





7 ci fgY'8YHJ]`g

7 fYX]hDc]bHg`\*`

Gi a a UfmicZħY'7 ci fgY

A YX]Už7i`hi`fY`UbX`9j`YfmXUmi@ZY`cZZYfg`Ub`UWVWgg]V`Y`[`fci`bX]b[`]b`ħY`fUX]h]cbgž`dYfgdYVWj]`Yg`UbX`  
WcbW`dHg`cZa`YX]U`gh`X]Yg`"GhUf]b[`k`]ħ`ħY`ZJa`]Uf`UbX`ħY`Yj`YfmXUmž`ħ]g`Wci`fgY`]bfcXi`Wg`mci`ħc`ħY`  
VfYUXħ`cZ`WcbħYa`dcfUfma`YX]U`gh`X]Yg`Zca`ħY`Yj`]g]cb`UbX`ħY`fUX]h]cb`cZa`Ugg`a`YX]U`gh`X]Yg`ž`ħc`  
ħY`Yd`cbmi`UbX`ħY`gh`XmicZbYħ`cf`\_YX`a`YX]U`UbX`Wca`a`i`b]W]h]cb`ħY`Wbc`c[`]Yg`"K`]ħ`Ub`Ym`cb`ħY`k`Um`  
ħ`Uħ`ħY`Yj`]g]cb`UbX`ħY`Yd`cbm`Uj`Y`UXUdħY`ħc`W`U`b[`]b[`fYU`]h]Yg`c]`Yf`ħY`XYWXYgž`ħ]g`Wci`fgY`YI`d`U]bg`  
`ck`a`YX]U`UbX`Wca`a`i`b]W]h]cb`ħY`Wbc`c[`]Yg`Uj`Y`fUbgž`fa`YX`ħY`f`ħ`ħa`g`cZYj`YfmXUmi`]Z`ž`ħY`  
cf[`Ub]g]U]h]cb`cZ`Xca`Yg]h]WgdUWVž`ħY`Vci`bXUf]Yg`VYħ`YYb`df]j`UħY`UbX`di`V`]Wž`UbX`ci`f`gYbgY`cZ`  
]bj`c`j`Ya`Ybhk`]ħ`bU]h]cbU`UbX`di`V`]WVc`Y`W]j`]h]Yg`"č`UXX]h]cbž`ħY`Wci`fgY`YI`Ua`]bYg`ħY`WcbW`dhcZ`  
a`YX]U]h]cb`VmYI`d`cf]b[`l`ck`Vch`ħY`Yj`]g]cb`UbX`ħY`Yd`cbmg`UdY`ħY`YI`dYf]YbWV`cZ`h]a`Yž`X]g]h]UbWVž`



## 5ggYgga Ybh

Mci 'A I GH'a U\_Y'U'gYf]ci g'UHYa dhUhihY'k f]HYb'UggYgga YbhiUg\_g'f5ggYgga Ybh' 'UbX'5ggYgga Ybh (E'hc'VY'Y'] [V'Y'hc'UWX]Yj Y'U'DUgg[ fUXY'ZcF'hY'Wci fgY"

## 5ggYgga YbhiUg\_g

5ggYgga YbhiUg_g	K Y][ \h	8i Y'8UH	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
!WUgg'E i ]n%	%\$i	7ca d'YH'Xi f]b[ 'K YY_''	%z'
!7`Ugg'E i ]n'&	%\$i	7ca d'YH'Xi f]b[ 'K YY_,'	%z'
F YUX]b[ 'F YgdcbgY'	' \$i	Bch5dd`]WVY	%z'&z'
: ]bU`9ggUm	) \$i	Bch5dd`]WVY	%z'&z' z(

## 5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% !WUgg'E i ]n%

GHUfhXUH. Bch5dd`]WVY

@Yb[ h. ' \$'A ]bi Hg

8YHJ]`g.

