## FYa Ya VYf]b[ '< Y`Yb '< UmYg. 'H\Y': ]fgh @UXm'cZ'5a Yf]WUb 'H\YUhYf

9| d`cfY'h\Y'`]ZY'cZ'<Y`Yb'<UmYgž'h\Y' ei ch/: ]fgh'@UXm'cZ 5a Yf]WUb'H\YUhYfž/ ei ch/'\Yf'bchUV`Y'UW\]Yj Ya Ybhgž'UbX `Y[UWm']b'h\]g']bq][\hZ\`'Ufh]WY"



K Ygh' < Uj YfghfUk ž'B Mž'I G5'! = b'U'k cf'X'k \YfY'Ufh'a YYhg
YI WY`YbWYZZYk 'bUa Yg'fYgcbUhY'Ug'dfcZci bX`m'Ug'h\Uh'cZ' < Y`Yb
< UmYg"'H\Y'UWhfYggž'Xi VVYX' H\Y': ]fgh'@UXm'cZ'h\Y'5a Yf]WUb
H\YUhYfž 'Yb'cmYX'Ub']`i ghf]ci g'WUfYYfž`YUj ]b['Ub']bXY`]V`Y'a Uf\_
]b'Vch\'h\YUhYf'UbX'Z]`a "'6UW\_']b'%-, - ž'Ub']bhYfj ]Yk 'k ]h\' < UmYg
Uh'h\Y' < Y`Yb' < UmYg' < cgd]hU`']b'K Ygh' < Uj YfghfUk ž'BYk 'Mcf\_ž
WUdhi fYX'h\Y'YggYbWY'cZ'h\]g'fYa Uf\_UV`Y'k ca Ubž'Ug'g\Y
fYZYWHYX'cb'\Yf'bYUf`m'g]I 'XYWUXYg']b'h\Y'gdch'][\h'VYZcfY'\Yf
dUgg]b[']b'%- - ''Uh'h\Y'U[Y'cZ'-' ž'Zfca 'Wcb[Ygh]j Y'\YUfh'ZU]`i fY
]b'B'mUW\_ž'B'M'5g'h\Y']bhYfj ]Yk Yfž'U'mci b['&+!mYUf!c`X'ZfYg\'hc
h\Y'FcW\_`UbX'&i fbU'!BYk gž\\UX'h\Yi b]ei Y'df]j ]Y[Y'cZ'Yb[U[]b[
k]h\'U'`Y[YbX'k \cgY'WUfYYf'a ]`YghcbYg'XYZ]bYX'h\Y

 $6cfb'<Y`Yb'<UmYg`AUW5fh\ ifcb'CWhcVYf`\%$ž`\%-$$ž']b \\ KUg\ ]b[hcbž'8"7"ž`\Yf``cifbYm']bhc'h\Y'aU[]WU`kcf`X'cZ \\ dYfZcfaUbW'VY[Ub'Uh'h\Y'hYbXYf'U[Y'cZ'Z]jY"'6m'h\Y'h]aY'g\Y \\ aUXY'\Yf'Z]`aXYVih']b'%-%$ž']h'kUg'WYUf'g\Y'kUg'XYgh]bYX'Zcf [fYUhbYgg"'<math>\pm$ b'%-'&ž'g\Y'kcb'h\Y'5WUXYam'5kUfX'Zcf'6Ygh 5WhfYgg'Zcf'\Yf'fc`Y']b'H\Y'G]b'cZ'AUXY`cb'7`UiXYhž'VYWca]b[h\Y'Z]fgh'UWhfYgg'Zfca'h\Y'ghU[Y'hc'fYWY]jY'Ub'CgWUf''6ih'h\Uh'kUg'Ygh'h\Y'VY[]bb]b[/'<UmYg'kci`X'gWcZZ'Uh'`]a]hgž'`UhYf'gYW'f]b['h\Y'h]h'Y'cZ'h\Y'Z]fgh'ZYaU`Y'fYW]d]Ybh'cZ'Ub'9;CHk]bb]b['Ub'9aamž'fUaamž'CgWUfž'UbX'Hcbm'h\fci[\cih'\Yf'WUfYYf''

## HY5dYIcZ5WX]YiYaYbhq

K\Uhg'dUfh]W`Uf`mfYaUf\_UV`Y`UVcih'<UmYg`UWWcad`]g\aYbhg`]g\ck`g\Y`d]cbYYfYX`dUh\g`Zcf`ZhifY`[YbYfUh]cbg"`G\Y`kUg'bchcb`m'h\Y`Z]fgh'hc`k]b`Ub`5WUXYam'5kUfX`]b`hkc`WUhY[cf]Yg 6Ygh5WhfYgg`UbX`6Ygh'Giddcfh]b[`5WhfYgg`Vihg\Y`U`gc'hcc\_'\caY\Yf`CgWUf`Zcf`6Ygh'Giddcfh]b[`5WhfYgg`]b`%-+%`Zcf`\Yf`fc`Y`]b`h\YZ]`a`5]fdcfh":ifh\YfacfYž\\Yf`dfckYgg'kUgbh'WcbZ]bYX`hc`h\Yg]`jYf`gWfYYb"`G\Y`kcb'U`Hcbm'5kUfX`]b`%-(+'Zcf`<Uddm6]fh\XUm`UbX``UhYfž'Ub`9aam`]b`%-)'`Zcf`GW\`]hn`D`Um\cigY`cZGhUfg":]bU``mž'g\Y`fcibXYX`cZZ'\Yf`]``ighf]cig`WUfYYf`k]h\`U;fUaam`UkUfX`Zcf`6Ygh'Gdc\_Yb`KcfX`FYWcfX]b[`]b`%-++'Zcf;fYUh'5aYf]WUb`8cW'aYbhg"

