

JYbhi fY'8UhYg. '?U]gYfg`Ui hYfb'j YfV]bXYh GhUfhi dg'a]h'=bj YghcfYb°

5a ~&) " → b] ~& \$&) ~j YfbYhnh XUg ~9j Ybh / ei ch/J Ybhi fY 8 UhYg/ ei ch/ GhUfhi dg a]h → bj YghcfYb ~]b ~? U]gYfg `Ui hYfb " ? cghYb `cg ~fY[]ghf]YfYb °



9]gYbVU\bghfU» Y'(&ž'*+**' '?U]gYfg`Ui hYfbž'8 Yi hgW\`UbX'!
5a '&) "'*| b]'&\$&) 'Z]bXYh']b'?U]gYfg`Ui hYfb'X]Y'J YfUbghU`hi b[
JYbhi fY'8 UhYg 'ghUhhž'Y]b'9j Ybhž'XUg'XUfUi Z'UVn]Y`hž'GhUfhi dg'a]h
dchYbn]Y``Yb'*|bj YghcfYb'ni 'j YfbYhnYb"'8]Yg'k i fXY'j cb'XYf'F DHI
cZZ]n]Y``VY_Ubbh'[Y[YVYb"'*|b'Y]bYa ']bbcj Uh]j Yb'GdYYX!8 Uh]b[!
cfa Uh'\UVYb'; fØbXYf'X]Y'A Ò[`]W_Y]hž']\fY'DfcXi _h]XYYb
j cfni ghY``Ybž'k À\fYbX'*|bj YghcfYb'X]Y'VYghYb'XfY]'GhUfhi dg
Ui gk À\`Ybž'X]Y'XUbb']b'Y]bYa 'D]hW\'j cf'Di V`]_i a 'Ui ZhfYhYb

8 Yf'J YfUbghU`hi b[gcfhž'(&_U]gYfg`Ui hYfb']b'XYf'9]gYbVU\bghfU» Y (&ž'V]YhYh'Y]bY'Y]b`UXYbXY'5ha cgd\ÀfY'ZØf'U``Y'\DhYfYgg]YfhYbž X]Y'X]Y'\Dbcj Uh]cbggnYbY'gW\bi ddYfb'a ÒW\hYb"'8]Y

 $\label{thm:condition} $$JYfUbghU`hi b['k]fX']b'9b[`]gWX'Xi fWX[YZØ\fh'i bX'YfÒZZbYh'a]h$$Y]bYa 'j YfhfUi`]WXYb'GdYYX!8Uh]b[!: cfa Uh''5V'%*.%) 'l \f'hf]hh$$XUbb'XYf'ÒZZYbh`]WXY'HY]`']b'?fUZhž'XYf'Y]b']bhYfU_h]j Yg': cfa Uh'ni f fØbXi b[gZ]bUbn]Yfi b['i a ZUggh''<]Yf'Yf\U`hYb'X]Y'HY]`bY\a Yf 9]bV`]W_Y'j ca '<][\!HYWX'; fØbXYfZcbXg'ni '\dag{b}j Ygh]h]cbg_f]hYf]Yb''$

BYhk cf_]b[!A O[`]WX_Y]hYb i bX DUfhbYf

8]Y'JYfUbghU`hi b['k]fX'j cb'nU\`fY]WXYb'DUfhbYfb'i bhYfghØhnhž i bhYf'UbXYfYa 'j ca '9I!Dfc'Y_h'?HI F' '?bck `YX[Y'HfUbgZYf I ddYf'F\]bYž'XYa '6i g]bYgg'Ž '\dbcj Uh]cb'7YbhYf'?U]gYfg`Ui hYfb; a V<'gck]Y'k Y]hYfYb'Cf[Ub]gUh]cbYb'k]Y'6i g]bYgg'5b[Y`gF\Y]b`UbX!DZU`n'i bX'XYa 'GW]YbWY'UbX'\dbcj Uh]cb'5``]UbWY'?U]gYfg`Ui hYfb'Y"J "'6Ygi WXYf'g]bX'\Yfn`]WX'Y]b[Y`UXYbž'g]WX'ZØfXYb'ÒZZYbh`]WXYb'HY]`'ØVYf'@]b_YX\db'ni 'fY[]ghf]YfYb"

