

Enrolment No. /Seat No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA – SEMESTER III- EXAMINATION –SUMMER-2025

Subject Code: 639402

Date: 31/05/2025

Subject Name: Machine Learning

Time:02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1** (a) Define human learning. List down the types of it and explain all of them with suitable example. **07**
- (b) Define machine learning. List down the types of it and explain all of them with suitable example. **07**
- Q.2** (a) List state-of-the-art languages/tools in machine learning. Explain any three of them. **07**
- (b) Draw the chart for four-step process of machine learning. And briefly explain each block. **07**
- OR**
- (b) Differentiate between k-fold and cross validation. **07**
- Q.3** (a) Draw classification chart for the data types in machine learning. Explain “Ratio” data type with example. **07**
- (b) Explain BOX plot and its attributes. List advantages and disadvantages of it. **07**
- OR**
- (a) Find the variance and standard deviation for both samples. Form the value of variance and standard deviation, write comparison comment for samples.
Sample 1 values : 44, 46, 48, 45, 47
Sample 2 values : 34, 46, 59, 39, 52 **07**
- (b) Explain Histogram and its attributes. List advantages and disadvantages of it. **07**
- Q.4** (a) Define overfitting and explain it with detailed example and its plot. List the actions that helps to avoid overfitting. **07**
- (b) List partitioning methods for clustering. Explain any one of them with suitable example. **07**
- OR**
- (a) Define underfitting and explain it with detailed example and its plot. List the actions that helps to avoid underfitting. **07**
- (b) Explain apriori algorithm for association rule learning. **07**
- Q.5** (a) Explain SVM algorithm with suitable example. **07**
- (b) Explain Decision Tree algorithm. **07**
- OR**
- (a) Explain K-means algorithms with suitable example **07**
- (b) List types of Regression. And explain any one of them with suitable example. **07**
