

# **SOCW1001**

=blfcXi Whob ho GcWJU`K cf\_

HYfa 'C bY''##'&\$&%

# 7ci fgY 8YHJ] g

#### 7 fYX]hDc]bhg \* \*

### Gi a a UfmcZh\Y'7ci fgY

H\]g`Wci fgY`]bhfcXi WYg`mci 'hc'h\Y`gWcdY`UbX`dUfUa YhYfg`cZh\Y`gcWJU``k cf\_'dfcZYgg]cb"'\didfcj ]XYg`Ub cj Yfj ]Yk 'UbX`fUh]cbU`Y`Zcf'h\Y`6GK fk cbgŁ`W ff]W`i a 'VmdfYgYbh]b['cb'\_YmUfYUg`cZgcWJU``k cf\_\_bck `YX[Y`UbX`dfUW]WYž]bWi X]b['h\Y`X]j Yfg]hm\CbhYl hg`cZgcWJU``k cf\_']bhYfj Ybh]cbž'h\Y`fUb[Y`cZh\Ycfm UbX`\_bck `YX[Y`h\Uh']bZcfa g`gcWJU``k cf\_'dfUW]\W`ž'UbX`h\Y`\CZYh\]\wg`h\Uh'[i]XYg`dfcZYgg]cbU`]bhYfj Ybh]cb"'5 'j Uf]YmicZ\WgY`ghi X]YgžgcWJU``k cf\_'dfUWf\WYg\WbUf]cg`UbX`dfUWf]hcbYf`dYfgdYWJj Yg`k]``VY`i gYX`hc']`i ghfUhY`h\]g`a UhYf]U`"5dd`]YX`gcWJU``k cf\_'Z]Y`X`Yl Ua d`Yg`k]``U`gc`VY`i gYX`hc'Yl Ua ]bY`h\Y`]b\_g`VYhk YYb`\CbWYdhi U`\_bck`YX[Y`UbX`dfUWf]\WJ``Udd`]\WJh]cb"'5 'fUb[Y`cZfY`Yj UbhU[YbW]Yg`k]``VY dfcZ]YX`UbX`ghi X]YX`]b`h\]g`\Ci fgY"

### 7 ci fgY @YUfb]b[ Ci hMca Yg

%" 91 d`U]b 'gcW]U``k cf\_'h\YcfmUbX'j U`i Yg

&" Cih]bY'h,Y'X]j YfgY'fUb[Y'cZZ]Y`Xg'UbX'WcbhYl hg'k]h,]b'k\]W.'gcW]U`k cf\_']bhYfj Ybh]cb'a UmcWW f' "5dd`m\_bck`YX[Y'cZgcW]U`k cf\_'h,YcfmUbX'j U`i Yg'hc'U'fUb[Y'cZgcW]U`k cf\_'Z]Y`Xgž'WcbhYl hgž a Yh,cXgž'UbX']bhYfj Ybh]cbg

("91Ua]bY'h\Y'fc`Y'cZgcWU`kcf\_'h\Ycfm'UbX'jU`iYg']b'gcWU`kcf\_'dfUW}W

#### HYUWX]b[ GlfUhY[]Yg

#### F UhjcbU`Y

H\]g`Wci fgY`]g`]bWi XYX`hc`YbUV`Y`ghi XYbhg`hc`XYj Y`cd`U`\_bck `YX[ Y`VUgY`UbX`g\_]``g`]b`Wf]h]WU``UbU`mg]g`h\Uh WUb`VY`Udd`]YX`hc`\_YmUfYUg`cZWcbWfb"'H\]g`k]````UmU`gc`]X`Zci bXUh]cb`Zcf`h\Y`XYj Y`cda YbhcZZ fh\Yf gc\]U``k cf\_\_bck `YX[ Y`UbX`dfUWf]\W`g\_]``XYj Y`cda Ybh'`H\]g`fYZY\Wg`ci f`dcg]h]cb`h\UhdfUWf]\W`k ]h\]b`h\Y Gc\]U``K cf\_\_ZJY`X`k]```fYei ]fY`ghi XYbhg`hc`VY`Yei ]ddYX`k]h\`Vch\`\_bck `YX[ Y`cZh\Y`gY\\cf\Ug`U \\f\]h\Uh`Zf\Ua Yk cf\_`hc`i gY`]b`i bXYfgh\bX]b[ 'h\Y`bYYXg`cZ\W]Ybhg`[ fci dgz'h\Y`]bZi Yb\W`cZ\\cb\HYI hcb \XYZ[b]b[ 'h\Y)f'bYYXg`UbXz`]b`i h\Y`][\hcZh\Uhzh\Y`fc`Yg`h\Uhgc\]U``k cf\_Yfg`a ][\hd`UmUg`U`fYgi `hcZh\]g"

