



# ARTS3780

7 cbhYa dcfUfm; Yfa Ubm' < ]ghc fmž'Dc` ]h]Vgž'GcWYhm

HYfa `Cby`#`&\$%-

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



7ci fgY'8YHJ]`g

7fYX]hDc]bhr`\*`

Gi a a UfmcZ\hY'7ci fgY

Gi V\YWh5fYU.'7gdabVS` E fgV[W

H\]g`Wci fgY`WUb`U`gc`VY`gh`X]YX`]b`h\Y`Zc`ck`]b[ `gdYW]U`]gU]cbg.'9 Wd`S` E fgV[Wet : [efack

; Yfa Ubm\Ug`ZUWY`Ybcfa ci g`W\U`Yb[ Yg`UbX`i`bXYf[ cbY`fUX]WU`fUbgZcfa U]cbg`g]bW`h\Y`YbX`cZ\hY`  
GYW`bX`K`cfX`K`Ufz`k`Yb`]hk`Ug`U`XYZYUHYXZ`cVW`d]YX`dUf]U`k`]h`bc`W`bhfU`[`cj`Yfba`Ybh`:`cf`Zc`fminY`Ufgz`  
h\Y`Wci`bhfmk`Ug`X]j`]YX`]bhc`Wca`a`i`b]gh`9Ugh`UbX`Wd]hU`]ghK`Yghz`i`bh`h\Y`ZU`cZ\hY`6Yf`]b`K`U`YfU`XYX`  
h\Y`YbX`cZ\hY`7c`X`K`Uf`G`]bW`h\Y`bž;`Yfa`Ubm\Ug`Uf[`i`UV`mVYWca`Y`h\Y`9i`fcdY`Ub`i`b]cb`fj`YUX]b[`  
dck`Yf`H\]g`Wci`fgY`Yi`d`cfY`g`gc`W]U`ž`W`h`i`fU`UbX`dc`]h]WU`XYj`Y`cda`Ybhr`]b;`Yfa`Ubm]g]bW`%-`(`)ž`k`]h`U`  
Zc`W`g`cb`a`U`cf`W`bhf`a`dcfUfm`UbX`g`W`c`Uf`mXYVUHY`g`Mci`k`]`YUfb`UVci`h\ck`:`Yfa`Ubg`]b`h\Y`dcgk`Uf`  
dYf]cX`W`dYX`k`]h`XYZYUHY`UbX`cVW`dU]cb`UbX`gci`[`h`U`bYk`VY[`]bb]b[`/UbX`UVci`hgc`W]U`ž`dc`]h]WU`UbX`  
[`YbYfU]cbU`W`Ub[`Y`]b`9Ugh`UbX`K`Ygh;`Yfa`Ubnž`]bW`X]b[`h\Y`W\U`Yb[`Y`cZ`fUX]WU`Y`ž`k`]b[`hY`f`cf]ga`  
g]bW`h\Y`%`+`\$g`Mci`k`]`U`gc`Yi`d`cfY`h\Y`X]Z]W`h]Y`g`cZi`b]h]b[`9Ugh`UbX`K`Ygh;`Yfa`Ubg`g]bW`%-`\$`/\`ck`  
;`Yfa`Ubm\Ug`\UbX`YX`h\Y`Uff]j`U`UbX`]bh[`fU]cb`cZa`][`fU]bhr`UbX`fYZ`[`YYg`/UbX`h\Y`Wci`bhfmg`cb[`c]b[`  
ei`Yghr`XYZ]bY`]hg`bU]cbU`]XYbh]m`UbX`]hg`fc`Y`]b`9i`fcdY`UbX`h\Y`k`cf`X`"

H\]g`Wci`fgY`]g`hU`[`h]b`9b[`]g\`UbX`k`]h`fYUX]b[`g]b`9b[`]g\`"

