



HUMS1005

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

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

7 ci fgY`Cj Yfj JYk

GHJZZ`7cbHJW`8YHJ`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]hcb	D\cbY
A]fU`?]a	a]fU`_]a 4 i bgk "YXi "Ui	K YXbYgXUm(!) `da fj]U`HYUa gŁ	F cca `&+(A cfj Yb`6fck b	\$&-' ,) &' , -

@YW`i fYfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]hcb	D\cbY
A]fU`?]a	a]fU`_]a 4 i bgk "YXi "Ui	K YXbYgXUm(!) `da	F cca `&+(A cfj Yb`6fck b	\$&-' ,) &' , -

Hi hcfj

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]hcb	D\cbY
A]fU`?]a	a]fU`_]a 4 i bgk "YXi "Ui	K YXbYgXUm(!) `da	F cca `&+(A cfj Yb`6fck b	\$&-' ,) &' , -
>UW`i Y`]bY`7cUb	^W`Ub4 i bgk "YXi "Ui	6mUddc]bħa Ybhj]U Ya U]`		

GW`cc``7cbHJW`i`bZcfa Uh]cb

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

@cW]hcb. GW`cc``C Z]W`ZA 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`*%&`-' ,) `* , %

: U! . ž`*%&`-' ,) ; +\$)

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

7ci fgY'8YHJ>`g

7fYX]hDc]bhtg`*`

Gi a a UfmicZ\hY'7ci fgY

H\]g`Wci fgY`k]``\Y`d`mci`hc`Yb\UbW`mci`f`9b[`]g\`Ub[i U[Y`g_]`g`]Zmci`gdYU_`9b[`]g\`Ug
U`gYWcbX`Ub[i U[Y```b`UXX]h]cbz`h]g`Wci`fgY`dfcj`]XYg`mci`k`]h`h`Y`g_]`g`hc`VY`Ub`Ui`hc`bca`ci`g`UbX
]bXYdYbXYbh`YUfbYf`gc`h`Uh`mci`WUb`Wcb]bi`Y`hc`Yb\UbW`mci`f`9b[`]g\`Ub[i U[Y`g_]`g`]bhc`h`Y`Z`h`fY`hc
UW\]Y`Y`mci`f`UW\XYa`]WUbX`dfcZ`Ygg]cbU`[`cU`g`Mci`k`]``]XYbh]Zmk` \]W\`UgdYW`f]c`Zmci`f`9b[`]g\`mci
k`ci`X`_`Y`hc`]a`dfcj`Y`UbX`h`Yb`XYg][`b`UbX`]a`d`Ya`Ybh`mci`f`ck`b`dYfgcbU`dfc`YW`hc`UW`ca`d`]g\`mci`f
[`cU`g`"

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

%`5bU`mgY`UbX`]XYbh]ZndYfgcbU``Ub[i U[Y`b`Y`Y`Xg
&`5dd`m`h`c`c`g`UbX`fYgci`fW`g`Z`c`f`Ub[i U[Y`Yb\UbW`a`Ybh
'`8Yg][`b`UbX`W]ffmci`hU`dYfgcbU`dfc`YW`h`UgYX`cb`h`Y`UbU`mg]g`cZdYfgcbU``Ub[i U[Y`b`Y`Y`Xg
(`F`Y`Z`Y`W`h`c`b`UbX`UggYgg`h`Y]f`ck`b`dfc[`fYgg`hc`gi`ghU]b`dYfgcbU`UbX`dfcZ`Ygg]cbU``Ub[i U[Y
Yb\UbW`a`Ybh
)`7ca`a`i`b]W`h`Y`W`h]W`dYfgcbU``YUfb]b[`ci`hW`ca`Yg`k`]h`d`Y`Y`fg

