

: fUb_`UbX'=g`UbXg' '5``Ygž'k Ug'G]Y'k]ggYb a ØggYb'fl7U]fbgž'E @8 Ł

5``Ygžk UgʻG]YʻØVYfʻX]Yʻk i bXYfgW\ObYbʻ: fUb_`UbX!\DgY`bʻ]b
XYfʻBÀ\Yʻj cbʻ7U]fbgžE i YYbg`UbXž'k]ggYbʻa ØggYb"ʻ9bh\À`h
\Dzcfa Uh]cbYbʻXUfØVYfž'k]YʻG]YʻVY]ʻY]bYa 'HU[YgUi gZi [
\]Yf\Yfʻ[YʻUb[Ybža]h: chcgʻi bXʻY]bYfʻ5i ZgW\`ØggY`i b[
XYggYbž'k UgʻG]YʻYfk UfhYh"'8]Yʻi b[`Ui V`]W\Ybʻ: fUb_`UbX
\DbXgʻg]bXʻY]bYʻXYfʻUaʻk Yb][ghYbʻVYgi W\hYbʻ\DgY`bʻj cf
7U]fbg"'8]YgYgʻj YfghYW_hYʻ\k Y``]gh'k]f_`]W\Y]bYgʻXYf
VYghYbʻ; fYUhʻ6Uff]YfʻFYYZʻ\g`UbX!9f`YVb]ggYžX]YʻG]Yʻ\UVYb
_ObbYbʻ': ØfʻX]YYb][Ybž'X]YY]bʻ[Ygi bXYgʻF]ZZl²_cgmghYa
Yf`YVYbʻa OW\hYbž'XUgʻa Y]bYgʻ9fUW\hYbgʻa]h`XYaʻ5i »Ybf]ZZ
_cb_i ff]Yfhzʻgc``hYbʻG]Yʻg]W\Ui ZʻYXYbʻ: U```X]Yʻi b[`Ui V`]W\Yb
: fUb_`UbX!\DgY`bʻUbgY\Yb"\D`X]YgYaʻ_i fnYbʻFY]gYZØ\fYf
k YfXY']W\Ui`Ygʻg_]nn]YfYbž'k UgʻG]YʻØVYf`XYb′ Ua d\Y``]d/

5``Ygž'k Ug'G]Y'ØVYf'X]Y'k i bXYfgW\ÒbYb': fUb_`UbX!±bgY`b']b'XYfBÀ\Y'j cb'7U]fbgž'E i YYbg`UbXž'k]ggYb'a ØggYb"'9bh\À`h

DZcfa Uh]cbYb'XUfØVYfž'k]Y'G]Y'VY]'Y]bYa 'HU[YgUi gZi ['\]Yf\Yf
[Y`Ub[Ybž'a]h': chcg'i bX'Y]bYf'5i ZgW\`ØggY`i b['XYggYbž'k Ug'G]Y

 $8]Y'ib[`UiV`]WXYb:: fUb_`UbX:=g`UbXg:g]bX:Y]bY:XYf:Ua:k Yb][ghYbVYgi WXhYb:=bgY`b:j cf:7U]fbg":8]YgYg:j YfghYW_hY:>k Y``]gh:k]f_`]WXY]bYg:XYf:VYghYb:; fYUh:6Uff]Yf:FYYZ:=g`UbX!9f`YVb]ggYž:X]Y:G]Y \UVYb:_ObbYb:`: Øf:X]Y:Yb][Ybž:X]Y:Y]b:[Ygi bXYg:F]ZZ!:2 _cgmghYa Yf`YVYb:a OWXhYbž:XUg:a Y]bYg:9fUWXhYbg:a]h:XYa::5i >> Ybf]ZZ _cb_i ff]Yfhz:gc``hYb:G]Y:g]WX:Ui Z:'YXYb::U```X]Y:i b[`Ui V`]WXYb::fUb_`UbX!=bgY`b:UbgY\Yb"$

