

### JYf\_Y\fgi bZU``Z`i W\h'Ua 'GW\i\W\bh\f. NYi [Yb'[Ygi W\h']b'<ca Vi f[

JYf\_Y\fgi bZU``Zi W\h'Ui Z'XYa 'DUf\_d`Uhn'XYg'GW\i\WYbhYfg ]b'<ca Vi f[ "'NYi [ Yb'[ Ygi W\h''<]bk Y]gY'Ub'X]Y'Dc`]nY] YfVYhYb"

5a ~&\"`5i [i gh`\\$\&(\zeta`nk ]g\W\Yb`%).)\\$`I\\f`i b\X`\\\*.\\$)`I\\f\zeta\YfY][bYhY`g]\W`Y]b`JcfZU```Ui Z`XYa `DUf\_d`Uhn`XYg`G\Wi\\W\bhYfg`]b</br/>
<a Vi f[\zeta`XYf`X]Y`5i Za Yf\_gUa \_Y]h`XYf`\Ofh`]\W\Yb`Dc`]nY]`Ui Z`g]\W\\nc[\"`<]YfVY]`\UbXY`hY`Yg`g]\W\`i a `Y]bYb`JYf\_Y\fgi b\ZU``\zeta\Yf`]b\\Y]bY`:\U\\fYfZi \W\h`a \ØbXYhY\"`9]b`V]g`\Ub[\"i bVY\_UbbhYf\\:\U\\fnYi [\Z\\\fYf`\UhhY`gY]b`h\Øf\_]g\Z\UfVYbYg`5i hc`]b`Y]bYf`DUf\_fY]\Y\\U\[\YghY``hz`U`g`Yg`ni `Y]bYa `i b[\`\@\W\_`]\W\Yb`Jcf\Z\U```\_Ua "

8 UgʻGnYbUf]cʻgd]Yʻhʻg]W\ ʻk ]YʻZc`[ hʻUV.ʻK À\fYbXʻXYfʻ: U\fYf Ybhk YXYfʻ]bʻgY]bʻ: U\fnYi [ 'Y]bghY][ YbʻcXYfʻUi gghY][ Ybʻk c``hYž gW\`i [ 'Yfʻi bUVg]W\h`]W\`X]Yʻ6Y]ZU\fYfhØfʻUi ZʻY]bYbʻXUbYVYb [ YdUf\_hYbʻD? K "'8]YgʻZØ\fhYʻni 'Y]bYa ʻGW\UXYbʻUa ʻ: U\fnYi [ ž XYggYbʻ< U`hYfʻg]W\ʻbi bʻa Ò[ `]W\Yfk Y]gYʻj YfÀf[ Yfhʻi a ʻX]Y FYdUfUhi fʻ\_Øa a Yfbʻa i gg"ʻ8 cW\ʻUbghUhhʻXYbʻJ cfZU`` cfXbi b[ g[ Ya À»'ni ʻa Y`XYbʻi bXʻX]YʻJ Yfg]W\Yfi b[ gXYhU]`g Ui gni hUi gW\YbžʻYbhgW\`cggʻg]W\`XYfʻI bVY\_UbbhYžʻY]bZUW\`ni ZU\fYbʻi bX'XUa ]hʻgY]bYfʻDZ]W\h`b]W\h`bUW\ni \_ca a Yb''

### 8]Y YfghYb < ]bk Y]gY

8]Y'Dc`]nY]'<ca Vi f['gi W\h'XYg\U`V'bUW\'NYi [Ybž'X]Y

\$\delta Zcfa Uh]cbYb'ni 'XYa 'JcfZU```\UVYb'\_\ObbhYb"'8]Y'9fa ]hh`Yf'g]bX

VYgcbXYfg'XUfUb']bhYfYgg]Yfhž'k Yf'XUg'hØf\_]gZUfVYbY'5i hc

[YgY\Yb'\Uh'cXYf'j]Y``Y]W\h'Ui W\']b'XYf'BÀ\Y'k Ufž'U`g'XYf'I bZU``

[YgW\U\"'\XXYf'<]bk Y]g'\_\ObbhY'\Y`ZYbž'XYb'JYfi fgUW\Yf'ni

]XYbh]Z]n]YfYb'i bX'ni f'J YfUbhk cfhi b['ni 'n]Y\Yb"'8]Y'ni ghÀbX][Y Dc`]nY]]bgdY\_h]cb'<ca Vi f['V]hhYh'i a 'F $\emptyset$ W\_a Y`Xi b[Yb'i bhYf'XYf HY`YZcbbi a a Yf'\$\*, (%!%\$\*\$"

