

ENGG2500

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

HYfa %7 &\$&&

7ci fgY`Cj Yfj]Yk

GhJZ`7cbHJW`8YHJ]`g

7cbj Ybcfg

B Ua Y	9a Uj`	5j U]`UV]`]m	@cWJh]cb	D\cbY
GhYZJb: Y`XYf	g"Z`XYf4 i bgk "YXi "Ui	VmUddc]bha Ybh	I BGK `K UHf F YgYUfW	

7ci fgY'8YHJ]`g

I b]hg'cZ7fYX]h*`

Gi a a UfmcZ\hY'7ci fgY

H\Y'cV'YWj]Y'cZ9B; ; & \$\$\$]g'hc']b]fcXi W' Yb[]bYf]b['ghi XYbhg'hc'h\Y'df]bW]d'Yg'cZZi]X'a YWU]b]Mg"
 Hcd]Mg'X]gW'ggYX']bW] XY: 'i]X'dfcdYfh]Yg"< nXfcgU]Wg" '6i cU]bW]D'fYggi fYg']b'Zi]X'gmgh'a g" Df]bW]d'Yg
 cZa Ugg'W'cbgYf] U]cb"GHYUXmZck 'YbYf[m'Yei U]cbg": 'ck'a YUgi fYa Ybh': cfW'g'UbX'a ca Ybh'a ']b
 Zck]b['Zi]Xg" '8]a Ybg]cbU'UbU'mg]gž'g]a]Uf]m]UbX'd\mg]W]a cXY"]b["'D]dY'Zck "'bW'a dfYgg]V'Y'Ua]bUf
 UbX'hi fVi 'YbhZck]b'd]dYg/]W]cb'ZUW'c' '9Ya YbhUfmVci bXUfm'UmYf'Zck /g_]b']W]cb'UbX'XfU["'Di a dg
 UbX'hi fV]bYg" 'Di a d'UbX'd]dY']bY'gmgh'a 'WUfUW]f]gh]Wg"

7ci fgY'5]a g

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

! 'b]fcXi W'ghi XYbhg'hc'h\Y'dfU]W]W'cZk UH'fYb[]bYf]b['UbX'Zi]X'a YWU]b]Mg"

! 'b]fcXi W'ghi XYbhg'hc'h\Y'hYcfm]cZk c'ei]H'X]ZYfYbhgh'UXmZck g. W'cgYX'W'cbXi]hcf'd]dY'Zck 'f]Y"
 dfYggi f]gYX'Zck E'UbX'Vf]YZmž'hc']Y'Y'gi fZUW'Zck 'f]Y" Zck g'k \YfY'h\Y'k UH'f'gi fZUW']g'gi V'YW]hc
 U]a cgd\Yf]WdfYggi fY'c"

! ;]j'Y'ghi XYbhg'Ub'i bXYfgh]UbX]b['cZ\hY'dfcdYfh]Yg'cZZi]Xgž'a Ubca Yfhnž'\nXfcgU]Wgž'h\Y'df]bW]d'Yg'cZ
 a Ugg'UbX'YbYf[m'W'cbgYf] U]cbž'h\Y'Zc'fW'g'UbX'a ca Ybh'a ']b'Zck]b['Zi]Xgž'Zck]b'd]dYgž'Ua]bUf'UbX
 hi fVi 'YbhZck "

! '9bUV'Y'ghi XYbhg'hc'Udd'm]h\Y'Z' bXUa YbhU'df]bW]d'Yg'cZa Ugg'W'cbgYf] U]cbž'YbYf[m'W'cbgYf] U]cb'UbX
 h\Y'a ca Ybh'a 'Yei U]cb'hc'h\Y'UbU'mg]g'cZ'Zck g']b'X]ZYfYbhg]W]bUf]cg"

! '9bUV'Y'ghi XYbhg'hc'W]ffm]ci h]U'X]a Ybg]cbU'UbU'mg]g'UbX'W]ffm]ci h'h\Y'gW]]b['Zc'f'U'd\mg]W]a cXY"

