



Reg. No.:

Name:

University of Kerala

First Semester FYUGP Degree Examination, December 2025

Discipline Specific Core Course

STATISTICS

UK1DSCSTA109 - DESCRIPTIVE STATISTICS AND PROBABILITY

Academic Level: 100-199

2024 Admission onwards

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark
Each.Answer all questions

Qn No.	Question	CL	CO
1	Any subset of a sample space is called_____.	RE	4
2	Define the cumulative distribution function of a random variable.	RE	7
3	Two events A and B are said to be independent if	UN	5
4	Say 'True' or 'False': Range is a relative measure of dispersion.	UN	1
5	Two events are said to be equally likely if their probabilities of occurrences are	UN	3
6	Give an example of a discrete random variable?	UN	6

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Give one example for two events corresponding to a random experiment that are not equally likely, but mutually exclusive.	UN	4
8	Using an example, demonstrate that the distribution function $F(x)$ is a non-decreasing function.	UN	7
9	If $P(A)=0.3$, $P(B)=0.4$ and A,B are independent, find $P(A \cap B)$.	AP	4
10	Determine the probability that a randomly chosen leap year will contain 53 sundays	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A)	AP	4, 3

Qn No.	Question	CL	CO
	<p>If A, B, and C are events write down the events corresponding to</p> <p>(i) Exactly two of A, B, and C</p> <p>(ii) At least one of A,B and C</p> <p>(iii) At most two of A,B and C</p> <p>(iv) None of A, B, and C happens.</p> <p>OR</p> <p>B)</p> <p>Obtain the median and mean deviation about mean for the following data.</p> <p>Class: 0-10 10-20 20-30 30-40 40-50 50-60 60-70</p> <p>Frequency: 9 14 20 36 24 10 7</p>		
12	<p>A)</p> <p>The marks obtained by two students for 5 subjects are given below. Which student is more consistent</p> <p>A: 35,36,45,44,24</p> <p>B: 48,49,38,35,41</p> <p>OR</p> <p>B)</p> <p>i) Define independence of two and three events</p> <p>ii) $P(A_1 \cup A_2) = 5/6$, $P(A_1 \cap A_2) = 1/3$, $P(A_1^c) = 1/2$. Find $P(A_1)$ and $P(A_2)$. Check whether A_1 and A_2 are independent.</p>	AN	3, 4
13	<p>A)</p> <p>Check whether the following is a PMF. Give reasons for your answer.</p> <p>If yes, evaluate $P(-2 < X < 2)$. and $P(X < 3)$?</p> <p>OR</p> <p>B)</p> <p>The following data gives a frequency distribution of the wages of 72 labours in a factory . Find the mean deviation about the mean</p>	EV	7, 2
14	<p>A)</p> <p>i) A random variable X has the following pdf</p> <p>$f(x) = \lambda x(2-x)$, if $0 \leq x \leq 2$.</p> <p>i) Identify a value for λ such that $f(x)$ is a pdf.</p>	CR	7, 1

Qn No.	Question	CL	CO
	ii) Find the cumulative distribution function. iii) Find $P(1 < X < 0.75)$ OR B) Comment on the skewness of the given data.		

Model QP