



ARTS2242

HY'Dc`]hVg`cZ7`]a UHY`7\Ub[Y

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

7 ci fgY`Cj Yfj]Yk

GhJZZ`7 cbhJW`8 YhU]`g

7 cbj 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	6mUddc]bħa Ybh	' *) žA cfj Yb 6fck b	l) %%%\$

GW\cc``7 cbhJW`ħZcfa U]h]cb

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

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

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

D\cbY. `ž`*%&`- ' ,) `)%*, %

: Ul. `ž`*%&`- ' ,) ; , +\$)

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

7 ci fgY'8YHJ)`g

7 fYX]hDc]bhtg`*`

Gi a a UfmicZħY'7 ci fgY

7`ja UHY`WXUb[Y`]g`cZħb`i bXYfgħcX`Ug`df]a Uf]mU`gWYbħ]Z]Wcf`Ybj]fcbā YbhU`dfcV`Ya`ħ.UhifYei]fYg
YVc`bca]Wcf`ħYWXbc`c[]WU`gc`i`h`cbg`" `ϕ`ħ`g`Vc`i`fgY`k`Y`k`j`"YI`d`cfY`ck`W]a UHY`WXUb[Y`]g`dYf`Udg`VYħYf
i bXYfgħcX`Ug`U`gc`WU`ž`W`h`fU`UbX`dc`]h]WU`d`Ybca`Ybcb`k`\\]W`]g`fYa`U`]b[`ħY`k`Umj`]b`k`\\]W`k`Y
i bXYfgħUbx`ci`f`fY`Uħ]cbg`\\]d`k`]ħ`ħY`'9`Ufħ`" `<`ck`k`Y`i`bXYfgħUbx`W]a UHY`ž`k`YUħYf`ž`bUħ`fY`UbX`ħY
Ybj]fcbā YbhUfY`Wfi`WU`Zc`f`i`bXYfgħUbx]b[`Vc`bħYa`dcfUfm[`cVU`k`Ufa`]b[`UbX`ci`f`fYgdcbgYg`ħc`]ħ`K`Y
k`j`"YI`Ua`]bY`ħY`i`bXYf`m]b[`dc`]h]Wg`cZW]a UHY`WXUb[Y`"Mci`k`j`"UfbYf`U`Vc`bW`dħ`U`UbX`a`YħcXc`c[]WU`
ħc`c`_]h]Zc`f`]bħYfd`fYħ]b[`UbX`a`U`]b[`gYbgY`cZħY`gc`WU`UgdY`Wg`cZW]a UHY`WXUb[Y`UbX`ħY`cZħb`]bħYbgY
dc`]h]WU`Uf[i a Ybhtg`ħUhg`i`ffci`bX`]ħ`H`Y`Vc`i`fgY`YI`d`cfYg`ħY`\\]għc`fmicZW]a UHY`gWYbW`UbX`ħY`a`cY
fYW`bhYa`Yf[YbW`cZU`[`cVU`Vc`bgYbgi`g`cb`Ubħf`cdc[Yb]W[`cVU`k`Ufa`]b[" `H`Y`Vc`i`fgY`[`cYg`cb`ħc
Vc`bg]XYf`fYW`bhk`cf`cb`UVfi`dhW]a UHY`WXUb[Y`ž`W]a UHY`a`cXY`]b[`UbX`ħY`dc`]h]Wg`cZW]a UHY`WXUb[Y`
UXUdħUħ]cb`UbX`a`]h[Uħ]cb`ħYWXbc`c[]Yg`"H`Y`Vc`i`fgY`XfUk`g`cb`U`a`i`h]X]gW]d`]bUfm`ZUa`Yk`cf`_`Zc`f
i bXYfgħUbx]b[`ħY`gc`WU`ž`\\]għc`f]WU`UbX`dc`]h]WU`UgdY`Wg`cZW]a UHY`WXUb[Y`ž`k`]ħ`]bg][`ħ`]Zca`dc`]h]Wg`
gc`W]c`c[`mž`UbX`gWYbW`UbX`ħYWXb]WU`għ`X]Yg`fGHG`E`Mci`k`j`"VY`]bħcXi`W`X`ħc`_YmUfYUg`cZVc`bħYa`dcfUfm
gWc`Uf`miħ`]b`]b[`]b`ħY`Ybj]fcbā YbhU`\\i`a`Ub]h]Yg`-`]bW`X]b[`dc`]h]WU`YVc`c[`mž`ħY`gc`W]c`c[`micZgWYbħ]Z]W
_bck`YX[Y`UbX`Vc`bħYa`dcfUfm]dc`]h]WU`ħYc`fm`