±b`X]YgYa '_i fnYb`FY]gYZØ\fYf`k YfXY`]W\`U``Yg`g_]nn]YfYbž'k Ug`G]Y ØVYf`XYb`6Ygi W\`XYf`: fUb_`UbX`=g`UbXg`]b`E @8`k]ggYb`a ØggYb" ±W\`ZØ[Y`\]bni ž'k]Y`G]Y`a]h'Y]bYa 'HfUbgZYf`cXYf`HU[YgUi gZi [\]Yf\Yf`_ca a Ybž`\DZcfa Uh]cbYb`\ØVYf`X]Y`\DgY`b`i bX`Yd]g\\Y : chcg`i bX`J]XYcgž'j cb`XYbYb`]\\\`\cZZYž`XUgg`g]Y`\TYb`6Ygi \\\]bgd]f]YfYb`k YfXYb°`\W\`k YfXY`Ui \\\`Yf_`\AfYbž'k Ufi a `]\\\`[``Ui VYž XUgg`XUg`G\\\bcf\\\Y`b`Ui Z`XYb`: fUb_`UbX`\DX\\YggYf`]gh`U`g Y]b`; fc\hY]``XYg`\Ai\hYfYb`F]ZZg°

Jcf[YghY``h']b.'9d]gWXY')!hA[][Y`FY]gYfcihY`XifWX`7U]fbg

J]XYc'ni 'XYb': fUb_`UbX!=bgY`b

<]Yf']gh'Y]b'_i fnYg'J]XYcž'XUg']W\'j cb'a Y]bYf'FY]gY'ni 'XYb
: fUb_`UbX'=g`UbXg'ni gUa a Yb[YghY``h'\UVY"'; Yb]Y»Yb''I bX'k Ybb
G]Y'bUW\'k Y]hYfYb'_i fnYb'FY]gYj]XYcg'gi W\Ybž'UVcbb]YfYb'G]Y
g]Yž'k À\fYbX'G]Y'Xcfh'g]bX"</pre>

$K c g]bX X]Y : fUb_`UbX]bgY`b3$

 $8]Y :: fUb_`UbX'=g`UbXg'g]bX'Y]bY'FY]\Y'j cb'ZØbZ'=bgY`b'X]fY_h'j cf XYf'A ØbXi b['XYg'A i `[fUjY'F]j Yfž'gØX`]W\'j cb'7U]fbg'i bX'XYf bA\Yf'[Y'Y[YbYb':]hnfcm'=g`UbX'''5``Y'ZØbZ'=bgY`b'g]bX'a]h'XYa 6cch'YffY]W\VUfž'ZØf'X]Y'Yb][Ybž'X]Y'XUg'; `ØW_'\UVYbž'Y]b'Y][YbYg ni `\UVYb'''9g'[]Vh'YXcW\'bi f'Y]bYb'cf[Ub]g]YfhYb'HU[YgUi gZi [j cb'7U]fbg'bUW\'Bcfa UbVm'=g`UbX'fXYf'VYghYb': fUb_`UbX!=bgY`Ł''$

@YgYb'G]Y'k Y]hYf'i bhYbž'k]Y'G]Y'\]Yf\Yf'_ca a Yb" U`h1 : $fUb_`UbX! = gY`b!8fc\bY 2$

K]Y _ca a ha Ub Ui Z X]Y : fUb_`Ub X! =bgY`b3

8]Y'5i gZØ[Y'VY]b\U`hYb'6i ghfUbgZYfg'ni a 'Ai`[fUj Y'F]j Yfž'j cbkc'Ui g'G]Y'X]Y': À\fY'ni 'XYb': fUb_`UbX'=q`UbXg'bY\a Yb"