: U\fYfZi W\h']gh'b]W\h'bi f'Y]b 'fYW\h']W\Yg'DfcV`Ya ž'gcbXYfb'nY][ h Ui W\'Y]b '[ Yk ]ggYg': Y\`j Yf\U`hYb']a 'GhfU» Ybj Yf\_Y\f"'9g']gh'j cb [ fc» Yf'6YXYi hi b[ ž'XUgg': U\fYf']b 'gc`W\Yb'G]hi Uh]cbYb JYfUbhk cfhi b[ 'ØVYfbY\a Yb"'8Yf'GW\UXYbž'XYf'Ua 'UbXYfYb : U\fnYi [ 'YbhghUbXYb']ghž'\_ÒbbhY'a Ò[ `]W\Yfk Y]gY'\Ò\Yf'gY]bž'U`g XYf'JYfi fgUW\Yf'Yfk UfhYh"'5i g'X]YgYa '; fi bX']gh'Yg'b]W\h'bi f a cfU`]gW\ž'gcbXYfb'Ui W\'fYW\h`]W\'YbhgW\Y]XYbXž'X]Y'6Y\ÒfXYb ni ']bZcfa ]YfYb'i bX'\_cffY\_h'ni '\UbXY`b"

#### GWX UXYb i b X J YfUbhk cfhi b[

JYf\_Y\fgi bZÀ``Y`Ui Z'DUf\_d`ÀhnYb`g]bX`Y]bY`U``hÀ[`]WXY
<YfUi gZcfXYfi b["CZh'g]bX`g]Y`XUg`9f[YVb]g`j cb`l bUWXhgUa \_Y]h
cXYf`A ]ggj YfghÀbXb]ggYb" =b`X]YgYa :: U```nY][h'X]Y`: `i WXh`XYg
: U\fYfg`Y]bY`VYgcf[b]gYffY[YbXY`HYbXYbnž`XUgg`l bZÀ``Yž`X]Y
b]WXh`X]fY\_h`Ui Z'XYf`GhfU»Y`[YgWXY\Ybž`cZh'j cb`XYb`6YhY]`][hYb
k Yb][Yf`Yfbgh`[Ybca a Yb`k YfXYb": Øf`6YhfcZZYbYž`X]Y`CdZYf
gc`WXYf`JcfZÀ``Y`k YfXYbž`\_Ubb`X]Yg`YXcWX`k Y]hfY]WXYbXY
?cbgYei YbnYb`\UVYb"

8]Y'Dc`]nY]'a ÒW\hY'a ]h']\fYa '5i Zfi Z'ni f'A]h\]`ZY'b]W\h'bi f'XYb
HÀhYf'Ui gZ]bX][ 'a UW\Ybž'gcbXYfb'Ui W\'XUg'6Yk i gghgY]b'ZØf'X]Y
J YfUbhk cfhi b[ ']a 'GhfU» Ybj Yf\_Y\f'gW\ÀfZYb"'9bhgdfYW\YbX'XYb
XYi hgW\Yb'J Yf\_Y\fg[ YgYhnYb'\_Ubb': U\fYfZi W\h'gW\k Yfk ]Y[ YbXY
fYW\h`]W\Y': c`[ Yb'bUW\'g]W\'n]Y\Ybž'Y]bgW\`]Y»`]W\'; Y`XghfUZYb
i bX'XYa 'J Yf`i gh'XYg': Ø\fYfgW\Y]bg"'8]Yg'gc``hY'YXYa
: U\fnYi [ ZØ\fYf'ni 'XYb\_Yb' [ YVYb"

 Ofh`]WX Y b '6 Y \ Of X Y b 'Y b hgWX `c ggY b 'g]b X ž 'gc `WX Y 'J c f ZA``Y
Ui Zni \_`A f Y b 'i b X 'X]Y 'J Y f\_Y \ fgg]WX Y f\ Y]h 'Ui Z'XY b 'GhfU» Y b 'ni
Y f\ O\ Y b "

