



ARTS5505

DYfgcbU`]gYX'9b[`]g\`@Ub[i U[Y'9b\UbW@a Ybh

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

7 ci fgY`Cj Yfj JYk

`GHJZ`7 cbhJW`i8YHJ`g`

`7 cbj Ybcfg`

BUa Y				

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UHŸ	Gh XYbh@YUfb]b[Ci hŸca Yg'5ggYggYX
DYfgcbU`dfc`YWhXYg][b fDD8Ł`	' \$i	& #*\$ #&\$%-`%%\$\$`DA	' ž(ž)
Dfc`YWh`c[Vcc_`UbX`ci fbU`	&\$i	&* #+\$ #&\$%-`%%\$\$`DA	%ž&
C fU`DfYgYbhU]cb`!`%\$ a]bi hŸg`	&\$i	\$) #\$, #&\$%-`\$-`.\$\$\$`5A	(ž)
F YZYW]j Y`YggUm	' \$i	\$- #\$, #&\$%-`%%\$\$`DA	%ž&

5ggYgga Ybh8YhU]`g

5ggYgga Ybh%`DYfgcbU`dfc`YWhXYg][b`fDD8Ł

GHUfhXUHŸ. `Bch5dd`]WV`Y

8YhU]`g. `Gh XYbhg`XYg][b`hŸY]f`ck b`dYfgcbU`dfc`YWh`c`UXXfYgg`hŸY]f`ck b`9b[`]g\`Ub[i U[Y`b`b`Y`X`g`"H\Ym
UfY`f`Yei]fYX`h`c`gdYW]m`hŸY]f`dYfgcbU`dfc`YWh`c`U`ž`VUW_`[fci bXž`a`Y`h`c`Xž`fYgci fW]gž`dfc[fYgg
a`YUgi`fYa`Ybhž`h`a`Y`]bYž`gW`YXi`Y`UbX`Ub]W]dUH`X`ci`hŸca`Yg`"H\Ymb`Y`Y`X`h`c`XYj`Y`cd`hŸY]f`DD8`VUgYX`cb
fY`Yj`Ubh`]h`fU]h`fY`c`Z`h`Y`ž`Y`X`W`c`b`W`fb`Y`X`"H\Y`k`c`f`X`]`a`]h]g`%`\$\$`Gh XYbhg`fYW]j`Y`k`f]h`b`Z`Y`X`V`U`W`_`V`U`g`Y`X`
cb`fi`Vf]W]g`".....

5ggYgga Ybh&`Dfc`YWh`c[Vcc_`UbX`ci fbU`

GHUfhXUHŸ. `Bch5dd`]WV`Y

8YhU]`g. `Gh XYbhg`fYW`c`f`hŸY]f`YUfb]b[`UW]j`]hYg`UbX`_Y`Yd`fYZYW]j`Y`ci`fbU`cb`U`fY[i `Uf`VUg]g`Ug
d`UbbYX`]b`hŸY]f`DD8`"H\YmUfY`f`Yei]fYX`h`c`gdYbX`" \$`ci`fg`c`f`a`c`fY`ž`c`f`hŸY]f`dYfgcbU`dfc`YWh`Gh XYbhg
fYW]j`Y`k`f]h`b`Z`Y`X`V`U`W`_`V`U`g`Y`X`cb`fi`Vf]W]g`"

5ggYgga Ybh'`.C fU`DfYgYbhU]cb`!`%\$`a]bi hŸg

GHUfhXUHŸ. `Bch5dd`]WV`Y

8YhU]`g. `Gh XYbhg`dfYgYbh`hŸY]f`YUfb]b[`][\`][\h]ž`ca`hŸY]f`dYfgcbU`dfc`YWh`ž`c`f`UVci`h`%\$`a]bi hŸg`h`c`

dYfgcbU`dfc^WUbx`di hUW\]Yj UV`Y`UW]cbg:]b`U`d`Ub`Zcf`h`Y`bYI h`YUfb]b[`ghU[Y``H\Y`k`cfX``]a `]h]g
&\$\$\$"Gh`XYbhg`fYW]j`Y`k`f]h`b`ZYXVUW_`VUgYX`cb`fi`Vf]Wg``H\]g:]g`h`Y`Z]bU`UggYgga`YbhZcf`Uth`bXUbW
di`fdcgYg"

5 HbXUbW F Yei]fYa Ybhg

Gh XYbhg UfY gfcfb [mYbWci fu[YX hc UHbX U WUggYg UbX fYj]Yk YWfi fY fYWcfX]b[g"

7 ci fgY GWYXi Y

[J Yk WUgg ha YhUVY](#)