#### HYUWX]b[ GlfUlY[]Yg

H\Y'HYUW\]b[']g'ZcW gYX'Ufci bX'U'bi a VYf'cZWUgY'ghi X]Yg'k\]W\'k]``VY'i gYX'hc'Yl d`cfY'h\Y'fUb[Y'cZ UggcW]UHYX'GcW]U`'K cf\_]ggi Yg'H\Uh'Uf]gY'Uh']bX]j ]Xi U'ž'ZJa ]`mž'Wca a i b]\m'UbX'gcW]YHU`''Yj Y`g'''H\Y'WUgY Yl Ua d`Yg'k]``'Ybgi fY'h\Y'Wcbg]XYfUh]cb'cZYH\]WU`'X]`Ya a Ugž'UbX'h\Y'fUb[Y'cZdcgg]V`Y'gcW]U`'k cf\_gYfj ]WY'fYgdcbgYg'''H\Y'h\fYY'\_Ym]ggi Yg'cZX]j Yfg]\mž'a YbHU``\YU'\\ 'UbX'W\]`X'k Y``VY]b[#dfchYW]cb'k]``VY h\Y'ZcW g'cZ`YUfb]b["'GdYW]ZJWdcdi `Uh]cbg'cZ: cf[chYb'5i ghfU`]Ubgž'h\Y'Ghc`Yb'; YbYfUh]cb'UbX'5gmi a GYY\_Yfg'k]``VY'i gYX'hc']`i ghfUhY'h\YgY'\_YmUfYU'UfYUg"

C bY 'VUg]WUggi a dhjcb k Y a U\_Y ']b 'h ]g 'Wci fgY ']g 'h Uh'U` 'gh XYbhg 'Vf]b[ 'VUW\_[ fci bX '\_bck `YX[ Y 'UbX `]ZY YI dYf]YbW' 'hc 'WUggYgž'UbX 'h Uh']h]g 'h Uh\_bck `YX[ Y 'UbX 'YI dYf]YbW' 'h Uh']g 'U`fYUXmdcggYggYX k \]W\ ']g h\Y 'a cgh]a dcfhUbh']b[ fYX]Ybh']b ``YUfb]b[ ']b '\d\ffcXi Wf]cb 'hc 'GcW]U` K cf\_" 'C i f'a Yh\cX cZhYUW\]b[ 'fYei ]fYg UWf] Y 'dUff]W]dUh]cb ']b 'gh XYbhfg ck b ``YUfb]b[ ž'UbX 'Ub 'UWf] Y i gY 'cZk \Uh']g 'U`fYUXm\_bck b"

 $\label{thm:condition} $$HYY`YWi fYg'k]``]bj c'j Y'X]gWi gg]cb'cZh\Y'h\YcfYh\WJ``]bZcfa Uh]cb'VY]b['ghi X]YX'Ug'k Y```Ug'dfYgYbhUh]cbg h\Uh'UfY'X]fYWhmfY`UhYX'hc'h\Y'dfUWf\WY'g]hi Uh]cbg'VY]b['ghi X]YX''Gca Y'dfYgYbhUh]cbg'k]```Wcbg]ghicZ'dYcd`Yk\c'\Uj Y'Z]fgh\UbX'dfUWf\WY'YI dYf]YbWYZ'UbX'h\]g']g'U'j U'i UV`Y'cddcfhi b]hmZcf'ghi XYbhg'hc'Ug_'h\Y]f'ck bei Ygh]cbg'UbX'\Uj Y'[YbYfU``WUgg'X]gWi gg]cb''$ 

# 5ggYgga Ybh

 $\label{eq:continuous} K YY\_g`\% (`cZ`YWi fYg`UbX`hi hcf]U`g`k ]```Wcj Yf`WcbhYbhih\Uh]g`X]fYWimfY`Yj Ubhihc`Wca d`Yh]cb`cZ \\ 5ggYgga Ybh'&`k \]`Y`k YY\_g`) !%$`cZ`YWi fYg`UbX`hi hcf]U`g`k ]```Wcj Yf`WcbhYbhih\Uh]g`X]fYWimfY`Yj Ubhihc Wca d`Yh]cb`cZ5ggYgga Ybh'&''`$ 

