

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Information Technology) (Sem.-6)

MACHINE LEARNING

Subject Code : BTIT 608-18

M.Code : 79627

Date of Examination : 11-07-22

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 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 the following questions :

- i. What is a well posed learning problem? Present the checkers game learning problem as a well posed problem.
- ii. What is positive reinforcement and negative reinforcement? Explain with example.
- iii. How does Random Forest algorithm work?
- iv. Discuss the need of data integration in a machine learning process.
- v. List the metrics used to evaluate the performance of a linear regression model.
- vi. Define precision and recall. How are these calculated?
- vii. What is the purpose of an activation function in a neural network?
- viii. State the cost function used in logistic regression.
- ix. What is an association rule? Explain with the help of example.
- x. Write down the steps of Naïve Bayes classifier.

SECTION-B

2. What is a decision tree? How is Gini index used as attribute selection measure in the decision tree algorithm? Explain.
3. Write a detailed note on the architecture of an artificial neural network. Explain the process of forward propagation.
4. Explain various steps of a machine learning process. Discuss the significance of data preprocessing in particular.
5. How is simple linear regression used to model the relationship between a dependent variable and independent variable? What is the role of gradient descent in this process?
6. Write a note on feature scaling. Differentiate between normalization and standardization.

SECTION-C

7. Write a detailed note on Support Vector Machine. List the steps of the algorithm. How is kernelling used in SVM?
8. Discuss the phases of using the genetic algorithm as a heuristic search algorithm to solve optimization problems. Explain the general workflow of genetic algorithm with the help of a flowchart.
9. What are the various types of regression techniques used in machine learning? Discuss the applications of each. Differentiate between machine learning based regression and classification.

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.