: Øf GhUfhi dg'i bX' ≠ j YghcfYb 'VYghY\h'X]Y'A Ò[`]W_Y]hž'g]W\'dYf'9!
A U]`'VY]'DUi `'8]``a Ubb 'Ubni a Y`XYb"'8]Y'?cbhU_hdYfgcb 'ZØf
k Y]hYfY' ≠ Zcfa Uh]cbYb']gh'DfcZ''8f"'8Ybb]g'GhY]b]b[Yfž'XYf
J cfg]hnYbXY'XYg'@Y\fghi \`g'ZØf'9bhfYdfYbYi fg\]d'Ub'XYf'F DHI"
8]Y'J YfUbghU`hi b['k]fX'U`g'D`UhhZcfa 'Ub[YgY\Ybž'i a 'XYb
5i ghUi gW\']a 'GhUfhi d!² _cgmghYa 'ni 'ZÒfXYfb'i bX']bbcj Uh]j Y

¥YYb'ni 'dfÀgYbh]YfYb"

9]b 6`]W_ Ui Z X Ug GhUfhi d!2 _c gmghYa

8 UgʻGhUfhi d!² _cgmghYa ii a ZUgghʻU``Yʻ5_hYi fYž'X]YʻUbʻXYf; fØbXi b[ˈi bXʻXYa ˈK UWkghi a ˈj cbˈGhUfhi dgʻVYhY]`][hˈg]bXžY]bgWk`]Y»`]Wkʻ; fØbXYfžʻ\Dj YghcfYbžʻA YbhcfYbʻi bXʻI b]j Yfg]hÀhYbž k]Yʻj cbʻGhUfhi dʻ\Dg]XYfʻYf`Ài hYfh"\N]Y``]ghʻYgžʻXYbʻNi [Ub[ˈni F Yggci fWbžʻ? bck!\ck ii bXʻ:]bUbn]Yfi b[ga Ò[`]Wk_Y]hYbʻni Yf`Y]WkhYfbžʻk Ugʻni fʻ: ÒfXYfi b[ˈj cbˈ\Dcj Uh]cbYbʻi bX I bhYfbY\a Ybg[fØbXi b[YbʻVY]hfÀ[h"

A]h'XYa 'G\UfY\c`XYf!K YhhVYk YfV'VY]a 'J Ybhi fY'8 UhYg'\UVYb GhUfhi dg'X]Y'A Ò[`]W_Y]hž'DfY]gY'ni '[Yk]bbYb'i bX'g]W\']bg F Ua dYb`]W\h'ni 'ghY``Yb"'Ni XYa 'V]YhYh'XUg'9j Ybh'Ui W\'bUW\'XYa c\Z]n]Y``Yb'HY]`'; Y`Y[Yb\Y]hYb'ni a 'BYhk cf_]b[ž'k c'; fØbXYf'i bX

#bj YghcfYb ']b 'YbhgdUbbhYf '5ha cgd\AfY ']bg'; YgdfAWX '_ca a Yb
_\ObbYb "'9]bY 'k Y]hYfY 'J YfUbghU`hi b['i bhYf 'XYa 'H]hY` J Ybhi fY
8 UhYg 'k]fX 'Ua '("'Bcj Ya VYf '&\$&) ']b '@UbXUi 'ghUhhZ]bXYbž'i a
Ui WX 'Xcfh'X]Y 'J YfbYhni b['j cb 'GhUfhi dg'i bX '\bj YghcfYb'ni
ZOfXYfb"

8 Ugʻ: cfa Uhʻi bXʻX]YʻGhfi _hi fʻXYfʻJ YfUbghUʻhi b[ˈgWk UZZYbʻXUa]h cdh]a UʻYʻ6YX]b[i b[Ybži a ʻXUgʻK UWkghi a ʻʻl b[Yfʻl bhYfbY\a Yb ni ʻi bhYfghØhnYbʻi bXʻZi bX]YfhYʻ=bj Ygh]h]cbgYbhgWkY]Xi b[Ybʻni ZÒfXYfb"

8 YhU]`g	
J cfZU``	Gcbgh][Yg
Cfh	9]gYbVU\bghfU»Y'(&ž'*+**'
	8 Yi hgWX`UbX
EiY``Yb	• fdhi "XY
]XYYbk U`X!cY_cgmghYa "XY
	k k k "ghUfhi d!]bg]XYf"Wca

6Ygi WXYb G]Y i bg Ui Z b!U["bYh