

a UmUgg][b'UXX]h]cbU`UbX#cf'U`hYfbUh]jY'HUg_g'hc'Ybgi fY'Wca d`]UbWY"`5'7 ci fgY'5i h\cf]hmWcbg]XYf]b['h\Y [fUbh]b['cZUVgYbWY'a i gh'Y'gUh]gZ]YX'U'gh XYbhk]```gh]```VY'UV'Y'hc'a YYhh\Y'Wci fgY'g``YUfb]b['ci hWca Yg UbX#cf'j c`i a Y'cZ`YUfb]b["'5'gh XYbhgYY_]b['Uddfcj U``hc'VY'UVgYbhZcf'a cfY'h\Ub'cbY'a cbh\'a i gh'Udd`m]b'k f]h]b['hc'h\Y'8YUb'UbX'dfcj]XY'U``cf][]bU``cf'Wffh]Z]YX'gi ddcfh]b['XcW'a YbhUh]cb"

: cf'a cfY`]bZcfa Uh]cb'UVci hih\Y`UhhYbXUbWY`dfchcWc`g`]b'h\Y`: UW `hmicZ5fhg'UbX'GcWJU`

7cifgY[·]8YHJ]`g

7 fYX]hDc]bhg[·]*[·]

Gi a a UfmcZ'h\Y'7ci fgY

Gi VYW15fYU. FZWSfdWS` V BW0Xad_ S` UWE fgV[We

5 hih Y WobWi g]cb cZih]g Woi fgY h Y ghi XYbhk]``VY UV Y hc

- %" XYa cbghfUhY 'Ub'i bXYfghUbX]b['cZh\Y'k Umih\Y'UWcff@if]E'UddfcUVX 'hc'UgdYWg'cZhYI hfWXUfUWhYf UbX'd`ch']b'dUfh]W'`UfE'UbX'f]]E'h\Y]f'dgmWxc!d\mg]WU`'k cf_'Ya VcXmigdYW]Z]WfYgdcbgYg'hc'h\Y'UWcff@ \]ghcf]WU`'UbX'W'`hi fU`'WcbhYI h
- &" XYa cbglfUhY 'Ub 'UV]`]mihc`]XYbh]Zmih\Y`]XYc`c[]WU``bUhi fY`cZX]ZZYfYbhiUddfcUVX.Yg`hc`h\Y`fY`Uh]cb VYhk YYb`UWhcf#W\UfUWh/f#gdYWUhcf
- ' "XYa cbghfUhY 'Ub 'Uk UfYbYgg'cZh Y 'W Ub[Yg'UbX Wcbh]bi]h]Yg']b 'U'dfUWn]h]cbYffg 'UddfcUW 'cj Yf'h]a Y hc 'h Y 'h YcfmUbX'dfUWn]WY cZUWn]b[ž'Ug'k Y``Ug'Ub 'UV]`]hm hc ``cWUhY 'a ca Ybhg'cZWcbj Yf[YbWY 'UbX X]j Yf[YbWY 'VYhk YYb 'h UhdfUWn]h]cbYffg 'h YcfmUbX'dfUWn]WY
- ("XYa cbgffUHY`Ub`UV]`]mihc`Yb[U[Y`]b`VcH\`Wc[b]h]jY``]b[i]gh]WUbX`Ya VcX]YX``YUfb]b[/UbX`Ub`UV]`]mihc`fYZYWicb`H\Y`fY`Uh]cb`VYfk YYb`]XYUgžWcbHYI hg`UbX`VcX]Yg
-) " h\Y`XYj Y`cda YbhcZ]bXYdYbXYbhfYgYUfW\`UbX`UbU`mg]g`g_]``gž'Ug`k Y```Ug`g_]``g`fY`Yj Ubhhc`h\Y YgfUV`]g\a YbhcZUb`cf[Ub]nYXž`\Ufa cb]ci g`UbX`Wcbglfi Wfj Y`YbgYa V`Y`hYUa

HYUWX]b[GhfUhY[]Yg

@YUfb]b['UbX HYUWX]b['5ddfcUWX

7cbhYbhFUhjcbU`Y

5FHG&&&) `]g`U`@Yj Y``&`Wci fgY`]b`h\Y`H\YUlfY`UbX`DYfZcfa UbWY`Ghi X]Yg`fHDGŁi bXYf[fUXi UhY`W ff]W`i a UhI BGK "'=hYI hYbXg`k cf_`mci `a UmU`fYUXm\Uj Y`i bXYfhU_Yb`]b`5FHG%&&`cb`dfUWjh]cbYfg`gi VX`Ug GhUb]g`Uj g_mUbX`6fYW\hih\fci [\`]bhfcXi Wb[`UbX`YI d`cf]b[`]b`XYdh\`h\Y`]XYc`c[]WU``UbX`\]ghcf]WU``m gdYWJZ]WbUhi fY`cZgca Y`cZh\Y]f`UddfcUV\fYgŁhc`UWcf`HU]b]b[`UbX`fY\YUfgU``Ug`k Y```Ug`h\cgY`cZ gi WW ggcfg`gi VX`Ug`; fchck g_]`UbX`: cfWfX`9bhYfhU]ba Ybh'`H\fci [\`]hg`Wcbg]XYfUh]cb`cZWcbhYa dcfUfm V\U``Yb[Yg`hc`a cXYfb]gh]XYUg`cZUWjb[`žh\Y`Wci fgY`U`gc`YI hYbXg`k cf_`i bXYfhU_Yb`]b`h\Y`WcfY`Wci fgY 5FHG&%&%'`@_Y`a Ubmch\Yf`a]I YX!a cXY`Wci fgYg`]b`h\Y`HDG`W`ff]W``i a`h\]g`Wci fgY`YbWci fU[Yg `YUfb]b[`f\fci [\`U`Wca V]bUh]cb`cZh\YcfmUbX`dfUWjWfžYgdYWjU``mghi XYbh`YXfYgYUfV\`dYfZcfa UbWfg"

