

GWcc`cZGcWU`GWYbWg`#`I BGK `5ftg`UbX`GcWU`GWYbWg



7ci fgY`Cj Yfj ]Yk

GHJZ7cbHJW`8YHJ`g

7cbj Ybcfg

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
8f5`]gcb`K UbbUb	U"k UbbUb4 i bgk "YXi "Ui	6miUddc]bha Ybh VYZcfY`cf`UZfYf gYa ]bUfg`cf`UhchYf bY[ ch]UH`X`hja Yg"	Fcca`% ( -' , )`% \$+ @Yj Y`% A cfj Yb`6fck b	

GWcc`7cbHJW`bZcfa Uhjcb

GWcc`cZGcWU`GWYbWg

Fcca`%)-

Acfj Yb`6fck b`7&\$

Ya Uj`.gchg4 i bgk "YXi "Ui

d\cbY. '\$&-' , )`% \$+

7ci fgY'8YHJ`g

7fYX]hDc]bHg`\*`

Gi a a UfmicZ\hY'7ci fgY

h\]g`Vci fgYžmci`k`j`\"Uj Y`hY`cddcfh b]mhc`i bXYfH\_U`U`d]YVW`cZX]fYVW`X`cf][`]bU`fYgYUfW`k`]h`h`Y`  
gi ddcfhcZUb`UWUXYa`]WUXj`]gcf`Mci`k`j`\"Vca d`YH`U`bi`a`VYf`cZ`Z`fa`Uhj`Y`Hjg`gžVi`]X]b[`i`d`h`h`Y`  
gi Va`]gg]cb`cZU`g]b[`Y`fYgYUfW`fYdcfhXYHJ]b[`h`Y`XYg][`bž`VcbXi`W`UbX`Z]bX]b[`g`cZmci`f`fYgYUfW`"

,`-`-`A`UghYf`cZ`8Yj`Y`cda`YbhGh`X]Ygž,`&&`A`UghYf`cZ`5fHg`fHhYfbUH]cbU`F`Y`Uh]cbgE`UbX`,`&(`A`UghYf`cZ`  
Dc`]WnGh`X]Yg`a`i`ghgYY`\_`Uddfcj`U`Z`ca`h`Y`D`fc`f`Ua`7`cbj`Ybcf`h`Y`bfc`]b`h`Y`Vci`fgY`"

7ci fgY`@YUfb]b[`C`i`hVca`Yg

%`8`Yg][`bž`XYj`Y`cd`UbX`fYdcfhcb`fYgYUfW`UWj`]h]Yg`UbX`ei`Ygh]cbgž`g`\"ck`]b[`Uk`UfYbYgg`cZ`fYgYUfW`  
Yh`]Wj`UbX`g`Y`YW]b[`\_`Uddfcdf]UH`fYgYUfW`a`Y`h`c`X`g`f`Y`UH`X`h`h`Y`f`fYgYUfW`h`cd]Wj/  
&`7`f]h]W`m`Yb[`U[`Y`k`]h`W`fYbHgVX`c`Ufg`\"d`]b`h`Y`f`Z`Y`X`c`Z`gh`X`mhc`]b`Z`ca`fYgYUfW`UbX`Vcbf]Vi`h`  
h`\_`bck`YX[`Y`]b`h`]g`Z`Y`X`/`UbX`  
'`" `8`Ya`cbgHfUH`fYgci`fWZ`b`Yggž`WYUHj`]mUbX`ZYI`]V]`]m]b`h`Y`Udd`]W]h]cb`cZ`\_`bck`YX[`Y`UbX`g`\_`]`g`h`  
gc`j`Y`d`fc`V`Ya`g`f`Y`UH`X`h`c`fYgYUfW`"

