



ENGG2500

: i]X'A YW\Ub]Wg'Zcf'9b[]bYYfg

HYfa 'Cby''##'&\$&%

GWcc``cZ7]j]'UbX'9bj]fcbaybU'9b[]bYYf]b[``##'I BGK ``9b[]bYYf]b[

7 ci fgY`Cj Yfj]Yk

GHJZ 7 cbHJW`8YHU]`g

7cbj Ybcfg

B Ua Y	9a U]	5j U]`UV]`]m	@cW]h]cb	D\cbY
GHYZb]: Y`XYf	g"ZY`XYf4 i bgk "YXi "Ui	VmUddc]bħa Ybh	I BGK `K UHYf F YgYUfW @UVcfUhc fmž A Ub`mJ U`Y	Ž *%&, \$+%- , *%

@YWi fYfg

B Ua Y	9a U]	5j U]`UV]`]m	@cW]h]cb	D\cbY
? f]ghYb`Gd`]bhYf	_"gd`]bhYf4 i bgk "YXi "Ui	VmUddc]bħa Ybh	I BGK `K UHYf F YgYUfW @UVcfUhc fmž A Ub`mJ U`Y	Ž *%&, \$+%- , ()

GWcc`7cbHJW`ħZcfa Uh]cb

[9b\[\]bYYf\]b\[`Gh XYbhGi ddcfhGYfj \]Wg](#) -`HY`Bi WYi g!`Ybfc`a Ybhždfc[fYgg]cb`WXYW_gž`WUg\`fYei Yghž`Wci fgY]ggj Yg`cf`dfc[fUa !fY`UfYX`ei Yf]Yg`

[9b\[\]bYYf\]b\[`ħXi ghf\]U`HfU\]b\]b\[`ei Ygh\]cbg`](#)

[I BGK `Gh Xm5VfcUX](#) -`gh XmiUVfcUX`gh XYbhYbei]f]Yg`fžcf`]bVci bX`gh XYbhgŁ`

[I BGK `9I WUUb\[Y](#) -`gh XYbhYI WUUb[Y`Ybei]f]Yg`fžcf`]bVci bX`gh XYbhgŁ`

[I BGK `: i ħ fy`Gh XYbhg](#) -`dchYbh]U`gh XYbhYbei]f]Yg`Y["`UXa]gg]cbgžZYgždfc[fUa gžWfYX]ħfUbgZYf`

D\cbY`

fž *%&Ł- ' ,) ;) \$\$ -`Bi WYi g`Gh XYbh<i V`

fž *%&Ł- ' ,) `+*% -`9b[]bYYf]b[`ħXi ghf]U`HfU]b]b[`

fž *%&Ł- ' ,) ``%+ -`I BGK `Gh Xm5VfcUX`UbX`I BGK `9I WUUb[Y`fžcf`]bVci bX`gh XYbhgŁ`

7ci fgY'8YHJ]`g

7fYX]hDc]bhr *`

Gi a a UfmcZ\hY'7ci fgY

H\Y'cV'YWj]Y'cZ9B; ; &) \$\$]g'hc']b'f'c'Xi W' Yb[]b'Y'f]b['ghi XYbhr'hc'h\Y'df]bW]d'Yg'cZZi]X'a YWU'Ub]Mg'
Hcd]Mg'X]gW'ggYX']bW' XY: 'i]X'dfcdYfh]Yg"< mXfcghU]Wg" '6i c'UbW' D'fYggi fYg']b'Zi]X'gmgh'Ya g" Df]bW]d'Yg
cZa Ugg'W'cbgYfj U]cb'"Gh'UXmZck 'YbYf[m'Yei U]cbg": 'ck'a YUgi fYa Ybh': c'fW'g'UbX'a ca Ybh'a ']b
Zck]b['Zi]Xg'"8]a Ybg]cbU'UbU'mg]g'z'g]a]Uf]m'UbX'd\mg]W]a cXY'"]b["'D]dY'Zck "'b'W'a d'fYgg]V'Y'Ua]bUf
UbX'h' fVi 'YbhZck ']b'd]dYg/]f]W]cb'ZU'W'c'f'"9'Ya YbhU'f'V'ci bXU'f'm'UmY'f'Zck /g_]b']f]W]cb'UbX'X'fU["'Di a dg
UbX'h' fV]bYg"'Di a d'UbX'd]dY']b'Y'gmgh'Ya 'W'U'f'U'W'f]g]h]Wg"

7ci fgY'5]a g

H\Y'cV'YWj]Yg'cZ\h]g'W'ci fgY'U'fY'hc.