 $\label{eq:continuity} $$H^[g^]g^k \m^UhYbXUbW^[g]g^a dcf^UbhUbX^UW^[g]Y^dUf^gV^[dUf^g]g^UbX^Wcaaib]WUf^gcb^k]h^mcif^YW^ifYf^UbX^iffg^g^gYggYbh^gU^m^G$ 

; YbYfU``ZYYXVUW\_cb`UggYgga YbhWca d`Yh]cb`k]```VY`dfcj]XYX`]b`K YY\_'\*`cZHYfa `UbX`XYfU]`YX`ZYYXVUW\_k]```VY`dfcj]XYX`cb`mci f`a Ubi gWf]dhg"`D`YUgY`Ybgi fY`mci `fYUX`U```Wca a Ybhg`UbX`gYY\_`\Y`d`YUf`m]Zmci bYYX`]h'`K Y`UfY`\YfY`hc`YbWci fU[Y`UbX`gi ddcfhmci f`XYjY`cda Ybh'Ug`UWf];Y`UbX`fYZYI]jY`YUfbYfg"`

### 5ggYgga YbhHUg\_g

5ggYgga Ybh'tUg_	K Y][ \h	8iY'8UHY	Gh XYbh@YUfb]b[ CihWca Yg 5ggYggYX
7 f]h]WU`'91 YfW]gY'cb'hcd]Wg fY`Yj Ubhhc'h\Y'Wci fgY'	(\$1	%+#\$' #&\$&%'%%\$\$'DA	%
5bU`mg]g`cZ7cbHYI hUbX DfUWf]WY`fY`Yj Ubhhc`h\Y Wci fgY`	*\$1	&, #\$(#&\$&%`%%\$\$`DA	&ž' ž'(

### 5ggYgga Ybh'8YhJ]`g

5ggYgga Ybh% 7f]h]WU`9l YfW]gYcb hcd]Wg fY`Yj Ubhhc h\Y Wci fgY

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\.'%) \$\$'k cfXqž']bWi X]b['fYZYfYbWq

8 YHJ] g.

5 %) \$\$!k cfX Ugg][ ba Ybhcb hcd]Wg fY Yj Ubhhc h\Y Wci fgY"

Gh XYbhg UfY [ ]j Yb k f]hhYb ZYYXVUW k ]h\]b hk c k YY\_g cZgi Va ]gg]cb"

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

± 'h\]g'Ugg][ ba Ybhmci 'UfY'fYei ]fYX'hc'gi Va ]hZci f'g\cfhghUhYa Ybhg'h\Uhgi a a Uf]gY'mci f'W ffYbh i bXYfghUbX]b[ 'cZ\_YmY`Ya Ybhg'cZ`YUfb]b[ ']b'mci f'ci fbYmhc'VYWca ]b[ 'U'gcWJU`k cf\_Yf"

- %" 8 ]gW gg C B 9 cZh\Y:XYZ]b]h]cbg cZgcW]U`k cf\_'dfcj ]XYX`]b h\]g Wci fgY"'9 I d`U]b \ck ']hYb\UbWg mci f'i bXYfghUbX]b[ 'cZgcW]U`k cf\_'Ug'U'dfcZYgg]cb UbX'U`gc YI d`U]b k \mh\YfY`]g bch'\ ghcbY XYZ]b]h]cb cZgcW]U`k cf\_"'7 ]hY h\Y gci fW cZh\Y:XYZ]b]h]cb UbX'Ubmch\Yf gci fWg cZ]bZcfa Uh]cb mci 'XfUk 'i dcb'f( \$\$'k cfXgŁ"
- &" GY`YWhUbX`XYgWf]VY`CB9`h\YcfmZcf`gcWJU``k cf\_žci h]b]b[`'h\Y`\_Ym'WcbWYdhgž'a U]b`'h\Ycf]ghgž\ck `]h ]g`i gYX`]b`gcWJU``k cf\_"'UbX'Yj ]XYbWY`h\UhYI d`U]bg`cf`gi ddcfhg`h\Y`h\YcfmfFYZYf`hc`7\Ybck]h\`UbX

