

'\$ \\ fY \ 9fZc \ [gghcfm \ HI \ 6fUi bgWk Y][i b X \ I F = ZY]Yfb \ [Ya Y]bgUa Y \ Ni _i b Zh°

' $\$ '\J\fY'YfZc`[fY]W\Y'DUfhbYfgW\UZh'nk]gW\Yb'HI 6fUi bgW\k\Y]['i b\X'I F = '\Rightarrow V]`\Ai a gZY]Yf'i b\X'bYi Y : cfgW\i b[g]b]h]Uh]j Yb']a '\Rightarrow b]'\&\\$\&\\"



6fUi bgWk k Y][ž'8 Yi hgWk`UbX'! Jcf'' \$'\$J\fYb'VY[Ubb'X]Y
Ni gUa a YbUfVY]hink]gWkYb'XYf'I b]j Yfg]hmicZ'F\cXY'=g`UbX
fI F±'i bX'XYf'HYWkb]gWkYb'I b]j Yfg]hÀhi6fUi bgWkkY]['fHI
6fUi bgWkkY][Ł"'8]YgY'DUfhbYfgWkUZhi]gh'Y]bY'XYf'YfZc`[fY]WkghYb
XYi hgWk!Ua Yf]_Ub]gWkYb'?ccdYfUh]cbYb']a '<cWkgWki `VYfY]Wk
i bX'k]fX']a '≯b]'&\$&) 'a]h'Y]bYa ': YghU_h']b'F\cXY'=g`UbX
[YZY]Yfh"'DfÀg]XYbh]b'5b[Y`U'≢hY`'i bX'J YfhfYhYfł]bbYb'XYf'HI
6fUi bgWkkY]['k YfXYb'Ub'XYb': Y]Yf`]Wk_Y]hYb'hY]'bY\a Yb"

8]Y'?ccdYfUh]cb'i a ZUggh'XUg' & hYfbUh]cbU`'9b[]bYYf]b[
Dfc[fUa a 'gck]Y'Y]b'XcddY`h'UV[YgWX`cggYbYg'Dfc[fUa a "'5i Z
U_UXYa]gWXYf'9VYbY'VYhfYi Yb'K]ggYbgWXUZh`Yfł]bbYb'VY]XYf
I b]j Yfg]hÀhYb'8]ggYfhUh]cbYbž'ZØ\fYb'[YaY]bgUaY

 $: cfgWkib[gdfcY_hY'XifWk'ibX'cf[Ub]g]YfYb'GYa]bUfY''8]Y\\ KifnY`b'X]YgYf'DUfhbYfgWkUZh'fY]WkYb'V]g']b'X]Y'gdÀhYb'%-, Yf $$$ $$IY'nifØW_ž'U`g'$$ b'; fUbX]b'ibX'<YfaUbb'J]Yhg'X]Y NigUaaYbUfVY]h']b]h]]YfhYb''$

9fZc`[YibX'5ighUigWXdfc[fUaaY

8 Yf YfghY 5i ghUi gWX j cb Ghi X]YfYb XYb ZUb X '%- -) 'ghUhhž'i b X ']a
\$\J\f'\%- - + 'k i fXY 'Y]b 'c ZZ]n]Y ``Yf'? ccdYfUh]cbgj YfhfU[
i bhYfnY]WX bYh" =a 'F U\a Yb 'XYg '8 cddY`UVgWX `i ggdfc[fUa a g
\UVYb 'HI !Ghi X]YfYb XY 'X]Y 'A O[`]WX _Y]hž'Y]bYb '5 VgWX `i gg'Ui Z
A UghYf!B]j YUi 'gck c\``Ub 'XYf'I F = U`g'Ui WX 'Ub 'XYf'HI
6fUi bgWX k Y]['ni 'Yfk YfVYb"'6UWX Y`cf!Ghi X]YfYb XY 'XYf'I F =
j YfVf]b[Yb 'Y]b '\$J\f']b '6fUi bgWX k Y]["'6]g \Yi hY '\ UVYb 'ZUgh' %\$\$\$
Ghi X]YfYb XY 'Ub 'X]YgYa '5i ghUi gWX 'hY]`[Yb ca a Yb ž'k Ug 'XUg
Dfc[fUa a 'ni a 'YfZc`[fY]WX ghYb 'XYi hgWX!Ua Yf]_Ub]gWX Yb
5i ghUi gWX dfc[fUa a ']b '8 Yi hgWX`Ub X'a UWX h"

