## 



: U]f\cdYž·5`UVUa Už·I G5 !!6U`Xk]b '7ci bhm']g'[YUf]b['id'Zcf'Ugi a a Yf'\][\`][\hih\Uhidfca]gYg'hc'VY'Vch\']bgd]f]b['UbX'UWh]cb!dUW\_YX'Zcf'YXi WUhcfg"'H\Y'; i`Z'FY[]cbU`\*\*bcj Uh]j Y'HYUW\]b[7cbZYfYbW'f] F #17Ł']g'gYh'hc'hU\_Y'd`UW'Zfca '\*\* `m'&%!&' ž'cZZYf]b[U'j]VfUbh'd`UhZcfa 'hU]`cfYX'Zcf'hYUW\Yfg'UWfcgg'h\Y'; i`Z'7cUgh"Cf[Ub]nYX'Vm'h\Y'6U`Xk]b'7ci bhm'9Xi WUh]cb'7cU`]h]cb'fb797Łžh\]g'mYUf g'WcbZYfYbW'U]a g'hc'dfcj]XY'\UbXg!cb'`YUfb]b[YIdYf]YbWg'h\Uh'YIdUbX'h\Y'\cf]ncbg'cZ'dfcZYgg]cbU`XYj Y`cda Ybh"

;  $F + H7 \cdot k$  ]```ZYUhi fY'cj Yf'%) \$']bhYfUWh]j Y'gYgg]cbgžYUW\'`Ugh]b['))

a ]bi hYgžXYg][ bYX hc 'WUhYf'hc 'U'j Uf]Yhm'cZ'[ fUXY 'Yj Y`g'UbX WcbhYbh'UfYUg" 5hhYbXYYg 'WUb 'Yl dYWh']bj ][ cfUh]b[ 'k cf\_g\cdg'UbX a ch]j Uh]cbU`'gdYYWXYg Zfca '\_YmbchY'gdYU\_Yfg'k \c'UfY XYX]WUhYX hc 'Ya dck Yf]b[ 'h\cgY']b 'h\Y'hYUWX]b[ 'dfcZYgg]cb"'5g HYffm'6i f\_`Yž'Yl YW' h]j Y'X]fYWhcf'cZ'6797ž'bchYXž']bj Ygh]b[ ']b hYUWXYfg']g'dUfUa ci bh'ZcfYZZYWh]j Y'YXi WUh]cb"

#### : cW g cb DfcZYgg]cbU`; fck h\

 $\label{thm:continuous} H\Y'di fdcgY'cZ'; F \#7'YI hYbXg'VYmcbX'g]a d`m'[Uh\Yf]b[YXi WUhcfg/']h g'UVci h'W `h]j Uh]b['U'Wca a i b]hm'Wca a ]hhYX'hc Yb\UbW]b[']bghfi Wh]cb'UbX'Vccgh]b['ghi XYbh'ci hWca Yg''Ghi X]Yg \Uj Y'g\ck b'h\Uh'dfcZYgg]cbU`'XYj Y`cda Ybh'`YUXg'hc']a dfcj YX hYUW\]b['g_]``g'UbX']bghfi Wh]cbU`'dfUWh]WYgž'k \]W\']b'hi fb dcg]h]j Y`m'UZZYWh'ghi XYbhg '`YUfb]b['YI dYf]YbWYg''5g'h\Y'bYk gW\cc`'mYUf'UddfcUW\Ygž'h\]g'WcbZYfYbW'']g'Ub']bj U`i UV`Y cddcfhi b]hm'Zcf'hYUW\Yfg'hc'ghc'ghcW_'i d'cb'dfUWh]WU`'ghfUhY[]Yg'UbX]bbcj Uh]j Y']XYUg''$ 

 $FY[\ ]ghfUh]cb\ Zcf\ h\ Y\ ;\ F\ \#17\ k\ ]```VY\ cdYb\ ]b[\ gccb\ zgc\ YXi\ WUhcfg\ UfY\ \_YYb\ hc\ a\ Uf\_\ h\ Y\ ]f\ WU\ Yb\ XUfg\ Ub\ X\ dfYd\ UfY\ Zcf\ Ub\ Yb[\ U[\ ]b[\ ZYk\ XUmg"\ @c\ WU\ Vi\ g]b\ YggYg\ Ub\ X\ cf[\ Ub\ ]nUh]cbg\ WUb\ U\ gc\ Wcbhf]Vi\ hY\ hc\ h\ ]g\ WUi\ gY\ Vm'd\ Ufh]W]d\ Uh]b[\ ']b\ gd\ cbg\ cfg\ ]d\ cdd\ cfhi\ b]h]Yg\ Z\ fh\ Yf\ Ya\ d\ Ug]n]b[\ 'h\ Y\ Wc\ a\ a\ i\ b]hm\ g']bj\ Ygha\ Ybh\ ]b\ YXi\ WUh]cbU\ YI\ WY\ Yb\ WY"\ cf'\ a\ cfY\ XYhU]\ gz'j\ ]g]h\ h\ Y\ 6\ U\ Xk\ ]b\ 7\ ci\ b\ hm'\ 9\ Xi\ WUh]cb\ '7\ c\ U\ ]h]cb"$ 

