46308

BT-6/M-23

APPLIED MACHINE LEARNING

Paper : PC-CS-AIML-304A

Time : Three Hours]   [Maximum Marks : 75

Note : The students are required to attempt *five* questions in all, selecting atleast *one* question from each unit.

UNIT–I

1. Discuss the need of data representation in machine learning algorithms. Elaborate the concept of basic linear algebra for machine learning techniques.   (5+10)

2. Discuss various assessing metrics for linear regression. Discuss the concept of validation in machine learning algorithms with the help of suitable examples. Discuss the training, validation and testing set distribution.   (5+5+5)

UNIT–II

3. Discuss and differentiate between linear and logistic regression. Discuss the gradient descent method for learning in detail.   (7+8)

4. Discuss the classification problem in machine learning. Discuss the random forest method of classification. Differentiate between classification and regression.   (5+5+5)

UNIT—III

5. Discuss the k-nearest neighbor algorithm detail. Discuss the feature selection and feature transformation methods in detail. (7+8)

6. Discuss the concept of SVM learning model in detail. Discuss the methodology to convert multiclass classification problem into binary classification. (8+7)

UNIT—IV

7. Write short note on : (3x5)
   (a) K - means clustering.
   (b) EM algorithm.
   (c) Principal component analysis.

8. Discuss the principle of unsupervised learning. Discuss the need and method of dimension reduction in machine learning. Discuss the principal component analysis for attribute reduction method. (5+5+5)