I a 'Ui Zni gW\`ØggY`bž'k Ufi a 'X]Y'6i W\i b['ØVYf'X]YgY'K YVg]hY'XYf VYghY'K Y[']ghž'i a 'ni 'XYb': fUb_`UbX'=g`UbXg'ni '[Y`Ub[Yb/8 Yf ; YgUa hdfY]g'ZØf'Y]bYb'5``!\DWi g]j Y!HU[YgUi gZi ['j cb'7 U]fbg'ni XYb': fUb_`UbX'=g`UbXg'VYhfÀ[h'bi f'%- - 'I G!8c``Uf"'8]Yg']gh']a J Yf[`Y]W\'ni '&%- '` ž'k Ybb'G]Y'X]fY_h'VY]'Y]bYa 'FY]gYj YfUbghU`hYf]b'XYf'GhUXh'Vi W\Yb"'K Ybb'G]Y'a Y]bYb'7cXY'C@M) 'j Yfk YbXYbž Yf\U`hYb'G]Y'ni gÀhn`]W\') '` FUVUhh'

 $\label{eq:continuous} U`h1 : fUb_`UbX'=g`UbX'FYYZ'7fi]gYg 2$

 $< Yfj \ cf[\ Y\cVYb\]b.\ '8\]Y\ '\%\%'VYghYb\ 'Hci \ fYb\ 'i \ bX\ '9f\ YVb\]ggY\ ']b \ 7\ U]fbg$

HU[YgUi gZ`i ['j cb'7U]fbg'bUWX ': fUb_`UbX =g`UbX' 'K Ug'G]Y'Yfk UfhYh

8 Yf'F Ygh'X]YgYg'6`c[VY]hfU[g'k]fX'[YbUi 'Ui ZgW\`ØggY`bž'k Ug'G]Y VUg]YfYbX'Ui Z'a Y]bYf'9fZU\fi b['Ui Z'XYf'Hci f'ni 'XYb': fUb_`UbX! ±bgY`b'UV'7U]fbg'Yfk UfhYb'_ÒbbYb"

 \pm 'X]YgYf': fUb_`UbX! \pm gY`b!Hci f'Ybh\U`hYb']gh

- 6i ghfUbgZYfg'ni 'i bX'j cb' \Rightarrow fYf'I bhYf_i bZh']b'7U]fbg
- '\$!a]bØh][Y': U\fh'Ui Z'XYa 'A i `[fUj Y'F]j Yf'fa Ub'_Ubb ?fc_cX]`Y'gY\YbŁ
- ('Ghi bXYb'Ui Z'Bcfa UbVm'-g`UbX'fK]Y'VYghYŁ
- JYfk YbXi b['j cb'GW\bcfW\Y`Ui gfØghi b[ž'Gh]b[Yf! 5bnØ[Ybž'K UggYfUi gfØghi b['k]Y'?U'U_gž'Gl Dg'i gk
- $9]bY'[YZ\emptyset\backslash fhY'GW\&bcfW\&Y`hcif$
- ; $YZO\fhY = bgY k UbXYfi b[$
- ?Ògh`]WXYf'Acf[YbhYYž'A]hhU[YggYb'ibX'BUWXa]hhU[ghYY

 $N]Ya `]WX `[ihYg'; YgWX AZhž'cXYf3'K A\fYbX'=bgY`hfUbgZYfg'bUWX ; fYYb'=g`UbX'ibX':]hnfcm'=g`UbX']a `5``[YaY]bYb'V]``][Yf'g]bXž$

: $U \setminus fYb \cdot G]Y \cdot XYb \cdot A i \cdot [fUj Y \cdot F]j Yf \cdot \setminus]bi bhYf$

BUWX 'Y]bYa '_i fnYb'6i ghfUbgZYf'ni a 'Ai`[fUj Y'F]j Yf'gh]Y[Yb'k]f Ui Z'XUg'6cch'XYf': fUb_`UbX'=g`UbXg"

 $8]Y YfghY '9hUddY 'XYg'Hf]W_g'VY]b \setminus U`hYhYY]bY 'a U`Yf]gWXY \\ :`i gg_fYi nZU \setminus fh'Ui Z'XYa 'A i`[fUj Y'F]j Yfž'k c'Yg'a Ò[`]WX']ghž \\ ?fc_cX]`Y'Ub'XYb'I ZYfb'ni 'VYcVUWXhYb''8 Ug'Ui g[YnY]WXbYhY \\ HYUa 'Ub'6cfX'j Yfgcf[h'G]Y'Ui WX'a]h' \Rightarrow fYf'GWXbcfWXY`Ui gfØghi b[ž\Y]» Yb'; YhfÀb_Ybž'A cf[YbhYY'i bX'Y]bYf'9]bZØ\fi b[g!'i bX G]WXYf\Y]hgY]bk Y]gi b[''$

