

5Z8!6Ygi W\`]b`K]Yb. GUi VYf_Y]h`i bX K c\bi b[gVUi 'U`g'J cfV]`X'ZØf'6Yf`]b3

8]Y 5Z8 6Yf`]b VYgi W\hY K]Ybži a 'ØVYf K c\bi b[gVUi ž GUi VYf_Y]h i b X gcn]U`Y : fU[Yb ni X]g_i h]YfYb"'H\Ya Yb i a ZUggYb *\DhY[fUh]cb i b X < YfUi gZcfXYfi b[Yb"



K]Ybž'² ghYffY]W '! '5a '%* "'¾ `] '&\$&) '\ Uh'X]Y '6Yf`]bYf'5Z8 'Y]bY : fU_h]cbg_`Ui gi f']b'K]Yb'UV[Y\U`hYb"'8]Y'< Ui dhghUXh'² ghYffY]W\g k]fX'cZh'U`g'JcfV]`X'ZØf'6Yf`]b'Ub[YgY\Ybž']bgVYgcbXYfY']a 6YfY]W\'XYg'gcn]U`Yb'K c\bi b[gVUi g'i bX'XYf'GUi VYf_Y]h" : fU_h]cbgW\YZ]b'?f]gh]b'6f]b_Yf'i bX']\fY'?c``Y[Yb'`cVhYb'X]Y'\c\Y @YVYbgei U`]hÀh']b'K]Ybž'k cVY]'VYgcbXYfg'X]Y'GUi VYf_Y]h'i bX G]W\Yf\Y]h'j cb'6YXYi hi b['k UfYb"'F66&('VYf]W\hYhž'XUgg'X]Y : D² ž'X]Y']b'K]Yb'fY[]Yfhž'Y]bYb'VYgcbXYfYb': c_i g'Ui Z'X]Y _cghYb`cgY'A Ø``Ybhgcf[i b['i bX'XUg'VØf[YfgW\UZh`]W\Y

8]Y': D² !GhUXhfÀh]b'I `f]_Y'B]hha Ubb'VYhcbhYž'XUgg'X]Y'A Ø``UVZ\f XUg'; YZØ\`'j Yfa]hh`Yž'XUgg'X]Y'GhUXh'Z\b_h]cb]Yfh'i bX'X]Y'6Øf[Yf

g]WX 'g]WX Yf 'ZØ\ `Yb" '5``YfX]b[g'k UfbhY :: D² !: fU_h]cbgWX Y Z'8 ca]b]_B Ydd 'j cf'a Ò[`]WX Yb 'Z]bUbn]Y ``Yb 'GWX k]Yf][_Y]hYbž'X]Y 'X]Y GUi VYf_Y]h'i bX 'C fXbi b[']b 'XYf 'GhUXh'[YZÀ\ fXYb '_ÒbbhYb" B Ydd _f]h]g]YfhY 'X]Y 'Gcn]U`dc`]h]_'XYf 'GD² 'i bX 'X]Y '\c\Yb Gcn]U`Y]ghi b[Ybž'X]Y 'ZØf'A][fUbhYb 'VYfY]h[YghY``h'k YfXYb" '5i WX X]Y '5 Z8 'k]``ž'k]Y 'X]Y ': D² ž'nk]gWX Yb ' UbghÀbX][Yb 'i bX i bUbghÀbX][Yb 'Ni [Yk UbXYfhYb'i bhYfqWX Y]XYb"

Gcn]U`Y`< YfUi gZcfXYfi b[Yb`i bX 5ba Yf_i b[Yb`ni f`F\Yhcf]_

 $\begin{tabular}{ll} K $$ \lambda fYbX:XYf:?`Ui gi f:X]ghUbn]YfhY:g]WX:6f]b_Yf:j cb:XYf:`UfgWX:YbF\Yhcf]_:XYf: D^2 ž:YfUWX:hYhY:Yg:YXcWX:XYbbcWX:U`g:k:]WX:h][ž nk]gWX:Yb:]bhY[f]YfhYb:i bX:b]WX:h:]bhY[f]YfhYb:A][fUbhYb:ni X]ZZYfYbn]YfYb":=a:FU\a:Yb:]\fYf:J:Yfa:]gghYb:i a: a: Y\f:G]WX:Yf\Y]hž CfXbi:b[:i:bX:XYb:GWX:hn:hfUX]h]cbY:`Yf:K:YfhY:k:i:fXY:Y]b ?ccdYfUh]cbgdUd]Yf:i:bhYfnY]WX:bYhž:XUg:X]Y:; fi:bX:`U[:Y:ZØf:Y]bY-ZfY]\Y]h`]WX!_cbgYfj:Uh]j:Y:9fbYi:Yfi:b[::V]:XYh":N]Y:`]ghYgž:Ui:WX X]Y:gcn]U`Yb:<YfUi:gZcfXYfi:b[:Yb:ni::VYk:A`h][:Ybž:X]Y:]b:K:]Ybg]WX:hVUf:g]bX"$

