Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

School of Information and Science

Mid - Term Examinations - November 2024

Semester: III

Date: 07-11-2024

Course Code: CSA3002

Time: 02.00pm to 03.30pm

Course Name: Machine Learning Algorithms

Max Marks: 50

Program: BCA/BSD

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	Name any 2 common techniques used for Data transformation.	2 Marks	L1	CO1
2	What is a sigmoid function?	2 Marks	L1	CO1
3	List the types of regression.	2 Marks	L1	CO1
4	List any 2 benefits of Dimensionality reduction with PCA.	2 Marks	L1	CO2
5	List 3 main types of ensemble methods.	2 Marks	L1	CO2

Part B

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

6	**a.**	Define supervised learning?	2 Marks	L1	CO1
	b.	Explain the steps in PCA computation?	3 Marks	L2	CO1
	c.	Elaborate on the concept of ensemble methods and why they are used to improve machine learning models.	5 Marks	L3	CO1

Or

7	**a.**	Define unsupervised learning?	2 Marks	L1	CO1
	b.	Explain Random Forest algorithm and how it employs bagging with decision trees.	3 Marks	L2	CO1
	c.	Write code for creating a Linear Regression model.	5 Marks	L3	CO1
8	**a.**	Define binning method?	2 Marks	L1	CO1
	b.	Outline the major tasks in data preprocessing?	3 Marks	L2	CO1
	c.	Write code for creating a Logistic Regression model.	5 Marks	L3	CO1

Or

9	**a.**	List two methods to handle noisy data?	2 Marks	L1	CO1
	b.	Explain how to handle missing data?	3 Marks	L2	CO1
	c.	Write code to split the data x, y using train_test_split function. Split the data with 80% for training and 20% for testing.	5 Marks	L3	CO1
10	**a.**	Why is feature selection important?	2 Marks	L1	CO2
	b.	Explain two different filter methods in feature selection techniques?	3 Marks	L2	CO2
	c.	Write code using SimpleImputer class to fill the missing values using mean value.	5 Marks	L3	CO2

Or

11	**a.**	What are the three common categories of feature selection techniques?	2 Marks	L1	CO2
	b.	Explain two different wrapper methods in feature selection techniques?	3 Marks	L2	CO2
	c.	Write down the code for min-max scaling.	5 Marks	L3	CO2
12	**a.**	Define oversampling and undersampling?	2 Marks	L1	CO2
	b.	Explain two different embedded methods in feature selection techniques?	3 Marks	L2	CO2

	c.	Write code for Recursive Feature Elimination.	5 Marks	L3	CO2
		Or			
	a.	List the different types of sampling techniques.	2 Marks	L1	CO2
13	**b.**	Explain any two sampling techniques.	3 Marks	L2	CO2
	c.	Write down the code for Z-score Normalization.	5 Marks	L3	CO2