

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION MAY 2024
(Second Semester)**

Branch – COMPUTER SCIENCE

**MAJOR ELECTIVE COURSE – I:
MACHINE LEARNING AND APPLICATIONS**

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	What is the application of machine learning methods to a large database called? a. Big Data Computing b. Data Mining c. Artificial Intelligence d. Internet of Things	K1	CO1
	2	Among the following option identify the one which is not a type of learning? a. Semi unsupervised learning b. Supervised learning c. Unsupervised learning d. Reinforcement learning	K2	CO1
2	3	Choose a disadvantage of decision trees among the following. a. Decision trees are robust to outliers b. Factor analysis c. Decision trees are prone to overfit d. All of the above	K1	CO2
	4	Among the following options identify the one which is false regarding regression. a. It is used for the prediction b. It is used for interpretation c. It relates inputs to outputs d. It discovers casual relationships	K2	CO2
3	5	The goal of clustering is to- a. Divide the data points into groups b. Classify the data point into different classes c. Predict the output values of input data points d. All of the above	K1	CO3
	6	The final output of Hierarchical clustering is- a. The number of cluster centroids b. The tree representing how close the data points are to each other c. A map defining the similar data points into individual groups d. All of the above	K2	CO3
4	7	Reinforcement learning is a ____ a. Prediction-based learning technique b. Feedback-based learning technique c. History results-based learning technique d. None of the above	K1	CO4
	8	What is the purpose of the K-Nearest Neighbors (KNN) algorithm? a. Clustering data into k groups b. Predicting a continuous output c. Classifying data based on its neighbors d. Reducing the dimensionality of features	K2	CO4

Cont...

5	9	What is a technique used in machine learning to evaluate the performance of a model on unseen data? a. Cross validation b. Randomization c. Replication d. Blocking	K1	CO5
	10	Bootstrapping allows us to a. choose the same training instance several times b. choose the same test set instance several times c. build models with alternative subsets of the training data several times d. test a model with alternative subsets of the test data several times	K2	CO5

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.	Compare Model Selection and Generalization in Supervised learning.	K2	CO1
	(OR)			
	11.b.	Explain the different machine learning applications with suitable examples.		
2	12.a.	Identify the losses and risks of Bayesian Decision theory.	K3	CO2
	(OR)			
	12.b.	Organize the Classification Trees.		
3	13.a.	Analyze the K-means Clustering.	K3	CO3
	(OR)			
	13.b.	Build a Model selection in HMM.		
4	14.a.	Explain the elements of reinforcement learning.	K5	CO4
	(OR)			
	14.b.	Assess the combining of multiple learners.		
5	15.a.	Justify the importance of Cross Validation and its methods.	K5	CO5
	(OR)			
	15.b.	Explain about Factors, Response and Strategy of Experimentation.		

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	Identify the Dimensions of Supervised Machine Learning Algorithm.	K3	CO1
2	17	Compare Regression Trees and Univariate Trees.	K2	CO2
3	18	Categorize Hierarchical Clustering and its types.	K4	CO3
4	19	Elaborate Bagging and Boosting.	K6	CO4
5	20	Propose the Guidelines for Machine Learning Experiments.	K6	CO5