## ?YbXfU`GWchh`GdUf\_`Yg`]b`6fYjUfX.; fUbX CdYb]b[`UbX`7\Uf]hm`Giddcfh°

?YbXfU`GWchh`cdYbg`]hg`Z]fgh`6fYjUfX`7cibhm`ghcfY`Uh`H\Y 5jYbiY`J]YfU`cb`\$bY`&+ž`Vccgh]b[``cWU``fYhU]``UbX`W\Uf]hm YZZcfhg"



H\Y`5jYbiY`J]YfUž`J]YfUž`: `cf]XUž`IG5`!`?YbXfU`GWchhg @UhYgh`¥kY``]b`6fYjUfX`7cibhm

?YbXfU'GWchh'\Ug'cZZ]WJU``m'W h'h\Y'f]VVcb'cb']hg'ZJfgh'ghcfY']b 6fYj UfX'7ci bhmž'bYghYX'Uh'H\Y'5j Ybi Y'J ]YfU"'H\]g'a Uf\_g'h\Y %) h\'ghcfY'Zcf'h\Y']Wcb]W'Yk Y`fm'VfUbX'UWfcgg': `cf]XUž'U hYghUa Ybh'hc']hg'YI dUbX]b['fYUW\']b'h\Y'Gi bg\]bY'GhUhY"'G]bW `Ui bW\]b['\Yf'Yk Y`fm``]bY']b'&\$\$&'k]h\'^ gh'U'`) \$\$`]bj Ygha Ybhž ?YbXfU'GWchh'\Ug'[fck b'\Yf'Vi g]bYgg']bhc'U'bUh]cbk]XY'ghUd`Yž \_bck b'Zcf']hg'V`YbX'cZ'UZZcfXUV]`]hm'UbX'Y'Y[UbWY']b'Yk Y`fm XYg][ b"'H\Y'Wca dUbmž'\YUXei UfhYfYX']b'5i gh]bž'U`gc'VcUghg Wc``UVcfUh]cbg'k]h\'\][\!dfcZ]`Y'VfUbXg'UbX'WY`YVf]h]Yg']bWi X]b[ 8]gbYm'UbX'8c``m'DUfhcb"'

GWchhicf][]bU``mighUfhYX'\Yfi^cifbYmi]bhcifYhU]`'UZhYf'U'fcW\_migh]bh k]h\'U`\UhighcfYž'UbXig]bWYih\Ybž'h\Y'VfUbX'\Ug'Yb^cmYX'XciV`Y!

?YbXfU'GWchhi]gʻbchʻgʻck]b['Xckb'Ubmh]aYgccb"'H\Y'WcadUbmž UgʻbchYX'Vm:cfVYgž']gʻ]b'U'[fckh\'d\UgYž'U]a]b['hcʻcdYb'&) acfY`ghcfYgʻh\]gʻmYUf'U`cbY"'H\]gʻYbXYUjcf'fY]bZcfWYgʻh\Y]f d\]`cgcd\m`h\Uh`d\mg]WU``fYhU]``]gʻj]hU``Zcf'WcbbYWh]b['k]h\ W ghcaYfgʻUbX'Yb\UbW]b['VfUbX'dfYgYbWY"'H\Y]f'ZU[g\]d`ghcfY \UgʻYjYb'YaVfUWYX'h\YaYg``]\_Y``YacbUXY'Zcf'YjYbhgʻgiW\'Ug GLGK žg\ckWUg]b['h\Y]f'ZU]f'Zcf'Yb[U[YaYbhUbX'YbhYfhU]baYbh"

; fck]b[':Uf'UbX'K]XY

 $\label{eq:charge} Vch\ "ghm`Y"UbX"gcW]U\ "fYgdcbg]V]\ \)hm""$ 

?YbXfU'GWchhg'gi WWYgg'XcYgb h'1 gh'`]Y']b']hg'VYUi h]Zi `'YkY`fm/']h ZcW'gYg'cb'\cgh]b['Wca a i b]hm!ZcW'gYX'YjYbhg"'H\Y'VfUbX']g \_bck b'Zcf'fU]g]b['cjYf'`+\$'a]``]cb'Zcf'W\Uf]hUV`Y'WUigYg'h\fci[\ ]b!ghcfY']b]h]Uh]jYg'g]bWY'&\$%&žYad\Ug]n]b[']hg'Wca a]haYbh'hc

