



## ARTS3243

F Ya U\_]b[ 'BUh fY. 'H\Y 'Dc`]hWg'cZ6]chYWXbc`c[ m

HYfa `Cby`#`&\$%-

7ci fgY`Cj Yfj ]Yk

`GHJZ`7cbhJW`i8YHJ`g`

`7cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
B ]W`Ug`F Uga i ggYb	B "F Uga i ggYb4 i bgk "YXi "Ui	dcg`YX`cb`A ccX`Y	A cfj Yb`6fck b` ' %`	- ' , ) `&` *`% Ya Uj` ]Zbc Ubgk Yf

GVXcc``7cbhJW`i`bZcfa Uhjcb

GVXcc``cZ<i a Ub]hYg`UbX`@Ub[ i U[ Yg

@cWjhcb. `GVXcc``C ZZ      Ub]h

7 ci fgY'8YHJ`g

7 fYX]hDc]bhr '\*`

Gi a a UfmicZhY'7 ci fgY

Gi VYWh5fYU.'7` h[da` \_ W fS^: g\_ S` [fVh

H\]g`Vci fgY`YI Ua ]bYg`k \Uha Ubm\Uj Y`WU`YX`hY`"Wbhi fmicZhY` [ YbY`UbX`]hg`dcfYbh]U`Zcf`fYg\Ud]b[ `hY`  
Ybj ]fcba YbhiUbX`\i a Ub]hm'6]chYVXbc`c[ mWUbb`VY`i bXYfghcX`Ug`U`gcW]U`Zdc`]h]WU`UbX`W`hi fU`dfc`YVhUg`  
a i V\`Ug`U`hYVXb]WU`cbY" `h`h]g`Vci fgY`k Y`Vcbg]XYf`hYgY`]ggi Yg`h`fci [ \`hY`df]ga`cZVcbhYa`dcfUfm`  
Ybj ]fcba Ybhu`h]b\_]b[ `ZXFuk ]b[ `cb`U`a`i`h]X]gWd`]bUfmitc``\_]hZca`gW]YbVW`gh`X]Yg`fGHGtZW`hi fU`UbX`  
dc`]h]WU`hYcfmz`UbX`gcW]c`c[ m`K`Y`fYfUWU`hY`Ya`Yf[ YbW`cZV]chYVXbc`c[ mZca`]hg`YUfm]a`U[ ]b]b[ g`  
h`fci [ \`]hg`Ya`Yf[ YbW`Ug`U`fYU`dfc`YVh]b`hY`h`Yb]Yh`Wbhi`fmz`UbX`YI`d`cfY`U`fUbb[ Y`cZVcbhYa`dcfUfm`  
WUgY!gh`X]Yg`gi`V`Ug`; A`ZcXZ`[ YbY`hYfUdmzV]c!dfcgdYW]b[ `ZbUbcfYVXbc`c[ mUbX`gmbhYh]W]c`c[ m`  
Mc`i`k`]`Uj`Y`hY`cddcfh`b]hmtc`gY`Vh]ggi`Yg`gi`V`Ug`h`YgY`Zcf`XYdYfYI`d`cfU]h]cb`]b[ fci`d`dfc`YVWg`  
]bj`c`j`]b[ `]bXYdYbXYbhYfYgYUfVX`UbX`UbU`mg]"

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

- %`9I`d`U]b`hY`\]g]cf]WU`Zdc`]h]WU`UbX`W`hi fU`VcbhYI`hg`h`Uh\Uj`Y`g\UdYX`hY`Ya`Yf[ YbW`cZ`  
V]chYVXbc`c[ mUbX`hY`V]cgW]YbVWg`
- &`5bU`mgY`hY`]bhYfgYW]cbg`VYh`YYb`[ YbYh]Wg`fYgYUfVX`UbX`g\]Zg`]b`VcbhYa`dcfUfmidc`]h]WU`  
cf[ Ub]gU]cb`UbX`Ybj ]fcba Ybhu`dfUW]W`
- '`5dd`mgY`YVYX`X]gWd`]bUfmiUddfcUWYg`UbX`VcbW`dh`U`h`c`g`h`c`i`bXYfgh]UbX]b[ `hY`gcW]U`UbX`  
Ybj ]fcba Ybhu`UgdYW]cZV]chYVXbc`c[ mUbX`hY`V]cgW]YbVWg`
- ("`5dd`mg\_]`g`cZV]h]WU`UbU`mg]gZdfcV`Ya`g`c`]b[ `UbX`]bhYdfYU]h]cb`]b`Vch`k`f]h]b`k`cf`\_`UbX`]b!`  
WUgg`X]gW`gg]cbg`
- )`7cbXi`Vh]bXYdYbXYbhYfYgYUfVX`UbX`XYa`cbghfU]h`U`W]dUV`]hmtc`UggYa`V`Y`Z`gmbhYg]gY`UbX`  
Vca`a`i`b]W]h`fYgYUfVX`Z]bX]b[ g`UbX`UbU`nt]WU`]bhYdfYU]h]cbg`