' \$'a ]bi Hg

: YYXVUW\_j ]U'U'd\U!bi a Yf]WgWcfY ]b'@A G

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

D`YUgY'bchY'hUhXi Y'hc'hY [ `cVU`7CJ -8!%- 'dUbXYa ]W'hY'ei ]n'k ]`VY'Wta d'YH'X'ci hg]XY'cZWUgg Xi f]b[ '&\$&%"

Hi fb]h]b'gYH]b[ . H\]g'Ugg[ ba Ybh]g'gi Va ]HYX'h'fci [ \ 'Hi fb]h]b'UbX'ghi XYbtg'Xc' bchgYY'Hi fb]h]b]g]a ]Uf]mfYdcfY"

5ggYgga Ybh&. !7`Ugg'E i ]n'&

GHUfhXUH. Bch5dd`]WVY

@Yb[ h. ' \$'A ]bi Hg

8YHJ]`g.

' \$'a ]bi Hg

: YYXVUW\_j ]U'U'd\Ui a Yf]WgWcfY ]b'@A G

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

D`YUgY`bchY`hUhXi Y`tc`hY`[ `cVU`7CJ`8!%-`dUbXYa`W`hY`ei`]n`k`]`VY`W`a`d`Y`h`X`ci`hg]XY`cZwuGg  
Xi`f]b[ `&\$&%`

Hi`fb]h]b`gYh]b[ .`H\]g`Ugg][`ba`Ybh]g`gi`Va`]h`X`h`fci`[`\`Hi`fb]h]b`UbX`gh`XYbhg`Xc`bchgYY`Hi`fb]h]b  
g]a`]Uf]mifYdcfng"

Hi fb]hb'gYhb[ . 'H\]g'Ugg][ ba Ybh]g'gi Va ]hX'h'fci [ \ 'Hi fb]hb'UbX'ghi XYbhg'Xc' bchgYY'Hi fb]hb  
g]a ]Uf]mfYdcfrg"

5 HfYbXUbW F Yei ]fYa Ybhg

Gh XYbhg UfY gfcfb [ mYbWci fu[ YX hc UHfYbX U WUggYg UbX fYj ]Yk YWfi fY fYWcfX]b[ g"

7 ci fgY GWYXi Y

[J Yk WUgg hja YhUV Y](#)

Hja YhUV Y

8 UhY	HmdY	7 cbhYbh
K YY_% %) : YVfi Ufm! % : YVfi Ufm	@YWfi fY	A YX]U'F ]hi U'g'UbX'9j YfmXUm@]ZY  H\]g'k YY_k ]''hU' UVci hi hY fY U]h]cbg\]d VYtk YYb a YX]U'UbX'W'hi fY'UbX'\ck' WcbY'a dcfUfm]ggi Yg Ufci bX'hY'a YX]U'WUb'VY'YI d'cfYX'Zca' h]g dYfgdYW]j Y''
	Hi hc]f]U'	H\]g'k YY_]h'hi hc]f]U'k ]''Wcj Yf'hY'Zc''ck ]b[ 'dc]bhg.  % 5 WUXYa ]WfYUX]b[ 'g_]''g'UbX'ghfUHY [ ]Yg &" K \UhXc'k Y'a YUb'VmifYj YfmXUm']ZYfB ' ' 8 ]ZYfYbhUddcfUWX Yg'hc'hY'ghi XmicZa YX]U" ( " <ck ]g'hY'ghi XmicZa YX]U'X]ZYfYbhZca chYf'X]gW]d']bYg'gi W'Ug'dgmWxc'c[ nZ W]a ]bc'c[ mcf'gcW]c'c[ mB )" K \Uh]g'U'f]hi U'3'K \Uh]f]hi U'g'gi ffc] bX'ci h i gY'cZhY'a YX]U'UbX'k \UhWUb'k Y''YUfb Zca' hYa 3
K YY_&.&: YVfi Ufm! &* : YVfi Ufm	@YWfi fY	A YX]U'UbX'Df]j UhY#Di V]W@]ZY  5a cb[ 'chYf'h]b[ gZ\]g'k YY_]h'hc]d]W'cc_g'Uh'hY \]ghc]f]W]f'Y U]h]cbg\]d VYtk YYb'f]ca Ygf]UbX'a YX]U hYWbc'c[ ]Yg"K Y'k ]''Uf[ i Y'hUha YX]U' ]g'VYgh i bXYfg'hcX'Zca' hY'dYfgdYW]j Y'cZhY'df]j UhY W'hi fYg'cZi gYZ'Vmk \]W'k Y ]bW'fdcfUHY'a YX]U']bhc ci f'XU]mfci h]bYg'UbX'YI dYWU]h]cbg"
	Hi hc]f]U'	h'h]g'k YY_]h'hi hc]f]U'g'k Y'k ]''fYZYWh'cb'hY fY'U]h]cbg\]d VYtk YYb'f]ca Yf]UbX'hY'a YX]U'cZ hY'f]di V]W]E i Ygh]cbg'Zc'f'h]g'k YY_]h'hc]f]U'UfY. K \UhWUb'hY'WcbWdhcZca Ygh]W]h]cb'fY''i g'UVci h hY'a YX]U'3'<ck '\Uj Y'hY'a YX]U'WUUb[ YX'c] Yfh]a Y ]b'hYfa g'cZa Udd]b[ 'hY'Vci bXUf]Yg'VYtk YYb'di V]W UbX'df]j UhY'3'K Y'k ]''U'gc'X]gW'gg'hY'i dW'a ]b[ E i ]n]b'K YY_' ]h'WUgg"
K YY_' . '%A UfW '! ) A UfW	@YWfi fY	A YX]U]h]cb. 'hY'a YUb]b[ 'cZhY'A YX]U  H\]g'k YY_k Y'k ]''YI d'cfY'hY'WcbWdh'f]a YX]U]h]cbf] dUf]h]W'Uf'mVm'cc_]b[ 'Uh'hY'fY'U]h]cbg\]d VYtk YYb a YX]U'UbX'ci f'YI dYf]YbW'cZ]h]a Y'UbX'gdUW"



