



HUMS2006

F YgYUfWx 'D`UW'a Ybhz'5 fng'UbX'GcWjU`GWYbWg

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

GWXcc`cZ<i a UbjHYg'UbX'@Ub[i U[Yg`#`i BGK '5ftgz8Yg][b/ '5fWx jHYWñ FY

7ci fgY`Cj Yfj]Yk

GHJZZ'7cbHJW`i8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]]]m	@cWJhcb	D\cbY
@gU]: cfX	""ZcfX4 i bgk "YXi "Ui	VmUddc]bħa Ybh	' (- `A 6	

GVXcc``7cbHJW`i`bZcfa Uh]cb

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

@cWJhcb. `GVXcc``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*%&`-' ,) `%* , %

: U! . `Ž*%&`-' ,) ; , +\$)

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

7ci fgY'8YHJ]`g

7fYX]hDc]bfg '*`

Gi a a UfmcZh\Y'7ci fgY

h`h]g`Wci fgYžmci `k]`Yb[U[Y`b`U`fYU!`ZY`UWUXYa]WfYgYUfW`YI dYf]YbW`cb`U`a U`f`dfc`YWh`YX`Vm
I`BGK`gWkc`Ufg]b`5fng/`GcWU`GWYbWg"McI`k]`k`cf_`k]h`U`YUX]b[`gWkc`Ufz`Wca d`Yh`cf][]bU`
fYgYUfW`UbX`k`f]h`U`dUdYf`UVci hmcI`f`UfYU`cZfYgYUfW`"

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

%`9I`YW`hY`Ugg][bYX`fYgYUfW`hUg_g`]b`U`Wca dYhYbhž`dfcZYgg]cbU`UbX`hja`Y`mia`UbbYf
&"`7f]h]W`mifYZYWhcb`mci`f`fYgYUfW`hUg_gžXYa`cbgfU]h]b[`mci`f`i`bXYfghUbX]b[`cZmci`f`fYgYUfW`
dfc`YWh]b`][\`hcZgca`Y`fY`Yj`Ubh`]hYfUhi`fY
'`" `F`YZYWhcb`mci`f`YI`dYf]YbW`cZk`cf_]b[`cb`U`fYgYUfW`dfc`YWh

HYUW\]b[`GhfUHY[]Yg`

H\]g`WUgg`k]`W]YZmVY`hUi [\`h\h`fci [\`cbY!cb!cbY`cf`ga`U``[fci`d`a`YYh]b[`g`k]h`mci`f`fYgYUfW`

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci Hwta Yg'5ggYggYX
F YgYUfW 'DcfhZ`]c`) \$i	\$&#\$, #&\$&%\$) . \$\$ 'DA	%ž'
F YgYUfW 'F Ydcfh	(\$i	\$&#\$, #&\$&%\$) . \$\$ 'DA	&
F YgYUfW 'Gi dYfj]gcf 5ggYgga Ybh	%\$i	Bch5dd`]WVY	%

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% 'F YgYUfW 'DcfhZ`]c`

GhUfhXUH. 'K YY_`%

@Yb[h. ' \$\$\$

8YHJ]`g.

hYfbg\]d`dcfhZ`]c` fl \$\$\$ k cfXgŁ 'H\Y`dcfhZ`]c`g\ci `X'VY`UggYa V'YX'hłci [\ci hłY'hřfa "'`hıg\ci `X
XcW`a Ybhıci f`Yi dYfj]YbW`gždfc[fYgg`UbX`fYZYW]cbg`cZıci f`F`@dfc[fUa "'8cW`a YbhU]cb`]bWı XYg
Zcfb][\hımfYdcfhgž`UbX`Yj]XYbW`cZfYgYUfW`i bXYfU`Yb"'`hıg\ci `X`U`gc`]bWı XY`U`W]hWU`fYZYW]cb`cb
ıci f`dfcW`ggždfc[fYggž`UbX`k` \hVcbgh]h`hřg`U`gi W`W`ggZ`f`YgYUfW`dfc`YWh]b`hł]g`Z`Y`X`"Mci`k`j`
k`cf_g\cd`ıci f`dcfhZ`]c`k`]hł`ıci f`Vcbj`Ybcf`cf`XY`Y[UH`UbX`fYW]j`Y`Zcfa`UHj`Y`ZYXVUW`cb`ıci f`dfc[fYgg
UhłY`a`]Xdc]bhcZ`hY`hřfa "'H\]g`dcfhZ`]c`k`j`"VY`[fUXYX`VmłY`Vcbj`Ybcf`cf`XY`Y[UH`]b`Vcbgi`hU]cb`k`]hł
ıci f`gi dYfj]gcf": YXVUW`k`j`"VY`[]j`Yb`j`]U`U`a`Uf_]b[`fi`Vf]WUbX`]b`k`f]h]b["