! '9bUV'Y'ghi XYbhg'hc'a U_Y'Yg]h]a UH'g'cZVci bXUfm'UmYf'h]W]bYgg'UbX'j Y'cW]h]Yg'c] Yf'ZUhd'U]h'gž'UbX'hc
 Yg]h]a UH'h\Y'Zc'fW'g'cb'&8'UbX' '8'VcX]Yg']b'gi Va Yf[YX'Zck g"

! '9bUV'Y'ghi XYbhg'hc'ei Ub]h]Zmid]dY']W]cb'cggYg'UbX'hc']b]fcXi W']m]ci 'hc'gca Y'cZ\hY'UggcW]U]h'X'fYU']Z'
 dfcV'Ya g'cZd]dY'Zck 'W]W' U]cbg"

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

5Zf'gi W]ggž' m'W'a d'Y]b['h]g'W'ci fgYž'm]ci 'g\ci 'X'VY'UV'Y'hc.

@YUfb]b['Ci hW'a Y	95'GHU[Y'%7ca dYHbW]Yg
%'6Y'UV'Y'hc'YI d'U]b'UbX'Udd'm]h\Y'VUg]WdfcdYfh]Yg'cZZi]Xg'UbX \ck'h\YgY'fY'U]h'hc'Zi]X'Zck "	D9%"%žD9%"&žD9%"&"%žD9%"&
&"6Y'UV'Y'hc'YI d'U]b'h\Y'Z' bXUa YbhU'df]bW]d'Yg'cZZi]X'Zck]b d]dYg'UbX']Y'Y'gi fZUW'Zck g'j]n'W'cb]bi]mž'a ca Ybh'a 'UbX YbYf[mž'UbX'_bck'hc'k \Uhg]h] U]cbg'h\YgY'df]bW]d'Yg'W]b'VY Udd']YX"	D9%"%žD9%"&žD9%"&"%žD9%"&
' "'6Y'UV'Y'hc'UggYgg'YbYf[m'cggYg']b'd]dYg'Xi Y'hc']W]cb'UbX j Uf]ci g'd]dY'Z]h]b[g"	D9%"%žD9%"&žD9%"&"%žD9%"&
('6Y'UV'Y'hc'YI d'U]b'UbX'XYgW]VY'h\Y'W'cbX]h]cbg'Zc'f'Zck g']b d]dYg'i bXYf'k \]W'j Uf]ci g'Zck 'fY[]a Yg'k]'cW]W'f'f]k'Ua]bUf'UbX hi fVi 'YbhZck gž'f]k'hi fVi 'YbhZck g'k \]W'UfY'\nXfUi]W]m]fci [\	D9%"%žD9%"&žD9%"&"%žD9%"&

@YUfb]b[`Ci hMca Y	95 `GHJ[Y`%7ca dYhYbWYg

5ggYgga Ybh

FZWX S^YdSVWXdFZ[e UagdeWi [^ ad_S^k TWTSeW a` fZWeg_ aXfZWeUadMe Xa_ WsUZ aXfZW
 SeeWee_W fFSe]eZHY:]bU`9I Ua]g`k cfh`*\$i` cZmci f:]bU`A Uf_]ZWUgg`k cf_]g`]bWi XYX`UbX`%\$i`]Z
 ma if fWUgg`k cf_]g`]bWi XYX"

FZwuSee 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_]c b`]bY`ei]nnYg`UbX`UV`WUgg`UggYgga Ybh]g`]g`]bWi XYX`]b`hY`Z]bU`
 a Uf_]`hY`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`

@afW FZW`WUfgdWdWchWe fZWdYzf fa SV`gef fZWX` 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 bdaYdMe
 i [fZ fZW`WUfgdWdVgd` Y fZWfWd_ž

5ggYgga YbhUg_	K Y][\h	8i Y`8UH`	7ci fgY`@YUfb]b[Ci hMa Yg`5ggYggYX
%":]bU`9I Ua]bU]cb	* \$i	Bch5dd`]WUVY	%ž&ž' ž'(ž) ž*
&"@UV`WUgg`UbX`dcghUV cb`]bY`UggYgga Ybhg	&(i	K YY_g" ž) ž	%ž&ž' ž'(ž) ž+
' "'C b`]bY`E i]nnYg	%*i		%ž&ž' ž'(ž) ž*

5ggYgga Ybh% :]bU`9I Ua]bU]cb

5XX]h]cbU`XYHJ]g

&`C b`]bY`E i]nnYg`k]`VY`Wca d`YH`X`cb`h`Y`A ccX`Y`Wci fgY`dU[Y`H`Ymk]`UW`ci bhZcf, i `cZ`h`Y`Wci fgY`
a Uf`_`YUWX`UbX`k]`h`U`Y`d`UW.

