



MMAN9001

A UghYf'cZ9b[]bYYf]b['GW]YbW' Dfc ^YWh'5

HYfa 'Hk c''##'&\$&%

GWcc``cZA YWUbjWU``UbX`A Ubi ZUWh f]b['9b[]bYYf]b[``##`I BGK `9b[]bYYf]b[]

7ci fgY`Cj Yfj]Yk

GHJZ`7cbHJW`8YHJ`g

7cbj Ybcfg

| B Ua Y | 9a U] | 5j U]`UV]`]m | @cWU]cb | D\cbY |
|-----------|------------------------|---|--|---------------|
| F cb`7\Ub | f`VXUb4 i bgk "YXi "Ui | -h]g`fYW`a a YbXYX mci `Ya U]`hY V`i fgY `V`bj Ybcf`tc a U_Y`U`gdYVWZ]W Uddc]bha Ybh]Zmci bYYX`tc`X]gW gg`Ubm]a dcfUbh]ggi Yg" | F cca `) \$+ž 5]bgk cft 6i]X]b[| - ' ,) % ') |

GWXcc`7cbHJW`bZcfa Uh]cb

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I BGK `A YWU]WU`UbX`A Ubi ZUW` f]b[`9b[]bYYf]b[

5]bgk cft`Vi]X]b[`>%+ž@Y] Y`%

5Vcj Y`7cZY`cb`7Ua di g

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†7`cgYX`cb`di V`]W\c`]XUmžGWXcc`gWYXi `YX`Yj Ybtg`UbX`I b]j Yfg]mG\i hXck b

K YV

[GWXcc`cZA YWU\]WU`UbX`A Ubi ZUW` f\]b\[`9b\[\]bYYf\]b\[](#)

fZ *%&E' ,) (\$- + -'GWcc`C ZWk

HD`YUgY`bchY`hUhi`Y`GWcc`C ZW`k]`bch_bck `k \Yb#Zmci fWci fgY`Wcbj Ybcf]g`cb`Wla di g`cf Uj U]UV`Y

9a U]

[9b\[\]bYYf\]b\[\]Gh XYbhGi ddcfhGYfj \]Wg](#) -`W ffYbhighi XYbhYbei]f]Yg

- Y"["Ybfc`a YbZ`dfc[fYgg]cbZ`WUg\`fYei YgghZ`Wci fgY`]ggi Yg`cf`dfc[fUa !fY`UHX`ei Yf]Yg

[9b\[\]bYYf\]b\[\]`Xi ghf\]U`HfU\]b\]b\[\]`Xi ghf\]U`HfU\]b\]b\[\]`ei Ygh\]cbg](#)

[L BGK \]Gh Xm5VfcUX](#) -`gh XmiUVfcUX`gh XYbhYbei]f]Yg`fZcf`]bVci bX`gh XYbht

[L BGK \]9I WUUb\]Y](#) -`gh XYbhYI WUUb[Y`Ybei]f]Yg`fZcf`]bVci bX`gh XYbht

[L BGK \]: i h fY`Gh XYbht](#) -`dchYbh]U`gh XYbhYbei]f]Yg

- Y"["UXa]gg]cbgZ`ZYgZ`dfc[fUa gZ`WYX]hHfUbgZYf

[GWcc`C ZW](#) -`GWcc`[YbYFU`cZ]W`UXa]b]ghfU]cb`Ybei]f]Yg

- B 6. hY`fY`Yj UbhYUa g`]ghYX`UVcj Y`a i ghVY`WcbHUVWYX`Zcf`U`gh XYbhYbei]f]Yg" H\Y`GWcc`k]`cb`mVY`UV`Y`hc`fY`ZYf`gh XYbht]cb`hc`hY`fY`Yj UbhYUa]Z`WcbHUVWYX

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HYUW]b['GhfUHY[]Yg'

H\YfY]g'bc'Zcfa U'h'UW]b['Vi h\Y'ghi XYbhg'YUfb'Zca 'Vch']bhYfbU'UbX'YI h'fbU'gci fWg'"H\Y
gi dYfj]gcfZchYf'UWXYa]Wj'UbX''UVcfUhcfm# cf_g\cd'ghUZZUFY'h\Y']bhYfbU'gci fWg'Zk \YfYUg'h\Y'@]VfUfmž
]bhYfbYhUbX']bXi gfmia Ybhcfg'UFY'h\Y'YI h'fbU'gci fWg'"H\YfY'UFY'bc'gYh'YWfi fYg'Zc'f'h']g'Wci fgYž'Vi hU
bi a VYf'cZk cf_g\cdg'k]''VY'dfcj]XYX'hc'Ugg]ghighi XYbhg'hc'Wca d'Yh'h\Y]f'h\Yg]g'hc'U'\[\ 'ghUbXUfX'"5''
k cf_g\cdg'k]''VY'fYWcfXYX'UbX'a UXY'Uj U]UV'Y'hc'ghi XYbhg'cb']bY"