5FGH&&&) `]g`ghfi WhifYX`Ug`U`WcaV]bUh]cb`cZ`YWhifYžX]gWigg]cbždfUWh]WY!VUgYX`UbX`ghiXYbh`YX``YUfb]b[dfcWYggYg"`H\Y`Z]fgh`UbX``cb[Yf`gYWh]cb`cZh\Y`WcifgY`]g`fY`Uh]jY`mhYUWXYf!`YX`UbX`U`hYfbUhYg `YWhifY#hihcf]U``hYUWX]b[`ZcfaUhg`k]h\`dfUWh]WU``kcf_g\cdg"`H\Y`gYWcbX`UbX`g\cfhYf`gYWh]cb`]g`]bhYbXYX`hc \Y`d`ghi XYbhg`ZcghYf`g_]``g`]b`gY`ZX]fYWhYX`UbX`[fci d!VUgYX``YUfb]b[`h\fci [\`U`gYf]Yg`cZghi XYbH`YX fY\YUfgU`gžW``a]bUh]b[``]b`U`dYfZcfa UbWY`dfYgYbhUh]cb`UbX`Zcfi a "

YUWX`UggYgga Ybh`Wf]hYf]U/k f]hhYb`Zcfa Uh]j Y`ZYYXVUW_/UbX`dYfWYbhU[Y`[fUXY'`@UhY`YggUmg`k]```fYWY]j Y fi Vf]WUbX`dYfWYbhU[Y`[fUXY`cb`m"

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

H5G? [•] **B**GHFI 7 H€BG

 $\label{eq:hamiltonian} H\Y`9ggUma~i~ghVY`&z\$$`k~cfXg`]b``Yb[h`fYIWiX]b[`ZcchbchYg`UbX`V]V`]c[fUd\mL`UbX`WUb`VYY]h\Yf.$

UŁU fYgdcbgY hc cbY cZh Y ei Ygh]cbg]b h Y ...]ghX]ghf]Vi hYX j]U A ccX Y CF

VŁ````U`gY`ZXYj]gYX`eiYgh]cbźh**\Y`h]hY`cZk \]W** gefTWV[eUgeeWV i [fZ fZWUagdeWUa`hW Wd egT_[ffWV fa S`V SbbdahWV Tk ZWdSf fZWI] * fgfad[S^a` #" EWbfW_TWdź

@4, ? aVW^efgVW fi adj Xa_ bdWh[age kWSde [e ShS['ST Wa` ? aaV W/5 a` fW f` D WeagdUWefi

5GG9GGA 9BH 7F + 19F - 5

Mci k]``VY'UggYggYX'cb.

%2.....7 cbh/bh-imci fiUV]`]hmihci]bWcfdcfUHYiUWW fUHYi]bZcfa Uh]cbiUbXiWcbWfYHYiYI Ua diYgifYiYj Ubhihcimci f V% cgYbiei Ygh]cbiUbXihciXcigcik]h\]bih\Yi[]j Ybik cfXi`]a]h]"Y"'&Z\$\$\$!&Z \$\$ik cfXgiZcfia U]bihYI hYI Wi X]b[h\YiZcchbchYgiUbXiV]Vi]c[fUd\m/

&Ł:....Gci fW/g:--mci f:UV]]mihc:Yb[U[Y:a YUb]b[Z]:mk]h\:fY`Yj UbhigYhifYUX]b[gzhc:YI hYbX:mci f:fYUX]b[VYmcbX:h\YgY:gYhihYI hgzUbX:hc:Ya d`cmih\UhifYgYUfW\:i gYZ]:"mi]bigi ddcfhicZmci f:Uf[i a Ybh/

'Ł````7f]h]WU``5ddfcUW\`--incif`UV]`]hmihc`bY[ch]UhY`h\Y`UfYUfgEcZXYVUhY`incif`W\cgYb`YggUmieiYgh]cb]bj]hYg`inci`hc`Wcbg]XYfžhc`UbU`mmY`h\Y`h\ci[\hg`UbX`dfUWi]WYg`cZch\YfgžUbX`hc`WfYUhY``c[]WU``UbX`kY`` giddcfhYX`Uf[iaYbhUh]cb`UVcihWcad`YI`Wi`hifU``dfUWi]WYg/

(Ł````Ghfi Whi fY`—`mci f`UV]`]hmihc`cf[Ub]nY`mci f`]XYUg`fh\fci [\`gYbhYbWYždUfU[fUd\`UbX`YggUmighfi Whi fYŁ`]b U`k Umih\UhiWYUf`miVi]`Xg`mci f`Uf[i a Ybh/

) Ł````DfYgYbłUłjcb`--mcif`UV]`]hmłc`X]gd`Ummcif`fYgYUfW\`]b`Ub`Uddfcdf]UhY`gW\c`Uf`maUbbYf`]"Y"`WUfYZ``m fYZYfYbWYX`feichUłjcb`aUf_gž`]bXYbłUłjcb`cZeicłUłjcbg'' ``]bYg`cZacfY`]b``Yb[h\žWcbg]ghYbhfYZYfYbWjb[`cZ gcifWYg`]b`ZcchbchYg`UbX`V]V`]c[fUd\mYhWłž`k]h\`łjhY`dU[Y`]bX]WUłjb[`h\Y`biaVYf`cZh\Y`YggUmeiYghjcb F 5 H ← B 5 @9. 'H\Y'A U'cf'9 ggUmUggYggYg'mci f'UV]`]mihc 'fYZYWi]bXYdYbXYbhimi dcbž'Wf]h]WU``mYI hYbX'UbX UbU`mY'_Ym]XYUg'fU]gYX'h\fci [\ci hh\Y'Wci fgY']b'k f]h]b["``Mci 'UfY']bj]hYX'hc 'XYj Y`cd'U'Wca d`YI 'Wf]h]WU` UddfcUW\'hc 'Ub'UfYU'cZ]bhYfYghWcj YfYX']b'h\Y'Wci fgYž'UbX'hc 'XYa cbghfUhY'h\Uh'UddfcUW\'k]h\]b'U'\][\`m WfUZhYX'UbX'fYgYUfW\YX'gW\c`Uf`mUf[i a Ybh'``H\Y'HUg_'U`gc'[]j Yg'mci 'Ub'cddcfhi b]mihc'i bXYfHU_Y'h\Y fYgYUfW\'bYWfggUfmiZcfh\Y'; fci d'DYfZcfa UbWf''

: cf'[i]XUbW/UVci hYggUmk f]h]b[ž'd`YUgY'Wcbgi `hh\Y'Zc``ck]b['IBGK 'GmXbYmcb`]bY'XcW a Ybhg.

