

?UggY``]gh'&\$&) `XYi hgWXY`; `ØW_gghUXh `BiaaYf`Y]bg``Ui h G?@; `ØW_gUh`Ug"`9]bV`]W_`]b`Ni Zf]YXYb\Y]h'i bX @YVYbgei U`]hÀh"



K Ugʻa UW\h'? UggY`ni fʻ[`ØW_`]W\ghYbʻGhUXh'8 Yi hgW\`UbXg3'@Ui h

XYf'I a ZfU[YžX]Y'nk]gWXYb'*Jbi Uf'&\$&&i bX'5df]``&\$&)
Xi fWX[YZØ\fh'k i fXYŽ'YffY]WXh'?UggY``Y]bYb'8i fWXgWXb]hh'j cb'+ž',
Di b_hYb'Ui Z'Y]bYf'G_U'U'j cb'\$'V]g'%\$"'8Ug']gh'b]WXh'bi f'Y]bY'hc``Y
5i gVYi hYž'gcbXYfb'Ui WX'Y]b'dcg]h]j Yg'G][bU``XUfØVYfž'k]Y'X]Y
6Øf[Yf.]bbYb']\fY'@YVYbgei U`]hÀh'Y]bgWXÀhnYb"
CVYfVØf[Yfa Y]ghYf'Gj Yb'GWXcY``Yf'\YVh'XUVY]'X]Y'AU»bU\aYb\Yfj cfž'X]Y'X]Y'GhUXh'Yf[fY]Zh' K]f'j YfZc`[Yb'Y]bY'[Yn]Y`hY
: Ua]`]Yb!'i bX'6]`Xi b[gdc`]h]_ž'gYhnYb'Ui Z'YfbYi YfVUfY'9bYf[]YbibX'i a kY`hZfYi bX`]WXY'AcV]`]hÀhž'i a 'XUg'K c\`VYZ]bXYb'kY]hYf
ni 'ghY][Yfb' 'gc'gc'``XUg'@YVYb']b'?UggY`'bcWX'VYggYf'kYfXYbž
U`g'Yg'Yhnh'gWXcb']gh"

9]b ghUf_Yg J Yf[`Y]W gZY `X

 $= 0.5 \text{ W_gUh`Ug`nY}[h`g]WX.Y]b`]bhYfYggUbhYf`HfYbX.`K Å\fYbX ? UggY``Ui Z`D`Uhn`%`ghY\hž`VY`Y[Yb`?fYZY`X`i bX`8 ØggY`XcfZ`X]Y D`ÅhnY`&`i bX`' "'9fZ fh`i bX`5UWXYb`\]b[Y[Yb`\UVYb`]\fYb`D`Uhn`]b XYf`@]ghY`j Yf`cfYb`i bX``]Y[Yb`Yhnh`Ui Z`D`Uhn`*`i bX`) "'5a `UbXYfYb 9bXY`XYf`@]ghY`Z]bXYb`k]f`FcghcW_ž`XUg`YfbYi h`U`g`GWX`i gg`]WXh UVgWXbY]XYh''6YfbX`FUZZY`\ØgWXYb`j cb`XYf`I b]j Yfg]hÀh`: fY]Vi f[Yf`Ài hYfhž`XUgg`X]Y`J YfhY]`i b[`XYf`Ni Zf]YXYb\Y]h`]b`; fc*gh\XhYb YbhgWXY]XYbX`ZØf`XUg`@YVYbg[`\@W_`]gh''?`Y]bYfY`Gh\XhY`\UVYb`cZh J cfhY]`Y`Xi fWX`Y]bY`ghi XYbh]gWX`[Ydf\[hY`6Yj\O`_Yfi b[\z'j]Y`; f\@b`UbXgWXUZh`i bX`Y]bY`gc`]XY`a YX]n]b]gWXY`J Yfgcf[i b[\z'k Ug g]WX`dcg]h]j`Ui Z`X]Y`@YVYbgei U`]h\h`Ui gk]f_h''$

8]Y'l a ZfU[Y'nY][h'Ui W\ž'XUgg'[fÒ» YfY'GhÀXhY'hYbXYbn]Y``'Y]bY
[Yf]b[YfY'@YVYbgni Zf]YXYb\Y]h'Ui Zk Y]gYb"'A i b]W\'`UbXYh
VY]gd]Y`gk Y]gY'Ui Z'D`Uhn'&+ž': fUb_Zi fh'Ua 'A U]b'Ui Z'') i bX'6Yf`]b
Ui Z''+"'8 Ua]h'ghY\Yb'g]Y'k Y]h'\]bhYf'? UggY`'ni fØW_"

