

7ci fgY[·]Cj Yfj]Yk

GhJZZ 7 cbhJWh 8 YhJ] `g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWJhjcb	D\cbY
? UfYb A UfUg	<u>"a UfUg4 i bgk "YXi "Ui</u>	6mUddc]bha Ybh' D`YUgY'Ya U]'"	A cfj Yb 6fck b'; &%	

5W_bck `YX[Ya YbhcZ7ci bhfm

 $\label{eq:localized-loca$

 $\label{eq:continuous} \text{$\overset{\cdot\cdot}{=}$ U[Y'WciftY'gmcZhY'CZhY'Dfc'J]WY!7\twww.$``cf'$$ bX][Ybcig']$ $$BGK_{$^{\circ}}$$ bX][Ybcig'ghfUhY[m]$$ $$$

7ci fgY 8YHJ] g

 $I b hg c Z 7 f Y X h^*$

K cf_`cUX

%) \$`\ci fg`]bWi X]b[`WUgg`WcbHJWi\ci fgž`fYUX]b[gž`WUgg`dfYdUfUh]cbž`UggYgga Ybhž`Zc``ck`i d`UWhjj]hjYgž YhW

Giaa UfmcZh\Y 7ci fgY

#5 'fk]g'Wti fgYž'mci 'k]``YI Ua]bY \ck 'fk Y' dc`]W]Yg'UbX'dfUW]WYg'cZhcXUm'WtbbYWfk]fk \]ghcf]WU``WtbfYI hgž ffUX]h]cbgž]XYc`c[]Yg'UbX'VY`]YZg'UVci hW ff]W'`i a 'UbX'UggYgga Ybh'UbX'\ck 'Z hi fY'XYj Y'cda Ybhg'UfY g\UdYX'Vm'Yj Ybhg'UbX'XYW]g]cbg'HU_Yb']b'hk Y'dUgh''H\Y'Wti fgY'Wtj Yfg'_Ym]ggi Ygž'dc`]W]Yg'UbX'Yj Ybhg h\Uh\Uj Y'g\UdYX'fYZcfa 'U[YbXUg']b'hk Y'XYj Y'cda YbhcZW ff]W'`i a 'UbX'UggYgga Ybh']b'BYk 'Gci h\ K U'Yg'UbX'5i ghfU`]U'cb'U'bUh]cbU`'Yj Y`'UbX'k]``'Wtbg]XYf'\ck 'hk YgY'Wta dUfY'hc'XYj Y'cda Ybhg]bhYfbUh]cbU`'m''Mci 'k]``'VY'[]j Yb'hk Y'cddcfhi b]hmhc'fYgYUfWkž'UbU`mgY'UbX'X]gW'gg']ggi Yg']b'W ff]W'`i a UbX'UggYgga YbhcZ]bhYfYghhc'mci "

7 ci fgY @YUfb]b['Ci hWca Yg

- %" $7 f h W \tilde{Y} j Yk h Ycfm Ub X f Y g Y U f W \tilde{J} b h Y U W U X Y a W \tilde{J} h Y f U h f Y h Y b W f i b X Y f g h Ub X j b [~ c Z h Y f Y U h c b g \] d g `V Y h Y Y b `W f f] W `i a ž U g g Y g g a Y b h Ub X f Y d c f h b ["$
- &" 91 Ua]bY'_Ymi]ggi Yg'UbX'Yj Ybhg'h\Uh'\Uj Y']bZcfa YX'W ff]W'i a 'UbX'UggYgga Ybh'W\Ub[Y']b'`cWU`ž bUh]cbU``UbX']bhYfbUh]cbU``WcbhYl hg

5ggYgga Ybh

5ggYgga Ybh'hJg_	K Y][\h	8iY'8UHY	7 ci fgY @YUfb]b[Ci hWca Yg 5ggYggYX
%"FYZYW¶cbidUdYf	(\$1	\$' #%#&\$&&`\$).\$\$`DA	%ž''
&"`5bU`mj\WJ``dUdYf`UbX dfYgYbHJhjcb	*\$1	\$(#\$(#&\$&&`\$).\$\$`DA	%ž'&ž''

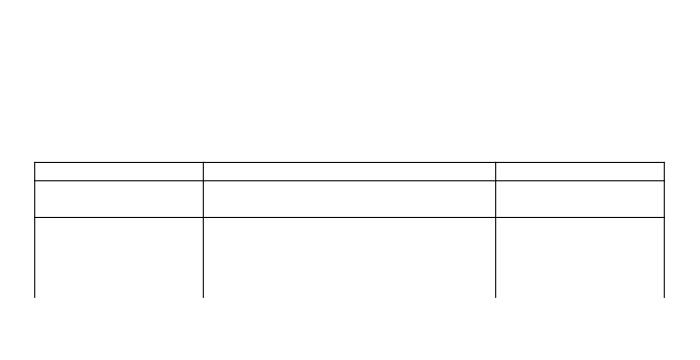
5ggYgga Ybh% FYZYW¶cb dUdYf

GHJfhXUHY. \$+#\$&#&\$&& \\ 5A Gi Va]gg]cb bchYg. Hi fb]n|b 8i Y XUHY. \$' #\\ \$& \ \$\) .\$\$ DA