5ggYgga Ybh

5ggYgga YbhHUg_g

| 5ggYgga YbhHUg_ | K Y][\h | 8i Y'8UH | Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX |
|--|----------|------------------|--|
| Dfc[fYgg'9j U'i Uh]cb'k]h A Ybhcf | %) | K YY_`m | %&'&' ž(|
| Dfc'YWhDfYgYbhUh]cb' | %) | K YY_`m | %&'&' ž(|
| Dfc[fYgg'F Ydcfh | +\$ | K YY_`%\$: f]XUm | %&'&' ž(|

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% Dfc[fYgg'9j U'i Uh]cb'k]h 'A Ybhcf

GhUfhXUH. Bch5dd`]WVY

8YHJ]`g.

U"8YgW]dh]cb'cZHY'HUg_"

9UW'HYUa 'k]`dfYgYbhHY]f'_YmZ]bX]b[g'k YY_`mhc'hY]f'a Ybhcf'UbX#f'Wci fgY'Wcbj YbYf'

V"Bi a VYf'cZUggYgga Ybhg]bW'XYX']b'h]g'UggYgga YbhWUH[cfm'

: fca ' †

Z`K \Yb`A Uf_g`UfY`fYh`fbYX.

C b!hY!gdchZYXVUW_

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[`"<ck`h`gi`Va`]gg]cb`hY`UggYgga`Ybh

H\Y`Yj`U`i`Uh]cb`k`j`VY`XcbY`j`Y`cb`A`G`HYUa`g

5ggYgga`Ybh&.`Dfc`YW`DfYgYbH]cb

GHUfhXUHY.`Bch5dd`]WUV`Y

@Yb[`h.`%)`a`]bi`hYg

8YHJ]`g.

U"8YgW]d]cb`cZ`hY`hUg_"

9UW`hYUa`k`j`dYgYbh`hY]f`_YmZ]bX]b[`g`k`YY`_m]h`hY]f`a`Yb]c`fg`UbX`#`c`f`W`i`fgY`W`bj`YbYfZ`Vi`h`hY`hYUa`k`j`VY`UggYggYX`cb`hY]f`dYgYbH]cb`g_]`g`UbX`Yj`Y`c`Z`c`f`[`Ub]gU]cb"

.

V"Bi`a`VYf`cZ`UggYgga`Ybh]`bW`XYX`]b`h`g`UggYgga`YbhW]hY[`c`fm]

:`fca`K`YY`_(`h`K`YY`_`-`f]bW`i`g]j`Y`L

.

W`K` \Y`h`Y`f`h`Y`UggYgga`Ybh]g`U`;`fci`d`Dfc`YW`

h]g`U`[`fci`d`UggYgga`Ybh!`a`U`i`+`dYf`hYUa`"

.

X"5ggYgga`YbhW]hYf]U

H\Y`a`Uf_]b[`W]hYf]U`Z`c`f`h`g`UggYgga`Ybhk`j`VY`a`UXY`Uj`U]UV`Y`cb`A`ccX`Y`#`G`HYUa`g

.

Y"8YUX]bY`Z`c`f`UVgc`i`h`Z]`.+`W]YbXUf`XUmg`UZ`Y`f`h`Y`Xi`Y`XUHY

B`#5

.

Z`K \Yb`A Uf_g`UfY`fYh`fbYX.

C b!hY!gdchZYXVUW_

[" < ck 'fc 'gi Va]gg]cb'hY'UggYgga Ybh

H\Y'dfYgYbhU]cb'k]''VY'XcbY''j] Y'cb'A G'HYUa g

5ggYgga Ybh' . Dfc[fYgg'F Ydcfh

GHUfhXUHY. 'Bch5dd']WV'Y

@Yb[h.)!%\$'dU[Yg'Z'Zcbh/ 'YbX'a UHYf

8YHU]`g.