! 'b'f'c'Xi W'ghi XYbhr'hc'h\Y'dfU'W]W'cZk UH'f'Yb[]b'Y'f]b['UbX'Zi]X'a YWU'Ub]Mg"

! 'b'f'c'Xi W'ghi XYbhr'hc'h\Y'h'Y'c'f'ic'Z'k'c'ei]f'X]Z'f'Y'b'g'h'U'X'm'Z'c'k'g'W'c'g'Y'X'W'c'b'X'i]h'c'f'd]d'Y'Z'c'k'f'f'Y"
d'f'Y'g'g'i f]g'Y'X'Z'c'k'U'Ub'X'V'f]Y'Z'm'z'hc'Z'f'Y'Y'g'i f'Z'U'W'Z'c'k'f'f'Y"Z'c'k'g'k' \Y'f'Y'h'Y'k'U'H'f'g'i f'Z'U'W']g'g'i V'Y'W'h'c'
U'ha'c'g'd\Y'f]W'd'f'Y'g'i f'Y'c'

! ;]j'Y'ghi XYbhr'Ub'i bXY'f'gh'UbX]b['cZ\h'Y'dfcdYfh]Yg'cZZi]Xg'z'a Ubca Y'f'n'z'\nX'f'c'g'h'U]W'g'z'h\Y'df]bW]d'Yg'cZ
a Ugg'UbX'YbYf[m'W'c'bg'Y'f'j U]cb'z'h\Y'z'c'f'W'g'UbX'a ca Ybh'a ']b'Zck]b['Zi]Xg'z'Zck ']b'd]d'Y'g'z'Ua]bUf'UbX
h' fVi 'YbhZck "

! '9'b'U'V'Y'ghi XYbhr'hc'U'dd'm'h\Y'Z' bX'U'a Ybh'U'd'f]bW]d'Yg'cZa Ugg'W'cbg'Y'f'j U]cb'z'YbYf[m'W'c'bg'Y'f'j U]cb'UbX
h\Y'a ca Ybh'a 'Ye'U']h'c'b'hc'h\Y'UbU'mg]g'cZ'Z'c'k'g']b'X]Z'f'Y'b'g'h'W'b'U'f]c'g"

! '9'b'U'V'Y'ghi XYbhr'hc'W'U'f'f'ic'i h'U'X]a Ybg]cbU'UbU'mg]g'UbX'W'U'f'f'ic'i h'h\Y'g'W]]b['Z'c'f'U'd\mg]W]a cXY'"

! '9'b'U'V'Y'ghi XYbhr'hc'a U_Y'Y'g'h]a U'H'g'c'Z'V'ci bXU'f'm'UmY'f'h']W'b'Y'g'g'UbX'j Y'c'W]h]Y'g'c'j Y'f'Z'U'hd'U'H'g'z'UbX'hc'
Y'g'h]a U'H'h\Y'z'c'f'W'g'c'b'&8'UbX'"8'V'c'X]Y'g']b'g'i Va Yf[YX'Z'c'k'g"

! '9'b'U'V'Y'ghi XYbhr'hc'ei Ub'h]z'mid]dY']f]W]cb'c'gg'Y'g'UbX'hc']b'f'c'Xi W']m'ci 'hc'g'ca Y'cZ\h'Y'U'gg'c'W]U'H'X'f'Y'U'!]Z'
d'f'c'V'Ya g'cZ'd]d'Y'Z'c'k'W'U'W'U']h'c'bg"

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

5Z'f'g'i W'W'gg'z' 'm'W'a d'Y'h]b['h]g'W'ci fgY'z'm'ci 'g\ci 'X'V'Y'U'V'Y'hc.

