SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc.Computer Science - END SEMESTER EXAMINATIONS - APRIL 2025
SEMESTER - IV

20UCSAT4004 - Statistical Methods and its Applications - II

Total Duration : 2 Hrs.30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. The following are the ranks obtained by 10 students in Statistics and Mathematics:

X	3	7	2	8	6	9	1	5	10	4
Y	2	8	3	7	5	9	1	6	10	4

   Calculate Rank Correlation Coefficient and interpret the result.

2. Explain the step by step procedure for Testing of Hypothesis.

3. An automatic machine fills tea in sealed tins with mean weight of tea 1 kg and standard deviation 1 gram. A random sample of 50 tins was examined and it was found that their mean weight was 999.50 grams. Is the machine working properly?

4. In a survey of 200 boys, of which 75 intelligent, 40 has skilled fathers while 85 of the unintelligent boys has unskilled fathers. Do these figures support the hypothesis that skilled fathers have intelligent boys. Use chi-square test.
   (Given table value for 1 degrees of freedom is 3.84)

5. Prepare an Analysis of Variance table for Latin Square Design model.

6. Fit the line of regression of Y on X

X	1	2	3	4	5	8	10
Y	9	8	10	12	14	16	15

7. Explain briefly about Type I and Type II error.

8. Distinguish between Parametric and Non Parametric Test.

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Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Calculate karlpearson coefficient of correlation for the following data:

X	1	2	3	4	5	6	7
Y	9	8	10	12	11	13	14

10. Pumpkins were grown under two experimental conditions. Two random samples of 9 and 11 pumpkins shows the SD of their weight as 0.8 and 0.5 respectively. Assuming that the weight distribution are normal, test the hypothesis that the two variances are equal at 5% level. (Given $F(10,8) = 3.35$ and $F(8,10) = 3.07$)

11. There are two brands of car tyres A and B in the market, a sample of 100 tyres of brand A has an average life of 37,500 km with a SD of 2,500 km. Another sample of 75 tyres of brand B has an average life of 39,000 km with a SD of 3,000 km. Can we conclude that brand B is better than brand A?

12. Random samples of 400 men and 600 women were asked whether they would like to have a fly-over near their residence. 200 men and 325 women were in favour of it. Test the equality of proportion of men and women in the proposal?

13. Describe briefly Kolmogorov-Smirnov test of goodness of fit in case of one sample.

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