<u>htdg.##ghi XYbh'i bgk "YXi "Ui #/ggUmUbX!Ugg][ba Ybhk f]hb[</u>

FYZYfYbWjb['GmghYag

=b`H\YUHY`UbX`DYfZcfa UbWY`Gh X]Yg`h\Y`a cghWca a cb`mi gYX`fYZYfYbW]b[`gmghYa `]g`h\Y ZcchbchY#/]V`]c[fUd\mcf`fCl ZcfXfifYZYfYbW]b[`gmghYa "``: cf`Z h\Yf`]bZcfa U]hcb`UVci hih\]g`gmghYa ž`d`YUgY Wcbgi `h

<u>\htdg.##ghi XYbh'i bgk "YXi "Ui #cchbchY!V]V`]c[fUd\mtcf!cl ZcfX!fYZyfYbW]b[!gmghYa</u>

<ckYjYfžUb`]bWfYUg]b[`midcdi`Uf`UbX`YeiU``miUWWYdHUV`Y`fYZYfYbW]b[`gmgHYa`]g`H\Y`'=b!HYIH`cf`'<UfjUfX' fYZYfYbW]b[`gmgHYa"``GYY.

<u>htdg.##ghi XYbh'i bgk "YXi "Ui #\Ufj UfX!fYZYfYbW]b[</u>

K \]WXYjYf`gmghYa 'mci 'WXccgYž'h\Y`[c`XYb`fi `Y`]g`hc`VY`Wcbg]ghYbh'

H\Y'I BGK '@]VfUfmicZZYfg'a UbmigYfj]Wfg'hc'gh XYbhg'gYY_]b['\Y'd'k]h\'h\Y]f'YggUmg'UbX'gh Xmig_]``g"'GYY' \hhdg.#k k k "`]VfUfm'i bgk "YXi "Ui #gh Xm#gYfj]Wfg!Zcf!gh XYbhg

Zmci k ci X``]_YZ fh\Yf`\Y`d`k]h\ mci f`ghi X]YgžUbX`mci f`YggUmg`]b`dUfh]W``Ufž`d`YUgY`Wcbgi `hH\Y @YUfb]b[`7YbfY'g`gYfj]WYg`cb`<u>\htd.#k k k "`Wi bgk "YXi "Ui #</u>

Gi Va]gg]cb bchYg.FYZYf hc A ccXY

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

5ggYgga Ybh' .; fci d DYfZcfa UbW

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\."₩"&\$"a]bihYg

8YHU]`g. `=b`U`[fcid`cZVYHkYYb`*!%&`dYcd`YžXYj]gY`U`dYfZcfaUbWY`cZbc`acfY`H\Ub`&\$`a]bg`]b `Yb[H\"H\Y`;fcid`DYfZcfaUbWY`dfYgYbHUH]cb`]g`kcfH\`&\$i UbX`H\Y`=bX]j]XiU``7cbH]ViH]cb`hc`H\Y`;fcid DYfZcfaUbWY`]g`kcfH\`&\$i "`5HH\Y`dYfZcfaUbWY`YjYbhmci`aighgiVa]hU`GY`Z H5G? [±]BGHFI 7H€BG

Fibgʻ[fcidʻWcaaib]WUh]cbʻ]"Y" XcYgʻh\Y`a]bihYgʻUbXʻdcghgʻh\Ya`VmʻYaU]`ždcghgʻfYgYUfW\ʻZJbX]b[gʻZfca]bX]j]XiU``[fcid`aYaVYfgžYghUV`]g\YgʻXUmgʻk\Yb`[fcid`aYaVYfg`aighWcbgi`hYaU]`YhW`:cfkUfXg h\]b_`UbX`k\Uhimci`k]g\`hc`Xcž'h\YmUfY`h\YfY`hc`dfcj]XY`WcbghfiWhjjY`Wf]hjWjga`UbX`\Y`d`mci`]ad`YaYbh h\]g" 5GG9GGA 9BH 7F + 19F - 5

%2````U`gYf]ci g`Yb[U[Ya YbhžVYmcbX`W]W\Ågžk]h\`gca Y`fY`Yj Ubhh\Ycf]Yg`UbX#cf`\]ghcf]WU``fY\YUfgU``UbX dYfZcfa UbWY`dfUW¶WYg`cZmci f`W\cgYb`dfUW¶HjcbYffgŁ/

&Ł.....Ub.UV]`]mihc.gY`YWhdYfh]bYbhYl Ua d`Yg.Zfca 'h\Y'dfUWf]h]cbYf'g``Y[UWh/

'Ł````U`WUf]Zm]b[`UbX`]a U[]bUh]j Y`Zcfa`cZWcaaib]WUh]cb`h\Uhg\ckgžUacb[ghch\Yf`h\]b[gžU`h\ci[\hz]` UddfcUW\`hc`fi X]aYbhUfmidfcdg`UbX`WcghiaY/

(Ł^{·····}U[·]XYa cbglfUljcb[·]cZ\ck[·]h\Y[·]dfUWjljcbYf^{*}g[·]]XYUg[·]UbX[·]a Yh\cXg[·]UfY[·]VY]b[[·]i gYX[·]hc[·]]bh/fdfYhlh\Y[·]gW/bY/

) Ł^{....}h\Y'ei U`]micZU'k Y``!fY\YUfgYX'dYfZcfa UbWY'fZcfiYI Ua d`Yž]ZfY`Yj Ubŀž``**]bYg`g\ci `X`VY`XY`]j YfYX** Zfca 'a Ya cfmŁ/

*Ł````U`Wcbg]XYfUh]cb`cZh\Y`fY`Uh]cbfgŁVYłk YYb`cb`h\Y`cbY`\UbXžh\Y`dYfZcfa Yfg`UbX`dYfZcfa UbWYž'UbX cb`h\Y`ch\Yf`\UbXžh\Y`gdYWUhcfg"

+Ł^{·····}Yj]XYbWY[·]th Uhth Y[·]ci th/ca Yg[·] Uj Y[·]VYYb[·]XY[·]]jYfYX[·]th fci [\ [fci d[·]]bh/fUWjcb[·]UbX[·]dfcV[·]Ya !gc[·]j]b[/