@YUfb]b['Ci hW'a Y	95'GHU[Y'%7ca dYH'bW]Yg
%'6Y'UV'Y'hc'YI'd'U]b'UbX'U'dd'm'h\Y'V'U'g]W'd'f'c'd'Y'f'h]Y'g'cZZi]X'g'UbX \ck'h\Y'g'Y'f'Y'U'H'hc'Zi]X'Z'c'k'"	D9%"%žD9%"&žD9%"%žD9%"&
&"6Y'UV'Y'hc'YI'd'U]b'h\Y'Z' bX'U'a Ybh'U'd'f]bW]d'Yg'cZZi]X'Z'c'k']b d]d'Y'g'UbX'Z'f'Y'Y'g'i f'Z'U'W'Z'c'k'g'j]n'W'c'b'h]bi]m'z'a ca Ybh'a 'UbX YbYf[m'z'UbX'_bck'hc'k'\U'h]g]h'U]cbg'h\Y'g'Y'df]bW]d'Yg'W]b'V'Y' U'dd']Y'X"	D9%"%žD9%"&žD9%"%žD9%"&
' "'6Y'UV'Y'hc'U'gg'Y'g'g'YbYf[m'c'gg'Y'g']b'd]d'Y'g'Xi Y'hc']f]W]cb'UbX j'U'f]c'i'g'd]d'Y'Z'h]b[g"	D9%"%žD9%"&žD9%"%žD9%"&
(' "'6Y'UV'Y'hc'YI'd'U]b'UbX'X'Y'g'W]V'Y'h\Y'W'c'b'X]h'c'bg'Z'c'f'Z'c'k'g']b'd]d'Y'g' i bXY'f'k'\]W'j'U'f]c'i'g'Z'c'k'f'Y[]a'Y'g'k']'c'W'W'f'f]c'U'a]bUf'UbX	

@YUfb]b[`Ci hWta Y	95`GHU[Y`%7ca dYHbWYg
\mXfUi `]WJ`miga cch"	
)`"6Y`UV`Y`hc`Wffmci hWta di HU]cbg`cZZck g`h`fci [`d]dYg`"H\]g]bWi XYg`VY]b[`UV`Y`hc`]XYbh]zmhY`XUH`fYei]fYa Yb]g`hc`gi ddcfh gi W`Wta di HU]cbg`"	D9%`%žD9%`&žD9&`%žD9&`&
*`"6Y`UV`Y`hc`i bXYfU`_Y`U`X]a Ybg]cbU`UbU`mg]g`UbX`a U`_Y Ygh]a UH]g`cZXFU[`ZcfW`UbX`Wffmci hWta di HU]cbg`fY`UH`X`hc Vci bXUfm`UmYfg	D9%`%žD9%`&žD9&`%žD9&`&
+`"6Y`UV`Y`hc`fYgc`j`Y`Z`bXUa YbHU`Zi]X`a YWU]b]Wg`dfcV`Ya g`]b ga U`[fci dg`Xi f]b[``UV`YI dYf]a Yb]g`"	D9%`%žD9%`&žD9&`%žD9&`&žD9'`&žD9'`"*

5hH`Y`YbX`cZ]g`Wci fgYžmci `k]`VY`ZJa]]Uf`k]h`h`Y`Yb[]bYYf]b[`h`W`b]ei Ygi gYX`hc`UbU`mgY`UbX`XYg][b h`Y`VUg]W`Wta dcbYb]g`cZk UH`f`Yb[]bYYf]b[]bZUg]fi W`i`fY`"

Mci `k]`XYj`Y`cd`W`d`U`W`m`Zcf`UbU`m]WU`UbX`W`h]W`h`b_]b[`UbX`Zcf`W`Y`U`h]j`Y`dfcV`Ya`gc`j`]b[""Mci `k]`VY`YI dcgYX`hc`Z`UbX`VY`fYei]fYX`hc`gc`j`Yžbi`a`Yfci`g`\mXfUi`]Wg`dfcV`Ya`g`]b`h`Y`@Y`W`i`fYgžh`Y`K`cf`g`cdg`UbX`"