Gi Va]gg]cb`bchřg. 'J]U`Ya`U]

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

5ggYgga Ybh& 'F YgYUfW 'F Ydcfh

GhUfhXUH. 'K YY_`)

@Yb[h. '&\$\$\$`K`cfXg

8YHJ]`g.

F YgYUfW 'F Ydcfhf&\$\$\$ k cfXgŁ 'Mci f`fYgYUfW`fYdcfhdfc]]XYg`Ub`cddcfh] b]młc`k`f]h]`U`fYgYUfW`dUdYf
VUgYX`cb`Ub`UgdYWhcZıci f`fYgYUfW`hłUh\Ug`dUfhW`UfmgdUf`_YX`ıci f`]bYfYgřc`f`h`fYZYWhc`b`ıci f
fYgYUfW`d`UW`a`YbhYi dYfj]YbW`"Mci`g\ci`X`dfc`dcgY`ıci f`dfc`YWh]b`k`f]h]b[`UbX`\Uj`Y`]hUddfcj`YX`Vmıci f
gi dYfj]gcf`UbX`hY`Vci fgY`Vcbj`Ybcf`VY`ZcY`hY`a`]XX`Y`cZ`hY`hřfa "'`hıa`Um\Uj`Y`Ub`cfU`dfYgYbU]cb
Vca`dcbYbh`-`h`VY`XY`hřfa]bYX`]b`Vcbgi`hU]cb`k`]hł`ıci f`gi dYfj]gcf"'H\]g`k`j`"VY`Xci`V`Y`a`Uf`_YX`Vmıci f
Vcbj`Ybcf`cf`XY`Y[UH`UbX`ıci f`gi dYfj]gcf": YXVUW`k`j`"VY`[]j`Yb`j`]U`U`a`Uf_]b[`fi`Vf]WUbX`]b`k`f]h]b["

Gi Va]gg]cb' bchYg. 'J]U'9a U]

Hi fb]h]b'gYh]b[. 'H\]g']g' bchU'Hi fb]h]b'Ugg][ba Ybh

5ggYgga Ybh' . 'F YgYUfW\ 'Gi dYfj]gcf'5ggYgga Ybh

GHUfhXUH\ . 'Bch5dd']WV\Y

8YhU]`g.

Mci f'fYgYUfW\ 'gi dYfj]gcf'k]''UggYgg'mci f'dYfZ:fa UbW\ 'U[U]bghdfcj]XYX'W']h'f]U": YYXVUW_]b'k f]h]b['UbX
Vmfi Vf]W

