

**GUJARAT TECHNOLOGICAL UNIVERSITY****MCA - SEMESTER-IV • EXAMINATION – SUMMER • 2014****Subject Code: 640009****Date: 03-06-2014****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) I. What is the necessity for activation function in neural network? **02**  
II. What is the difference between inhibitory and excitatory weighted connections? **02**  
III. Explain bit-wise operators in GA. **03**  
(b) I. Explain the structure of Mexican Hat Net. **04**  
II. What is continuous bidirectional associative memory? **03**
- Q.2** (a) What are neurons? Give the difference between supervised and unsupervised learning in artificial neural networks? **07**  
(b) Explain the following technologies related to Artificial Neural Networks. **07**  
I. Weight  
II. Bias  
III. Threshold
- OR**
- (b) Write the error back propagation learning algorithm. **07**
- Q.3** (a) Which algorithms are developed for training of pattern association nets? **07**  
(b) I. What are the advantages of working with Artificial Neural Network? **04**  
II. Compare feed-forward and feedback network. **03**
- OR**
- Q.3** (a) Explain training algorithm in Perceptron network with its architecture and flowchart. **07**  
(b) Write the steps involved in training algorithm of Kohonen self organizing features maps. **07**
- Q.4** (a) Difference between fuzzy logic and crisp logic? How rules are defined in fuzzy rule base system. **07**  
(b) Write fuzzy logic control system models. **07**
- OR**
- Q.4** (a) Explain mutation & mutation rate. **07**  
(b) Explain Boltzmann selection in detail. **07**
- Q.5** (a) Describe a hybrid system that combines neural network and genetic algorithm. **07**  
(b) Explain crossover & crossover rate. **07**
- OR**
- Q.5** (a) List the various application of fuzzy logic controller. **07**  
(b) Explain the architecture of a fuzzy logic controller. **07**

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