U"8YgW]dh]cb'cZHY'hUg_"

Gh XYbhgi Va]hg'Ub']bX]j]Xi U'fYdcfh!'ci h]b]b['_YmZ]bX]b[g'cZDfc'YWh5'UbX'dfcXi W'U'XYHU]YX'd'Ub'Zcf
Dfc'YWh6']b'hY'bYI hHYfa "

V"Bi a VYf'cZUggYgga Ybhg]bW' XYX']b'h]g'UggYgga YbhWUHY[cfm'

Cb`mi%! Uh'hY'YbX'cZHY'hYfa

W'K \YhYf'hY'UggYgga Ybh]g'U'; fci d'Dfc'YWh'

Bc"

X"5ggYgga YbhW]HYf]U

H\Y'a Uf_]b['W]HYf]U'Zcf'h]g'UggYgga Ybhk]''VY'a UXY'Uj U]UV'Y'cb'A ccX'Y# G'HYUa g

Y"8YUX']bY'Zcf'UVgc'i h'ZU]'. '+WU'YbXUF'XUmg'UZHYf'hY'Xi Y'XUHY

+WU'YbXYf'XUmg'UZHYf'hY'Xi Y'XUHY"

Z'K \Yb'A Uf_g'UFY'fYh'fbYX.

I dcb'fY'YUgY'cZHY'Z]bU'fYgi 'h'

[" < ck 'hc'gi Va]gg]cb'h.Y'UggYgga Ybh

H\Y'gi Va]gg]cb'k]'VY'a UXY'cb'A ccX'Y"

F Ygci fWg

F YWca a YbXYX`F Ygci fWg

7 cbHrbhcb`hLY`Wci fgY`A ccX`Y`dU[Y`k]`VY`i dXUHYX`cZb`k]h`hdgžX]gW gg]cbg`UbX`fYgci fWgž`gc`mci UfY`ghfcb[`mUXj]gYX`hc`a U_Y`gi fY`mci `WXYW`Zcf`U`i dXUHYg"

Mci `Wb`U`gc`ZbX`i gYZ` `fYgci fWg`cb`hLY`I BGK ``]VfUfmk YVg]hY"

U`I BGK `@]VfUfmk YVg]hY. `hhdg.## k k ``]VfUfmi bgk "YXi "Ui #

V``A ccX`Y. `hhdg.##a ccX`Y`h`hi bgk "YXi "Ui #c[]b#bXYI "d\`d

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

: YXVUW`cb`hLY`Wci fgY`]g[U`hYfYX`dYf]cX]WJ`mi g]b[] Uf]ci g`a YUbgž]bWi X]b[`hLY`I BGK a m9I dYf]YbW`dfcW`ggž]bZ`fa U`X]gW gg]cb`]b`hLY`ZbU`WUgg`Zcf`hLY`Wci fgYž`UbX`hLY`GWcc`g Gh XYbh`GhJZa YH]b[g" Mci f`ZYXVUW`]g`hU`Yb`gYf]ci g`nž`UbX`Wc`bh]bi U`]a dfcj Ya Ybhg`UfY`a UXY`hc`hLY`Wci fgY`VUgYXž]b`dUfž`cb`gi W`ZYXVUW`" `b`h]g`Wci fgYž`fYWbh]a dfcj Ya Ybhg`fYgi`h]b[`Zca`gh XYbh ZYXVUW`]bWi XY. `Uj]b[`ga U`Yf`h`Ua`g]nYg`hc`]a dfcj Y`gh XYbhg]a Ybhf`Yb[U[Ya Ybh

UggYgga YbhdYfZcfa UbWžmci 'UfY'Y'[]V'Y'rc'Udd'mZcf'GdYWU'7 cbg]XYfUhc'b'df]cf'rc'gi Va]h]b['Ub
UggYgga Ybhcf'g]h]b['Ub'YI Ua "

I BGK 'bck '\Ug'U': [\]hrc'G\]h#Gi Va \]hfi_Yžk \\]W'a](#) YUbg'hUh]Zmci 'UthYa dhUb'YI Ua 'cf'gi Va]hU'd]YW'cZ
UggYgga Ybž'mci 'UfY'XYWUf]b['mci fgY'Z]hYbci ['\rc'Xc'gc'UbX'Wbbch'Uhf'Udd'mZcf'GdYWU'
7 cbg]XYfUhc'b"

: cf'XYHU]g'cZUdd'm]b['Zcf'GdYWU'7 cbg]XYfUhc'b'UbX'WcbX]h]cbg'Zcf'hY'Uk UfX'cZgi dd'Ya YbhUfm
UggYgga Ybž'd'YUg'gY'Y'hY'j]bZcfa Uhc'b'cb'I BGK 'g'[GdYWU'7 cbg\]XYfUhc'b'dU\]Y"](#)