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

%`5b`U`mgY;`Yfa`Ub`gc`W]Ymž`dc`]h]Wgž`UbX`#`f`W`h`i`fY`g]bW`%-`(`)  
&`5f]W`UHY`h\Y`X]j`Yfg]m`UbX`X`nb`Ua`]ga`cZ`W`bhf`a`dcfUfm;`Yfa`Ub`gc`W]Ymž`dc`]h]Wgž`UbX`#`f`W`h`i`fY`  
`" `9j`U`i`UHY`g`W`c`Uf`m`Uf[`i`a`Ybhr`UVci`h`UbX`X]g`W]d`]b`Uf`m`Udd`fc`UW`Y`g`h`h\Y`gh`X`m`c`Z`W`bhf`a`dcfUfm`  
;`Yfa`Ubm`  
(`" `A`U`\_`Y`j`]XYbW!`VUgYX`Uf[`i`a`Ybhr`i`g]b[`]bXYdYbXYbh]m`c`WUHY`X`gci`fW`g`"

HYUW]b[`GhfUHY`[`]Yg`

H\Y`Wci`fgY`]g`XYg][`bYX`h`YbWci`fU[`Y`mci`f`Yb[`U[`Ya`Ybhk`]h`\_`YmXYVUHY`g]b`h\Y`gh`X`m`c`Z`W`bhf`a`dcfUfm`  
;`Yfa`Ubm`UbX`h`XYj`Y`cd`mci`f`g`\_]`g`U`h`W]h]ei`]b[`g`W`c`Uf`m`Uf[`i`a`Ybhr`UbX`XYj`Y`cd]b[`mci`f`ck`b`  
Uf[`i`a`Ybhr`H\Y`YWh`fYg`dfcj`XY`VUW`[`fci`bX`]bZcfa`U]cb`UbX`]bhf`cXi`W`h\Y`cfYh]WU`UbX`Ub`U`m]WU`  
dYfgdYW]j`Yg`UbX`XYVUHY`g`h`U`h`UfY`Yi`d`cfYX`]b`cf`Yi`Ya`d`]ZYX`Vm`h\Y`gdYW]U`]nYX`k`YY`\_`m`fYUX]b[`g`" `H\Y`  
hYUW]b[`ghfUHY`[`m]g`h`YbWci`fU[`Y`mci`f`Yb[`U[`Ya`Ybhk`]h`UbX`W]h]WU`fYZYW]cb`cb`h\Y`fYUX]b[`g`Vm`Uj`]b[`  
mci`fYgdc`bX`h`gdYW]Z]Wei`Ygh]cbg`UVci`h`U`fYUX]b[`]b`UXj`UbW`cZ\hY`h`h`f]U`g`cb`U`fY[`i`Uf`VUg]g`" `H\Y`  
h`h`f]U`g`]b]c`j`Y`]b]XYd`h`X]gW`gg]cb`cZ\hY`fYUX]b[`g`UbX`fY`UHY`W`bhf`a`dcfUfm`UbX`g`W`c`Uf`m`XYVUHY`g`UbX`  
Udd`fc`UW`Y`g`" `9b[`U[`Ya`Ybhk`]h`h\Y`Wci`fgY`W`bhf`bh]g`Z`f`h`Y`f`YbWci`fU[`YX`UbX`UggYggYX`Vm`Ub`YbX`!`cZ`hY`fa`  
hYgh`" `H\Y`fYgYUfW`YggUm`fYei`]fYg`mci`h`i`bXYfU`\_`Y`]bXYdYbXYbh]fYgYUfW`cb`U`gdYW]Z]W]h`d]W``  
dYdUfU]cb`Zc`f`h\Y`YggUmž`mci`UfY`fYei`]fYX`h`k`f]h`Ub`UVg`fUW`h`UbX`U`Vf]YZ`Ubb`c`hY`X`V]V]c[`fUd`l`m`"

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g

5ggYgga YbhHUg_	K Y][ \ h	8i Y'8UH	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
F YgdcbgYg'UbX'X]gW gg]cb ei Ygh]cbg'hc'k YY_m fYUX]b[ g'	&)	: ]fgh]k c'Xi Y'%%A UfW ž ( da " @Ugh]h fY'Xi Y'&, '5df]'ž ( da "	'
HU_Y!\ca Y'YggUm	' \$	' \$'5df]'&\$%- ž - da	%ž&ž(
F YgYUfW'YggUm	( )	%) 'A Um&\$%- ž ( da	%ž ž(