HYUW]b[ `GhfU]h[ ]Yg`

H\]g`Vci fgY`fYei ]fYg`gh`XYbh]h`Yb[ U[ Y`k`]h`\][ \!`Yj`Y`UbU`nt]WU`gWc`Ufg\]d`]b`YI`d`cf]b[ `UbX`UbU`mg]b[  
hY`VcbhYa`dcfUfmV]cgW]YbVWg" `h`k`]`fYei ]fY`fYZYW]j`Y`UbX`gY`Z`W]h]WU`YUfb]b[ `h`c[ Y`h`Y`f`k`]h`U`W]dUV]h`m`  
h`UggYa`V`Y`UbX`gmbhYg]gY`]bZca`U]h]cb`Zca`U`fUbb[ Y`cZgci`fWg`UbX`X]gWd`]bUfmiVUW\_]`fci`bXg" `hY`  
Vci fgY`U`gc`k`]`fYei ]fY`gh`XYbh]h`Udd`m`h`YgY`]bg][ \hg`]b`U`fYU`!`k`cfX`YI`Ua`d`Y`UbX`h`Vca`d`Y`h`U`a`U`cf`  
d]YVW`cZUggYgga`Ybhih`UhYI`Ua`]bYg`hY]f`W]dUV`]h]Yg`h`Xc`h`g" `hY`gY`cV`Y`W]j`Yg`k`]`VY`UW]j`Y`X`  
h`fci [ \`YVh`fYgZ`]b!XYdh`hi`h`f]U`X]gW`gg]cbgZ`]bXYdYbXYbhYfYgYUfVX`UbX`hY`dfYdUfU]h]cb`cZUggYgga`Ybh`  
h]g`g" `h`cfXYf`Zcf`gh`XYbh]h`X`Yj`Y`cd`hY`Zca`g`cZV]h]WU`fYZYW]cb`bYVW`ggUfmZcf`h]g`Vci`fgY`Z`  
dUf]h]W]dUV]h]cb`]b`hi`h`f]U`X]gW`gg]cb`k`]`VY`Ya`d`Ug]gYX`UbX`]g`fYZYW]h`X`]b`hY`UggYgga`Ybh]gW]YXi`Y"

## 5ggYgga Ybh

H\Y`]ghcZWci fgY fYUX]b[ g`UbX`hY`gWXYXi`Y`cZk`Uhmci`k`j`VY`YI`dYWYX`hc`fYUX`Zc`fYUWk`k`YY`fj`Vi`nn`  
[ fci`d`X]gW`gg]cbz`]g`dchgYX`cb`hY`Wci`fgY`A`ccX`Y`g]fY`fYUX]b[ g`j`jU`@Y[`Ubhc`dcfU`E`

## 5ggYgga YbhHUg\_g`

5ggYgga YbhHUg_	K`Y][`h	8i`Y`8UH`	Gh`XYbh`@YUfb]b[` Ci`hWta`Yg`5ggYggYX`
6i`nn`[`fci`d`fci`]nfi`	%\$i`	K`YY`_`m]b`Hi`hc`f]U`	%z&z(`
F`YgYUfW`Dfc`YWk`/`9ggUm`	)`\$i`	`A`Um&`\$%`/(`.`. \$\$DA`	%z&z`z(`z`)
7`cbW]gY`YggUm`g`	(`\$i`	k`YY`_`nZ`Uh(`da`+`XUm`g`UZYf` hY`XUH`k`Yb`hc`d]Wk`Ug` c`ZYfYX`	%z&z`

## 5ggYgga Ybh8YH]`g`

5ggYgga Ybh%`6i`nn`[`fci`d`fci`]nfi`

GhUfhXUH`. Bch5dd`]WVY`

8YH]`g`. Gh`XYbh]fidUfh]WdU]cb`]b`hi`hc`f]U`X]gW`gg]cbg`k`j`VY`UggYggYX`h`fci`[`\`ci`hi`hY`Wci`fgY`cb`U`  
DUgg#`U]`VUg]g`UWk`fX]b[`hc`k`Y`hY`f`hY`f`X]gW`gg]cb`[`fci`d`]bhY`][`YbhmiUXXfYggYX`U`gYhei`Ygh]cb`Zc`f`  
X]gW`gg]cbz`UbX`hY`]bX]j`]Xi`U`gh`XYbhk`Ug`cVgYf]YX`hc`UW]j`Y`mdUfh]WdU]h`""`9UWk`k`YY`fj`h`hc`f]U`  
X]gW`gg]cb`ei`Ygh]cbg`d`fYdUfY`gh`XYbh]g`hc`k`f]h`i`d`hY`cd]cbU`k`YY`\_`mYggUm]hc`d]WfVY`ck`E`":`YYXVUW`\_`Vm`  
dfca`dh]bX]j`]Xi`U`Ya`U]`]b`hY`Yj`YbhU`gh`XYbhX]X`bchDUgg]b`U`k`YY`\_`

