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Total No. of Pages : 02

Total No. of Questions : 09

BCA (Sem.-6)
MACHINE LEARNING

Subject Code : UGCA1950

M.Code : 91697

Date of Examination : 22-05-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Answer briefly :

- a) List some real-world application of machine learning.
- b) Significance of Gradient Descent in Machine Learning.
- c) What is decision tree?
- d) Define false positive and false negative for classification problem.
- e) What is hierarchical clustering?
- f) Define Reinforcement learning.
- g) What is Naïve Bayes Classifier?
- h) What is Exploitation Dilemma in Reinforcement learning?
- i) What is importance of hyperparameter optimization?
- j) What are Q values?

SECTION-B

2. Explain the Machine Learning process flow with a real-world example.
3. Discuss Support Vector Machines (SVM) with an example and explain how they separate data points?
4. Explain Hierarchical Clustering with its working mechanism and how it differs from K-means clustering?
5. Discuss the role of a values in Reinforcement Learning and their impact on learning rate.
6. Define the Markov Decision Process (MDP) and describe its key components.

SECTION-C

7. Compare and contrast different types of Machine Learning (Supervised, Unsupervised, and Reinforcement Learning) with suitable examples.
8. Discuss Decision Trees, Random Forest and Naïve Bayes classifiers in terms of their advantages, disadvantages and real-world applications.
9. **Write a short note on :**
 - a) Grid Search VS Random Search.
 - b) C Means algorithm.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.