

EDST5440

5Xj UbWYX H9GC@A Yh\cXc`c[m

GYa YghYf'C bY''##'&\$%

7ci fgY[.]Cj Yfj]Yk

7ci fgY 8YHJ] g

7 fYX]hDc]bhg**

Giaa UfmcZh\Y 7ci fgY

±0.1h\]g.Wci fgY'mci [U]b.bYk 'cfi dXUhYX'g_]``g']b.h\Y'gdYW]U`]ghiH9GC@Z]Y`X"'Mci 'Yb[U[Y'k]h\'UXj UbWYX `Ub[i U[Y'hYUW\]b['a Yh\cXc`c[mUbX']hg'dfUW]WU``Udd`]WUh]cbg'h\fci [\'U'dfc[fUa 'cZgYa]bUfg'UbX'cb`]bY]bhYfUW]cbg"'Hcd]Wg'Wcj Yf'X]ZYfYbhUddfcUW\Yg'hc'9b[`]g\``Ub[i U[Y'`YUfb]b['UbX'hYUW\]b[ž']bWi X]b[YZYWf]j Y'hYUW\]b['ghfUhY[]Yg'UbX'hYW\b]ei Yg'Zcf'hYUW\]b['fYUX]b['z'k f]h]b['z`]ghYb]b['UbX'gdYU_]b['z'a UhYf]U`g'XYj Y`cda Ybhz'UbX'h\Y'd`Ubb]b['UbX'Yj U`i Uh]cb'cZ]bX]j]Xi U```Yggcbg'UbX'i b]hg'cZk cf_"'H\Y'fc'Y

]b 'h\Y '\Z\YX'bYYX'hc 'WcbghUbhmfYZYWii dcb 'UbX'fY!Yj U'i UhY 'h\Y]f'i bXYfghUbX]b[g'cZ`Ub[i U[Y'UbX \ck VYghhc 'h\UW\']h''H\Y 'Wci fgY 'h\ i g'U]a g'hc 'Wf]h\W\'mUbU`mgYz'fYj]gY 'UbX'YI h\'bX'ghi XYbhg''i bXYfghUbX]b[UbX'dfUW\\W cZh\Y 'WcfY'UddfcUW.Yg'UbX'h\W\b]ei Yg'cZH9GC@a Yh\cXc`c[m''

5i ghfu`]Ub'DfcZYgg]cbU`; fUXi UhY'HYUWX]b['GhJbXUfXg

| GKGKKKKKKK | 8 YgWf]dh]cb | |
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| &"%"% | 8Ya cbglfUllY`_bck`YX[Y`UbX`i bXYfglUbX]b[`cZl\Y`WcbWldlgžgi VglUbWl`UbX`glfi Wi fYcZl\Y`WcblYbh'UbX`hYUW\]b[`glfUllY[]Yg`cZl\Y`lYUW\]b[`UfYU" | |
| &"%" | GiddcfhWc``YU[iYg`ig]MoW ffYbhUbX`WcaMbY\Ybg]jY`_bck`YX[Y`cZWcbhYbhWbX ‰hYUWX]b[`ghfUhY[]Yg`hc`XYjY`cd`UbX`]ad`YaYbhYb[U[]b[``YUfb]b[`UbX`hYUWX]b[| j Y · |
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 $\label{thm:conditional} \mbox{Hi fb]h]b$ "gYhh]b$ [. "H\]g$ "Ugg][ba Ybh]g$ "gi Va]hhYX$ "h\fci [\ \ 'Hi fb]h]b$ "UbX"ghi XYbhg$ "WUb"gYY$ "Hi fb]h]b$ "gJa]$ `Uf]hm fYdcfhg$"$

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gh XYbhg UfY Yl dYWYX hc di hh\Y]f bUa Yg UbX gh XYbhbi a VYfg cb Yj YfmdU[Y cZh\Y]f Ugg][ba Ybhg"

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

#mci YbWci bhYf'U'dfcV'Ya k \Yb'UhYa dhJo['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\'Hi fb]h]bž'd'YUgY
hY'Yd\cbY'9l hYfbU'Gi ddcfhcb'-',) "''' %cf'Ya U]'h\Ya 'cb'<u>Yl hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui"</u>"'Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUfŁ"'#mci
UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]h]b'mci 'a Um'Udd'mZcf'Ub'Yl hYbg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W_Yhbi a VYf'Zfca '9l hYfbU''Gi ddcfhfU'cb['k]h\'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁ'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmci f'Yl hYbg]cb'Udd']WUh]cb"'#mci 'Ya U]''9l hYfbU''Gi ddcfhmci 'k]''
Ui hca Uh]WU''mfYWf']j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'hY'Yd\cbY'mci 'k]'''bYYX'hc'gdYW]ZJWU''mUg_'Zcf'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hYf"

; YbYfU``mž'UggYgga YbhitUg_g'a i ghVY'gi Va]hhYX'Y`YWfcb]WU``mj]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh'' =b']bghUbWfg'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'ghUhYX'cb'mci f'Wci fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUh]j Y'gi Va]gg]cb'XYhU]`g''

