EASTERN UNIVERSITY, SRI LANKA

FIRST EXAMINATION IN SCIENCE - 2005/2006 & 2006/2007

FIRST SEMESTER(March/April, 2008)

ST 102 - DESCRIPTIVE STATISTICS

(PROPER & REPEAT)

Answer all Questions **Time: One hour**

Q1. (a) The following table gives the height of trees in a garden.

Height(Feet)	Number of trees
Below 7	26
Below 14	57
Below 21	92
Below 28	134
Below 35	216
Below 42	287
Below 49	341
Below 56	360

(i) Draw a histogram and cumulative frequency curve. Use your diagrams to estimate the mode, median and quartiles.

(ii) Find the mean height of trees.

(iii) Calculate the mode, median and quartiles using formulae. Check the answers with part(i).

(iv) Compute the standard deviation of the height of trees. [60 marks]

(b) In two factories A and B engaged in the same industry in an area, the avera weekly wages (in Rupees) and the standard deviations are as follows:

Factory	Average	Standard Deviation	Number of Employees
A	34.5	5	476
B	28.5	4.5	524

(i) Which factory A or B pays out a lager amount as weekly wages?

(ii) Which factory A or B has greater variability in industrial wages?

[40 mark

Q2. (a) (i) Explain with formula, the construction of the following Index Numbers Price:

- *Laspeyre's* Index;
- *Paache's* Index;
- *Fisher's* Ideal Index. [30 mark

(ii) Using the data given below calculate price index number for the year 20 by

- *Laspeyre's* formula,
- *Paache's* formula,
- *Fisher's* formula with year 1995 as base.

	Item	A	B	C	D	E
Price	1995	8	2	1	2	1
	2003	20	6	2	5	5
Quantity	1995	50	15	20	10	40
	2003	60	10	25	8	30

Show that *Fisher's* Ideal Index satisfies Time Reversal and Factor R versal Tests.

[50 mark

(b) The marks obtained by 8 pupils in Mathematics and Physics are given below:

Mathematics	67	42	85	51	39	97	81	70
Physics	70	59	71	38	55	62	80	76

Calculate the *Spearman's* Rank Correlation and comment on the significance of the result. [20 marks]