

MDIA3007

 $A YX]U \rightarrow hYfbg \]d$

HYfa 'Hk c''##'&\$%-

7ci fgY'Cj Yfj]Yk

Ghuzz 7 cbhuWh8 Yhu]`g

'7cbj Ybcfg'

BUa Y	9a U]`	5j U]`UV]`]m	@cWJhjcb	D\cbY
9a a Uʻ>UbY	Yaa U"^UbY4 i bgk "YXi "Ui	-	‰) ž@YjY``%ž FcVYfh KYVghYf	

GWkcc~7cbhJWh~abZcfa Uh]cb

Fcca " &ž`Yj Y`" FcVYfhK YVghYf`6i]`X]b[

D\cbY.'f\$&E'-',)'(,)*

9a U]` gUa 4 i bgk "YXi "Ui

K YVg]hY. \hdg.#gUa "Ufhg"i bgk "YXi "Ui

 $\label{eq:hamiltonian} $$HY'GWCC``cZhY'5ftg'UbX'AYX]U'kci`X``]_Y'tc'FYgdYWM\cong \cong m5W_bck`YX[Y'h\Y'HfUX]tjcbU``7igtcX]Ubg\cong h\Y'6YXY[U'`fPYbg]b[hcb'WJadig\cong ix', UX][U'`fP]hmUbX'5fth/'8Yg][b'7UadigYg\cong iybX't\Y'B[ibbUkU`dYcd'Y'fbigffU`]Ub'8YZYbW': cf\w'5\\\XYami]b'7Ub\YffU\cozh\Y'`UbXg'k\YfY'YUW\w'Uadig'cZlBGK']g`c\\Ully\X''$

7 ci fgY 8 YHJ]`g 7 fYX]hDc]bhg ** Gi a a UfmcZh\Y 7 ci fgY

Gi VYWh5fYU.



 $\label{thm:composition} $$Z_f''h Y \circ gh' bXi gh' m'z'' ei Ygh' cbg'cZYh \]Wg'k \]W''a Um'Uf \]gY'']b''fY'Uh' cb''hc''h \]g''k cf_z'''ei Ygh' cbg'cZ']bXi gh' gh' bXUf Xgz'']bXi gh' m'dfc W''gg Yg' cf'a YX]U'Zcfa g'''5 WUXYa]WfYZYfYbW''g \ci `X'VY'a UXYz'i g]b[''h Y' < Ufj UfX \]$

FYgci fWfg

DfYgWf]VYX F Ygci fWYg

 $H\YfY`UfY`bc`dfYgWf]VYX`fYgci~fgYg`Zcf`fh\]g`Wci~fgY"$

FYWca a YbXYX FYgci fWYg

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

 $K Y fYgdcbX hc ZYXVUW_fYWY] YX j]U X]fYWhYa U] hc h Y 7 ci fgY 7 cbj Ybcf UbX h Y K @1 b]hz UbX bZcfa UhJcb dfcj]XYX]b h Y gh XYbh UbX \cgh ZYXVUW_Zcfa g"$

KY\cdYmciYb&mmcif]bhYfbg\]d°

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Hi fb]h]b Gi Va]gg]cb

⊋mci 'YbWci bhYf'U'dfcV'Ya 'k \Yb'UthYa dh]b['hc'gi Va]hmci f'Ugg][ba Ybhth\fci [\'Hi fb]h]bž'd`YUgY hY`Yd\cbY'9| hYfbU`'Gi ddcfhcb'-',)'''' %cf'Ya U]`th\Ya 'cb'Yl hYfbU`hY`hgi ddcfh4 i bgk "YXi "Ui '''Gi ddcfh \ci fg'UfY', .\$\$Ua '-'%.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUfŁ'''⊋mci

5 WUXYa]W±bZcfa Uhjcb

: cf`YggYbhJU``gh XYbh]bZcfa UhJcb`fY`UhJb['hc.

- fYei YghgʻZcfʻYl hYbg]cb/`UhYʻgi Va]gg]cbgʻ[i]XY`]bYg/
- fYj]Yk 'cZa Uf_g/
- I BGK < YU`h\ UbX GUZYmdc`]W[Yg/
- YI Ua]bUh]cb dfcWXi fYg/