7ci fgY^{*}Cj Yfj]Yk

`GhUZZ`7cbhUWh`8YhU]`g`

'7cbj Ybcfg'

| B Ua Y | 9a U]` | 5j U]`UV]`]lm | @cWUh]cb | D\cbY |
|--------------------|----------------------------|------------------|-----------|----------|
| 7`Ui X]U'HUnfY]hYf | WhUnfY]hYf4 i bgk "YXi "Ui | H\i fgXUmg`‱!%da | A 6 '%* & | -',)'*-% |

GWXcc`7cbHJWhi±bZcfa Uhjcb

GWkcc``cZGcWJU``GWJYbWYg

Fcca '%) -

A cfj Yb 6fck b 7 &\$

Ya U]`. 'gcgg4 i bgk "YXi "Ui

d\cbY. '\$&'-',) '% \$+

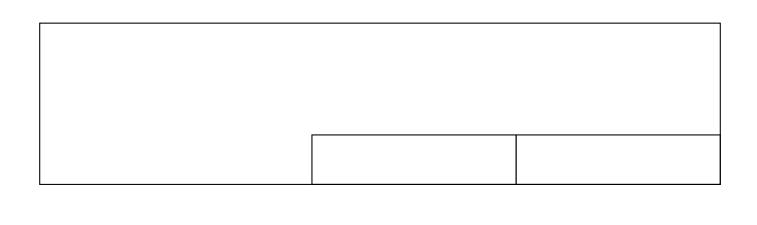
7ci fgY⁻8YHJ]`g

7fYX]hDc]bhg**

Gi a a UfmcZh\Y 7ci fgY

 $8 \ c'mci'k \ Ubh'hc'ib \ bXYfghUbX'W'hifU'YldYf]YbWY3'H\]g']bhYfX]gW]d']bU\%aigc\% UhYk \ UmY\&ifgYbW''[UhYk \ UmY\&ifgYbW'']bhYfX]gW]d']bU\%aigc\% UhYk \ UmY\&ifgYbW'' [UhYk \ UmY\&ifgYbW'']bhYfX]gW]d'' [UhYk \ UmY\&ifgYbW'' [UhYk \ UmY\&ifgYbW'']bhYfX]gW]d''' [UhYk \ UmY\&ifgYbW'' [UhYk \ UmYw'' [UhYk \ UmYw$

 $\label{thm:ci} H\fici [\ci hufub[YcZUggYgga YbhhUg_g'UbX'X]gW gg]cbg'hcd]Wg'mci k]``VY'WU``YX'i dcb'hc'fYZYWhcb k \Uhmci 'UfY'`YUfb]b[ž`\ck 'h\]g'fY`UhYg'hc'k \Uhmci 'U`fYUXm_bck 'UbX'k \Uhei Ygh]cbg']h]g'fU]g]b[']b'mci f ei YghZcf'_bck `YX[Y''$



5 hm/b XUb WY F Yei]fYa Ybhg

7ci fgY'GWXYXi `Y

J]Yk 'WUgg'hja YHUV'Y

H]a YtUV`Y

| 8UhY | Hmd Y | 7 cbhYbh |
|---|---------|--|
| K YY_'%''%''GYdhYa VYf'! &\$'GYdhYa VYf | @YWn fY | ±blfcXiWMjcb^hc^_Ym]XYUg^UbX^UddfcUWX^cZh\Y WéifgY |
| K YY_'&.'&' 'GYdhYa VYf'! &+'GYdhYa VYf | @YWn fY | A Ya VYfg\]d'UbX'VY`cb[]b[|
| K YY_" ." \$"GYdHYa VYf"! ("C WcVYf | @YWn fY | < YU`th\žZccX`UbX`th\Y`VcXm |
| K YY_'(.'+'CWcVYf'!'\\ CWcVYf | @YWn fY | GcWJU``fYgYUfW\ |
| K YY_^).^%(^CWcVYf^!^% CWcVYf | @YWn fY | fill\Y`[]ZfiUg`U`W`hifU``WcbWfdh |
| K YY*.*&%CWcVYf'!*&) CWcVYf | @YWn fY | H\Y`fbUhjj Yfi |
| K YY_'+.'&, 'C WcVYf'!'% Bcj Ya VYf | @YWn fY | 7 `Ugg`UbX`dck Yf |
| K YY_', . '('Bcj Ya VYf'!', Bcj Ya VYf | @YWn fY | 91 dYf]YbWYg`cZj]c`YbWY |
| K YY_''‰BcjYa VYf'! %) BcjYa VYf | @YWn fY | 8c[gʻUgʻgcWjU`ʻfYgYUfW\ |
| K YY_'%\$.'% 'Bcj Ya VYf'! &&'Bcj Ya VYf | @YWi fY | <ia 'vcfxyfg<="" cv]`]miubx'byk="" td="" ub'a=""></ia> |

FYgci fWfg

DfYgWf]VYX F Ygci fWYg

5 'Wci fgY 'fYUXYf']g'Uj U]'UV`Y 'Zcf'di fW\UgY 'Uhh\Y'I BGK 'Vcc_ghcfY"'D`YUgY 'Vf]b['h\]g'fYUXYf'k]h\ 'mci Yj Yfmk YY_'hc'WUgg"