5ggYgga Ybh

FZWX S^YdSVWXd fZ[e UagdeWi [^ ad_S^k TWTSeW a` fZWeg_ aXfZWeUadMe Xba_ WsUZ aXfZW SeeWee_ W f fSe] eZ H\Y:]bU^9I Ua]g:k cft^ * \$i `cZmci f:]bU^A Uf_]ZWUgg'k cf_]g]bWi XYX'UbX' %\$ \$i `]Z mci f'WUgg'k cf_]g' bch]bWi XYX"

FZwu'See i ad] [e i adZ &" . aXfZW8[S^? Sd] [X[UgVWz5'a Uf_'cZUh'YUgh(\$i `]b' hY' Z]bU^'YI Ua]bU]cb]g'fYeI]fYX'VYzcfY' hY' WUgg'k cf_'fC b]bY'ei]nnYg'UbX'UV' WUgg'UggYgga Ybh]g]g]bWi XYX']b' hY' Z]bU^ a Uf_' H\Y' Zcfa U^'YI Ua]gW]d]g'k]' bchVY'fYh fbYX'Vi hmcI 'UfY'dYfa]hYX'hc]j Yk' hY'a Uf_YX'gW]d]h"

Zmci f'di fY'YI Ua 'a Uf_'fi `t]g'\[\Yf'hU' b' mci f'Wca dci bXYX'a Uf_'fWcbg]g]b['cZa Uf_g'Zcf'mci f'Z]bU^ YI Ua 'UbX'Wci fgY'k cf_'UggYgga Ybh]g]g]hY'\[\YghcZ'hYgY' &a Uf_g'k]' VY'UXcdhYX'Ug'mci f':]bU^A Uf_ Zcf'h]g'Wci fgY"

@afW FZW WUfgdWdWchWé fZWdYZf fa SVgef fZW S^eUadMe Tk eUS↑ Y [XSYdWW Tk fZW: WSV aX E UZaaž

E fgVW fe i Za bWad_ baadk [fZWcg[U] cg[| I We S` V i ad] eZabe SdWdWa_ _ W VW fa V[eUgee bcaYdWee i [fZ fZW WUfgdWdVgd] Y fZWfWd_ ž

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH'	Gh XYbh@YUfb]b[Ci hWca Yg'5ggYggYX
:]bU^9I Ua]bU]cb'	* \$i		

- 8UH'cZa Uf_g'fYh fbYX. %k YY_ 'dcghXi Y'XUH
- DYbU'mZcf'UH'gi Va]gg]cb. '&) i 'dYf'XUm'

: i fhYf'XYHJ]`g'cb'hY'UggYgga Ybhg'UbX'Xi Y'XUH'g'UFY'Uj U]'UV'Y'cb'hY'A ccX'Y'Wci fgY'dU[Y'i bXYf hY'HUV'`@UVcfUhcfm7`UggYg`"

Gi Va]gg]cb'bc'hYg. 'Gi Va]gg]cb'j]U'A ccX'Y'UbX'A Ud'YH5 '! 'd'YUgY'gYY'A ccX'Y'Zcf'Z fhYf']bghf' W]cbg

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

5ggYgga Ybh' . 'Cb`]bY'E i]nnYg

GHUfhXUH. 'K YY_g('UbX'-' /H\i fgXUm'*!, 'da

@Yb[h. '&' \ci fg

8YHJ]`g.