HYUW]b[`G`h`fUH[`]Yg`

H\]g`Vci fgY`]g`XYg][`bYX`h`c`Z]W]`]h]Y`X]fYVW`X`fYgYUfW`i`g]b[`c`b`]bY`fYgci`fW`g`UbX`]bX]j`]Xi`U`#`fci`d`  
gi`dYfj`]g]cb`"Gh`XYbHg`k`j`\"VY`YbVci`fU[`YX`h`c`XYg][`b`U`XYg`\_`!`VUgYX`d`fc`Y`W`h`U`h`W]b`VY`i`bXYfH`\_`Y`b`k`]h`]b`U`  
g`c`fh]ja`Y`Z`Ua`Y`ž`h`c`Udd`mi`h`Y`VcbW`dHg`X]gW`ggYX`]b`G`F`5`D)`%`\$`%`F`YgYUfW`A`Y`h`c`X`g`"H`Y`Vci`fgY`  
g`h`f`i`W`i`f`Y`]b`W`i`XYg`XYX]W]h]X`k`f]h]b[`h`ja`Y`h`c`Y`bgi`fY`gh`XYbHg`Vca`d`Y`H`h`Y`f`fYgYUfW`d`fc`Y`W`g`k`]h`]b`  
g`h`h`X`h`ja`Y`Z`Ua`Y`g`"


gi Va ]hU`fYj ]gYX`fYgYUfW`dfcdcU`cZ%) \$\$`k cfXg`zcf`U`XYg\_!VUgYX`fYgYUfW`dfc`YVW`K f]hYb`ZYXVUW\_

5 HbXUbW F Yei ]fYa Ybhg

D YUgY bch hUh YWfi fY fWcfX]b[ g UfY bchUj U]UV Y Zcf h]g Wci fgY" Gh XYbhg UfY gfc b[ mYbWci fU[ YX hc UHbX U WUggYg UbX WcbhUWhY 7 ci fgY 5i hcf]mhc a U\_Y UHfUUhj Y UffU b[ Ya Ybhg Zcf WUggYg a ]ggYX"

7 ci fgY GWYXi Y

[J Jk WUgg ha YHUVY](#)

Hja YHUVY

8UH	HmdY	7cbhYbh
K YY_% %) : YVfi Ufm! %- : YVfi Ufm	GYa ]bUf	; YH]b[ ghUfhYX cb mci f fYgYUfW  7 ci fgY cj Yfj ]Yk UbX UggYgga Ybhg" K \Uh]g XYg_! VUgYX cf gYWcbXUfmfYgYUfW 3 F Yj ]Yk ]b[ mci f GF 5D ) % \$ % fYgYUfW hc d]WUbX ei Ygh]cb Vm WYUhb[ U WcbW dha Ud"
K YY_&.& : YVfi Ufm! *& : YVfi Ufm	GYa ]bUf	F YZ]b]b[ UbX XYg][ b]b[ mci f fYgYUfW dfc YW  8 YZ]b]b[ hY fYgYUfW ei Ygh]cbfg Zcf mci f gYWcbXUfmfYgYUfW dfc YW UbX XYW]b[ cb mci f fYgYUfW a YhcX hc i gY YI ]gh]b[ XUHU"
K YY_" : %A UfW ! ) A UfW	GYa ]bUf	Gci fWg c ZgYWcbXUfmXUH UbX gYUfW ghfUH[ ]Yg hc cWUH XUHU  8 Yj Y cd]b[ U gYUfW ghfUH[ mh] XYbh]ZmXUH UbX Vh] XYW Uwk X ] W Vghgg ]fg kag d d W S d X eg Vgf ab UbX h Ycfm"
K YY_( ; ) A UfW ! %& A UfW	<ca Yk cf_	hX]j ]Xi U Wcbgi hUh]cbg cf] bXYdYbXYbh fYgYUfW  8 ]gW gg UbX fYZ]bY mci f fYgYUfW dfc d c g U" 6 cc_YX hja Yg k ]h Wci fgY Wcbj Ybcf" B W S b W W fa a W W S b X V[eUgee kag d d W S d J b d a b a e S ^ T W a d W 3 e e W e e _ W f # ]e VgW
K YY_) : % A UfW ! %- A UfW	GYa ]bUf	5bU mg]g c Z mci f gYWcbXUfmXUH # j ]XYbW  <ck hc fYj ]Yk hY XUHU mci [ U h Y f UbX