, Ł^{.....}Z ːZʃːː]b[ˈh\Y'fYa]hk]h\]b'h\Y'[]j Yb'h]a Y'ZfUa Y"

E WŽ7hS′gSf[a`S`V BWWdDWh[W /E7BDfilcb'AccXY'f7cbH/bh/ 'FYgcifWrgEmci'k]``Z]bX'U'G9DF'Zcfa hc'Z]``cihfY[UfX]b['mcif'ckb'UbX'mcif'dYYf'g'WcbHf]Vih]cb'hc'h\Y'dYfZcfaUbW'dfcWrgg"``H\Y'G9DF'Zcfa]g'hc'VY'giVa]hHYX'hc'mcif'7cbjYbYf'Uhh\Y'K_`%`:cfia"`H\Y'Zcfa']g'bY]h\Yf'aUbXUhcfmž'bcf'aUf_YXžVih dfcj]XYg'Ub']adcfhUbh[i]XY'Zcf'mcif'aUf_Yfg"

H\Y`G9DF`Zcfa`k]```]bZfa`h\Y`aUf_`Zcfih\Y`; fcid`DYfZcfaUbWY`f&\$i Ł`]b`h\Y`Zc``ck]b[`kUm`]Z]hgi[[Yghg h\UhU`ghiXYbHg`]bX]j]XiU``WcbHf]ViH]cb`]g`acfY`h\Ub`)`aUf_g`UVcjY`cf`VY`ck`h\Y`cjYfU```[fcid`aUf_žUbX AY[`U[fYYg`h\UhH\]g`]g`Ub`UVWV fUHY`UggYggaYbhž'h\Yb`h\Y`[fcid`aUf_`K =@@`BCH`VY`UkUfXYX`hc h\UhghiXYbh'``=bghYUXž`Ub``UjYfU[Y`cZh\Y`ghiXYbHg`]bX]j]XiU``aUf_`UbX`h\Y`[fcid`aUf_`k]```VY`YbhYfYX''` : cf`YIUad`Y.

; fci d'a Uf, \$i
:]bU``DYfZcfa UbWF`a Uf,'ı
CF
; fci d'a Uf, \$i
:]bU``DYfZcfa UbWY`a Uf ++1

FZWE7BD Xad_ i [^S'ea ZWb? WY fa SeeWee; V[h[VgS^5a`fd[Tgf[a` fa 9 dagb BWdXad_S`UW/eWWTWai fiz

5ggYgga YbhcZ=bX]j]Xi U`7cbhf]Vi h]cb`f&\$i Ł

H\Y`]bX]j]Xi U`'g`Wcblf]Vi h]cb`hc`Vch\`dfcW/gg`UbX`dfcXi WicZh\Y`; fci d`DYfZcfa UbW/`k_]```VY`a Uf_YX`Vm h\Y`7 cbj YbYf'``K_\Yb`U``cWUh]b[`h\Y`a Uf_žg\Y`k_]```HU_Y`]bhc`Wcbg]XYfUh]cb`h\Y`Zc``ck_]b[.

%2*****Yj Y**cZUHYbXUbWY*UhW ff]W *Uf*fK _g*% - ž*%% % 2*UbX*YI hfU!W ff]W *Uf*gYgg]cbg/

&z````ei U`]micZdUffjWjdUfjcb`Xi f]b[`f\cgY`gYgg]cbg`]"Y"`g][bg`cZUXj UbWf`dfYdUfUfjcbž'j YfVU``UbX`d\mg]WU` dUffjWjdUfjcbž'UffYbfj Y``]gfYb]b[`UbX`cVgYfj`]b[žYb[U[Ya Ybfik`]f\cdYYfg`UbX`fi hcf/

'Ł````Wcbhf]Vih]cbihcih,YigYh[fcidiHUg_giZcfiK_gi-ži‰zi‰:UbXih,YiZ]bU`idfYgYbHUh]cbzUbXiZi`Z]`a YbhcZ [fcidifc`YifgYYiUVcjYŁ'``AY[ik]``Wcbgi`hk]h\iAUf_iUbXiDUi`zïUbXik]```UbU`mnYih,YiG9DFiZcfaik_Yb Wcbg]XYf]b[ih]gihndYicZ]bX]j]XiU``Wcbhf]Vih]cb"

F5H€B5@9

H\Y'; fci d'DYfZcfa UbWY'U]a g'hc'XYj Y`cd'mci f'i bXYfgHJbX]b['cZ\ck'_YmdfUW]h]cbYfg'k cf_YX'k]h\'UWfcfg cf'dYfZcfa Yfg']b'Ub'YbgYa V`Yž'Ug'k Y```Ug'`Uf[Y!WJghgWYbYgž'UbX'[fci d'k cf_']g'cbY'j U'i UV'Y'a Yh\cX'cZ YI d`cf]b['gi W\'k cf_"'`'=b'UXX]h]cbž'h\Y'Wci fgY'U]a g'hc'\][\`][\h'UbX'XYj Y`cd'h\Y'hmdYg'cZg_]``g'h\Uh'UfY'j]hU` k\Yb'k cf_]b[']b'hYUa g']b'h\Y'k cf_ZcfWfž'dUfh]W `Uf'm]b'h\Y'dYfZcfa]b[''Ufhg'UbX'h\Y]f']bgh]h h]cbU``WcbhYI hg"

Gi Va]gg]cb bchYg. =Zmci 'ZJ]`'hc 'UhhYbX'mci f'; fci d'DYfZcfa UbW''Yj Ybh']b'h\Y 'Z]bU`'k YY_'cZh\Y 'Wci fgYž UbX'UfY'bchUV`Y'hc 'g\ck '[ccX'WUi gYž'mci 'k]``fYW']j Y'U'ZJ]`'a Uf_'Vch\'Zcf'h\Y'; fci d'DYfZcfa UbW' f&\$I & UbX'Zcf'h\Y'=bX]j]Xi U`'7 cbhf]Vi h]cb'hc'h\Y'; fci d'DYfZcfa UbW''f&\$I &"=Zmci 'WUb'XYa cbghfUhY'[ccX'WUi gY Zcf'UVgYbW''Zfca 'mci f'; fci d'DYfZcfa UbW''Yj Ybh'mci 'k]``bYYX'hc'Udd`m'Zcf'GdYWJU`'7 cbg]XYfUh]cb'''=Zh\Uh Udd`]WUh]cb']g'gi WW/ggZ ``mci 'k]``YY'[]j Yb'Ub'U'hYfbUh]j Y'Ugg][ba Ybh''

