

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.-6)
MACHINE LEARNING
Subject Code : UGCA-1950
M.Code : 91697
Date of Examination : 08-07-22

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 **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

SECTION-A

1. Write briefly :

- a. Describe any machine learning task by stating the task, performance measure, and training experience. Also, propose a target function to be learned and a target representation.
- b. Differentiate between supervised learning and reinforcement learning with the help of suitable examples.
- c. What do you mean by loss function? What is the importance of loss function in gradient descent?
- d. Define entropy and information gain. How are these used in the process of classification using decision trees?
- e. Differentiate between linear and non-linear support vector machine. What is a hyperplane?
- f. In K-means clustering, what does K represent? How is the value of K decided?
- g. Describe the working of fuzzy C-means clustering with the help of an example.
- h. What do you mean by precision and recall?
- i. Explain the value based, policy based and model based approaches to reinforcement learning.
- j. What is overfitting? Discuss its causes.

SECTION-B

2. What are hyperparameters in machine learning models? Write a detailed note on hyperparameter optimization with random search and grid search.
3. Discuss the working of Support Vector Machine in detail. List the advantages, disadvantages and applications of this technique.
4. Write down the algorithm for K-means clustering. Explain how this technique is different from fuzzy C-means clustering.
5. Define a well-posed machine learning problem. Discuss the limitations of machine learning. Which type of machine learning technique would be appropriate for predicting prices of houses, given the dataset regarding square footage, number of rooms, whether a house has a garden or not, and so on?
6. Write a detailed note on reinforcement learning. Explain the Q-learning algorithm with the help of an example.
7. Describe the working of hierarchical agglomerative clustering with the help of an example. What is the significance of a dendrogram and how it is used?

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