

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER- IV • EXAMINATION – SUMMER 2017

Subject Code: 2640009

Date: 08-06-2017

Subject Name: Soft Computing

Time: 10:30 am - 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) Explain the basic components of soft computing. **07**
(b) Explain various selection methods for reproduction in genetic algorithm. **07**
- Q.2** (a) What is fuzzy rule based system? State various applications of fuzzy Systems. **07**
(b) Define Artificial Neural Network with its characteristics and advantages. **07**
- OR**
- (b) What is fuzzy logic? Explain basic fuzzy set operations with example. **07**
- Q.3** (a) Explain the architectures of discrete BAM and Hopfield network. **07**
(b) Differentiate between biological neuron and artificial neuron on the basis of structure and function of a single neuron **07**
- OR**
- Q.3** (a) What are the limitations with error back-propagation algorithm? Define its characteristics and applications? **07**
(b) What are the various techniques of soft computing & Discuss its applications of soft computing in detail. **07**
- Q.4** (a) Write the applications of genetic algorithm. **07**
(b) What are the various types of crossover and mutation techniques? **07**
- OR**
- Q.4** (a) Explain in detail about the various operators involved in genetic algorithm. **07**
(b) Write the general genetic algorithm **07**
- Q.5** (a) Explain the following term related to ANN. **07**
(a) Weights
(b) Bias
(c) Threshold
(b) List the various applications of fuzzy logic controller. **07**
- OR**
- Q.5** (a) Explain architecture of a fuzzy logic controller. **07**
(b) (a) Explain unsupervised learning. **07**
(b) Write the perceptron learning rule. **07**
