CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - November- 2024
INTRODUCTION TO PREDICTIVE ANALYTICS
(AI&DS)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) Label the equation of the linear regression model. [2M]
   b) State the problems associated with perceptron learning algorithm. [2M]
   c) How to calculate Bias? [2M]
   d) Show the general form of the in-sample estimates. [2M]
   e) Differentiate gradient boosting and AdaBoost. [2M]
   f) Mention the gradients for commonly used loss functions. [2M]
   g) Why are weights required in neural network model? [2M]
   h) Define support vector machine. [2M]
   i) Provide the mechanism to choose number of clusters. [2M]
   j) Summarize the features of principal components. [2M]

PART-B   (50 Marks)

2. Examine the approaches for variable subset selection with linear regression. [10M]

   OR

3. Outline the strategy of multiple regression from Simple univariate regression. [10M]

4. Illustrate the cross-validation method for estimating the prediction error . [10M]

   OR

5. Analyze the role of bootstrap as a general tool for assessing statistical accuracy. [10M]

6. Inspect the methodology of numerical optimization via gradient boosting. [10M]

   OR

7. Describe a modular algorithm for fitting additive models and their generalization. [10M]

8. Interpret various issues in training the neural networks. [10M]

   OR

9. Choose a suitable case study and apply the technique of K-nearest-neighbor Classifiers. [10M]

10. Demonstrate the functionality of the Apriori algorithm. [10M]

    OR

11. Assess the mechanisms at play with the additional randomization employed by random forests. [10M]

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