Hi fb]h]b`gYh]b[.`H\]g`]g`bchU`Hi fb]h]b`Ugg][ba Ybh

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Ghi XYbhgʻUfYʻYI dYWhYXʻhcʻdi hih\Y]fʻbUa YgʻUbXʻghi XYbhibi a VYfgʻcbʻYj YfmdU[YʻcZh\Y]fʻUgg][ba Ybhgʻ

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

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UhYa dhjb['hc'gi Va]hmci f'Ugg][ba Ybhih fci [\ 'Hi fb]hjbž'd'YUgY hY'Yd\cbY'9I hYfbU''Gi ddcfhicb'- ',) '' ' '%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'' Zmci UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi `hk]h 'Hi fb]hjb'mci 'a UmUdd`m'Zcf'Ub'YI hYbg]cbž'Vi hmci a i ghfYhU]b'mci f'hjW_Yhbi a VYf'Zfca '9I hYfbU''Gi ddcfhfU'cb['k]h 'Ubmch\Yf'fY'Yj UbhXcW a YbhgEhc]bWi XY'Ug'Yj]XYbWY hc'gi ddcfhimci f'YI hYbg]cb'Udd`]WUh]cb'''Zmci 'Ya U]`'9I hYfbU''Gi ddcfhimci 'k]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW_Yhbi a VYfž'Vi h]Zmci 'hY'Yd\cbY'mci 'k]``bYYX'hc'gdYWJZWU``mUg_'Zcf'cbY'' Hi fb]hjb'U`gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUhi g'cb'Hk]hYf"

; YbYfU``mž'UggYgga YbhHUg_g'a i ghVY'gi Va]HHXYYYWfcb]WU``mj]U'Y]H\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba YbH''=b`]bgHUbW'g'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 5ggYgga Ybh DYbU h Yg

Gh XYbhgʻUfYʻfYgdcbg]VʻYʻZcfʻh\Yʻgi Va]gg]cbʻcZUggYgga YbhHUg_gʻVmh\YʻfYei]fYXʻXUHYgʻUbXʻhJa Yg" 8YdYbX]b[ʻcZh\YʻYI hYbhcZXY`Um]bʻh\Yʻgi Va]gg]cbʻcZUbʻUggYgga YbhHUg_ʻdUghh\YʻXi YʻXUHYʻUbXʻhJa Yž

- K cf_'gi Va]hhYX '% hc '% 'XUng 'UZhYf'h Y'gh]di `UhYX XYUX`]bY'k]``VY 'UggYggYX'UbX'ZYYXVUW_ dfcj]XYX'Vi hU'a Uf_'cZnYfc'k]``VY 'fYWcfXYX'' =ZhY'k cf_'k ci `X`\Uj Y'fYWf]j YX'U'dUgg'a Uf_'Vi hZcf h\Y``UhYbYgg'UbX'h\Y'k cf_']g'U'Wca di `gcfmWci fgY'Wca dcbYbhf\i fX`Y'fYei]fYa YbhZ'U'gh XYbhk]`` VY'XYYa YX'hc`\Uj Y'a Yhh\UhfYei]fYa Ybh/
- K cf_'gi Va]HYX'&\$'cf'a cfY'XUmg'UZHYf'H\Y'gh]di `UHYX'XYUX`]bY'k]``bchVY'UWW/dHYX'Zcf UggYgga YbhUbX'k]``fYWY]j Y'bc'ZYYXVUW_Z'a Uf_'cf'[fUXY''=ZH\Y'UggYgga YbhHUg_']g'U'Wca di `gcfm Wca dcbYbhcZh\Y'Wci fgY'U'gh XYbhk]``fYWY]j Y'Ub'I bgUh]gZJWcfm: U]`fI : E'[fUXY'Ug'U'fYgi `hcZ i bgUh]gZJWcfmdYfZcfa UbWY']b'Ub'YggYbh]U`'Wca dcbYbhcZh\Y'Wci fgY''

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5WUXYa]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"`+i\WUb`hU_Y`a Ubm Zcfa gžZca `XY`]VYfUhY`W\YUh]b[`hc`UWW]XYbhU``mWcdm]b[`Zca `U`gci fWY`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 Yfmig]a]`Uf`k cfXg`hc`h\Y`cf][]bU``hYI h`cf`]XYU`k]h\ci hUW_bck`YX[]b['h\Y gci fWY`cf`i g]b['ei chUh]cb`a Uf_g"`H\]g`U`gc`Udd`]Yg`hc`]a U[Ygž`Ufh`UbX`XYg][b`dfc`YWhgž`Ug`k Y```Ug dfYgYbhUh]cbg`k \YfY`gca YcbY`dfYgYbhg`Ubch\Yf'g`]XYUg`cf`k cfXg`k]h\ci hWfYX]h"

■Uddfcdf]UhY`dUfUd\fUg]b[...7\Ub[]b[`U`ZYk`k cfXg`UbX`d\fUgYg`k \]`Y`a cghmfYhU]b]b[`h\Y`cf][]bU` ghfi Whi fY`UbX#cf`dfc[fYgg]cb`cZ]XYUg`cZh\Y`cf][]bU`ž`UbX`]bZcfa Uh]cb`k]h\ci hUW_bck`YX[Ya Ybh'H\]g`U`gc Udd`]Yg`]b`dfYgYbhUh]cbg`k \YfY`gca YcbY`dUfUd\fUgYg`Ubch\Yf'g`]XYUg`cf`k cfXg`k]h\ci hWfYX]hUbX`hc d]YW]b[`hc[Yh\Yf`ei chYg`UbX`dUfUd\fUgYg`]bhc`U`bYk`k \c`Yžk]h\ci hUddfcdf]UhY`fYZYfYbW]b["

7 c```i g]cb.'k cf_]b['k]h.'ch\Yfg'Vi hdUgg]b['cZh\Y'k cf_'Ug'U'dYfgcb'g']bX]j]Xi U`'k cf_"'7 c```i g]cb'U`gc

