



# SOSS3001

E i Ubhjhjhj Y'GcWjU`F YgYUfWx

HYfa `Hk c`#`&\$&\$

GWXcc`cZGcWjU`GWjYbWjg`#`I BGK ``5ffg`UbX`GcWjU`GWjYbWjg

7 ci fgY`Cj Yfj ]Yk

GHJZ 7 cbHJW`8YHJ]`g

7 cbj Ybcfg

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
7 ]bXm< Ufa cb! >cbYg	W\Ufa cb!`cbYg4 i bgk "YXi "Ui	VmUddc]bha Ybh	fYa chY	

Hi hcfg

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
9`jnUVYh Gi a a YfY`	Y"gi a a YfY`4 i bgk "YXi "Ui			
Gmj ]U`< Ufa cb! >cbYg	g"\Ufa cb!`cbYg4 i bgk "YXi "Ui			

7ci fgY'8YHJ]`g

7fYX]hDc]bqg`\*`

Gi a a UfmicZ\Y'7ci fgY

Gi VYWh5fYU.'GcW]U`F YgYUfW\`UbX'Dc`]Wn

H\Y'UV]`]mhc`WcbXi W\[\`ei U`]mei Ubh]hU]j Y`fYgYUfW\`]g`U`j U`i UV`Y`g\_]`Zcf`gcW]U`gWYb]g]g`UbX`Udd`]YX  
gcW]U`fYgYUfW\Yfg`H\]g`Wci fgY`cZZYfg`mci`U`XYHJ]YX`]bfcXi W]cb`hc`ei Ubh]hU]j Y`fYgYUfW\`a`YhcXg`UbX  
XUH`UbU`mg]g`H\Y`Z]fghdUfmcZ\Y`Wci fgY`Y`UVcfUH]g`cb`a`U`cf`hYa`Yg`]b`fYgYUfW\`XYg][`b`fY`["z  
a`YUgi`f]b[`gcW]U`WcbW]d]g]gUa`d`]b[`z`XUH`Wc`YW]cbL`UbX`Wca`a`cb`WU`Yb[`Yg`fY`["z[`YbYfU`]gUV]`]mz

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g

5ggYgga YbhHUg_	K Y][ \h	8i Y'8UH	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
F YgYUfW'F Ydcfh	( \$i	\$* #\$, #&\$&\$ %%%\$ \$'DA	%ž ž( ž)
GHUhg]Wg'fU_Y!\ca Y'hYgng	* \$i		&ž( ž)

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh% F YgYUfW'F Ydcfh

GHUfhXUH.

8YHU]`g.

H\]g'UggYgga YbhWcbg]gh'cZU'fYgYUfW'fYdcfhU]bW'XYg'U'j]fYUhi fY'fYj ]Yk ža Yh'cX'XYgW]d]cbž fYgi 'hg'dfYgYb]U]cb'UbX'XYgW]d]cbžX]gW'gg]cb'UbX'WcbW'g]cb'VUgYX'cb'h'Y'Wci fgY'fYgYUfW'hc]WUbx XUHU'Wc'YWYX'Xi f]b[ 'h'Y'gYa YghYf"

&ž) \$\$'k cfxg"H\]g ]g'h'Y'Z]bU'UggYgga YbhZcf'UHf]bXUbW'idi fdcgYg"

Gh XYbh'k ]'fYW]j Y'k f]h'Yb'ZYXVUW'UbX'U'bi a Yf]W' [ fUXY'k ]h ]b'k c'k YY\_g'cZgi Va ]gg]cb'h'fci [ \ h'Y'I b]j Yfg]mfg '@YUfb]b[ 'A UbU[ Ya YbhGmg]Ya 'f@A GE' H\Y'ZYXVUW\_g\YYh'fi Vf]Wk ]'VY'Uj U]UV'Y'hc gh XYbh'Uh'h'Y'ghUfhcZ'h'Y'Wci fgY'gc'h'U'h'h'YmW]b'k cf\_'hc k UfXg'gdYW]ZYX'ghUbxUfXg"

Hi fb]h]b'gYH]b[ . H\]g'Ugg][ ba Ybh]g'gi Va ]h'YX'h'fci [ \ Hi fb]h]b'UbX'gh XYbh'W]b'gYY'Hi fb]h]b'g)a ]Uf]m fYdcfhg"

5ggYgga Ybh&. GHUhg]Wg'fU\_Y!\ca Y'hYgng

GHUfhXUH.

