

# : $U \setminus bXi b[ ]b < U[ Yb . K Yf _Ybbh XYb a i ha U "]W Yb 9]b V f Y W Yf X Yf 6 Ui gh Y ` Y 3$

± XYb ZfØ\Yb A cf[Ybghi bXYb XYg ("'' ≯ b]'&\$&( 'k i fXYb X]Y 6Y\ÒfXYb ]b < U[Yb Xi fWX Y]bYb '9]bVfi WX ]b Y]bY '6Ui ghY `Y U`Ufa ]Yfh" I bVY\_UbbhY 'HÀhYf'\UhhYb Y]b : YbghYf XYg ; YVÀi XYg ]b XYf D`YggYbghfU» Y 'Ui Z[Y\YVY`hž i a 'Ni [Ub[ 'ni 'XYb 'Xcfh VYZ]bX`]WXYb 'K Yfh[Y[YbghÀbXYb 'ni 'Yf\U`hYb" 'K À\fYbX XYf FYbcj ]Yfi b[gUfVY]hYb 'Ui Z'XYa : UVf]\_[Y`ÀbXY 'Ybhk YbXYhYb X]Y HÀhYf ?i d ZYf\_UVY` i bX `\cW k Yfh][Y K Yf\_nYi [Yž X]Y 'Y]bYb ; YgUa hk Yfhj cb 'a Y\fYfYb 'hUi gYbX '9i fc 'XUfghY``hYb"

8 Yf '9]bVfi W 'YfY][ bYhY 'g]W 'ØVYf 'XUg 'K c W YbYbXY 'i bX 'V`]YV ni bÀW gh'i bYbhXYW\_h" '9fgh'U`g 'X]Y '5fVY]hYf 'Ua 'A cbhU[ a cf[ Yb ni f'6Ui ghY ``Y 'ni fØW\_\_Y\fhYbž'k i fXY 'XUg': Y\`Yb 'XYf'; YfÀhY VYa Yf\_h" '8]Y 'Dc`]nY]'j cb' < U[ Yb 'k i fXY 'gc Zcfh']bZcfa ]Yfh'i bX VY[ Ubb'a ]h'XYb '9fa ]hhìi b[ Yb'j cf'Cfh"

#### HUhi YfXAWXh][Yf]XYbh]Z]n]Yfh

8 i fWX 'X]Y '5 i gk Yfhi b[ 'j cb', VYfk UWX i b[ g\_Ua YfUg'\_cbbhY 'Y]b HUhj YfXÀWX h][ Yf']XYbh]Z]n]Yfh'k YfXYb" '5 i Z'XYb '5 i ZbU\a Yb']gh'XYf A Ubb'ni 'gY\Ybž'k ]Y 'Yf'X]Y '6Ui ghY``YbfÀi a Y 'VYhf]hh'i bX'X]Y K Yf\_nYi [ Y 'Ybhk YbXYh" '8 ]Y 'Dc`]nY]'\Uh'Y]b': U\bXi b[ gZchc j YfÒZZYbh`]WX hii bX'V]hhYh'X]Y '2 ZZYbh`]WX\_Y]hii a 'A ]h\]`ZY" '9g'k ]fX i a '\ddange Zcfa Uh]cbYb'ni a 'J YfXÀWXh][ Yb'i bX'gY]bYa 'a Ò[ `]WXYb 5 i ZYbh\U`hgcfh'[ YVYhYb"

#bhYfYgg]YfhY c XYf NYi [ Ybž X]Y < ]bk Y]gY [ YVYb \_ ObbYbž \_ ObbYb
g]WX ii bhYf XYf HY YZcbbi a a Yf \$&' ' %'-, \* '&\$\*\* 'Ub X]Y
Dc `]nY]X]YbghghY ``Y k YbXYb" 8]Yg ]gh Y]bY k ]WXh][ Y A U» bU\a Yž i a
X]Y '9fa ]hh i b[ Yb j cfUbni hfY]VYb i bX a O[ `]WXYfk Y]gY k Y]hYfY
9]bVfØWXY ni j Yf\]bXYfb"</pre>

#### ; fi $bX^TZ\emptyset f^TX]Y^T: U\setminus bXi b[$

 $8 ]Y `6YXYi hi b[ `X]YgYf": U\bXi b[ `YfghfYW_h'g]W\ `ØVYf'XYb Y]bnY`bYb `J cfZU```\]bUi g" `9]bVfØW\ Yž'VYgcbXYfg']b `[ Yk YfV`]W\ Yb 6YfY]W\ Yb ž'g]bX `U`Ufa ]YfYbXY `9fY][ b]ggYž'X]Y `b]W\ h'bi f'Z]bUbn]Y``Y J Yf`i ghY `ZØf'X]Y `I bhYfbY\a Yb `a ]h'g]W\ `Vf]b[ Yb ž'gcbXYfb `Ui W\ XUg'J YfhfUi Yb `]b `X]Y `G]W\ Yf\Y]h'XYf' 5fVY]hgd`\hmY `i bhYf[ fUVYb" 8]Y `Dc`]nY] `g]Y\ h'g]W\ `XYg\ U`V']b `XYf' DZ`]W\ hž'gW\ bY```ni `\UbXY`bži a `XUg'G]W\ Yf\Y]hg[ YZØ\``XYf' 6Øf[ Yf'ni `gh\hf_Yb"$ 