 $HUg_`\%! `K f] \verb|hh| b`fYZYW| \verb|g|cb`cb`h| UWX] b[`YI dYf] YbW! `] b`Wcbh| A dcfUfmYXi WUh] cb`Wcbh| YI bg''` A dcfUfmYXi Wuh| A dcfUfmYXi Wuh| A dcfUfmYXi Wuh| A dcfUfmXi Wuh| A$

@Yb[h\.'&\$\$\$'k cfXg

EiU`]hUhjjY`UbX'eiUbhjhUhjjY`ZYYXVUW_`k]h\]b`%\$`XUmg`cZgiVa]gg]cb"



FI 6F = # 998657? G<99H 98GH) % (71 FF = 71 @ A 5B8 5GG9GGA 9BH 1 BGK G7<CC@C: 981 75H€B

 $5\,ggYgga\ Ybh'HUg_'\%\ F\ YZYW')cb'dUdYf$

GdYWJZJW7f]hYf]U	··f]Ł	2fŽŁ
I bXYfgHJbX]b['cZ'h\Y'ei Ygh]cb'cf']ggi Y'UbX'h\Y'_YmWcbWfdhg]bj c`j YX		
• 7`Uf]hmcZh\Y`XYgWf]dh]cb`cZh\Y`]XYc`c[m		
• I bXYfgHJbX]b['cZ_YmHYfa g'UbX'WbWYdhg'		
8Ydh\cZUbU`mg]g`UbX`Wf]h]eiY`]b`fYgdcbgY`hc`h\Y`HJg_		
 FY'Yj UbWY'UbX'i gY'cZYl Ua d'Yg'XfUk b'Zfca 'mci f'ck b W ff]W'i a 'Yl dYf]YbWY'fUg'U'HYUWXYf'UbX#cf'U''YUfbYfŁ"'' 		
 5bU`mg]g`cZh\Y`glfYb[h\g`UbX`k YU_bYggYg`cZh\Y`]XYc`c[]Yg`UbX\ck 'h\Yma UmYI hYbXž'W\U``Yb[Y`cf`WcblfUX]Wij]Yk g`cb`k\Uh]g [ccX`W ff]W``i a " 		
: Ua]`]Uf]mik]h\ 'UbX'fY`Yj UbWY'cZ'dfcZYgg]cbU``UbX#cf'fYgYUfW\ `]hYfUhi fY'i gYX'hc'gi ddcfhifYgdcbgY		
 5ddfcdf]UhY i gY cZfY Yj UbhfYUX]b[g'hc'gi ddcfh#/I hYbX'mci f Uf[i a Ybhg 		
Ghfi Whi fY'UbX'cf[Ub]gUh]cb'cZffYgdcbgY		
• @[]WU``UbX`Wc\YfYbhighfi Whi fY		
• 7 YUf dfYgYbHJhjcb cZ]XYUg		
DfYgYbhUhjcbicZifYgdcbgYiUWWcfX]b[ihciUddfcdf]UhYiUWUXYa]WUbXi]b[i]ghjWWcbjYbhjcbg		
• 7`Uf]mž'Wcbg]ghYbWmUbX'Uddfcdf]UhYbYgg'cZWcbj Ybh]cbg'Zcfei ch]b[ž'dUfUd\fUg]b[ž'Uhhf]Vi h]b['gci fWrg'cZ]bZcfa Uh]cbž'UbX`]gh]b['fYZYfYbWrg		

GdYW]Z JW7 f]hYf]U	¨flŁ—		 2fŽŁ
•			

FI 6F=7# 998657? G<99H 98GH) ‰(71 FF = 71 @ A 5B8 5GG9GGA 9BH I BGK 'G7<CC@'C: '98I 75H€B

 $5\,ggYgga\ Ybh'HUg_^*\&. '5\,bU'mh]WU''dUdYf'UbX'dfYgYbhUh]cb$

GdYWJZJW7 f]hYf]U	···flŁ—		 2f Ž Ł
I bXYfgHJbX]b['cZh\Y'ei Ygh]cb'cf']ggi Y'UbX'h\Y'_YmWcbWfdhg]bj c`j YX • 7`Uf]hmUbX'g][b]ZJWJbWf'cZh\Y']ggi Y'UbX']hg'fY`Yj UbWf'hc			
fY`YjUbhUfYUg`cZh\YcfmžfYgYUfW\`UbX`dfUWfJWY			
8Ydh\cZUbU`mg]g`UbX`Wf]h]eiY`]b`fYgdcbgY`hc`h\Y`hUg_			