FYWca a YbXYX FYgci fWYg

7ci fgY 9j U'i Uhjcb UbX 8Yj Y'cda Ybh

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

_Zmci YbWci bhYf'U'dfcV`Ya 'k \Yb'UhYa dhJb['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]hJbž'd`YUgY
hY`Yd\cbY'9| hYfbU``Gi ddcfhcb'-',) '' ' ' %cf'Ya U]`'h\Ya 'cb'Y! 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'mYUft'' \(\frac{1}{2}\)mci
UfY'i bUV`Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZUi 'hk]h\'Hi fb]hJb'mci 'a Um'Udd'mZcf'Ub'Y! hYbg]cbžVi hmci
a i ghfYhU]b'mci f'hJW_Yhbi a VYf'Zfca '9! hYfbU`'Gi ddcfhfU'cb['k]h\'Ubmch\Yf'fY'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmci f'Y! hYbg]cb'Udd']\(\frac{1}{2}\)mci 'Ya U]`'9! hYfbU`'Gi ddcfhmci 'k]``

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 qžZfca iXYi]VYfUhYiW\YUh|b[ihciUVW]XYbhU`mWcdm]b[iZfca iUigci fWik]h\ci hiUW_bck iYX[Ya Ybh'i

IBGK '[fci dg'd'U[]Uf]ga ']bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

7 cdm]b[.'i g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`hYl h'cf']XYU'k]h\ci h'UW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g'U`gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfcYWhgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k \YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

⇒ Uddfcdf]UhY 'dUfUd\fUg]b[...7\Ub[]b['U'ZYk 'k cfXg'UbX'd\fUgYg'k \]'Y 'a cghmfYhJ]b]b['h\Y'cf][]bU` ghfi Wh fY 'UbX#cf'dfc[fYgg]cb'cZ]XYUg'cZh\Y'cf][]bU'žUbX']bZcfa Uh]cb'k]h\ci hUW_bck `YX[Ya Ybh'H\]g'U`gc Udd`]Yg']b'dfYgYbhUh]cbg'k \YfY'gca YcbY'dUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci hWfYX]hUbX'hc d]YW]b['hc[Yh\Yf'ei chYg'UbX'dUfUd\fUgYg']bhc'U'bYk 'k \c`Yžk]h\ci hUddfcdf]UhY'fYZYfYbW]b["

7 c``i g]cb. 'k cf_]b['k]th 'cth Yfg'Vi hidUgg]b['cZZth Y 'k cf_'Ug'U'dYfgcb'g']bX]j]Xi U``k cf_"'7 c``i g]cb'U`gc]bWi XYg'dfcj]X]b['mci f'k cf_'thc'Ubcth Yf'ghi XYbh'VYZcfY'th Y'Xi Y'XUHYZcf'Zcf'th Y'di fdcgY'cZth Ya

- i bXYfgfUbX mci f'f][\hg'UbX'fYgdcbg]V]`]hJYg'Ug'U'gh XYbhUhl BGK
- VY`Uk UfY`cZd`U[]Uf]ga ž`Wcdmf][\hz'l BGK `Gh XYbh7cXY`cZ7cbXi WhUbX`5VWWdhUV`Y`l gY`cZ I BGK `=\forall H`F Ygci f\W\g`Dc`]\m\m
- VY 'Uk UfY 'cZh\Y 'ghUbXUfXg 'cZVY\Uj]ci f'Yl dYWYX 'cZYj YfmcbY ']b 'h\Y 'l BGK 'Wca a i b]hm
- `cWUHY 'gYfj]WYg'UbX `]bZcfa UH]cb'UVci hI BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh\YgY'UfYUg'k]``VY'ZJa]`]Uf'hc'mci ž'ch\Yfg'k]``VY'bYk"'; U]b]b['U'gc`]X'i bXYfgHJbX]b['cZU``h\YfY`UhYX'UgdYWng'cZ9@+69'k]``\Y`d'mci 'a U_Y'h\Y'a cghicZmci f'ghi X]Yg'UhI BGK "'\\hd.##qi VYWfi |XYg"`]VfUfm'i bqk "YXi "Ui #\`]qY#JVci hY`]qY

5WUXYa]W = DZcfa Uh]cb

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

- fYei Yghg Zcf Yl hYbg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk 'cZa Uf_g/
- I BGK '<YU`h\ 'UbX'GUZYhm'dc`]W[Yg/
- YI Ua]bUh]cb dfcW/Xi fYg/
- gdYWJU``Wcbg]XYfUhJcb`]b`h\Y`Yj YbhcZ]``bYgg'cf'a]gUXj Ybhi fY/
- gh XYbhYei]hmUbX X]gUV]`]hm/
- ÜbX'ch\Yf'YggYbhJU`'UWUXYa]W]bZcfa UhJcbž'gYY

\hdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbhghi XYbhg#UWUXYa]W]bZcfa Uhlcb#dfchcWc`g![i]XY`]bYg#

.