D'YUgY'bc'hY'hUhighi XYbhg'k]'bchVY'fYei]fYX'rc'dfcj]XY'UbmXcW'a YbhUfmYj]XYbW'rc
gi ddcfhUVgYbW'g'Zca 'UbmWUggYg'a]ggYX'

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

I BGK `Ug`Ub`cb[c]b[`Wca a]ha Ybhlc`ZcghYf]b[`U`W`hi fY`cZ`YUfb]b[`]bZcfa YX`VmiUWUXYa]W]bhY[f]m`5`
I BGK `gh`XYbhg`Uj`Y`U`fYgdcbg]V`]mhc`UX`YfY`hc`h`g`df]bW]d`Y`cZUWUXYa]W]bhY[f]m`D`U[]Uf]ga
i bXYfa]bYg`UWUXYa]W]bhY[f]m]UbX`]g`bchlc`YfUHYX`Uhl`BGK`"B`SY[Sde_`SfG@E|`[e VWX`W`Se ge[`Y`
fZWi`ad/e ad[VWSe aXafZWde S`V`bSee[`Y`fZW_`aXSe kagdai`ž`

D`U[]Uf]ga`]g`U`mdY`cZ]bhY`YWfi`U`h`YZh`#iW]b`hU`_Y`a`UbmiZcfa`gž`Zca`XY`]VYfUHY`WXYUhb[`hc`UWUXYbH`m`
Wcdm]b[`Zca`U`gci`fWY`k`]h`ci`hUW`bck`YX[`Ya`Ybh`I`BGK`Ug`dfcXi`WYX`U`k`YVg]hY`k`]h`U`k`YU`h`cZ`
fYgci`fWY`g`hc`gi`ddcfhgh`XYbhg`hc`i`bXYfgHUbX`UbX`Uj`c]X`d`U[]Uf]ga`ž`]g]h`[gh`XYbh`i`bgk`"YXi`"Ui`#d`U\[\]Uf\]ga`"](#)
H\Y`@YUfb]b[`7`YbhfY`Ugg]ghg`gh`XYbhg`k`]h`i`bXYfgHUbX]b[`UWUXYa]W]bhY[f]m]UbX`\ck`bchlc`d`U[]Uf]gY`
H\YmiU`gc`\c`X`k`cf_g\cdg`UbX`W]b`\Y`d`gh`XYbhg`cbY!cb!cbY"

Mci`UfY`U`gc`fYa`]bXYX`h`UhWfYZ`h`ja`Y`a`UbU[`Ya`Ybh]g`Ub`ja`dcffUbhdufhcZgh`XmiUbX`cbY`cZ`h`Y`
]XYbh]Z`YX`W]i`gYg`cZ`d`U[]Uf]ga`]g`d`ccf`h`ja`Y`a`UbU[`Ya`Ybh`G`h`XYbhg`g`l`ci`X`U`ck`gi`Z`W]Ybh]ja`Y`Z`c`f`
bXYfa`]bYYk`cfXYbhg`g`A`g`Wc`Z`U`D`W`W]i`#cbgH`%o`
%o`

5 WUXYa]W=Zcfa Uh]cb

7 fYX]hdc]bhg

7 ci fgY`WYX]hg`W`W`UH`X`]b`I` b]hg!C Z 7 fYX]hfl C 7 E`H`Y`bcfa U`k cf`cUX`YI dYWUh]cb`Zc`cbY`I C 7

- [A ccXY](#)
- [@UV`5WYgg](#)
- [7ca di hb\[` : UW\]hYg](#)
- [Ghi XYbhF Ygci fWg](#)
- [7ci fgY`Ci h\]bYg](#)
- [: UW`imHfUbg\]hcbU`5ffUb\[Ya Ybtrg`Zcf`7CJ`8!%-](#)
- [A U`YfgdUWY](#)
- [I BGK`Hja YhUV`Y](#)
- [I BGK`<UbXVcc](#)
- [9ei \]hUV`Y`@YUfb\]b\[`GYfj \]Wg](#)

⇒ U[Y`7fYX]h

GmbYf[]Yg`]b`Gci bX`&\$%*`

7F ⇒7CG

7F ⇒7CG`Dfcj]XYf`7cXY.`\$\$\$- , ;