- i bXYfgHJbX'mci f`f][\hg`UbX'fYgdcbg]V]`]h]Yg`Ug`U`ghi XYbh'Uh'I BGK
- VY Uk UfY cZdU[]Uf]ga žWcdmf][\lbzi BGK Ghi XYbh7cXY cZ7cbXi Wb0X 5WWdhUVY I gY cZ I BGK '=7 HF Ygci fWgDc)]Wh
- VY Uk UfY cZh Y gHUbXUfXg cZVY Uj]ci f YI dYWYX cZYj YfmcbY]b h Y I BGK Wca a i b]m
- `cWUHY'gYfj]WYg'UbX']bZcfa UHjcb'UVci hI BGK 'UbX'I BGK '@VfUfm

Gca Y'cZh\YgY'UfYUg'k]``VY'ZJa]`]Uf'hc'mci ž'ch\Yfg'k]``VY'bYk"'; U]b]b[`U'gc`]X'i bXYfgHJbX]b[`cZU``'h\Y fY`UhYX'UgdYWfg'cZ9@=G9'k]``\Y`d'mci 'a U_Y'h\Y'a cghcZmci f`ghi X]Yg'UhI BGK " f<u>\hd.#gi VYWf[i]XYg"`]VfUfm'i bgk "YXi "Ui #Y`]gY#JVci hY`]gY</u>Ł

7 ci fgY GWX YXi `Y

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8 UhY	Hmd Y	7 cbhYbh
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		JYbiY.KYVghYf'&+
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		≠ohfcXiWnjcbincin\YWcifgYžUbXWcbg]XYfUhjcbicZh\Y Zc``ck]b[i]ggiYg.K\Uh]giUWnjb[3K\Uh]giU W\UfUWnYf3K\UhX]ghjb[i]g\YgiacXYfb]gh UddfcUW\YginciUWnjb[3K\Uh]gin]XYc`c[mi'UbX`\ck
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K YY_'). *&* 5i [i gh! *&* 5i [i gh	Ghi X]c	4 dW2Zf [BdSUf[UW FZVSfdW FZVAdk S` V BWXAd_S` UWf@cbXcb. 6'cca gVi fmž&\$%) Iz dd"%\$-I') ž&&) I+" &" A Y[A i a ZcfXZ'6fYWkHg'? YmH\Ycf]Yg'Z]b' 4 Wfa f 4 dW2Zf f@cbXcb'UbX'BYK Mcf F ci hYX[YZ&\$\$-Iz'dd"(, I-\$" Hcd]W'7 fYUhjb['8YZJa]`]Uf]n]b['UbX C ddcg]hjcbU' 5ffUb[Ya Ybhg J Ybi Y. K YVghYf'' ') H]a Y. &I) da BSdf A ` W'7 ca dcfha YbhUbX'g]hi Uhjcb'gWYbUf]cg/ WYVhjb['J !YZYWg'-Wfcgg!WUgh]bhYf] JYk /g\ck]b[gcWjU'WJfW a gHUbW'g'-HUI]'fJXY/ZFUa]b['W ghca g'- [fYYhjb[g'UbX'ZJfYk Y`g/ BSdf Fi a. F Y\YUfg]b['U'6fYWkhhYI h-'3dtS` YW_ W f cZh Y`fUdY'HfJU''gWYbY'fgWYbY') I:Zca '6fYWkHg'FZW 5 SgUSe[S` 5ZS'] 5 [dJW 7 eeW f[S^DV&V[Y. %' G\ca]hA]HYfZ'&'HC '69'5B8'BCH'HC '69. 6Yffc'h6fYWkhUbX'DJYhYf6fcc_'Z']b'E kefW_ e aXDWZV&ds? EfS` [e'She] ki 4dW2Zfi 9 dafai e] [S` V 4 da] 'f@cbXcb'UbX'BYk Mcf'F ci hYX[YZ%- &IZ'dd"'(&I++"