- A WUi `]ZYž'&\$% ž'7 \UdhYf') ž'UbX'Uh``YUghcbY'ch\Yf'gci fWYŁ"'f(\$\$'k cfXgŁ"
- "FYUX'K U'hYf'/ '6U'hfu!I ``cU'f&\$% Łž7 \udhYf'(']b'Cif'Jc]WYg"'FYZYff]b['hc'h\]g'hYI hUbX'ch\Yfg'Ug bYYXYXžci h]bY'h\Y'\]ghcfmcZh\Y'gcWJU''k cf\_'dfcZYgg]cb']b'5i ghfu']U'UbX'h\Y'W ffYbh]a dUWg'cZ Wc'cb]gUh]cb"'9I d'U]b'k \Uh]g'a YUbhVmfk\]hY'df]j]Y[YfiUbX'YI d'U]b'k \mh\Y'dfcZYgg]cb'bYYXg'hc fY!h\]b\_'qcWJU''k cf\_']b'5i ghfu']U"'f(\$\$'k cfXqŁ"
- ("Gruhy'h\y'gcWju`kcf\_'u[YbWmmci'k]```fygYufW\h\]g'hyfa":8YgWf]VY'h\y'u[YbWmVf]YZmžcih]b]b[h\y'difdcgY'UbX'aU]b'gYfj]Wyg'dfcj]XYXž'UbX'h\y'Z]Y`X'UbX'WcbhYlhcZdfUWjWyž'Wjh]b['h\y'gcifWygcZU```]bZcfaUhjcb'fl\$\$'kcfXgŁ"

Gi Va ]gg]cb'bchYg. 'D`YUgY'Zc``ck 'h\Y'GW\cc``fYZYfYbV]b[ '[ i ]XYž'Wcbgi `h'h\Y'fi Vf]Wz'Ubgk Yf'U```ei Ygh]cbg Ug\_YX'UbX'Zcfa Uhmci f'Ugg][ ba Ybh'Uddfcdf]UhY`m"

 $\label{thm:limit} \begin{tabular}{ll} Hi fb]h]b gYh]b[."H\]g Ugg][ba Ybh]g gi Va]hYX"h\fci [\hlimb]h]b UbX"ghi XYbhg `Wbb"gYY"Hi fb]h]b g]a]`Uf]hm fYdcfhg"$ 

5ggYgga Ybh& 5bU'mg]g cZ7cbhYl hUbX DfUWhW fY'Yj Ubhhc h\Y Wci fgY

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[ h\. '&) \$\$ k cfXgž]bWi X]b[ 'fYZYfYbWg

8YHJ]`q.

5 &) \$\$!k cfX Ugg][ ba Ybhcb U hcd]WfY Yj Ubhhc Wci fgY a UhYf]U"

Gh XYbhg UfY [ ]j Yb k f]hhYb ZYYXVUW\_k ]h\]b hk c k YY\_g c Zgi Va ]gg]cb"

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

- %" GY`YWnU'5i ghfu`]Ub`\i a Ub`gYfj ]WYg`cf[ Ub]gUh]cb`hc`fYgYUfW\"
- &" F YUX'h\Y'cf[ Ub]gUh]cb'g'k YVg]hY'UbX'a cghfYWbhUbbi U``fYdcfh'Ug'k Y```Ug'dYYf`fYj ]Yk YX `]hYfUhi fY'UVci h'h\Y']Y`X'cf'WcbhYl hcZdfUWf)WV"
- ' "BYI hž``]ghYb`hc`U`dcXWUghž'k UhWX`U`j ]XYcW]d`cf`a YYhk]h\`U`gcW]U``k cf\_Yf`XYgWf]V]b[``UbXX]gW gg]b[`'h\Y]f`k cf\_`]b`h\Y`cf[ Ub]gUh]cb`mci `UfY`fYgYUfWX]b[ z`cf`U`j Yfmg]a ]`Uf`cbY"
- ("Dfcj]XY`U`'WcbhYI hi U`]gYX`UbU`mg]g`cZdfUWf]WY`'VmUbgk Yf]b[`h\Y`ei Ygh]cbg`VY`ck.
  - %" Ghuhy h\y bua y cZh\y cf[ ub]guh]cb"
  - &" 8 ]gW gg h\Y X\WV aXbdSUf[UW]b k \ ]WX h\Y cf[ Ub]gUh]cb Z bWf]cbg fl \$\$ k cfXgŁ"
  - ' " I g]b[ 'Ub']bhYfgYWf]cbU```YbgžXYgWf]VY'h\Y'babg'\$f[a` k ]h\'k \ca 'h\Y'cf[ Ub]gUh]cb'k cf\_g WcgY`m''K \UhUfY'h\Y]f'bYYXg'UbX']ggi Yg'UbX'k \UhdfcXi Wg'h\YgY'bYYXg'UbX']ggi Yg3 f1 \$\$'k cfXgŁ"
  - ("8]gW gg'U'fZV\ack fZSf[\ \text{Xad}\_e'gc\W]U''k cf\_'dfU\W]\W'']b'h\]g'cf[\ Ub]gUh]cb'fl \\$\$'k cf\xg\!''
  - ) "8 YgWf]VY 'U'\_ WfZaV aXeaU[S^i ad] bcSUf[UWi h]`]gYX`]b`h\Y`cf[ Ub]gUh]cb`f1 \$\$`k cfXgŁ"

