

GUJARAT TECHNOLOGICAL UNIVERSITY**ME – SEMESTER – I (New)– EXAMINATION – WINTER-2019****Subject Code: 3710721****Date: 06-01-2020****Subject Name: AI Techniques****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.**

- Q.1** (a) What is Artificial Intelligence? Give difference between Artificial Intelligence and Human intelligence. **07**
- (b) Describe architecture and application of Fuzzy-Neural system with merits and demerits. **07**
- Q.2** (a) Define following terms: **07**
(1) α -cut (2) Linguistic variable (3) Membership Function (4) Fuzzy singleton
(5) Fuzzification (6) Cross-over (7) Mutation
- (b) Explain defuzzification process implemented with fuzzy logic. **07**
- OR**
- (b) Explain Fuzzy Inference Systems. **07**
- Q.3** (a) Explain various types of learning methods in neural network. **07**
- (b) Discuss basic structure of ANN with neat diagram. **07**
- OR**
- Q.3** (a) Write short note on (i) History of ANN and (ii) Advance in ANN. **07**
- (b) Explain Single layer and Multi layer feed forward networks. **07**
- Q.4** (a) Explain the working of GA using flowchart. **07**
- (b) Discuss various genetic operators and their role in genetic programming. **07**
- OR**
- Q.4** (a) List various selection methods in GA. Explain any two in detail. **07**
- (b) What is a schema? Describe the effect of crossover and mutation over instances of schema? **07**
- Q.5** (a) How ANN can be utilized to resolve the problem associated to economical load dispatch. **07**
- (b) Discuss maintenance schedule of electrical power transmission network using genetic algorithm. **07**
- OR**
- Q.5** (a) Write short note on Application of Fuzzy logic for load balancing in 3-phase distribution system. **07**
- (b) Explain role of different AI techniques in load forecasting. **07**