8YHU]`g.

H\]g'UggYgga Ybh'k ]'Wcbg]gh'bh'cZci f'fU\_Y!\ca Y'h'Ygng"9UW'cbY'k ]'fYei ]fY'gh XYbh'hc'gi Va ]h'6A GDGG'GHUhg]Wg'fGHUhg]W'GcZk UfY'ci hdi hdi'g %) \$'k cfxg'cb'h'Y'f]bh'f'fYU]h]cb'cZk \U'h'h'Y ci hdi ha YUbg"

Gh XYbh'k ]'fYW]j Y'k f]h'Yb'ZYXVUW'UbX'U'bi a Yf]W' [ fUXY'k ]h ]b'k c'k YY\_g'cZgi Va ]gg]cb'h'fci [ \ h'Y'I b]j Yfg]mfg '@YUfb]b[ 'A UbU[ Ya YbhGmg]Ya 'f@A GE' H\Y'ZYXVUW\_g\YYh'fi Vf]Wk ]'VY'Uj U]UV'Y'hc gh XYbh'Uh'h'Y'ghUfhcZ'h'Y'Wci fgY'gc'h'U'h'h'YmW]b'k cf\_'hc k UfXg'gdYW]ZYX'ghUbxUfXg"

5XX]h]cbU'XYHU]`g.

GYY'hY'k YY\_mgWXYXi 'Y'Zcf'hY'Xi Y'XUhg'cZ'hY'('hU\_Y'\ca Y'h'ghg"

Hi fb]h]b'gYh]b[ . 'H\]g'Ugg][ ba Ybh]g'gi Va ]hYX'h'fci [ \ 'Hi fb]h]b'UbX'gh XYbhg'WJb'gYY'Hi fb]h]b'g)a ]'Uf]m fYdcfg"

5 hYbXUbW'F Yei ]fYa Ybhg

Gh XYbhg'UFY'ghfcb[ 'mYbWci fU[ YX'hc'UhhYbX'U''WUggYg'UbX'fYj ]Yk ''YWhi fY'fYWcfX]b[ g"

7 ci fgY'GWXYXi `Y

[J \]Yk 'WUgg'hja YhUV`Y](#)