< UmYg 'Wca a ]ha Ybh'hc'd\]`Ubh\fcdm'k Ug'Yei U``m']a dfYgg]j Yž
k ]h\'U'bchUV`Y'(-!mYUf'fY`Uh]cbg\]d'k ]h\'h\Y'<Y`Yb'<UmYg
<cgd]hU`"'<Yf'Wcbhf]Vi h]cbg']b'h\]g'UfYU'k YfY'Ug'g][ b]Z]WUbh'Ug'\Yf
Ufh]gh]WYbXYUj cfgž'g\ck WUg]b[ 'U'dfcZci bX'i bXYfghUbX]b[ 'cZ'\Yf
fc`Y']b'gcW]Yhm''=bXYYXž'h\YfY g'gca Yh\]b[ 'hc'VY'gU]X'Zcf'i g]b[
cbY g'd`UhZcfa 'hc'i d`]Zh'ch\Yfgž'YgdYW]U``m']b'h\Y'Ufhg'Wca a i b]hm'</pre>

## @Y[UWmUbXFYWc[b]h]cb

5dUfh'Zfca '\Yf'Uk UfXgž' < UmYg'k Ug'fYWc[b]nYX'Zcf'\Yf'gYfj]WY UbX'XYX]WUh]cb'hc'h\Y'Ufhg'k]h\'U'DfYg]XYbh]U''A YXU''cZ': fYYXca]b'%-, \*ž'Uk UfXYX'Vm'DfYg]XYbh'FcbU'X'FYU[Ubž'UbX'h\Y'BUh]cbU'A YXU''cZ'5fhg']b'%-, , "'H\Y'Ubbi U'' < Y'Yb' < UmYg'5k UfXgž

 $\label{thm:cbcf:YIWY`YbWY`]b'dfcZYgg]cbU``h\YUhfY $$ \|b'K Ug\]b[hcbž'8"7"ž'ghUbX'Ug'U'hYghUa Ybh'hc'\Yf'`Y[UWhž]bZi YbW]b['Wci bh`Ygg'Ufh]ghg'k \c'Ugd]fY'hc'fYUW\'h\Y'\Y][ \hg'g\Y cbWY'W]a VYX"$ 

<UmYg ']a dUWh']g'Zi fh\Yf']a a cfhU`]nYX'h\fci [\'j Uf]ci g
a Ya cf]U`gž']bWi X]b['h\Y'fYbUa]b['cZ'h\Y': i `hcb'H\YUhfY'hc'h\Y
<Y`Yb'<UmYg'H\YUhfY']b'%-)) U`h\ci [\']h'k Ug'XYa c`]g\YX']b
%-, &"'5h'h\Y'YbX'cZ'\Yf'`]ZY g''ci fbYmž'g\Y'`YZh'VY\]bX'bch''i gh
UWWc`UXYg'Vi h'U`gc'dfcZci bX'bUffUh]j Yg'WUdhi fYX']b'\Yf'a Ya c]fg.
5'; ]Zh'cZ'≈mž' Cb'FYZYWh]cbž' UbX' A m'@]ZY']b'H\fYY'5Whg"
H\YgY'dU[Yg'fYZYWh'\Yf'gd]f]hž'[f]hž'UbX'i bXm]b['`cj Y'Zcf'h\Y'Ufhg"</pre>

<Y`Yb`<UmYg`bch`cb`m`Vfc\_Y`fYWcfXg/'g\Y`dU]bhYX`U'j ]VfUbh
dcfhfU]h'cZ'k\Uh']h'a YUbg`hc`VY`U'hfi Y`Ufh]ghž'V`YbX]b[ 'hU`Ybh'k]h\
\YUfh`UbX'i bm]Y`X]b[ 'gd]f]h''K ]h\'9; CH'ghUbX]b[ 'hU``'Ug`U
a ]`YghcbYž'g\Y`gYfj Yg`Ug`Ub`]bgd]fUh]cbž'dfcj ]b[ 'h\Uh'k]h\
dUgg]cb`UbX'dYfgYj YfUbWYž'cbY`WUb`VYWca Y`U``Y[YbX"</pre>

: cf'Zi fh\Yf'XYhU]`g'UVci h'h\]g']``i ghf]ci g']Wcbž'< YUX`]bY'Gi fZYf
fYdcfhg'cb'\Yf'ZUgW]bUh]b[']bhYfj ]Yk ž'k \]`Y'a cfY'WUb'VY'YI d`cfYX
cb'\Yf'WUfYYf'UbX'UW\]Yj Ya Ybhg'cb'K ]\_]dYX]U'UbX'
7\YUhG\YYh"</pre>

8 YhU]`g	
Cfh	K Yghi< Uj YfghfUk žBMžI G5
EiY``Yb	• k k k "\YUX`]bYgi fZYf"Wca
	<ul><li>Yb"k ]_]dYX]U"cf[</li></ul>
	• k k k "WXYUhg\YYh"Wca

6 Ygi W Yb G | Y i bg Ui Z a Y | b ! k | Yb "b Yh