Name of the program: B.Tech in IT   Academic year: 2025-26   Year & Semester   :   IV-I
Name of the Course: ML   Name of the Exam   : C.T-II
Day to Day Assessment weightage**: 100%**   MaxMarks **:30M**   Date: 02.01.2026

Course outcome: **D23C311.2-** Apply various Nearest Neighbor-Based models for classification and regression

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1. Explain Radius Distance Nearest Neighbor Algorithm with a neat sketch of working flowchart.

    D23C311.2-Understanding-PO2-10M

2. Suppose you are given a dataset consisting of 5 data points, each with 2 features (x and y), and labeled as either "positive" or "negative". You want to use the k nearest neighbor algorithm to classify a new data point with features (3,4) as either "positive" or "negative", using Euclidean distance as the distance metric.

The 5 data points and their corresponding labels are:

   Data point 1: (1,2), label "negative"

   Data point 2: (3,5), label "positive"

   Data point 3: (2,1), label "negative"

   Data point 4: (4,6), label "positive"

   Data point 5: (5,3), label "positive"

What would be the predicted label for the new data point if k=1, k=3, and k=5?

   D23C311.2-Applying-PO3-10M

3. Discuss the Performance measures of Classifiers Algorithms. Explain Distance Measures and Different

Classification Algorithms Based on the Distance Measures

   D23C311.2-Understanding-PO2-10M

Scheme of evaluation:

1. Radius Distance Nearest Neighbor

   Definition & Concept: 4M (BTL-2)

   Neat Sketch of working flowchart: 3M (BTL-2)

   Algorithm Steps: 3M (BTL-2)

2. KNN Calculation (k=1, 3, 5)

   Distance Calculations: 4M (BTL-3)

   Classification Results (k=1, 3, 5): 6M (BTL-3)

3. Performance & Distance Measures

   Performance Measures: 4M (BTL-2)

   Distance Measure Explanations: 3M (BTL-2)

   Distance-Based Algorithms: 3M (BTL-2)