

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3170924

Date:03/06/2022

Subject Name:AI and 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. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Compare Artificial intelligence and human intelligence. **03**
(b) Explain term 'Hypothesis Space'. **04**
(c) Explain classification of Machine learning in details. **07**

- Q.2** (a) Explain Biological neurons and artificial neural networks. **03**
(b) Explain concept of supervised learning. **04**
(c) What is the activation function? Explain the different types of activation functions used in ANN's. **07**

OR

- (c) Explain Agglomerative Hierarchical Clustering. **07**

- Q.3** (a) Explain collaborative filtering in Machine learning. **03**
(b) Explain concept of unsupervised learning. **04**
(c) Explain Perceptron NN, Multilayer Perceptron NN, Back-propagation Neural Networks **07**

OR

- Q.3** (a) Explain concept of learning decision tree. **03**
(b) Explain Dimensionality Reduction technique. **04**
(c) Explain any one neural network-based application. **07**

- Q.4** (a) Compare conventional sets vs fuzzy sets. **03**
(b) Explain membership function of fuzzy logic. **04**
(c) Explain operation of fuzzy sets. **07**

OR

- Q.4** (a) Explain concept of logistic Regression. **03**
(b) Explain concept of support vector machine. **04**
(c) Explain any one fuzzy logic-based application. **07**

- Q.5** (a) Compare Genetic algorithm with traditional optimization Technique. **03**
(b) Explain genetic algorithm operator: Selection. **04**
(c) Explain Methods of Defuzzification. **07**

OR

- Q.5** (a) Explain genetic algorithm operator: Reproduction. **03**
(b) Explain genetic algorithm operator: Cross over. **04**
(c) Explain any one genetic algorithm based application. **07**
