PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date 07-10-2025   **Time:** 09.30am to 11.00am

School: SOCSE	**Program:** B.Tech	
Course Code :CSD1712	**Course Name:** Statistical Foundations of Data Science	
Semester: V	**Max Marks**:50	**Weightage**:25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	26	24			

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.   **5Q x 2M=10M**

1	Define descriptive statistics.	2 Marks	L1	CO1
2	What is a parameter in statistics?	2 Marks	L1	CO1
3	Mention advantages of using surveys as a data collection method	2 Marks	L2	CO1
4	How does polynomial regression differ from linear regression?	2 Marks	L2	CO2
5	Which regression method is best suited when the number of predictors is larger than the number of observations?	2 Marks	L2	CO2

Part B

6.	a.	Explain the difference between descriptive and inferential statistics with examples.	10 Marks	L2	CO1
		Or			
7.	a.	Differentiate between population parameters and sample statistics with examples.	10 Marks	L3	CO1

8.	a.	Discuss graphical summaries: histograms and box plots, with their uses.	10 Marks	L2	CO1
		Or			
9.	a.	Consider the data set: 17, 10, 9, 14, 13, 17, 12, 20, 14 Find Mean,Median,Mode and Varience	10 Marks	L5	CO1

10.	a.	Explain the difference between simple linear regression, polynomial regression, and multiple regression with examples.	10 Marks	L2	CO2
		Or			
11.	a.	Fit quadratic model $Y=\beta_0+\beta_1X+\beta_2X^2$ (Polynomial) using points (1,2), (2,6), (3,12)	10 Marks	L5	CO2

12.	a.	What is spline regression? Explain its working with advantages.	10 Marks	L2	CO2
		Or			
13.	a.	Compare Lasso regression (L1) and Ridge regression (L2)	10 Marks	L4	CO2