		l Ww] ( adl Ww] ) ž .
K YY_* .&&A UfW !'&* A UfW	<ca Yk cf_	<p>ϕXYdYbXYbhFYgYUfW</p> <p>F Yj ]Yk 'mci f'XUH'UbX'ghUfh'c'UbU'mgY'mci f Z]bX]b[ g": ]bU'WU'UbW'hc'UffU'Y'U'W'cbgi 'hU]cb gYgg]cb'k ]h'U'fYgYUfW 'VfU]Ub'hc'X]gW'gg'cf fYj ]gY'mci f'gYUfW'ghU'f[ n'.....</p>
K YY_+. '&- 'A UfW !'& 5df]	<ca Yk cf_	<p>ϕX]j ]Xi U' W'cbgi 'hU]cbg'cf']bXYdYbXYbh fYgYUfW</p> <p>8 ]gW'gg'mci f'gY'W]cb'cZXUH'UbX'mci f']b]h]U' Z]bX]b[ g""6cc_YX'h]a Yg'k ]h'W'ci fgY'W'bj Ybcf"</p>
K YY_ ; .) '5df]'! - '5df]	F YUX]b[	<p>ϕXYdYbXYbhFYgYUfW</p> <p>B'c'gYa ]bUf'Xi Y'hc'U'di V']W'c']XUm'H\ ]g' ]g'U WU'UbW'Z'cf'mci 'hc'W'cb]bi Y'hc'UbU'mgY'mci f' XUH'UbX'fYj ]g]h'mci f'VUW_[ fci bX']h'fU'fY'.....</p>
K YY_-' .%&'5df]'! '%* 5df]	GYa ]bUf	<p>@]b_]b[ 'i d'!'5bU'mg]b[ 'mci f'XUH'UbX dfYgYb]b[ 'mci f'Z]bX]b[ g'</p> <p>8 ]gW'gg]b[ 'mci f'UbU'mg]g'UbX'k \Uh'mci f'Z]bX]b[ g a YUb"@]b_]b[ 'mci f'Z]bX]b[ g'k ]h'mci f'fYgYUfW ei Ygh'cbf]g'UbX'h'Y' ]ggi Yg'mci ' ]XYbh]Z]YX' ]b'h'Y ]b]h]U'VUW_[ fci bX'f]h'fU'fY'fYj ]Yk g'hc'a U_Y'U gh'cb[ 'Uf[ i a Ybh'</p>
K YY_%\$. %- '5df]'! '& 5df]	GYa ]bUf	<p>⇒Ybh]Z]b[ 'h'Y' ]a d']WU]cbg'cZ'mci f'fYgYUfW dfc'Y'W'UbX'k f]h]b[ 'U'W'cbW'g]cb</p> <p>l bXYfghUbX]b[ 'k \m'mci f'Z]bX]b[ g'a U'h'f]b'h'fa g'cZ mci f'fYgYUfW'hc'd]WU'UbX' ]XYbh]Z]h'Y' ]a d']WU]cbg'cZ mci f'fYgYUfW'Z'f'dc']W'z'dfUW]W'cf'UX]c'WU'W' 6cc_'U'h]a Y'hc'a Y'hk ]h'h'Y'W'ci fgY'W'cbf]b]U'cf']b h' ]g'k YY_'cf'h'Y'Z'ck ]b[ 'k YY_'hc'X]gW'gg'mci f'Z]bU' fYdcf]h'UbX'h'Y'gh'fYb[ h'cZ'mci f'Uf[ i a Ybh'3 UZS' UW fa _ W'f S' V V[eUgee kagdd'W'VSdJZ d'W'ad' T'W'adW</p>

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

Mci`k]`VYbYZhZca`VYWca`b[`ZJa`])Uf`k`Jh` ; cc[`Y`GWc`Uf`f`hd.#gWc`Uf"[ cc[`Y`Wca`E`Ug`U`\_YmgYUfW  
Yb[`]bY`Zcf`UWXYa`]Wdi`V`]WU]cbg`UbX`fYdcfng" Mci`WUb`gYhi`d`hY`dfYZfYbWg`tc`])b`\_`tc`hY`I`B`G`K`  
@]VfUfmYj`Yb`k`Yb`mci`UfY`bchcb`WJa`di`g"

;`c`tc` ; cc[`Y`GWc`Uf2gYh]b[`g2`]VfUfm`]b\_gz`UbX`Yb`hY`f`fi`b]j`Yfg]hmcZBYk`Gci`h`K`U`Ygfi]b`hY`Vcl`Zcf`hY`



