R20

SET - 1

III B. Tech I Semester Supplementary Examinations, May/June -2024
MACHINE LEARNING
CSE(AIML),CSE(AI),CSE(DS),CSE(AIDS),AIDS,AIML

Time: 3 hours   Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1. a) What are the different methods for estimating risk measures? Explain. [7M]
    b) Write a short note on the Empirical Risk Minimization (ERM) principle. [7M]

(OR)

2. a) What is Training and Test Loss in Statistical Learning? Explain. [7M]
    b) Compare Supervised and unsupervised learning mechanisms. [7M]

UNIT-II

3. a) Explain indetail about Logistic Regression. [7M]
    b) Whatis Multiclass classification? Compare Multiclass Classification with Binary classification. [7M]

(OR)

4. a) Explain how the MNIST dataset is used in Binary classification. [7M]
    b) Describe the K-Nearest Neighbor algorithm with an example. [7M]

UNIT-III

5. a) Write short notes on the Voting classifier of Ensemble Learning. [7M]
    b) Discuss in detail about Ensemble methods of Bagging and Pasting. [7M]

(OR)

6. a) Write short notes on Boosting and stacking. [7M]
    b) "Random Forest is an ensemble of Decision Trees, generally trained via the bagging method" Justify the statement. [7M]

UNIT-IV

7. a) With a diagram explain Bayesian Gaussian Mixture Model. [7M]
    b) Define Clustering. What are the applications of Clustering and how it is different from classification. [7M]

(OR)

8. a) Discuss how Clustering is used for Semi-Supervised Learning. [7M]
    b) Explain the following [7M]
       (i). Accelerated K-Means
       (ii). Mini-batch K-Means

UNIT-V

9. a) Demonstrate the Backpropagation algorithm in multi-layer perceptron. [7M]
    b) Illustrate how multi-layer perceptron is used for classification task. [7M]

(OR)

10. a) Illustrate the steps of building a simple image classifier using Keras sequential API. [7M]
    b) Explain how data can be processed using the Data API. [7M]

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