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh% 'F YgdcbgYg'UbX'X]gW gg]cb'ei Ygh]cbg'hc'k YY\_'mfYUX]b[ g

GHUfhXUH. 'Bch5dd`]WVY

@Yb[ h. '&) \$'k cfXg'f) | Ł

8YHU]`g. 'Gh XYb]g'gi Va ]hU'fYgdcbgY'fā UI "'&) \$'k cfXg'f)hc'U'gYhei Ygh]cb'cb'U'k YY\_'mfYUX]b[ ž'd'i'g'U X]gW gg]cb'ei Ygh]cb'cZhY]f'ck b'cb'hY'fYUX]b[ žVYžcfY'ž] Y'h'hc'f]U'g" Hk c'fYgdcbgYg'UbX'X]gW gg]cb ei Ygh]cbg'a i ghVY'gi Va ]hYX' ]b'hY'ž]fgh]h fY'k YY\_g' ]b'cfXY'f'hc'fYVW ]j Y'YUf'mZ'YXVUW\_": YYXVUW\_j ]U ]bX]j ]Xi U'Wta a Ybhž'fi Vf]W'UbX' ]b!WUgg'X]gW gg]cb"

Gi Va ]gg]cb'bc'hYg.F YgdcbgYg'a i ghVY'dcghYX'cb'A ccX'Y'VYžcfY'hY'fY'Yj Ubh]h'hc'f]U"'9UW'XUmcZ'UH gi Va ]gg]cb'žcf'Ub' ]bX]j ]Xi U'fYgdcbgY'k ]'Wta i bhUg'U'XUmcZ'UH'gi Va ]gg]cb'žcf'hY'k \c'Y'UggYgga Ybh ]h'a ž'k ]h'dYbU'h]Yg'Udd'm]b[ 'Ug'ci h]bYX'UH'f' ]b'h.]g'7 ci fgY'Cj Yfj ]Yk "'žmci 'Xc'bc'hgi Va ]h]ž] Y

5ggYgga Ybh' . 'F YgYUfWx 'YggUm

GhUfhXUHy . 'Bch5dd'jWUV'Y

8YhU]`g. 'Gh XYbhg`k f]h' 'Ub`YggUmifWU" "&ž) \$\$`k cfXgk`VUgYX`cb`]bXYdYbXYbhfYgYUfWxž`Uj ]b[ 'fYW`j] YX  
ZYXVUW`\_cb`h\Y]f`UVghfUWh`UbX`UbbchUHX`V]V`]c[ fUd`m! : YXVUW`\_j ]U`]bX]j ]Xi U`Wka a Ybhg`UbX`fi Vf]W

Hi fb]h]b`gYh]b[ . '





# F Ygci fWg

## DfYgWf]VYX`F Ygci fWg`

5`Wci fgY`fYUX]b[ `]hWcbH]b]b[ `fba`cgHcZ`hY`k`YY`\_`mfYUX]b[ g`k`]`VY`Uj`U]UV`Y`Zc`f`di`fWUgY`Uh`h`Y`  
I`b]j`Yfg]hm`i6cc`\_g`hcfY`Uh`h`Y`VY[ ]bb]b[ `cZ`h`Y`h`Y`fa`"

A`cgh`fYUX]b[ g`UfY`U`gc`Uj`U]UV`Y`Y`Y`W`fcb]W]`m`<`ck`Yj`Yf`Z`d`Y`UgY`b`c`h`Y`h`U`h`b`c`U`d`h`c`d`g`c`f`h`U`V`Y`h`g`U`f`Y`  
U`ck`Y`X`X`i`f]b[ `h`Y`h`h`c`f]U`g`"

