

## ? ]hU!DUb]\_ ]b K YbX]g\U]b. < Ufh\U d`Ubh GW\`]Y» i b[ V]g &\$&+°



K YbX]g\U]bž'8Yi hgWk `UbX'!' = 0 < Ufh\U'gcf[h'X]Y'Ni \_i bZh'XYf
?]hU' Di ghYV`i a Y 'ZØf'Y]b][Y'5i ZfY[i b["'8Yf'GhUXhfUh'\Uh
\_Øfn`]Wk'VYgWk`cggYbž'X]Y'9]bf]Wk hi b['Ui g'XYa 'bYi Yb'?]hU!
6YXUfZgd`Ub'ni 'ghfY]WkYbž'k]Y'GÀWkg]gWkY"XY'VYf]Wk hYh''8]YgY
9bhgWkY]Xi b['ghY\h']a '?cbhYl h'g]b\_YbXYf'?]bXYfnU\`Ybž'k Ug'X]Y
GhfY]Wki b['j cb'?]hU!D`ÀhnYb'YfZcfXYf`]Wk'a UWkh"'Hfchn'XYf
UV`Y\bYbXYb'<U`hi b['j]Y`Yf'9`hYfbž'X]Y'a ]h'%"(\$\$'I bhYfgWkf]ZhYb
[Y[Yb'X]YgYb'GWkf]hh'dfchYgh]YfhYbž'k]fX'X]Y'j cfUi gg]Wkh`]WkY
GWk`]Y»i b['XYf'?]hU']a 'Gca a Yf'&\$&+'Ub[YghfYVh"</pre>

8]Y'8]g\_i gg]cb'ØVYf'X]Y'GW\`]Y»i b['XYf'?]hU'\Uh'VYfY]hg'ni a Y\fYfYb'; YgdfÀW\Yb'[YZØ\fh"8]Y': fU\_h]cb'XYf': fY]Yb'K À\`Yf \Uh'q]W\'a ]h'9`hYfb'i bX'HfÀ[Yfb'[YhfcZZYbži a 'XYfYb'Gcf[Yb'i bX JcfgWX`À[Y`ni `\OfYb"'Hfchn`XYf`9]b][\_Y]h'ØVYf`X]Y`DfcV`Ya Uh]\_\YffgWXh'I bg]WXYf\Y]h"'9`hYfb'g]bX`XUb\_VUf`ZØf`XYb'8]U`c[ž'g]bXg]WX`UVYf`Ui WX`XYf`\c\Yb`K U\fgWXY]b`]WX\_Y]h'Y]bYf`GWX`]Y»i b[VYk i ggh"'G]Y`ZcfXYfb`Y]b'; YgUa h\_cbnYdhž'i a `X]Y6YhfYi i b[gg]hi Uh]cb'ni 'j YfVYggYfb'i bX`Ui Z'X]Y`6YXØfZb]ggY`U``Yf?]bXYf'i bX`9]bf]WXhi b[Yb'Y]bni [Y\Yb"

## Bchk YbX][Y'JYfÀbXYfi b[Yb']b'XYf ?]bXYfVYhfYi i b[

8 Yf'J X? 'k UfbhY 'Øb[gh']b'Y]bYa 'k Y]hYfYb'6Yf]W\hž'XUgg'X]Y

GW\`]Y i b[ 'j cb'?]hUg']b'C ghXYi hgW\`UbX'`Ub[ Zf]gh][ 'ni 'Y]bYa

[ fUj ]YfYbXYb'6YhfYi i b[ gYb[ dUgg'ZØ\fYb'\_ObbhY"'9`hYfbž'j cf

U``Ya '5``Y]bYfn]Y\YbXYžghY\Yb'i bhYf'8fi W\_'i bX'g]bX'Xi fW\'X]Y

9bhk ]W\_`i b[ 'j Yfi bg]W\Yfh'''?]bXYf'\UVYb'Y]b'[ YgYhn`]W\
j YfUb\_YfhYg'FYW\h'Ui Z'6YhfYi i b[ 'X]YgYg'FYW\h'k]fX

ni bY\a YbX'[ YZÀ\fXYhž'k Ybb'X]Y'5bnU\`XYf'j YfZØ[ VUfYb'D`ÀhnY

b]W\h'Ui gfY]W\h'''8Yf'J X? 'ZcfXYfh'XU\Yf'j cb'Dc`]h]\_'i bX

?ca a i bYb'Y]bY'ZÀW\YbXYW\_YbXY'@Ogi b[ 'ZØf'X]Y

?]bXYfVYhfYi i b[ ž'i a 'XYb'nU\`fY]W\Yb'<YfUi gZcfXYfi b[ Yb'ni VY[ Y[ bYb"

