Roll No. Total No. of Pages: 02

Total No. of Questions: 07

BCA (Sem.-6)
MACHINE LEARNING
Subject Code: UGCA1950

M.Code: 91697

Date of Examination: 07-01-2023

Time: 3 Hrs. Max. Marks: 60

## **INSTRUCTIONS TO CANDIDATES:**

- 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. Give three computer applications for which machine learning approaches seem appropriate and three for which they seem inappropriate. Include justification for each.
- b. Differentiate between unsupervised learning and reinforcement learning with the help of suitable examples.
- c. Write a short note on Markov Decision Process.
- d. What is a random forest? Discuss the applications of the random forest algorithm.
- e. Define a confusion matrix. How is it used in the evaluation of a machine learning based classification?
- f. Describe the working of agglomerative clustering with the help of an example.
- g. In K-means clustering, what does K represent? How is the value of K decided?
- h. Explain the elements of reinforcement learning. What are the challenges in reinforcement learning?
- i. List the differences between grid search and random search in hyperparameter optimization.
- j. Explain, the process of kernelling in support vector machine.

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## **SECTION-B**

- 2. Explain the various steps of machine learning process in detail. Highlight the significance of data preprocessing.
- 3. Explain the process of linear regression. State the cost function used in this process. How is gradient descent used in linear regression?
- 4. Discuss the working of Naive Bayes classifier in detail. List the advantages and disadvantages of this technique.
- 5. Write down the algorithm for fuzzy C-means clustering. Explain how this technique is different from K-means clustering?
- 6. What is the exploration-exploitation tradeoff in reinforcement learning? How is Epsilon Greedy policy used to choose between exploration and exploitation?
- 7. How are Decision Trees used for classification? Explain the steps of constructing a decision tree with the help of an example.

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.

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