# School of Computing Science and Engineering
**Bachelor of Technology in Computer Science and Engineering**
**Mid Term Examination - Nov 2023**

**Duration : 90 Minutes**
**Max Marks : 50**

### Sem III - C1UC322T - Probability and Statistics

*General Instructions*
*Answer to the specific question asked*
*Draw neat, labelled diagrams wherever necessary*
*Approved data hand books are allowed subject to verification by the Invigilator*

**1)** State Baye's theorem of probability. — K2 (2)

**2)** If A,B,C are mutually exclusive events associated with a random experiment. P(B)=0.6P(A), P(C)=0.6P(A), then find P(A). — K1 (3)

**3)** From the following data compute standard deviation — K2 (4)

| Mass in kg | 60-62 | 63-65 | 66-68 | 69-71 | 72-74 |
|---|---|---|---|---|---|
| No of students | 5 | 18 | 42 | 27 | 8 |

**4)** Compute Spearman's rank correlation coefficient from following data — K2 (6)

| Person | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Rank in Stat | 9 | 10 | 6 | 5 | 7 | 2 | 4 | 8 | 1 | 3 |
| Rank in Economics | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**5)** Find the mode from the following data. — K3 (6)

| Age | 0-6 | 6-12 | 12-18 | 18-24 | 24-30 | 30-36 | 36-42 |
|---|---|---|---|---|---|---|---|
| Frequency | 6 | 11 | 25 | 35 | 18 | 12 | 6 |

**6)** From the following data calculate Karl-Pearson's coefficient of correlation. — K3 (9)

| x | 1 | 3 | 5 | 7 | 8 | 10 |
|---|---|---|---|---|---|---|
| y | 8 | 12 | 15 | 17 | 18 | 20 |

**7)** Find mean and standard deviation for following data — K4 (8)

| Age in yrs | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-9- |
|---|---|---|---|---|---|---|---|
| No of members | 3 | 61 | 132 | 153 | 140 | 51 | 2 |

**8)** A dice is tossed twice and sum of numbers appearing is noted to be 8. What is the conditional probability that the number 5 has appeared at least once. — K4 (12)

**OR**

Find coefficient of correlation when lines of regression are 2x-9y+6=0 and x-2y+1=0 — K4 (12)