



## HUMS2006

F YgYUfVX 'D`UWYa Ybhz'5 fng'UbX'GcWU'`GWYbWg

HYfa 'H\fYY'`##`&\$&\$

7ci fgY`Cj Yfj ]Yk

GHJZZ'7cbHJW`i8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]]]m	@cWJhcb	D\cbY
B Uca ]`DUf_]bgcb	b"dUf_]bgcb4 i bgk "YXi "Ui	VmUddc]bħa Ybh	' ' *`A 6	

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

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

@cWJhcb. `GWXcc``C Z]W`žA cfj Yb`6fck b`6i ]X]b[ ž@Yj Y``&ž&),

C dYb]b[ `<ci fg. A cbXUm! : f]XUmž- Ua `!') da

D\cbY. Ž\*%&`-' , ) `%, %

: UI. Ž\*%&`-' , ) ; , +\$)

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

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`\*`

Gi a a UfmcZh\Y'7ci fgY

h`h]g`Wci fgYžmci `k ]`Yb[ U[ Y`b`U`fYU`!`]Z`UWUXYa ]WfYgYUfW`YI dYf]YbW`cb`U`a U`f`dfc`YWh`YX`Vm  
I`BGK`gWkc`Ufg`b`5fHg`/`GcW`U`GW`YbW`g`Mci`k`]`k`cf`\_`k`]h`U`YUX]b[ `gWkc`Ufz`Wca`d`Yh`cf][`]bU`  
fYgYUfW`UbX`k`f]h`U`dUdYf`UVci`hmc`i`f`UfYU`cZfYgYUfW`"

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

%`9I`YW`h`Ugg][`bYX`fYgYUfW`hUg\_g`]b`U`Wca`dYh`bž`dfcZYgg]cbU`UbX`hja`Y`mia`UbbYf

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g`

5ggYgga YbhHUg_	K Y][ \h	8i Y`8UHŸ	Gh XYbh@YUfb]b[ Ci HŸa Yg`5ggYggYX
F YgYUfW`DcfhŸ`]c`	) \$i	%* #/0/#&\$&\$`\$). \$\$`DA	%ž
F YgYUfW`F Ydcfh	( \$i	%* #/0/#&\$&\$`\$). \$\$`DA	&
F YgYUfW`Gi dYfj ]gcf 5ggYgga Ybh	%\$i	Bch5dd`]WVY	%

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`F YgYUfW`DcfhŸ`]c`

GhUfhXUHŸ. `K YY\_`%

@Yb[ h. .` \$\$\$

8YHU]`g.

ŸhYfbg\]d`dcfhŸ`]c`f] \$\$\$`k cfXgŁ`H\Y`dcfhŸ`]c`g\ci`X`VY`UggYa V`YX`hŸfci [ \ci hŸY`hŸfa "`Ÿig\ci`X`  
XcW`a`YbhŸci`f`Yi`dYf]YbW`gž`dfc[ fYgg`UbX`fYZYW]cbg`cZmci`f`F`@`dfc[ fUa "`8cW`a`YbhU]cb`]bW`XYg`  
Ÿcfb][ \hmi`fYdcfhgž`UbX`Yj`]XYbW`cZ`fYgYUfW`i`bXYfU`Yb"`Ÿig\ci`X`U`gc`]bW`XY`U`W]hWU`fYZYW]cb`cb`  
mci`f`dfcW`ggž`dfc[ fYggž`UbX`k` \UhV`bgh]h`h`g`U`gi`W`W`ggž`f`fYgYUfW`dfc`Y`W]b`h`]g`Z`Y`X`"Mci`k`j`  
k`cf`g`l`cd`mci`f`dcfhŸ`]c`k`]h`mci`f`V`b`j`Ybcf`cf`XY`Y[ UH`UbX`fYW]j`Y`Ÿ`fa`Uhj`Y`ZYXVUW`cb`mci`f`dfc[ fYgg`  
Uh`h`Y`a`]Xdc]bhcZ`h`Y`hŸfa`"H\]g`dcfhŸ`]c`k`j`"VY`[ fUXYX`Vm`h`Y`V`b`j`Ybcf`cf`XY`Y[ UH`]b`V`b`gi`hU]cb`k`]h`  
mci`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`bchŸg.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

GhUfhXUHŸ. `K YY\_`)

8YHU]`g.

