



IEST5500

9bj]fcb a YbU` `DUfh]WdU]cb. `Di V`]Wg/ `h\Y `Dck Yf`hc
7\Ub[Y

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

7ci fgY`Cj Yfj]Yk

GhJZZ'7cbhJWw'8YhJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]UV]]m	@cWWhcb	D\cbY
A Uth\Yk `?YUfbYg	a "_YUfbYg4 i bgk "YXi "Ui	VmUddc]bħa Ybh	A 6' %+	l) %\$\$

GWxcc``7cbhJWw'ħZcfa Uh]cb

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

@cWWhcb. 'GWxcc``C ZWwžA 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

7U`g Zc'f'di V]WdUfh]W]dU]cb`]bžUbX`]bXYXX'hY'XYa cWUhgU]cb'cZ'XYW]g]cb!a U_]b['\Uj Y'VYW'a Y'U
\U`a Uf_cZV'bhYa dcfUfmYbj]fcba YbhU`dc`]h]Wgždc`]WžUbX'dfUW]W`"A UbmV'bhYa dcfUfmYbj]fcba YbhU`
]ggi Yg'UFY'WXUfUWYf]gYX'Vm]bgh]h] h]cbU`V'a a]ra Ybht'hc'ZcghYf]b['di V]WYb[U[Ya YbhUbX'dUfh]W]dU]cb`]b
XYW]g]cb!a U_]b['hc[YhYf'k]h' [fYUhf'fUbgdUfYbWm]b'hY'XYd'cma YbhcZgW]Ybh]Z]WUbX'dc`]WmYI dYfh]gY"
<ck Yj YfžXYgd]hY' bchUVY'gi WYggYgžgi WX'XYj Y'cda Ybht'cZ'Yb'Z]`hc Yb\UbW' di V]W]f] ghUbX'Vi]X
a cfY'gcW]U`mifYgdcbg] Y'UbX'fYgdcbg]V'Y'Zcfa g'cZYbj]fcba YbhU`dc`]WmUbX'fY[i 'U]cb""Ci hg]XY'hYgY
]bgh]h] h]cbU`mgUbW]cbYX'gdUW]g'cZ'Zcfa U`V'cbgi 'h]h]cbž'bYk 'di V]WV'YW]j Yg'Z' bW]cb'hc'WYUhf'gdUW]g
cZdUfh]W]dU]cb'h.UhUfY'fYg]ghUbh'hc'dfcW]ggYg'cZdc`]h]W]W'cgi fY'UbX'di V]W]W]dh fY""H\YgY']bgi f[Ybh
Zcfa U]cbg'W]`]bhc'ei Ygh]cb'bcfa U]h] Y'V'a a]ra Ybht'hc']bgh]h] h]cbU`UV'ci bhUV]']mUbX'fUbgdUfYbWmž
k\]Y'U'gc'YbUW]b['bcj Y'dUfh]W]dU]cb'fmV'YW]j Yg'g]h] UfX'UW'cgg'U'a i 'h]h] XY'cZgcW]c!dc`]h]W]`g]hYg"
K \]Y'Ub'UffUmicZYbj]fcba YbhU`_bck'YX[Yg-'Vch'dfc[fYgg] Y'UbX'fYUW]cbUfm-'cghY'Zc'fYV' [b]h]cb
UbX'dc`]h]W]dfca]bYbW]ž]b'h]g'V'ci fgY'mci 'k]`YI d'cfY'k Umg]b'k \]W'hY'k cf_cZUggYa V]b['X]j YfgY

5ggYgga Ybh

H\Y'a U'cf'd]YWW'cZUggYgga YbhZcf'9GH)) \$\$'k]''VY'VUgYX'Ufci bX'fk c'a U'cf'WUgY'ghi X]Yg'h\Uhk]''VY]bffcXi W'X'Uhih'Y'VY[]bb]b['cZ'h'Y'W'ci fgY''

5ggYgga YbhHUg_g'

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hW'a Yg'5ggYggYX
C b`]bY 'Dcghg'	' \$i	C b[c]b[%z&
DfYgYbHU]cb'	&\$i	Bch5dd`]WUVY	%z&Z
F Ydcfh') \$i	&+ #/ % # & \$ & \$ % % \$ \$ ' DA	%z&Z ž{

5ggYgga Ybh8YHU]`g

5ggYgga Ybh% 'C b`]bY 'Dcghg

GHUfhXUH. 'Bch5dd`]WUVY

8YHU]`g.

DUfh]WdUH]cb`]b'Ub'cb`]bY'k YY_'mX]gW'gg]cb'VUgYX'Ufci bX'W'ci fgY'fYUX]b[g'cZUddfcl]a UH'm&\$\$'k cfXg dYf'k YY_'f'c'U'1'&z\$\$'L'K f]hY'b'ZYXVUW_'k]''VY'dfcj]XYX''

5ggYgga Ybh& 'DfYgYbHU]cb

GHUfhXUH. 'Bch5dd`]WUVY

8YHU]`g.

