

Gca a Yfj Yf[bØ[Yb]a '=ff`UbX]U'DUf_. 5VYbhYi Yf ZØf X]Y [UbnY : Ua]`]Y°

9bhXYW_Yb^G]Y^XYb^:fY]nY]hdUf_~\(\iff`\UbX]U^]b^Ghcf_ck.^9]b 9f`YVb]gdUf_^a]h^ØVYf^*) \(5hhfU_h]cbYb^Z\Øf^X]Y^[\UbnY \(: Ua\)^]Y";\(YOZZbYh^V)g^)\("C_hcVYf^\)



@YVV]bYf'GhfU» Y'%ž'%),) - 'Ghcf_ck 'fA Uf_Łž'8 Yi hgWk `Ub X'!

9]b'5i gZi [']bg'8 YbbYb`Ub X'j cb'Ghcf_ck ž'[YbUi Yf'[YgU[h'ni a ff'Ub X]U!DUf_ž']gh'Y]b'YWk hYf'<]h'ZØf'; fc» 'i bX'? 'Y]b'"A]h'ØVYf'*)

5hhfU_h]cbYb'Ui Z') '< Y_hUf'V]YhYh'X]YgYf'A]ha UWk!DUf_'nU\`fY]WkYA Ò[`]Wk_Y]hYb'ZØf'gdUbbYbXY'5VYbhYi Yf'i bX'YbhgdUbbhYGhi bXYb']a ': fY]Yb''K]Y'X]Y'A cn''XY'VYf]WkhYhž']gh'X]Y'GU]gcb

&\$&) 'VYfY]hg']b'j c``Ya '; Ub[Y' 'XYf'DUf_'\Uh'j ca '%\$"'A U]'V]g')''

C_hcVYf'hÀ[`]Wk'j cb'%\$'V]g'%, 'I \f'[YÒZZbYh''<]Yf'_ÒbbYb

6Ygi WkYf'g]Wk'Ui Z'@UVmf]bh\Yž'K UggYfgd]Y`Y'i bX'j]Y''a Y\f

 $\label{eq:nanormal} Ni ~XYb~UVgc~i~hYb~<~][~\][~hg~n~h~Yb~\%~~j~YfgW~]YXYbY~@UVmf]bh~Yž~Y]b~YfZf]gW~YbXYf~K~UggYfdUf_~i~bX~X]Y~bYi~Y~Nk~Yf[~Yb!J~]~``U"$

6YgcbXYfg'XUg'hfUX]h]cbY``Y'; `Ug`UVmf]bh\ 'n]Y\h'a]h'gY]bYb'(

=fk Y[Yb'i bX'', '; `UggW\Y]VYb'j]Y`Y']bhYfYgg]YfhY'?]bXYf'i bX

9fk UW\gYbY'Ub"'5i Z'XYf'GdY]gY_UfhY'Z]bXYb'g]W\ 'nU\`fY]W\Y

@YW_YfY]Ybž'XUfi bhYf'GcZhY]gž'K UZZY`b'i bX'XYZh][Y'; Yf]W\hY"

D]W_b]W_d`AhnY'`UXYb'XUni 'Y]bž'Y]bY'_`Y]bY'DUi gY'Y]bni `Y[Yb'i bX
X]Y'a]h[YVfUW\hYb'GbUW_g'ni '[Yb]Y»Yb"

5 hhfU_h]cbYb i bX J YfUbghU`hi b[Yb

BYi ']b'X]YgYf'GU]gcb'g]bX'ni XYa '@]W\h!'i bX'Hcb]bghU``Uh]cbYb']a ?`Ub[hi bbY`'i bX'XUg' FcV]b!<ccX!<Ò\Yb`UVmf]bh\ ž'XUg'a]h Y]bYf'<Ò\Y'j cb'V]g'ni '%&'A YhYfb'Y]bY'Ui ZfY[YbXY <YfUi gZcfXYfi b['V]YhYh'''<]Yf'Z]bXYb'5VYbhYi fYf'GY]`VfØW_Ybž BYhnhi bbY`'i bX'gc[Uf'nk Y]'FÒ\fYbk YbXY`fi hgW\Yb'''Y]b'k U\fYf GdU» [UfUbh'ZØf'a i h][Y'6Ygi W\Yf"

DfU_h]gWXY =b Zcfa Uh]cbYb

: Øf XYb '9]bhf]hh']b 'XYb 'DUf_'nU\ 'Yb '9fk UW\gYbY'nk]gW\Yb'* 'i bX %' ž) \$ '9i fc "'8 Ua]h'g]W\ '[fc > Y'; fi ddYb 'b]W\ h'[Ubn'gc 'i a XfY\Yb a ØggYbž'[]Vh'Yg'gdYn]Y ``Y'5b[YVchYž'k]Y'ni a '6Y]gd]Y ``&\$ < Å\bW\Ybbi [[Yhg'a]h'Dca a Yg'ZØf'' \$ '9i fc "'B UhØf`]W\ ']gh'Y]bY GY`Vghj Yfgcf[i b['Yf`Ui Vhž'k Ug'[YfUXY'ZØf': Ua]`]Yb'c Zh'j cb J cfhY]`']gh": Øf'U``'YbYž'X]Y'a]h'<Ui gh]YfYb'UbfY]gYb'a ÒW\ hYbž []Vh'Yg'`Y]XYf'Y]bY'9]bgW\ fÀb_i b[.'8]YgY'a ØggYb'XfUi > Yb V`Y]VYb"

8]Y'=ff`UbX]U'K YVgY]hY'gcf[h'ZØf'k Y]hYfY'=bZcg'ni
2 ZZbi b[gnY]hYb'i bX'5hhfU_h]cbYb'i bX'\À`h'X]Y'6Ygi WXYf'ghYhg'Ui Z

XYa '@Ui ZYbXYb'ØVYf'X]Y'bYi YghYb'9bhk]W_`i b[Yb']a 'DUf_"'@Ui h XYa '5857'n]Y\h'XYf'\f\UbX]U!DUf_'a]h'gY]bYb'bUhi fbU\Yb 9f`YVb]ggYb''À\f`]W\'j]Y`Y'6Ygi W\Yf'Ub'i bX'VYgi W\h'ni 'Y]bYa 'XYf VY`]YVhYghYb': fY]nY]hn]Y`Y']b'6fUbXYbVi f["

: Øf'U``Yž'X]Y'Y]bYb'Yf`YVb]gfY]WXYb'HU['j c``Yf'GdU»'i bX
5VYbhYi Yf']a '=f`UbX]U!DUf_'d`UbYbž']gh'XUZØf'_Y]b'[fc»Yf
5i Zk UbX'bÒh]["'9]bZUWX'X]Y': Ua]`]Y'gWXbUddYbž'X]Y'D]W_b]W_!6cl
dUW_Yb'i bX'Ui Z'bUWX'Ghcf_ck' 'XYbb'XYf': Yf]YbgdU» 'ZØf'X]Y
[UbnY': Ua]`]Y'k UfhYh'gWXcb°

8 Y hU]`g	
Cfh	@YVV]bYf~GhfU»Y~%ž~%),)-~Ghcf_ck~fAUf_Łž
	8 Yi hgWX`Ub X
EiY``Yb	• k k k "a cn"XY
	k k k "]ff`UbX]U"XY
	• k k k "UXUWXY

6Ygi WXYb'G]Y'i bg'Ui Z.'bU[!VfUbXYbVi f["XY