

FcVYfh'A U`cfbm '8Yf'a i h][Y': 8D! <cZZbi b[ghfÀ[Yf']a '?Ua dZ'i a '8fYgXYbg Gh]a a Y

FcVYfh'A U`cfbm'_Àa dZh'U`g': 8 D!Gd]hnYb_UbX]XUh'i a 'X]Y FØW__Y\f']bg'gÀW\g]gW\Y'DUf`Ua Ybh''?Ubb'Yf'X]Y'@]VYfU`Yb fYhhYb3

8]Y'Fc``Y'XYg'Gd]hnYb_UbX]XUhYb

BUWW. OVYFUDXYFh\U`V'Ghi bXYb']bhYbg]j Yf'8]g_i gg]cb'k Uf'X]Y J YfUbghU`hi b['Ua 'BUW\a]hhU['VYYbXYhž'i bX'X]Y'A YbgW\Yb ghfÒa hYb'X]fY_h'ni '@]bXbYfž'i a 'GY`Z]Yg'a]h'XYa 'dfca]bYbhYb Dc`]h]_Yf'ni 'a UW\Yb"'A U`cfbm'\]b[Y[Yb'V`]YV']a '<]bhYf[fi bXžk Ug']\b']b'XYf': YYXVUW_!GYgg]cb'Y]bYg'K À\`Yfg'U`g'Y]bYb ?UbX]XUhYb'c\bY'XUg'bÒh][Y'7\Uf]ga U'YfgW\Y]bYb'`]Y» "' 8Yf @UbXYgdUfhY]'ZY\`h'Yg'Ub'gW\`U[_fÀZh][Yb'DYfgÒb`]W_Y]hYb ž VYa Yf_hY'X]YgYf"'

5a '5VYbX'VY[UV'g]W\'A U`cfbm']b'X]Y'5`hghUXh'j cb'8fYgXYbž'i a gY`VYf'X]fY_h'a]h'XYb'K À\`Yfb']b'?cbhU_h'ni 'hfYhYb"'Hfchn'gY]bYg VYgW\Y]XYbYb'5i ZhfYhYbg'i bX'XYf'5i ggU[Yž'_Y]b' [YgW\`]ZZYbYf FYXbYf 'ni 'gY]bž'_Àa dZhY'Yf'XUfi a ž'X]Y'A YbgW\Yb'ni ØVYfnYi [Yb"'9f'ghY``hY'g]W\'U`g'XYf' Gc`XUh 'i bX'\b[Yb]Yi f'j cfž Y]bY'5fh'j cb'Dc`]h]__UbX]XUhž'XYf'j cb'XYb'6Øf[Yfb'U`g'Y]bYf'j cb |\bYb'k U\f[Ybca a Yb'k YfXYb'_Ubb"'

GY]bY'6chgW\UZh'_ca a h'YXcW\'bi f'hY]`k Y]gY'Ub.'K À\fYbX
A U`cfbm'ØVYf'6]`Xi b['gdfUW\ž'gW\]Yb'XYf'5dd`Ui g'XYf'Ni \ÒfYf
Y\Yf'VYgW\Y]XYb'ni 'gY]bž'k À\fYbX'XUg' \DhYfYggY'Yfgh'f]W\h][
Ui Z_Y]a hYž'U`g'@]bXbYf'X]Y'6Ø\bY'VYhfUh''8Yf': 8D!7\YZ'gYhnhY
YfbYi h'Ui Z'X]Y'[fc "Yb'H\Ya Yb'k]Y'6Øfc_fUh]YUVVUi 'i bX
GhYi YfgYb_i b[Ybži bX'd`Òhn`]W\'k Uf'X]Y'5i Za Yf_gUa _Y]h'XYf
Ni \ÒfYf'[Yk YW_h''

