

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MCA INTEGRATED – SEMESTER VII- EXAMINATION –WINTER-2024

**Subject Code:2678601**

**Date: 20/11/2024**

**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) Answer following: 04**
1. Define feature.
  2. Describe ReLU function.
  3. Stock market prediction is a classification task. (True/False)
  4. Define slope.
- (b) Discuss qualitative data and quantitative data. 03**
- (c) Explain applications and tools of machine learning. 07**
- Q.2 (a) Discuss reinforcement learning in detail. 04**
- (b) Differentiate predictive models and descriptive models. 03**
- (c) List the feature extraction algorithms available. Explain any one in brief. 07**
- OR**
- (c) Discuss ensembling of models in detail. 07**
- Q.3 (a) Define Bayesian learning. Discuss the importance of Bayesian learning methods. 07**
- (b) Explain holdout method for training a model in detail. 07**
- OR**
- Q.3 (a) Discuss the concept of independence and conditional independence with reference to Bayesian belief network. 07**
- (b) Discuss the working of KNN algorithm. 07**
- Q.4 (a) Define regression analysis. Explain multiple linear regression in detail. 07**
- (b) Discuss the partition based clustering techniques in detail. 07**
- OR**
- Q.4 (a) Discuss following terms with reference to association rules. 07**
1. Support
  2. Confidence
- (b) Discuss the structure of artificial neuron. 07**
- Q.5 (a) Define hyperplane. Explain SVM in brief. 07**
- (b) Explain hierarchical clustering algorithm. 07**
- OR**
- Q.5 (a) Explain following: 07**
1. Multi-layer feed forward ANN
  2. Recurrent Network
- (b) Explain backpropagation algorithm. 07**

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