HYUW\]b[`GhfUH[]Yg`

<I`A`G`%`\$`\$`)\`Y`d`g`gh`XYbh]hc`hU`_`Y`fYgdc]bg]V]`]miZ`c`f`Yb\UbW]b[`h`Y]f`9b[`]g\`Ub[i U[Y`g_]`g`V`m`\`Y`d]b[
h`Ya`]XYbh]ZmUbX`UXX`fYgg`h`Y]f`ck`b`]bX]j`]Xi`U`b`Y`Y`Xg`H\]g`]g`V`Y`W`li`gY`gh`XYbh]U`h`h]g`U`X`j`UbW`X`g`hU[`Y`c`Z
9b[`]g\`Ub[i U[Y`U`W`ei`]g]h]cb`\Uj`Y`X]Z`Y`f`Y`b`h`b`Y`Y`X`g`z`g`f`Y`b[`h`g`UbX`k`YU`_`b`Y`gg`Y`g`":`]fa`m`V`U`g`Y`X`c`b`g`c`W`c`!
W`h`i`fU``Y`U`fb]b[`h`Y`c`f`m`h`U`h`U`f[i Y`g`h`U`h`Y`U`fb`Y`f`g`W`cb`g`f`i`W`h`h`Y]f`ck`b`Y`U`fb]b[`h`f`ci`[`\`a`Y`Ub]b[`Z`
]b`h`Y`f`U`W]c`b`g`f`W`Z`J`m[`c`h`g`_`m`%`,`*`z`h`h]g`g`Y`Z`X]f`Y`W`h`X`U`i`hc`bca`ci`g`W`ci`fgY`\`Y`d`g`gh`XYbh]hc`Yb\UbW`h`Y]f
9b[`]g\`g_]`g`V`m]Z`f`g`h`m`UbU`mg]b[`h`Y]f`ck`b`b`Y`Y`Xg`/`g`Y`W`cb`X`m`X`Y`Y`c`d]b[`dYfgcbU`dfc`Y`W`g`/`h`f`X`m
]a`d`Ya`Ybh]b[`h`Ya`/`Z`c`i`f`h`m`Y`j`U`i`U`h]b[`h`Y]f`ck`b`dfc[`fYgg`/`UbX`Z]bU`m`f`Y`Z`Y`W]b[`c`b`h`Y]f`ck`b`Y`U`fb]b[`
H\`f`ci`[`\`ci`h`h`Y`W`ci`fgY`z`gh`XYbh]k`]``V`Y`[`i`]X`Y`X`k`]h`f`Y`Y`]U`bh`h`Y`c`f`m`z`d`f`U`W]W]`gi`[`[`Y`g]c`b`g`UbX`i`g`Y`Z`
fYgci`fW`g`]b`V`c`h`Y`W`h`fY`UbX`h`i`hc]U`g`Y`gg]c`b`g`"

5ggYgga Ybh

5bmfYZfYbWb['gmghYa 'gi W'Ug'5D5 'jg'UWVYdHUV'Y']b'h'g'W'i fgY'Ug'`cb['Ug']h'g'W'bg]ghYbhmUdd`]YX.
WXYW`I BGK `Gi ddcfhiZc`F YZfYbWb['5gg][ba Ybhg.`\hdg.##gh XYbhi bgk "YXi "Ui #YZfYbWb[
Gh XYbhg`Wb`UWVYgg'dfYj]ci g'gh XYbhgUa d`Yg'cb`C dYb@YUfb]b["

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y`8UH	Gh XYbh@YUfb]b[Ci hW'a Yg'5ggYggYX
DYfgcbU`dfc ^	%o		%o %o

%o

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

H\Y`c[Vcc_`UbX`ei fbU`XcYg`bchbYXX`gi Va]gg]cb/fUH\Yfz`]hk]`VY`UggYggYX`X]fYWhmicb`h\Y`Y!dcfhZ`]c
h\Uh\Y`gh XYbhWYUH`g`UbX`g\UfYg`k]h`h\Y`h`UWX`Yfg"

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

5ggYgga Ybh' .`CfU`dfYgYbH]h]cb

GhUfhXUH` .`Bch5dd`]WUV`Y

8YHJ]`g.

