

Reg. No.:



Name:

University of Kerala

Y7916

Fourth Semester FYUGP Degree Examination, May 2026

Discipline Specific Core Course

COMMERCE

UK4DSCCOM200 - Business Statistics

Academic Level: 200-299

2024 Admission

Time: 2 Hours(120 Mins)

Max. Marks: 56

**Part A. 6 Marks:Time 5 Minutes.(Cognitive Level :Remember(RE)/Understand(UN)) Objective Type.1 mark each,
Answer all questions**

Qn No.	Question	CL	CO
1	Recognize the measure used to study the relationship between two variables. Options : A)Dispersion B)Correlation C)Tabulation D)Classification	RE	3
2	Identify the index number that satisfies both Time Reversal Test and Factor Reversal Test. Options : A)Marshall Edgeworth B)Laspeyres index C)Paasche index D)Fisher's Ideal index	RE	5
3	Choose the formula used to determine class interval in a frequency distribution. Options : A)(Upper limit + Lower limit)/2 B)Upper limit - Lower limit C)Upper limit + Lower Limit D)Upper limit /Lower Limit	UN	1
4	Interpret the purpose of regression analysis in business statistics. Options : A)To classify data into groups B)To predict the value of one variable based on another C)To measure dispersion in data D)To construct index numbers	UN	3
5	Identify the significance of regression coefficients in regression analysis. Options : A)They measure seasonal variations B)They calculate index numbers C)They indicate the direction and degree of relationship between variables D)They measure skewness in data	UN	3
6	Identify the statistical tool used to compare overall price changes between two years.	UN	4

Qn No.	Question	CL	CO
	Options : A)Correlation B)Regression C)Index numbers D)Dispersion		

Part B. 10 Marks.Time:20 Minutes (Cognitive Level:Understand(UN)/Apply(AP))Two-three sentences.2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Identify the differences between positive correlation and negative correlation with suitable examples.	UN	2
8	State the meaning of measure of dispersion.	UN	2
9	Calculate the Simple Aggregative Price Index Number from the following data taking 2024 as the base year. Price (2024) - 20, 25, 10 Price (2025) - 24, 18, 12	AP	4
10	Apply the regression equation to estimate the value of Y for a given value of X. Given: $Y=5+2X$, Find the value of Y when $X=6$.	AP	3
11	Calculate Spearman's Rank Correlation Co-efficient from the following ranks. Rank in Statistics: 1, 2, 3, 4, 5 Rank in Economics: 2, 1, 4, 3, 5	AP	1

Part C. 16 Marks.Time:35 Minutes.(Cognitive Level :Apply(AP)/Analyse(AN))Short Answer.4 marks each, Answer all 4 questions,choosing among options * within each question

Qn No.	Question	CL	CO
12	A) Calculate Karl Pearson's Co-efficient of Correlation between price and demand from the following data and interpret the relationship between the variables. Price: 10, 12, 14, 16, 18 Demand: 50, 45, 40, 35, 30 OR B) Illustrate how correlation analysis can be applied to study the relationship between income and expenditure with a suitable example.	AP	3, 3

Qn No.	Question	CL	CO												
13	A) Calculate the standard deviation for the given data and interpret the result. <table><tr><td>Class interval</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>Frequency</td><td>5</td><td>8</td><td>12</td><td>10</td><td>2</td></tr></table> OR B) Calculate the coefficient of variation from mean for the following dataset. A: 10, 12, 14, 16, 18	Class interval	0-10	10-20	20-30	30-40	40-50	Frequency	5	8	12	10	2	AP	2, 2
Class interval	0-10	10-20	20-30	30-40	40-50										
Frequency	5	8	12	10	2										
14	A) Analyse the given data and determine the regression equation of y on x using algebraic method from the following: Mean of the series X = 10, Mean of the series Y = 20, $b_{yx} = 2$. OR B) Analyse the relationship between correlation and regression coefficients and explain how changes in one affect the other.	AN	3, 3												
15	A) Examine how the Cost of Living Index helps in comparing the standard of living of people in two different cities using the following data. Commodity – Rice, Milk, Vegetables, Transport Quantity – 10, 5, 8, 6 Price in City A (₹) – 40, 30, 20, 15 Price in City B (₹) – 50, 35, 25, 20 OR B) Examine the significance of index numbers and analyse their role in economic planning and policy formulation.	AN	4, 4												

Part D. 24 Marks. Time: 60 Minutes. (Cognitive Level :Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer 6 Marks each. Answer all 4 questions choosing among options * within each question

Qn No.	Question	CL	CO
16	A)	AN	5, 5

Qn No.	Question	CL	CO																						
	Analyse the relationship between the variables by determining the regression equations of X on Y and Y on X from the following data, and estimate the value of Y when X = 7. X: 2, 4, 6, 8, 10 Y: 5, 7, 9, 10, 12 OR B) Analyse the relationship between income and expenditure by determining the regression equation of Y on X from the following data, and estimate the expenditure when income is 25. X: 10, 15, 20, 30, 40 Y: 12, 18, 25, 35, 45																								
17	A) Evaluate the relationship between age and playing habit of students by calculating Karl Pearson’s coefficient of correlation using the following data, and interpret the result. Age: 17, 18, 19, 20, 21, 22 Number of Students: 25, 20, 15, 12, 10, 6 Number of Regular Players: 20, 15, 10, 8, 6, 3 OR B) Evaluate the relationship between X and Y series by calculating the coefficient of correlation and interpreting the result. <table><tr><td></td><td>X Series</td><td>Y Series</td></tr><tr><td>Number of pairs of observations</td><td>15</td><td>15</td></tr><tr><td>Standard deviation</td><td>3.01</td><td>3.03</td></tr><tr><td colspan="3">Covariance between x and y is 8.13</td></tr></table>		X Series	Y Series	Number of pairs of observations	15	15	Standard deviation	3.01	3.03	Covariance between x and y is 8.13			EV	2, 2										
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Number of pairs of observations	15	15																							
Standard deviation	3.01	3.03																							
Covariance between x and y is 8.13																									
18	A) Evaluate the variability in the following dataset by computing the standard deviation and interpret whether the data shows consistency or dispersion. <table><tr><td>Sl. No</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>Marks</td><td>50</td><td>45</td><td>60</td><td>44</td><td>40</td><td>60</td><td>65</td><td>50</td><td>56</td><td>70</td></tr></table> OR B) Evaluate the variability of the following dataset by calculating the Mean Deviation about Mean and interpret whether the data shows consistency for decision-making purposes.	Sl. No	1	2	3	4	5	6	7	8	9	10	Marks	50	45	60	44	40	60	65	50	56	70	EV	2, 2
Sl. No	1	2	3	4	5	6	7	8	9	10															
Marks	50	45	60	44	40	60	65	50	56	70															

Qn No.	Question								CL	CO
	Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70		
	No. of Students	4	6	10	20	10	6	4		
19	A) Construct Fisher's Ideal Index Number using the following information and verify whether it satisfies the Time Reversal Test. P_0: 20, 30, 25, 40 P_1: 24, 36, 28, 48 Q_0: 40, 35, 50, 20 Q_1: 45, 30, 55, 25 OR B) Design a cost of living index for government employees by constructing a suitable data set, selecting appropriate weights, and outlining the method of calculation.								CR	4, 4