY`k`]`VY`h]i`[`\`hV`m`%I`%)` \`f`Y`W]h`fY`UbX`%I`%)` \`f`h`hc`f]U`dYf`k`YY`_`UbX`k`]`XY`d`cm`@A`G`"

5ggYgga Ybh

D`YUgY`VY`Uk`UfY`h`Uh5`@@`UggYgga`Ybh`Hug_g`UfY`fYeI`j`fYX`Wci`fgY`Wca`dcbYbfg`fki`fX`Y`Wca`dcbYbfg`Mci`A`I`GH`UHYa`dhYUW`hUg_]b`cfXYf`hc`dUgg`hY`Wci`fgY":`U]i`fY`hc`Wca`d`YH`UbmicZ`hYgY`hUg_g`k`]`fYgi`h]b`U`ZU]i`fY`cZ`hY`Ybh]fY`Wci`fgY`Z`Yj`Yb`]Z`mci`f`fYgi`hg:]b`hY`c`hYf`fk`c`hUg_g`a`][`h`UXX`i`d`hc`U`bi`a`Yf]WU`dUgg]b[`f`fUXY"

h]g`U`gc`Ub`YI`dYW`h]cb`cZ`hY`Wci`fgY`h`Uh`mci`U`HY`bX`U`W`UggYgZ`Y`W`fYg`UbX`h`hc`f]U`g"

K`Y`d`fY`Z`f`hY`i`gY`cZ`hY`7`\]WU[`c`A`Ubi`U`c`Z`G`m`Y`Z`%`h`Y`X]h]cb`Z`c`f`U`g`m`Y`UbX`fY`Z`fY`b`W]b[`a`U`HY`fg"

\`hd`.##`k`k`"W`X]WU[`ca`Ubi`U`c`Z`g`m`Y`"cf[`#`c`c`g`S`W]h]cb[`i`]X`Y`#`W]h]cb[`i`]X`Y`!`%`\`h`a`"

K`Y`U`gc`_]`Y`hc`g`Y`U`g`f`cb[`]b`X`Y`d`Y`b`X`Y`bhj`c]W`]b`U`k`f]h]b`hUg_g":`h`X`W`b`Z`X`Y`b`W`]b`mci`f`ck`b`j`]Y`k`g`UbX`↑`X[`Ya`Y`bh]g`z`k`\]Y`h`Y`g]b[`h`Ya`U[`U]b`gh`h`Y`]X`Y`U`g`c`Z`c`h`Y`f`W]h]Wg`UbX`h`b`_Y`fg"

5ggYgga YbhHug_g`

5ggYgga YbhHug_g`	K`Y][`h`	8i`Y`8`UH`	Gh`X`Y`bh`@`Y`U`fb]b[`C`i`h`W`ca`Y`g`5`gg`Y`gg`Y`X`
@]h]fUfm9I`dYf]a`Ybh`	'`)`i`	`\$)`#`\$`+`#`&`\$`%`-`%`%`\$`\$`DA`	%`z`&`Z`
H\Y`K`f]h]b[`]@UV`	'`)`i`	`\$`-`#`\$`,`#`&`\$`%`-`%`%`\$`\$`DA`	&`Z`(`
HU`Y`<`ca`Y`9I`Ua`	'`\$`i`	`&`%`#`\$`,`#`&`\$`%`-`\$`*`.\$`\$`DA`	%`z`&`Z`

5ggYgga Ybh8YHJ]`g`

5ggYgga Ybh%`@]h]fUfm9I`dYf]a`Ybh`

Gh]f]hXUH`.

8YHJ]`g.`%`\$`\$`!`k`c`f`X`Y`gg`Un`z`Z`Y`X`V`U`W`_`d`f`c`j`]X`Y`X`j`]U`Hi`fb]h]b"

Hi`fb]h]b`g`Y`h]b[`.H\]g`Ugg[`]ba`Y`bh]g`gi`Va`]h]X`h`f`ci`[`\`Hi`fb]h]b`UbX`gh`XY`bh]g`W`Ub`g`Y`Y`Hi`fb]h]b`g]a`]U`f]m`f`Y`d`c`f`g"

5ggYgga Ybh&`H\Y`K`f]h]b[`]@UV`

Gh]f]hXUH`.

