



IEST5007

Dc`j]WU`9Wt`c[m`Gi ghU]bUV`Y`8Yj Y`cda Ybh/`>i gh]W

HYfa`Cby`#`&\$&%

GWcc`cZ<i a Ub]h]Yg`UbX`@Ub[i U[Yg`#`I BGK`5 frg`UbX`GcWU`GWYbWg

7ci fgY`Cj Yfj]Yk

GHJZ7cbHJW`8YHJ`g

7cbj Ybcfg

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
8Ub]Y`F cV]bgcb	X"fcV]bgcb4 i bgk "YXi "Ui	VmUddc]bħa Ybh	F cca ' ' *\$ A cfj Yb'6fck b	\$(+, ' & ' +- &

GWxcc``7cbHJW`bZcfa Uh]cb

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

@cWjhcb. 'GWxcc``C Z]WžA cfj Yb'6fck b'6i]X]b[ž@Yj Y`&ž&),

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

D\cbY. 'ž*%&'-' ,) :%*, %

: Ul. 'ž*%&'-' ,) ; +\$)

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

7 ci fgY'8YHJ]`g

7 fYX]hDc]bqg *`

Gi a a UfmicZ\hY'7 ci fgY

H\]g'gi V'YVhU_Yg'Ub']bhYfbU]cbU'dYfgdYVWj Y'cb'YVc'c[]WU' UbX'gcWU']bYei]miUbX'chYf' [`cVU' WU'Yb[YgZ'ZW'g]b[`cb'cb[c]b[`]a dUW'g'cZVc'cb]gU]cbZ'hY'fc'Y'cZYbj]fcb a YbhU'W'cbj Ybh]cbg'UbX'fUXY fi 'YgZ'UbX'hY'ja dUW'icZ[`cVU' [c] YfbUbW'ghU]h']Yg'gi W'Ug'hY' "gi ghU]bUV'Y'XYj Y'cda Ybh[cU'g'"H\]g W'ci fgY'k]'VY'cZdU]h]W'Uf']bhYfYgh]Zmci 'UfY'W'cbW'fbYX'k]h']ggi Yg'cZ[`cVU']bYei U']mZ'Ybj]fcb a YbhU' ↑ gh]W'Z'UbX'hY'fc'Yg'cZ'hY'ghU]h'UbX'W]j]'gcW]Ym' `b'h'g'W'ci fgY'Z'mci 'k]'YI d'cfY'hY'Ybj]fcb a YbhU' WU'Yb[Yg'hU]hZUW'hY'"; `cVU'Gci h' "UbX'Yb[U[Y]b'U'dfcXi W]j Y'W]h'ei Y'cZbYc']VYfU' 'a cXY'g'cZ YW'cbca]W[fck h' UbX'XYj Y'cda Ybh'hU]h' bXYf']Y'hY'gY' WU'Yb[Yg'"H\Y'W'ci fgY'dfcj]XYg'mci 'k]h'Ub i bXYfghUbX]b[`cZ'hY'\]ghcf]WU'Z'dc']h]WU'Z'UbX']bhYfbU]cbU'W'cbh']h'g'k]h']b'k \]W']ggi Yg'cZYbj]fcb a Ybh UbX' "XYj Y'cda Ybh'UfY'ZUa YXZ[c] YfbYXZ'UbX'f]b'gca Y'WU'gYg'UXXfYggYX'"Mci 'k]'W'cbg]XYf'hY'gcW]U' UbX'Ybj]fcb a YbhU']a dUW'g'UbX']a d']WU]h'cbg'cZ[`cVU'] U' i Y'WU]bg'UbX'dfcXi W]cb'bYh'cf_gZ'Ug'k Y'Ug YZ'cfhg'hc' i bXYfU_Y'a cfY'Yh']WU'UbX'gi ghU]bUV'Y'UddfcUW'Yg'"Mci 'k]'Yb[U[Y]b'WU'gY'gh'X]Yg'UbX'YUfb UVci hUdd']YXZ'dfUW]WU'Z'UbX'fYZYI]j Y'UddfcUW'Yg'Z'f'UXXfYgg]b[[`cVU'm'bhYf']b_YX']ggi Yg'ZUW]b['hY " ; `cVU'Gci h'Z'cf" a U'cf]m'k cfX'"