## F YWca a YbXYX`F Ygci fWg

Mci`UfY`g`fcb[ `mYbWci`fU[`YX`h`c`fYUX`Dc`C`8`c`W`U`f`U][` \`Z` ;`Yfa`U`b`m`g]b`W`%`-`(`f`b`U`g]b[`g`h`c`\_`Y`.`DU[`f`U`j`Y`  
A`U`W`a`j`U`b`&`\$`(\$`L`Z`k` \`j`W` `g`U`j`U]UV`Y`Uh`h`Y`I`B`G`K` `@]V`f`U`f`m`U`b`X`h`Y`I`B`G`K` `6`c`c`\_`g`l`c`d`" :`h`g`Y`f`j`Y`g`U`g`  
V`U`W`\_`[`f`c`i`b`X`f`Y`U`X]b[ `Z`V`i`h`j`g`b`c`h`X]f`Y`W`h`m`U`g`g`Y`g`g`Y`X`"

H`l`f`Y`Y`Z`f`h`Y`f`g`i`f`j`Y`m`g`c`Z` ;`Yfa`U`b` \`]g`h`c`f`m`g]b`W`%`-`(`U`f`Y`f`Y`W`c`a`a`Y`b`X`Y`X`.  
f`%`L`D`U`i` `<`c`W`\_`Y`b`c`g`Z`>`c`g`W`\_`U` :`]g`W`Y`f`U`b`X`h`Y`A`U`\_]b[ `c`Z`h`Y`6`Y`f]b`F`Y`d`i`V`]W`5`b`5`h`Y`f`b`U`h`j`Y`<`]g`h`c`f`m`c`Z`  
D`c`g`h`k`U`f` ;`Yfa`U`b`m`f`C`I`Z`c`f`X`.`C`I`Z`c`f`X`I`b]j`Y`f`g]hm`D`f`Y`g`g`Z`&`\$`\$`L`/`

f`%`L`?`c`b`f`U`X`<`">`U`f`U`i`g`W`Z`5`Z`Y`f`<`]h`Y`f`.`F`Y`W`j`j]h]b[ ` ;`Yfa`U`b`g`Z`%`-`(!`%`-`-`f`B`Y`k` `M`c`f`\_`.`C`I`Z`c`f`X`I`b]j`Y`f`g]hm`  
D`f`Y`g`g`Z`&`\$`\$`L`f`l`Yfa`U`b`j`Y`f`g]c`b`U`gc`Uj`U]UV`Y`.`I`a`\_`Y`l`f`/`

f`l`L`A`]W`X`U`Y` ;`Y`l`Y`f`Z`H`l`f`Y`Y` ;`Yfa`U`b`]Y`g`.`K`Y`g`h` ;`Yfa`U`b`m`Z`9`U`g`h` ;`Yfa`U`b`m`U`b`X`h`Y`6`Y`f]b`F`Y`d`i`V`]W`f`@`c`b`X`c`b`.  
F`Y`U`\_`h`c`b`6`c`c`\_`g`Z`&`\$`%`%`L`

Mci`UfY`U`gc`g`fcb[ `mYbWci`fU[`YX`h`c`fYUX`h`Y`k`YY`\_`mfYWca`a`YbXYX`fYUX]b[ g`]g]h`Y`X`c`b`A`c`c`X`Y`" `H`l`Y`m`  
g`l`c`i`X`U`gc`V`Y`U`j`U]UV`Y`Y`Y`W`fcb]W]`m`j`]U`h`Y`I`B`G`K` `@]V`f`U`f`m`"

;`c`c`X`d`U`W`g`h`c`g`Y`U`f`W`Z`c`f`Z`f`h`Y`f`f`Y`g`c`i`f`W`g`]b`W`i`X`Y`h`Y``c`i`f`b`U`X`U`h`U`V`U`g`Y`>`G`H`C`F` `U`b`X`g`d`Y`W`Z`W`c`i`f`b`U`g`  
g`i`W`X`U`g` ;`Yfa`U`b`<`]g`h`c`f`m` ;`Yfa`U`b`D`c`]h`j`W`g`U`b`X`G`c`W`Y`m` ;`Yfa`U`b`D`c`]h`j`W`g`/` ;`Yfa`U`b`G`h`X`]Y`g`F`Y`j`]Y`k` /`  
>`c`i`f`b`U`c`Z`7`c`b`h`Y`a`d`c`f`U`f`m`<`]g`h`c`f`m`7`c`b`h`Y`a`d`c`f`U`f`m`9`i`f`c`d`Y`U`b`<`]g`h`c`f`m`9`i`f`c`d`Y`U`b`<`]g`h`c`f`m`E`i`U`f`h`f`m`"

