

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA INTEGRATED– SEMESTER VII - EXAMINATION –SUMMER-2021

Subject Code: 4470601**Date: 07-08-2021****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.

- Q.1** (a) Write a short note on- **07**
- (1) machine learning
 - (2) training data and test data
 - (3) perceptron
 - (4) for Bayes theorem $P(h|D) =$ _____
 - (5) PAC framework
 - (6) linear regression
 - (7) case based reasoning
- (b) Write down the steps for designing the learning system by appropriate example. **07**
- Q.2** (a) Explain FIND-S algorithm with example. Compare with candidate elimination algorithm. **07**
- (b) Give decision trees to represent the following Boolean functions: **07**
- (a) $P \vee [Q \wedge R]$
 - (b) $[P \wedge Q] \vee [R \wedge S]$
- OR**
- (b) What is decision tree? Explain various issues in the Decision Tree learning. **07**
- Q.3** (a) Define ANN. Write the derivation of weight update rule for BPNN. **07**
- (b) Explain Bayesian Belief Network with example. **07**
- OR**
- Q.3** (a) Differentiate the following: **07**
- (i) Gradient Descent and Stochastic Gradient Descent
 - (ii) Neural network and artificial neural network
- (b) Explain Naïve Bayes classification algorithm for text classification. **07**
- Q.4** (a) Compare FOIL and FOCL algorithm. **07**
- (b) What is sequential learning algorithm? Explain with help of Learn-One-Rule paradigm **07**
- OR**
- Q.4** (a) Explain First Order Combined Learner (FOCL) algorithm with example. **07**
- (b) How prior knowledge is used in Explanation based learning? Explain with help of PROLOG-EBG algorithm. **07**
- Q.5** (a) What is reinforcement learning? What is the purpose of reward in this kind of learning? **07**
- (b) Write down working of K Nearest Neighbor Algorithm with example. **07**
- OR**
- Q.5** (a) Compare supervised, unsupervised and reinforcement algorithm with suitable example. **07**
- (b) Discuss the application areas of machine learning algorithms. **07**
