



7ci fgY`Cj Yfj ]Yk

`GHJZ7cbhJWh8YHJ]g`

`7cbj Ybcfg`

B Ua Y	9a U]	5j U]UV]]m	@cWjhcb	D\cbY
5a ]b`DU`Ub[ ]	U"dU`Ub[ ]4 i bgk "YXi "Ui	7cbgi `h]hcb. A cbXUm&da !" da	H65	!

GWXcc``7cbhJWh`bZcfa Uh]cb

Fcca " %&ž`Yj Y`` `F cVYfhK YVghYf`6i ]X]b[

D\cbY: %

h

%

%



7 ci fgY'8YHJ]`g

7 fYX]hDc]bhtg`\*`

Gi a a UfmicZ\hY'7 ci fgY

Gi VYWh5fYU.`? VW[S

æ'hcXUmŕg'a YX]U'f]W'k cfX'k Y'ZbX'U'j UghUffUmicZgŕcfmŕY''b[ 'dfUW]W'g": fca ': UWVcc\_`hja Y'`bYg'hc'j ]fU' j ]XYcgžbYk g'gŕcf]Yg'UbX'UXj Yfh]gYa Ybhtg'U'W'ca d'Yl' fUbb[ Y'cZbUffUŕh] Y'gŕfUŕY[ ]Yg'UfY'i gYX'hc'cf[ Ub]gY ZFU[ a YbŕUfm]a U[ Ygžgci bXg'UbX'a Ya cf]Yg']bŕc'a YUb]b[ Z'`W'cbŕYbŕ'æ'h'g'W'ci fgY'ŕci'k ]''VY']bŕfcXi W'X hc'Z bXUa YbŕU'`W'cbW'dhtg'UbX'h'W'Xb]ei Yg'cZbUffUŕh] Y'gŕmiY'UbX'gŕfi W'i fY'Uddfcdf]UŕY'hc'U'fUbb[ Y'cZa YX]U dfcXi W]cb'Ybj ]fcba Ybhtg''H\Y'W'ci fgY'Ya d\Ug]gYg'h\Y'XYj Y'cda YbŕicZ\UbXg]cb'dfcXi W]cb'g\_]`g'UbX ŕci'k ]''[ U]b'dfcZ]W'YbW'ŕ]b'h\Y'i gY'cZUi X]c!j ]gi U'`Yei ]da YbŕhUbX'YX]ŕ]b[ 'gcZk UfY']b'dfYdUfUŕ]cb'Zcf a cfY'UXj UbW'X'W'ci fgYg'U'h'Yj Y'g'&'UbX'' "

5 h\hY'W'cbW'i g]cb'cZ\h]g'W'ci fgY'h\Y'gŕh XYbŕhk ]''VY'UV'Y'hc

- % "Œ''''æYbŕh]ZŕUbX'ja d'Ya Ybŕh\Y'Z bXUa YbŕU'`Y'Ya Ybhtg'UbX'h'W'Xb]ei Yg'cZbUffUŕh] Y'gŕcfmŕY''b[ ]b a YX]U'f]W'Ybj ]fcba Ybhtg"
- & "Œ''''D'Ubžg\cchUbX'dfcXi W'g'cfhUi X]c!j ]gi U'`gŕcf]Yg"
- ' "Œ''''@]b\_`W'YUŕh] Y'dfcXi W]cb'k ]h'h\Y'cfYh]W'UbX'W]ŕ]W'`\_bck `YX[ Y"
- ("Œ''''8Ya cbgŕfUŕY'h\Y'W'dUW]ŕmŕc'k cf`W'c'UVcfUŕh] Y'm]b'U'a UbbYf'h\U]g'Yh]W]žgUZ'UbX'Uk UfY cZ]bXi gŕfmghUbXUfXg'cZVYghdfUW]W'V"

HYUW]b[ 'GŕfUŕY[ ]Yg'

