PARUL UNIVERSITY –
FACULTY OF ENGINEERING AND TECHNOLOGY

B. TECH. PROGRAMME (4th SEM)
CSE/ IT/ AERO / MECHATRONICS/PETRO
PROBABILITY, STATISTICS AND NUMERICAL METHOD (303191251)
ACADEMIC YEAR 2024-25

Assignment-1

1. The following data shows number of calls made by 10 sales representative and the and the number of machine sold.

No. of sales calls	20	40	20	30	10	10	20	20	20	30
No. of machines sold	30	60	40	60	30	40	40	50	30	70

Obtain Karl Pearson's correlation coefficient and comment on its values.

2. Comment the correlation between age and success of the students in an examination based on the following data:

Age	20-22	22-24	24-26	26-28	28-30	30-32
No. of candidates appeared	120	100	75	90	50	40
No. of candidates passed	102	82	63	72	39	30

3. For the information given below, find product moment correlation coefficient and comment on its value.
n=8, ∑x=40, ∑y=88, ∑xy=404, $\sum x^2 = 520$, $\sum y^2 = 1058$

4. The following calculations are available for 20 pairs of observations on x and y.

$$\sum x = 100\,, \quad \sum y = 80\,, \sum xy = 406\,, \sum x^2 = 220\,, \sum y^2 = 1058$$

It was later found that one of the pair of observation was wrongly copied as (5,4), while the correct value was (4,5). Find the correct value of correlation coefficient.

5. Given r = 0.5, cov (x, y) = 4, s. d. (x) = 2.5, $\sum y^2 = 192.4$, n = 10 Find mean of y.

6. The following table shows ranks given by two judges to 10 participants in signing competition. Find Spearman's rank correlation coefficient.

Judge 1	1	9	4	2	8	5	7	3	10	6
Judge 2	3	10	6	1	8	2	4	5	9	7

7. The marks scored by 8 students in Statistics and their ranks in Economics are given below. Calculate Spearman's rank correlation coefficient and comment.

Marks in Statistics	39	65	76	45	90	31	72	59
Ranks in Economics	8	3	1	7	2	6	4	5

8. If the rank correlation coefficient is 0.5 and sum of squares of differences between the ranks is 10, find number of observations used in calculating rank correlation coefficient.

9. From the following data calculate the coefficient of rank correlation between X and Y.

X	2	4	8	11	14	15
Y	10	15	18	20	24	30

10. The following table shows the marks obtained by 10 students in Accountancy and Statistics. Find the Spearman's coefficient of rank correlation.

Student No.	1	2	3	4	5	6	7	8	9	10
Accountancy	45	70	65	30	90	40	50	57	85	60
Statistics	35	90	70	40	95	40	60	80	80	50