## I b`]WbgYX'8f]j Yf'5ffYghYX'Zcf'=[bcf]b[ 7cd'8if]b['HfUZZ]WGhcd

5; i UhYa U`Ub'Xf]j Yf'k Ug'UffYghYX']b'Gi a hYf'7ci bhm'Zcf ZU]`]b['hc'a cj Y'cj Yf'Zcf'U'XYdi hm'Xi f]b['U'hfUZZ]Wghcd'cb ; `m'%( ž'&\$&) "



GhUhY 'F c UX '( ( ž'Gi a a YfZ]Y`X ž': @ž'I G5 '! '\ 'U'WYUf']``i ghfUh]cb c Z'h\Y'cb[c]b[ 'Wca d`YI]h]Yg'k]h\]b '`Uk 'Yb ZcfW'a Ybhž'; Yfgcb 9Xi UfXc'; UfW]U'A c`]b Už'U'&+!mYUf!c`X'Zfca 'Gi a a YfZ]Y`Xž'k Ug UffYghYX'Zcf'ZU]`]b[ 'hc'Wca d`m'k]h\ 'hfUZZ]WfY[i`Uh]cbg"'H\Y ]bW]XYbh'c WW ffYX'Uh', .( - 'U"a "'cb'GUhi fXUmž'\'\`m'%( ž'&\\$\) ž'cb GhUhY'F c UX'( ( ž'k\YfY'; UfW]U'A c`]b Už'Xf]j ]b[ 'U'g]`j Yf'B]ggUb J YfgUž'ZU]`YX'hc'a cj Y'cj Yf'Zcf'U'XYdi hm'WcbXi Wh]b[ 'Ub'i bfY`UhYX hfUZZ]Wghcd"'B chUV`mž'h\Y'XYdi hm'\UX'UWh]j UhYX'\]g'Ya Yf[ YbWm`][\hgž'g][ bU`]b[ 'h\Uh'Xf]j Yfg'g\ci `X'UX'\ gh'h\Y]f'`UbYg'Zcf'gUZYhm'

I dcb'VY]b['di``YX`cjYfž']h'k Ug'X]gWcjYfYX`h\Uh'; UfW]U'A c`]bU'X]Xbch'dcggYgg'U'jU`]X'Xf]jYfg'`]WYbgY'UbX'gdc\_Y'`]hh`Y'9b[`]g\"'H\Yg]hiUh]cb'YgWU`UhYX']bhc'U'ZcfaU`'W\Uf[Y'cZ'Xf]j]b['k]h\cih'U

`]\WbgY": c``ck ]b[ '\]g'UffYghž'; Uf\\]U'A c`]bU'k Ug'Vcc\_YX'Uh'h\Y Gi a hYf'7ci bhm'8YhYbh]cb'7YbhYf'Vi h'k Ug'fY`YUgYX'`UhYf'h\Uh'XUm UZ\Yf'dcgh]b['U'`) \$\$'VcbXž'Ug'fYdcfhYX'Vm'J ]``U[ Yg!BYk g"

## 7\Ub[Yg]b HfUZZ]W9bZcfWYa Ybh

 $H\ ]g``UhYgh']bW]XYbh'g\ YXg``][\ \ h'cb'W'ffYbh'hfYbXg']b'hfUZZ]W YbZcfWa Ybh'zfYZYWh]b[ 'VfcUXYf'hfUbgZcfa Uh]cbg'k ]h\ ]b'dc`]W]b[ "FYWYbh'UbU`mgYg']bX]WUhY'h\ Uh'`Uk 'YbZcfWa Ybh'U[ YbW]Yg'UfY WcbXi Wh]b[ 'ZYk Yf'hfUZZ]Wghcdg'h\ Ub'h\ Ym'X]X'VYZcfY'h\ Y'7CJ = 8!%-dUbXYa ]W'\ bhYfYgh]b[ `mz'h\ ]g'XYW]bY']g'bch'df]a Uf]`m'fcchYX']b \YU`h\ 'WcbWYfbg''' \ bghYUXz'Dc`]WY%'\][ \`][ \hg'h\ Uh'di V`]W gYbh]a Ybh'hck UfXg'hfUZZ]Wghcdg'\ Ug'gci fYXz'dUfh]W' `Uf`m'UZhYf gYj YfU`'\][ \!dfcZ]`Y'WUgYg']bj c`j ]b[ 'ZUhU`]h]Yg'''5g'U'fYgi `hz'a Ubm dc`]WY'XYdUfha Ybhg'UfY'bck '\Yg]hUbh'hc'di ``'cj Yf'Xf]j Yfg'Zcf'`ck! `Yj Y`'cZZYbgYg''$ 