H\]g'W'ci fgY']bŕfcXi W'g'gŕh XYbhtg'hc'h\Y'Z bXUa YbŕU'`g\_]`g'UbX'h'W'Xb]ei Yg'cZa YX]UŕY'X'bUffUŕh] Y gŕcfmŕY''b[ "5g'cbY'cZ\hY'W'cfY'dfUW]W'cf]YbŕY'W'ci fgYgžhY'h'UW]b[ 'gŕfUŕY[ ]Yg'd'UW'Ub'Ya d\Ug]g'cb `YUfb]b[ `VmXc]b[ "Gŕh XYbhtg'k ]''VY'[ ]j Yb'h\Y'cddcfh]b]mŕc'XYj Y'cd'h\Y]f'h'W'Xb]W]`g\_]`VUg'Y'h'fci [ \`]b! WUgg'UW]j ]ŕ]Yg'UbX'UggYgga YbŕhUg\_g''H\Ymk ]''U'gc'k cf`h'fci [ \`\_Ymŕh\Y'cfYh]W'UbX'h'W'Xb]W]`fYUX]b[ g cb'bUffUŕh] Y'gŕmiY'UbX'gŕfi W'i fY']b'dfYdUfUŕ]cb'Zcf'h\Y]f]b!WUgg'UW]j ]ŕ]Yg'UbX'UggYgga YbŕhUg\_g''5g'Ub ]bŕfcXi W'cfmW'ci fgYžh\Y'h'UW]b[ 'a Yh'cXg'UfY'ZcW'gYX'cb'g\ck ]b[ 'gŕh XYbhtg'\ck'UbX'\Y'd]b[ 'h\Ya'hc XYj Y'cd'U'Yj Y'cZW'ca dYŕYbW'žfUŕYf'h\Ub'XYj Y'cd]b[ \][ \!`Yj Y'Yl dYf]YbW'cf'a Ughŕfm'5h\hY'gUa Y ŕ]a Yžgŕh XYbhtg'k ]''YUfb'\ck'hc'UW]W'gg'\_bck `YX[ Y'UbX'fYgci fW]gž'Ug'k Y''Ug'h\Y'j U'i Y'cZ]bW'cfUŕ]b[ dYŕYf'ZYXVUW\_]bŕc'h\Y'YUfb]b[ 'W'WYžk \]W'k ]''hc'YbUV'Y'h\Ya'hc'W'cb]bi Y'hc'XYdYb'h\Y]f'YUfb]b[ 'UbX dfYdUfY'h\Ya'Zcf'a cfY'UXj UbW'X'a YX]U'dfcXi W]cb'W'ci fgYg'U'h'Yj Y'g'&'UbX'' "

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g`

5ggYgga YbhHUg_	K Y][ \h	8i Y`8UHŸ	Gh XYbh@YUfb]b[ Ci hWta Yg`5ggYggYX
GhcfntŸ`]b[ `DfcdcgU`UbX D]hW`	' \$i	D]hW` ]g`Xi Y`]b`mci f`h hc f]U` WUgg`cb`%( h`cf%) h`5i [ i gh &\$% " `Gi ddcf]b[ `XcW a Ybtg UfY`Xi Y`cb`H\i fgXUm%* h 5i [ i gh`	%&Z
9X]h]b[ `HUg_`	( \$i	: f]XUm&%ghGYdhŸa VYf	%Z
GhcfntŸ`]b[ `Dfc`YWŸ	' \$i	: f]XUm&* h`C WtcVYf	%&Z(

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`GhcfntŸ`]b[ `DfcdcgU`UbX`D]hW`

GhUfhXUHŸ. `Bch5dd`]WUV`Y

@Yb[ h.`! ) `a ]bi hŸ`d]hW`UbX`, \$\$!%\$\$\$`k cfX`dfcdcgU`

8YHU]`g. `fhbX]j ]Xi U`E`K f]hŸb`dfcdcgU`XcW a Ybhf] \$\$!%\$\$\$`k cfXgE`k ]h`UWta dUbm]b[ ]`i ghfU]j Y  
a Ufhf]U`UbX`U`! ) `a ]bi hŸ`d]hW`dfYgybhu]cb``Gh XYbtg`fYVW]j Y`]b`WUgg`ZYXVUW`

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

5`XYHU]YX`Vf]YZZcf`h.]g`hUg\_`k ]h`VY`Uj U]`UV`Y`j ]U`A 8`5%\$\$`\* `A ccX`Y`k YVg]hŸ`

Gi Va ]gg]cb`bchŸg.5b`]b]WUgg`d]hW`k ]h`g`]XYg`UbX`U`n]d`Z]Y`gi Va ]gg]cb`h`A ccX`Y`

Hi fb]h]b`gYh]b[ .`

5ggYgga Ybh' . 'GhcfntY''b[ 'Dfc YWk

GHUfhXUH. 'Bch5dd']WUVY

@Yb[ h. ' ! ( 'a ]bi hYg

8YHJ]g. 'D`Ubžg\cchUbX'dfcXi VW'g\cfhUi X]c!j ]gi U`ghcf]Yg]b'[ fci dg'cZ' "': YYXVUW\_j ]U'Wti fgY'@A G"

5XX]h]cbU'XYHJ]g.