		Zcf`dYY`]b[`UkUmih\Y``]ZY`aUg_fgłz`]bWiX]b[`Zcfag`cZ VcX]`mihfU]b]b[`XYg][bYX`hc`fY`YUgY`h\Y`dYfZcfaYfg Zfca`]b\]V]h]cbg`UbX`gcW]U``WcbX]h]cb]b["```H\Y `YWiffY`U`gc`YId`cfYg`h\Y`]adUWicZ;`fchckg_]'g UhhYbh]cb`hc`fY`YUgY`UbX`Wcaaib]cb`cb`h\Y gdYWiUhcf#dYfZcfaYf`V]bUfmž`UbX`cb`WcbhYadcfUfm dYfZcfaUbWY"````
	Hi hcf]U`	Hcd]W`5bU`mg]b[`FYUX]b[g`cb`;fchckg_]fog H\YUhfY`DfUWh]WV
		JYbiY.KYVghYf'''&Z''')
		H]a Y.'' ''' \$!) da
		; fcid`kcf_`cb`; fchckg_]`UbX`7\f]ghcd\Yf`=bbYg fYUX]b[
		7 eeW f[S^DWSV[`Y.
		%2 >Yfnm; fchckg_]žFai SdVeSBaadFZWSfdW fl@cbXcb.`9mfY`AYh\iYbž`%+*12`dd"`%)!&)"
		&Ł ⁷ \f]ghcd\Yf`=bbYgž'GYW`Uf`FY`][]cbg`UbX D\mg]WU``Gd]f]hiU`]miz`3hS`f9Sd/WFZV&fdW #*+\$Ž#++\$`f@cbXcb`UbX`BYk`Mcf`FcihYX[Yž %-''Łz`dd"`%(-!**"
		Abf[a`S^DWSV[`Y.
		' Ł™H\ca UgʻF]W\UfXgžʻ; fchckg_]`jgʻGhUb]g`Ujg_]. H\Y`∉a di`gYg'ž`]bʻ3fI adji [fZ 9 dafai e][a` BZke[US^3Uf[a`e`fl@cbXcb`UbX`BYk`Mcf FcihYX[Yž%-) Łž'dd"`-'!-"
K YY_`+.`' `GYdhYa VYf`!`- GYdhYa VYf	Gh X]c	Hcd]W`6YmcbX`h\Y`@c[cWYbhf]W6cXm
		JYbiY. KYVghYf''')
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		9IYfW]gYg'k]```]bWiXY.'U`gYf]Yg`cZ`ccgYb]b[fcHuh]cbg`Uf]g]b[`Zfca`; fchckg_]'g`WjWdU[eWe b'Sef[cgWe`UbX`jcWU`YIYfW]gYg`giW`Ug`H\Y'W\c]f' igYX'Vmh\Y'; fchckg_]!]bgd]fYX`=bhYfbUh]cbU` H\YUhfY`FYgYUfW\; fcidž'?]gg"``H\Y`kcf_g\cd`k]`` WcbWiXY`k]h\`Ub`YId`cfUh]cb`cZ; fchckg_]'g`kcf_ k]h\`hYIhz`ig]b[`cbY`cZh\Y`d`UmhYIhYIWYfdhg`]b`h\Y` EfgVk = [f`Ug`YIYfW]gY`aUhYf]U`"
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1		7eeWf[S^DWSV[`Y,
		%Ł````:fUbn`AUf]^bYbž'5Wfcf'g`HfU]b]b['ž`]b`>Yfnm ;fchckg_]žFaiSdVeSBaadFZWSfdWfl@cbXcb.`9mfY AYh\iYbž%+*Łždd"`%('!%)'"
		&Ł````; ciXga]hž>Yd_Y"`?]gg`9IYfW]gYg'`]b`>YZfYm 6ifbYhffYX"ŁFZW\$fdWDW&W\$dJZ4aa],=[ee` fkc``UbX.`6cY_aU_Yf]?z%-,&Łzdd"`%%'!%)"
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		%"@]gU`Kc`ZcfXžʻGiV^YWNjYFYZYWNjcbgʻcb CV^YWMjYKcf∵;fchckg_]`]b`=fj]bY'FZW 6dS_SDWh[Wiź")ž%f1%%Ł`%*)!,\$"
		3eeWee_Wf.
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K_YY_', .`%\$`GYdhYa_VYf'! %*`GYdhYa_VYf	@YWhifY	Hcd]W`FYWYbh`7\U``Yb[Yg`hc`7\UfUWHYf!`UbX HYIH6UgYX`5WH]b[
		JYbiY. KYVghYf' &+
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		<pre>< ck 'XcYg'A]WXUY`'?]fVmX]gh]b[i]g\`g]a d`Y`UbX`bcb! UWA]b['Zfca 'Wca d`YI 'UWA]b['ž'UbX`\ck 'XcYg`\Y UWWci bhZcf'h\Y`]bWYUgYX`]bhYfYghdcgh'% *\$g`]b Zcfa g`cZdYfZcfa UbWY`ch\Yf'h\Ub'Wca d`YI 'UWA]b['3` K \mX]X`a UbmdfUWA]h]cbYfg`cZh\Y``UhY`&\$7 'VYWca Y]XYc`c[]WU``mX]g[fi bhYX`k]h`\]YfUfW\]WU``Hfi h\! hY``]b[`hYI HVUgYX`h\YUHY3``<ck 'xcyg'h\y`w\u``yb[y<br="">hc`hYI HVUgYX`h\YUHY3``<ck 'xcyg'h\y`w\u``yb[y<br="">k``hYI HVUgYX`UWA]b['Zfca 'h\Y`5fHUi X!; fchck g_]``]bY X]ZYf`Zfca 'h\Y`W\U``Yb[Y`Zfca 'h\Y`dcgh6fYV\\h]Ub `]bY3`</ck></ck></pre>
	Hi hcf]U`	Hcd]W`9IYad`]Zm]b[ˈh∖Y`7cad`YIh`5Wh]b[ˈhc`Bch 5Wh]b[ʻ7cbh]biia
		JYbiY.KYVghYf'''&Z''')
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		8]j]XY`]bhc`'``[fcidg"``9UW\`[fcid`g\ci`X`dfYdUfY`U g\cfhidYfZcfaUbWY`h\UhXYacbghfUhYg`cbY`cZh\Y Zc``ck]b[`cZA]W\UY``?]fVmg`dc]bhg.
		%" h\Y`X]ZYfYbWY`VYfk YYb`bcba Uff]I YX dYfZcfa]b[`UbX`bcba Uff]I YX`fYdfYgYbfUh]cb/ &" h\Y`X]ZYfYbWY`VYfk YYb`fYWY]j YX`UWA]b[`UbX

		g]a d`Y`UWYjb[/ '"U`a ca Ybhk \Yb`g]a d`Y`UWYjb[`VYVXca Yg Wca d`YI`UWYjb[`UbX#cf`j]VW`j YfgU" 7 eeW f[S^DV&V[`Y. %E````A]WXUY`?]fVmž`Cb`5VYjb[`UbX`Bch5WYjb['ž]b ; fY[cfm6UHVCW_UbX`FcVYfhB]W_Ug`fYXg"EZFZW3df aXBWdXad_S`UWfBYk`NCcf`8U`hcbž'%-, (EZdd" - +!%%+/ &E``D\]`]d`5i g`UbXYfž'">i ghVY`mci f`gY`Z'` >aYaUW fd[e_`UbX`V[XX dS`UW]b`dYfZcfa UbVW h\Ycfm1ž`]b`8da_`3Uf[`Y fa BWdXad_S`UW 7 eeSke [` ? aVWd [eS`V Baef_aVWd [e_`fl@cbXcb`UbX`BYk Ncf`F ci hYX[Yž%- +EZdd"'%+)!, %"
		3'eewee_ wit. J]g]hZfca `7 D@gHJZZhc`X]gWigg'; fci d`DYfZcfa UbWY" 8]gHf]Vi h]cb`cZfY∖YUfgU`#gHJZj]g]hgW\YXi `Y"
K YY_``%+`GYdHYa VYf`! &' `GYdHYa VYf	GH X]c	=0`K_g`-ž*‰ž‰ž⁄~*% `mci `k]``VY`k cf_]b[`]b`cbY`cZ (`[fci dg`cb`U`gh XYbH`YX`; fci d`DYfZcfa UbWY`Zfca &!) da `YUVX`WUgg"`
		H\Y`fccagʻVcc_YX`Zcf`h\Y`fY\YUfgU`gʻUfY.` KYVghYf`''&ž''')žGhiX]c`%UbX`€`AmYfg GhiX]c"`H\Y`jYbiY`Zcf`h\Y`dYfZcfaUbWY`]b`K_`%]g`€`AmYfg`GhiX]c"`
		:cf`YUWX`cZh\YgY`kYY_g`mci`k]``VY`[]jYb`U`dfcYWh HUg_`UbX`Ug_YX`hc`dfYgYbhimcifîfYgdcbgY`hc`h\Uh HUg_`]b`U`'\$!a]biHY`aYYh]b[`k]h\`AY[`UbX`igiU``m U`gc`AUf_`A]HWXY```UbX`DUi``AUHh\Ykg`Zfca`H\Y 7fYUh]jY`DfUWh]WY`@UV`f17D@L''
		5 gWXYXi `Y`k]h\`[fci d`bUa Ygžfcca `Vcc_]b[g`UbX]bZcfa Uh]cb`UVci higHUZZj]g]hh]a Yg`k]``VY`X]ghf]Vi hYX]b`h\Y`K _`-`WUgg"
		DYfZcfaUbWY`DfcYWhHUg_`%
		8Ya.cbghfUhY`FYgYUfW&`]bhc`UbX`U`; fci.d`FYgdcbgY hc`h\Y`GYhDfcV`Ya.fgŁ
		 %" 9UWX [fcid'a Ya VYfaighXYa cbghfUhY Yj]XYbWY cZfYgYUfWX]bhc h\Y WX cgYb dfUWjh]cbYf#Wca dUbmig UddfcUWX hc UWjb[#dYfZcfa]b[UbX fY\YUfgU'/ &" 9Id'U]b k \UhUgdYWfg cZh\Y WX cgYb dfUWf]h]cbYf#Wca dUbmig UddfcUWX h\Y [fcid

