<UfrbY```7c``Y[YH\i fgXUnž': YVfi Ufm'&' fXž' &\$&'

(%% 7 Y b hf U ` 5 j Y ' . \$\$ `D'A "

GU`]bUgž'75'-'-\$*

Fa '7%\$%

cfij]U'ncca 'Uh '\hhdg.##\\\b\Z\f"ncca "i g##-%) % \$' - %* % gi \\\\g

 $\text{$[: cghYf]$b[$'h\Y'DUbh\Yfg'cZ'hcXUn$\check{z}'hc'VYW$\'ea Y'h\Y'gW\c`Ufg'cZ'hca cffck "$] }$

 $\label{eq:hamiltonian} $$h\ Uh'5G<7'k]^```\c`X'U'a YYh]b[\ cb'h\Y'UVcj Y'ghUhYX'XUhY'UbX h]a Y'''=Z'mci '`\Uj Y'Ubm'ei Ygh]cbg'd`YUgY'WtbhUWtGYWfYhUfm'8Uj]X'CfhUž'cf'UXj]gcf'5i [i gh]bY BYj UfYn$

d`YUgY`WtbHJWhih\Y`CZZJW'cZGhiXYbhi@ZY`VmAcbXUmVYZcfY`h\YidWta]b[`aYYh]b[`gc`h\Uhik Y`a UmiUWta acXUhY`mci"

7U``'hc'CfXYf.

Fc```7U``

H\]g'h]a Y`]g'fYgYfj YX`Zcf'a Ya VYfg'cZh\Y'di V`]Whc'UXXfYgg'h\Y'5ggcV]UhYX`Ghi XYbhg'cZ <UffbY```7c``Y[Y"'5```di V`]Wwta a Ybhg'UfY``]a]hYX'hc'h\fYY'fl Ł'a]bi hYg''Bc'UWf]cb'k]```VY HU_Yb'cb'h\YgY`]hYa g'i b`Ygg']h`]g'gWYXi `YX"'D`YUgY'bchY'cbW'di V`]VWta a Ybhg'UfY WcgYXž'a Ya VYfg'Zfca 'h\Y'di V`]Wk]```cb`mVY'fYWt[b]nYX`Uh'h\Y'7\U]ft@'X]gWfYh]cb": i fh\Yfa cfYz'h\Y'a Ya VYfg'cZ'h\Y'5G<7'Wbbch'fYgdcbX'hc'Ubmdi V`]Wwta a Ybhg"