K Ugʻ]WX`UbʻX]YgYf`YfghYbʻ: `i gg_fYi nZU\fh`Ua `a Y]ghYbʻ[Y`]YVh\UVYž'k Ufž'XUggʻg]YʻgY\fʻ]bZcfa Uh]jʻk Uf"'8]YʻZUWX_i bX][YbʻFYYZ; i]XYgʻUbʻ6cfX`Yf_`ÀfhYbʻa]f`X]Yʻ6YXYi hi b[`XYfʻA Ub[fcj Yb! 2 _cgmghYa Y`k]Y`X]Yʻ]a `A i`[fUj Y`F]j Yfʻi bX`k Y`WXY`Fc``Yʻg]Y`VY]XYf`GWXUZZi b[`[Ygi bXYfʻF]ZZYʻgd]Y`Yb"U`h1 HU[YgUi gZi [`bUWX`: fUb_`UbX`=g`UbX`UV`7U]fbg 2

5b_i bZh'Ui Z'Bcfa UbVm'=g`UbX fl fUb_`UbX]bgY`bŁ

BUWW.'bi f'' \$'A]bi hYb'`UbXYhYb'k]f'VYfY]hg'Ui Z'XYb
ki bXYfgWW.ÒbYb': fUb_`UbX'=g`UbXg"'8]YgY'Hci f'\À`h'bi f'Ui Z
Bcfa UbVm'=g`UbXž'XYf'Y]bn][Yb' [fØbYb 'A YYfYgdUf_ncbY"'8]Yg
VYXYi hYhž'XUgg'Yg'j cf':]gWWYfY]U_h]j]hÀhYb'[YgWW.Øhnh']gh'i bX'Y]bY
?]bXYfghi VY'ZØf':]gWWYž'GWW]`X_fÒhYb'i bX'A YYfYg`YVYk YgYb
gWW.UZZh°

K]f 'g W \ b U d d h Y b 'i b g 'i b g Y f Y '5 i g f Ø g h i b [ž 'g h] Y [Y b 'U i g 'X Y a '6 c c h i b X 'a U W \ h Y b 'i b g 'U i Z 'X Y b 'K Y ['n i a ' [Y g W \ Ø h n h Y b 'D] W_b] W_d `U h n " U `h 1 6 c c h g h c i f 'U V '7 U] f b g 2 U `h 1 H U [Y g U i g Z i ['n i 'X Y b ': f U b _ `U b X] b g Y `b 'U V '7 U] f b g 2

GWX bcfWX Y`b'

⇒ 'XYf': fUb_`UbX'=g`UbXg!Hci f'UV'7U]fbg']gh'Y]bY'GW\bcfW\Y`!
GUZUf]!Hci f'Ybh\U`hYb"'Bcfa U`Yfk Y]gY'Yf_i bXY']W\'`]YVYf'U``Y]bYž
UVYf'ni a 'YfghYb'A U`'V]b']W\'gY\f'Zfc\ž'XUgg']W\'gW\`]Y»`]W\
a]h[Ya UW\h'\UVY"

8 Ug``]Y[h'XUfUbž'XUgg'i bgYf'dfcZYgg]cbY``Yf'FYYZ'; i]XY'A]W\Y`Y
XYf'gUW_i bX][ghY'i bX``Y]XYbgW\UZh`]W\ghY'; i]XY'k Ufž'XYb']W\'Y
[YhfcZZYb'\UVY°'G]Y'\Uh'a]f'gc'j]Y``ØVYf'XUg'F]ZZ'VY][YVfUW\hž'Ui Z
j]Y`Y'j YfgW\]YXYbY'?cfU``Yb'\]b[Yk]YgYb'i bX'Yg'[YgW\UZZhž'+
GW\]`X_fOhYb']bYf'Y]bn][Yb'GW\bcfW\Y`g]hni b['ni 'YbhXYW_Yb'