E i]n`%`K`YY`_) /H\i fgXUm`%+h`A UfWX`Zca`*.`\$!, .`\$`da`Zcf`U`&`\ci fg`Xi fU]cb"

E i]n`&.`K`YY`_`%\$/H\i fgXUm`&%gh5df]`Zca`*.`\$!, .`\$`da`Zcf`U`&`\ci fg`Xi fU]cb"

C`h`Yf`UggYgga`Ybh]bZcfa`U]cb.

8U`h`cZa`Uf`_`g`fYh`fbYX.`(,` \fg`U`Z`h`f`WcgY`cZC`b`]bY`E`i`]n

DYbU`mZcf`U`h`gi`Va`]gg]cb.) i `dYf`XUm

: cf`Z`f`h`Yf`XYHJ]g`d`YUgY`gYY`h`Y`A`ccX`Y`Wci`fgY`i`bXYf`HUV`C`b`]bY`E`i`]nnYg`"

5 HbXUbW F YeI jfYa YbHg

Gh XYbHg UFY gfc b [mYbWci fU [YX'fc UHbX'U''WUggYg UbX'fYj]Yk ''YWh fY fYWcfX]b [g"

7 ci fgY'GWXYXi `Y

[J Yk WUgg'ha YhUV`Y](#)

H]a YhUV`Y`

8 UHr	HmdY	7 cbHr bh
C!K YY_`+': YVfi Ufm! %': YVfi Ufm	DfYgYbHjcb	<p>K Y'Wca Y`J]XYc`</p> <p>⊖`C!k YY_`k Yfi`dfcj]XY`mci `k]h`U`[YbYfU` k Y'Wca Y`j]XYc`UbX`k U`_h`fci [\ `cZhY` 9B; ; &) \$\$`Wci fgY`H\]g`k]`]bW`XY`[c]b[`cj Yf` hY`UggYgga Ybhgfi W`i fYZ`UVgzk cf_g\cdgz ZY`X` f]d`UbX`YI dYVWUjcbg`cZhY`Wci fgY`K`Y`k]`U`gc` k U`_mci `h`fci [\ `hY`A ccX`Y`Wci fgY`dU[Y`"</p>
K YY_`%`%(` : YVfi Ufm! %` : YVfi Ufm	@YWh fY	<p>⊖`K YY_`%`k Y`ghUfh[Yh]b[`]bhc`hY`VUg]Wg`cZk \Uh`]g`U`Zi]X`UbX`k \mz`Ug`9b[]bYfYfgz`h]g`gca Yh]b[` k Y`a`i`ghWcbg]XYf`]b`ci`f`XYg][b`"K`Yfi`hYb`ghUfhc` `cc`_`Uh`hY`Z]fghcZ(`hc d]Wg`Wcj YfYX`Vm5`#DfcZ` Gd`]bYf`]b`hY`Z]fgh\U`ZcZh]g`Wci fgY`fk YY_g`%(` lz` < mXfcghUjWg`!`k \]W`]g`hY`ZcfWg`YI YfYX`VmZi]Xg` UhYgh`"</p> <p>A cbXUm%(` : YV. : `i]X`DfcdYfh]Yg`</p> <p>Hi YgXUm%(` : YV. : < mXfcghUjWg`</p>
	K cf_g\cd	<p>K cf_g\cd`cWUjcb`UbX`h]a Y`Ug`dYf`mci f` Ybfc``a`Ybh`"</p> <p>Mci f`XYa`cbgfUhc`f`h]g`k YY_`k]`[i]XY`mci `]b` mci f`k cf_g\cd`k \]W`Wcj Yfg; `i]X`DfcdYfh]Yg`UbX` < mXfcghUjWg`"</p>
	C b`]bY`5Wj]]m	<p>Mci f`dfY!`UV`Zcf`hY`< mXfcghUjWg`UV`k]`cdYb`h]g` k YY_`cb`A`cbXUm`Zcf`mci `hc`k`cf_`h`fci [\`"</p> <p>HYghmci f`g_]`g`]b`hY; `i]X`A`YW`Ub]Wg`DfUWjW` E`i`Ygh]cbg`]b`A`ccX`Y`Zcf`k`YY_`%`"</p> <p>E`\$`%`8]a`Ybg]cbg`</p> <p>E`\$`&: `i]X`DfcdYfh]Yg`!`VUg]Wi`bXYfghUbX]b[`</p> <p>E`\$`' : `i]X`DfcdYfh]Yg`!`bi`a`Yf]W`"</p>