H\]gʻYI dUbg]cbʻWca YgʻUgʻH\Yʻ5j Ybi YʻJ ]YfUʻ]gʻhfUbgZcfa ]b[ʻ]bhc UʻfYhU]``\Uj Ybʻk ]h\ʻgYj YfU``ZfYg\`YghUV`]g\a Ybhg"ʻ5`cb[g]XY ?YbXfUʻGWchhžʻch\YfʻbYk Wca Yfgʻ`]\_Yʻ5a Yf]WUbʻ9U[`YʻCi hZ]hhYfgž 5Yf]YžʻUbXʻGci h\YfbʻH]XYʻ\Uj YʻfYWYbh`mʻgYhʻi dʻg\cd"`5bh]W]dUh]cb ]gʻVfYk ]b[ʻZcfʻh\YʻcdYb]b[ʻcZBcfXghfca `FUW\_`]bʻa ]X!C WhcVYfž k \]`YʻHca a mʻ6U\Ua UʻUbXʻ@YhgʻD`Ubhʻ=hʻUfYʻcbʻhfUW\_ʻhcʻcdYbʻVm mYUf gʻYbX"'<ck Yj YfžbchʻU``h\YʻbYk gʻ]gʻVf][\h/`A]W\UY` gʻ]g Wcg]b['žʻUbXʻk \]`YʻUʻVi ]`X]b[ʻdYfa ]hʻ\UgʻVYYbʻZ]`YXʻZcfʻUʻHfUXYf >cY gʻUh'h\Uh`cWUh]cbžXYhU]`gʻfYa U]bʻi bWcbZ]fa YX"

BYk 'FYhU]` @UbXgWUdY

H\Y`[fUbX`cdYb]b[`WY`YVfUh]cb`]g`gYh`hc`\_]W\_`cZZ`cb`\$``m`%%`Uh`%\$ U"a "ž`fi bb]b[`hc`\$``m`%' "`#h`dfca ]gYg`Ub`UffUm`cZYbh]W]b[`cZZYfg Zcf``cWU``g\cddYfg"`GdYbX`^1 gh`` %\$\$`UbX`gbU[`U`ZfYY`dU]f`cZ YUff]b[g`k\]`Y`gi dd`]Yg``Ugh``5XX]h]cbU``mž`W\Uf]hm!a ]bXYX g\cddYfg`WUb`hU\_Y`\YUfh`\_bck ]b[`h\Uh`&\$i `cZ`gU`Yg`Xif]b[`gY`YWh \cifg`k]``VYbYZ]h`cWU``cf[Ub]nUh]cbgž`gi W\`Ug`h\Y`GdUWY`7cUgh <YU`h\`: ci bXUh]cb`UbX`h\Y`K ca Ybg`7YbhYf`cZ`6fYj UfX`7ci bhm" X][]h`[fck h\`XYgd]hY`h\Y`gk]f`]b[`W\U``Yb[Yg`cZ`fYWYbh`mYUfg"`H\Y ]bhfcXiWh]cb`cZ`h\Y`~MY``ck`FcgY~`WcbWYdhž'V`YbX]b[`K YghYfb W\Ufa`k]h\`WcbhYadcfUfm`ghm`Yž'\Ug`cdYbYX`bYk`UjYbiYg`Zcf W`ghcaYf`U``ifY"`K]h\`cjYf`%)\$`ghcfYg`bUh]cbk]XYž?YbXfU`GWchh UWh]jY`m`W``h]jUhYg`Ub`Ybj]fcbaYbh`cZ`kUfah\`UbX`Wcaaib]hmž fYZYWh]b[`h\Y`jU`iYg`cb`k\]W\`]h`kUg`ZcibXYX"

♣ U'bi hg\Y``ž?YbXfU'GWchhg'cdYb]b['Uh'H\Y'5jYbiY'J]YfU']gb h 1 gh'UVci h'YkY`fm/']hg'U'WY`YVfUh]cb'cZ'Wca a i b]hm'Yb[U[YaYbhž ZUg\]cbž'UbX'd\]`Ubh\fcdm"'K \Yh\Yf'mci fY``cc\_]b['Zcf'h\Y``UhYgh UWWYggcf]Yg'cf'g]a d`m'\_YYb'hc'gcU\_'i d'h\Y'W\YYfZi``Uha cgd\YfY Uh'h\Y'[fUbX'cdYb]b[ž']h'gYYa g``]\_Y'h\YfY g'gca Yh\]b['hc'VY'gU]X Zcf'h\Y'gdUf\_`Y'cZ'?YbXfU'GWchhg'YI dUbX]b['dfYgYbWY']b': `cf]XU"

: cf'a cfY'XYhU]`gž: `cf]XU'HcXUm'g\UfYg']bg][\hg'UVci h'h\Y [fUbX'cdYb]b[ž'k\]`Y'6\Ua 'Bck 'W\fcb]WYg'h\Y'VfUbX g'^ci fbYm UbX'fYWbh'fY`cWUh]cbg"'Hc'XY`j Y'XYYdYf']bhc'?YbXfU'GWchh g fYhU]``ghfUhY[]Yg'UbX'Z hi fY'd`Ubgž': cfVYg'cZZYfg'Ub']bhf][i]b[ `cc\_'Uh'h\Y'VfUbX g'VfcUXYf'[fck h\'d`Ubg"

| 8 Y hU]`g |  |
|-----------|--|
| Cfh       | H\Y`5jYbiY`J]YfUž'J]YfUž': `cf]XUž'IG5 |
| EiY``Yb   | • k k k "Z`cf]XUhcXUm"Wca              |
|           | • V∖Ua bck "Wća                        |
|           | • k k k "ZcfVYg"Wca                    |

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