Gi`Va`]gg]cb`bch]g`.bc`k`f]hYb`gi`Va`]gg]cb`]g`]bj`c`]YX`

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

5ggYgga Ybh&`.F`YgYUfW`Dfc`YWk`/`9ggUm`

GhUfhXUH`. Bch5dd`]WVY`

@Yb[`h`.&\*\$`\$\$`a`]bz`&\$\$`a`U`

8YH]`g`. F`YgYUfW`d`fc`YWk`k`X]W`a`UmVY`WcbXi`WYX`Vm[`fci`dg`cZi`d`hc`h`fY`gh`XYbh]zk`]h`U`"```\$\$`k`c`fX`  
YggUm]g`hY`UggYggYX`ci`hWta`Y""`5""`gh`XYbh]b]U`[`fci`d`]gi`Va`]hgUa`Y`YggUm]UbX`fYW]j`Y`gUa`Y`a`Uf`\_`  
Gh`XYbh]k`j`VY`Y`U`Wc]W`cZ`hc`d]Wg]zk`X]W`k`j`WU`Yb[`Y`h`Ya`hc`Wcbg]XYf`Wb]hU`Wci`fgY`h`Ya`Yg`  
Gh`XYbh]k`j`VY`YI`dYWYX`hc`a`U`Y`i`gY`cZWci`fgY`fYUX]b[ g`UbX`WcbXi`Wh]bXYdYbXYbh]fYgYUfW`  
K`f]hYb`ZYXVUW`\_`H\]g`]g`hY`Z]bU`UggYgga`YbhZc`f`Ufh]bXUbW`di`f`dcgYg`"

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

Gh`XYbh]k`j`VY`YbWci`fU[`YX`hc`dfcdcgY`hY]f`ck`b`hc`d]Wg]Vm]k`YY`\_)`""`5`ghUbXUfX`hc`d]Wk`]`U`gc`VY`]ggi`YX`  
Vm]k`YY`\_)`z`k`X]W`a`i`ghVY`XcbY`Vm]Ubmc]bY`k`c`cgY`dfcdcgYX`fYgYUfW`d`fc`YWk`hc`d]W]g`bchUddfcj`YX""`5`  
YggUm]g`Wci`Ui`h`c`fYX`Vm]U`hY`Ua`g`ci`X`VY`8`9`B`H`7`5`@`UbX`U`k`j`g`U`fY`hY`gUa`Y`a`Uf`\_`"









Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

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

≠mci`YbWci bHYf`U`dfcV`Ya`k`Yb`U`HYa`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]h]b`z`d`YUgY`  
HY`Yd`cbY`9I`HYfbU`Gi`ddcfhcb`-`,`),`'`,`'`,`%cf`Ya`U]`h`Ya`cb`YI`HYfbU`HY`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`mY`UfL`≠mci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhXi`Y`hc`U`ZU`ihk`]h`Hi`fb]h]b`mci`a`Um`Udd`mi`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`  
a`i`gh`fY`hU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhfU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Yb`hg`L`hc`  
]bWi`XY`Ug`Yj`]XYbW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb"≠mci`Ya`U]`9I`HYfbU`Gi`ddcfhmc`i`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`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][ \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'U'g'U'X'U'f'X'g'c'Z'V'Y'\U'j ]ci f'Y'I d'Y'W'X'c'Z'Y'j Y'f'm'c'b'Y'']b'U'Y'I BGK 'W'c'a a i b]m
- 'c'W'U'h'g'Y'f'j ]W'g'U'bx'j'b'Z'c'f'a U'h'c'b'U'V'c'i h'i BGK 'U'bx'I BGK '@]V'f'U'f'm

Gca Y'cZ'U'Y'g'Y'U'f'Y'U'g'k ]''V'Y'Z'J'a ]]U'f'U'c'm'c'i ž'c'h'Y'f'g'k ]''V'Y'b'Y'k "'; U]b]b[ 'U'g'c'X'i bXYfghUbx]b[ 'cZU''U'Y'f'Y'U'h'X'U'gd'Y'W'g'c'Z'9@-G'9'k ]''\Y'd'm'c'i 'a U\_Y'U'Y'a c'g'h'c'Z'm'c'i f'g'h X]Y'g'U'hl 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'#\]V'c'i h'Y' \]g'Y](#)

5 WUXYa ]WbZcfa Uh]cb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[ `rc.

- fYei Ygh]Zc`fYI h`bg]cb/
- `Uh]`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk `cZa Uf\_g/
- I BGK `<YU`h`UbX`GUZY`mdc`]WYg/