7 ci fgY '@YUfb]b[`Ci hW'ca Yg

- % 5dd'mW]h]WU'h']b_]b[`hc'W'cfY'W'cbW'dhg'fY'Yj Ubh'hc'Ya Yf[]b[[`cVU'Ybj]fcb a YbhU']ggi Yg'UbX WU'Yb[Yg
- &" 9I d'U]b'YI h'fbU'dc']h]WU'YW'cbca]W]bZi YbW'g'cb'hY'; `cVU'Gci h' # a U'cf]m'k cfXZ'UbX'\ck 'hY'gY]bZi YbW' 'gi ghU]bUV'Y'XYj Y'cda Ybh' hmdY' WU'Yb[Yg'UbX']bYei]h]Yg
- ' " 9I d'cfY'UbX'UggYgg'hY'i gY'cZ[`cVU'Z'YW'cbca]W'Y[U'Z'UbX']bgh'h']cbU'ZUa Yk cf_g'Z'cf UXXfYgg]b['Ybj]fcb a YbhU']ggi Yg']b'hY'W'cbh']hcZU'fUb[Y'cZ'hY'f'gh'fi W' fU']bYei U']h]Yg'UbX WU'Yb[Yg
- (" 8]gW'gg'UbX'W]h'ei Y'hY'YZZ'W]j YbYgg'cZ']bgh'h']cbU'cf'fY[i 'U'hc'fm'UddfcUW'YgZ'a Uf_Y'h'VUgYX UddfcUW'YgZ'h'W'bc'c[m'h'UbgZ'f'Z'WUdUW]m'Vi]X]b[Z'UbX'chYf'UddfcUW'Yg'Z'f'XYU']b['k]h' 'gi ghU]bUV'Y'XYj Y'cda Ybh' WU'Yb[Yg
-)" I gY'_bck 'YX[Y'cZ'gi ghU]bUV'Y'XYj Y'cda Ybh' WU'Yb[Yg'UbX'hY'dfUW]WU'UbX'Udd']YX'U'h'Ya dhg hc'fYgc'j Y'hY'a 'hc'UbU'mgY'U'fUb[Y'cZ'cWU'Z'bU]h'cbU'Z'UbX'fY[]cbU'WU'gY'gh'X]Yg

HYUW]b[`G'fU]h' []Yg'

H\Y'W'ci fgY']g'hU] [\h']b'U'gYa]bUf'gm'Y'k]h'gca Y'YVh' fY'W'cbh'bhUbX'fY[i 'Uf'VfYU'_ci hg'Z'cf X]gW'gg]cbg#UW]j]h]Yg"

5ggYgga Ybh

8YHU]YX'Ugg][ba Ybh]bZcfa UH]cb'k]'VY'dfcj]YXX']b'Ub'Ugg][ba Ybhg\YYh]b'a ccXY"8i Y'hc'7CJ -8!%-
gca Y'WU]b[Yg'hc'hY'dfYgYbhU]cb'a UmVY'fYei]fYX"

: cf'U''Ugg][ba Ybhg'<Uf] UfX'cf'5D5']b!hYI hfYZfYbW]b[']'g'dfYZfYXžk]h'U'Z''fYZfYbW'']ghUhY'YbX'cZ
mci f'Ugg][ba Ybhg'fcb'mfYZfYbW' hY'k cf_g'hUhmc'i 'i gY'UbX'W]hY'5'k Umg']bW' XY'U'W]h]cb'k \Yb'i g]b[
gca YcbY'Y'gYf]k cf_k \Y'hYf']h]g'U'dUdYfžVcc_žfYdcf'k YVg]hY": U]b['hc'\Uj Y'W]h]cbg:]g
W'bg]XYfYX'd'U[]Uf]ga "': cf'hY'dfYgYbhU]cbž'd'YUgY'\Uj Y'ga U'']b!hYI hfYZfYbW]g'k \Yb'mci 'i gY'chYfg
k cf_X]fYW]nž'UbX'U'g]b['Y'g']XY'W'cb]b]b['mci f'X]fYW]mi gYX'fYZfYbW]g'UhY'YbX''