		<p>hY`UVg"</p> <p>D`YUgY`gYY`A ccX`Y`Zc`f`Z fhYf`XYHJ]g"</p>
	C b`]bY`5Wj]]m	<p>HYghmci f`g_]`g`]b`hY`:` i]X`A YWUbjWg`DfUW]WY` E i Ygh]cbg`]b`A ccX`Y`Zc`f`k`YY`_(`</p> <p>E`%%`A ca Ybh a `9ei U]cb</p>
	5ggYgga Ybh	<p>DfY`UV`!`@UV`&`:` `ck` `a` YHf`</p> <p>8I`9.`K`YXbYgXUm-`A`UfW``%\$Ua`</p> <p>K`Y][`\\h]b[`.`i`(`cZWci fgY`[`fUXY`</p> <p>HmdY.`A`ccX`Y`E`i`]n`</p> <p>.</p> <p>GYY`A`ccX`Y`Zc`f`Z`fhYf`XYHJ]g`</p>
h`k`YY`_`]	ZhYy`gY`W`%`XA`UfW`Z`h`a``W`ci`@`W`k`f`y` A`UfW`	<p>h`k`YY`_`)`zhY`gY`W`bX`\\U`Zc`Z`h`Y`W`ci`fgY`k`]` W`a`a`Y`b`W`k`]`h`U`W`U`b`[`Y`c`Z`Y`W`i`f`y`f`r`c`8`f`G`H`Y`Z`b` :`Y`X`Y`f`H`Y`g`Y`W`b`X`\\U`Z`k`]`b`h`c`X`i`W`g`Y`j`Y`f`U` b`Y`k`W`b`W`d`h`g`k`\\]W`U`f`Y`U`g`Y`X`i`d`c`b`h`Y`W`b`h`Y`b`h` c`Z`h`Y`Z`f`g`h`\\U`Z`c`Z`h`Y`W`ci`fgY`"`h`i`g`h`U`f`g`k`]`h`U`b`]`b`h`c`X`i`W`]`c`b`]`b`h`c`d`d`Y`Z`c`k`g`"H`Y`W`b`h`Y`b`h`c`Z`K`Y`Y`_`)`k`]`V`Y`\\][`\\`m`i`f`Y`Y`j`U`b`h`Z`c`f`m`c`i`f`d`d`Y`Z`c`k`"UV` W`U`g`g`]`b`K`Y`Y`_`+"`</p> <p>A`c`b`X`U`m`%(`h`A`U`f`W`. `D`d`Y`Z`c`k``%`</p> <p>H`i`Y`g`X`U`m`%`h`A`U`f`W`. `D`d`Y`Z`c`k``&`</p>
	K`cf`_`g`\\`cd`	<p>K`cf`_`g`\\`cd`"c`W`U`h]`c`b`U`b`X`h`j`a`Y`U`g`d`Y`f`m`c`i`f` Y`b`f`c`"a`Y`b`h`"</p> <p>M`c`i`f`X`Y`a`c`b`g`h`U`r`c`f`h`]`g`k`Y`Y`_`k`]`"i`]`X`Y`m`c`i`]`b` m`c`i`f`k`cf`_`g`\\`cd`k`\\]W`W`c`j`Y`f`g`A`c`a`Y`b`h`a``&/`D`d`Y`</p>

