



ARTS2033

DcYHfmUbX'DcYh]Wg

HYfa`H\fYY`##`&\$%-

GWcc`cZHAY`5ftg`UbX`A`YXJU`..##`I`BGK`..5ftg`UbX`GcWU`..GWYbWg



7 ci fgY`Cj Yfj]Yk

`GHUZZ7 cbhUWhi8YHU]`g`

`7 cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]]m	@cWU]cb	D\cbY
GYUb`Dfmc`f	g"dfmc`f4 i bgk "YXi "Ui	6mUddc]bha Ybh	F cVYfh K YVghYf`&%`	\$(\$) , (\$' %

GW\cc``7 cbhUWhi`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 YVg]hY: [\hfdg.#gUa "Ufng"i bgk "YXi "Ui](#)

H\Y`GW\cc``cZhY`5fng`UbX`A YX]U`k ci `X``_Y`hc`F YgdYWz ``m5W_bck`YX[Y`hY`HfUX]h]cbU``7 i g]cX]Ubgz`
hY`6YXY[U`fP`Ybg]b[hcb`WUa di gLz; UX][U`f7]mUbX`5fhi`8Yg][b`7 Ua di gYgE`UbX`hY`B [i bbUk U`
dYcd`Y`f5i ghU]Ub`8YZ`bWV : cfW`5WUXYa m]b`7 UbVYffU`cZhY`UbXg`k \YfY`YUW`WUa di g`cZI`BGK`]g`
`cWU]hYX"

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`*`

Gi a a UfmicZ`h`Y'7ci fgY

Gi V`Y`W`h`5`f`Y`U`.'7`Y`f`e`Z`

H`\\g`W`ci`fgY`W`Ub`U`gc`V`Y`gh`X`Y`X`]b`h`Y`Z`c`ck`]b[`gd`Y`W`U`]g`U`h`c`bg.`5`d`W`f`h`W`l` `d`f` `Y`

K` \\Uh]g`dc`Y`fm`B`<`ck`X`c`k`Y`_`b`ck`U`dc`Ya` `k`\\Y`b`k`Y`g`Y`Y`]h`z`Ub`X`k`\\m]g`dc`Y`fm`h`Y`a`c`gh`a`c`j`]b[`z`h`Y`a`c`gh`
W`U`Y`b[`]b[`z`Ub`X`h`Y`a`c`gh`a`Y`a`c`f`U`V`Y`c`Z`]h`f`U`f`m`Z`c`fa`g`3`#`h`\\g`W`ci`fgY`m`c`i` `k`]`f`Y`U`X`U`f`U`b[`Y`c`Z`
U`W`W`c`a`d`]g`\\Y`X`U`b`X`]b`Z`i`Y`b`h`U`dc`Ya`g`]b`U`j`U`f`Y`h`m`c`Z[`Y`b`f`Y`g`z`Z`c`a` `V`]h`b[`g`U`h`f`Y`g`z`h`f`c`i` [`\\`f`U`j`]g`\\]b[`c`j`Y`
dc`Ya`g`z`h`c`f`Y`W`b`h`Y`l`d`Y`f`]a`Y`b`h`g`]b`X`[`]h`U`dc`Y`fm`M`c`i` `k`]`Y`U`f`b`h`c`h`\\]b`_`U`V`c`i`h`g`i`W`dc`Ya`g`]b`f`Y`U`h`c`b`h`c`
h`Y`f`\\]g`h`c`f`]W`_`W`c`b`h`Y`l`h`g`z`Z`c`a` `dc`]h`W`f`Y`j`c`i`h`c`b`h`c`g`W`Y`b`h`Z`W`X`Y`j`Y`c`d`a`Y`b`h`g`"5`b`X`m`c`i` `k`]`X`g`W`c`j`Y`f`b`Y`k`
k`U`m`g`c`Z`h`]b`_]b[`U`V`c`i`h`dc`Y`fm`h`Y`c`f`Y`h`W`n`z`Z`c`a` `h`Y`a`Y`U`b]b[`c`Z`g`d`Y`W`Z`W`h`Y`W`b`j`e`i`Y`g`z`g`i`W`U`g`f`\\n`a`Y`c`f`
a`Y`h`Y`z`h`c`h`Y`W`c`b`W`d`h`U`X`Z`Y`f`Y`b`W`g`V`Y`h`Y`Y`b`dc`Y`fm`U`b`X`c`h`Y`f`k`U`m`g`c`Z`k`f`]h`b[`z`g`i`W`U`g`\\]g`h`c`f`m`z`
d`\\]c`g`c`d`\\m`z`U`b`X`c`i`f`b`U`]g`a`"H`\\Y`U`]a` `]g`h`c`X`Y`j`Y`c`d`U`h`c`f`c`i` [`\\`[`f`c`i`b`X]b[`]b`h`Y`X`Y`j`Y`c`d`a`Y`b`h`c`Z`dc`Y`fm`U`g`
U`Z`c`fa`z`h`c`\\c`b`Y`m`c`i`f`W`]h`W`_`g`_]g`]b`U`b`U`m`g]b[`dc`Y`fm`z`U`b`X`h`c`X`Y`j`Y`c`d`U`g`c`d`\\]g`h`W`U`h`X`[`f`U`g`d`c`Z`
W`c`b`h`Y`a`d`c`f`U`f`m`X`Y`V`U`h`Y`g`U`V`c`i`h`h`Y`b`U`h`f`Y`U`b`X`g][`b]Z`W`U`b`W`c`Z`dc`Y`fm`