G]Y`\Uh`a]WX`Ui WX`ni `XYb`VYghYb`D`ÀhnYb`[YZØ\fh`i bX`a]f`X]Y gY\f`gY`hYbY`V`Ui Y`5bYa cbY`[YnY][hž`]b`XYf`7`ck bZ]gWXZUa]`]Yb `YVYb"

U`h1 2

U`h1 ?cfU``YbZYW Yb'XYf': fUb `UbX! ₺gY`b 2

U`h1 ?cfU``Ybf] \mathbb{Z} 'Ui Z': fUb_`UbX'=g`UbXg 2

U`h1 ?cfU``Ybf]ZZ'Ui Z': fUb_`UbX'=q`UbXq 2

U`h1 FchY': Ufb_cfU``Y'Ua'; fYUh'6Uff]Yf'FYYZ']b'XYf'BÀ\Y'j cb 7U]fbgž'E @8 2

U`h1 V`Ui Y`5bYbca Y`Ui Z'XYb`: fUb_`UbX! ⊕gY`b 2

K Ufi a 'X]Y'? cfU``Y'Ui Z'XYb': fUb_`UbX'=g`UbXg'gc'[Ygi bX
]gh

9\f`]W\`[YgU[h`k Uf`]W\`ØVYfk À`h][h`XUj cbžk]Y`[Ygi bX`i bX`fY]W\
XUg`F]ZZgmghYa `Ui Z`XYb`: fUb_`UbX`=g`UbXg`]gh"\8U`]W\`gc`bU\Y`Ua
: Ygh`UbX`k Ufž`\UhhY`]W\`k]f_`]W\`b]W\h`Yfk UfhYhž`k Ug`]W\`gU\`Jcb
XYb`*\$\$'j YfgW\]YXYbYb`?cfU``YbUfhYbž`X]Y`Ua '; fYUh`6Uff]Yf`FYYZ
k UW\gYbž`_ca a Yb`ØVYf`&\$\$`X]fY_h`\]Yf`Ui Z`XYb`: fUb_`UbX
=g`UbXg'j cf°

A]WXY`Y`gU[hY`a]fž`XUgg`X]Y`: fUb_`UbX! ≠bgY`b`k Y[Yb`XYf Y]bn][Ufh][Yb`b]WXh[fUj]hUh]j Yb`GhfÒa i b[ž`X]Y`\]Yf`YI]gh]Yfhž`gc [Ygi bXY`?cfU``Yb`\UVYb"`G]Y`Yf_`ÀfhYž`XUgg`X]YgY`Y]bn][Ufh][Y GhfÒa i b[`YXYb`HU['j]Y`Y`YggYbh]Y``Y`BÀ\fghcZZY`ØVYf`XUg`F]ZZ 8 UfØVYf`\]bUi g`VYXYi hYh`X]Y` [fØbY `?YbbnY]W\bi b[`Xi fW\`E @8
A Uf]bY`DUf_gžXUgg`XUg`:]gW\Yb`j YfVchYb`]gh"`GW\]`X_fÒhYb
ghfÒa Yb`Ui W\`\]Yf\Yfž'k Y]``Yg`]b`GhfUbXbÀ\Y`Y]b`gc`[fc»Yg
GYY[fUgVYhh`[]VhžXUg`g]Y`ZfYggYb`_ÒbbYb"`G]Y`j Yfk YbXYb`Ui W\
X]Y`[Ygi bXYb`?cfU``Yb`XYf` GW\]`X_fÒhYbfY]b][i b[gghUh]cb ži a
\ddan ZY_h]cbYb`i bX`JYf`Yhni b[Yb`a]h`XYb`bUhØf`]W\Yb`9][YbgW\UZhYb
VYqh]a a hYf`?cfU``Yb`ni VY\UbXY`b"

