

: Ya]n]XY']b'6UmYfb.'9]b'gWcW_]YfYbXYf 5bgh]Y['ZcfXYfh'(\$'@YVYb'

⇒ BØfbVYf['VY[]bbh'Y]b'VYXYi hYbXYf'DfcnYgg'[Y[Yb \Ai g`]WXY'; Yk U`h'i bX': Ya]n]Xž'k À\fYbX'X]Y'NU\`Yb']b

6UmYfb'U`Ufa]YfYbX'qhY][Yb"



BØfbVYf[ž:8 Yi hgW `Ub X :! = 6 UmYfb :g]bX :X]Y :U`Ufa]YfYbXYb

NU\`Yb :ni :: Ya]n]XYb :b]W h:ni :ØVYfgY\Yb " @Ui h:XYa :VUmYf]gW Yb

@UbXYg_f]a]bU`Ua h:f@? 5 E:k i fXYb :]a :j Yf[Ub[YbYb :\lambda]\f'(\$
: fUi Yb :i bX :A ÀXW Yb :Xi fW :: Ya]n]X :[YhÒhYh" :HfU[]gW Yfk Y]gY

g]bX :X]Y :a Y]ghYb :C dZYf :: fUi Yb :ØVYf :&% :\lambda \lambda \

9]b'Y]bXfØW_`]W\Yg'6Y]gd]Y`']gh'XYf': U``'Y]bYf'(-! λ \f][Yb'Ui g Dca a Y`gVfi bbž'X]Y'j cb']\fYa '9\Ya Ubbž'j cb'XYa 'g]Y'g]W\[YhfYbbh'\UhhYž']a 'GW\`UZ'YfXfcggY`h'k i fXY"'8Yf'DfcnYgg'[Y[Yb

XYb A Ubb VY[]bbh Ua &("'> b]'j cf'XYa @UbX[Yf]W\h B Øfb VYf["'+b Y]bYa 'k Y]hYfYb YfgW\ ØhhYfb XYb : U``ž'k]fX'Y]bY'' '!À\f][Y'Ui g C VYfZfUb_Yb 'gY]h 5i [i gh'j Yfa]gghž'k cVY]']\f'Y\Ya U`][Yf @YVYbg[YZÀ\fhY']bg'J]g]Yf'XYf'GhUUhgUbk U`hgW\UZh'[YfØW_h']gh"

$8]Y 8ib_Y^n]ZZYf'ibX'XYfYb'6YXYihib[$

: Ya]n]XY'V`Y]VYb'ni 'Y]bYa 'Yf\YV`]W\Yb'HY]`i bYbhXYW_hcXYf i bYfZUgghž'XU'g]Y']b'XYf'Dc`]nY]`]W\Yb'?f]a]bU`ghUh]gh]_'XYg 6i bXYg_f]a]bU`Ua hg'fb?5Ł'b]W\h'[YgcbXYfh'YfZUggh'k YfXYb" Ni XYa 'ZY\`h'Yg'Ub'Y]bYf'Vi bXYgY]b\Y]h`]W\Yb'8YZ]b]h]cb'X]YgYf ; Yk U`hj YfVfYW\Yb"'&\$&' 'k i fXYb']b'6UmYfb']bg[YgUa h'%(' 'CdZYf j cb'j Yfgi W\hYb'cXYf'j c``YbXYhYb': Ya]n]XYb'fY[]ghf]Yfhž'Y]b 5bgh]Y['[Y[YbØVYf'&\$&&ž'k c'Yg''&- 'CdZYf'k UfYb"'5`Ufa]YfYbX]ghž'XUgg'j]Y`Y'X]YgYf'HUhYb'j cb'A]gg\UbX`i b[Ybž'6YXfc\i b[Yb i bX'gYli Y``Yf'; Yk U`h'VY[`Y]hYh'k YfXYb"

 $8]Y`NU\ Yb`nY][Yb`b]W\&h'bi f'Y]bY``c_U`Yž'gcbXYfb`Ui W\&'Y]bY``UbXYgk Y]hY`HYbXYbn"' <math>\pm bg[YgUa \ h'j YfnY]W\&bYhY`8Yi \ hgW\&`UbX``Ui \ hY]bYf'DfYggYa]hhY]`i b[`XYg`6i bXYga]b]ghYf]i a g`ZØf`: Ua]`]Yž GYb]cfYbž': fUi Yb`i bX`$|[YbX`Y]bYb`5bgh]Y[`VY]`XYb`: Ya]n]XYb]a $\pm\$\\f`&$&'`Ui Z'-', `: fUi Yb`i bX`A \AXW&Ybž'X]Y`CdZYf'j cb HOhi b[gXY`]_hYb`k i fXYb"'8Uj cb`Yf`]hhYb`, $\z*i \ X]Y`HUhYb`]b dUfhbYfgW&UZh`]W&Yb`6Yn]Y\i b[Yb"`DfU_h]gW&`YXYb`HU[`k]fX`Y]bY: fUi `]b`8Yi hgW&`UbX`CdZYf'Y]bYg': Ya]n]Xg"$