- \*" 8 ]gWi gg fZ d/WV] Wk e] [/e gc W]U k cf\_Y fg k ]```i h]`]gY f]b h ]g cf[ Ub]gUh]cb fl \$\$ k cf XgŁ"
- +" 8 YgWf]VY'S 'Si 'h\Uh]g'fY'Yj Ubh'hc'h\Y'k cf\_'cZh\Y'cf[ Ub]gUh]cb'fl \$\$'k cfXgŁ"
- , " 8 YgWf]VY `\ck 'h\]g'cf[ Ub]gUh]cb'UXXfYggYg'Uh`YUgha` WaXfZWUadWhS'gWe'cZh\Y'gcW]U` k cf\_'dfcZYgg]cb'f) \$\$'k cfXgŁ
- " 9I d`U]b k \mmci 'WkcgY'h\]g cf[ Ub]gUh]cb hc fYgYUfWk f&\$\$ k cfXgŁ"

#### 5 https://bxubww.F.Yei ]fYa Ybhq

DUffbYfg\]dg`UbX`Wc``UVcfUh]cb`VYhk YYb`ghi XYbhg`UbX`YXi WUhcfg`UfY`dUfh]W``Uf`m`]a dcffUbhi]b`gcWjU``k cf\_`YUfb]b["'5g`k Y``žhc`a U]bhU]b`ci f`UVWfYX]hUh]cb`Ug`U`dfcj ]XYf`cZgcWjU``k cf\_`YXi WUh]cbž]hi]g`]a dcffUbhih\Uh YUW\`ghi XYbhZ]bXg`h\Ya gY`j Yg`]b`Ub`Ybj ]fcba Ybhk\YfY`h\YmUfY`UV`Y`hc`YI dYf]YbWY`U```WcbhYbhhc`U`\][\`Yj Y``cZXYdh\`UbX`Yb[U[Ya Ybh': cf`h\]g`fYUgcbžUWhj Y`dUfh]W]dUh]cb`UbX`Wca a ]ha Ybhhc`UhhYbXUbWY`]g YI dYWYX`cZU```ghi XYbhg"`

7 ca dUgg]cb 'UbX' WcbWYfb 'Zcf'gh XYbhk Y`ZUfY']g'k \Uhk Y'ghf]j Y'Zcf']b'ci f'dfcj ]g]cb 'cZgcW]U``k cf\_ YXi WUh]cb 'UbX'h\]g']g'YbUV`YX`Vmhk c!k UmWca a i b]\WUh]cb''7 ca a i b]\WUh]cb']g'YgdY\W]U``m]a dcfhUbhk \Yb'`Ughi XYbh]g'Yl dYf]Yb\W]b[ ``YUfb]b[ `VUff]YfgždUfh]\W `Ufmh\cgY'k \]\W\ 'UZY\Wh\WUgg'UhhYbXUb\W'`UbX'\Wca d`Yh]cb cZ]bXYdYbXYbh`YUfb]b[ `HUg\_g''

Hc Ybgi fY 'h\Unghi XYbh`YUfb]b[ 'UbX`k Y``VY]b[ ']g'Uhh\Y`ZcfYZcbhcZU```XYWJg]cbg'a UXYž'k Y`YbWci fU[ Y`U``ghi XYbhg'hc 'Wca a i b]WUhY 'UbmVUff]Yf'hc 'UhhYbXUbWY'hc 'mci f'Wci fgY 'Wcbj Ybcfž``YWhi fYf'cf'hi hcf'Ug'gccb'Ug dcgg]V`Yž'gc'U'Wc``UVcfUh]j Y'd'Ub'WUb'VY'XYj Y`cdYX'hc 'k cf\_'Ufci bX'h\YgY'VUff]Yfg"'