Gi Va ]gg]cb`cZ5ggYgga YbhiHUg\_g

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

Ʒmci`YbWci bHYf`U`dfcV`Ya`k` \Yb`UH`Ya` dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`h`fci`[`\`Hi`fb]h]b`z`d`Y`UgY`  
HY`Yd`cb`Y`9I`HYfb`U`Gi`ddcfhcb`-`,`,)`````%cf`Ya`Uj`h`Ya`cb`YI`HYfb`U`HY`hgi`ddcfh4`i`bgk`"YXi`"Ui`""`Gi`ddcfh`  
`lci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`cb`k`YY`XUmg`UbX`-`.\$\$Ua`-`,`)`. \$\$da`cb`k`YY`YbXg`f1`\*)`XUmg`U`mY`Uf2`"Ʒmci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`Xi`Y`hc`U`Zi`h`k`]h`Hi`fb]h]b`mci`a`UmUdd`m`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`  
a`i`ghfY`h]b`mci`f`h]W`Yhbi`a`VYf`Z`ca`9I`HYfb`U`Gi`ddcfh`f`U`cb[`k`]h`Ubmc`h`Y`f`fY`Yj`Ubh`Xc`W`a`Yb`hg`L`hc`  
]b`Wi`XY`Ug`Yj`]XYb`V`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb`"Ʒmci`Ya`Uj`9I`HYfb`U`Gi`ddcfhmc`i`k`]`  
Ui`hc`a`U`h]W]m`f`Y`W]j`Y`U`h]W`Yhbi`a`VYf`z`Vi`h]Z`mci`HY`Yd`cb`Y`mci`k`]`b`Y`Y`X`hc`gd`Y`W]Z]W]m`Ug`\_`Zc`f`cb`Y`"  
Hi`fb]h]b`U`gc`d`fcj`]XYg`i`d`XU`h`g`cb`h`Y]f`gm`gh`Ya`g`h`U`h`g`cb`Hk`]h`Y`f`"

;`YbYf`U`m`z`UggYgga`Ybhi`Ug\_g`a`i`gh`VY`gi`Va`]h`Y`X`Y`Y`W`f`cb]W]m`j`]U`Y]h`Y`f`Hi`fb]h]b`cf`U`A`cc`X`Y`  
Ugg][`ba`Yb`h`-`h]b`gh`U`b`W`g`k` \Y`fY`h`l`g`]g`b`ch`d`c`g`g]V`Y`z`]h`k`]`VY`g`h`U`h`X`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]h`k`]h`  
U`h`Y`fb`U`h]`Y`gi`Va`]gg]cb`X`Y`h]g`"

:`cf`]b`Z`fa`U`h]cb`cb`l`ck`hc`gi`Va`]h`Ugg][`ba`Yb`hg`cb`]b`Y`j`]U`A`cc`X`Y`.`h`h`d`g`#`gh`XYb`h`i`bgk`"YXi`"Ui`#`ck`!  
gi`Va`]h`Ugg][`ba`Yb`h`a`cc`X`Y`"

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

D`U[ ]Uf]ga ]g`i]b[ `hY`k cfXg`cf]XYUg`cZcH.Yfg`UbX`dFYgYbH]b[ `hYa`Ug`mci`f`ck`b" `hWUb`hU`Y`a`Ubm`Zcfa`gZ`Zca`XY`]VYfUH`VX.YUH]b[ `hc`UWV]XYbH`m`Wc`dm]b[ `Zca`U`gci`fW`k`]h`ci`hUW`bck`YX[ Ya`YbH`

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

7`cdm]b[ `i`g]b[ `hY`gUa`Y`cf`j`Yfmg]a`]Uf`k`cfXg`hc`hY`cf][`]bU`hY`hcf`]XYU`k`]h`ci`hUW`bck`YX[ ]b[ `hY`gci`fW`cf`i`g]b[ `ei`c`hU]cb`a`Uf`g`"H`]g`U`gc`Udd`]Yg`hc`]a`U[`YgZ`Ufh`UbX`XYg][`b`dfc`YWgZ`Ug`k`Y`Ug`dFYgYbH]cbg`k`YfY`gca`YcbY`dFYgYbH]`Ubch`Yf`g`]XYUg`cf`k`cfXg`k`]h`ci`hWYX]H`