### 5i Zfi Z'ni f'A ]h\]`ZY'XYf'NYi [Yb

K Ybb'G]Y'ni f'5i Z\_`Àfi b[ 'XYg'JcfZU``g'VY]hfU[ Yb'\_ObbYbž'nO[ Yfb G]Y'V]hhY'b]Wkhž'g]Wk'a ]h'XYf'Dc`]nY]']b'JYfV]bXi b[ 'ni 'gYhnYb"'\XYf < ]bk Y]g'\_ObbhY'Ui ZgWk`i ggfY]Wk'gY]b"'9g']gh'i bYf`Àgg`]Wkž'XUgg'k]fU`g'; Ya Y]bgWkUZh'ni gUa a YbUfVY]hYbž'i a 'gc`WkY'JcfZÀ``Y'ni fYXi n]YfYb'i bX'JYfUbhk cfhi b[ ']a 'GhfU\XYbj Yf\_Y\f'ni 'ZOfXYfb" Ni gUa a Yb'\_ObbYb'k]f'g]WkYfghY``Ybž'XUgg'gc`WkY'JcfZÀ``Y'b]Wkh i b[ YghfUZh'V`Y]VYb'i bX'Y]b'l a XYb\_Yb'VYnØ[ `]Wk'XYf JYf\_Y\fgg]WkYf\Y]h'ghUhhZ]bXYb'\_Ubb"

# $JYf_Y\figi bZA``Y']b'8Yi hgWX`UbX.'9]b'6`]W_Ui Z'X]Y'GhUh]gh]_$

JYf\_Y\fgi bZÀ``Y`g]bX`]b`8Yi hgWX`UbX`Y]b`kY]h'j YfVfY]hYhYg
DfcV`Ya "'@Ui h'XYa 'GhUh]gh]gWXYb`6i bXYgUa h'[ UV`Yg`]a '\\f\ &\\$&\"]bg[ YgUa h'fi bX`&\z+`A ]``]cbYb`fY[ ]ghf]YfhY`JYf\_Y\fgi bZÀ``Y" 8]YgY`NU\``i a ZUggh`gck c\```Y]WXhY`U`g`Ui WX`gWXkYfY`I bZÀ``Y`i bX gd]Y[ Y`h'Y]bY`\_cbh]bi ]Yf`]WXY`<YfUi gZcfXYfi b[ 'ZØf`X]Y JYf\_Y\fgg]WXYf\Y]h'k ]XYf"`I bhYf`XYb`fY[ ]ghf]YfhYb`I bZÀ``Yb YbhZ]Y`Yb`ØVYf'\ \\$\"\\$\"\U`g`Ui Z`DYfgcbYbgWXÀXYb\z\*k Ug`nY][ hz`XUgg hfchn`U``Yf`G]WXYf\Y]hga U» bU\a Yb`Y]bY`Yf\YV`]WXY`; YZÀ\fXi b[ VYghY\h"

9]b VYXYi hgUa Yf 5gdY\_h XUVY] jghž XUgg I b ZÀ ``Yž k ]Y XYf Ua DUf\_d `Uhn XYg GW i \W bhYfg jb < ca Vi f[ ž c Zh b]W h Ub [ Ya YggYb [ Ya Y`XYh k YfXYb "; YgW AhnhY &) ı XYf I b ZÀ ``Y k YfXYb b]W h ni f ? Ybbhb]g [ YVfUW hž ]bgVYgcbXYfY ]b : À ``Yb j cb GUW gW AXYbž k c : U\fnYi [ Y c Zh Y]b ZUW k Y]hYfZU\fYbž c\bY X]Y `Dc `]nY] ini ]b Zcfa ]YfYb " 8 ]Yg \_Ubb ini Y]bYa A Ub [ Y `Ub fYW h`]W Yb ? cbgYei YbnYb i b X ini gAhn`]W Yb GW k ]Yf][ \_Y]hYb ZØf X]Y ; YgW AX][ hYb ZØ\fYb"