9]b 6`]W_Ui Z'X]Y < YfUi gZcfXYfi b[Yb

9]b A Yf_a U`XYf'J YfUbghU`hi b['k Ufž'XUgg'@]bXbYf'ZUgh'XcddY`h'gc
`Ub[Y'gdfUW\ 'k]Y'A U`cfbm"'@]bXbYf'gW\UZhY'Ygž'X]Y'A UggYb'ni
a cV]`]g]YfYb'i bX'Y]b'ghUf_Yg' \(\text{b} \text{h} \text{f} \text{ggY'ni 'k YW_Yb"'9f'[`cf]Z]n]YfhY
A U`cfbm'U`g'Y]bYb'YW\hYb' \(\text{D} \text{U} \text{h} \text{b} \text{VY} \text{b} \text{Y} \\ \text{b} \\ \text{V} \\ \text{Y} \\ \text{b} \\ \text{V} \\ \text{Y} \\ \text{b} \\ \text{Y} \\ \text{b} \\ \text{b} \\ \text{V} \\ \text{B} \\ \text{B}

9g'V`Y]Vh'UVni k UfhYbž'cV'A U`cfbm']b'XYb'_ca a YbXYb'HU[YbqY]bY'A]qq]cb'YfZc`[fY]W\'[YqhU`hYb'_Ubb"'Hfchn'XYf

Ui Z_ca a YbXYb Nk Y]ZY``\UhYf bcW\ ZØbZ HU[Y NY]hži a 'g]W\]bg fYW\hY @]W\h'ni 'fØW_Yb i bX XUg J YfhfUi Yb XYf K À\`Yf ni [Yk]bbYb" 8 Yf K YhhVYk YfV i a 'K À\`Yf[i bgh'k]fX ni bY\a YbX]bhYbg]j ži bX XYf 8 fi W_Ui Z]\b k ÀW\gh" 8]Y : fU[Y V`Y]Vh ? Ubb A]gg]cb A U`cfbm 'hUhgÀW\`]W\ [Y`]b[YbžcXYf k]fX Yg a Y\f ni Y]bYf A]gg]cb a dcgg]V`Y 3

9]b 6`]W_]b X]Y Ni _i b Zh XYf : 8 D

8]Y _ca a YbXYb HU[Y g]bX ZØf X]Y : 8 D i bX A U`cfbm
YbhgWX Y]XYbX" '9g k]fX]bhYfYggUbh gY]b ni 'VYcVUWX hYbž cV 'Yf g]WX
U`g YZZY_h]j Yf : Ø\fYf 'VY\Ui dhYb _Ubb i bX cV 'Yg]\a [Y`]b[hž X]Y
K À\`Yf ZØf g]WX i bX gY]bY 'DUfhY] ni fØW_ni [Yk]bbYb" 8]Y [fc» Yb
< YfUi gZcfXYfi b[Yb k]Y A][fUh]cbž K]fhgWX UZh i bX '6]`Xi b[g]bX
H\Ya Ybž X]Y 'X]Y K À\`Yf VYk Y[Yb" A U`cfbmg : À\][_Y]hž X]YgY]b
XYb A]hhY`di b_hgY]bYg K U\`_Ua dZYg ni 'fØW_Ybž _ObbhY 'XYf
GWX `ØggY` ni f K YbXY 'ZØf X]Y 'gÀWX g]gWXY : 8 D 'gY]b" '5b[Yg]WX hg 'XYf
[Y[Ybk Àfh][Yb I a ZfU[Yk YfhY a i gg 'YXcWX _`Uf 'gY]bž XUgg 'YXY
A]bi hY 'nÀ\`h'i bX 'YXY '9bhgWXY]Xi b['Ub '6YXYi hi b['[Yk]bbh"