Gh XYbh]dfYgYbh\h\Y]f`YUfb]b[`\[`\[`h]g`Zfca`h\Y]f`dYfgcbU`dfc`YWhZcf`UVci h%\$`a]bi hYg`hc`]bgd]fY
dYYfg`hc`Wcb]h]bi Y`hc`Yb\UbW`h\Y]f`Ub[i U[Y`g_]`g`Yj Yb`UZYf`Wca`d`Yh]b[`h\Y`Wci fgY`"H\YmiUFY`fYei]fYX`hc
gi Va]hUb`UVghfUWhfUVci h%) \$`k`cfXgE`UVci hk`h\Uh\YmiUFY`[c]b[`hc`dfYgYbhU`Wci d`Y`cZk`YY_g`VYZcfY`h\Y
dfYgYbH]h]cb`XUm`Gh XYbh]fYW`]j Y`k`f]h]b`ZYXVUW`Zfca`h`hc`f`cb`UVghfUWh`f%\$`i`E`UbX`Zfca`d`YYfg`cb
dfYgYbH]h]cb`f%\$`i`E`VUgYX`cb`fi`Vf]Vg"

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

H\Y`UVghfUWh]g`Xi`Y`cb`Hi`fb]h]b`Vm-`Ua`A`cbXUm`&`*`>`i`mifK`YY`_-`E`"H\Y`dfYgYbH]h]cb`]g`d`YYf`UggYggYX
UbX`Xi`Y`]b`h\Y`WUgg`cZ`h\Y`Ughk`YY`_/`gh`XYbh]g`k`h`c`a`]gg`h\Y`Z]bU`WUgg`k`]`a`]gg`h\]g`%\$`i`UggYgga`Ybh`"

Hi fb]h]b`gYH]b[.`

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

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

F YWca a YbXYX`F Ygci fWg

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

6cc_`-`@YUfbYf`9b[`]g\.`5`HYUWX`Yffg];`i`]XY`hc`b`hYfZYfYbW`UbX`C`h`Yf`DfcV`Ya`g`f&\$%£

6cc_`-`7`f]h]WJ`F`YUX]b[`UbX`K`f]h]b[`]b`h`Y`8][`]U`5[`Y.`5b`b`hfcXi`Wc`fm7`ci`fgYVcc_`f&\$%*£

6cc_`-`@cb[a`Ub];`fUa`a`Uf`cZGdc`_Yb`UbX`K`f]h]b`9b[`]g\`f%`-`(`£

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

6cc_`-`@YI`]WJ`g`gi`Yg`]b`@Ub[i`U[`Y`@YUfb]b[`f%`-`)`£

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

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

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

A`cfY`fYgci`fWg`UfY`fYWca`a`YbXYX`cb`@Y[`Ubhc`fj`]U`A`ccX`Y£/`C`dYb`@YUfb]b[

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

7ci`fgYg`UfY`dYf]cX]WJ`mifYj`]Yk`YX`UbX`ghi`XYbhg`Z`YXVUW_]g`i`gYX`hc`]a`dfcj`Y`h`Ya`":`YYXVUW_]g`[`U`h`Y`f`Y`X`Z`f`c`a`g`h`i`X`Y`b`h`g`i`g]b[`a`m`9I`d`Y`f`]`Y`b`W`G`h`i`X`Y`b`h`g`U`f`Y`Y`b`W`i`f`U[`Y`X`h`c`W`c`a`d`Y`h`h`Y`]f`g`i`f`j`Y`m`g`V`m`U`W`W`g`g]b[`h`Y`d`Y`f`g`c`b`U`]g`Y`X`k`Y`V`]b_]`]U`h`Y`A`cc`X`Y`W`c`i`fg`Y`g`]h`Y`"

