; FI '5i h\cf]hm'HU_Yg'@Y[U`'5Wh]cb'5a]X 7cbhfcj Yfg]U`'FYZYfYbXi a '6Uhh`Y



; U]bYgj]`Yž: `cf]XUž'I G5 !!FYWYbhXYj Y`cda Ybhgʻgi ffci bX]b[h\Y`ZUhY`cZ; U]bYgj]`Y`FY[]cbU``I h]`]h]Ygʻfl FI Ł'\Uj Y`YgWU`UhYX hYbg]cbgʻk]h\]b`h\Y``cWU``[cj Yfba Ybhž'UgʻbYk ``Y[U``UbX`Y`YWhcfU` a UbYi j Yfgʻi bZc`X"·5a]Xghʻh\]gʻdc`]h]WU``XfUa Už; FI `\UgʻZ]`YX`U `Uk gi]h'U]a YX`Uh`\Uʻh]b['UʻdfcdcgYX`W]hmlk]XY`fYZYfYbXi a `h\Uh gYY_gʻhc`UʻhYfʻh\Y`Wcbhfc``cZ'h\Y`i h]`]hm"'H\Y'; FI '5i h\cf]hmg a cj Y`Zc``ck gʻU`WcbhYbh]ci gʻa YYh]b['k\YfY`h\Y`Ui h\cf]hmg UhhcfbYmk Ugʻ[]j Ybʻh\Y`[fYYb``][\h'hc`]b]h]UhY``Y[U``UWh]cb`U[U]bgh h\Y`Ubh]W]dUhYX`7]hm`7ca a]gg]cb`j chYž'k \]W\]gʻYI dYWhYX`hc`ZUj cf h\Y`fYZYfYbXi a "'H\]gʻfYZYfYbXi a `]gʻgYhʻhc`Ug_'j chYfgʻ]Zʻh\Ymk]g\hc`Y`]a]bUhY`h\Y'; FI '5i h\cf]hm`Ybh]fY`m"'5WWcfX]b['hc`A U]b GhfYYh`8U]`m`BYk gž'h\]gʻ]gʻbch`h\Y`Z]fghʻh]a Y`gi W\`Uʻei Ygh]cb\UgʻVYYb`di h`hc`h\Y'di V`]W`Uʻg]a]`Ufʻdfcdcg]h]cb`k Ugʻ]b]h]U``m`cb

h\Y'VU``ch']b'Bcj Ya VYf'&\$&(ž'k\YfY'U'ghU[[Yf]b['+' | 'cZ'j chYfg gi ddcfhYX']h"'<ck Yj Yfž'Wca d`]WUh]cbg'UfcgY'Xi Y'hc'U'fi `]b['Zfca Ub'5`UW\i U'7ci bhm'\i X[Y'h\Uh'XYYa YX'h\Y'VU``ch``Ub[i U[Y a]g`YUX]b["'

: i fh\ Yf'@Y[U`'UbX'Dc`]h]\\U`'A UbYi j Yf]b[

 $HY'ghU_Yg'Wci`Xb h'VY'\][Yf'Ug'h\Y'7]hm'7ca a]gg]cb'\Ug$ U`fYUXm'dUggYX'U'dfY`]a]bUfm'cfX]bUbWY'U]a YX'Uh'di hh]b['U fYj]gYX fYZYfYbXi a 'cb'h\Y'VU``ch"'H\]g'cfX]bUbWY]g'YI dYWhYX hc Wca Y'VYZcfY'h\Ya 'Zcf'U'j chY'cb'H\i fgXUmž'k]h\'h\Y'gdYW]U` Y`YWh]cb`bYUf`m`cb`h\Y`\cf]ncb"`H\Y`d`UbbYX`gdYWjU``Y`YWh]cbž k \]WX 'Wci `X 'Wcgh'hUI dUmYfg'i dk UfXg'cZ' &\$\$ž\$\$\$z'dcgYg'h\ Y ei Ygh]cb cZ Wcbhfc`. g\ci `X]h fYa U]b k]h\ h\Y 7]hm 7 ca a]gg]cbž cf'g\]Zh'hc'U'VcUfX'Uddc]bhYX'Vm'; cj Yfbcf'Fcb'8YGUbh]g3'\do'U `YhhYf'UXXfYggYX'hc'h\Y'7]hm'7ca a]gg]cbž; Fl'UhhcfbYm'8YfY_ DYffmifYei YghYXih\YiUVUbXcba YbhicZh\YicfX]bUbWYžighUh]b[ih\Uh $dfcWYX]b[k]h\ h\ g'dfcWgg'k\]Y'Wcifh'WU`Yb[Yg'UfY]$ i bXYfk Um']g']a dfUWh]WU`UbX'U'k UghY'cZ'di V`]WZi bXg"'H\]g $dYfgdYWh]|Y'U`][bg'k]h\ h\ Y'fi`]b['Zfca' <math>\Rightarrow X[Y'; Ycf[Y'A'''K f]] \ hž$ k\c'dfYj]cig`m']bjU`]XUhYX'U'fYZYfYbXia'ZcW'gYX'cb'fYhifb]b[Wcbhfc`cZ; FI hch\Y'Wjhm'VYWUi gY'cZa]g`YUX]b['`Ub[i U[Yž dUfh]W `Uf`m`fY [UfX]b [`W]hm`Wcaa]gg]cb `W\UfhYf`cZZ]WYfg"`

