

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA– SEMESTER III- EXAMINATION –WINTER-2023

Subject Code:639402**Date: 02/12/2023****Subject Name: Machine Learning****Time: 10:30 AM TO 01:00 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 following terms. 03**
1. Information gain
 2. DBSCAN
 3. Reinforcement learning
- (b) What is human learning? Explain types of human learning. 04**
- (c) Discuss the applications and tools of machine learning. 07**
- Q.2 (a) Explain qualitative and quantitative data in machine learning. 03**
- (b) What are activities involved in machine learning? 04**
- (c) Explain k-fold cross validation method in detail 07**
- OR**
- (c) Briefly explain overall feature selection process. 07**
- Q.3 (a) Discuss singular value decomposition algorithm. 07**
- (b) What is feature transformation? Explain feature construction process in detail. 07**
- OR**
- Q.3 (a) Define outliers. Can we handle outliers and missing values in data? Explain in brief. 07**
- (b) Define over-fitting & under-fitting. Discuss the errors in learning. 07**
- Q.4 (a) Briefly explain classification learning steps. 07**
- (b) Explain multiple linear regression technique in detail. 07**
- OR**
- Q.4 (a) What is ensembling? Explain random forest model in brief. 07**
- (b) Differentiate supervised learning and unsupervised learning with reference to various aspects. 07**
- Q.5 (a) Explain k-means clustering algorithm in detail. 07**
- (b) What is regression? Discuss assumptions in regression analysis. 07**
- OR**
- Q.5 (a) What is association rule? Discuss the concept of support and confidence to justify the strength of association rule with appropriate example. 07**
- (b) Explain k-medoids clustering algorithm in detail. 07**