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

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

Ʒmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b['hc'gi Va]hmc i f'Ugg][ba YbhiH'fci [\ 'Hi fb]h]bž'd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'-',) "' ' ' %cf'Ya U]'H'Ya 'cb'YI HYfbU'HY'f'gi 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'YUfI" Ʒmci
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmUdd'm'Zc'f'Ub'YI HYbg]cbž'Vi hmc i
a i ghfYHU]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]H'UbmcH'Yf'f'Yj UbhXcW a YbHgE'hc
]bWi XY'Ug'Yj]XYbVW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd']W]h]cb" Ʒmci 'Ya U]'9I HYfbU'Gi ddcfhmc i 'k]
Ui 'ca UH]W]m'f'YW]j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'HY'Yd\cbY'mci 'k]'b'Y'X'hc'gd'Y'W]W]m'Ug_ 'Zc'f'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUH'g'cb'H'Y]f'gmgh'Ya 'ghU'g'cb'Hk]H'Yf"

; YbYfU'mž'UggYgga YbhiHUg_g'a i ghVY'gi Va]H'Y'X'Y'Y'W'f'cb]W]m'j]U'Y]H'Y'f'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba YbH' 'b]bg]H'UbVW'g'k \YfY'H'g]g'bc]hd'cgg]V'Yž'hk]'VY'gh'UH'X'cb'mci f'Wci fgY'g'A ccX'Y'g]H'k]H
U'HY'fbUH] Y'gi Va]gg]cb'XYHU]g"

: cf]bZ'fa UH]cb'cb'\ck 'hc'gi Va]h]Ugg][ba YbHg'cb]bYj]U'A ccX'Y. \H'hdg.#gh XYbH'i bgk "YXi "Ui #ck!
gi Va]h]Ugg][ba YbH'a ccX'Y

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
Zcfa gžZca 'XY'VYfUHY'WXUhf]b['hc'UWV]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'Zc`ck]b['WUHY[cf]Yg.

7cdm]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 YWgž'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'žUbX']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\UfUg'g'Ubch.Yf'g]XYUg'cf'k cfXg'k]h'ci hWYX]h'UbX'hc
d]YW]b['hc[Yh.Yf'ei chYg'UbX'dUfUd\UfUg'g]bhc'U'bYk'k \c'Yžk]h'ci hUddfcdf]UHY'fYZYfYbW]b["

7c`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_"7c`i]g]cb'U'gc
]bWi XYg'dfcj]X]b['mci f'k cf_'hc'Ubch.Yf'g]h'XYbhVYZc'fY'hY'Xi Y'XUHY'žcf'Zc'f'hY'di fdcgY'cZcH.Ya
d`U[]Uf]g]b['UhUbmi]a Yž'dUm]b['Ubch.Yf'dYfgcb'hc'dYfZc'fa 'Ub'UWXYa]WfUg_ž'gh'U']b['cf'UW'ei]f]b[
Ubch.Yf'dYfgcb'g'UWXYa]Wk cf_'UbX'Wcdm]b[]h'c'Zc'Zf]b['hc'W'ca d'YHY'Ubch.Yf'dYfgcb'g'k cf_'cf'gYY_]b[
dUma YbhZc'W'ca d'Y]b['UWXYa]Wk cf_"

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

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

7cffYW'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'Zc'f'U'fU]b[Y'cZa UHYf]U'g]bWi X]b['hYI hž]a U[YgžZc'fa i 'UY'UbX
W'cbW'dhg"

#X]j]Xi U'Ugg]ghU]bW']g'Uj U]UV'Y'cb'fYei YghZca 'H\Y'@YUfb]b['7YbhY'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'cZcH.Y
]XYbh]ZYX'Wli gYg'cZd'U[]Uf]ga]g'dccf'h]a Y'a UbU[Ya Ybh'Gh XYbhg'g\ci 'X'U'ck'gi ZWYbh]h]a Y'Zc'f
fYgYUfW'žXfU]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 Xm]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'j]b'h'Y'I BGK 'Wca a i b]m
- `cWJh'gYfj]Wg'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](#)