K YY_ ; .) '5df]'!' - '5df]'	@YWhi fy	<p>@j ]b[ 'k ]h' A cV]'Y'GcW]U' A YX]U</p> <p>H\Y'K YY_ ; , 'YWhi fy'YI d'cfYg'hY'WcbW'dhg'cZ a cV]' ]mUbX'hY' ]XYU'cZ]' ]b[ 'k ]h'gcW]U'a YX]U''K Y k ]''cc_'UhihY'XYj ]Wg'UbX'i gYf'dfUW]Wg'hUhi\Uj Y Ya Yf[ YX'U'cb[ g]XY'hY'VfcUXYf'gcW]c'c [ ]WU'hYbX cZ]bWYUgYX'a cV]' ]mz' [ 'cVU''nz'UbX'YI d'cfY'hY bYXX'hc'ghUm'f'bbYW]Xf'k \]Y'a cj ]b[ 'h'fci [ \ gdUW''K Y'k ]''U'gc''cc_'UhihY'fc'Y'cZU'[ cf]h'a g ]b g\Ud]b[ 'hY'a YX]U'hcXUm'</p>
	Hi hc]U'	<p>H\Y'a U]b'WcbW'dhg'YI d'cfYX'h' ]g'k YY_' ]b'hi hc]U'g ]bWi XY/hY'fc'Y'cZgcW]U'a YX]U' ]b'Yj YfmXUm''ZyZ k \Uh]g'a cV]' ]mz' ]b'k \Uhk UmXcYg'a cV]'Y'a YX]U ZUW] ]hU'h'a cV]' ]m' K Y'k ]''U'gc'W]hW''mYI Ua ]bY'hY fc'Y'cZU'[ cf]h'a g'UbX' ]b'a YX]U'hcXUm'</p> <p>K Y'U'gc'W'ca d'Yh' hY'gYW'cbX'ei ]n'h' ]g'k YY_''</p>
K YY_ '- . %&'5df]'!' %* 5df]'	@YWhi fy	<p>A YX]Uz'GY'ZUbX' ÷Yb]h'm</p> <p>Ci f'Ugh' ]j Y''YWhi fy''cc_'UhihY'fY'Uh]cbg\ ]d VYtk YYb' ]XYb]h'mUbX'a YX]U''K Y'k ]''Ug'_k \Uhfc'Yz ]ZUbmz'hY'a YX]U'd'Um]b'dfcXi W]b[ 'UbX dYfdYh Uh]b[ 'hY'WUgg]Z]W]h'cfmY[ a ]Yg'Vmik \ ]W'k Y W]hY[ cf]gY'UbX'i bXYfg]UbX'ci fgY' ]Yg'UbX'YUWX c'hYf''</p>
	Hi hc]U'	<p>Hi hc]U'g'h' ]g'k YY_'k ]''X]gW'gg'hY'fc'Y'cZa YX]U' ]b dfcXi W]b[ 'UbX'YbUW]b[ 'mci f' ]XYb]h'm' '5fy' ]XYb]h]Yg X]gW'fg] ]Y'mdfcXi W'X3'5fy'hYm]bX]j ]Xi U' ]gYX'cf W'c''YWh' ]g]b[ 3</p>
K YY_ %\$. %- '5df]'!' & 5df]'	@YWhi fy	<p>F Yj ]Yk '@YWhi fy'!' ÷h' ]g'YWhi fy'k Y'k ]''fyj ]Yk 'hY hc]d]W]g'W'ej YfYX' ]b'hY'W'ei fgY'UbX'Ubgk Yf'mci f ei Ygh]cbg' ]b'fY'Uh]cb'hc'hY': ]bU''9ggUmXi Y'bYI h k YY_''</p>
	Hi hc]U'	<p>H\ ]g'k YY_'fg'@YWhi fy'k ]''fyj ]Yk 'hY'W'ei fgY'VUgYX cb'mci f'ZYXVUW'_UbX'ei Ygh]cbg'UbX'cZYf'fuf[ Yh'X Ugg]gh]UbW'k ]h'hY': ]bU''9ggUm]UggYgga Yb'h'</p>