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

%`⇒XYbħ]Zm`\\]għc`f]WU`UbX`dc`]h]WU`Vc`bħY`I`hg`ħ`Uhg`\\UdY`ħY`W`ffYbħXYVUHY`g`UVci`hW]a UHY`WXUb[Y`
&`5`dd`miU`Vc`bW`dħ`U`ZUa`Yk`cf`_`ħc`i`bXYfgħUbx`ħY`i`bXYf`m]b[`gc`WU`UbX`W`h`fU`ZU`i`h]bYg`cZ
W]a UHY`WXUb[Y`
'`" `A`U`_`Y`j`]XYbW`!VUgYX`Uf[i a Ybhtg`i`g]b[`]bXYdYbXYbħm`cWUHY`X`gci`fWg`

HYUWX`]b[`GħfUHY`[]Yg`

H`\\]g`Vc`i`fgY`fYei]fYg`għ`XYbhtg`ħc`Yb[U[Y`k`]ħ`Vc`bħYa`dcfUfm]gc`W]c`c[]WU`UbX`\\i`a`Ub]h]Yg`UbU`m]WU`
gWc`Ufg`\\]d`]b`YI`d`cf]b[`UbX`UbU`mg]b[`ħY`dc`]h]Wg`cZW]a UHY`WXUb[Y`"ħk`j`"fYei]fY`fYZYW]j`Y`UbX`gY`Z
W]h]WU`"YUfb]b[`ħc[YħYf`k`]ħ`U`WUdUW]mħc`UggYa`V`Y`UbX`gmbħYg]gY`]bZc`fa`Uħ]cb`Zc`a`U`fUb[Y`cZgci`fWg`
UbX`X]gW]d`]bUfmVUW`[`fci`bXg`"H`Y`Vc`i`fgY`U`gc`k`j`"fYei]fY`għ`XYbhtg`ħc`Udd`mħYgY`]bg][`ħ`]b`U`fYU`!
k`cfX`YI`Ua`d`Y`UbX`ħc`Vc`a`d`Yħ`U`a`U`cf`d]YW`cZUggYgga`YbhħUħYI`Ua`]bYg`ħY]f`WUdUW]h]Yg`ħc`Xc`ħ`]g`"
H`\\]g`Y`cV`YW]j`Yg`k`j`"VY`UWX`]j`YX`ħ`fci`[`\\`YWħ`fYgž`]b!XYdħ`h`ħc`f]U`X]gW`gg]cbgž`]bXYdYbXYbħfYgYUfW
UbX`ħY`dfYdUfUħ]cb`cZUggYgga`YbhħUg`_`"ϕ`cfXYf`Zc`f`għ`XYbhtg`ħc`XYj`Y`cd`ħY`Zc`fa`g`cZW]h]WU`fYZYW]cb
bYW`ggUfmZc`f`ħ`]g`Vc`i`fgY`ž`dUf]W]dUħ]cb`]b`h`ħc`f]U`X]gW`gg]cb`k`j`"VY`Ya`d`\\Ug]gYX`UbX`]g`fYZYW]X`]b`ħY
UggYgga`YbhgWXYX`"Y`"

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y'8UHŸ	Gh XYbh@YUfb]b[Ci hŸa Yg'5ggYggYX
G\cfhYggUm!'8]gŸi fgY 5bU`mg]g`	' \$i	&) #*\$ #&\$&%%%\$\$`DA	%ž&
G\cfh9ggUm!'B UffUHj Y 5bU`mg]g`	' \$i	' \$#+#&\$&%%%\$\$`DA	%ž&
:]bU`9ggUm	(\$i	% #\$, #&\$&%%%\$\$`DA	%ž&ž'

5ggYgga Ybh8YhU]`g

5ggYgga Ybh%`G\cfhYggUm!'8]gŸi fgY`5bU`mg]g

GhUfhXUHŸ. `Bch5dd`]WV`Y

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

5ggYgga YbhXYgW]dh]cb`Uj U]UV`Y`j]U`A ccX`Y`"

Hi fb]h]b`gYH]b[. H\]g`Ugg][ba Ybh]g`gi Va]H`X`h`fci [\ `Hi fb]h]b`UbX`ghi XYbHg`WUb`gYY`Hi fb]h]b`g)a]Uf]hm fYdcfng"

5ggYgga Ybh` . :]bU`9ggUm

GHUfhXUH. Bch5dd]WUVY

@Yb[h. " \$\$\$

8YHJ]`g.