5W_bck`YX[Ya YbhcZ`7ci bhfm

K Y`UW_bck`YX[Y`h`Y`6YXY[U`dYcd`Y`k` \c`UfY`h`Y`hfUX]h]cbU`W`g`h`X]Ubg`c`Z`h`Y`UbXg`c`b`k` \]W`I`BGK`
 ? Ybg]b[hcb`W`a`di`g`]g`c`W`h`Y`X`"

5ddYbX|l . '9b[]bYYfg'5i ghfU`U'f95E'DfcZYgg]cbU`'9b[]bYYf'7ca dYhYbWm
GHUbXUfX

| | |
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| Dfc[fUa 'hYbXYX'@YUfb]b['Ci hWta Yg | |
| ? bck `YX[Y'UbX'g_]`VUgY | |
| D9%"%7 ca dfY\Ybg]j YzhYcfmVUgYX'i bXYfghUbX]b['cZhY'i bXYfd]bb]b['bUh fU`UbX d\mg]WU`gWYbWg'UbX'hY'Yb[]bYYf]b['Z bXUa YbH'g'Udd`]WUV'Y'hc'hY'Yb[]bYYf]b['X]gWd`]bY | |
| D9%"&'7 cbWdh U`i bXYfghUbX]b['cZhY'a UhYa Uh]Wg'z'bi a Yf]WU`UbU'mg]g'ghUhg]Wg'z'UbX Wta di h'f'UbX']bZ'fa Uh]cb'gWYbWg'k \]W' i bXYfd]b'hY'Yb[]bYYf]b['X]gWd`]bY | |
| D9%" " 'h!XYdh'i bXYfghUbX]b['cZgdYWU`]ghVcX]Yg'cZ_bck `YX[Y'k]h]b'hY'Yb[]bYYf]b[X]gWd`]bY | |
| D9%"('8]gWfba YbhcZ_bck `YX[Y'XYj Y`cda YbhUbX'fYgYUfW'X]fYW]cbg'k]h]b'hY Yb[]bYYf]b['X]gWd`]bY | |
| D9%") ? bck `YX[Y'cZYb[]bYYf]b['XYg][b'dfUW]W'UbX'WcbhYi h U`ZUW'c'fg]a dUW]b['hY Yb[]bYYf]b['X]gWd`]bY | |
| D9%"* 'i bXYfghUbX]b['cZhY'gW'cdY'z'df]bWd`Yg'z'bcfa g'z'UW'W'ci bHUV`]h]Yg'UbX'Vci bXg'cZ gi gh]bUV'Y'Yb[]bYYf]b['dfUW]W']b'hY'gdYW]ZWX]gWd`]bY | |
| 9b[]bYYf]b['Udd`]WU]cb'UV`]jm | |
| D9%"%5dd`]WU]cb'cZYghUV`]g\YX'Yb[]bYYf]b['a Yh'cXg'hc'Wta d'Yi'Yb[]bYYf]b['dfcV'Ya gc`]b[| |
| D9%"&'&'i YbhUdd`]WU]cb'cZYb[]bYYf]b['h'W]b]ei Yg'z'hc'g'UbX'fYgci fW'g | |
| D9%" " '5dd`]WU]cb'cZgmg]Ya Uh]WYb[]bYYf]b['gmb'hYg]g'UbX'XYg][b'dfcW'ggYg | |
| D9%"('5dd`]WU]cb'cZgmg]Ya Uh]WUdd'fcUW'Yg'hc'hY'WcbXi W'h]UbX'a UbU[Ya YbhcZYb[]bYYf]b[dfc'YW'g | |
| DfcZYgg]cbU`UbX'dYfgcbU`Uhf]Vi hYg | |
| D9' "%9h]WU`WcbXi W'h]UbX'dfcZYgg]cbU`UW'W'ci bHUV`]jm | |
| D9' "&'9ZYW]j Y'cfU`UbX'k f]hYb'Wta a i b]WU]cb`]b'dfcZYgg]cbU`UbX`UmXca U]bg | |
| D9' " '7fYUh]j Y'z]bbcj Uh]j Y'UbX'dfc!UW]j Y'XYa YUbcif | |
| D9' "('DfcZYgg]cbU`i gY'UbX'a UbU[Ya YbhcZ]bZ'fa Uh]cb | |
| D9' ") 'CfXYf'ma UbU[Ya YbhcZgY'z'UbX'dfcZYgg]cbU`WcbXi W'h | |
| D9' "*" '9ZYW]j Y'hYUa 'a Ya VYfg\]d'UbX'hYUa `YUXYfg\]d | |