Hja YhUV Y

8UhY	HmdY	7cbHYbh
K YY_% " ' >i bY! '+>i bY	@YWh fY Hi hcf]U'	hfcXi W]cb hc D5 A cXYzWci fgY gfi Wh fYzUbX C dYb@YUfb]b['d'UhZc fa /X]U[bcgh]WUggYgga Ybh 8]gW gg]cb'cb'hY'X]U[bcgh]WUggYgga Ybh'gYh]b[i d'U' [cU' zc f'hY dYfgcbU' dfc YWh
K YY_&.%\$>i bY! '%(>i bY	C b]bY'5W]j]m Hi hcf]U'	I gZ 'WcbWdrg]b'Ub[i U[Y'YUfb]b[/gYh]b['i d'Ub Y!dcfzc]c/X]U[bcgh]WUggYgga YbhZYXVUW/]bfcXi W]b['dYfgcbU' dfc YWhXYg][b'fDD8E" Gh XYbhg'k]'k UHX 'K YY_&'YWh fY'UbX Wca d'YH' h hcf]U'UW]j]hYg'cb]bY'Xi Y hc'hY'di V]W \c]XUmcb'A cbXUm'
K YY_ " .%+>i bY! '&%>i bY	@YWh fY Hi hcf]U'	@Ub[i U[Y'YUfb]b['a YhcXgzfYgci fWg UbX dfc[fYgg'a YUgi fYa YbhffYUX]b['UbX'k f]h]b[E/ ghU[Yg]b'YUfb]b['U'byk 'g_]'
K YY_(.&(>i bY! '&,>i bY	@YWh fY Hi hcf]U'	@Ub[i U[Y'YUfb]b['a YhcXgzfYgci fWg UbX dfc[fYgg'a YUgi fYa Ybhff]ghYb]b['UbX gdYU_]b[E/\ck dYcd'Y fYgdcbX'hc YI dYWU]hcbg
K YY_) .%>i m!) '>i m	@YWh fY Hi hcf]U'	F YZYW]j Y'ci fbU']b[F YZYW]j Y'ci fbU']b['dfUW]W
K YY_* .; '>i m! '%>i m	@YWh fY Hi hcf]U'	: YUh fYg'cZUWUXYa]WX]gWci fgY/hja Y'a UbU[Ya Ybh UbX'gY'Za ch] Uhcb 8]gW gg]b['dYfgcbU' dfc YWhdfc[fYgg'
K YY_+.%) '>i m! '%>i m	@YWh fY Hi hcf]U'	DfcZYgg]cbU'Wca a i b]WU]cb/Wfi W]U'Wcbj YfgU]cb g_]g/UVghfUWhk f]h]b[' 5VghfUWhk f]h]b[''
K YY_ , .&&>i m! '&'>i m	C b]bY'5W]j]m	K UHX'hY' "7 cbZYbW']b[fci d'X]gW gg]cb g]h Uhcbg'gYW]cb'cb' C dYb@YUfb]b['UbX'dcghcbYfj fYZYW]cb'cb' C dYb@YUfb]b["

K YY_-'&- 'i `m!`&	@YWh fY	DfYgYbHhcb`g_]`g/ZbU`fYZYWj Y`YggUm
5i [i gh	Hi hc f]U`	DfYgYbHhcb`fY\YUfgU`
K YY_%.) `5i [i gh!`-	@YWh fY	@YUfb]b[` : Yghj U`!`_YmbchY`gdYYWYg`
5i [i gh	Hi hc f]U`	@YUfb]b[` : Yghj U`!`dUfU`Y`dfYgYbHhcbg`

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

Gh Xmjb[`]b`9b[`]g\.`GhfUH[`]Yg`Zcf`Gi`Wwgg`]b`<`][` \Yf`9Xi`WU]cb`f&\$\$%+£

F YWca a YbXYX`F Ygci fWg

6cc_`-`@YUfbYf`9b[`]g\`f&\$\$%£

6cc_`-`7f]h]WU`F YUX]b[`UbX`K` f]h]b[`f&\$\$` £

6cc_`-`: cfY][b`@Ub[i U[Y`@YUfb]b[`f%-`-` , £

6cc_`-`@YI`]WU`=ggi`Yg`]b`@Ub[i U[Y`@YUfb]b[`f%-`-`) £

6cc_`-`<ck`@Ub[i U[Yg`UfY`@YUfbYX`f&\$\$(` £

6cc_`-`:]j`Y`#U`;`c.`HYUWX]b[`Dfcbi`bW]U]cb`hc`5Xi`hg`f&\$\$-` £

6cc_`-`9ggYbh]U`g`cZ9ggUmK`f]h]b[`K` \UhA`Uf_Yfg`@cc_`: cf`f&\$\$%+£

6cc_`-`7f]h]WU`F YUX]b[`UbX`K` f]h]b[`]b`h\Y`8][`]U`5[Y`f&\$\$*` £

6cc_`-`HYUWX]b[`UbX`F`YgYUfW]b[`GdYU_]b[`f&\$\$%+£

A cfY`fYgci`fWg`UfY`fYWca`a`YbXYX`cb`@Y[`Ubhc`"

