Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

B.Sc. (IT) (Sem.–6th)

MACHINE LEARNING

Subject Code : UGCA1950

M.Code : 91736

Date of Examination : 07-01-2023

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. List the reasons behind the popularity of machine learning in recent times. Discuss some application areas of machine learning.

b. How is classification different from clustering? Explain with the help of examples.

c. How is the performance of machine learning techniques evaluated?

d. What is the difference between entropy and information gain?

e. What is the importance of feature selection in machine learning? How is it different from feature extraction?

f. Write a short note on Naive Bayes classifier.

g. Explain various types of classification techniques used in machine learning.

h. Discuss **any two** real life applications of reinforcement learning.

i. Differentiate between unsupervised learning and supervised learning with the help of suitable examples.

j. What is the purpose of kernelling in support vector machine?

SECTION-B

2. Explain the working of the machine learning process in detail. Discuss various metrics that are used to evaluate the performance of machine learning algorithms.

3. What are the various types of machine learning based clustering algorithms? Explain the algorithm of K-means clustering in detail.

4. Write down the algorithm of linear regression. Discuss **any two** use cases of machine learning based linear regression.

5. Explain the process of construction of decision trees. What is a perfect decision tree? Give example.

6. Discuss the significance of optimization in machine learning. List the differences between grid search and random search methods of hyperparameter optimization.

7. Write a detailed note on the components of reinforcement learning. What are Q values and V values? How are they used?

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.