H]a YhUV`Y`

8UhY	HmdY	7cbhYbh
K YY_`\$.`&` `A Um!`&- A Um		
K YY_`%`%>i bY!`) `>i bY	@YWhi fY	!`K `Uh]g`ei Ubh]hUj] Y`fYgYUfW3  !`A YUgi f]b[ `gcW]U`WcbWdhg  F YUX]b[ .`7`UdhYf`%
	Hi hcf]U`	!`b]fcXi W]cb`hc`GDGG  !`Gi fj YmZcf`7 ci fgY`Dfc YWh
K YY_`&`,`>i bY!`%& >i bY	@YWhi fY	!`GUa d`]b[  !`; fUd\]W]`X]gd`UmicZXUfU  !`F YUX]b[ g.`7`UdhYfg`&`UbX`"
	Hi hcf]U`	!`C VhU]b]b[ `ZfYei YbWnhUV`Yg`UbX`[ fUd\g
K YY_`"`.%) `>i bY!`%>i bY	@YWhi fY	!`8 YgW]dhj] Y`ghUhg]Wg  !`F YUX]b[ .`7`UdhYf`(`
	Hi hcf]U`	!`8 YgW]dhj] Y`ghUhg]Wg ]b`GDGG
K YY_`(`.&&>i bY!`&*>i bY	@YWhi fY	!`DfcVUV]]miUbX`\mdch Yg]hYgh]b[  !`F YUX]b[ .`7`UdhYf`%\$
	Hi hcf]U`	!`8 UfU`dfYdUfU]cb`UbX`WYUb]b[
	5ggYgga Ybh	HU_Y`\ca Y`hYgh`,`%`8 YgW]dhj] Y`ghUhg]Wg`Xi Y`: f]XUm &(`>i bYz`%da
K YY_`)`.&-`>i bY!`" `>i `m	@YWhi fY	!`7 cffY`U]cb  !`F YUX]b[ .`7`UdhYf`,`
	Hi hcf]U`	!`7 cbXi W]b[ `WcfY`U]cbg`]b`GDGG
K YY_`*`,`*`>i `m!`%\$`>i `m		!`: `YI ]V]]mk YY_z`bc`"YWhi fY`cf`h hcf]U`g
K YY_`+`,`%`>i `m!`%+`>i `m	@YWhi fY	!`7 \]!gei UFY  !`F YUX]b[ .`7`UdhYf`-
	Hi hcf]U`	!`7 cbXi W]b[ `W]!gei UFY`]b`GDGG
	5ggYgga Ybh	HU_Y`\ca Y`hYgh`,`&`,`7 cffY`U]cb`Xi Y`: f]XUm%) `>i `m

K YY_ ; . & \$ ' > i ` m ! ' & ( ' > i ` m	@YWh fY	! ' Gh XYbhg` hYgh ! ' F YUX]b[ . ' 7 \ UdHYf )
	Hi hc f]U`	! ' 7 cbXi W]b[ ' hYgh]b` GDGG
	5ggYgga Ybh	HU_Y ` \ ca Y` hYgh . ' . ' 7 \ ]` gei UfY` Xi Y` : f]XUm&& ` > i ` m % % da
K YY_ - . & + ` > i ` m ! " % > i ` m	@YWh fY	! ' 5bU` mg]g` cZj Uf]UbW` f5BCJ 5Ł ! ' F YUX]b[ . ' 7 \ UdHYf` *
	Hi hc f]U`	! ' 7 cbXi W]b[ ' 5BCJ 5` ]b` GDGG
	5ggYgga Ybh	HU_Y ` \ ca Y` hYgh . ( . hYghXi Y` : f]XUm&- ` > i ` m % % da
K YY_ % \$ . " ` 5i [ i gh ! + 5i [ i gh	@YWh fY	! ' DU]fYX` hYgh ! ' bHYfdYh]b[ ` UbX` dFYgYbh]b[ ` fYgi ` hg ! ' F YUX]b[ . ' 7 \ UdHYf` +
	Hi hc f]U`	! ' 7 cbXi W]b[ ` dU]fYX` hYgh ! ' 5D5 ` Zcfa Uh
	5ggYgga Ybh	! ' F YgYUfW` F Ydcfh` : ]bU` dfc YWhXi Y` H\i fgXUm * ` 5i [ i gh % % da

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

? bUddž < "f&\$%+Ł" bfcXi Wc fmGHghgWg`l g]b[ `GDGG`f&bX`9X]hcbŁ`H\ci gUbX`C U\_gž 7 5. `GU[ Y"

F YWca a YbXYX`F Ygci fWg

H\Y`Zc`ck ]b[ `hk c`Vcc\_g`UFY`VYghY``]b[ ``WUgg]Wg``h UhUFY`\][ \`mfYWca a YbXYX`Zcf`Ubmigh XYbfg`k \c k Ubha cfY`VUW\_[ fci bX`]bZca Uh]cb`cf`YI Ua d`Yg`cb`hY`gh]gh]Wg`h`Wb]ei Yg`k Y`k ]``VY``YUfb]b[ ``H\Ym Vch`\Uj Y`a i`h`d`Y`YX]hcbg`UbX`mci`WUbc`Zyb`Z]bX`i gYX`Wcd]Yg`cZdfYj ]ci g`YX]hcbg`h UhUFY`fYUgcbUV`m df]W`X"