		HmdY. 'A ccX'Y'E i]n GYY'A ccX'Y'Zcf'Z fhYf'XYHJ]g
5ggYgga Ybh	E i]n'% H\Y'ei]n'k]''fi b'Zcf'&\fg'fH\i fgXUmiA UfWx '%+ž *.' \$!, .' \$da E'' H\Y'ei]n'k]''VY'UXa]b]ghYfYX'cb']bY'j]U'A ccX'Y'' K Y] [\h]b[.', i 'cZVci fgY' [fUXY''	
K YY_ '*.' &%A UfWx '! '&) A UfWx	F YUX]b[Bc ''YWñ fYg'UbX'k cf_g\cdg]b'K YY_ '*''2'l gY'h]g k YY_ 'hc' dfUWñW' UbX'WñHñ!i d'k]h' hY' Wci fgY WcbhY'bh'
K YY_ '+. '&, 'A UfWx '! '% 5df]	@YWñ fY	þ'k YY_ '+ž'k Y'Wcb]bi Y'k]h' d]dY'Zck 'WcbW'dhg'' H\Y''YWñ fYg'k]''j]bW' XY'a UbmYI Ua d'Yg'k \]Wx k]''\Y'd'mci 'hc'i bXYfghUbX'hY'Z bXUa YbhU' WcbW'dhg''K Y'k]''U'gc'ghUfhk]h' U'bYk 'hc]jW '8]a Ybg]cbU'5bU'mg]g''k \]Wx'k]''VY'U'i gY'Z `' WcbW'dhZcf'a UbmYb[]bY'f]b['Wci fgYg'Xi f]b[mci f'XY[fYY'' A cbXUm&, 'A UfWx. 'D]dY'Zck '' Hi YgXUm&- 'A UfWx. '8]a Ybg]cbU'5bU'mg]g'%
	K cf_g\cd	K cf_g\cd''cWñ]cb'UbX'h]a Y'Ug'dYf'mci f Ybfc''a Ybh' Mci f'XYa cbgfhUcf'h]g'k YY_'k]''[i]X'Y'mci]b mci f'k cf_g\cd'k \]Wx'Wci Yfg'D]dY'Zck / '8]a Ybg]cbU'UbU'mg]
	C b']bY'5Wñ]]m	Mci f'dfY!'UV'Zcf'hY'd]dY'Zck ''UV'k]''cdYb'h]g k YY_'cb'A cbXUmZcf'mci 'hc'k cf_'h'fci [\ HYghmci f'g_]`g]b'hY': 'i]X'A YWxUb]Wg'DfUWñW' E i Yghcbg]b'A ccX'Y'Zcf'k YY_+' E %('D]dY'Zck '!''cWñ''cggYg E %) 'D]dY'Zck '! 'Udd']Wñ]cbg E %* '8]a Ybg]cbU'UbU'mg]g!'VUg]Wg
K YY_ ; . '('5df]'! ; '5df]	@YWñ fY	þ'k YY_ ; ž'k Y'k]''Wcb]bi Y'k]h' '8]a Ybg]cbU' 5bU'mg]g'UbX']hg'i gY'j]b'Zi]X'a YWxUb]Wg' Udd']Wñ]cbg''K Y'k]''Wci Yf'hY'hc]jWcb''D\mg]WU' a cXY''b[''k \]Wx'a U_Yg'i gY'cZX]a Ybg]cbU' UbU'mg]g]z'UbX'k]''ghUfhk]h' UgdYWñ]cb'Vci bXUfm

