

HfUi a \ UZhY 'Gca a Yfn]Y `Y ']b 'GØXcghUg]Yb. 9b hgd Ub bi b['i b X '5 V Y b h Y i Yf 'k Uf h Y b '

9bhXYW_Yb'G]Y'gdUbbYbXY'FY]gYn]Y`Y']b'GØXcghUg]Yb.'j cb GhfÀbXYb']b'D\i _Yh'V]g'ni 'HYa dY`b']b'G]Ya 'FYUd"'⇒XYU`'ZØf ⇒ fYb'Gca a Yfi f`Ui V°



D\i _Yhž·H\U]`UbX'!'8]Y`J]Y`ZU`h`GØXcghUg]Ybg`n]Y\h`]b`XYbGca a Yfa cbUhYb`nU\`fY]W\Y`FY]gYbXY'Ub"'Jca `ghfU\`YbXYbD\i _Yh`]b`H\U]`UbX'V]g`\]b`ni `XYb`gd]f]hi Y``Yb`HYa dY`b`]b`G]YaFYUdž'X]Y`FY[]cb`V]YhYh`Y]b`i a ZUggYbXYg`5b[YVch`Ub9f`YVb]ggYb"`@Ui h'j]YhbUa"j b`]gh`D\i _Yh`a]h`gY]bYb`k Y]»YbGUbXghfÀbXYb`i bX``i I i f]ÒgYb`FYgcfhg`Y]bY`XYf`VY`]YVhYghYb8Ygh]bUh]cbYb"'<]Yf`[Yb]Y»Yb`6Ygi W\Yf`K UggYfgdcfhUfhYb`k]YGi fZYb`i bX`HUi W\Ybž'k À\fYbX`X]Y`bU\Y[Y`Y[YbYb`HYa dY``i bX`?ØghYbfYghUi fUbhg`Y]b`ni gÀhn`]W\Yg`_i `hi fY``Yg`9`Ya Ybh`V]YhYb"

6U`]ž'±bXcbYg]Ybž'k]fX'cZh'U`g'DUfUX]Yg'VYgW\f]YVYbž'XUg'ZØf'gY]bY hfUi a \UZhYb'GhfÀbXY'i bX'U`hYb'<]bXi hYa dY`'VY_Ubbh']gh'' FY]qYbXY'\UVYb'X]Y'A Ò[`]W_Y]hž'q]W\'ni 'YbhqdUbbYbž'Mc[U'ni dfU_h]n]YfYb'cXYf'`c_U`Y'8 ÒfZYf'ni 'Yf_i bXYb"'Ni 'XYb < Ò\Ydi b_hYb'[Y\ÒfYb'6Ygi W\Y']a 'VYfØ\a hYb'HUbU\'@ch HYa dY`ž'XYf'ZØf'gY]bY'gdY_hU_i `ÀfY'@U[Y'Ua 'A YYf'[YgW\Àhnh k]fX"

?i`hifY``Y'9bhXYW_ib[Yb']b'?UaVcXgW\U

9]b k Y]hYfYg VYXYi hYbXYg N]Y `]gh G]Ya FYUdž X]Y < Ui dhghUXh XYf 5b[_cf!8 mb Ugh]Yž X]Y j cf U `Ya ZØf XUg I B 9G7C!K Y `h_i `hi fYfVY 5b[_cf K Uh VY_Ubbh]gh '' 8]Y GhUXh V]YhYh Y]bY J]Y `nU\` 'Ub 5_h]j]hÀhYbž XUfi bhYf '6Ygi W Y 'VY] 'XYb 'VYY]bXfi W_YbXYb HYa dY `b `HU Dfc\a i bX '6Umcb 'gck]Y F UX! i bX 'K UbXYfhci fYb Xi fW X]Y I a [YVi b["5i W `c_U`Y A Àf_hY ``UXYb 'ni a 'GhÒVYfb Y]b"

D\bca 'DYb\ž'X]Y'<Ui dhghUXh'?Ua VcXgW\Ugž'VYgh]W\h'Xi fW\']\fY\]ghcf]gW\Y'i bX'_i `hi fY``Y'5fW\]hY_hi f"'Ni 'XYb'k]W\h][ghYb GY\Ybgk ØfX][_Y]hYb'nÀ\`Yb'XYf'? Ob][gdU`Ughž'K Uh'D\bca 'i bX XUg'BUh]cbU`a i gYi a "'?i `]bUf]gW\'_ca a Yb'6Ygi W\Yf']b'XYb; Ybi gg'j cb'`c_U`Yb'GdYn]U`]hÀhYb'k]Y'5a c_'i bX'6U]'GUW\ 7\fci _"