<]bhYf[fi bX'XYf'dc`]h]gWXYb'G]hi Uh]cb']b GUWXgYb</pre>

8]Y'dc`]h]gWXY'@UbXgWXUZh`]b'GUWXgYb']gh'Xi fWX'Y]bY'J]Y`nU\`jcb < YfUi gZcfXYfi b[Yb'[YdfÀ[hž'X]Y'g]WX'Ui Z'X]Y'K À\`Yfgh]a a i b[Ui gk]f_Yb"BUWXXYa 'X]Y': 8D']b'XYb'j Yf[Ub[YbYb'*J\fYb'Ub 6YXYi hi b['j Yf`cfYb'\Uhž'a ØggYb'X]Y'@]VYfU`Yb'Yhnh'5bhk cfhYb Ui Z'VfYbbYbXY'[YgY``gWXUZh`]WXY'H\Ya Yb'Z]bXYb"'8Uni '[Y\ÒfYb i bhYf'UbXYfYa 'X]Y'*bhY[fUh]cb'j cb'A][fUbhYbž'X]Y'5i gk]f_i b[Yb XYg'I_fU]bY!?f]Y[g'Ui Z'X]Y'`c_U`Y'K]fhgWXUZh'i bX'XYf ni bY\a YbXY'8fi W_Ui Z'XUg'6]`Xi b[ggmghYa"'

± 'NY]hYbž']b'XYbYb'dcdi `]gh]gW\Y'DUfhY]Yb'Ub'9]bZi gg'[Yk]bbYbž ghY\h'X]Y': 8D'j cf'XYf'5i Z[UVYž'g]W\'_`UfYf'ni 'dcg]h]cb]YfYb'i bX Y]b'5b[YVch'ni 'Zcfa i `]YfYbž'XUg'gck c\``dfc[fUa a Uh]gW\'U`g Ui W\'Ya ch]cbU``XYb'6YXØfZb]ggYb'XYf'K À\`Yf'Ybhgdf]W\h''8]Y J cfghY``i b[ž'XUgg'X]Y': 8D'Y]bY'k]W\h][Y'Gh]a a Y']a '@UbXhU['gY]b

ÒbbhYž'k]fX'XifW\'X]Y'acaYbhUbYb'laZfU[YkYfhY'ghUf [YZÀ\fXYhž'kUg'X]Y'BchkYbX][_Y]h'jcb'JYfÀbXYfib[Yb']bbYf\U`V XYf'DUfhY]'ibhYfghfY]W\h"

K À\`Yf]bhYfYggYibXIa ZfU[YXUhYb

 $5_hi\ Y``Y`I\ a\ ZfU[\ Yb`nY][\ Ybž'XUgg`X]Y`:\ 8\ D`]b``GUWX gYb``XYfnY]h`VY]$ $Yhk\ U`nk\ Y]``DfcnYbh'`]Y[\ hž'k\ Ug`k\ Y]h`i\ bhYf`XYf`YfZcfXYf`]WXYb`:\ \varnothing bZ \\ DfcnYbh! < \varnothing fXY`ZØf`XYb`9]bni [``]b`XYb``@UbXhU[``]gh''`8]YgY`NU\`Yb gd]Y[\ Y`b`Y]bY`U``[\ Ya\ Y]bY`I\ bni Zf]YXYb\Y]h`a\]h`XYf`DUfhY]`k\]XYfž X]Y`g]WX`j\ cf`U``Ya\ 'Ui\ Z'XUg`:\ Y\`Yb`j\ cb`Y]bdfÀ[\ gUa\ Ybž\ ØVYfnYi\ [\ YbXYb`DYfgÒb`]WX_Y]hYb`ni\ f\@W_Z\@\ fYb```Àggh''`@Ui\ h`Y]bYf\ I\ bhYfgi\ WXi\ b[\ XYg`A\ Y]bi\ b[\ gZcfgWXi\ b[\ g]bgh]hi\ hg`\BG5`j\ ca\ GYdhYa\ VYf`&$&'\ `\UVYb`nU\`fY]WXY`K\ A\`Yf`g][\ bU`]g]Yfhž`XUgg`g]Y\ g]WX`ghAf_YfY`@Ògi\ b[\ Yb`Z\Øf``c_U`Y`DfcV`Ya\ Y`k\ \ØbgWXYb`i\ bX`a\Y\f\ J\Y`ZU`h`]b`XYf`dc`]h]g\WXYb`@UbXgWX\UZh`Yfk\ UfhYb''$