< Ài g`]WXY; Yk U`hi bX XYfYb 5i ga U»Y

8 UgʻH\Ya UʻXYfʻ; Yk Uʻhʻ[Y[Ybʻ: fUi Ybʻk]fXʻcZhʻj Yf\Ufa `cghʻi bXb]WkhʻUi gfY]WkYbXʻh\Ya Uh]g]YfhʻʻJ]YʻYʻ: fUi Ybʻi bXʻA ÀXWkYbYfZU\fYbʻ; Yk Uʻhʻ]bʻ]\fYa ʻdYfgÒb`]WkYbʻl a ZYʻXʻcXYfʻ]b

ÖZZYbh`]WkYbʻFÀi a YbʻʻGhi X]YbʻnY][YbžʻXUggʻ+\$ž)ʻi ʻXYfʻCdZYf
\Ài g`]WkYfʻ; Yk Uʻhʻ: fUi Ybʻg]bXžʻi bXʻ]a ʻJ\fʻ&\$&' k UfYbʻYhk U
%, %''\$\$\$`k Y]V`]WkYʻCdZYfʻ]bʻ8Yi hgWk`UbXʻni ʻj YfnY]WkbYbʻʻ8]Y

5bnY][YVYfY]hgWkUZhʻk]fXʻ\Ài Z]['Xi fWkʻgcn]UʻYʻBcfa Yb

VYY]bZi gghž'k Ugʻni ʻY]bYfʻk Y]h[Y\YbXYbʻl bhYfgWkÀhni b['XYfhUhgÀWk`]WkYbʻ: À``YʻZØ\fh''

9]b Y]bXf]b[`]WXYg 6Y]gd]Y`ZØf X]Y Vf]gUbhY @U[Y]gh Y]b A Ubbž XYf Ui Z[fi bX Y]bYg A cfXj Yfgi WXg Ub gY]bYf [YhfYbbh YVYbXYb : fUi ni "YVYbg `Ub[Yf < UZh j Yfi fhY]`h k i fXYž bUWXXYa "Yf g]Y a]h Y]bYa A YggYf]b XYf ZZYbh `]WX_Y]h Ub[Y[f]ZZYb \ UhhY " 8 Yf <]`ZYfi Z bUWX VYggYfYb GWXi hna U» bU\a Yb k]fX ``Ui hYf gc ZcfXYfh HYffY XY : Ya a Yg X]Y 9]b ZØ\fi b[Y Y_hfcb]gWXYf : i » ZYggY `b ni f , VYfk UWXi b[[Yk U`hhÀh][Yf A ÀbbYfži a 'dchYbn]Y ``Y CdZYf VYggYf ni 'gWX ØhnYb"

8]Y'Ni_i bZh.'HYW\bc`c[]gW\Yf'GW\i hn'ZØf : fUi Yb

±0.6UmYfb:[]Vh'Yg'VYfY]hg'A Ò[`]WX_Y]hYbž'[Yk U`hhÀh][Y'A ÀbbYf'Ui Z 6Ug]g'XYg'@UbXYgdc`]nY][YgYhnYg'ni 'ØVYfk UWXYb"'8UfØVYf'\]bUi g d`Ubh'XUg'≯gh]na]b]ghYf]i a 'X]Y'9]bZØ\fi b['Y]bYf , VYfk UWXi b[ghYWXbc`c[]Y'bUWX'gdUb]gWXYa 'JcfV]`Xž'VY]'XYf'XUg CdZYf'Y]b'; DG!; YfÀh'hfÀ[h"6Y]'Y]bYf'5bbÀ\Yfi b['XYg'HÀhYfg'gc`` gcZcfh'Y]b'5`Ufa 'Ui g[Y`Ògh'k YfXYb"

±bg[YgUa hinY][hig]WX XYi hi]WX.; Yk Uihi[Y[Ybi: fUi Ybi]ghiY]bik Y]h j YfVfY]hYhYgii bXi[YgYi`gWX UZhi]WX ifYiYj UbhYgiDfcViYa žiXYa ik]f i bgii bVYX]b[highYi`Ybia ØggYb" 8 U\Yfi]ghiYgiYbhgWXY]XYbXž Ui ZUi Z_`ÀfYbXYiA U» bU\a Ybini iYf[fY]ZYbii bXi<]`ZgUb[YVchYini ghÀf_Yb" Bi figci_ÒbbYbik]fig]WXYfghYi`YbžiXUggi: fUi Ybi]bi6UmYfbii bXi8 Yi hgWXiUbXi]biNi_i bZhig]WXYfi`YVYbi_ÒbbYb"

8YhU]`g	
Cfh	BØfbVYf[ž8Yi hgWX`UbX
EiY``Yb	• k k k "nY]h"XY

8 Y hU]`g	
	• k k k "Va ZgZ^"XY
	XY"ghUh]ghU"Wca

6Ygi WXYb G]Y i bg Ui Z. bU[!VUmYfb"XY