		<p>UmYfg"</p> <p>A cbXUm('5df]. '8 ja Ybg]cbU' '5bU'mg]g' & / D\mg]WU' 'A cXY''b['%</p> <p>Hi YgXUm) '5df]. 'D\mg]WU' 'a cXY'g' & / '6ci bXUfm @UmYfg</p>
K cf_g\cd		<p>K cf_g\cd' 'cWU]cb' 'UbX'h]a Y'Ug'dYf'mci f Ybfc''a Ybh'</p> <p>Mci f'XYa cbglfUhc'f'h.]g'k YY_'k]''[i]XY'mci 'jb mci f'k cf_g\cd'k \]W' 'Wcj Yfg'8 ja Ybg]cbU' UbU'mg]g' / 'D\mg]WU' 'a cXY'g</p>
Hi h@UV		<p>@UVcfUhc'fmWUgg'cb'D]dY'Zck "'8Uh'UbX'H]a Y'Ug dYf'mci f'Ybfc''a Ybh'</p> <p>H\Y''UV'cZZYfg'Ub'cddcfhi b]mZcf'ghi XYbfg'hc Yb\UbW' 'h.Y]f'YUfb]b['j]U'\UbXg'cb'YI dYf]YbW']b h.Y''UVg''</p> <p>D'YUgY'gYY'A ccX'Y'Zcf'Z fh.Yf'XYfU]g''</p>
C b`]bY'5W]j]m		<p>HYghmci f'g_]`g']b'h.Y': 'i]X'A YWU'Ub]Wg'DfUW]WY E i Ygh]cbg]b'A ccX'Y'Zcf'k YY_',</p> <p>E %+ '8 ja Ybg]cbU' '5bU'mg]g' ! 'Udd']WU]cbg</p> <p>E % 'D\mg]WU' 'A cXY''b[</p>
5ggYgga Ybh		<p>DfY'UV'!'@UV'' 'D]dY': 'ck</p> <p>8I 9. 'K YXbYgXUm* '5df]' %\$Ua</p> <p>K Y] [\h]b[.''(i 'cZWei fgY' [fUXY</p> <p>HmdY. 'A ccX'Y'E i]n</p> <p>.</p> <p>GYY'A ccX'Y'Zcf'Z fh.Yf'XYfU]g'</p>
K YY_-' . '%%5df]' ! '% 5df]'	@YWi fY	<p>h'k YY_-' - zk Y'k]'' 'Wcb]bi Y'hc''YUfb'UVci h Vci bXUfm'UmYfg']bW' X]b['h.Y'WU'W' 'U]cb'cZ Z]W]cb'Zcf'W'g'' h'ci f'Hi YgXUm'YWi fY'zk Y'k]'' Z]b]g\ h.Y'Wei fgY'k]h' h.Y'hc'd]Wcb'XfU['Zcf'W'g'z]Y''Zcf'W'g'cb'V'i ZZVcX]Yg'YI dcgYX'hc'Zi]Xg']b a ch]cb''</p> <p>A cbXUm%%5df]. '6ci bXUfm@UmYfg</p>