GYj YfU'cdYb'Vcc_'cb]bY'ei]nnYg'k]`YbWci fU[Y'Wcb]bi ci g'gh XYbh'YUfb]b['h'fci [\ci h'hY'Wci fgY" H\Y'ei]nnYg'UFY'XcbY'Y]hYf'UH\ca YZ']VfUfmcf'cb'WJa di g" 'A Uf_g'UFY'Uk UfXYX'Zcf'Wc'ffYWh'Ubgk Yfg" H\Y hcd]Vg'Wc] YfYX']b'YUW'cb]bY'ei]n'UFY']gh'X'cb'hY'A ccX'Y'Wci fgY'dU[Y" H\Y'di fdcgY'cZcb]bY'E i]n'k]` VY'hc' d'fcj]XY'U'WYUf'gh XmiZ'Ua Yk cf_" 'h'k]`U'gc' d'fcj]XY'hY'cddc'fhi b]mhc'XYj Y'cd'gY'Z'YUfb]b['UbX d'fcV'Ya 'gc]]b['g_]`g"

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

&'Cb]bY'E i]nnYg'k]`VY'Wca d'YH'X'cb'hY'A ccX'Y'Wci fgY'dU[Y" H\Ymk]`UW'Wci bhZcf, i 'cZ'hY'Wci fgY a Uf_'YUW'UbX'k]`hU_Y'd'UW'.

E i]n'% 'K YY_(/H\i fgXUm%h' 'A UfW'Z'ca '*!, da 'Zcf'U'&' \ci fg'Xi fU]cb"

E i]n'&' 'K YY_-' /H\i fgXUm%) h' '5df]'Z'ca '*!, da 'Zcf'U'&' \ci fg'Xi fU]cb"

C'hYf'UggYgga Ybh]bZc'fa U]cb.

- 8YUX]bY'Zcf'UVgc'i hY'Z]`cZE i]nnYg. 'Uh'hY'WcgY'cZ'hY'ei]n'f] da 'H\i fgXUm'
- 8UH'cZa Uf_g'fYh fbYX. %k YY_ 'dcghXi Y'XUH
- DYbU'mZcf'UH'gi Va]gg]cb. 'bc'UH'gi Va]gg]cbg'UFY'U'ck YX'Zcf'hY'gY'h]a YX'ei]nnYg"

: cf'Z fhYf'XYHJ]`g'd'YUgY'gYY'hY'A ccX'Y'Wci fgY'i bXYf'HUV'`Cb]bY'E i]nnYg`"

Gi Va]gg]cb'bc'hYg. H\Y'ei]nnYg'k]`hU_Y'd'UW'cb'A ccX'Y'Xi f]b['U'gYh'&' \ci f'dYf]cX

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

: YVfi Ufm		<p>⊖fci Xi W' 7 cbhbi]m! 'hY' WcbWdhUhi Zi]X'a Ugg a i ghVY' WcbgYfj YX"</p> <p>A cbXUm&&: YV. '< mXfcghUj]Vg</p> <p>Hi YgXUm&' : YV. 7 cbhbi]m</p>
K cf_g\cd		<p>K cf_g\cd ``cWUj]cb'UbX'hja Y'Ug'dYf'mci f Ybfc``a Ybh'</p> <p>Mci f'XYa cbghUhc'f'h]g'k YY_k]''[i]XY'mci ']b'mci f k cf_g\cd'k \]W' Wcj Yfg < mXfcghUj]Vg'UbX'7 cbhbi]m %/ '&"</p>
C b]bY'5Wj]]m		<p>Mci f'dfY!'UV' Zcf'hY' < mXfcghUj]Vg'UV'k]''cdYb'h]g k YY_'cb'A cbXUmZcf'mci 'hc'k cf_'h'fci [\"</p>
C b]bY'5Wj]]m		<p>HYgh'mci f'g_]`g']b'hY': 'i]X'A YWU]Vg'DfUW]VW E i Ygh]cbg']b'A ccX'Y'Zcf'k YY_'&"</p> <p>E \$) '< mXfcghUj]Vg'!: cfW'g'cb'gi Va Yf[YX'VcX]Yg</p> <p>E \$* '< mXfcghUj]Vg'!'A]gW''UbYci g</p> <p>E \$+?']bYa Uj]Vg'cZ: 'i]X'A ch]cb</p> <p>.</p>
K YY_" .:%A UfW'!) A UfW'	@YWh fy	<p>⊖'k YY_" 'k Yf' Wcbhbi Y'k]h' 7 cbhbi]mUbX ⊖fci Xi W' 9bYf[m! 'hY' WcbWdhUhi Zi]X'\Ug YbYf[m! 'dch'bh]U''UbX']bYh]W</p> <p>A cbXUm%A UfW'. 7 cbhbi]m&'UbX'9bYf[m%</p> <p>Hi YgXUm&'A UfW'. 9bYf[m&/' "</p>
K cf_g\cd		<p>K cf_g\cd ``cWUj]cb'UbX'hja Y'Ug'dYf'mci f Ybfc``a Ybh'</p> <p>Mci f'XYa cbghUhc'f'h]g'k YY_k]''[i]XY'mci ']b'mci f k cf_g\cd'k \]W' Wcj Yfg 9bYf[m%/ '&"</p>
C b]bY'5Wj]]m		<p>HYgh'mci f'g_]`g']b'hY': 'i]X'A YWU]Vg'DfUW]VW E i Ygh]cbg']b'A ccX'Y'Zcf'k YY_" "</p> <p>E \$, 7 cbhbi]m</p> <p>E \$- '6Yfbc']'Yei Uj]cb'!'VUg]WYI Ua d'Yg</p> <p>E %\$'6Yfbc']'Yei Uj]cb'!'Udd']Wj]cbg</p> <p>.</p>
5ggYgga Ybh		<p>DfY'UV'!'@UV'%'< mXfcghUj]Vg'</p> <p>8I 9.'A cbXUm%A UfW' %\$Ua</p>

