Roll Number: _____ **Total No. of Pages: ___**

Total No. of Questions: 09

Course: B.Tech (CSE/AIML/IoT/DS/IT), Semester: 6th

Subject Name: Machine Learning

Subject Code: BTCS 618-18

MST-2 - (Date of Exam: 15/April/2025), Session: E

Time: 1:30 hr **Max Marks: 24**

Instructions to Candidates:

- **Section A (Compulsory):** All questions are mandatory. Each question carries 2 marks.
- **Section B (Attempt any 2 out of 3):** Attempt any two questions from. Each question carries 4 marks.
- **Section C (Attempt any 1 out of 2):** Attempt any one question. Each question carries 8 marks.
- Students will not be permitted to leave the examination hall within the first one hour.

SEC	**A**	**A**	**A**	**A**	**B**	**B**	**B**	**C**	**C**
Q/NB	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Map with Co	CO3	CO4	CO3	CO3	CO3	CO4	CO4	CO3	CO4
Map with Bloom's Level	L1	L1	L1	L1	L4	L3	L4	L5	L5

Section-A

1. Define Simple Linear Regression**.**

2. What is the need of Classification in Machine Learning?

3. List any two performance metrics for evaluating classification models.

4. List any two applications of Regression in real life.

Section-B

5. Differentiate between Simple, Multiple and Polynomial Linear Regression.

6. Demonstrate the working of the Decision Tree algorithm with the help of a suitable example.

7. Analyze the role of the Gini Index in Decision Tree classification by explaining how it influences the selection of features during the tree-building process.

Section-C

8. Evaluate Logistic Regression, Decision Tree, and Support Vector Machine (SVM) models by comparing their application domains, accuracy levels, and performance metrics. Provide evidence-based reasoning to justify the suitability of each model for different types of problems.

9. Critically evaluate Partitioning, Hierarchical, and Density-based clustering methods by comparing their strengths, limitations, and suitability for different datasets. Support your evaluation with appropriate examples and real-world use-cases.

Note: Disclosing your identity by writing your mobile number or marking a passing request on any page of the answer sheet will result in an Unfair Means Case (UMC) being filed against the student."