PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 09 – 12- 2025   **Time:** 09:30am – 12:30pm

School: SOIS	**Program:** Master of Application (MCA)
Course Code: CSA4009	**Course Name:** Artificial Intelligence and Machine Learning
Semester: III	**Max Marks**: 100 **Weightage**: 50%

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

1.	What is Big Data? Give one example.	2 Marks	L2	CO1
2.	Define standard deviation and its importance in AI.	2 Marks	L2	CO1
3.	What are the ethical issues associated with AI?	2 Marks	L2	CO1
4.	What is Analysis of Variance (ANOVA) used for?	2 Marks	L3	CO2
5.	Define p-value in the context of hypothesis testing.	2 Marks	L3	CO2
6.	What is K-Nearest Neighbor (KNN) algorithm?	2 Marks	L3	CO3
7.	What is an ensemble method in ML?	2 Marks	L3	CO3
8.	What is the main difference between Random Forest and Boosting?	2 Marks	L3	CO3
9.	Define AR (Auto-Regressive) model.	2 Marks	L3	CO4
10.	What is the difference between AR and ARMA models?	2 Marks	L3	CO4

Part B

Answer the Questions.   **Total Marks 80M**

11.	a.	Define Artificial Intelligence and explain its main goals.	20 Marks	L2	CO1
	b.	Discuss the historical evolution and major milestones of AI.		L2	CO1
	c.	Describe modern trends shaping the future of AI.		L2	CO1
		Or			
12.	a.	Explain the main components of an AI system.	20 Marks	L2	CO1
	b.	Discuss the major applications of AI in healthcare, education, and transportation.		L2	CO1
	c.	Write a short note on the impact of AI on employment.		L2	CO1
13.	a.	What are expert systems? Explain their architecture	20 Marks	L2	CO1
	b.	Discuss the rise and fall of expert systems in detail.		L2	CO1
	c.	Mention two modern AI techniques that replaced expert systems		L2	CO1
		Or			
14.	a.	Define supervised learning and list its types.	20 Marks	L3	CO2
	b.	Explain the difference between supervised and unsupervised learning with examples.		L3	CO2
	c.	Discuss real-life applications of supervised learning.		L3	CO2
15.	a.	What are the main steps in the ML framework?	20 Marks	L3	CO2
	b.	Explain model training, testing, and validation phases.		L3	CO2
	c.	Describe the importance of evaluation metrics in supervised learning.		L3	CO2
		Or			
16.	a.	Explain decision tree classification	20 Marks	L3	CO3
	b.	List the advantages of classification trees.		L3	CO3
	c.	Discuss limitations of classification trees.		L3	CO3
17.	a.	Define clustering.	20 Marks	L3	CO4
	b.	Explain types of clustering algorithms with examples.		L3	CO4
	c.	Compare supervised and unsupervised learning.		L3	CO4
		Or			
18.	a.	What is K-means clustering?	20 Marks	L3	CO4
	b.	Explain its algorithm with a step-by-step example.		L3	CO4
	c.	Mention its advantages and disadvantages.		L3	CO4