±b 'Y]bY 'UbXYfY 'F]Wkhi b['n]Y 'h'X]Y 'K À\ 'Yf[fi ddYž'X]Y cddcfhi b]gh]gWk 'k À\ 'h'cXYf'g]Wk 'j cb 'XYb'[fc» Yb'DUfhY]Yb Ub[Ync[Yb 'ZØ\ 'h" '9]bY 'Ghi X]Y 'XYg': cfgWki b[g]bgh]hi hg'5 ``YbgVUWk\ \Uh'[YnY][hž'XUgg'() 'DfcnYbh'XYf'6YZfU[hYb'g]Wk 'ZØf'X]Y 5 `hYfbUh]j Y 'ZØf'8Yi hgWk `UbX'fbZ8Ł']bhYfYgg]YfYbž'k À\ fYbX'X]Y ; fØbYb']b 'GUWkgYb 'YVYbZU'`g'ØVYf'&\$ 'DfcnYbh'`]Y[Yb"'=a ghÀXh]gWkYb'F Ui a ž'VYgcbXYfg']b '8 fYgXYbž'gY\Yb'g]Wk'X]Y YhUV`]YfhYb'DUfhY]Yb'Y]bYa 'ni bY\a YbXYb'8 fi W_'Ui g[YgYhnhž']\fY 5bg]WkhYb'i bX'Dc`]h]_Yb'ni 'a cXYfb]g]YfYbž'i a '↑ b[Y'i bX k U\`_fÀZh][Y'K À\ 'Yf'ni '[Yk]bbYb"

GhfUhY[]Yb'nif'K]YXYfVY`YVib['XYf': 8D

I a 'X]Y'K À\'Yf'ni fØW_ni [Yk]bbYbž'_ObbhY'X]Y': 8 D'j YfgW]YXYbY GhfUhY[]Yb']b'6YhfUW\h'n]Y\Yb"'8]Y'6Yhcbi b['Ui Z'`c_U`Y'H\Ya Ybgck]Y'dYfgÒb`]W\Y'5bgdfUW\Y'_ObbhY'\Y`ZYbž'XUg' \Rightarrow hYfYggY dchYbn]Y``Yf'K À\'Yf'ni 'k YW_Yb"'9]b'k Y]hYfYf'k]W\h][Yf': U_hcf']gh X]Y' \Rightarrow U[YV]`Xi b[. 'A U`cfbmg'5bgUhnž'g]W\'U`g' Y]bYf'j cb'Yi W\'ni dfÀgYbh]YfYbž'_ObbhY']b'Y]bYf'NY]hž']b'XYf'5i h\Ybh]n]hÀh'[YZfU[h]ghž'j cb'J cfhY]`gY]b"

8]Y: 8 D'a i gg'Ui W. 'ØVYf`Y[Ybž'k]Y'g]Y'X][]hU`Y'? Ua dU[bYb']b
]\fYf'K U\`k YfVi b['bi hnYb'_Ubb"' is b[Y'K À\`Yf'g]bX']b'XYf'FY[Y`
cb`]bY'U_h]j Yfž'i bX'Y]bY'j YfghÀf_hY'DfÀgYbn']b'gcn]U`Yb'A YX]Yb
_ÒbbhY'XYf'DUfhY]'\Y`ZYbž']\fY'6chgW.UZhYb'n]Y`[Yf]W\hYhYf'ni
j YfVfY]hYb'i bX'a]h'dchYbn]Y``Yb'K À\`Yfb']b'8]U`c['ni 'hfYhYb"

8 Y hU]`c

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