H`l`Y`f`Y`U`f`Y`b`i`a`Y`f`c`i`g`i`g`Y`Z` `k`Y`V`g]h`Y`g`c`b`W`c`b`h`Y`a`d`c`f`U`f`m` ;`Yfa`U`b` \`]g`h`c`f`m`U`b`X`W`c`b`h`Y`a`d`c`f`U`f`m` ;`Yfa`U`b`  
U`Z`U]f`g`" :`c`f`Y`I`U`a`d`Y`Z`h`Y` ;`Yfa`U`b`<`]g`h`c`f]W]` `b`g`h`h`h`Y`Z`K`U`g` \`b[ `h`c`b`Z` \`U`g`U`V`]b[ `i`U`d`U`h`Z`c`f`a` `W`U`Y`X`  
` ;`Yfa`U`b`<`]g`h`c`f`m]b`8`c`W`a`Y`b`h`g`U`b`X` `a`U[`Y`g`.` \`h`r`d`.`#`#`Yfa`U`b` \`]g`h`c`f`m`X`c`W`g`[ ` \`]X`W`c`f` `5`g`c`Z`h`Y`5`a`Y`f]W`b`  
`b`g`h`h`i`h`Y`Z`c`f`7`c`b`h`Y`a`d`c`f`U`f`m` ;`Yfa`U`b`G`h`X`]Y`g`Z`>`c` \`b`g`<`c`d`\_]b`g`I`b]j`Y`f`g]m`Z`d`f`c`j`]X`Y`g`W`c`a`a`Y`b`U`f`m`U`b`X`f`Y`d`c`f`r`g`  
c`b` ;`Yfa`U`b`d`c`]h`j`W`g`.` \`h`r`d`.`#`#`k`k`"U]W]g`"c`f[`

## 7ci fgY`9j`U`i`Uh]cb`UbX`8Yj`Y`c`da`Y`bh

:`c`f`a`U`Z`Y`X`V`U`W`\_`]g`[`U`h`Y`f`Y`X`Z`c`a` `g`h`i`X`Y`b`h`g`i`g]b[ `a`m`@`i`d`Y`f]Y`b`W`" `G`h`i`X`Y`b`h`g` \`U`j`Y`[ ]`Y`b`Y`I`h`Y`a`Y`m`d`c`g]h`j`Y`  
Y`j`U`i`U`h]c`b`g`c`Z`7`c`b`h`Y`a`d`c`f`U`f`m` ;`Yfa`U`b`m`i`b`d`f`Y`j`c`i`g`m`Y`U`f`g`" `b`&`\$`%`+`Z`%`\$`\$`i` `c`Z`g`h`i`X`Y`b`h`g`U[`f`Y`Y`X`f`U`b`X`+`\$`i`  
g`h`c`f`b[ `m`U[`f`Y`Y`X`L`h`U`h`h`Y`m`k`Y`f`g`U`h]g`Z`Y`X`k`]h`h`Y`e`i`U`]m`c`Z`h`Y`W`c`i`f`g`Y`" `H`l`]g`k`U`g`Z`c`a` `U`j`Y`f`m` \`[ ` \`,`&`i`  
f`Y`g`d`c`b`g`Y`f`U`h`Y`"



## 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[ Ygž`UfhUbX`XYg][ b`dfc`YWgž`Ug`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 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][ \hžI 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'gh'Ubx'UfXg'cZVY\Uj ]ci f'YI dY'W'X'cZYj Yf'ncbY' ]b'Y'Y'I BGK 'W'a a i b]m
- `cW'W'h'gYfj ]W'g'UbX' ]b'Z'fa U'h'cb'UVci 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 bXYfghUbx]b[ 'cZU`'h'Y fY'U'h'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. #g\] V'Y'W'f i \]X'Y'g" \]V'f'U'f'm'i b'g'k "Y'X'i "U'i #'\]g'Y'#\]V'c'i h'Y' \]g'Y](#)