@Yb[`h`.&`\$`\$`\$`k`c`f`X`g`d`Y`f`g]h`XY`bh`

8YHJ]`g.`

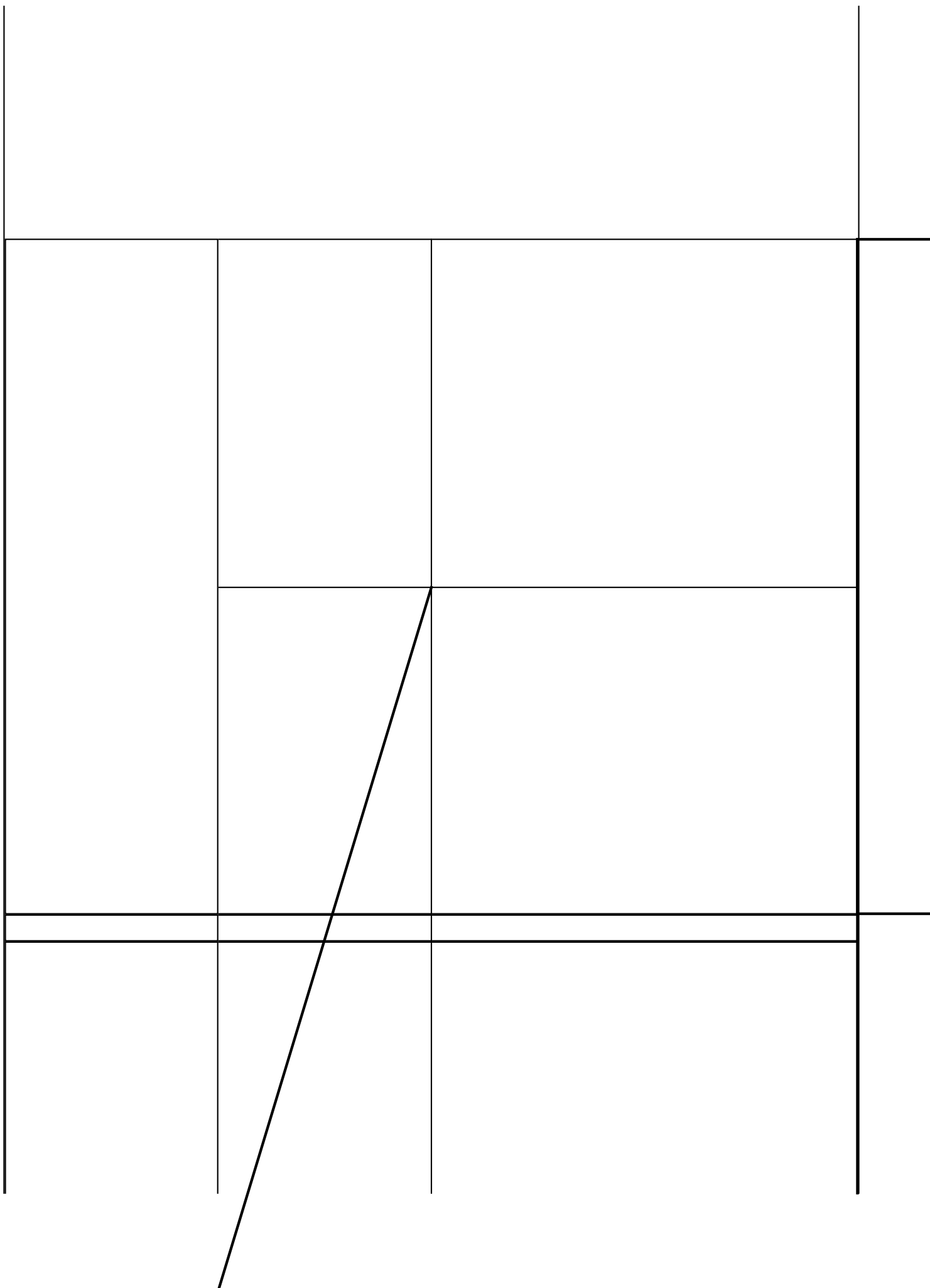
5ggYgga Ybh' . iHU_Y' < ca Y'9I Ua

5m6XU6AW'Fie]fRa YbHg

Gh XYbHg'UFY'ghfcb['mYbWci fU[YX'hc 'UthYbX'U''WUggYg'UbX'fYj]Yk ''YWhi fY'fYWc'fX]b[g"

7c'fg'gY'GWXYXi %d

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



Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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

Ẓmci `YbWci bhYf`U`dfcV`Ya `k \Yb`U`H`Ya dh]b[`hc`gi Va]hmc i f`Ugg][ba YbhHfci [\`Hi fb]h]bžd`YUgY
H`Yd\cbY`9I H`fbU`Gi ddcfhcb`-` ,) `` `` ` %cf`Ya U]`H`Ya `cb`YI H`fbU`H`hgi 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`Y`UfL` Ẓmci
UfY`i bUV`Y`hc`gi Va]hmc i f`Ugg][ba YbhXi Y`hc`U`ZU`i`hik]H`Hi fb]h]b`mci `a UmiUdd`miZc`f`Ub`YI H`bg]cbžVi hmc i
a i ghfY`H]b`mci f`h]W`Yhbi a VYf`Z`ca `9I H`fbU`Gi ddcfhfU`cb[`k]H`U`bmc`H`Y`f`fY`Yj UbhXcW a Yb`hgL`hc
]bWi XY`Ug`Yj]XYbW`hc`gi ddcfhmci f`YI H`bg]cb`Udd`]W]h]cb" Ẓmci `Ya U]`9I H`fbU`Gi ddcfhmci `k]`

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gž`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck`YX[Ya Ybh`

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

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[YgžUfhUbX`XYg][b`dfc`YWgžUg`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g]XYUg`cf`k cfXg`k]h`ci hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`ž`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g]XYUg`cf`k cfXg`k]h`ci hWYX]hU`bX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yž`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb.