CBCS SCHEME

21AI743

USN | | | | | | | | | | |

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026

Predictive Analytics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-1

1 a. What is predictive analytics and how it is used in different industries? (10 Marks)

b. Illustrate that businesses use predictive analytics to enhance marketing strategies. (10 Marks)

OR

2 a. Explain the propensity models. (10 Marks)

b. How can predictive analytic help with fraud detection? (10 Marks)

Module-2

3 a. Explain regression analysis with examples. (10 Marks)

b. Discuss the empirical Bayes method in detail with its applications. (10 Marks)

OR

4 a. Explain the role of Artificial Neural Network in predictive analytics. (10 Marks)

b. Explain supervised learning, unsupervised learning and Reinforcement learning. (10 Marks)

Module-3

5 a. Explain the data transformation: Centering, Scaling and Skewness transformation. (10 Marks)

b. Illustrate the problem of over – fitting with suitable examples. (10 Marks)

OR

6 Perform the principal component analysis for the data given.

X	Y
126	78
128	80
128	82
130	82
130	84
132	86

(20 Marks)

Module-4

7 The goal is to predict a tree's height measuring a tree's height is not easy, whereas one can easily measure the diameter of a tree. Predict the height (y) of the tree if tree diameter is x = 21.5 cm using simple regression also calculate correlation coefficient RMSE, MSE for the regression model developed.

X cm Tree dia	Y m height
18.9	20
15.5	16.8
19.4	20.2
20	20
29.8	20.2
19.8	18
20.3	19.2

(20 Marks)

OR

8 Demonstrate the effectiveness of Neural network in predictive analytics with principle of operation, weight upgrade role of hidden layers. **(20 Marks)**

Module-5

9 a. Demonstrate the effectiveness of logistic Regression with examples. **(10 Marks)**
b. Discuss the linear discriminate analysis for prediction. **(10 Marks)**

OR

10 a. Employ K – nearest neighbors algorithm for classification. **(10 Marks)**
b. Construct Random forest algorithm for classification with examples. **(10 Marks)**

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