6fYU~&(~GYdhYa VYf"!	< ca Yk cf	k]```VY`ZcWig]b[`cb`UbX`k\m/ '">igh]Zmh\Y`[fcidfgi]XYUg`UVcih]bhYfdfYhUh]cb`UbX`ghU[]b[`cZmcif`[]jYb gWYbY" H\Y`a]X!gYgg]cb`VfYU_`ZJ``g`]b`h\Y`kYY_`&(!'\$
'\$'GYdhYa VYf		GYdhYa VYf"=hi]gʻZc``ck YX`VmU`di V`]W\c`]XUmcb A cbXUm%C WcVYf`fK _`%\$E"``: cf`h\]g`fYUgcb`h\YfY]g`bc`WUgg`]b`K _`%\$"`
		3eeWee_Wf:a_Wiad]
		=b h\Y a]X!gYgg]cb VfYU_mci g\ci X Wca d YhY mci f &bX UggYgga YbhHUg_žh\Y A U cf 9ggUmžk \]W]g Xi Y hc Hi fb]h]b VYZcfY %%da cb Hi YgXUm& C Wrc VYf fK _`%\$L"5g Hi fb]h]b dfc V Ya g Xc c WW fžd YUgY hfmUbX gi Va]hVY) da]Zmci WUb gc h\Uhmci WUb gYY_UbX fYVW]j Y Hi fb]h]b gi ddcfh]ZfYei]fYX"
KYY_`%\$.`%`CW/cVYf`!`+ CW/cVYf	<ca cf_<="" td="" yk=""><td>5gʻh\YfY`]gʻUʻdi V`]W\c`]XUmcbʻA cbXUm%C WcVYf fK`%\$Ł'h\YfY`]gʻbc`WUggʻh\]gʻk YY_"``5ZhYf gi Va]]hjb[`mci f`A Uʻcf`9ggUmVYZcfY`%%da`hc Hi fb]]njbʻcbʻHi YgXUm&C WcVYfžmci `UbX`mci f dYfZcfa UbWY`[fci d`g\ci`X`a YYhUbX`i bXYfhU_Y dfYdUfUhjcbgʻZcf`h\Y`K`%%`dfc`YWhHg_"`</td></ca>	5gʻh\YfY`]gʻUʻdi V`]W\c`]XUmcbʻA cbXUm%C WcVYf fK`%\$Ł'h\YfY`]gʻbc`WUggʻh\]gʻk YY_"``5ZhYf gi Va]]hjb[`mci f`A Uʻcf`9ggUmVYZcfY`%%da`hc Hi fb]]njbʻcbʻHi YgXUm&C WcVYfžmci `UbX`mci f dYfZcfa UbWY`[fci d`g\ci`X`a YYhUbX`i bXYfhU_Y dfYdUfUhjcbgʻZcf`h\Y`K`%%`dfc`YWhHg_"`
K_YY_`%%`,`CWhcVYf'!`%(CWhcVYf	Gh X]c	DYfZcfaUbWY`Dfc'YWhHUg_`&
		DfYgYbhU`D`chGmbcdg]g`UbX`8Yg][b`7cbW/dhhc AY[`UbX`7D@
		 %" CihibYihY'UWjcbg'UbX'a cjYaYbłg'jb'mcif dYfZcfaUbW''''9Id'Ujb'hY'gYeiYbW'cZ YjYbłg'UbX'k\c'jg'WUffmjb['cihk\UhfW'% 5('dU[YŁ" &" CihibY'\ck'h\Y'gdUW'UbX'aUhYfjU'g'UfY [c]b['hc'VY'HYUhYX''': cf'YIUad'YžgdUhjU' UffUb[YaYbłg'f]bWiXjb['k\YfY'h\Y gdYWUhcf'k]``VY'dcg]hjcbYXŁ'UbX'dfcdg'UbX WcghiaYg'fW'%I'5('dU[YŁ/ ' " CihibY'HYV&b]WU'FYeijfYaYbłg.'`][\hjb[ž gcibXž'Uj'fdfcYWjcbž'hjžg`]XYgŁ'fW'%I'5(dU[YŁ"
		@4, %ZSdVUab[WeaXfZWeWfZdWW#j3&bSYWe_gef TWegT_[ffWWfa?WYłBSg^S`V?Sd]Vgd[YfZ[e U'Seež
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FYgcifWYg DfYgWf]VYX`FYgcifWYg` d\chc`Vm8Ub]Y``6ciXž]aU[Y`ZYUhifYX`cb`aUbmg]hYg`]bWiX]b[.`` \hd.#kkkk"_f\YUhfYX]Ufm'Wca#&\$%+#\$+#WciX!b]bY"\ha`

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