Reg. No.: .....

Name: .....

University of Kerala

W7734

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	Give example for ordinal scale data	RE	1
2	If the events A and B are independent, $P(A \cap B)$=	RE	7
3	If mean =Median=Mode, then the skewness is.....	UN	3
4	The data collected by some individuals and used by others for some other purpose is called _____	UN	1
5	If A and B are two disjoint events, then P(A/B) =.....	UN	2
6	For two events A and B, $P(B) = P(A/B) = \frac{1}{2}$,then $P(A \cap B)$ is Options : A)1 B)$\frac{1}{2}$ C)$\frac{1}{4}$ D)None of these	UN	7

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	Write any two merits and demerits of median.	UN	1
8	Define random experiment and give an example.	UN	4
9	Write the distribution function corresponding to the p.d.f. f(x)=x/15 , x=1,2,3,4,5 and 0 elsewhere.	AP	4

Qn No.	Question	CL	CO
10	Calculate geometric mean for the following data 125,130,75,10,45,5,0.5,0.4,50,15	AP	3

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) Two manufacturing plants produce similar items. Plant I produces 1,000 items, 100 of which are defective. Plant II produces 2,000 items, 150 of which are defective. An item is selected at random and found to be defective. What is the probability that it come from plant I. OR B) Let X be a continuous random variable with pdf $f(x) = \theta e^{-\theta x}$, x ≥ 0, θ > 0, then find the distribution function of X. hence find P(1<X<5)?	AP	7, 7
12	A) Show by a suitable example that pairwise independence need not imply mutual independence of events. OR B) The scores of two batsmen A and B in eight innings during a certain match are as follows. Batsman A: 10, 12, 80, 70, 60, 100, 0, 4 Batsman B: 8, 9, 7, 10, 5, 9, 10, 8 Analyse which of the two batsman is more consistent	AN	3, 2
13	A) State the addition theorem on probability for two events? Deduce the addition theorem for independent and mutually exclusive events. Also write the addition theorem for three independent events? OR B) a) If P(A) = 7/13, P(B) = 9/13 and P(A∩B) = 4/13, find the value of P(A|B) and P(B|A) . b)Find the probability of getting a sum of 8 when two dice are thrown.	EV	2, 4
14	A) A random variable X has the following probability mass function,	CR	7, 4

Qn No.	Question	CL	CO
	f(x) = k if x=0 = 2k if x=1 = 3k if x=2 = 0 elsewhere (a) Determine the value of k (b) Find (i) P(X<2) (ii) P(X≤2) (iii) P(X= 0) OR B) Create a simple random experiment involving the tossing of dice? List the sample space, identify the sample points, and give examples for events that are: (i) mutually exclusive (ii) equally likely (iii) exhaustive.		