

Reg. No.:



Name:

University of Kerala

U8892

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

STATISTICS

UK2DSCSTA105 - STATISTICAL TOOLS FOR DATA ANALYSIS

Academic Level: 100-199

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	What is the probability of getting head when a fair coin is tossed?	RE	1
2	Give the relationship between covariance and correlation	RE	2
3	Purchasing power of money can be accessed through.....	UN	4
4	The range of variation of Correlation Coefficient is ----	UN	2
5	If the value of correlation coefficient is ± 1 , then the two regression line are	UN	2
6	If 2 coins are tossed, then the sample space is	UN	1

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	Interpret the Correlation Coefficient for -1, 0 and +1	UN	2
8	"The number of patients visiting a hospital per day". Identify the appropriate distribution and write its mean?	UN	1
9	A number is chosen randomly from 1 to 50. Find the probability that it is divisible by 5.	AP	1
10	The two regression lines are $2x+18y = 326$ and $x+2y=33$. Find the regression coefficient of y on x	AP	2

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) Can $Y=5+2.8X$ and $X=3-0.5Y$ be the estimated regression equations of Y on X and X on Y ? explain why? OR B) Calculate the Correlation Coefficient from the following data. X : 9 8 7 6 5 4 3 2 1 Y : 15 16 14 13 11 12 10 8 9	AP	3, 2
12	A)	AN	1, 4

Qn No.	Question	CL	CO
	A student claims that "If two events are independent, they must also be mutually exclusive". Analyze and explain why this statement is incorrect. OR B) Write the considerations in the construction of index numbers		
13	A) For some bivariate data the following results were obtained. Mean value of variable is $\bar{X}=53.2$, and $\bar{y} = 39.5$. Regression coefficient of y on x is -1. And that of x on y is -0.38. Evaluate the most likely value of x when y = 50. Also find the correlation coefficient between the two variables OR B) A company manufactures metal rods with lengths that follow a normal distribution with mean $\mu=50$ cm and variance $\sigma^2=4$ cm². Evaluate whether a randomly selected rod is likely to have a length greater than 54 cm.	EV	2, 1
14	A) A data on advertising spending (x) and product sales (y). Design a linear model to predict product sales. Dataset: (x: 10, 15, 20, 25 ; y: 50, 60, 70, 80). Use regression analysis to build your model and predict sales for x = 30. OR B) Describe a real-world scenario where you would expect to find a strong inverse correlation between two variables. Explain your reasoning. How would you represent such data in a scatter plot? Discuss the value of correlation coefficient in such a scenario?	CR	3, 1