5 'XYHJ]YX'Vf]YZZcf'h\]g'hUg\_k ]h 'VY'Uj U]'UV'Y'j ]U'A 8-5%\$\$\* 'A ccX'Y'k YVg]hY"

Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

Gh XYbng`UfY`YI dYW`X`hc`di h`h`Y]f`bUa Yg`UbX`gh XYbhbi a VYfg`cb`Yj YfmdU[ Y`cZ`h`Y]f`Ugg][ ba Ybhg"

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

- K cf\_`gi Va ]hYX`%\$`hc`%`XUmg`UZhYf`h`Y`gh]di`UH`X`XYUX`]bY`k`]`VY`UggYggYX`UbX`ZYXVUW`dfcj`]XYX`Vi`hU`a`Uf`\_`cZnYfc`k`]`VY`fYW`fYX`"Z`h`Y`k`cf`\_`k`ci`X`Uj`Y`fYW`]YX`U`dUgg`a`Uf`\_`Vi`hZcf`h`Y`UH`bYgg`UbX`h`Y`k`cf`\_`g`U`W`a`di`gcfm`W`i`fgY`W`a`dcbYbh`f`i`fX`Y`fYei`]fYa`YbhZ`U`gh`XYbhk`]`VY`XYYa`YX`hc`Uj`Y`a`Yh`h`UhfYei`]fYa`Ybh`
- K cf\_`gi Va ]hYX`&\$`cf`a`cfY`XUmg`UZhYf`h`Y`gh]di`UH`X`XYUX`]bY`k`]`bchVY`UWW`d`h`X`Zcf`UggYgga`Ybh`UbX`k`]`fYW`]Y`bc`ZYXVUW`za`Uf`\_`cf`[`fUXY`"Z`h`Y`UggYgga`Ybh`Ug`\_`]g`U`W`a`di`gcfm`W`a`dcbYbh`cZ`h`Y`W`i`fgY`U`gh`XYbhk`]`fYW`]Y`Ub`l`bgUhgZUW`c`fm`:U`]`fl`:`k`[`fUXY`Ug`U`fYgi`hcZ`i`bgUhgZUW`c`fmdYfZ`ca`UbW`]b`Ub`YggYbh]U`W`a`dcbYbh`cZ`h`Y`W`i`fgY`"

H\]g`]bZ`ca`U`h`cb`]g`U`gc`Uj`U]UV`Y`Uh`

[\h`dg`##k`k`k`"Uf`g`"i`bgk`"YXi`"Ui`#W`ffYbh`gh`i`XYbhg`#JW`X`Ya`\]W`\]bZ`ca`U`h`cb`#d`f`c`h`W`c`g`\[`i`\]X`Y`\]bYg`#`](#)

### GdYW]U`7`cbg]XYfU]cb`5`dd`]W]h]cbg`

Mci`W`b`U`dd`m`Zcf`gdYW]U`W`cbg]XYfU]cb`k`Y`b`]`bYgg`cf`ch`Yf`W]fW`a`gh`Ub`W`g`]b`h`f`Z`f`Y`k`]h`m`ci`f`UggYgga`Ybh`d`YfZ`ca`UbW`"

G]W`bYggza`]gU]j`Ybh`fY`cf`ch`Yf`W]fW`a`gh`Ub`W`g`VY`nc`b`X`m`ci`f`W`c`b`f`c`a`Um`

f`D`f`j`Y`bh`m`ci`Z`ca`W`a`d`Y`h`b`[`U`W`i`fgY`fYei`]fYa`YbhZ`

f`?`Y`d`m`ci`Z`ca`U`h`Y`b`X`]b`[`Ub`UggYggUV`Y`UW]j`]mZ`

f`G`h`d`m`ci`gi`Va`]h]b`[`UggYggUV`Y`k`cf`\_`Zcf`U`W`i`fgYz`

f`G`[`b`]W]b`h`m`U`Z`Y`W`h`m`ci`f`d`YfZ`ca`UbW`]b`UggYggUV`Y`k`cf`\_`Z`VY`]h`U`Z`ca`U`Y`b`X`!`c`Z`g`Ya`Y`gh`f`Y`I`Ua`]b`U`h`c`b`z`U`W`Ugg`h`Y`g`h`z`U`U`V`c`f`U`h`c`f`m`h`Y`g`h`z`U`g`Ya`]b`U`f`d`f`Y`g`Y`b`h`U`h`c`b`c`f`U`b`m`c`h`Y`f`Z`ca`c`Z`UggYgga`Ybh`

:`cf`Z`f`h`Y`f`XY`h`U`]g`]b`fY`U`h`c`b`hc`GdYW]U`7`cbg]XYfU]cb`]bW`i`X`]b`[`"K`Y`b`hc`5`dd`m`z`"<`ck`hc`5`dd`m`UbX`"Gi`d`d`c`f`h`b`[`8`c`W`a`Y`b`h`U`h`c`b`"d`Y`U`g`Y`f`Y`Z`f`hc`h`Y`GdYW]U`7`cbg]XYfU]cb`k`Y`V`gh`Y`."