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

7ci fgYg`UfY`dYf]cX]WU`mfYj`]Yk`YX`UbX`ghi`XYbhg`ZfYXVUW_]g`i`gYX`hc`]a`dfcj`Y`h\Ya`":`YYXVUW_]g`
[`UhYfYX`Zfca`ghi`XYbhg`i`g]b[`a`m9I`dYf]YbWU`"Gh`XYbhg`UfY`YbWci`fU[`YX`hc`Wca`d`YH`h\Y]f`gi`fj`Ymg`Vm`
UWwgg]b[`h\Y`dYfgcbU`]gYX`k`YV`]b_]`]U`h\Y`A`ccX`Y`Wci`fgY`g]h`"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Hi fb]hb`Gi Va]gg]cb

Ʒmci`YbWci`bhYf`U`dfcV`Ya`k`Yb`U`H`Ya`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]hb`z`d`Y`UgY`
H`Y`d`l`cb`Y`9I`H`fb`U`Gi`ddcfh`cb`-`,`)`'`'`'`%`cf`Ya`U]`h`Ya`cb`YI`H`fb`U`H`h`gi`ddcfh`4`i`bgk`"YXi`"Ui`"Gi`ddcfh`
`l`ci`fg`UfY`,`.\$`\$Ua`-`-%`\$.`\$`da`cb`k`YY`X`Umg`U`b`X`-`.`.\$`\$Ua`-`i`).`\$`da`cb`k`YY`Y`b`X`g`f`l`*)`X`Umg`U`m`Y`U`f`l`"Ʒmci`
UfY`i`b`U`V`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`Xi`Y`hc`U`Z`U`i`h`k`]h`Hi`fb]hb`mci`a`Um`U`dd`m`i`Z`f`U`b`YI`H`bg]cb`z`Vi`hmc`i`
a`i`gh`f`Y`h]b`mci`f`h]W`Y`h`bi`a`V`Y`f`Z`ca`9I`H`fb`U`Gi`ddcfh`f`U`cb[`k`]h`U`b`m`c`h`Y`f`f`Y`Y`U`b`h`X`c`W`a`Y`b`h`g`l`hc`
]b`W`i`X`Y`U`g`Y`j`]X`Y`b`W`hc`gi`ddcfh`mci`f`YI`H`bg]cb`U`dd`]W`h]cb"Ʒmci`Ya`U]`9I`H`fb`U`Gi`ddcfh`mci`k`]`
Ui`h`ca`U`h]W`m`i`f`Y`W`]j`Y`U`h]W`Y`h`bi`a`V`Y`f`z`Vi`h]Z`mci`H`Y`d`l`cb`Y`mci`k`]`b`Y`Y`X`hc`g`d`Y`W`]W`m`U`g`_`Z`f`cb`Y`
Hi`fb]hb`U`gc`d`fcj`]X`Y`g`i`d`X`U`H`Y`g`i`cb`h`Y`f`g`m`g`h`Ya`g`h`U`h`g`i`cb`H`k`]h`Y`f`"

;`Y`b`Y`f`U`m`z`U`gg`Y`g`ga`Y`b`h`U`g`_`g`a`i`gh`V`Y`gi`Va`]h`Y`X`Y`Y`W`f`cb]W`m`j`]U`Y`]h`Y`f`Hi`fb]hb`cf`U`A`cc`X`Y`
U`gg][`ba`Y`b`h`-`b`]b`g`h`U`b`W`g`k`Y`f`Y`h`l`g`]g`b`c`h`i`d`c`g`g]V`Y`z`]h`k`]`V`Y`g`h`U`H`X`i`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]h`k`]h`
U`h`f`b`U`h]j`Y`gi`Va`]gg]cb`X`Y`h]g`"

:`cf`]b`Z`c`fa`U`h]cb`cb`l`ck`hc`gi`Va`]h`U`gg][`ba`Y`b`h`g`i`cb`]b`Y`j`]U`A`cc`X`Y`.\`h`td`g`#`g`h`X`Y`b`h`i`bgk`"YXi`"Ui`#`ack`!
gi`Va`]h`U`gg][`ba`Y`b`h`a`cc`X`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`Ub[]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'Wcdmf][\hžI BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5Ww'dhUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wm
- VY'Uk UfY'cZh'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dYW'X'cZYj Yfmcby`]b'h'Y'I BGK 'Wca a i b]m
- `cWJh'gYfj]W'g'UbX'j]bZcfa Uh]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh'YgY'UfYUg'k]`VY'ZJa]]Uf'hc'mci ž'ch'Yfg'k]`VY'byk "; U]b]b['U'gc`X'i bXYfghUbx]b['cZU`h'Y fY'UH'X'UgdYW'g'cZ9@G9'k]`Y'd'mci 'a U_Y'h'Y'a cghcZmci f'gh X]Yg'Uhl BGK ""

[\hhd.##ji V'YW'i \]XYg" \]VfUfm'i bgk "YXi "Ui #' \]gY#JVci h' \]gY](#)

