Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Make Up Examinations – December 2025

Date: 26 – 12- 2025 **Time:** 9:30am – 12:30pm

School: SOIS	**Program:** BCA/BSD	
Course Code: CSA3002	**Course Name:** Machine Learning Algorithms	
Semester: MK	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	26	26	24	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. **10Q x 2M=20M**

1	Define machine learning.	**2 Marks**	**L1**	**CO1**
2	Outline bias and variance.	**2 Marks**	**L1**	**CO1**
3	Recall the importance of feature selection.	**2 Marks**	**L1**	**CO1**
4	State variance threshold and its use.	**2 Marks**	**L1**	**CO2**
5	Describe measuring the performance of a machine learning model.	**2 Marks**	**L1**	**CO2**
6	Discuss SMOTE.	**2 Marks**	**L2**	**CO2**
7	Identify any two challenges in Object Recognition.	**2 Marks**	**L1**	**CO3**
8	Define the terms i) Support Count ii) Confidence.	**2 Marks**	**L1**	**CO3**
9	What is transfer learning?	**2 Marks**	**L1**	**CO4**
10	When should you use data augmentation?	**2 Marks**	**L1**	**CO4**

Part B

Answer the Questions **Total 80 Marks.**

11.	**a.**	Describe dimensionality reduction? Why it is important.	**4 Marks**	**L1**	
	b.	Interpret any two applications of machine learning?	**6 Marks**	**L3**	**CO1**
	c.	Explain Linear Regression in detail.	**10 Marks**	**L2**	
		Or			
12.	**a.**	List the chronological order of machine learning algorithms.	**4 Marks**	**L1**	
	b.	Discuss briefly the feature selection techniques.	**6 Marks**	**L2**	**CO1**
	c.	Explain logistic regression in detail.	**10 Marks**	**L2**	
13.	**a.**	List the steps followed in computing principal component analysis.	**4 Marks**	**L1**	
	b.	Explain undersampling and oversampling techniques.	**6 Marks**	**L2**	**CO2**
	c.	Explain any two feature selection techniques in detail.	**10 Marks**	**L2**	
		Or			
14.	**a.**	Explain the working principle of lasso regularization techniques.	**4 Marks**	**L2**	
	b.	Discuss overfitting and underfiting with respect to machine learning model.	**6 Marks**	**L2**	**CO2**
	c.	Explain any two sampling techniques in machine learning.	**10 Marks**	**L2**	
15.	**a.**	What is Apriori algorithm?	**4 Marks**	**L1**	
	b.	Summarize the major tasks involved in data cleaning.	**6 Marks**	**L2**	**CO3**
	c.	Discuss in detail the steps to build Machine Learning Model.	**10 Marks**	**L2**	
		Or			
16.	**a.**	Differentiate between object recognition and object classification.	**4 Marks**	**L1**	
	b.	State the difference between Object Recognition and Object Classification.	**6 Marks**	**L2**	**CO3**
	c.	List in detail steps for hand written digits recognition using MNIST dataset.	**10 Marks**	**L2**	

17.	**a.**	Outline the advantages of Ensemble Methods?	**4 Marks**	**L1**	**CO4**
	b.	List any five applications of Image Classification.	**6 Marks**	**L2**	
	c.	Explain how the YOLO architecture performs object detection.	**10 Marks**	**L2**	

Or

18.	**a.**	Describe ResNet-50.	**4 Marks**	**L1**	**CO4**
	b.	Explain the concept of Bagging using Random Forest with a neat diagram.	**6 Marks**	**L2**	
	c.	Explain the difference between content-based and collaborative filtering recommendation systems.	**10 Marks**	**L2**	

***** BEST WISHES *****