

5W_bck `YX[Ya YbhcZ7ci bhfm

I BGK '5frgž8Yg][b'UbX'5fW,]hYWi fY'? Ybg]b[hcb'UbX'DUXX]b[hcb'Wa di gYg'UfY'Vi]'hcb'5Vcf][]bU`@UbXg"'K Y'dUmci f'fYgdYWg'hc'h,Y'6]X'][U''UbX'; UX][U''dYcd'Yg'k \c'UfY'h,Y'7 i ghcX]Ubg'cZh,YgY'`UbXg" K Y'UW_bck `YX[Y'h,Y'5Vcf][]bU`'UbX'HcffYg'GhfU]h=g`UbXYf'dYcd'Ygž'h,Y':]fghi5i ghfU`]Ubgžk \cgY'`UbXgž k]bXg'UbX'k UhYfg'k Y'U``'bck 'g\UfYž'UbX'dUmfYgdYWhc'h,Y]f'i b]ei Y'j U'i Ygž'UbX'h,Y]f'Wbh]bi]b['UbX YbXi f]b['W' h fYg'k \]W. XYYYdYb'UbX'Ybf]W. h,Y'`]ZY'cZci f'bUh]cb'UbX'Wca a i b]h]Yg"''

 $\label{eq:continuous} \begin{array}{ll} \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'``cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'```cf' = bX][Ybci g'] \\ \text{$:$} = \text{$U[Y'Wc$ if} \text{$fhYgmcZh}, Y'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'C$ $Z_jWY'cZh}, Y'Dfc'J]WY!7 \setminus UbWY'C$ $Z_jWY'cZh}, Y'Dfc'J]WY'C$ $Z_jWY'CAL}, Y$

7ci fgY 8YHJ] g

I b]hg~cZ7fYX]h~*

Gi a a UfmcZh\Y 7ci fgY

H\]gʻgi VYWik]``Yl dʻcfYʻh\Y`W`h fU``X]a Ybg]cbgʻcZYa chjcbʻ]b`Yj YfmXUm`]Z\"'=k]``ZcW gʻcb`\ck 'Ya chjcbg UfY`Yl dYf]YbWXZʻfYdfYgYbhYX`UbXʻi bXYfghccX`]b`]bX]j]Xi U``UbXʻgcWJU``WcbhYl hg"'8 fUk]b[`cb`X]ZZYfYbh a YX]U`UbX`W`h fU``g]hYgžih\]g`Wci fgY`k]``Yl Ua]bY`UʻfUb[Y`cZYa chjcbU``ghUhYgʻgi W.`UgʻfVi hbch`]a]hYX`hck `cj Yž`\Udd]bYggž`ZYUfž`\UhYž'hYffcf`UbX`]XYUgʻcZ\cdYž'hi ghž`VY`]YZUbX`ZU]h\`]b`h\Y`ffYła U_]b[`cZ]bX]j]Xi U`UbX`gcWJU``]ZY"'H\Y`Wci fgY`k]```U`gc`Wcbg]XYf`\ck 'Ya chjcbg`UfY`XYd`cmYX`]b`W ffYbhgcWJU``UbX`dc`]hJWU`XYVUhYg"

7 ci fgY @YUfb]b[Ci hWca Yg

- %" ``F YUX`WUgg`hYI hg`UbX`WcbhYa dcfUfmih\Ycf]Yg`UbX`Udd`mih\Ya `]b`h\Y`UbU`mgYg`cZYa ch]cbg`UbX Yj YfmXUm`]ZY"
- &" 5dd`mh\Y]f`Wf]h\WU``g]``g`hc`fYgYUfW\`UbX`k f]h|b['cb'h\Ya Yg`fY`UhYX`hc'h\Y`Wti fgY"
- ' "Kcf_'Wc``UVcfUhj Y`mk]h\rch\Yf'gh XYbhq']b'ZJWj`]hUhjcbg'UbX'kf]hjb['dfcYWhg"
- (" ≠bj Ygh][UhY h\Y W `hi fU``UbX`gcW]c`c[]WU``]ggi Ygʻgi ffci bX]b[`Ya ch]cbgʻUbX`h\Y]fʻgcW]U``UbX`dc`]h]WU` XYd`cma Ybh
-) " 9qHJV`]q\ 'h\ Y`WfYUh|j Y`WJdUW|mmZcf`]bXYdYbXYbhfYqYUfWX`UbX`Wc``UVcfUh|cb"`

HYUWX]b['GhfUhY[]Yq'

5FHG'&, +(']g'VUgYX'cb'h\Y'Zc'`ck]b['dYXU[c[]Wdf]bWd'Yg.