## $FYWM h^*]WM Y': c^*[Yb'jcb]$ $JYf_Y\fgibZU^*Z^iWM hYb$

8]Y'fYW\h`]W\Yb'?cbgYeiYbnYb'ZØfY]bYb': U\fYfž'XYf'bUW\'Y]bYa
I bZU``X]Y'I bZU``ghY``Y'j Yf`Agghž'c\bY'gY]bY'DZ]W\hYb'ni 'YfZØ``Ybž
\_\ObbYb'Yf\YV`]W\'gY]b"'\d=\8Yi hgW\`UbX'VY[Y\Yb': U\fYfž'X]Y'g]W\
bUW\'Y]bYa I bZU```i bYf`Ui Vh'YbhZYfbYbž'Y]bY'GhfUZhUh'bUW\'z'%(&
XYg'GhfUZ[YgYhnVi W\Yg'fGh; 6\2"8]Y'GhfUZYb'fY]W\Yb'j cb
; Y`XVi \(\gamma\)Yb'V]g'\]b'ni ': fY]\Y]hgghfUZYb'j cb'V]g'ni 'XfY]'\\\\Ab[]['j cb'XYf'GW\kYfY'XYg'J cfZU``g'i bX'cV'Yg'JYf`YhnhY'[UV
cXYf'b]W\h"

8 UfØVYf`\]bUi g`\_Ubb`gc`W\`Y]b`JYf\U`hYb`Ui W\`5i gk]f\_i b[Yb`Ui ZX]Y`JYfg]W\Yfi b[gXYW\_i b[`\UVYb"'JYfg]W\YfYf`\_ObbhYb`]a :: U``YY]bYf`I bZU``Zi W\h'X]Y`NU\`i b[`j cb`GW\UXYbgYfgUhn`Y]ghi b[YbjYfkY][Yfb`cXYf`FØW\_ZcfXYfi b[Yb`VY]`XYb`JYfi fgUW\Yfb`[Y`hYbXa UW\Ybžk Ug`ZØf`X]Y`6YhfcZZYbYb`ni `ni gÀhn`]W\Yb`Z]bUbn]Y``Yb6Y`Ughi b[Yb`ZØ\fYb`\_Ubb"

### 8]Y'Fc``Y'XYf'NYi[Yb

 $NYi \ [Yb'\_ObbYb'Y]bY'YbhgWXY]XYbXY'Fc``Y'VY]'XYf'5i Z\_`Afi b['j cb JYf\_Y\fgi bZA``Yb'gd]Y`Yb''G]Y'g]bX'cZh'X]Y'Y]bn][Ybž'X]Y'XYb J cfZU```Ui g'YfghYf'< UbX'[YgY\Yb'\UVYb'i bX'\_ObbYb'k]WXh][Y \&DZcfa Uh]cbYb'`]YZYfbž'X]Y'ni f'\Rightarrow Ybh]Z]n]Yfi b['XYg'J Yfi fgUWXYfg VY]hfU[Yb''\Rightarrow : U```XYg'I bZU``g'Ua 'GWXi \WYbhYf']b'<ca Vi f['g]bX X]Y'6Y\OfXYb'Ui Z'X]Y'<]`ZY'j cb'NYi [Yb'Ub[Yk]YgYbž'i a '_cb_fYhY <]bK Y]gY'Ui Z'XUg'Z\OWXh][Y': U\fnYi ['i bX'XYggYb': U\fYf'ni Yf\U`hYb''$ 

9]b '5i Zfi Z'ni f'NYi [YbUi ggU[Y'\Uh'Ui W\'XUg'DchYbn]U`ž'X]Y
; Ya Y]bgW\UZh'ni 'a cV]`]g]YfYb 'i bX'XUg'6Yk i gghgY]b 'ZØf

J Yf\_Y\fgg]W\Yf\Y]h'ni 'Yf\Ò\Yb"A UbW\a U``\_Ubb'Yg'Y]bYb'[fc»Yb
I bhYfgW\]YX'a UW\Ybž'k Ybb'g]W\'bi f'Y]bY'DYfgcb'a Y`XYh'i bX']\fY
6YcVUW\hi b[Yb'hY]`h''Dc`]n]ghYb'Yfa i h][Yb'XU\Yf'cZh'NYi [Ybž'g]W\
ni 'a Y`XYbž'Ui W\'k Ybb'g]Y'[`Ui VYbž'XUgg']\fY'\Dzfa Uh]cbYb
i bk ]W\h]['qY]b'\_ObbhYb"

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