@UhY 5 ggYgga YbhDYbU`hJYg

ł `G][b]Z]\WbhmUZZY\Wimci f`dYfZcfa Ub\Wr`]b`UggYggUV`Y`k cf_ž`VY`]h'U`Zcfa U``YbX!cZgYa YghYf`Yl Ua]bUh]cbž`U`\WUgg`hYghž`U``UVcfUhcfmihYghž`U`gYa]bUf`dfYgYbhUh]cb`cf`Ubmch\Yf`Zcfa 'cZUggYgga Ybh'

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"'\lefi\Wb'hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UVW]XYbhU`mWcdm]b['Zfca `U`gci fW'k]h\ci hUW_bck `YX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b[WUhY[cf]Yg.

7 cdm]b[.'i g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`hYl h'cf']XYU'k]h\ci h'UW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g'U`gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfcYWhgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k \YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

#JUddfcdf]UhY`dUfUd\fUg]b[.'W\Ub[]b['U'ZYk'k cfXg'UbX'd\fUgYg'k\]'Y`a cghmfYhU]b]b['h\Y`cf][]bU`ghi Whi fY`UbX']bZcfa Uh]cb`k]h\ci h'UW_bck `YX[Ya Ybh''H\]g'U`gc'Udd`]Yg']b'dfYgYbhUh]cbg'k\YfY`gca YcbYdUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h''#iU`gc'Udd`]Yg'hc'd]YW]b['hc[Yh\Yf'ei chYg'UbXdUfUd\fUgYg']bhc'U'bYk'k\c`Yž'k]h\ci h'fYZYfYbW]b['UbX'U'ghi XYbhg'ck b'UbU`mg]g'hc'Vf]b['h\Y'a UhYf]U`hc[Yh\Yf'

7 c``i g]cb. 'k cf_]b['k]h\ 'ch\Yfg'Vi h'dUgg]b['cZZh\Y'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'ghi XYbhVYZcfY'h\Y'Xi Y'XUhYžcf'Zcf'h\Y'di fdcgY'cZh\Ya d`U[]Uf]g]b['Uh'Ubmh]a Yž'dUm]b['Ubch\Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa]WhUg_ž'ghYU`]b['cf'UWei]f]b[Ubch\Yf'dYfgcb'g'UWUXYa]Wk cf_'UbX'Wcdm]b[']hz'cZYf]b['hc'Wca d`YhY'Ubch\Yf'dYfgcb'g'k cf_'cf'gYY_]b[dUma YbhZcf'Wca d`Yh]b['UWUXYa]Wk cf_"

±bUddfcdf]UhY`W]hUh]cb.`7]h]b[ˈgci fW/gˈk \]WX`\Uj Y`bchVYYb`fYUXžk]h\ci hUW_bck`YX[]b[ˈh\Y`″gYWcbXUfm″gci fW/Zfca k \]WX_bck`YX[Y`cZh\Ya`\Ug'VYYb`cVhU]bYX"

8 i d`]\WUh]cb`ff`gY`Zld`U[]\Uf]ga "Ł`gi Va]\h]b[`mci f`ck b`k cf_ž]b`k \c`Y`cf`]b`dUfhžk \YfY`]h`\Ug`dfYj]ci g`m VYYb`dfYdUfYX`cf`gi Va]\hYX`Zcf`Ubch\Yf`UqqYqqa Ybhcf\Wci fgY`UhI_BGK_`cf`Ubch\Yf`i b]\Yfq]\m"

7 cffYWhfYZYfYbWb[dfUWhWyg.

• Dufud\fug]b[žgi a a Uf]g]b[žYggUmk f]h]b["UbX"h]a Y a UbU[Ya Ybh

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- VYMYfa UbU[Ymcifh]a Y
- i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'ghi XYbh'Uhi BGK
 VY'Uk UfY'cZd`U[]Uf]ga ž'Wcdmf][\hž'I BGK 'Ghi XYbh'7cXY'cZ7cbXi Wh'UbX'5WWYdhJV`Y'I gY'cZ I BGK '= H'F Ygci fWfg'Dc`]Wh

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• 6i fbgž5"'UbX'F]WkUfXgž'>"'fPXgŁ"'&\$\%"FZW5S_TqVYW9g[VWfaBWWSYaYkS`VBcSUf[UW[EWUa`V>S`YgSYWFWSUZ[`Yž7UaVf]X[Y.7UaVf]X[Y1b]jYfg]mmDfYgg"

FYWca a YbXYX FYgci fWYg

• 6UlrghcbYžF "'f% - (Ł"'9 dS_ _ SdžCl ZcfX. 'Cl ZcfX'l b]j Yfg]lmiDfYgg"

8 U`hcbž7 / 'GY]XY`\cZYfž6"'f% - , Ł'Bda` g` U[Sf[a` "'C | ZcfX.'C | ZcfX'| b]j Yfg]hmDfYgg

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