U`h1 5bYbca Y'i bX'7`ck b \mathbb{Z}]g \mathbb{W} Y 2

 $U^{1} : fYUh^{1} \cup fFYYZ?cfU^{1} \cup 2$

 U^{1} ? $cfU^{Y}bf]ZZ^{U}iZ^{U}iZ^{U}iZ^{U}iX^{U}=g^{U}bXg2$

U`h1 GWXbcfWXY`b'Ui Z': fUb_`UbX'=q`UbX 2

A]hhU[YggYb

 $BUWX `Y]bYa `XYf`VYghYb`GWXbcfWXY`Yf`YVb]ggYž`X]Y`]WX`V]gYYf`Ua; fYUh`6Uff]Yf`FYYZ`\UhhYž`k Uf`Yg`NY]h`ZØf`XUg`A]hhU[YggYb"$

8]Yg'k Uf'Y]bY'5fh' GY`VghVYX]Ybi b[ž' 5``!mci!WUb!YUh!6i ZZYh!GYhi dž'XUg'k]f_`]WX'gY\f'`YW_Yf'k Uf"'8Ug'HYUa 'Vch'Y]bY'[fc»Y5i gk U\`'Ub'Zf]gWXYa 'CVghž'GU`UhYbž': `Y]gWX'i bX'[Y_cWXhYb; Yf]WXhYb"

U`h1 A]hhU[YggYb'Ua'GhfUbX 2

Ÿ\b`]WX.'K]Y'Yg']ghž']a :]hnfcm'=g`UbX'FYgcfh'ni 'ØVYfbUW\hYb

; YZØ\fhYf GhfUbXgdUn]Yf[Ub[

BUWX XYa A]hhU[YggYb YbhgWX]YXYb g]WX Y]b][Y 6Ygi WX YfžX]Y _cghYb`cgY ? U U_! i bX GhUbX!i d!DUXX`YVcUfX!Bi hni b[]b 5bgdfi WX ni bY\a Yb "GhUhhXYggYb bU\a]WX Ub XYa [YZØ\fhYb GhfUbXgdUn]Yf[Ub[hY]`žXYf'j cb i bgYfYb VY]XYb; fYUh 6Uff]Yf FYYZ!; i]XYg [Y`Y]hYh'k i fXY"

#baY`b"

U`h1 A UghYf'FYYZ'; i]XYž'; fYUh'6Uff]Yf'FYYZ 2

 $U^1 : YZO \ fhY GhfUbXk UbXYfib[2]$

U`h1 2

U`h1 2

U`h1 GhUf`GUbX`Ui Z': fUb_`UbX`=g`UbXg 2 GhUf`GUbX`Ui Z'XYb : fUb_`UbX!=bqY`b`[YZ|bXYb

$FØW_Y\f bUW 7U]fbg$

5`g`5VgW\`i gg`X]YgYg`ZUbhUgh]gW\Yb`HU[YgUi gZi [g`ni `XYb
: fUb_`UbX! \DgY`b'j cb'7U]fbg`gdfUb[Yb'k]f`ni fØW_`Ui Z`XUg`6cch
i bX`VYfY]hYhYb'i bg`XUfUi Z'j cfž`XYb'A i `[fUj Y'F]j Yf
\]bi bhYfni ZU\fYb"'\W\'k Uf'[YgdUbbh'Ui Z'X]Y'5i gg]W\hž'Y]b][Y
[fc»Y'GU`nk UggYf_fc_cX]`Y'Ua 'I ZYf`ni 'gY\Ybž'U`g`k]f'VY]'9VVY
ni fØW_Ua Yb"

@Y]XYf'\UVY']W\'X]YgY'; Y`Y[Yb\Y]h'j YfdUgghž'UVYf'A]W\Y`Y'gU[hYa]fž'XUgg'a Ub'g]Y'hUhg\AW\`]W\'n]Ya`]W\'\\\Ai Z]['gY\Yb'_Ubb'\]