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	

5ggYgga Ybh&. '9ggUm%

GHUfhXUH. 'Bch5dd]WVY

@Yb[h. '% \$\$'k cfXg'fd'i g'fYZfYbW'gk

8YHU]`g.

bxj]Xi U`g\cfhYggUm'

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

A cfY`XYHU]`g'k]`VY'dfcj]YX']b`hY`Ugg][ba Ybhg\YYh]b'a ccX'Y"

Gi Va]gg]cb`bchYg. 'Gi Va]hUg'U'D8: 'cf'k cfX'XcW]b'A ccX'Y

Hi fb]hb`gYH]b[. 'H\]g'Ugg][ba Ybh]g'gi Va]hY'X'h'fci [\ 'Hi fb]hb`UbX'ghi XYbhg'Xc`bchgYY`Hi fb]hb`g]a]Uf]mifYdcfrg"

5ggYgga Ybh' . 'A U'cf'fYgYUfW' fYdcfh

GHUfhXUH. 'Bch5dd]WVY

@Yb[h. ' '\$\$\$'k cfXg'fd'i g'fYZfYbW'gk

8YHU]`g.

A U'cf'fYgYUfW' fYdcfhUbX`WUg'`gh Xmc'b'gdYWZ]W'cd]W'gk'W'c] YfYX" 'bxj]Xi U`k f]h'Y'b'ZYXVUW`dfcj]YX" 5ddfc] ' '\$\$\$'k cfXg" 'H\]g']g'hY`Z]bU`UggYgga YbhZ'f'U'hY'bXUbW`di fdcgYg"

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

: i f'hYf`]bZ'fa U]cb`]g'dfcj]YX']b`hY`Ugg][ba Ybhg\YYh]b'a ccX'Y"

Gi Va]gg]cb`bchYg. 'gi Va]hUg'U'D8: 'cf'k cfX'XcW]b'a ccX'Y`dcfHU`

Hi fb]hb`gYH]b[. 'H\]g'Ugg][ba Ybh]g'gi Va]hY'X'h'fci [\ 'Hi fb]hb`UbX'ghi XYbhg'Xc`bchgYY`Hi fb]hb`g]a]Uf]mifYdcfrg"

5 HbXUbW F Yei]fYa Ybhg

Gh XYbhg UfY gfhcb[mYbWci fu[YX hc UHbX U WUggYg UbX fYj]Yk YWfi fY fYWcfX]b[g"

7 ci fgY GWXYXi Y

[J Yk WUgg ha YhUVY](#)

