

Reg. No.:



Name:

University of Kerala

U8896

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

STATISTICS

UK2DSCSTA101 - BUSINESS DATA ANALYTICS II

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	The Yule's coefficient of association always lies between _____	RE	5
2	The total area under a normal curve is: Options : A)0 B)1 C)10 D) ∞	RE	4
3	If the class frequency (AB) = 0, the value of Q is equal to:	UN	5
4	If the regression equation for predicting sales from advertising expenditure is $Y=50+X$, what is the predicted sales when the advertising expenditure is Rs.100? Options : A)50 B)150 C)100 D)500	UN	2
5	If A and B are two independent events with $P(A) = 0.4$ and $P(B) = 0.5$, then $P(A B) = \dots$	UN	3
6	Which of the following is NOT a correct property of the normal distribution? Options : A)Continuous distribution B)Mean, median and mode are equal C) Standard deviation is the sole parameter of the distribution D)Unimodal distribution.	UN	4

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	What do you mean by the sample space of a random experiment? Give an example.	UN	3
8	If a Z-score is -1.5 , is the value above or below the mean?	UN	4

Qn No.	Question	CL	CO
9	A random variable X has the following probability mass function. Find the value of k. X: 0, 1, 2, 3, 4 P(x): 0, k, 2k, 3k, 3k	AP	3
10	For two attributes A and B, we have (AB) = 8, (A) = 18, (αB) = 5, and N = 35. Calculate the coefficient of association.	AP	5

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) The distance, in kilometers, travelled to work by the employees of a city council may be modeled by a normal distribution with mean 7.5 and standard deviation 2.5. Find the probability that the distance traveled to work by a randomly selected employee is: (i) less than 11.0 km, and (ii) between 5.5 km and 10.5 km. OR B) Given the following pairs of values. Draw a scatter diagram. Do you think there is any correlation between profits and capital employed? Is it positive or negative? Is it high or low? Capital Employed (Rs. In Crore) : 1 2 3 4 5 7 8 9 11 12 Profit (Rs. In Lakhs): 3 5 4 7 9 8 10 11 12 14	AP	4, 1
12	A) State whether the following probability distributions are admissible: i) X = 0, 1, 2, P(x) : 0.3, 0.2, 0.5 ii) X = -1, 0, 1, P(x) : 0.4, 0.4, 0.3 iii) X = 0, 1, 2, 3, P(x) : -0.2, 0.3, 0.3, 0.1 OR B) Explain the different types of association. Do you observe any association between the temperaments of brothers and sisters in the data provided? Interpret the results. Good natured brothers and good-natured sisters - 1040 Good natured brothers and Sullen sisters - 160 Sullen brothers and good-natured sister - 180 Sullen brothers and Sullen sisters - 120	AN	3, 5

Qn No.	Question	CL	CO
13	A) From the following data, obtain two regression equations and evaluate the value of y when X is 15. X: 6 2 10 4 8 Y: 9 11 5 8 7 OR B) A university awards scholarships to students who score in the top 10% of an entrance exam. The exam scores are normally distributed with a mean of 70 and a standard deviation of 10. Evaluate whether setting the scholarship cutoff at a score of 85 is appropriate. Support your answer with calculations using the standard normal distribution.	EV	2, 4
14	A) Create a problem using a bag with coloured balls:3 red,4 green ,3 blue. Find the probability of drawing a green ball, a red and blue ball. OR B) Create a contingency table for two attributes, X and Y, which demonstrates independence (no association). Calculate Yule's coefficient and explain why the value indicates independence. Then, describe how you would modify the table to show a negative association.	CR	3, 5