

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**M. E. - SEMESTER – III • EXAMINATION – WINTER 2012**

**Subject code: 730103****Date: 26/12/2012****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 different learning methods of neural network. **07**  
 (b) Write Backpropagation learning algorithm. **07**
- Q.2** (a) Write application of associative memory. **07**  
 (b) Explain example of fuzzy cruise controller. **07**
- OR**
- (b) Explain example of fuzzy air conditioner controller. **07**
- Q.3** (a) Explain defuzzification process. **07**  
 (b) Compare fuzzy logic and propositional logic. **07**
- OR**
- Q.3** (a) Explain tournament selection method of reproduction. **07**  
 (b) Write drawbacks of genetic algorithm. **07**
- Q.4** (a) Write application of genetic algorithm based backpropagation network. **07**  
 (b) Explain fuzzy backpropagation architecture. **07**
- OR**
- Q.4** (a) Explain Earthquake damage evaluation using fuzzy BP network. **07**  
 (b) Explain image recognition application of fuzzy ARTMAP. **07**
- Q.5** (a) Explain working of simplified fuzzy ARTMAP with example. **07**  
 (b) Explain single association Fuzzy Associative Memories. **07**
- OR**
- Q.5** (a) Consider the following population of strings for maximization problem **07**  
 Individual 1    2    3    4    5    6    7    8  
 Fitness    1    2.1    3.11    4.01    4.66    1.91    1.93    4.55  
 Find out best strings using Roulette wheel and tournament selection.  
 (b) Explain convergence of genetic algorithm. **07**

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