Gh XYbhX]fYW'X'dfYgYbHU]cb'fYZYW]b['cb'di V`]WdUfh]WdUH]cb'dfcW'ggYg'fUddfcl]a UH'm%'\$'a]bgL' C b`]bY'dfYgYbHU]cb'k]''U'gc'VY'YbUV'YX'Zcf'ghi XYbhg'ghi Xm]b['fYa c'h'm''K f]hY'b'ZYXVUW_'k]''VY'dfcj]XYX''

5ggYgga Ybh' . 'F Ydcfh

GHUfhXUH. 'Bch5dd`]WUVY

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

8YHU]`g.

A U'cf'd]YWW'cZcf][]bU'fYgYUfW' 'i g]b['U'WUgY'ghi XmZc'W'gYX'cb'di V`]WdUfh]WdUH]cb`]b'Ub'Ybj]fcba YbHU]ggi Y'fUddfcl]a UH'm&z) \$\$'k cfXg'L'K f]hY'b'ZYXVUW_'k]h'fi Vf]W':]bU'UggYgga Ybh'

5XX]h]cbU'XYHU]`g.

H\Y:]bU`F YdcfhZcf`9GH)) \$\$`g\ci `X`VY`fY[UfXYX`Ug`U`a U`cf`d]YW`cZk cf_`hUhYbH]g`U`g][b]Z]WbH
VcXmicZ]bX]j]Xi U`fYgYUfW\z]b`UXX]h]cb`hc`XYa cbgfU]b[`mci f`[fUgd`cZ`UbX`Yb[U[Ya Ybhk]h`z`Wci fgY
a UHf]U`g" H\Y`cV`YW`icZ`h`Y`fYdcfh]g`hc`YbUV`Y`mci `hc`Vf]b[`hc[Yh`Yf`mci f`ck`b`]XYUg`UbX`W`cbW`g]cbg
Z`ca `h`Y`k`l`c`Y`W`ci fgY" `b`g`l`cf`h`z`k`Y`Yl`dYW`h`mci `hc`Udd`m`_Ym`h`Yc`f`Y`h]W`]XYUg`UVci h`h`Y`i`b`X`Y`f`m]b[`gc`W]U`z
dc`]h]W`UbX`Y`W`cbca]WdfcW`ggYg`h`U`h`g`l`UdY`Ybj]f`c`ba`Y`b`H`U`dc`]W`h`a`U`_]b[`]b`mci f`W`gY`gh`X`m`

GdYW]Z]W]bg]fi W]cbg`k`]`VY`dfcj]XYX`j]U`h`Y`W`ci fgY`A`ccX`Y`g]h`"

Hi`fb]h]b`gY`h]b[. H\]g`Ugg][ba`Ybh]g`gi Va]h`X`h`fci [\`Hi`fb]h]b`UbX`gh`XYbhg`W]b`gY`Y`Hi`fb]h]b`g]a]`Uf]m`
fYdcfhg"

Gi Va]gg]cb'cZ5ggYgga YbhiHUg_g

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

Ẓmci YbWci bHyf'U'dfcV'Ya 'k \Yb'UHyYa 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'hygi 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'mYUfI" Ẓmci
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 UmiUdd'm'Zc'f'Ub'YI Hybg]cbž'Vi hmc i
a i ghfYH]b'mci f'h]W'Yhbi a VYf'Z'ca '9I HyfbU'Gi ddcfhfU'cb['k]H'Ubmich'Yf'fY'Yj UbhXcW a Yb'gk'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmc i f'YI Hybg]cb'Udd'j]W]h]cb" Ẓmci 'Ya U]'9I HyfbU'Gi ddcfhmc i 'k]`

5 WUXYa]W< cbYgmiUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i`g]b[`h`Y`k`c`f`X`g`c`f`]X`Y`U`g`c`Z`c`h`Y`f`g`i`U`b`X`d`f`Y`g`Y`b`h]b[`h`Y`a` `U`g`m`c`i`f`c`k`b`" `#`W`b`h`U`_`Y`a` `U`b`m`
Z`c`f`a`g`Z`Z`c`a` `X`Y`]V`Y`f`U`H`Y` `W`X`Y`U`H]b[`h`c` `U`W`W`Y`X`Y`b`h`U` `m`i`W`c`d`m]b[`Z`c`a` `U`g`c`i`f`W`k`]h`c`i`h`U`W`b`c`k` `Y`X[`Y`a` `Y`b`h`

- 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`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`tc.

- fYei Yg]Zcf`YI hYbg]cb/
-