F YgYUfW`F Ydcfhf&\$\$\$`k cfXgŁ`Mci`f`fYgYUfW`fYdcfhdfcj`]XYg`Ub`cddcfh`b]mhc`k`f]h`U`fYgYUfW`dUdYf`  
VUgYX`cb`Ub`UgdYW`icZmci`f`fYgYUfW`h`U`h`U`g`dUf]W`Uf`mgdUf`\_YX`mci`f`]bYfYg]Ÿ`cf`h`fYZYW]cb`mci`f`  
fYgYUfW`d`UW`a`YbhYi`dYf]YbW`"Mci`g\ci`X`dfc`dcg`Y`mci`f`dfc`Y`W]b`k`f]h]b[ `UbX`\Uj`Y`]hUddfcj`YX`Vm`mci`f`  
gi`dYfj`]gcf`UbX`h`Y`V`ei`fgY`V`b`j`Ybcf`VY`Ÿ`fY`h`Y`a`]XX`Y`cZ`h`Y`hŸfa`"Ÿ`a`Um`Uj`Y`Ub`cfU`d`fYgYbU]cb`  
V`a`dcbYbh`-`h`VY`XY`hŸfa`]bYX`]b`V`b`gi`hU]cb`k`]h`mci`f`gi`dYfj`]gcf`H\]g`k`j`"VY`Xci`V`Y`a`Uf`\_YX`Vm`mci`f`  
V`b`j`Ybcf`cf`XY`Y[ UH`UbX`mci`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`bchŸg.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 ]gc f`5ggYgga Ybh

GhUfhXUHY .`Bch5dd`]WV`Y

8YhU]`g.

Mci f`fYgYUfW`gi dYfj ]gc f`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]`UhiH\Y`YbX`cZH\Y`Wci fgY`VmiH\Y`Wci fgY`Wcbj Ybcf`"Gh XYbfg  
k ]`VY`fYei YghYX`hc`dfcj ]XY`ZYXVUW`cb`h\Y]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[ `h\YmZci bX`h\Y`Ugg][ bYX`dfc`YVW`  
H\Ymk ]`U`gc`VY`fYei YghYX`hc`Wca a Ybhcb`h\Y`cj YfU`g`gfi Wi`fY`cZH\Y`Wci fgY`UbX`]hg`UggYgga Ybfg`"  
: YYXVUW`cb`]bX]j ]Xi U`dfc`YVWg`k ]`VY`fYZYffYX`hc`gi dYfj ]gcf]g`hc`[ i ]XY`h\Ya` ]b`g`gfi Wi`f]b[ `a UH\Yf]U`Zcf  
Z hi fY`<| A G&\$\*\$`fYgYUfVW`]bhYfbg`": YYXVUW`cb`h\Y`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

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

D`U[ ]Uf]ga ]g'i]b[ 'hY'k cfXg'cf]XYUg'cZchYfg'UbX'dfYgYbh]b[ 'hYa 'Ug'mci f'ck b" #WUj'fU\_Y'a Ubm  
Z'fa gZ'Zca 'XY'VYfUHY'WXUf]b[ 'hc'UWYXYbhU'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[ '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[ YgZ'UfhUbX'XYg][ b'dfc YWgZ'Ug'k Y''Ug  
dfYgYbhU]cbg'k \YfY'gca YcbY'dfYgYbhg'UbchYf'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'cZchY'cf][ ]bU'z'UbX']bZ'fa 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'UbchYf'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[ 'cZchY'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'g]h'XYbhVYZ'fY'hY'Xi Y'XUHY'z'cf'Z'f'hY'di fdcgY'cZchYa  
d`U[ ]Uf]g]b[ 'UhUbmi]a Yz'dUm]b[ 'UbchYf'dYfgcb'hc'dYfZ'fa 'Ub'UWXYa ]WfUg\_z'gh'U']b[ 'cf'UW'ei ]f]b[  
UbchYf'dYfgcb'g'UWXYa ]Wk cf\_'UbX'Wcdm]b[ ]h'cZ'Zf]b[ 'hc'W'ca d'YHY'UbchYf'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'cZchYa '\Ug'VYYb'c'fU]bYX"

8 i d']WU]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'UbchYf'UggYgga Ybhcf'W'ei fgY'Uhi BGK 'cf'UbchYf'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'fa i 'UY'UbX  
W'cbW'dhg"

#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'hUhWfYz' ]h]a Y'a UbU[ Ya Ybh]g'Ub ]a dcfU]bhdUfhcZgh XmiUbX'cbY'cZchY  
]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 ZWYbh]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] ]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[ ]Uf]ga ž'Wcdmf][ \hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wñ

5 WUXYa ]W=Zcfa Uh]cb

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