7ci fgY`@YUfb]b[`C`i`h`W`c`a`Y`g

%`8`Y`a`c`b`g`h`f`U`h`_`b`ck`Y`X[`Y`c`Z`9`b[`]g`\\`dc`Y`fm`k`f`]h`Y`b`V`Y`h`Y`Y`b`%`*`,`\$`U`b`X`%-`\$`\$`''''`

5ggYgga Ybh

FYZfYbW]b["Gh XYbhg'UFY'ZYY'hc'WkccgY'k \]WYj Yf'fYZfYbW]b['gmgH'a 'hYmidfYZf' <ck Yj Yfz']b
a U_]b['h]g'Wc]W'ghi XYbhg'g\ci 'X'VYUf']b'a]bX'hY'di fdcgY'cZfYZfYbW]b[. 'hc' [i]XY'hY'fYUXYf'hc
gci fW'gžUbX'k \Yb'bYW'ggUfmihc'hY'fY'Yj UbhdUfhcZ'hY'gci fW']b'ei Ygh]cb"'5b'Ui h'cf!XUhf'gmgH'a

5 hYbXUbW`F Yei]fYa Ybhg

5 hYbXUbW`Uh`YWhi fYg`UbX`hi hcf]U`g`]g`Wta di `gcfm`

7 ci fgY`GWXYXi `Y

[J Jk`WUgg`ha YhUV`Y](#)

Hja YhUV`Y`

8UhY	HmdY	7cbhYbh
K YY_%`%*`GYdhYa VYf!`&\$`GYdhYa VYf	@YWhi fY	HVY`AYU`cZDcYHfm
K YY_&.`&`GYdhYa VYf!`&+`GYdhYa VYf	@YWhi fY	J c]W
K YY_`."`\$`GYdhYa VYf!`(`C WtVYf	@YWhi fY	J YfgY
K YY_(`.+`C WtVYf!`%%`C WtVYf	@YWhi fY	A i g]W
K YY_)`.%(`C WtVYf!`%`C WtVYf	@YWhi fY	HfUbg`Uh]cb
K YY_+.`&`B UffUjY!`%`Bcj Ya VYf	@YWhi fY	B UffUj] Y

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

F YWca a YbXYX`F Ygci fWg

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

Gh XYbkg`k]`VY`YbWci fU[YX`tc`Z`ci hcb`]bY`A m9I dYf]YbW`gi fj Yng`UhkY`YbX`cZkY`Wci fgY`gc`hUh
Z fhYf`]a dfcj Ya Ybkg`a UmVY`a UXY`"

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`YUfL` Ẓmci
UfY`i bUV`Y`hc`gi Va]hmc i f`Ugg][ba YbhXi Y`hc`U`ZU` `hk]H`Hi fb]h]b`mci `a UmiUdd`miZc`f`Ub`YI H`bg]cbžVi hmc i
a i ghfYH]b`mci f`h]W`Yhbi a VYf`Zca `9I H`fbU`Gi ddcfhfU`cb[`k]H`Ubmch`Yf`fY`Yj UbhXcW a YbHgE`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[Ygž`UfhUbX`XYg][b`dfc`YWgž`Ug`k Y`U`g
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]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 hW`YX]h`UbX`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][\hžI 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'gh'UbX'UfX'g'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'gY'fj]W'g'UbX']b'Z'c'fa U'h'c'b'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'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'.#\]i 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' \]g'Y](#)