`k cf_]b[`k]h`chYfg`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`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHYž`cf`Zc`f`hY`di fdcgY`cZ`hY`a

- i bXYfghUjX'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'UjX'5W'W'dhUV'Y'I gY'cZ
I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'Y'ghUjX'UfX'g'cZVY\Uj]ci f'YI dY'W'X'cZYj Yfmc'bY'j]b'h'Y'I BGK 'W'a a i b]m
- `cW'U'Y'gY'fj]W'g'UbX'j]bZ'c'fa U]cb'UV'ci hi 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 bXYfghUjX]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'c.##j' V'Y'W'f' i \]X'Y'g"\]V'f'U'f'm'i b'g'k "Y'X'i "U'i #' \]g'Y'#J'V'c'i h' \]g'Y](#)

5 WUXYa]WbZcfa Uhcb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uhcb`fY`Uh]b[`hc.

- fYei Yghg`ZcfYI hYbg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I B GK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Wc]bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]hmUbX`X]gUV`]`]m/
- UbX`chYf`YggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\hfdg.##k k k "Ufmg"i bkg "YXi "Ui #W ffYb\]hghi XYbmg#JWUXYa \]W\]bZcfa Uh\]cb`dfc\]cWc`g!\[i \]XY`\]bYg#](#)

⇒ U[Y`7fYX]h

[\hfdg.## d`cUX"k \] \]a YX\]U"cf\[# \] \]dYX\]U#Wc`a a cbg#U#JY#C VYf`Ui gYbS!S: Ugca YhYfS!S8YfSgW`ObYSGW`Y\]b S!SH\YS5bWYb\]ScZ8 UmgSi & K \]`\]Ua S6`U`Yi &- S\\$%S\]Yg"td\[](#)

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$\$- ;