Hja YhUVY

8 UHr	HmdY	7 cbHrYbh
K YY_% %) : YVfi Ufm! %- : YVfi Ufm	GYa]bUf	H\Y Wci fgY fi bg]b]bhYbg]j Y'a cXY Zfca %\$Ua !) da cb'A cbXUmg UbX'Hi YgXUmg]b'k YY_g'%d' žk]h'U% \ci fVfYU_ Zcf'i bW Zfca '%da YUW XUmUbX'g\cfh VfYU_g'Yj Yfm\ci f'H\Y Wci fgY]g'gWXYXi YX Zcf WUggYg'cb]bY]b'6 UW_VcUfX'7 c UVcfUH' fHfci [\ a ccX'YŁ5B8 ZJW!hc!ZJW'g]a i 'hUbYci g'm';]j Yb hY fYWbh7CJ 8'ci hVfYU_žhY ZJW!hc!ZJW WUggYg'UfY'i b]_Y'm' 8'hY'Yj YbhH]g'WXUb[YgžhY fcca g'k ci X'VY. A cb'%\$. \$\$!'% . \$\$'E i UXfUb['Y'\$(' fP!9%)!\$(' Ł A cb'%(. \$\$!'%+. \$\$; c'XghY]b; \$- fP!8%*!; \$- Ł Hi Y'%. \$\$!'% . \$\$'E i UXfUb['Y; \$(\$ fP!9%)!; \$(\$ Ł Hi Y'%(. \$\$!'%+. \$\$'A UH\Yk g'&&+ fP!; &'!&&+Ł
K YY_&.&&: YVfi Ufm! '&* : YVfi Ufm	GYa]bUf	H\Y Wci fgY fi bg]b]bhYbg]j Y'a cXY Zfca %\$Ua !) da cb'A cbXUmg UbX'Hi YgXUmg]b'k YY_g'%d' žk]h'U% \ci fVfYU_ Zcf'i bW Zfca '%da YUW XUmUbX'g\cfh VfYU_g'Yj Yfm\ci f'H\Y Wci fgY]g'gWXYXi YX Zcf WUggYg'cb]bY]b'6 UW_VcUfX'7 c UVcfUH' fHfci [\ a ccX'YŁ5B8 ZJW!hc!ZJW'g]a i 'hUbYci g'm';]j Yb hY fYWbh7CJ 8'ci hVfYU_žhY ZJW!hc!ZJW WUggYg'UfY'i b]_Y'm' 8'hY'Yj YbhH]g'WXUb[YgžhY fcca g'k ci X'VY. A cb'%\$. \$\$!'% . \$\$'E i UXfUb['Y'\$(' fP!9%)!\$(' Ł A cb'%(. \$\$!'%+. \$\$; c'XghY]b; \$- fP!8%*!; \$- Ł Hi Y'%. \$\$!'% . \$\$'E i UXfUb['Y; \$(\$ fP!9%)!; \$(\$ Ł Hi Y'%(. \$\$!'%+. \$\$'A UH\Yk g'&&+ fP!; &'!&&+Ł
K YY_' . '%A UfW '!') A UfW	GYa]bUf	H\Y Wci fgY fi bg]b]bhYbg]j Y'a cXY Zfca %\$Ua !) da cb'A cbXUmg UbX'Hi YgXUmg]b'k YY_g'%d' žk]h'U% \ci fVfYU_ Zcf'i bW Zfca '%da YUW XUmUbX'g\cfh VfYU_g'Yj Yfm\ci f'H\Y Wci fgY]g'gWXYXi YX Zcf WUggYg'cb]bY]b'6 UW_VcUfX'7 c UVcfUH' fHfci [\

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F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

H\YfY`UfY`bc`fYei`]fYX`hYI`hg`Zcf`ghi`XYb`hg`"F YUX]b[g`k`]"`VY`gYhZcf`YUW`a`cXi`Y`h`fci`[`\`@Y[`Ubhc`]b`
A`ccX`Y`"Mci`k`]"`VY`UV`Y`hc`UW`W`gg`h`YgY`fYUX]b[g`h`fci`[`\`h`Y`I`B`G`K`]"`VfUfmk`]h`mci`f`c`[`]b`"

F YWca a YbXYX`F Ygci fWg

Gca Y`i`gYZ`"hYI`hg`za`cg`hc`Zk`\"`W`X`W`Ub`VY`Zci`bX`]b`I`B`G`K`]"`VfUfmz`]b`Wi`XY`.