#bgVYgcbXYfY']a 'cghYb'8 Yi hgW\`UbXg'nY][ h'g]W\ X]Y'DfcV'Ya Uh]\_
XYf'fØW\_`Ài Z][ Yb'; YVi fhYbnU\`YbžX]Y'?]hUg']b'XYb'VYhfcZZYbYb
FY[ ]cbYb'j cf'X]Y'K UbX'ghY``h''Gc'ZY\`Yb']b'CghXYi hgW\`UbX
XYfnY]h'fi bX'(("+\$\$'D'ÀhnY"'=a 'JYf[ `Y]W\ XUni 'g]bX']b'XYb
k Ygh`]W\Yb'6i bXYg`ÀbXYfb'Yhk U'', ) "- \$\$'?]hU!D`ÀhnY'ni 'k Yb][ "
8 ]Y'6YfhY`ga Ubb'Gh]Zhi b[ '\YVh'\Yfj cfž'XUgg'XYf'6YXUfZ'Ub'?]hU!
D`ÀhnYb'\_cbh]bi ]Yf`]W\'k ÀW\ghž'XU']a a Yf'a Y\f'9`hYfb'Ui Z'X]Y
6YhfYi i b[ ']\fYf'\_`Y]bYb'?]bXYf'Ub[ Yk ]YgYb'g]bX'''9]b'; fi bX'ZØf
X]Y'?`i Zh'nk ]gW\Yb'Cgh'i bX'K Ygh']gh'Ui W\XYYf': UW\\_f\ZhYa Ubb!
Gh]Zhi b[ 'ghY``h'ZYghž'XUgg'ZUgh'-\$'DfcnYbhXYf'?]hU!?]bXYf']b
CghXYi hgW\`UbX']b'; fi ddYb'a ]h'i b[ Øbgh][ Yb'DYfgcbU`gW\`ØggY`b
VYhfYi h'k YfXYb"

8]Y < YfUi gZcfXYfi b[ 'XYf'?]hUg']b

## 8 Yi hgWX`Ub X

8]Y'Ub[YgdfcWXYbYb'H\Ya Yb'fi bX'i a 'X]Y'GWX']Y\*i b['XYf'?]hU
Di ghYV'i a Y 'g]bX'HY]'Y]bYf'[fO)\*YfYb'[YgY'`gWX UZh`]WXYb
8YVUhhY'ØVYf'X]Y'?]bXYfVYhfYi i b[']b'8Yi hgWX`UbX"': Y\`YbXY'?]hU!
D`AhnY'\_ObbYb'b]WXh'bi f'ni 'Z]bUbn]Y'`Yb'9]bVi \*Yb'ZØf'X]Y
VYhfcZZYbYb'9`hYfb'ZØ\fYbž'gcbXYfb'Ui WX'X]Y'ZfØ\\_]bX`]WXY
: OfXYfi b['gck]Y'X]Y'gcn]U`Y'HY]`\UVY'VYY]bhfAWXh][Yb"'Dc`]h]gWXY

#D]h]Uh]j Yb'g]bX'bchk YbX][ži a 'X]Y'G]hi Uh]cb'bUWX\U`h]['ni
j YfVYggYfb'i bX'Y]bY'j Yf`Agg`]WXY'6YhfYi i b['ZØf'U``Y': Ua ]`]Yb'ni
[Yk A\f`Y]ghYb"

9`hYfb'i bX': UWX`Yi hY'g]bX'g]WX'Y]b][.'\\*\hnh'a i gg'YbhgWX]YXYb
[Y\UbXY`h'k YfXYbž'XUa ]h'X]Y'?]hU!5b[YVchY']b'XYb'bÀWXghYb
\(\text{\tensor}\) ei Ubh]hUh]j 'U`g'Ui WX'ei U`]hUh]j ']b'XYb
j YfgWX]YXYbYb'FY[]cbYb'8Yi hgWX`UbXg'j YfVYggYfh'k YfXYb
\_\ObbYb''

8 YhU]`g	
Cfh	K YbX]g\U]bž'8Yi hgW\`UbX
EiY``Yb	<ul> <li>k k k "gUYWX g]gWX Y"XY</li> </ul>
	<ul><li>k k k "j YfVUbXgVi Yfc"XY</li></ul>
	<ul><li>k k k "VYfhY`ga Ubb!gh]Zhi b["XY</li></ul>

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'b!U[ "bYh