Name of the Course	:	B.SC (Hons.) STATISTICS under CBCS (LOCF)
Semester	:	I
Name of the Paper	:	**Statistical Methods**
Unique Paper Code	:	**32375101**
Duration	:	3 hours
Maximum Marks	:	75

Instructions for candidates:

Attempt any FOUR questions.

Each question carries equal marks.

Show all the intermediate calculations and results.

1. Sixty students of Grade IX were given a test of quantitative reasoning, and their scores are given below. Tabulate the data into an appropriate frequency distribution table. Compute mean, standard deviation and mode for the constructed frequency distribution. Find mode graphically and compare it with the computed mode.

46	57	60	55	61	63	43	46	48	52
38	33	34	42	51	56	60	62	64	30
51	50	47	57	35	59	46	52	49	52
36	43	44	48	58	36	49	49	53	48
42	31	34	37	36	60	39	50	54	47
45	32	35	38	56	59	37	51	55	46

2. Define Skewness and Kurtosis. The salary range(in thousand rupees) and the number of employees for a manufacturing firm is given below:

Salary range	50-60	60-70	70-80	80-90	90-100
Numberof employees	7	10	15	6	5

Compute mean and hence first four moments about mean, β_1 and β_2 of the distribution Also, comment upon the nature of distribution.

3. Define coefficient of colligation. According to a survey the following results were obtained:

	Boys	Girls
No. of candidates appeared at an examination	800	200
Married	150	50
Married and successful	70	20
Unmarried and successful	550	110

Find the association between marital status and the success at the examination for both boys and girls.

4. Explain why are there two lines of regression. The following table shows the hours of sunshine, x, during nine days in August and the number of ice creams, y, sold by a beach shop:

x	4.3	6.9	0	10.4	5.2	1.8	8.0	9.2	2.1
y	224	208	123	419	230	184	362	351	196

Calculate the coefficient of correlation between number of hours of sunshine and number of ice creams sold. Calculate the equations of line of regression of y on x and x on y. Also,compute number of hours of sunshine when the ice creams sold are 360.

5. The job rating efficiency of an employee seems to be related to the number of weeks of employment. For a random sample of 10 employees, the following data were observed:

Job Efficiency (X)	55	50	20	55	75	80	90	30	75	70
Weeks of Employment (Y)	2	4	1	3	5	9	12	2	7	5

Fit a second-degree parabola of the form $Y = a + bx + cx^2$. Also, find the weeks of employment when job efficiency is 115.

6.   Define partial correlation. Following are the scores of the students in three subjects:

X1	22	15	27	28	30	42	40
X2	12	15	17	15	42	15	28
X3	13	16	12	18	22	20	25

Compute $R_{2.13}$ and $r_{13.2}$ and interpret the results.