⊋mci f'UhhYbXUbW']g'UZYWhYX'Zcf'U']a ]hYX'dYf]cX'cZh]a Yž'k Y'k ]```fYZYf'mci 'hc'gY`YWhYX'U`hYfbUhY'hUg\_g'k Y \Uj Y'WfYUhYX'hc'dfca chY'mci f'UWWgg'hc'j ]hU``WcbhYbh]b'h\]g'Wci fgY"'H\YgY'U'hYfbUh]j Y'hUg\_g'Wb'U`gc'VY Wca d`YhYX'Vmghi XYbhg'k \cgY'UhhYbXUbWY']g'YI Ya d`UfmUbX'k \c'k ]g\ 'hc'YI hYbX'h\Y]f'`YUfb]b["'K Y'k]`` YI dYWfmci 'hc'hU\_Y'Z ```fYgdcbg]V]`]hmUbX']b]hJuh]j Y'Zcf'Wca d`Yh]b['h\YgY'U'hYfbUhY'hUg\_g'UbX'hc'Ybgi fY'h\Uh ]b'Wca d`Yh]b['h\Ya'mci 'XYj Y`cd'U'['ccX'k cf\_]b['\_bck`YX['Y'cZh\Y'WcbhYbha ]qqYX"

Cif'U]a ']g'hc'ZcghYf'Ub'Ybj ]fcba Ybhk \YfY'ghi XYbhg'ZYY`'Wca ZcfhUV`Y'Wca ]b['Zcfk UfX'fY[UfX]b['WcbWYfbg UVci hh\Y]f'`YUfb]b['UbX'UhhYbXUbWY"'6UgYX'cb'Yl dYf]YbWYz']Zmci f'UhhYbXUbWY'Xfcdg'VY`ck 'U'WYfhU]b'`Yj Y` ]h]g'i b`]\_Y`mmci 'k]``\Uj Y'h\Y'g\_]``g'UbX'\_bck 'YX[Y'hc'YZYWf]j Y`mUW\]Yj Y'h\Y'`YUfb]b['ci hWca Yg'cZh\]g Wci fgY/k \]W\]g'k \mk Y'\][\`mYbWci fU[Y'UWf]j Y'UhhYbXUbWY'UbX'dUfh]W]dUh]cb"'K ]h\ 'YZZYWf]j Y Wca a i b]WUh]cb'UbX'd'Ubb]b['k Y'YbXYUj ci f'hc'Uj c]X'g]hi Uh]cbg'k \YfY'ghi XYbhg'ZYY`'h\Ym\Uj Y'bch UXYei UhY`mYb[U[YX'k]h\Yh\Y'wci fgYz'UbX'h\YfYzcfY'ghfcb[`mYbWci fU[Y'ghi XYbhg'ZYY`'h\Ym\Ubm WcbWYfbg'Ug'YUf'mUg'dcgg]V`Y'''K Y'k Ubhhc'U[U]b'Ya d\Ug]gY'h\Y']a dcfhUbWYcZWc``UVcfUh]cb'UbX Wca a i b]WUh]cbz'UbX'U\\_bck 'YX[Y'h\Y'i b]ei Y'W]fW a ghUbWyg'ghi XYbhg'a UmZ]bX'h\Ya gY'j Yg'Yl dYf]YbW]b["