		Hi YgXUm%&'5df]'. '8FU[': cfW
K cf_g\cd		K cf_g\cd`cWU]cb`UbX`hja Y`Ug`dYf`mci f Ybfc``a Ybh' Mci f`XYa cbgfhUc`f`h.]g:k YY_`k]``[i]XY`mci `]b mci f`k cf_g\cd`k \]W`Wc] Yfg`D\mg]WJ`a cXY`g`&/ 6ci bXUfm`UmYfg
C b`]bY`5W]j]m		HYghmci f`g_]`g`]b`h.Y: `i]X`A YW`Ub]Vg`DfUW]W E i Ygh]cbg`]b`A ccX`Y`Zc`f`k YY_`- E %-`6ci bXUfm@UmYfg# f]W]cb: cfWg E &\$`8FU[': cfW
5ggYgga Ybh		DcgH`UV`!`@UV" `D]dY: `ck 8I `9.`A cbXUm%%5df]ž) da " K Y][`h]b[. `(i `cZWci fgY`[fUXY HmdY.`A ccX`Y`E i]n GYY`A ccX`Y`Zc`f`Z fh`Yf`XYH]g
K YY_`%\$.`% `5df]`!`&& 5df]	@YWi fY	h`h`Y`Z]bU`YWi fY`cZH`Y`Wci fgY`fHi YgXUm`cZ K YY_`%\$Łk`Y`k]``\Uj Y`U`E / 5`gYgg]cb`]b`k \]W ? f]ghYb`UbX`GHZ]b`k]``Ubgk Yf`Ubmci Ygh]cbg`mci a Um\Uj Y" A cbXUm% `5df]`. !2`Di V`]W<c`]XUm`fbc`YWi fYŁ` Hi YgXUm%-`5df]`. F Yj]g]cb`YWi fY
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5ggYgga Ybh		E i]n`& H\Y`ei]n`k]``fi b`Zc`f`&\fg`fH\i fgXUm5df]`&%ž *.`\$!,.`\$da Ł` H\Y`ei]n`k]``VY`UXa]b]ghYfYX`cb`]bYj]U`A ccX`Y`" K Y][`h]b[. `(i `cZWci fgY`[fUXY"
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H`Y`K`UHf`F`YgYUfVX`@UVcfUhcfm]g`&&_a`VmifcUX`Z`ca`h`Y`?`Ybg]b[`h`c`b`W]a`di`g`6i`gYg`k`]`VY`d`f`c`j`]XYX`h`c`hU`Y`mci`h`c`K`F`@`UbX`fYh`fb`h`c`?`Ybg]b[`h`c`b`M`ci`W]b`a`U`Y`mci`f`c`k`b`k`Umihc`UbX`Z`ca`K`F`@`f`%`\$`?`]b[`G`h`Y`Y`h`Z`A`Ub`mJ`U`Y`L`Z`mci`W`X`c`c`g`Y`K`Y`k`]`a`U`Y`g`i`f`Y`h`U`h`h`Y`Z]Y`X`h`f]d`]g`7`C`J`-`g`U`Z`Y`"
K`Y`k`]`d`f`c`j`]XY`g`Y`d`U`f`U`h`b`c`h]W`c`b`A`c`c`X`Y`]b`W`h`X]b[`d`c`g`h`c`]XY`b`h]Z`mci`f`]b`h`Y`f`Y`g`h`UbX`h`c`g`W`X`Y`X`i`Y`h`Y`Vi`g`U`c`W`h]cb`UbX`g]h`j`]gh`U`W`W`f`X]b[`n`f`

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H`c`U`W`W`e`i`b`h`Z`c`f`7`C`J`-`f`Y`U`g`c`b`g`z`k`Y`k`]` \Uj`Y`Z]W`!`h`c`!`Z]W`U`V`W`U`g`g`Y`g`U`g`k`Y`U`g`U`b`c`b`]b`Y`f`Y`W`e`f`X]b[`c`Z`h`Y`U`V`W`U`g`g`Y`g`K`Y`g`h`f`c`b[`]m`Y`b`W`e`i`f`U`Y`mci`h`c`d`U`f`h]V]d`U`h`Y`]b`h`Y`Z]W`!`h`c`!`Z]W`a`c`X`Y`g]b`W`h`h`]g`k`]`U`c`k`mci`h`c`X]f`Y`W`h`m]b`h`Y`f`U`W`h`k`]h`h`Y`U`V`X`Y`a`c`b`g`h`f`U`h`c`f`U`b`X`U`g`_`U`b`m`e`i`Y`g`h]c`b`g`mci`a`U`m`U`j`Y`H`Y`U`V`W`U`g`g`]g`i`b`c`h`X`Y`g]b`Y`X`h`c`g]a`d`m`W`e`Y`W`h`X`U`h`U`f`Y`j`Y`f`m`g`h`i`X`Y`b`h`k`]`f`Y`W`h]j`Y`U`b`]b`X`j`]X`i`U`X`U`h`U`g`Y`h`Z`c`f`h`Y`d`c`g`h`U`V`

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YI Ua g`VYrk YYb`&`fX`!`&+h`A Um]bWi gj Y`Mci`UfY`fYei]fYX`hc`VY`Uj U]UV`Y`cb`h`YgY`XUf`g`D`YUgY`Xc

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D9' "*" '9ZYW]j Y'hYUa 'a Ya VYfg\]d'UbX'hYUa ``YUXYfg\]d	