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

BchUj U]UV`Y

F YWca a YbXYX`F Ygci fWg

BchUj U]UV`Y

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

Gh XYbhZYXVUW_k]`VY [UH\YfYX`j]U`Ya U]`UhihY`YbX`cZhY`Wci fgY`VmihY`Wci fgY`Wcbj Ybcf`"Gh XYbfg
k]`VY`fYei YghYX`hc`dfcj]XY`ZYXVUW`cb`hY]f`Ugg][bYX`dfc`YWhf]bWi X]b[`ei U]`micZ
gi dYfj]g]cb/k cf`cUX/hfUbgZfUV]`]micZfYgYUfVW`g_]`g/\ck`Yb[U[]b[`hYmZci bX`hY`Ugg][bYX`dfc`YVW`
H\Ymk]`U`gc`VY`fYei YghYX`hc`Wca a Ybhcb`hY`cj YfU`g`gf] Wi`fY`cZhY`Wci fgY`UbX`]hg`UggYgga Ybfg`"
: YYXVUW`cb`]bX]j]Xi U`dfc`YVWg`k]`VY`fY`ZYffYX`hc`gi dYfj]gcf]g`hc`[i]XY`hYa`]b`gf] Wi`f]b[`a UHf]U`Zcf
Z hi fY`<| A G&\$*\$`fYgYUfVW`]bhYfbg`": YYXVUW`cb`hY`Wci fgY`k]`VY`i gYX`hc`UX↑gha`cXYg`cZ
UggYgga Ybh`

Gi Va]gg]cb'cZ5ggYgga YbhiHUg_g

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

≠Zmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b['hc'gi Va]hmc' f'Ugg][ba YbhiH'fci [\ 'Hi fb]h]bž'd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfh'cb'- ' ,) " ' ' %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'f1 *) 'XUmg'U'm'UfL" ≠Zmci
UfY'i bUV'Y'hc'gi Va]hmc' f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmiUdd'm'Z'f'Ub'YI HYbg]cbž'Vi hmc' i
a i ghfYH]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfh'fU'cb['k]H'UbmicH'Yf'fY'Y] UbhXcW a Yb'gk'hc

5 WUXYa]W< cbYghmiUbX'D`U[]Uf]ga

D`U[]Uf]ga]g'i]b['hY'k cfXg'cf]XYUg'cZcH.Yfg'UbX'dfYgYbh]b['hYa 'Ug'mci f'ck b" #WUb'fU_Y'a Ubm
Z'ca gZ'Zca 'XY'VYfUHY'WX.YU]b['hc'UW]XYbhU'mWcdm]b['Zca 'U'gci fW'k]h'ci hUW_bck 'YX[Ya Ybh'

I BGK '[fci dg'd`U[]Uf]ga]bhc'hY'Z'ck]b['WU] [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[YgZ'UfhUbX'XYg][b'dfc YWgZ'Ug'k Y''Ug
dfYgYbhU]cbg'k \YfY'gca YcbY'dfYgYbhg'Ubch.Yf'g]XYUg'cf'k cfXg'k]h'ci hWYX]h'

#Uddfcdf]UHY'dUfUd\UfUg]b[.7\Ub[]b['U'Zk'k cfXg'UbX'd\UfUg'k \]Y'a cghmfYU]b]b['hY'cf][]bU'
ghf' W'fY'UbX#f'dfc[fYgg]cb'cZ]XYUg'cZcH.Y'cf][]bU'z'UbX']bZ'ca U]cb'k]h'ci hUW_bck 'YX[Ya Ybh'H\]g'U'gc
Udd'Yg]b'dfYgYbhU]cbg'k \YfY'gca YcbY'dUfUd\UfUg'g'Ubch.Yf'g]XYUg'cf'k cfXg'k]h'ci hWYX]h'UbX'hc
d]YW]b['hc[Y'hYf'ei chYg'UbX'dUfUd\UfUg'g]bhc'U'bYk'k \c'Yz'k]h'ci hUddfcdf]UHY'fYZYfYbW]b["

7 c`i]g]cb.k cf_]b['k]h'c'hYfg'Vi hdUgg]b['cZcH.Y'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'Ubch.Yf'g]h'XYbhVYz'fY'hY'Xi Y'XUHY'z'cf'Z'f'hY'di fdcgY'cZcH.Ya
d`U[]Uf]g]b['UhUbmi]a Yz'dUm]b['Ubch.Yf'dYfgcb'hc'dYfZ'ca 'Ub'UWXYa]W]Ug_z'gh'U']b['cf'UW'ei]f]b[
Ubch.Yf'dYfgcb'g'UWXYa]Wk cf_'UbX'Wcdm]b[]h'c'Z'Z]f]b['hc'W'ca d'YHY'Ubch.Yf'dYfgcb'g'k cf_'cf'gYY_]b[
dUma YbhZ'f'W'ca d'Y]b['UWXYa]Wk cf_"