GdYWJZJW7 f]HYf]U	¨flŁ—		 2fŽŁ
•			

K YY_"%\$."% "5df]`"!"&&	DfYgYbHJHjcb	
5df]`		

FYgci fW/g

FYWca a YbXYX FYgci fWyg

 $GWX]fc z`A "z`f&\$ \%L" `5fccZf]f ^ YV`g, 5` _WZfeZ_X GZdZ _d R_U 7_UfcZ_X 5` _TVc_d/\$_U VUZfZ GU[YLVVV_hdg.## g"gU[Ydi V"Wca #Yb!i g#bUa #W ff]W`i a !h\Ycfm*Vcc_&' ((*)$

 $C \, f \, Yf' \, \underline{\hspace{1cm}} YmfY \, UX] b [\, g' \, Ub \, X' \, f \, Yg \, ci \, f \, W' \, g' \, k \,] \, \underline{\hspace{1cm}} YY' \, df \, cj \,] XY \, X' \, cb' \, f \, X' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, W \, ci \, f \, g \, Y' \, g' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, G' \, G' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, G' \, G' \, A \, \, c \, c \, X' \, Y' \, g] h \, Y'' \, df \, cj \, [\, XY \, X' \, cb' \, f \, X' \, Y' \, G' \, G' \, A \, \, c \, c \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, c \, C \, X' \, Y' \, G' \, G' \, A \, \, C \, C \, X' \, Y' \, G' \, G' \, A \, \,$

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

 $\label{thm:condition} $$HY''W'' ig''YYb''UX^qgh'X'hc''VYhh'f''UXXfYgg'h\Y'fc'Y'cZW'ff]W'' i a 'UbX'UggYgga Ybh'dfUWfW'' UbX h\Ycfm]b'<][\Yf'9Xi WUh]cb'''; fYUh'Ya d\Ug]g'k]``'VY'd'UW'X'cb'\ck''[YbYfU''h\Ycf]Yg'cZW'ff]W'' i a 'UggYgga Ybh'Udd'mhc'h\Y'<9'gYWfcf''$

 $HUf[\ YhfYUX]b[\ g'k\]```VY']XYbh]Z]YX'YUWX'k\ YY_']b'cfXYf'h\ Uhighi \ XYbhg'WUb'VYhhYf'a\ UbU[\ Y'h\ Y]f'k\ cf_`cUX''$

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

Image: Ybwci bhYf'U'dfcV'Ya k \Yb'UhYa dhJb['hc'gi Va]hmci f'Ugg][ba Ybht\fci [\'Hi fb]hJbž'd'YUgY

HY'Yd\cbY'9| hYfbU'`Gi ddcfhcb'-',) '' ' ' %cf'Ya U]`'h\Ya 'cb'Y! 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'fl *) 'XUmg'U'mYUfŁ"'=Imci
UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]hJb'mci 'a UmUdd'mZcf'Ub'Y! hYbg]cbž'Vi hmci
a i ghfYhJ]b'mci f'hJW_Yhbi a VYf'Zfca '9! hYfbU'`Gi ddcfhfU'cb['k]h\'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁ'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmci f'Y! hYbg]cb'Udd']WUhJcb"'=Imci 'Ya U]`'9! hYfbU'`Gi ddcfhmci 'k]``
Ui hca UhJWJ'`mfYWY]j Y'U'hJW_Yhbi a VYfž'Vi h]Zmci 'hY'Yd\cbY'mci 'k]``bYYX'hc'gdYWJZJWJ'`mUg_'Zcf'cbY"
Hi fb]hJb'U'gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hYf"

; YbYfU``mž'UggYgga YbhiHug_g'a i gh'VY'gi Va]hhYX'Y`YWfcb]WJ``mj]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh'' = D']bgHJbWYg'k \YfY'h\]g']g'bchdcgg]V'Yž']hk]``VY'gHJhYX'cb'mci f'Wci fgY'g'A ccX`Y'g]hY'k]h\

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`hJ_Y`a Ubm Zcfa gžZca `XY`]VYfUhY`W\YUh]b['hc`UVW]XYbhJ``mWcdm]b['Zfca `U`gci fWY`k]h\ci hUW_bck `YX[Ya Ybh'

IBGK [fcidgdu[]Uf]ga]bhch\YZc``ck]b[WUhY[cf]Yg.

 $\begin{tabular}{ll} \hline \textbf{7.cdm}b[...] g]b[...] MY cf'j Yfmg]a] ``Uf'k cfXg'hc'h\Y'cf][] bU``HYI hcf']XYU'k]h\ci h`U\W_bck ``YX[]b[...] b[...] MY cf'i g]b[...] bU``HYI hcf']XYU'k]h\ci h`U\W_bck ``YX[]b[...] b[...] MY cf'i g]b[...] a UhYf]U`gž']XYUg'cf'WcbW'dhg'\faca '`U'Vcc_\text{z}'Ufh]WY\text{z} bU'Vcd_\text{z}'Ufh]WY\text{z} bU'Vcd_\text{z}'Ufh]WY\text$