[\h`dg`##gh`XYbh`i`bgk`"YXi`"Ui`#gdYW\]U`W`cbg\]XYfU\]cb`](#)



5 WUXYa ]W<c bYghmUbX`D`U[ ]Uf]ga

D`U[ ]Uf]ga `]g`i g]b[ `hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[ `hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm  
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[ `hc`UWV]XYbhU`mW`dm]b[ `Zca `U`gci fW`k ]hCi hUW\_bck`YX[ Ya Ybh`

I BGK `[ fci dg`d`U[ ]Uf]ga `]bhc`hY`Zc`ck ]b[ `WUHY[ cf]Yg.

7 cdm]b[ .`i g]b[ `hY`gUa Y`cf`j Yfmg]a ]Uf`k cfXg`hc`hY`cf][ ]bU`hYI hcf`]XYU`k ]hCi hUW\_bck`YX[ ]b[ `hY  
gci fW`cf`i g]b[ `ei chU]cb`a Uf\_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[ YgZ`UfhUbX`XYg][ b`dfc`YWgZ`Ug`k Y`Ug  
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k ]hCi hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[ .`7`Ub[ ]b[ `U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[ `hY`cf][ ]bU`  
ghfi W`i fY`UbX`#`f`dfc[ fYgg]cb`cZ]XYUg`cZ`hY`cf][ ]bU`Z`UbX`]bZcfa U]cb`k ]hCi hUW\_bck`YX[ Ya Ybh`H\]g`U`gc  
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k ]hCi hWYX]hUbX`hc  
d]YW]b[ `hc[ YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k ]hCi hUddfcdf]UHY`fYZYfYbW]b[ "

7 c`i g]cb. `k cf\_]b[ `k ]h`chYfg`Vi hdUgg]b[ `cZ`hY`k cf\_]Ug`U`dYfgcb`g`]bX]j ]Xi U`k cf\_"`7 c`i g]cb`U`gc





F Ygci fWg

DfYgW]VYX`F Ygci fWg`

9I hfbU`\"UfX`Xfj Y`!`a ]b]a i a`%\$\$; 6`

D`YUg`a U`\_Y`gi fY`mci f`YI hfbU`\"UfX`Xfj Y`]g`A UWZ`fa UH`YX`"; c`\"YfY`Zf`]bgfhi W]cbg.

[\hd.##cgl XU\]m`Wca #&\\$%&#%\\$\\$\( #cfa Uh Ub!YI hfbU`\"UfX`Xfj Y!cfl i gv!ZUg\!Xfj Y!Zfla UWcg! #](#)

F YWca a YbXYX`F Ygci fWg

DfYa ]YfY`Dfc`77`&\$%+`9ggYbh]U`HfU]b]b[ .`H\Y`6 Ug]Wg`cb`@mbXU"Wca .

[\hdg.##k k k`"nbXU"Wca #DfYa \]YfY!Dfc!h hcf\]U`g#DfYa \]YfY!Dfc!77!&\\$%+!9ggYbh\]U`HfU\]b\]b\[ !6 Ug\]Wg#... \) &\\*. ! &\"fa`3gfW\]f 1\]bXYI i`' U\) i` \\$U`\]b hmdY\]Xi`' U& \\$Uei`' UUXcVYZ`dfYa \]YfYZ`dfci` \\$UdU\]Yi`' U% \\$Ugi`' Uf Y`Yj UbW\]i` \\$Ugi`' Ufi Yi` \\$UdfcXi W\]mdY\]Xi`' U&](#)

6cc\_g.`

7ck [ ]`z@`f&\$\$) L`K f]hb[ `G\cfh: ]a`g.`Gfhi W]i fY`UbX`7 cbhYbhZcf`GWYYbk f]hfgz`&bX`YX`z`@cbY`9U[ `Y Di V`z`cg`5b[ Y`Ygž`75

¶]b[ ž8`?"`f&\$\$\*`L`DfcXi W]b[ `UbX`8]fYW]b[ `hY`G\cfh: ]a`'UbX`J ]XYcž` fX`YX`ž: cW]`DfYggž`C I ZcfXžI`"?"

? UmžG`f%`-`%&: ]a`'8]fYW]b[ .`G\ch6mG\chž`A ]WUY`K ]YgY`DfcXi W]cbgž`75

CfdYbžJ`"f&\$\$`L: ]a`'9X]hb[ .`H\Y`5fhcZ`hY`9I dfYgg] YžK U`Zck Yfž`@cbXcb

GhXY`Yfž`>`"UbX`A WK ]`]Ua ž?`"f&\$\$`-`L`GWYYb`A YX]U.`5bU`mg]b[ : ]a`'UbX`HY`Yj ]g]cbž`5`Yb`/`I bk ]bž B`"G`K`"ž5i ghU]U

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

⇒ U[ Y`7fYX]h

: fYY`]a U[ Y`Zca`dYI Y`"Wca`

7F ⇒ CG

7F ⇒ CG`Dfcj ]XYf`7cXY.`\$\$\$`-` ;