

Day : **Thursday**
Date : **09/11/2017**

Time : **12.00 NOON TO 02.00 PM**
Max. Marks : 40

W-2017-0734

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Use of logarithmic tables, statistical tables, pocket calculator is **ALLOWED**.

Q.1 Attempt **ANY TWO** of the following: **[10]**

- a) Explain the importance of statistical methods in the field of industry and social science.
- b) Write a note on skewness. Define skewness of distribution. Explain its types. Give any two measures of skewness.
- c) Draw less than cumulative frequency curve of the following frequency distribution of number of families according to monthly house rent. Also find median graphically.

Monthly house rent	5000-7000	7000-9000	9000-11000	11000-13000	13000-15000	Above 15000
No. of families	6	16	24	20	10	4

Q.2 Attempt **ANY TWO** of the following: **[10]**

- a) What do you mean by dispersions? Explain absolute and relative measure of dispersion.
- b) Find mean and mode of the score for the following frequency distribution.

Score	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of performers	5	12	32	40	11

- c) Given the following information:
 $\bar{x} = 1, \mu_2 = 3, \mu_3 = 0, \mu_4 = 27$. Find first four raw moments.

Q.3 Attempt **ANY TWO** of the following: **[10]**

- a) Define correlation between two variables. Explain types of correlation. State any two important properties of correlation.
- b) Find number of pairs of observations from the following data:

$$r = -0.4, \sum_{i=1}^n x_i = 100, \sum_{i=1}^n x_i^2 = 2250, \sum_{i=1}^n y_i = 100, \sum_{i=1}^n y_i^2 = 2250, \sum_{i=1}^n x_i y_i = 1900.$$

- c) The following data give the sales and expenses of 10 firms.

Sales (in thousand Rs.)	45	70	65	30	90	40	50	75	85	60
Expenses (in thousand Rs.)	35	90	70	40	95	40	60	80	80	50

Obtain the least square line of regression of expenses on sales. Also estimate expenses if sales are Rs. 75,000.

Q.4 Attempt **ANY FIVE** of the following: **[10]**

- a) Define discrete variable. Give one real life example.
- b) Define quartiles. State coefficient of quartile deviation.
- c) Find variance for the following observation: 2, 4, 5, 7, 9.
- d) State the formula for Karl Pearson's coefficient of skewness.
- e) If $b_{yx} = 0.4, b_{xy} = 1.6$ find r .
- f) Discuss use of scatter diagram.
- g) If arithmetic mean and median are 144 and 156 respectively, find mode.