Œ```UWħj Y`Yb[U[Ya Ybhk]h\`W\U``Yb[]b[`WcbWfdhgžXfUk]b[`cb'h\Y`X]j Yfg]hmcZ````gh XYbhg'ck b Yl dYf]YbWfgž

Œ····Yb[U[Ya Ybhk]h\·WUgg]WhYl hg·k]h\ci hh\Y'i gY'cZgYWcbXUfmigci fWYgž

Œ···X]U`c[iY]b·UbX'ci hcZWUggžk]h\qh XYbhg'UbX'k]h\h\h\uWXYfgždfcXiWb['U'Wcaaib]hmcZ`YUfbYfgž

Œ····WccdYfUhj Y··YUfb]b[k]h dYYfgžk]h ci hWca dYhjhjcbž

Œ ' ghi XYbhfYgdcbg]V]`]hmhc h\Y 'YUfb]b[Wca a i b]hmž

. . .

Œ```U`gUZY``YUfb]b['Ybj]fcba Ybhh\Uh'U``ck g`WcbghUbhUbX`\cbYghZYYXVUW 'Zfca 'U`fUb[Y`cZgci fW/g"

5ggYgga Ybh

 $5\,ggYgga\ YbhXYhJ]^*g^*k\]^*``VY^*dfcj\]XYX^*]b^*WUgg^*UbX^*k\]^*``VY^*Uj\ U]^*UV^*Y^*cb^*A\ ccX^*Y$

5ggYgga YbhhUg_	K Y][\h	8iY'8UHY	7 ci fgY @YUfb]b[Ci hWca Yg 5ggYggYX

 $\label{thm:condition} D`YUgY`B\,chY. `H\Y`k\,cf_Vcc_`k\,YY_`mYb\,lf]Yg`k\,]```fi\,\,b``UWfcgg`h\Y`hYfa\,\, Z\,\, `k\,Y`k\,]```X]gW|\,gg`]b`h\Y`Z]fgh\,\,WUgg"$

5 hmy b X Ub WY F Yei] f Ya Yb hg

 $\hbox{Ghi XYbhg'UfY'ghfcb[`mYbWc'i fU[YX'hc'UhhYbX'U```WUggYg'UbX'fYj]Yk'``YWhi fY'fYWcfX]b[g''] } \\$

FYgci fW/g

DfYgWf]VYX F Ygci fWYg

 $K YY_mfYUX]b[fYgci fWfg'k] ```VY'Uj U]`UV'Y'h fci [\h Y'A ccX`Y'Wci fgY'g]hY''$

FYWca a YbXYX FYgci fWyg

.

7ci fgY 9j U`i Uh]cb UbX 8Yj Y`cda Ybh

Mci f'Yj U'i Uhjj Y'ZYYXVUW_']g'[Uh\YfYX'dYf]cX]WU'`mi g]b[ž'Ua cb['ch\Yf'a YUbgžI BGK fig'Wci fgY'UbX HYUW\]b['9j U'i Uhjcb'UbX'=a dfcj Ya Ybhfl\ M'9I dYf]YbWYŁ'dfcWYgg"'=bZcfa U``ZYYXVUW_'UbX'WUgg [YbYfUhYX'ZYYXVUW_'Urgc']a dcfhUbhz'UbX'h\YgY'ZYYXVUW_'a YW\Ub]ga g'UfY'\Y`dZ\ ``hc'a mWcbhjbi U`XYj Y`cda YbhcZh\]g'Wci fgY"'Mci f'ZYYXVUW_']g'j Yfm]a dcfhUbhhc'a Y'UbX'=i gY'mci f'ZYYXVUW_'hc Wcbhjbi U``mi dXUhY'h\]g'Wci fgY"'=h\Ub_'mci 'Zcf'mci f'ha Y"

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

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=iWUbihU_Yia Ubm Zcfa gžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hiUW_bck iYX[Ya Ybh'i

5 WUXYa]W±bZcfaUh]cb

8 i Y 'hc 'Yj c'j]b['UXj]WY 'VmB GK '< YU'th\žighi XYbhg'a i gh'W\YW_'Zcf'i dXUh'YX']bZcfa Uhjcb 'fY[UfX]b['cb`]bY 'YUfb]b['Zcf'U``'5fhgž'8 Yg][b 'UbX'5fW\]hYWi fY 'Wci fgYg'th\]g'thYfa 'fJ]U'A ccX`Y'cf'Wci fgY']bZcfa Uhjcb dfcj]XYX"Ł

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