		8I 9.'GUh fXUm&\$'A UfWž) da " K Y][\h]b[.'(i 'cZWŁi fgY'[fUXY HmđY.'A Ud'YH5 GYY'A ccX'Y'Zcf'Z fłYf'XYHJ]g
	C b]bY'5Włj]jm	MŁi f'dfY!'UV'Zcf'h'Y'd]dY'Zck 'UV'k]'cdYb'h]g k YY_'cb'A cbXUmZcf'mŁi 'Łc'k cf_'h'Łci [\"
K YY_*. '&&'A UfW '! '& A UfW		Bc'YWłi fYg'UbX'k cf_g\cdg]b'K YY_ '*''2'I gY'h]g k YY_'Łc'dfUWł]W'UbX'WłWł!i d'k]h' h'Y'Łci fgY WŁb'ł'ł'ł'
K YY_+. '&- 'A UfW '! '& 5df]	@YWłi fY	Ł'k YY_+ž'k Y'WŁb]bi Y'k]h'd]dY'Zck 'WŁbWł'dłg" H\Y'YWłi fYg'k]'bWłi XY'a UbmYI Ua d'Yg'k \]Wł'k]' \Y'd'mŁi 'Łc'i bXYfgłUbX'h'Y'Z bXUa YbłU'WŁbWł'dłg" K Y'k]'U'gc'głUfłk]h'U'bYk 'Łcd]W'8]a Ybg]cbU' 5bU'mg]g'k \]Wł'k]'VY'U'i gY'Z 'WŁbWł'dhZcf'a Ubm Yb[]bYYf]b['WŁi fgYg'Xi f]b['mŁi f'XY[f'fY" A cbXUm&- 'A UfW. 'D]dY'Zck " Hi YgXUm' '\$'A UfW. '8]a Ybg]cbU'5bU'mg]g'%
	K cf_g\cd	K cf_g\cd 'cWłh]cb'UbX'h]a Y'Ug'dYf'mŁi f Ybfc''a Ybł' MŁi f'XYa cbgłUŁc'f'h]g'k YY_'k]'i]XY'mŁi 'b'mŁi f k cf_g\cd'k \]Wł'WŁj Yfg'D]dY'Zck / '8]a Ybg]cbU' UbU'mg]g
	Hi h@UV	@UVcfUŁc'fmWUgg'cb'D]dY'Zck "'8Uł'UbX'H]a Y'Ug dYf'mŁi f'Ybfc''a Ybł' H\Y'UV'cZYfg'Ub'cddcfłi b]mZcf'gh XYbłg'Łc Yb\UbWł'h'Y]f'YUfł]b['j]U'\UbXg'cb'YI dYf]YbWł']b h'Y'UVg" D'YUgY'gYY'A ccX'Y'Zcf'Z fłYf'XYHJ]g"
	5ggYgga Ybh	DfY'UV!'@UV" 'D]dY': 'ck 8I 9.'A cbXUm&- 'A UfW '%\$Ua K Y][\h]b[.'(i 'cZWŁi fgY'[fUXY HmđY.'A ccX'Y'E i]n GYY'A ccX'Y'Zcf'Z fłYf'XYHJ]g
	5ggYgga Ybh	Dcgł'UV!'@UV" 'D]dY': 'ck