5 WUXYa ]WbZcfa Uhcb`

Gh XYbhFYgdcbg]V]hYg

Mci`a i ghfYUX`UbX`UX\YfY`hc`hY`I BGK`Gh XYbh7cXY`Dc`]Wmf&\$\$%\*Ł  
[\hdg.#k k k "\[g\]i bgk "YXi "Ui #dc`\]Wgh XYbhVcXYdc`\]Wf\ha`"](#)

H\YfY`UFY`Zj`Y`df]a Ufmgh XYbhFYgdcbg]V]hYg`i bXYf`h]g`7cXY.

%`5`VcbX]hcb`cZYbfc`a Ybh`hUhgh XYbhg`]bZcfa`hYa`gY`j Yg`cZ`hY`I b]j`Yfg]mfg`fi`Yg`UbX`dc`]WYg  
UZY`W]b[`hYa`z`UbX`VcbXi`Vh`hYa`gY`j Yg`UWVcfX]b[`m`  
&`5b`cV`][`Uhcb`hc`UWhk`]h`]bhY`[`f]m]b`UWUXYa`]Wk`cf`z`hc`Ybgi`fY`h`UhU`UWUXYa`]Wk`cf`\_]g  
VcbXi`WYX`Yh]W`mUbX`gUZY`m`  
'`5b`cV`][`Uhcb`hc`cVgYfj`Y`gh`UbX`UfXg`cZYei`]mUbX`fYgdYWh]b`XYU`]b[`k`]h`Yj`Yfma`Ya`VYf`cZ`hY`  
I`b]j`Yfg]mVca`a`i`b]m`  
(`5b`cV`][`Uhcb`hc`i`gY`UbX`WUfY`Zc`f`I`b]j`Yfg]mfYgci`fWg`]b`U`Uk`Z`U`UbX`Uddfcd`f]UHY`a`UbbYf`  
)`5b`cV`][`Uhcb`hc`bchX]a`]b]g`hY`I`b]j`Yfg]mfg`fYdi`hUhcb`]b`hY`WUffm]b[`ci`hcZUWUXYa`]WUbX`chYf`  
UggcW]UHY`I`b]j`Yfg]mUW]j`]hYg`fi`BGK`Gh XYbh7cXY`Dc`]Wz`5ff`&Ł

5`fY`UH`X`XcW`a`Ybh]g`hY`I BGK`Gh XYbhA`]gVcbXi`Wd`fc`WYXi`fY`f&\$\$%\*Ł  
[\hdg.#k k k "\[g\]i bgk "YXi "Ui #dc`\]Wgh XYbha`\]gVcbXi`Wd`fc`WYXi`fYg`ha`"](#)

5`W`V`i`fgYg`]b`hY`GW`cc`c`ZG`cW]U`G`W]YbW`g`UFY`fi`b`]b`UW`VcfX`UbW`k`]h`GW`cc`z`UW`h`m`  
UbX`I`b]j`Yfg]mfi`Yg`UbX`dc`]WYg`"

Mci`bY`YX`hc`a`U`\_Y`gi`fY`h`Uh`mci`UFY`Z]a`]Uf`k`]h`I`b]j`Yfg]midc`]WYg`UbX`GW`cc`  
[`i`]XY`]bYg`z`[\hdg.#gcWU`gWY`bW`g`Uf\]g`i`bgk`"YXi`"Ui`#gh`XYbh`#fYgci`fWg`#dc`\]WYg`\[`i`\]XY`\]bYg`#`  
dUf\]W`Uf`mi`h`cgY`fY`Uh\]b\[`hc`U`hY`bX`UbW`fYei`\]fYa`Ybhg`z`YI`hY`bg\]cbg`  
UbX`U`h`gi`Va`\]gg\]cb`cZUggYggYX`k`cf`"](#)

⇒ U[ Y`7`fYX]h

GmbYf[ ]Yg`]b`Gci`bX`&\$\$%\*`

7F ⇒ CG

7F ⇒ CG`Dfcj`]XYf`7cXY`.\$\$\$`-` ;`