DYfYUi`h`H`"Z`6`f]X[`Yz`:"`Z`/`A`W`Uf`h`n`z`>`"f`P`X`g`L`"f`&`\$`%`L`"F`Z`W`D`a`g`f`W`Y`W`Z`S`V`T`a`a`]`a`X`b`a`f`[`US`^`W`U`a`h`Y`k`"
F`ci`h`Y`X[`Y`z`@`c`b`X`c`b`"

DYYh`F`"Z`F`c`V`V]b`g`z`D`z`/`K`U`h`g`z`A`"f`P`X`g`L`"f`&`\$`%`L`"9`h`T`S`^`b`a`f`[`US`^`W`U`a`h`Y`k`"F`ci`h`Y`X[`Y`z`@`c`b`X`c`b`"

DYYh`F`"Z`/`K`U`h`g`z`A`"f`&`\$`%`L`">[`T`W`S`f`a`"W`U`a`h`Y`[`W`e`,`W`h`[`d`a`_`W`f`i`V`W`h`W`a`b`_`W`f`i`e`a`U`[`S`^`_`a`h`W`_`W`f`e`"
F`ci`h`Y`X[`Y`z`@`c`b`X`c`b`"

?`c`h`U`f`j`z`5`"z`G`U`"Y`z`5`"z`9`g`W`c`V`U`f`z`5`"z`8`Y`a`U`f`]U`z`:"`Z`/`5`W`c`g`h`U`z`5`"f`P`X`g`L`"f`&`\$`%`L`"B`g`d`h`W`e`W`3`b`a`e`f`Z`
V`W`h`W`a`b`_`W`f`V`[`U`f`a`"S`c`k`"H`i`"U`6`c`c`_`g`U`b`X`5`i`h`c`f`g`i`d`Z`c`b`h`9`!`j`Y`f`g`]c`b`[\Yfy](#)

8`f`5`]g`U`z`:"`Z`8`Y`a`U`f`]U`z`:"`Z`/`?`U`"g`z`:"`"f`P`X`g`L`"f`&`\$`%`L`"6`W`d`a`i`f`Z`,`S`h`a`U`S`T`g`S`c`k`X`a`d`S`"W`W`S`"F`ci`h`Y`X[`Y`z`
@`c`b`X`c`b`"

Gca Y`k`Y`V`g]h`Y`g`h`U`h`a`U`m`V`Y`i`g`Y`Z`""]b`Wi`XY`.

Gci h`7`Y`b`f`Y`.\`h`tdg`##`k`k`"gci`h`W`b`f`Y`"]b`h`#`

=>`H`G`8`f`H`f`U`X`Y`U`b`X`G`i`g`h`U]b`U`V`Y`8`Y`j`Y`c`d`a`Y`b`h`.\`h`tdg`##`W`g`X`"]g`X`"c`f`[`#`

h`h`f`b`U`h`c`b`U`"h`g`h`h`h`Y`Z`c`f`G`i`g`h`U]b`U`V`Y`8`Y`j`Y`c`d`a`Y`b`h`.\`h`tdg`##`k`k`"]g`X`"c`f`[`#`

h`h`f`b`U`h`c`b`U`"h`g`h`h`h`Y`Z`c`f`9`b`j`f`c`b`a`Y`b`h`U`b`X`8`Y`j`Y`c`d`a`Y`b`h`.\`h`tdg`##`k`k`"]Y`X`"c`f`[`#`

I`B`" gYZ`" %o %o Y I`B`" Yg`h`U`h`a`

Wca a Ybng'UVci hñY'Wci fgY'cf'UggYgga Ybng''

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

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

Znci 'YbWci bYf'U'dfcV'Ya 'k \S'U'dfcV]b ['h'g]M\$]hrci f'Ugg][ba YbhiHUg_g] [\Yd'Yg]b]Z'd'YUg\fc] [h Y'

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 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][\hž' 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'UjX'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'U'Y'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'Y'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](#)

5 WUXYa]W]bZcfa Uh]cb

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

- fYei Ygh]Zcf`YI H`bg]cb/
- `Uh`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I B GK `<YU`h`UbX`GUZY`midc`]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 ffYbhgh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchW`g!\[i \]XY`\]bYg#](#)