		8I 9. 'GUh fXUm' '5df]ž) da " K Y][\h]b[.(i 'cZWŁi fgY[fUXY HmdY. 'A Ud'YH5 GYY 'A ccXY 'Zcf Ž f\Yf'XYfU]g
	C b]bY '5Wfj]jm	HYghmci f'g_]`g]b 'hY: 'i]X'A YWU Ub]Wg 'DfUWf]W E i Ygh]cbg]b 'A ccXY 'Zcf'k YY_+ E %('D]dY 'Zck '!`cWU`cgYg E %) 'D]dY 'Zck '!`Udd`]WU]cbg E %* '8]a Ybg]cbU`UbU`mg]g! 'VUg]Wg
K YY_ , .) '5df]'! - '5df]	@YWf fY	ž k YY_ , ž k Y'k]`WŁb]h]bi Y'k]h '8]a Ybg]cbU` 5bU`mg]g 'UbX`]rg]i gY]b 'Zi]X'a YWU Ub]Wg Udd`]WU]cbg" 'K Y'k]`ghUfhk]h 'hY'Łcd]W`D\mg]W` A cXY`]b['k \]W 'a U_Yg]i gY'cZX]a Ybg]cbU` UbU`mg]g" A cbXUm) '5df]. 'Di V`]WŁc`]XUm!2'bc`YWf fYg Hi YgXUm* '5df]. '8]a Ybg]cbU`5bU`mg]g & / 'D\mg]W` A cXY`]b['%'
	K cf_g\cd	K cf_g\cd `cWU]cb 'UbX`h]a Y'Ug'dYf'mci f Ybfc``a YbH' Mci f'XYa cbghUŁcf'h]g'k YY_'k]`[i]XY'mci]b'mci f k cf_g\cd'k \]W 'Łj Yfg '8]a Ybg]cbU`UbU`mg]g / D\mg]W`a cXY'g
	C b]bY '5Wfj]jm	HYghmci f'g_]`g]b 'hY: 'i]X'A YWU Ub]Wg 'DfUWf]W E i Ygh]cbg]b 'A ccXY 'Zcf'k YY_ , E %+ '8]a Ybg]cbU`5bU`mg]g! 'Udd`]WU]cbg E % 'D\mg]W`A cXY`]b[
K YY_ - .%&'5df]'! '%* 5df]	@YWf fY	ž k YY_ - ž k Y'k]`WŁb]h]bi Y'k]h 'D\mg]W`A cXY'g UbX`k]`YUfb 'UZfYk UfXg 'UVci hVci bXUfm`UmYfg]bWf X]b['hY'WU`W`U]cb'cZŽ]W]cb'ZcfWg" A cbXUm%&'5df]. 'D\mg]W`a cXY'g & ' Hi YgXUm% '5df]. '6ci bXUfm@UmYfg
	K cf_g\cd	K cf_g\cd `cWU]cb 'UbX`h]a Y'Ug'dYf'mci f Ybfc``a YbH' Mci f'XYa cbghUŁcf'h]g'k YY_'k]`[i]XY'mci]b'mci f k cf_g\cd'k \]W 'Łj Yfg 'D\mg]W`a cXY'g & / 6ci bXUfm`UmYfg

	<p>C b]bY'5Wj] Jhm</p>	<p>HYghmci f'g_]`g`]b`hY': `i]X'A YWUbjWg'DfUWjWV E i Ygh]cbg`]b`A ccXY`Zcf`k YY_`- E % `D\mg]WU`A cXY``]b[E % `6ci bXUfmi@UmYfg# f]Wj]cb: cfWg</p>
	<p>5ggYgga Ybh</p>	<p>E i]n`& H\Y`ei]n`k]``fi b`Zcf`&\fg`fH\i fgXUm5df]`%) ž</p>