### 5 7ca a i b]hm 5 ZZU]f

±0 'UXX]h]cb'hc'h\Y'WcbZYfYbWYž'h\Y'6U`Xk]b'7ci bhm'9Xi WUh]cb
7cU`]h]cb']g'\cgh]b['5b'9j Yb]b['cZ'9Xi WUh]cb'7\Ua d]cbg'cb
: YVfi Ufm'+ž'&\$&) ž'Uh'CU\_'<c``ck': Ufa ']b': U]f\cdYž'5`UVUa U"
H\]g'[U`U'k]``fU]gY'Z bXg'Zcf'h\Y'6U`Xk]b'Dfci X': i hi fY'HYUW\Yf
GW\c`Ufg\]d': i bXž'U]a YX'Uh'gi ddcfh]b['Ugd]f]b['YXi WUhcfg"'H\Y
Yj Ybh g'dfcWYXg'k]``'VYbYZ]h'\][\'gW\cc``gYb]cfg'UbX
i bXYf[fUXi UhYg'di fgi ]b['hYUW\]b['XY[fYYgž'Ug'kY``'Ug'cZZYf
Ugg]ghUbW'hc'Ya d`cmYYg'UbX'h\Y]f'ZUa]`]Yg'gYY\_]b['hc'Zi fh\Yf
h\Y]f'YXi WUh]cb']b'h\]g'fYk UfX]b['Z]Y`X"

9| dYWh:`]j Ya i g]Wz:XY`YWhUV`Y`ZccX`cdh]cbgž:UbX`U`G]`Ybh:5i Wh]cbža U\_]b[`]h:U'b][\h'bch'cb`m'Zcf'Zi bXfU]g]b[`Vi h:U`gc`Zcf'ZcghYf]b[Wca a i b]hm:h]Yg"'H\cgY`]bhYfYghYX`]b`UhhYbX]b[`cf'gdcbgcf]b[`h\YYYjYbh:WUb`Z]bX`]bZcfa Uh]cb`cb`h\Y`6U`Xk]b`9Xi WUh]cb7\Uad]cbg"

#### H\Y'6][[Yf'D]WhifY

cf ]bghUbW žh\Y: i hi fY cZ 9Xi WUh]cb 'HYW bc `c [ m 7 cb ZY fY bW fl 9H7 Ł k ]`` VY `\ UddY b]b [ ']b 'C f`UbXcž: `cf]XUž Zfca '\ Jbi Ufm'%(!%+ž &\$\&) ž X]gW gg]b [ '?!%& 'Y Xi WUh]cb ]bbcj Uh]cbg" 'G]a ]`Uf`mž a i `h]d`Y ch\Yf`bchYk cfh\m Wcb ZY fY bW g`UfY 'd`UbbYX 'h\fci [ \ci h'h\Y'mY Ufž UXX fY gg]b [ 'gdY W]Z]WbYY Xg``]\_Y``]hY fUWm UbX 'hY W bc `c [ m ]b 'h\Y WUggfcca "'H\]g 'WUfb]j U``cZ\_bck `Y X [ Y 'bch'cb`m\_YY dg 'Y Xi WUhcfg UV fY Ugh'cZ WcbhYa dcfUfm'dfUWh]WYg 'Vi h'U`gc 'gdUf\_g 'Y bh\i g]Uga UbX 'Wc``UV cfUh]cb 'k ]h\]b 'h\Y'dfc ZY gg]cb" 'Mci 'WUb 'Y I d`cfY 'a cfY UV ci h'i dWca ]b [ 'Yj Ybhg 'Uh'K Y '5 fY 'HY UW Yfg"

±b·gi a a Ufmžík ]h\; F ±H7·¼ gh·Ufci bX·h\Y·WcfbYf·]b·6U`Xk ]b
7ci bhmžíYXi WUhcfgʻ\Uj Y·U·k cbXYfZi ``cddcfhi b]hm·hc·fY¼ j YbUhY
h\Y]fˈdUgg]cb·Zcf·hYUW\]b[ ž·fYZ]bY·h\Y]fˈg\_]``gž·UbX·bYhk cf\_ˈk ]h\
`]\_Y!a ]bXYX·dfcZYgg]cbU`g"·K \Yh\Yf·mci fY·gYY\_]b[·h\Y·`UhYgh
ghfUhY[]Yg·Zcf·mci f·WUggfcca ˈcf·`cc\_]b[·hc·Yb[U[Y·k]h\·h\Y
Wca a i b]hmžíh\]g·WcbZYfYbWY·gYfj Yg·Ug·U·fYa ]bXYf·h\Uh·h\Y·Zi hi fY
cZYXi WUh]cb·]q·]bXYYX·Vf][\h"

Cfh	: U]f\cdYž'5`UVUa Už'l G5
EiY``Yb	<ul><li>kkk"[i`ZWcUgha YX]U"Wca</li><li>VYhhYfVU`Xk]b"Wca</li></ul>
	• k k k "k YUfYhYUW Yfg"Wca

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