\$\DhYfYggUbhYfk Y]gY']gh'XYf'5VghUbX'nk]gW\Yb'? UggY`'i bX'FcghcW_
VYUW\h`]W\.'%\Z\$&'Di b_hY'g]bX']b'X]YgYg'FUb_]b['Y]b[YZcggYb\Z'k Ug
X]Y'8]ZZYfYbn'nk]gW\Yb'XYa '@YVYbg[YZØ\`'Y]bYf'[Ygi bXYb'DYfgcb
i bX'Y]bYf'a]h'gW\YW\hYa'; Ygi bX\Y]hqni ghUbX'k]XYfqd]Y[Y`h"'

K]fhgWX UZh'i bX'Nk]gWX YbV]`Ubn

? UggY`3'=a 'J Yf[`Y]W\ 'ni 'UbXYfYb'; fc » ghÀXhYb'VY`Y[h'? UggY` F Ub['%* 'VYnØ[`]W\ 'XYf'@YVYbgei U`]hÀh"'8 YbbcW\ '\Uh'X]Y'GhUXh Y]bY'j Yf[`Y]W\ gk Y]gY'\c\Y'5fVY]hg`cgYbei chY"'Dcg]h]j \Yfj cfni \YVYb'g]bX'X]Y'=bZfUghfi _hi fž'X]Y'_i `hi fY``Yb'5b[YVchY gck]Y'X]Y'; Ygi bX\Y]hgj Yfgcf[i b['i bX'6]`Xi b[gY]bf]W\ hi b[Yb"

 $= 3 + YgUa hV]^X ^Uh^g]WX ^X]Y ^@Y VY bgni Zf]Y XY b YY hXY f ^8 Yi hgWX Yb &$&(^Ui Z'+z^* * ^Di b_hY ^Yf \ O\ hz^Y]b ^_ Y]b Yf ^5 bgh]Y[^ij cb ^$z^* (Di b_hY b ^i]a ^UYf[^Y]WX ^ni a ^U cf ^U Yf ^8 Ua]h ^VYZ]b XY h^ig]WX 8 Yi hgWX ^Ub X ^k]Y XY f ^Ui Z' XYa ^F <math>ØW_Y Y$ fd $ZUX ^ni ^XYb ^K YfhYb ^ij cb ^ij cf ^XYf ^7 cfc b U! D Ub XYa]Y z^ik Ybb ^Ui WX ^bc WX ^i b hYf ^XYa < OWX ghghUb X ^ij cb ^& $%- ^{"8} YgY ^9b hk]W_ `i b[Yb ^igWX Y]b Yb ^Ui WX 5 i gk]f_i b[Yb ^Ui Z' ? UggY ^ni ^YUV Yb z^i XU ^X]Y ^GhU Xh ^U_h]j ^Ub ^1 Yf 5 hhfU h]j]h Ah ^Uf YY]h Yh "$

K Ybb'k]fini fØW_V`]W_YbžnY][hig]WX. 18]Y 16Øf[Yfig]bX 1Xi fWX @c\bYf\O\i b[Yb'i bX'Y]bYb'FØW_[Ub[1XYfi \ 2Uh]cb'ni Zf]YXYbYf [Yk cfXYb" 5i WX 1X]Y Ni Zf]YXYb\Y]hia]hiXYa 19]b_ca a Yb'i bX'XYf 5fVY]hgk Y`hi]gh']a 1GhY][Yb'VY[f]ZZYb" K À\fYbX'k]fii bg'U`gc'Ui Z Y]bYb'dcg]h]j Yb'HfYbX'ni VYk Y[YbžnY][hig]WX'Ui WXž'XUgg'X]Y Ya ch]cbU`Yb'K U\fbY\a i b[Yb'XYf'A YbgWXYbž'X]Y'cZhij cb Yb[ghYb'i bX'Gcf[Yb'[YdfÀ[hig]bXž'Ui WX'j YfÀbXYfhig]bX"'? UggY` V`Y]Vh'XU\Yf'Y]b'VYgcbXYfg'`YVYbX][Yf'Cfhž'XYf'a]higY]bYb UhhfU_h]j Yb'5b[YVchYb'X]Y'A YbgWXYb'Ubn]Y\hii bX']\bYb'Y]b [`ØW_`]WXYg'@YVYb'Yfa O[`]WXh'

8 Y hU]`g	
Cfh	?UggY`ž'8Yi hgWX`UbX
Ei Y``Yb	• k k k "bcfX_i f]Yf"XY
	• k k k "_UggY`"XY
	• k k k "g_`![`i YW_gUh`Ug"XY

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