Roll No.												

PRESIDENCY UNIVERSITY
BENGALURU

School of Engineering

Mid - Term Examinations - November 2024

Semester: I
Date: 06-11-2024
Course Code: MAT1003
Time: 09:30am to 11:00am
Course Name: Applied Statistics
Max Marks: 50
Program: B. Tech
Weightage: 25%

Instructions:

(i) Read all questions carefully and answer accordingly.
(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. 5QX2M=10M

1	Define statistics	2 Marks	L1	CO1
2	Define unclassified data	2 Marks	L1	CO1
3	The intelligence quotients (IQs) of 10 boys are 70, 120, 110, 101, 88, 83, 95, 98, 107,100. Find the mean IQ.	2 Marks	L1	CO1
4	Explain dispersion of measures.	2 Marks	L1	CO1
5	Define regression analysis.	2 Marks	L1	CO1

Part B

Answer ALL Questions. Each question carries 10 marks. 4QX10M=40M

6	Define the covariance, correlation, quartile, variance, and coefficient of variation	10 Marks	L3	CO1
	OR			
7	7a. The mean weight of a student in a group of 6 students is 119 lbs. The individual weights of five of them are 115,109, 129, 117 and 114 lbs. What is the weight of the sixth student?	5 Marks	L3	CO1
	7b. Explain the advantages and disadvantages of Arithmetic Mean.	5 Marks		
8	Consider the given data set 15,16, 13, 17, 14 , 12, 11, 18 determine the degree of scatteredness of the data sets	10 Marks	L3	CO1

OR

9 Calculate the regression equations Y on X from the following data: 10 Marks L3 CO1

Marks in Statistics	10	25	13	25	22	11	12	25	21	20
Marks in Mathematics	12	22	16	15	18	18	17	23	24	17

10 Marks

10a. The ranks of the same 15 students in two subjects A and B are given below: The two numbers within the brackets denoting the ranks of the same student in A and B respectively. (1, 10), (2, 7), (3, 2), (4, 6), (5, 4), (6, 8), (7, 3), (8, 1), (9, 11), (10, 15), (11, 9), (12, 5), (13, 14), (14, 12), (15, 13). Use Spearman's formula to find the rank correlation coefficient. 5 Marks L3 CO1

10b. Write down the formula for Spearman Rank correlation and its computations 5 Marks L3

OR

11 Estimate the value of X when Y = 37 10 Marks L3 CO1

X	45	43	46	44	42	40	41
Y	41	39	40	36	38	35	37

10 Marks L3 CO1

12 Consider the following data set:

Marks in Philosophy	18	17	23	22	21	20	19	19	20	21
Marks in History	16	12	20	15	22	15	11	14	19	16

Construct suitable mathematical models to estimate:

i. Marks in philosophy when marks in history is known

ii. Marks in history when marks in philosophy is known

OR

13 Calculate Karl Pearson's coefficient of correlation between the marks secured by 10 students in Statistics and Accountancy (out of 25 marks) and comment on the result. 10 Marks L3 CO1

Marks in Statistics	15	16	20	21	23	25	22	25	19	18
Marks in Mathematics	17	13	18	15	22	17	12	10	18	15