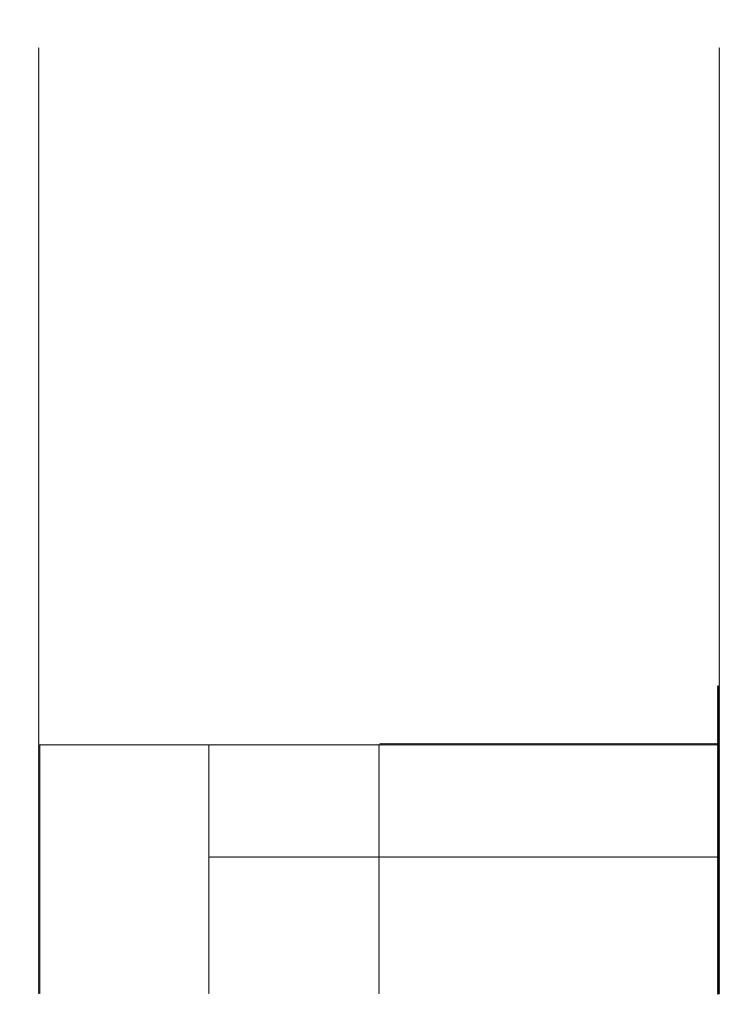
# 7 ci fgY GWX YXi `Y

#### J jyk 'Wugg'ha Yhuv'y

#### Hla YHJV`Y

8 UhY	Hmd Y	7 cbhYbh
K YY_'%'%) ': YVfi Ufmi!'% C b`]bY'5 : YVfi Ufm	C b`]bY 5 W¶j ]hm	±bHfcXi WY`mci fgY`Z`
		H\]g`cb`]bY`UWfj]]mik]``VY`UjU]`UV`Y`df]cf`fc`f\Y VY[]bb]b[`cZkYY_`%UbX`bYYXg`fc`VY`Wcad`YfYX`Vm f\Y`YbX`cZkYY_`%"`GYY`AccX`Y`Zcf`acfY ]bZcfaUf]cb`
	@YWn fY	H\Y`dfcZYgg]cbU``UbX`jU`iYg`VUgY`cZgcWJU``kcf_
	Hi lcf]U`	±blfcXiWf]cbihcih\YiWcifgYiUbXiWcbg]XYfUh]cb cZXYZ]b]h]cbgicZgcW]U`ik.cf_

K YY_'&.'&&': YVfi Ufm!'&' : YVfi Ufm	( @YWhifY	GcWJU`kcf_'h\Ycfm'5b'cjYfj]Yk'
	Hi lcf]U`	A Udd]b[ 'h\Y'_bck `YX[ Y'VUgY'cZgcW]U``k cf_ dfUW]VV
K YY_''.'%'A UfWX'!') A UfWX	@YWh fY	GcWJU`K cf_'J U`i Yg`UbX`9h\]Wg. 5Vcf][]bU``UbX HcffYg`GhfU]h=g`UbXYf`k UgmcZ_bck]b[ž'VY]b[`UbX Xc]b[
	Hi lcf]U`	GcWJU``K cf_`J U`i Yg`UbX`9h\]Wg.`K \]hYbYggž Df]j ]`Y[ Y`UbX`8YWc`cb]g]b[ 'GcWJU``K cf_
K YY_'(.', 'A UfWX'!'%&	@YWhifY	DfUWJWY`ZJY`Xg`UbX`WcbHYI hg
A UfVX	Hi lcf]U`	91 Ua ]b]b[ 'Z]Y`Xg`UbX`WcbhYl hg`cZgcW]U``k cf_ dfUWf]WY`UbX`h\Y`gYWhcfg`]b`k \]W\`gcW]U``k cf_Yfg dfUWf]WY
K YY_').'%)'A UfWX'!'%- A UfWX	@YWhifY	A YH\cXg`cZDfUWf]WY.`A ]Wfc`UbX`A UWfc`@Yj Y`g`cZ W\Ub[Y
		7 ci bgY``]b[ž7 UgYk cf_ž7 UgY A UbU[Ya Ybhž; fci dk cf_ž7 ca a i b]hmK cf_žF YgYUfWXžDc`]Wh UbX`GcWJU``5Xj cWUWh
	Hi lcf]U`	A Yh\cXg`cZDfUWn]WY.`A ]Wfc`UbX`A UWfc`@Yj Y`g`cZ WXUb[Y
		7 ci bgY``]b[ž7 UgYk cf_ž7 UgY`A UbU[Ya Ybhž; fci dk cf_ž7 ca a i b]hmK cf_žF YgYUfWXžDc`]Wh UbX`GcW]U``5 Xj cWUWh
	5ggYgga Ybh	5ggYgga Ybh%Xi Yʻ: f]XUm%+h\`A UfVX
	C b`]bY`5W¶j ]lm	6Yfk YYb'k YY_g')!+'mci 'k]```\Uj Y'f\Y'cddcffi b]fmifc UWfj Y`mYl d`cfY'gcWjU`'k cf_'a Yf\cXg'cZdfUWfjWfž j ]U'cbY'cf'a cfY'cZf\Y'Zc``ck]b['UWfj]JfjYg.'
		ł '@]ghYb 'hc 'cbY 'cf'a cfY 'cZh\Y fYWca a YbXYX'dcXWUghg k \YfY 'gcWJU` 'k cf_Yfg X]gW gg 'h\Y]f'dfUWJWY
		ł @]ghYb hc cbY cf Vch cZh Y fYWcfXYX dfUW]W X]gW gg]cbg dfcj ]XYX
		ł K UhW. h.Y fyWca a YbXYX Z] a g#dfUWfJW j ]XYcg
		ł J ]g]hUb U[YbWmUbX HU_Y bch/g UVci himci f Yl dYf]YbW/
		8 cW a Ybhk \Uhmci '\Uj Y 'YUfbh']b 'U'V'c[ 'cZUh'YUgh %\$\$ 'k cfXgž'UbX'U`gc'Wta a Ybhcb'Uh'YUghik c'ch\Yf