Gi Va]gg]cb 'cZ'5ggYgga YbhiHUg_g

D`YUgY`fYZf`h`h`Y`A ccX`Y`dU[Y`cZH`Y`W`i fgY`Zc`f`Z fh`Yf`[i]XUbW`'cb`UggYgga YbhiGi Va]gg]cb"

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

6Yk UFY`5b`Ugg][ba Ybh`h`Uh]bW` XYg`d`U[]Uf]gYX`a` UHf]U`k`]`fYW]j` Y`U`\$i` :` U]z`UbX`gh` XYbtg`k` \c`
d`U[]Uf]gY`a` UmZ]`h`Y`W`i` fgY`G`h` XYbtg`k` \c`d`U[]Uf]gY`UfY`U`gc`]UV`Y`hc`X]gW]d`]bUfmiUW]cbz`]bW` X]b[
YI`W`g]cb`Zca`Ybfc`a`YbH`

D`U[]Uf]ga`]g`h`Y`i` gY`c`ZUbch`Yf`d`Yfgcb`g`k` cf`_`cf`]XYUg`Ug`]Zh`Ymk` YfY`mci` f`ck`b`"K` \Yb`]h]g`bYW]ggUfmcf`
XYg]fUV`Y`hc`i` gY`ch`Yf`d`Ycd`Y`g`a` UHf]U`mci` g`l`ci`X`UXYe`i` UH`m`UW]bck`YX[Y`k` \cgY`k` cfXg`cf`]XYUg`h`Ym`

5 WUXYa]WbZcfa Uh]cb

[?Ymi_BGK_8UHg](#)!Y["7Ybgi g'8UHžYI Ua 'XUHgž'UghXUmih'Xfcd'U'Wci fgY'k]h'ci hUWUXYa]WZ]bUbW]U']UV]]mYhW'

:]bU`9I Ua]bUh]cbg.

:]bU`YI Ua g]b`HYfa `%k]`VY`Y`X`cb`]bY`VYhk`YYb`" \$h'5df]`!`%`h`A`Um]bW] g]j`Y`"Mci`UfY`fYei`]fYX`hc`VY`Uj`U]UV`Y`cb`h`YgY`XUH`g`"D`YUgY`Xc`bch`c`a`U`_`Y`UbmdYfgcbU`cf`hfUj`Y`UffUb[`Ya`Ybhg`Xi`f]b[`h`]g`dYf]cX"

Gi dd`Ya`Yb]Ufm9I Ua]bUh]cbg.`

Gi dd`Ya`Yb]Ufm9I Ua]bUh]cbg`Zc`f`HYfa`'%&\$&%k`]`VY`Y`X`cb`&(h`!`&,`h`A`Um]bW] g]j`Y`g`ci`X`mci`VY`fYei`]fYX`hc`g]hcbY`"Mci`UfY`fYei`]fYX`hc`VY`Uj`U]UV`Y`cb`h`YgY`XUH`g`"D`YUgY`Xc`bch`c`a`U`_`Y`UbmdYfgcbU`cf`hfUj`Y`UffUb[`Ya`Ybhg`Xi`f]b[`h`]g`dYf]cX"

57589A ⇒ 58J ⇒ 9

: cf]bZcfa Uh]cb`UVci`h`

- BchYg`cb`UggYgga`Ybhg`UbX`d`U[]Uf]ga`/`
- GdYW]U`7`cbg]XYfU]h]cbg. [gh`XYbhi`bgk`"YXi`"Ui`#gdYW\]U`!Wc`bg\]XYfU\]h\]cb/`](#)
- ;`YbYfU`UbX`Dfc[`fUa`!gdYW]W]Wei`Ygh]cbg. [H`Y`B`i`W`Y`i`g`G`h`X`Y`b`h`<`i`V`](#)
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