#Uddfcdf]UHY'W]U]cb.7]h]b['gci fW'g'k \]W\Uj Y'bhVYYb'fYUXz'k]h'ci hUW_bck 'YX[]b['hY''gYW'cbXUfm'
gci fW'Z'ca 'k \]W'_bck 'YX[Y'cZcH.Ya '\Ug'VYYb'c'fU]bYX"

8 i d']W]cb'f'fY'Z'd`U[]Uf]ga 'E'gi Va]h]b['mci f'ck b'k cf_z]b'k \c'Y'cf]b'dUf'z'k \YfY'j'h\Ug'dfYj]ci g'm
VYYb'dfYdUfYX'cf'gi Va]hYX'Z'f'Ubch.Yf'UggYgga Ybhcf'W'ei fgY'Uhi BGK 'cf'Ubch.Yf'i b]j Yfg]h'

7 cffYW'fYZYfYbW]b['dfUW]W]g.

- DUfUd\UfUg]b[žgi a a Uf]g]b[žYggUmk f]h]b['UbX'h]a Y'a UbU[Ya Ybh
- 5ddfcdf]UHY'i gY'cZUbX'Uhf]Vi h]cb'Z'f'U'fU]b[Y'cZa UHYf]U'g']bWi X]b['hYi hz]a U[YgZ'Z'ca i 'UY'UbX
W'cbW'dtg"

#X]j]Xi U'Ugg]ghU]bW']g'Uj U]UV'Y'cb'fYei YghZ'ca 'H\Y'@YUfb]b['7YbhY'f'f'hd.#k k k "Wi bgk "YXi "Ui #"
Gh XYbhg'UfY'U'gc'fYa]bXYX'hUhW]fYz']h]a Y'a UbU[Ya Ybh]g'Ub]a dcfU]bhdUfhcZgh XmiUbX'cbY'cZcH.Y
]XYbh]ZYX'W]i gYg'cZd`U[]Uf]ga]g'dccf'h]a Y'a UbU[Ya Ybh'Gh XYbhg'g'lc'i 'X'U'ck'gi Z]W]Ybh]h]a Y'Z'f
fYgYUfW'z'XfU]b['UbX'dfcdYf'fYZYfYbW]b['cZgci fW'g']b'dfYdUf]b['U''UggYgga Ybh]h]a g"

I BGK '@]VfUfmU'gc'\Ug'hY'9@G9'hc'Uj U]UV'Y'hc'Ugg]ghmci 'k]h'mci f'gh XmiUhi BGK "'9@G9']g
XYg][bYX'hc]bhcXi W'bYk'gh XYbhg'hc'gh X]b['Uhi BGK 'Vi h]hW]b'U'gc'VY'U'[fYUhfYZYg\Yf'Xi f]b['mci f

- 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][\hž' 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 ""

[\hd. #gj V'YWf i \]XYg" \]VfUfm'i bgk "YXi "Ui #' \]gY#JVci h' \]gY](#)

5 WUXYa]WbZcfa Uh]cb

: cfYggYbh]U`gh XYbh]bZcfa Uh]cb fY`Uh]b[`tc.

- fYei Yghg`Zcf`YI H`bg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZYmidc`]WYg/
- YI Ua]bUh]cb`dfcW`Xi fYg/
- gdYW]U`W`bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- gh XYbhYei]mUbX`X]gUV`]m/
- UbX`c`hYf`YggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\ftdg.#k k k "Uftg"i bgk "YXi "Ui #W ffYbh\]gh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfc`W`g`\[i \]XY`\]bYg#](#)

⇒ a U[Y`7 fYX]h

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

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$\$- , ;

5W_bck`YX[Ya Ybhcz`7ci b]fm

K Y`UW_bck`YX[Y`hY`6YXY[U`dYcd`Y`k`c`UfY`hY`fUX]h]cbU`W`ghcX]Ubg`cZ`hY`UbXg`cb`k` \]W`I BGK
? Ybg]b[hcb`W]a`di`g`]g`c`W]hYX"