

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Artificial Intelligence & Machine Learning)(Sem.-6)

MACHINE LEARNING

Subject Code : BTCS-619-18

M.Code : 93666

Date of Examination : 26-11-2025

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. Answerbriefly :

- a) What is unsupervised learning?
- b) Write a short note on reinforcement learning.
- c) What role does data integration plays in data pre-processing?
- d) Explain the purpose of data reduction during data pre-processing.
- e) What is the significance of the correlation co-efficient in regression analysis?
- f) How is it determined whether a regression model is a good fit for the data?
- g) Discuss briefly two metrics used for the evaluation of a classification model.
- h) Discuss the various applications of clustering.
- i) Differentiate between mutation and elitism.
- j) What is the need of association rule learning?

SECTION-B

2. What is the ANN? Explain any three activation functions used in NN.
3. Differentiate between standardisation and normalization. Explain different scenarios when each is preferred over the other.
4. Differentiate between Simple linear regression and Multiple linear regression. Discuss scenarios where each might be more suitable.
5. Explain the K-Nearest Neighbours (K-NN) algorithm in classification. How does it classify data points and what are the factors to consider when choosing the value of K?
6. Describe the basic structure of a neural network and explain how does the data flows through the network during training and prediction?

SECTION-C

7. What is Performance analysis? Discuss the various metrics to evaluate the performance of a regression model discussing the advantages and limitations of each.
8. Explain in detail the split algorithm based on information theory in the context of tree induction. Also, discuss key metrics used for measuring information gain.
9. What is the need of data preprocessing? Discuss the various data preprocessing methods.

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.