 $U^1 : fUb_U X! = gY^b!6ig2$

U`h1 : fUb_`UbX =g`UbX A Ub[fc|Yb 2

U`h1 A Ub[fcjYb'UiZ'XYb' + bgY`b'jcf'7U]fbg 2

U`h1 A i `[fUj Y $^{\prime}$ F]j Yf ni f \emptyset W_ bUW $^{\prime}$ 7 U]fbg 2

G]Y\Y`Ui W\.`fFYnYbg]cbŁ'8U]bhfYY`7fcWcX]`Y`Hci f`]b`7U]fbg#7UdY Hf]Vi`Uh]cb

 $F \varnothing W_V^{-}W_{-}Gc^{-}hYb^{-}G]Y^{-}X]Y^{-}: fUb_{-}UbX^{-}=g^{-}UbXgVYgi^{-}W_{-}Yb^{-}3^{-}$

K Ybb G]Y Yg]a G C[V]g Yf Yf [YgWWUZZh UVYbž ZfU[Yb G]Y g]WW j]Y Y Wh]a a Yf bc W ž c V X]Yg XYf F]W h][Y]gh

⇒W. `\UVY'j]Y``NY]h'XUa]h'j YfVfUW\hž'U```X]Y'[fc»Ufh][Yb'CfhY']b'XYf I a [YVi b['j cb'7U]fbg'ni 'Yf_i bXYbž'ni 'Xc_i a Ybh]YfYb'i bX'ni Zchc[fUZ]YfYb"'⇒W. `\UVY'j]Y`Y'⇒bgY`bž'a Y\fYfY'Ài »YfY'F]ZZ]bgY`b k]Y'J`UgcZZ'7Um'i bX'A]W.UY`a Ug'7Um'gck]Y'HUi W.Ui gZØ[Y'ni Bcfa Ub'i bX'<Ugh]b[g'FYYZg'VYgi W.h" ; Ubn'Y\f`]W\ž'X]Y'I bhYfk UggYfk Y`h'i bX'XUg'GW\bcfW\Y`b'Ui Z
: fUb_`UbX'=g`UbX'\UVYb'U``'X]YgY'Yd]gW\Yb'CfhY'ØVYfhfcZZYb°

K À\fYbX':]hnfcm'=g`UbX'i bX'; fYYb'=g`UbX'Yhk Ug'V]``][Yf'g]bXž'g]bX
X]Y': fUb_`UbX'=q`UbXg'nk Y]ZY``cg'Y]b'VYggYfYg'; 6F!9f`YVb]g°

A Y\f'7U]fbg'=g`UbXg'i bX'Yd]gW\Y HU[YgUi gZ`Ø[Y

#W. \cZZYžX]YgY ?i fnUb`Y]hi b['ni a '6Ygi W. XYf': fUb_`UbX! +bgY`b
j cb '7 U]fbg'Ui g'\Uh' → bYb'VY]'XYf'D`Ubi b['→ fYg'6Ygi W.g
[Y\c`ZYb"': Øf'X]Y Yb][Ybž'X]Y 'bUW. 'a Y\f'FY]gY!'i bX
5VYbhYi Yf]bgd]fUh]cb'gi W.Ybž'gc``hYb'G]Y'g]W.'i bVYX]b[h'Y]b][Y
a Y]bYf'UbXYfYb'FY]gYZØ\fYf'UbgY\Yb"'→W.'\UVY'Ui gZØ\f`]W.'ØVYf
j]Y`Y'XYf'VYghYb'8]b[Y'[YgW.f]YVYbž'X]Y'a Ub']b'7 U]fbg
i bhYfbY\a Yb'_Ubbž'Y]bgW.`]Y»`]W.'k c'a Ub'X]Y'VYghYb
K UggYfZÀ``Yž'X]Y'VYghYb'K UbXYfk Y[Y'i bX'X]Y'VYghYb'5_h]j]hÀhYb
Z]bXYhž'X]Y'a Ub'Vi W.Yb'_Ubb"

 $5bXYfbZU``g`hUi WXYb`G]Y`]b`Y]b][Y`X]YgYf`UbXYfYb`5fh]_Y``i bhYb Y]b"$

 $"U"h1 : fUb_`UbX! = bgY`b!8fc\bY 2$

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