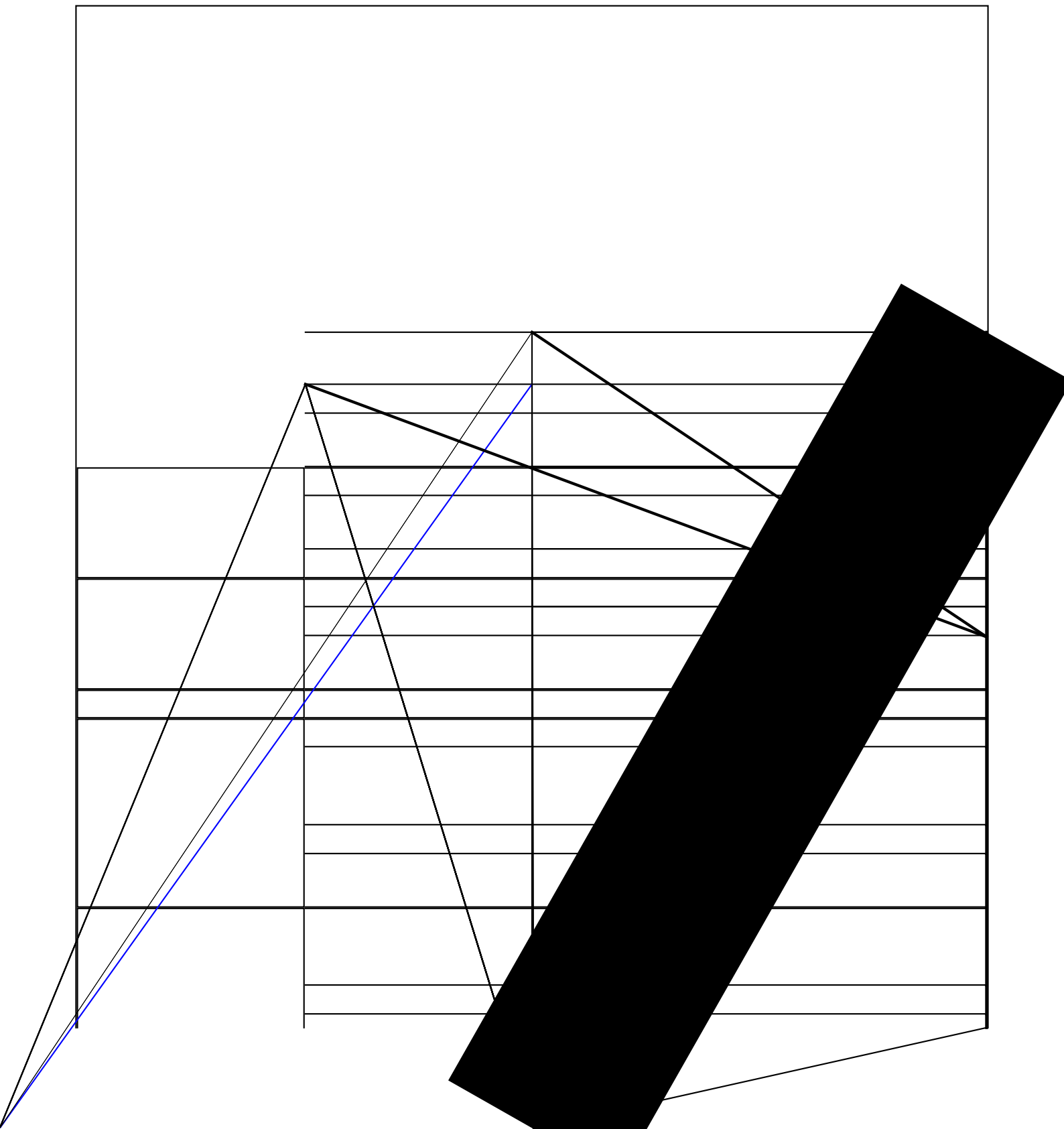
H\]g`UggYgga Ybh]g`U`&Z\$\$\$!k cfX`YggUm`H\Y`YggUm]cd]W]g`di V`]g\YX`cb`h`Y`W`i fgY`A ccX`Y`g]H`"

4X]j]Xi U`k f]H]b`ZYXVUW_]g`dfcj]YX`"H\Y`Z]bU`YggUm]g`h`Y`Z]bU`UggYgga YbhZc`f`UH]bXUbW`di fdcgYg"

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

5ggYgga YbhXYgW]dh]cb`Uj U]UV`Y`j]U`A ccX`Y`"

Hi fb]h]b`gYH]b[. H\]g`Ugg][ba Ybh]g`gi Va]H`X`h`fci [\ `Hi fb]h]b`UbX`ghi XYbHg`WUb`gYY`Hi fb]h]b`g)a]Uf]hm fYdcfng"



