Parul University

Faculty of Engineering and Technology

Parul Institute of Technology

Machine Learning (303105353)

Assignment No. - 05

1. Three decision tree classifiers are trained in a bagging ensemble, giving the following predictions on a sample instance:
   Model 1 → Class A
   Model 2 → Class A
   Model 3 → Class B

   If the true class is **A**, find:

   (a) The ensemble's majority vote classification, and
   (b) The individual and ensemble accuracies if this pattern repeats for 100 instances with 70% accuracy for each model.

2. Given 4 data points:
   A (2, 3), B (3, 3), C (6, 6), D (8, 6) and initial centroids: C1 (2, 3), C2 (6, 6)

   Perform **one iteration of K-Means**, showing the new cluster assignments and updated centroids.

3. Given the dataset of daily temperatures (°C): 22,23,21,24,22,23,50
   Compute the **Z-score** for each value and identify the outlier using a threshold of $|Z| > 3$.

4. A dataset records students' scores in three tests:

Student	Test 1	Test 2	Test 3
A	45	50	55
B	40	?	60
C	50	55	65

   If the missing value in Test 2 is replaced by the mean of the available Test 2 values, find the imputed value and the updated dataset.

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Note: Submit the assignment on or before 14/03/2026.