# F Ygci fWg

## DfYgWf]VYX`F Ygci fWg`

F Yei ]fYX`HYI hVcc\_!`A Uf\_\Ua žH"? Ww[S ~ 7hWkVSk >[XW`DU[ fUj Yž@cbXcbž&\$\$%+`

H\Y`HYI hVcc\_]g`Uj U]UV`Y`Zcf`di fWUgY`]b`hY`I` BGK `6cc\_g\cd`cb`hY`a U]b`GmXbYmWJa di g`7cd]Yg`UfY U`gc`Uj U]UV`Y`]b`hY`\][\`i`gY`Wc`YW]cb`cZ`hY`I` BGK `@]VfUfm`-Zmci`k`jg`h`c`di`fWUgY`hY`YVcc`mci`W]b Z`ck`hYgY`]b\_g`YfY`!

[\hfdg.##k k k "Vcc\\_g\cd"i bkg "YXi "Ui #XYU\]g"W \]3+H9A BC 1- +, %% +\( ++% +](#)

[\hfdg.## bkg Vcc\\_g\cd"j \]U\]gci fW`Wca #dfcXi Wg#j - +, %% +\( ++% \(](#)

C hYf`F`Yei ]fYX`F`YUX]b[ g.`5`c`hYf`fYUX]b[ g`UfY`Uj U]UV`Y`j ]U`hY`Wci fgY`A`ccX`Y`g]hY`" `#]g]a`dcf]U]bh]h`U]h mci`Wca`d`Y`hY`U`fYUX]b[ g`Zcf`YUW`k`YY`\_`df]cf`h`U]hY`bX]b[ `mci`f`h`hcf]U`

## F YWca a YbXYX`F Ygci fWg

9@G9`!`@]VfUfmUbX`Gh`XmG\_]`g`8Yj`Y`cda`Ybh5`@@i`bXYf[ fUXi`U]h`gh`XYbhg]b`hY]f`ZfghgYa`YghYf`bYXX h`Wca`d`Y`hY`hY`]VfUfm]g`9@G9`gh`Xmg\_]`g`hU]b]b[ `a`cXi`Y`VY`Zcf`hY`YbX`cZK`YY`\_)`"GY`hY`9`]gY`hU`cb`hY`]VfUfm\ca`YdU[ Y.`\hfd.##ji`VYWf[ i ]XYg`]VfUfm]i`bkg`"YXi`"Ui`#`]gY`Zcf`Z`f`hYf`]bZ`fa`U]hcb`"

