

**R18**

**Code No: 157HM**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year I Semester Examinations, February - 2025**

**PREDICTIVE ANALYTICS**

**(Computer Science and Engineering – Data Science)**

**Time: 3 Hours**

**Max.Marks:75**

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A**

**(25 Marks)**

- 1.a) What is residual in linear regression? [2]
- b) Give applications of multiple regression. [3]
- c) What is variance? [2]
- d) How to compute training error of a model? [3]
- e) What are the merits of C4.5? [2]
- f) Give example for multiclass classification problem. [3]
- g) State delta rule. [2]
- h) What is radial basis function network? [3]
- i) What is meant by out of bag samples? [2]
- j) What is the use of market basket analysis? [3]

**PART – B**

**(50 Marks)**

2. Explain linear discriminant analysis as a data reduction technique for supervised learning. [10]

**OR**

3. Make a comparison of ridge regression and lasso regression with the help of suitable data. [10]

- 4.a) How log-likelihood is used as a loss-function?
- b) Illustrate the behaviour of bias and variance in regression models. [5+5]

**OR**

5. Compare and contrast Akaike information criteria with Bayesian information criteria. [10]

6. Describe Local Scoring Algorithm for the Additive Logistic Regression Model. [10]

**OR**

7. How can AdaBoost increase the performance of a very weak classifier? Explain with illustrations. [10]

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8. Explain the back propagation algorithm for fitting a neural network as a classifier model. [10]

QA QA QA QA OR QA QA QA G

9.a) Illustrate SVM-radial kernel.

b) What are the limitations of kNN classifier? [5+5]

10. Describe kernel principal component analysis and its advantages over PCA. [10]

OR

11. Analyze the effect of tree size, variance and de-correlation effect on Random forest. [10]

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