

## 7ci fgY<sup>.</sup>8YHJ]`g

## 5ggYgga Ybh

## 5ggYgga YbhHUg\_g

5ggYgga Ybh'hUg_	K Y][\h	8iY'8UhY	Gh XYbh@YUfb]b[ Ci hWca Yg 5ggYggYX
±b!WUgg`hYgh`	' \$ı		

**8YHJ]`g.** `Ghi XYbhg`k]```gdYU\_`UbX`fYgdcbX`UVci hcbY`cZh\Y`hcd]Wg`X]gWi ggYX`]b`WUgg": YYXVUW\_`k]```VY [ ]i Yb`i ]U`bi a Yf]WU``[ fUXY`UbX`U`fi Vf]WI

5XX]h]cbU`XYhU]`g.

 $H(Y')bgf'iW'jcbg'UbX'[i]XU')bYg'UfY'hc'VY'dfcj]XYX']b''YW'ifYg'UbX'hihcf]U'g'cjYf'h\Y'kYY\_g''$ 

Hi fb]hjb gYhjb[. H\]g ]g bchU Hi fb]hjb Ugg][ ba Ybh

5ggYgga Ybh'(. 'GdYWJU' dfc YWh

GhUfhXUhY. K YY\_ &

**8YHJ]`g.** `Gh XYbhg`k ]```gi Va ]hU'dcfhzc`]c`]bWi X]b[ `fYdcfhg`UbX`^ci fbU`g`cb'j Uf]ci g`UWhj ]h]Yg`cZh\Y]f`ck b W\c]WY'': YYXVUW\_k ]```VY`[ ]j Yb'j ]U'bi a Yf]WU``[ fUXY`UbX`U'fi Vf]W

5XX]h]cbU`XYhU]`g.

 $\label{eq:decomposition} D`YUgY`Wcbgi`hih\Y`]bghfi Wh]cbg`cb`A ccX`Y`j Yfm`WUfYZI``mhc`W\ccgY`mci f`dfc`YWh`UbX`UWh]j ]h]Yg"$ 

Gi Va ]gg]cb bch/g.Gi Va ]gg]cb a Yh\cXg k ]```j UfmXYdYbX]b[ 'cb mci f`W\c]WY cZUWIj ]h]Yg"

Hi fb]h]b gYhh]b[...

K YY_',', '5df]`'!'%( '5df]`	Hcd]W	
	@YWn fY	
	Hi hcf]U`	
K_YY_''%)	Hcd]W	
5df]`	@YVVi fY	
	Hi hcf]U`	
K_YY_'%\$.'&&'5df]`'!'&,	Hcd]W	
5df]`	@YWh fY	
	Hi hcf]U`	
K YY_"%%"&- "5df]`"!"%	Hcd]W	
A Um	@YWn fY	
	Hi hcf]U`	

F Ygci fWYg

DfYgWf]VYX F Ygci fWYg

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'' =Zmci
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`]WUhJcb'' =Zmci '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 žch\Yfg'k]``VY'bYk"'; U]b]b['U'gc`]X'i bXYfgHJbX]b['cZU``h\YfY`UhYX'UgdYWng'cZ9@&9'k]``\Y`d'mci 'a U\_Y'h\Y'a cghcZmci f'gh X]Yg'UhI BGK "'\\hd.##qi V'YWfi |XYg"`]VfUfm'i bqk "YXi "Ui #\`]qY#JVci hY`]qY