9]b 'GWk Yfdi b_h'XYf'6Yf']bYf'5Z8 '`]Y [h'Ui Z'XYa '6fYbbdi b_h! 6Yn]f_': Uj cf]hYbž'k c'X]Y \c\Y'5i g`ÀbXYfei chY'i bX 8fc[Yb_f]a]bU`]hÀh'h\Ya Uh]g]Yfh'k YfXYb"' \pm b'X]YgYf'; Y[YbX YfZ\fyb'X]Y'UZ[\Ub]gW\Yb'5V[YcfXbYhYb'Y]bY'?cbZfcbhUh]cb'a]h Y]bYa ''1 b[Yb'² ghYffY]W\Yfž'XYf']\fY'5bg]W\hYb'U`g'<YhnY VYnY]W\bYhY"'8]YgYf'J cfZU```k]fZh': fU[Yb'ni 'XYb'Ÿi » Yfi b[Yb'i bX XYf'Dcg]h]cb]Yfi b['XYf'5Z8'Ui Z'

K]Yb 'U`g'J cffY]hYf']a 'gcn]U`Yb K c\bi b[gVUi

K]Yb'[]`h'U`g'k Y`hk Y]hYf'JcffY]hYf']a 'gcn]U`Yb'K c\bi b[gVUi'' 8]YgY'HfUX]h]cb'\Uh']\fY'K i fnY`b'bUW\'XYa '9fghYb'K Y`h_f]Y[ž'U`g nk]gW\Yb'%-%-'i bX'%-' (']a 'gc[YbUbbhYb' FchYb'K]Yb 'Yhk U *) "\$\$\$'K c\bi b[Yb'Yff]W\hYh'k i fXYb'''<Yi hY'\Uh'X]Y'GhUXh &&\$"\$\$\$'; Ya Y]bXYk c\bi b[Yb' \mathbb{Z} 0f'a Y\f'U`g'*\$\$"\$\$\$'6Yk c\bYf

[YgWXUZZYb":8]YgY'K c\bi b[Yb'g]bX'HY]`'Y]bYg'A cXY``gž'XUg'Yg XYf'GhUXh'Yfa Ò[`]WXhž'U`g'6Ui \Yff]b'ni 'U[]YfYb'i bX YfgWXk]b[`]WXYb'K c\bfUi a 'ni f'JYfZØ[i b['ni 'ghY``Yb"' 8Yi hgWX`UbXZi b_'?i `hi f'\YVh'\Yfj cfž'XUgg'ØVYf'*\$i 'XYf K]YbYf'6Yj Ò`_Yfi b[']b'`Y]ghVUfYb'K c\bi b[Yb'`YVh"

⇒ JYf[`Y]W\`XUni `g]Y\h`X]Y`G]hi Uh]cb`]a `gcn]U`Yb`K c\bi b[gVUi]b`8 Yi hgW\`UbX`_ca d`Yl Yf`Ui gž`XU`\]Yf`j]Y`Y`K c\bi b[Yb df]j Uh]g]Yfh`k i fXYb`i bX`X]Y`A]YhYb`ghY][Yb"`K]Yb`\Uh`V]g`\Yi hY _Y]bY`; Ya Y]bXYk c\bi b[Yb`df]j Uh]g]Yfhž`k Ug`U`g`k YgYbh`]W\Yf JcfhY]``ZØf`X]Y`GhÀf_i b[`XYg`gcn]U`Yb`Ni gUa a Yb\U`hg`]b`XYf GhUXh`[]`h"`N8: `\Yi hY`VYf]W\hYh'j cb`XYf``YVYbgk YfhYghYb`GhUXh XYf`K Y`hž`k c`X]Y`J]Y`ZU`h`]a ; Ya Y]bXYVUi `[YZÒfXYfh`k]fX`i bX`XYf K c\bi b[qVUi `dc`]h]gW\`ghUV]``V`Y]Vh"

8]Y '6Yf`]bYf '5Z8 'Yf_Ybbh']b'K]Ybg']bbcj Uh]j Ya '5bgUhn'Y]bYb k Yfhj c``Yb'9fZU\fi b[g\cf]ncbhž'XYb'g]Y'Ui Z']\fY'Y][YbY'GhUXh \emptyset VYfhfU[Yb'a \grave{O} W\hYž'Ui W\k Ybb'XUVY]'X]Y'<YfUi gZcfXYfi b[Yb XYf'A][fUh]cb'b]W\h'Ui g'XYa '6`]W_'j Yf`cfYb'k YfXYb'X \emptyset fZYb"

8 Y hU]`g	
Cfh	K]Ybž ² ghYffY]W
EiY``Yb	• k k k "fVV&("XY
	k k k "XYi hgWX`UbXZi bi`hi f"XY
	• k k k "nXZ\Yi hY"XY

6 Y gi W Y b 'G] Y 'i b g 'U i Z 'a Y] b ! V Y f `] b "b Y h