Roll No.						

Total No. of Pages : 02

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# B.Sc.(IT) (Sem.-6) MACHINE LEARNING Subject Code : UGCA-1950 M.Code : 91736 Date of Examination : 14-07-22

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. What is the importance of machine learning in present time? List the challenges in this field.
- b. Given a dataset of patients diagnosed as either having diabetes or not, which machine learning technique would you use to tag new patients as having diabetes or not, classification or clustering?
- c. What is a decision tree? How it is used in machine learning?
- d. What is the difference between normalization and standardization? Explain.
- e. List various metrics that are used to evaluate the performance of machine learning algorithms.
- f. Write a short note on epsilon greedy algorithm.
- g. Discuss the various types of clustering techniques used in machine learning.
- h. Highlight the challenges faced in reinforcement learning.
- i. What is the use of loss function in gradient descent?
- j. What is learning rate? How it is used in reinforcement learning?

## **SECTION-B**

- 2. How are entropy, information gain and Ginni index used in decision trees? "*Entropy measures homogeneity of examples*." Comment.
- 3. Explain the Support Vector Machine algorithm with the help of an example. How is SVM used to classify non-linearly separated data?
- 4. Explain the machine learning process with the help of a diagram. Present any two use cases of machine learning in real life.
- 5. What are the various types of machine learning based classification algorithms? Explain the algorithm of Naive Bayes classifier in detail.
- 6. What is reinforcement learning? How it is different from other approaches of machine learning? Discuss the Maricov Decision Process in detail.
- 7. Explain the working of hierarchical clustering. How it is different from density based and partitioning based clustering techniques?

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.