~~hUddfcdf]UH`dUfUd`fUg]b[ `7`Ub[ ]b[ `U`Zk`k`cfXg`UbX`d`fUgYg`k`Y`a`cghm`fYH]b]b[ `hY`cf][`]bU`ghf`W`fY`UbX`#`cf`dfc[`fYgg]cb`cZ]XYUg`cZ`hY`cf][`]bU`Z`UbX`]bZcfa`U]cb`k`]h`ci`hUW`bck`YX[ Ya`YbH`H`]g`U`gc`Udd`]Yg`]b`dFYgYbH]cbg`k`YfY`gca`YcbY`dUfUd`fUgYg`Ubch`Yf`g`]XYUg`cf`k`cfXg`k`]h`ci`hWYX]hUbX`hc`d]YV]b[ `hc[`Y`h`Yf`ei`c`H`g`UbX`dUfUd`fUgYg`]bhc`U`bYk`k`c`Yz`k`]h`ci`hUddfcdf]UH`fYZYfYbW]b[ "~~

7`c`i`g]cb.`k`cf\_]b[ `k`]h`c`hYfg`Vi`hdUgg]b[ `cZ`hY`k`cf`\_`Ug`U`dYfgcb`g`]bX]j`]Xi`U`k`cf`\_`7`c`i`g]cb`U`gc`]bWi`XYg`dfcj`X]b[ `mci`f`k`cf`\_`hc`Ubch`Yf`g`h`XYbhVYZc`fY`hY`Xi`Y`XUH`Zc`f`Zc`f`hY`di`fdcgY`cZ`hY`a`d`U[ ]Uf]g]b[ `Uh`Ubmi]a`Yz`dUm]b[ `Ubch`Yf`dYfgcb`hc`dYfZcfa`Ub`UWUXYa`]W]Ug`\_`Z`gh`U`]b[ `cf`UW`i`]f]b[ `Ubch`Yf`dYfgcb`g`UWUXYa`]Wk`cf`\_`UbX`Wc`dm]b[ `]Z`cZ]f]b[ `hc`Wc`a`d`YH`Ubch`Yf`dYfgcb`g`k`cf`\_`cf`gYY\_]b[ `dUma`YbhZc`Wc`a`d`Y]b[ `UWUXYa`]Wk`cf`\_`

~~hUddfcdf]UH`W]UH]cb.`7`]h]b[ `gci`fW`g`k`]W`Uj`Y`bchVYYb`fYUXZ`k`]h`ci`hUW`bck`YX[ ]b[ `hY`gYWc`bXUfm`gci`fW`Zca`k`]W`\_`bck`YX[ Y`cZ`hY`a`Ug`VYYb`c`VH]bYX"~~

- i bXYfghUbx'mci f'f][ \hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[ ]Uf]ga ž'Wc'dmf][ \hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5W'W'dhUV'Y'I gY'cZ I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'U'g'U'ghUbx'UfX'g'cZVY\Uj ]ci f'YI dY'W'X'cZYj Yfmc'bY`]b'h'Y'I BGK 'W'a a i b]m
- 'cW'U'Y'g'Y'fj ]W'g'UbX' ]b'Z'f'a U'h'c'b'U'V'ci hi BGK 'UbX'I BGK '@]V'f'U'fm

Gca Y'cZ'U'g'U'ghUbx'UfX'g'cZVY\Uj ]ci f'YI dY'W'X'cZYj Yfmc'bY`]b'h'Y'I BGK 'W'a a i b]m

[\hd. #gj V'Y'W'f' i \]X'Y'g"\]V'f'U'fm'i bgk "Y'X'i "U'i #' \]g'Y'#U'V'ci h' \]g'Y](#)

## 5 WUXYa ]W=Zcfa Uh]cb

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

- fYei Ygth]Zc`f`Yl H`bg]cb/
- `Uh`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk `cZa Uf\_g/
- I BGK `<YU`h`UbX`GUZYmdc`]WYg/
-