: i`f`hYf`]bZ`fa`U]hcb`UVci`h`hY`@]VfUfm]g`Wc`YW]cb`UbX`gYfj`]Wg`W]b`VY`Zci`bX`YfY`!` \hfd.##]bZ`]VfUfm]i`bkg`"YXi`"Ui`#`YV#gYfj`]Wg#gYfj`]Wg`\ha`

H\Y`@YUfb]b[ `7`YbhY`!`H\Y`@YUfb]b[ `7`YbhY`cZYfg`UWUXYa`]Wg\_]`g`gi`ddcf]h`U`gh`XYbhg`Ybfc`YX`Uh I`BGK`"H\Y]f`gYfj`]Wg`]bWi`XY`]bX]j`]Xi`U`Wcbgi`hU]hcbgž`UWUXYa`]Wg\_]`g`k`cf\_g\cdgž`7`cbj`YfgU]hcb`7`UZA [ fci`dgž`UbX`cb]bY`UWUXYa`]Wg\_]`g`fYgci`fWg`"Mci`W]b`a`U\_Y`Uddc]b]h`Ybhg`UbX`fYUX`UVci`hU`hYm`Uj`Y h`cZYf`Uh`\hfd.##k k k`"Wi`bkg`"YXi`"Ui`#`

## 7ci fgY`9j`U`i`U]hcb`UbX`8Yj`Y`cda`Ybh

DYf]cX]W]mghi`XYbhYj`U`i`U]h`Y`ZYXVUW`cb`hY`Wci`fgY`]g[`U]hYfYXž`i`g]b[ `Ua`cb[ `chYf`a`YUbgž`I`BGK`fj`A`m9l`dYf]YbW`dfcWgg`"

Gh`XYbhZYXVUW`]g`hU`Yb`gYf]ci`g`mž`UbX`Wcb]bi`U`]a`dfcj`Ya`Ybhg`UfY`a`UXY`h`hY`Wci`fgY`VUgYX`]b`dUfh`cb`gi`W`ZYXVUW`"DfYj`]ci`g`gh`XYbhZYXVUW`UVci`h`hY`Wci`fgY`fYUX]b[ g`UbX`UggYgga`Ybh]Ug\_g`Uj`Y`VYYb`UXXfYggYX`]b`h`]g`j`Yfg]cb`cZ`hY`Wci`fgY`"Mci`W]b`fYUX`U`XYgW]dh]cb`cZ`W]Ub[`Yg`k`Y`a`UXY`]b`fYgdcbgY`h`dUghgh`XYbhZYXVUW`]b`hY`A`ccX`Y`"

Gi Va ]gg]cb 'cZ5ggYgga YbhiHUg\_g

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

Ẓmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UHYa dh]b[ 'hc'gi Va ]hmc i f'Ugg][ ba YbhiHfci [ \ 'Hi fb]h]bž'd'YUgY  
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'- ' , ) " ' ' %cf'Ya U] 'H'Ya 'cb'YI HYfbU'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'fI \*) 'XUmg'U'mYUfI" Ẓmci  
UfY'i bUV'Y'hc'gi Va ]hmc i f'Ugg][ ba YbhiXi Y'hc'U'Zi 'hk ]H'Hi fb]h]b'mci 'a UmiUdd'mZcf'Ub'YI HYbg]cbž'Vi hmc i  
a i ghfYH]b'mci f'h]W'Yhbi a VYf'Zca '9I HYfbU'Gi ddcfhfU'cb[ 'k ]H'UbmichYf'fY'Yj UbhXcW a YbfgL'hc  
]bWi XY'Ug'Yj ]XYbVW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd'jW]h]cb" Ẓmci 'Ya U]'9I HYfbU'Gi ddcfhmc i 'k ]`

## 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.

- i bXYfgHUbX'mci f'f][ \hg'UbX'fYgdcbg]V']hYg'Ug'U'gh XYbhUhl BGK
-

5 WUXYa ]W**ϕ**Zcfa Uh]cb