Bachelor of Science (B.Sc.I.T.) Semester—III Examination

STATISTICAL METHODS

Paper—VI

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.
(2) Draw well labelled diagrams wherever necessary.

EITHER

1. (a) Explain in detail importance of Statistics. 5

(b) Write and explain method of statistical data collection. 5

OR

(c) Write notes on :

(i) Histogram

(ii) Polygon. 5

(d) Explain limitation of statistic with suitable example. 5

EITHER

2. (a) Derive the median formula for continuous frequency distribution. 5

(b) Find the mode of following distribution :

C.I.	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80
Frequency	5	8	7	12	28	20	10	10

5

OR

(c) Derive the Geometric mean for combine group. 5

(d) Milk is sold at the rate 8, 10, 12 and 15 rupees per litre in four different months. Assuming that equal amounts are spent on milk by a family in the four months, find the average price in rupees per month. 5

EITHER

3. (a) Explain Skewness and Kurtosis with suitable example. 5

(b) The first of the two samples has 100 items with mean 15 and standard deviation 3. If the whole group has 250 items with mean 15.6 and standard deviation $\sqrt{13.44}$, find the standard deviation of second group. 5

OR

(c) Calculate the mean and standard deviation for the following table giving the age distribution of 542 members :

Age in years	20–30	30–40	40–50	50–60	60–70	70–80
No. of members	3	61	132	153	140	53

5

(d) What is dispersion ? Explain any two measures of dispersion with their merits and demerits. 5

EITHER

4. (a) What is Regression ? Explain any two properties of regression in detail. 5

(b) Find the line of best fit for the following data :

X	1	2	3	4	5
Y	1	2	1.3	3.75	2.25

5

OR

(c) Prove two independent variables are not correlated. 5

(d) Calculate the correlation coefficient of the following heights (in inches) :

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

5

5. (a) Differentiate between Primary and Secondary data. 2½

(b) Write merits and demerits of arithmetic mean. 2½

(c) Give the characteristics for an ideal measure of dispersion. 2½

(d) If the lines of regression of Y on X and X on Y are respectively $a_1X + b_1Y + c_1 = 0$ and $a_2X + b_2Y + c_2 = 0$ then prove that $a_1b_2 \leq a_2b_1$. 2½