23DAU526N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch - **COMPUTER SCIENCE WITH DATA ANALYTICS**

MACHINE LEARNING

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which is a challenge in machine learning? a) Data quality issues b) Clear rules always available c) No need for data d) Deterministic outputs only	K1	CO1
	2	Identify which type of learning uses labeled data. a) Reinforcement learning b) Supervised learning c) Unsupervised learning d) Evolutionary learning	K2	CO1
2	3	Cross-validation is mainly used for____ a) Improving data storage b) Evaluating model performance c) Ignoring missing data d) Increasing data collection	K1	CO2
	4	Explain which method is generally used for improving a model's performance in machine learning. a) Reducing the dataset size b) Adding noise to the data c) Ignoring overfitting issues d) Hyper parameter tuning and feature selections	K2	CO2
3	5	Which algorithm is used for classification tasks? a) Decision Tree b) Linear Regression c) K-Means d) PCA	K1	CO3
	6	Show the main use of Logistic Regression. a) Binary classification b) Multi-class clustering c) Regression line fitting d) Feature extraction	K2	CO3
4	7	Which of the following is an unsupervised learning task? a) Classification b) Clustering c) Regression d) Reinforcement	K1	CO4
	8	Infer in which technique, the vanishing gradient problem occurs. a) Deep neural networks b) Decision trees c) Clustering d) Linear regression	K2	CO4
5	9	Which algorithm is an instance-based learner? a) k-NN b) Random Forest c) Logistic Regression d) Naive Bayes	K1	CO5
	10	Discuss the use of Regularization in machine learning. a) Prevent overfitting b) Increase model complexity c) Reduce data preprocessing d) Eliminate supervised learning	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL Marks** (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Examine the applications of machine learning.	K4	CO1
		(OR)		
	11.b.	Determine the difference between data quality and remediation.		
2	12.a.	Explain how to train a model for supervised learning.	K4	CO2
		(OR)		
	12.b.	Illustrate how to evaluate performance of a model.		
3	13.a.	Summarize the concept of classification model with example.	K5	CO3
		(OR)		
	13.b.	Evaluate the salient features of k -Nearest Neighbour (kNN).		
4	14.a.	Explain the applications of unsupervised learning.	K5	CO4
		(OR)		
	14.b.	Prescribe the steps to find patterns using association rule.		
5	15.a.	Compare the supervised neural networks and multilayer perceptron.	K6	CO5
		(OR)		
	15.b.	Categorize the types of active learning query strategies.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the different types of machine learning.	K4	CO1
2	17	Explain how to improve the performance of a model.	K4	CO2
3	18	Compare the simple linear regression and multiple linear regression.	K5	CO3
4	19	Demonstrate the different types of activation functions with example.	K5	CO4
5	20	Generalize the implementation of ensemble learning algorithm.	K6	CO5

Z-Z-Z END