5bm9X]hcb`fl d`rc`hY`\*h`9X]hcb`bck Ł`cZ>i`]Y`DU`Ubfg`GDGG`Gi fj ]j U`A Ubi U`.DU`Ubhž>"f&\$%\*Ł"GDGG Gi fj ]j U`A Ubi U``A W fUk !<]``9Xi W]hcb`fl ? Ł"

\hdg.##k k k "U`YbUbXi bk ]b"Wca #/fck gY#/cc\_g]WUXYa ]WdfcZ]gg]cbU`#YgYUfW!a YhcXg#GDGGGi fj ]j U! A Ubi U!>i`]Y!DU`Ubh - +, %+\*\$&- %- ) &

5bm9X]hcb`fl d`rc`) h`9X]hcb`bck Ł`cZ5bXm: ]Y`Xfg`8]gWcj Yf]b[ `GHghgWg`l g]b[ `GDGG. : ]Y`Xž5"f&\$%+Ł" 8]gWcj Yf]b[ `GHghgWg`l g]b[ `ŁA`GDGG`GHghgWg`"GU[ Y`fl ? Ł"

\hdg.##k k k "X]gWcj Yf]b[ gh]gh]Wg"Wca #

7ci fgY`9j U`i Uh]cb`UbX`8Yj Y`cda Ybh



Gi Va ]gg]cb 'cZ5ggYgga YbhiHUg\_g

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

≠mci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b[ 'hc'gi Va ]hirci f'Ugg][ ba Ybhi'fci [ \ 'Hi fb]h]bž'd'YUgY  
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'- ' , ) " ' ' %cf'Ya U] 'h'Ya 'cb'YI HYfbU'HY'hgi ddcfh i bgk "YXi "Ui "'Gi ddcfh

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

D`U[ ]Uf]ga `]g`i`g]b[ `h`Y`k`c`f`X`g`c`f`]X`Y`U`g`c`Z`c`h`Y`f`g`i`U`b`X`d`f`Y`g`Y`b`h]b[ `h`Y`a` `U`g`m`c`i`f`c`k`b`" `#`W`U`b`h`U`\_`Y`a` `U`b`m`  
Z`c`f`a`g`Z`Z`c`a` `X`Y`]V`Y`f`U`h`Y` `W`X`Y`U`h]b[ `h`c` `U`W`W`Y`X`Y`b`h`U` `m`i`W`c`d`m]b[ `Z`c`a` `U`g`c`i`f`W` `k` ]h`c`i`h`U`W`\_`b`c`k` `Y`X[ `Y`a` `Y`b`h`

I`B`G`K` `[`f`c`i`d`g`d`U[ ]Uf]ga `]b`h`c` `h`Y` `Z`c` `c`k` ]b[ `W`U`h`Y`[ `c`f`]Y`g.



## 5 WUXYa ]WbZcfa Uh]cb

: cfYggYbh]U`gh XYbh]bZcfa Uh]cb fY`Uh]b[ `tc.

- fYei Ygh]ZcfYI H]bg]cb/
- `UhY`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk `cZa Uf\_g/
- I BGK `<YU`h`UbX`GUZYmdc`]WYg/
- YI Ua ]bUh]cb`dfcWYXi fYg/
- gdYW]U`Wcbg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a ]gUXj Ybh fY/
- gh XYbhYei ]mUbX`X]gUV`]m/
- UbX`chYf`YggYbh]U`UWUXYa ]W]bZcfa Uh]cbz`gYY

[\ftdg.#k k k "Uftg"i bgk "YXi "Ui #W ffYbhgh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchWc`g!\[ i \]XY`\]bYg#](#)

⇒ U[ Y`7 fYX]h

GmbYf[ ]Yg`]b`Gci bX`&\$%\*`