8 Ugʻ8 i U``8 Y[fYY!Dfc[fUa a `XYW_h'j YfgWk]YXYbY`: UWk f]Wk hi b[Yb UVž'XUfi bhYfʻ6Ui]b[Yb]Yi fk YgYbž'I a k Y`h]b[Yb]Yi fk YgYbž 6]c]b[Yb]Yi fk YgYbž'9`Y_hfchYWkb]_ž'A UgWk]bYbVUi ʻi bX K]fhgWk UZhg]b[Yb]Yi fk YgYb"`8 UfØVYfʻ\]bUi gʻ[]Vh'YgʻY]b [Ya Y]bgUa YgʻD\8!Dfc[fUa a ʻi bX`nU\`fY]WkY : cfgWki b[gdfc Y_hYž'X]Y`Xi fWk`U``Y`: U_i `hÀhYb`XYfʻHI 6fUi bgWk k Y][`[YghØhnh'k YfXYb"`=a 'i b]`&\$&' `k i fXY`Y]b`k Y]hYfYg 5V_ca a Ybʻi bhYfnY]Wk bYhž'XUgʻX]Y`?ccdYfUh]cb`U`gʻghfUhY[]gWkY DUfhbYfgWk UZhʻZYghgWk fY]Vh"

8]YgY '9bhk]W_`i b[']gh'HY]``Y]bYg'i a ZUggYbXYb'HfYbXg"'8Yi hgWXY < cWXgWXi `Yb'Yb[U[]YfYb'g]WX'ni bY\a YbX']b']bhYfbUh]cbU`Yb < cWXgWXi `_ccdYfUh]cbYb'i bX'gYhnYb'Ui Z'hfUbgbUh]cbU`Y'6]`Xi b[fHB6Ł'U`g'k]WXh][Yb'6Ui ghY]b']\fYf

\[
\delta\hYfbUh]cbU`]g]Yfi b[gghfUhY[]Yb"'8Yf'?cXYI 'ZØf'XYi hgWXY < cWXgWXi `dfc'Y_hY']a '5i g`UbXž'XYf'&\$%' 'j cb'XYf'<F?!
A]h[`]YXYfj YfgUa a `i b['j YfUVgWX]YXYh'k i fXYž'Y[h'ei U`]hUh]j Y
A]bXYghUbZcfXYfi b[Yb'ZØf'gc`WXY'Dfc'Y_hY'ZYgh"'5i WX'X]Y
DUfhbYfgWXUZh'nk]gWXYb'XYf'I F=i bX'XYf'HI '6fUi bgWXkY]['k]fX
g]WX'Ub'X]YgYb'GhUbXUfXg'cf]Ybh]YfYb'i bX'X]Y': cfgWXi b[g!'i bX

Ni _i b Zhgd Y f gd Y _h]j Y b

8]Y]bhYfbUh]cbU`Y`Ni gUa a YbUfVY]hžX]Y`Xi fW. Dfc[fUa a Y`k]Y X]Y j cb`XYf` > I 'A U]bn`VYgW.f]YVYbYb`k]fXž'nY][h`X]Y ?ca d`Yl]hÀh`i bX`XYb`K Yfh`gc`W.Yf`6]`Xi b[g]b]h]Uh]j Yb"`8]YgY Dfc[fUa a Y`_ÒbbYb`ni '8cddY`!`cXYf`A Y\fZUW.UVgW.`ØggYb ZØ\fYb`i bX`YfZcfXYfb`VY]`XYf`l a gYhni b['Y]bY`gcf[ZÀ`h][Y D`Ubi b['i bX`5Vgh]a a i b['a]h`DUfhbYfi b]j Yfg]hÀhYb"

Ni gUa a Yb[YZUggh`Àggh`g]WX 'gU[YbžXUgg`X]Y 'DUfhbYfgWX UZh
nk]gWXYb`XYf`HI '6fUi bgWXkY]['i bX`XYf`I b]j Yfg]hm`cZ`F\cXY
=g`UbX`Y]b`\Yfj cffU[YbXYg`6Y]gd]Y``ZØf`X]Y`A Ò[`]WX_Y]hYb
]bhYfbUh]cbU`Yf`<cWXgWXi`_ccdYfUh]cbYb`]gh"`G]Y`hfÀ[h`XUni 'VY]ž
XUg`6]`Xi b[gUb[YVch`ni 'YfkY]hYfbž`XYb`]bhYf_i `hi fY``Yb
5i ghUi gWX`ni 'ZÒfXYfb'i bX`U_UXYa]gWXY`=bbcj Uh]cbYb'Ui Z
[`cVU`Yf`9VYbY'j cfUbni hfY]VYb"

8 YhU]`g	
Cfh	6fUi bgWkkY][ž'8Yi hgWX`UbX
EiY``Yb	 a U[Un]b"hi !VfUi bgWk Y]["XY
	• \Y"i b]!a U]bn"XY
	k k k "]bhYfbUh]cbU`Y!
	\cWXgWXi`_ccdYfUh]cbYb"XY

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