		UbX`dfUWjWY`UgdYWg`Zcf`h\]g`kYY_"`
K_YY_`%\$.`%_'5df]``!`&' 5df]`	@YWhi fY	BYk 'c'i fbYmg']b'gcWJU`kcf_
	Hi hcf]U`	8 Yj Y`cd]b[ 'U'dfUWjWY'ZfUa Yk cf_žh\Y']a dcfhUbWY'cZ gY`ZWUfYž'Wcbhjbi ]b[ 'hc'`YUfb'UbX'`cc_]b[ 'hc'h\Y Z hi fY
	5ggYgga Ybh	5ggYgga YbhΞ Y K YXbYgXUm&, h\ 5df]`

FYgci fW/g

# Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

## Hi fb]h]b Gi Va ]gg]cb

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb[ 'hc'gi va ]hmci f'Ugg][ ba Ybhh\fci [ \ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-', ) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'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"'=Z'mci
UfY'i bUV'Y'hc'gi va ]hmci f'Ugg][ ba YbhXi Y'hc'U'ZJi 'hk ]h\ 'Hi fb]h]b'mci 'a UmUdd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W\_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb[ 'k ]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj ]XYbW' hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k ]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W\_Yhbi a VYfZ'Vi h]Zmci 'hy'Yd\cby'mci 'k ]``bYYX'hc'gdYW]Z]WJ'`mUg\_'Zcf'cby''
Hi fb]h]b'U'gc'dfcj ]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk ]hyf''

; YbYfU`mž'UggYgga YbhiHug\_g'a i ghVY'gi Va ]hhYX'Y`YVWfcb]\WJ``mij ]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk ]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k ]h\U`hYfbUh]j Y'gi Va ]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va ]hUgg][ ba Ybhgicbi]bYij ]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va ]hUgg][ ba Ybha ccXiY

# 5 WUXYa ]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[ 'h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b[ 'h\Ya `Ug`mci f`ck b"`±hWJb`hU\_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b[ 'hc`UWW]XYbhJ``mWcdm]b[ 'Zfca `U`gci fWY`k ]h\ci hUW\_bck `YX[ Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga ]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

 $7 \text{ cdm}b[...i g]b[...h\Y.gUa Y.cf.j Yfmig]a] \Uf'k cfXg'hc'h\Y.cf][]bU''hYl h'cf']XYU'k]h\ci h'U\V_bck `YX[]b[...h\Y.cf][]bU''hYl h'cf']XYU'k]h'cf']$ 

- 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'UgdYWhg'cZ9@&9'k]``\Y`d'mci 'a U\_Y'h\Y'a cghicZmci f'ghi X]Yg'Uh'l BGK "'\\hd.##gi V'YWfi |XYg"`]VfUfm'i bgk "YXi "Ui #\`]qY#JVci hY`]qY

# 5 WUXYa]W + DZcfa Uhjcb

: cf`YggYbh]U``ghi XYbh`]bZcfa Uh]cb`fY`Uh]b[`hc.

- fYei Yghg'Zcf'Yl hYbg]cb/
- `UhY`gi Va ]gg]cbg`[i ]XY`]bYg/
- fYj ]Yk 'cZa Uf\_g/
- I BGK '< YU'h\ 'UbX'GUZYhm'dc']W]Yg/
- YI Ua ]bUh]cb dfcW/Xi fYg/
- gdYWJU``Wcbg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg'cf'a ]gUXj Ybh fY/

cfYaa 5WiXYbhilb7c lb[ihc. %