J]Y`ZÀ`h][Y'9f`YVb]ggY']b'J]YhbUa'ibX UbXYfYb'Ug]Uh]gWXYb'GhÀXhYb

 $\label{thm:condition} $$J]YhbUa V]YhYha]h'<Ubc]'ibX'XYf'<U`cb[!6iW\h'YVYbZU``g \YfUigfU[YbXY'FY]gYn]Y`Y'''<Ubc]ž'X]Y'U`hY'<UidhghUXhž']gh $$VY_Ubbh'ZØf']\fY'\]ghcf]gW\Yb'Gh\hhYb'ibX'_\Ogh`]W\Yg'GhfYYhZccXž XUfibhYf'D\c'ibX'6ib'7\U'''=a''?cbhfUgh'XUni'ghY\h'X]Y'<U`cb[!6iW\hž'Y]b'BUhifkibXYf'a]h']\fYb'aU'Ygh\h]gW\Yb'?U`_ghY]b]bgY`bibX'XYf'A\O[`]W_Y]h'ni''?fYinZU\fhYb'ibX'<\O\`YbVYg]W\h][ib[Yb''$

?i U`U'@ a di f']b'A U`Umg]U'VYY]bXfi W_h'Xi fW\'gY]bY'a cXYfbY

5fW\]hY_hi fž'XUfi bhYf'X]Y'DYhfcbUg'Hck Yfgž'i bX'V]YhYh'nU\`fY]W\Y

A Ò[`]W_Y]hYb'ni a '9]b_Ui ZYb'i bX'; Ybi gg'j cb'GhfU» YbYggYb']b
_i `hi fY``Yb'J]YfhY`b'k]Y'7\]bUhck b"'@ Ub['DfUVUb[']b'@Ucgž'Y]bY

fi \][Y'GhUXh'a]h'[c`XYbYb'HYa dY`bž'n]Y\h'6Ygi W\Yf'Ubž'X]Y'X]Y

Zf]YX`]W\Y'5ha cgd\ÀfY'i bX'5hhfU_h]cbYb'k]Y'XYb'?i Ub['G]!

MUb[cbž:X]Y:[fÒ» hY:GhUXh:A mUba Ufgž:]gh:VY_Ubbh:ZØf:]\fY
Vi XX\]gh]gW\Yb:HYa dY:ibX:_c`cb]U`Y:5fW\]hY_hif":<][\`][\h
X]YgYf:GhUXh:]gh:XYf:6Ygi W\:jcb:G\k YXU[cbž:Y]bYf:XYf:\Y]`][ghYb
GhÀhhYb:XYg:@UbXYg":A Ub]`Už:X]Y:<Ui dhghUXh:XYf:D\]`]dd]bYbž
VY[Y]ghYfh:a]h:]\fYb:GhfÀbXYbž:[fc» Yb:9]b_Ui ZgnYbhfYb:ibX:XYa
\]ghcf]gW\Yb:GhUXhnYbhfia:\#bhfUa i fcg"

Ni gUa a YbZUggYbX'`Àggh'g]W\'gU[Ybž'XUgg'Gca a YffY]gYb'bUW\
GØXcghUg]Yb'Y]bY': Ø``Y'Ub'9f`YVb]ggYb'j YfgdfYW\Yb"'6Y`]YVhY
FY]gYn]Y'Y'k]Y'D\i_Yhž'6U`]'cXYf'G]Ya 'FYUd'V]YhYb'Y]bY'A]gW\ib[Ui g'9f\c`i b[ž'?i `hi f'i bX'5VYbhYi Yfž'X]Y'X]Y'FY[]cb'gc'UhhfU_h]j
a UW\Yb"'\D\zcfa Uh]cbYb'ni 'cf[Ub]g]YfhYb'Hci fYbž'k]Y'XYf'5VZU\fh
j cb'6Ub[_c_'ni a '5mi hh\UmU'<]ghcfm'DUf_ž'g]bX'i bhYf'
Ug]U\][\`][\hg"Wca 'ni 'Z]bXYb"

8 Y hU]`g	
Cfh	D\i _Yhž'H\U]`UbX
EiY``Yb	• k k k "j]Y hb Ua "j b
	• k k k "Ug]U\][\`][\hg"Wca

6Ygi WXYb G]Y i bg Ui Z Y]bY!fY]gY "XY