	C b]bY'5Wlj]lm	C b]bY'UWlj]hYg'Uj U]UV'Y'j]U'hY'Wci fgY'a ccX'Y g]hY''
K YY_-'&*'>i`m!" \$>i`m	@YWh fY	; c]b['hc'[fci bX' 'hY''UbX!W]a UH' bYI i g
	Hi hc f]U'	F YUX]b[g'Uj U]UV'Y'j]U'Wci fgY''Y[Ubhc'g]hY''
	C b]bY'5Wlj]lm	C b]bY'UWlj]hYg'Uj U]UV'Y'j]U'hY'Wci fgY'a ccX'Y g]hY''
K YY_%\$.&'5i [i gh!'* 5i [i gh	@YWh fY	8Ya cWfUh]g]b['W]a UH' WX Ub[Y
	Hi hc f]U'	F YUX]b[g'Uj U]UV'Y'j]U'Wci fgY''Y[Ubhc'g]hY''
	C b]bY'5Wlj]lm	C b]bY'UWlj]hYg'Uj U]UV'Y'j]U'hY'Wci fgY'a ccX'Y g]hY''

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

H\Y`Wci fgY`Zcf`5F HG&&(&`k]`VY`A]_Y`<i``a Yfg`[K_YUH`YfYX`7i`hi`fYg`cZ7`ja`UH`f&`\\$`%`*`z`G5`;](#) 9E`H\Y`
j`ci`a`Y`]g`Uj`U]V`Y`Ug`Ub`Y!Vcc`_j`]U`h`Y`[L`BGK`_`j`VfUfnz`UbX`j`\]U`h`Y`I`BGK`_`Vcc`_g`cd`"](#)

K`YY`_mfYUX]b[`g`UbX`chYf`gi`[`[`YghYX`fYgci`fWg`UfY`Uj`U]UV`Y`j`]U`A`ccX`Y`UbX`h`Y`Wci`fgY`Y[`Ubtc`g]h`"

F YWca a YbXYX`F Ygci fWg

C`h`Yf`fYWca`YbXYX`fYgci`fWg`k`j`VY`_`]ghYX`j`]U`h`Y`Wci`fgY`Y[`Ubtc`g]h`"

7`ci`fgY`9j`U`i`Uh]cb`UbX`8Yj`Y`cda`Ybh

7`ci`fgYg`UfY`dYf]cX]WU`mfYj`]Yk`YX`UbX`gh`XYbth`ZrYXVUW`_]g`i`gYX`hc`]a`dfcj`Y`h`Ya`":`YYXVUW`_]g`
[`UH`YfYX`Zca`_gh`XYbth`i`g]b[`a`m9I`dYf]YbW`"Gh`XYbth`UfY`YbWci`fU[`YX`hc`Wca`d`Yh`h`Y]f`gi`fj`Ymg`Vm`
UW`Y`gg]b[`h`Y`dYfgcbU`]gYX`k`YV`^]b`_j`]U`h`Y`A`ccX`Y`Wci`fgY`g]h`"

Gi Va]gg]cb`cZ5ggYgga YbhiHUg_g

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

≠mci`YbWci bHYf`U`dfcV`Ya`k` \Yb`UHYa` dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiHfci`[`\`Hi`fb]h]bzd`YUgY`
HY`Yd\cbY`9I`HYfbU`Gi`ddcfhcb`-`,`,)`````%cf`Ya`Uj`hYa`icb`YI`HYfbU`HY`hgi`ddcfh4`i`bgk`"YXi`"Ui`""`Gi`ddcfh`
\ci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`icb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`icb`k`YY`YbXg`fI`*)`XUmg`U`mY`UfI`"≠mci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiXi`Y`hc`U`ZU`ihk`]h`Hi`fb]h]b`mci`ia`UmUdd`mZc`f`Ub`YI`HYbg]cbz`Vi`hmc`i`
a`i`ghfYhU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Ybhtg`L`hc`
]bWi`XY`Ug`Yj`]XYbVW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb""≠mci`Ya`Uj`9I`HYfbU`Gi`ddcfhmc`i`k`]`
Ui`hca`U]WU`mifYW]j`Y`U`h]W`Yhbi`a`VYfz`Vi`h]Zmci`HY`Yd\cbY`mci`k`]`bYYX`hc`gdYW]Z]WU`mUg`Zc`f`cbY`"
Hi`fb]h]b`U`gc`dfcj`]XYg`i`dXUH`g`cb`h`Y]f`gmghYa`ig`hU`h`g`cb`Hk`]hYf"

;`YbYfU`mz`UggYgga`YbhiUg_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`Ybhi`h`]bghU`bVW`g`k`\YfY`h`lg`]g`bchidcgg]V`Yz`]hk`]`VY`ghU`h`X`cb`mci`f`Wci`fgY`g`A`ccX`Y`g]h`k`]h`
U`HYfbU]h]`Y`gi`Va`]gg]cb`XYhU]g"

:`cf]bZcfa`Uh]cb`cb`\ck`hc`gi`Va`]hUgg][`ba`Ybhtg`cb]bY`j`]U`A`ccX`Y`.\`hhdg`#gh`XYbhi`bgk`"YXi`"Ui`Ack`!
gi`Va`]hUgg][`ba`Ybhta`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']hYg'Ug'U'gh XYbhUhl BGK
-