7 ca dci bX]b[ 'h\ ]g']ggi Yž'dc`]WY 'ZcfWYg'UfY 'ZUW]b[ 'fYWfi ]ha Ybh W\ U``Yb[ Ygž'k ]h\ 'Udd`]WUh]cbg'Uh'fYWcfX ``ck g'UbX'a Ubm WUbX]XUhYg'XYYa YX ``Ygg'ei U`]Z]YX'h\ Ub']b'h\ Y'dUgh" 7 cbgYei Ybh`mž'fYgci fWYg'\ Uj Y'VYYb'g\ ]ZhYX'Uk Um'Zfca 'hfUZZ]W YbZcfWYa Ybh'hck UfX'ch\ Yf'df]cf]h]Ygž'`YUj ]b[ 'a Ubm'cZZ]WYfg'Y]h\ Yf X]g\CifU[ YX'cf'ci hf][ \h'dfc\]V]hYX'Zfca 'a U\_]b[ 'ghcdg'Zcf'a ]bcf ]bZfUWh]cbg"

## $=a d^{MUh} c b g c Z H f U Z Z W D c^{MY} g$

H\Y']a d`]WUh]cbg'cZ'h\YgY'W\Ub[]b['dfUWh]WYg'UfY'dfcZci bXž dUfh]W'`Uf`m'Zcf'a ]bcf]hm'Xf]j Yfgž'k \c'UfY'fYdcfhYX'hc'VY X]gdfcdcfh]cbUhY`m'UZZYWhYX'Vm'`ck!`Yj Y`'hfUZZ]WYbZcfW'a Ybh''5g XYhU]`YX'Vm'J YfUž'j Uf]ci g'dc`]W]Yg'UbX']b]h]Uh]j Yg'U]a YX'Uh `]a ]h]b['bcb!gUZYhm!fY`UhYX'hfUZZ]Wghcdg'\Uj Y'Ya Yf[YX'Ug'U fYgdcbgY'hc'di V`]WdfYggi fY''H\YgY'dc`]W]Yg'UfY']bhYbXYX'hc Yb\UbW'Wca a i b]hm'gUZYhm'Vm'ZcW'g]b['cb'a cfY'gYf]ci g cZZYbgYgž'UbX'h\Ym'UfY'Yj U`i UhYX'Wcbh]bi ci g`m'hc'Ybgi fY'h\Y]f YZZYWh]j YbYgg''

 $\label{eq:Kartheta} K \ ]h\ cb[\ c]b[\ 'X]gW \ gg]cbg`UVci \ h`h\ Y`fc`Y`cZ`hfUZZ]Wghcdg`]b``Uk$ 

YbZcfWYa Ybh'UbX'h\Y]f']a dUWh'cb'Wca a i b]hm'fY`Uh]cbgž'h\YUffYgh'cZ'; Yfgcb'9Xi UfXc'; UfW]U'A c`]bU'gYfj Yg'Ug'U'Wf]h]WU`fYa ]bXYf'cZ'h\Y'Wca d`Yl ]h]Yg']bj c`j YX']b'di V`]WgUZYhm''5g'h\Y`UbXgWUdY'cZ'dc`]W]b[ 'Wcbh]bi Yg'hc'Yj c`j Yž'Z]bX]b[ 'h\Y'f][ \h\VU`UbWY'VYhk YYb'YbZcfWYa Ybh'UbX'i bXYfghUbX]b[ 'Wca a i b]hm WcbWYfbg'k]``VY'YggYbh]U`'Zcf'Vi ]`X]b[ 'hfi gh'UbX'Ybgi f]b[ 'gUZYffcUXg'Zcf'U``"

8 YhU]`g	
Cfh	GhUhY'FcUX'((ž'GiaaYfZ]Y`Xž':@ž'lG5
EiY``Yb	• k k k "j ]``U[ Yg!bYk g"Wca
	• k k k "dc`]WY%"Wca
	• k k k "j YfU"cf[

6Ygi WXYb G]Y i bg Ui Z. a Y]b!k ]Yb bYh