 $\label{thm:composition} $$H\Y'cb[c]b['WUg\']``i ghfUhYg'h\Y'Wca d`YI]hm'cZ'[cj YfbUbWY'UbX`cWU``Ui h\cf]hm']b'; U]bYgj]``Y''K \]`Y'; FI 'a U]bhU]bg'h\Uh'Ubm $$WLUb[Yg'hc']hg'ghfi Whi fY'dUggYX'Vm'h\Y'7]hm'7ca a]gg]cb'`UW_'h\Y`Y[U`]hm'hc'fYj YfgY'ghUhY'`Y[]g`Uh]j Y'UWh]cbgž'; U]bYgj]``Y'FYg]XYbhg$

I b]hY Xž + W'hU_Yg'U'X]ZZY fY b h'ghUb WY "'H\Ym'UXj cWUhY'Zcf'`cWU` Wcbhfc`cj Yf'di V`]Wi h]`]h]Yg'Ub X'gi ddcfh'h\Y'7]hm'7 ca a]gg]cb g Yb XY Uj cf'hc'k cf_'WcgY`m'k]h\'fYg]XY b hg'cb'U'di V`]Wm'a Ub U[YXi h]`]hm"'DfcdcgY X'[cj Yfb Ub WY'ghfi Whi fYg'gi [[Ygh'h\Uh'U'Vc Uf X Wca df]g]b['W]hm'Ub X'Wci b hm'fYg]XY b hg'g\ci `X'a U_Y'a cgh cd YfUh]cb U`XY W]g]cbgžY I Wi X]b['Vi X[Yh'Ub X'fUhY!gYhh]b[Ugd Y Whg"

$H \setminus Y'$: i hi fY'cZ'; FI

5g']h'ghUbXgž'h\Y'Wca]b['k YY_g'UfY'Vci bX'hc'VY'd]j chU`'Zcf'Vch\h\Y'; FI 'UbX'h\Y'7]hm'7ca a]gg]cb"'Cb`m'h]a Y'k]``'hY```\ck 'h\]g XfUa U'i bZc`Xgž'Vi h'k]h\'U'XYYd`m'X]j]XYX'cd]b]cb'Ua cb[fYg]XYbhg'UbX'Ui h\cf]h]Yg'U`]_Yž'cbY'h\]b[']g'WYUf.'h\Y'Zi hi fY'cZ; U]bYgj]``Y g'i h]`]h]Yg']g']b'h\Y'\UbXg'cZ']hg'W]h]nYbg"': cf'Zi fh\Yf i dXUhYg'UbX']bg][\hg'cb'h\]g'i bZc`X]b['gU[Už']bhYfYghYX'fYUXYfg WUb'j]g]h'; U]bYgj]``Y'=[i UbU'UbX'H\Y'=bXYdYbXYbh': `cf]XU 5``][Uhcf'Zcf'a cfY'Wca dfY\Ybg]j Y'Wcj YfU[Y"

8 Y hU]`g	
Cfh	; U]bYgj]``Yž': `cf]XUž'I G5
EiY``Yb	k k k "a U]bghfYYhXU]`mbYk g"Wca
	• k k k "U``][Uhcf"cf[

8 Y hU]`g	
	[U]bYgj]``Y][i UbU"cf[

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'a Y]b!k]Yb "bYh