J]Y`Y`; Yk YfVYhfY]VYbXY`g]bX`Ui Z`XYb`[i hYb`Fi Z`i bX`X]Y
G]W\Yf\Y]h`]\fYf`9]bf]W\hi b[Yb`Ub[Yk]YgYb"`9]b`9]bVfi W\`\_Ubb
b]W\h`bi f`ni `a cbYh\AfYb`GW\\AXYb`ZØ\fYb\z\gcbXYfb`Ui W\`XUg
; YgUa hV]`X`Y]bYg`I bhYfbY\a Ybg`bY[Uh]j`VYY]bZi ggYb"`5i g
X]YgYa `; fi bX`ØVYf`Y[Yb`j]Y`Y`6Yhf]YVY\z\]b`a cXYfbYfY
G]W\Yf\Y]hg`\Ogi b[Yb`ni `]bj Ygh]YfYb\z\ia `gc`W\Y`JcfZ\\``Y`]b
Ni \_i b\z\ni j\f\]bXYfb"

 $8 ]Y `Dc`]nY] "j cb' < U[ Yb`UddY``]Yfh`Ub`X]Y`6Yj `O`_Yfi b[ ž'k UWkgUani "gY]b "i bX"j YfXÀWkh][ Y`5_h]j ]hÀhYb "gcZcfh`ni "a Y`XYb" "9]b ghUf_Yg"; Ya Y]bgWk UZhg[ YZØ\``i bX`X]Y`Ni gUa a YbUfVY]h`nk ]gWkYb 6Øf[ Yfb'i bX`Dc`]nY] "_ObbYb YbhgWkY]XYbX`XUni "VY]hfU[ Ybž'X]Y ?f]a ]bU`]hÀhgfUhY`ni "gYb_Yb'i bX`X]Y`G]WkYf\Y]h`]b`XYf`FY[ ]cb'ni Yf\O\Yb"$ 

8]YgYf'JcfZU```]gh'Ui W\ 'Y]b'6Y]gd]Y``XUZØfž'k]Y'k]W\h][ 'Yg']ghž'XUgg X]Y'^2ZZYbh`]W\\_Y]h'VY]'XYf'5iZ\_`Àfib['jcb'GhfUZhUhYb'a]hk]f\_h" <]bkY]gY'Uig'XYf'6YjÒ`\_Yfib['g]bX'cZhaU`g'XYf'GW\`ØggY``VY]'XYf GiW\Y'bUW\'HUhjYfXÀW\h][Yb'ibX'\_ÒbbYb'gW\bY``ni YfZc`[fY]W\Yb'JYf\UZhib[Yb'ZØ\fYb"

 $9g`V`Y]Vh`ni ``\cZ\!\!Ybž`XUgg`XYf`a i ha U»`]WXY`9]bVfYWXYf`gW\bY``$ 

[ YZUggh'k YfXYb'\_Ubb'i bX'gca ]h'X]Y'G]W\Yf\Y]h'XYf'; YgW\ÀZhY'i bX  $XYf'5bk c\bYf']b'< U[ Yb'[ YghAf_h'k ]fX"$ 

#### ?f]a ]bU`ghUh]gh]\_ ]b < U[ Yb

 $= \frac{1}{2} \left[ \frac{1}{2} \left[ \frac{1}{2} \right] + \frac{1}{2} \left[ \frac{1$ 

### 9]bVfi WkgWki hna U»bU\a Yb'i bX'DfÀj Ybh]cb

I a '9]bVfØW\Y'ni 'j Yf\]bXYfbž'k YfXYb'j YfgW\]YXYbY'A U» bU\a Yb Ya dZc\`Yb"'9]b'YZZY\_h]j Yg'G]W\Yf\Y]hggmghYa '\_Ubb'VY]gd]Y`gk Y]gY X]Y'G]W\hVUf\_Y]h'j cb'6Ui ghY``Yb'j YfVYggYfb"
6Yk Y[i b[ggYbgcfYbž', VYfk UW\i b[g\_Ua YfUg'i bX'Ub[Ya YggYbY 6Y`Yi W\hi b['g]bX'k]W\h][Y'9`Ya YbhYž'X]Y'dchYbn]Y``Y'HÀhYf UVgW\fYW\_Yb'\_ObbYb"'8]Y'Dc`]nY]'V]YhYh'Ui W\'6YfUhi b[Yb'ZØf I bhYfbY\a Yb'Ubž'i a ']bX]j ]Xi Y``Y'G]W\Yf\Y]hg\_cbnYdhY'ni Ybhk]W\_Y`b"

Ni gÀhn`]WX 'g]bX'BUWX VUfgWX UZhg]b]h]Uh]j Yb'i bX'6Øf[Yfk UhWX!Dfc[fUa a Y'YZZY\_h]j ž'i a ']a '?]Yn'Y]b'k UWX gYbXYg'6Yk i gghgY]b'ni gWX UZZYb'i bX'j YfXÀWX h][Y'5\_h]j ]hÀhYb'ni 'a Y'XYb"'8]YgY
[Ya Y]bgWX UZh`]WXYb'5bgÀhnY'ZÒfXYfb'X]Y'Ni gUa a YbUfVY]h
nk ]gWXYb'Dc`]nY]'i bX'6Yj Ò`\_Yfi b["

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