

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER- IV • EXAMINATION – WINTER - 2017**

**Subject Code: 2640009****Date: 06-01-2018****Subject Name: Soft Computing****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) Explain any two real life applications of neural networks, fuzzy logic and genetic algorithm each. **07**  
(b) Explain McCulloch-Pitts Neuron giving example. **07**
- Q.2** (a) What is Hebb Network? **07**  
(b) State the similarities and differences between Back Propagation Network and Radial Basis Function Network. **07**
- OR**
- (b) What is Auto associative Memory Network? **07**
- Q.3** (a) Explain Bidirectional Associative Memory. **07**  
(b) What is meant by Fixed Weight Competitive Nets? **07**
- OR**
- Q.3** (a) Explain Kohonen Self-Organizing Motor Maps with real life example. **07**  
(b) Explain Adaptive Resonance Theory Network with an example. **07**
- Q.4** (a) Explain Simulated Annealing Network & Boltzmann Machine. **07**  
(b) Explain Crisp logic, predicate logic and fuzzy logic. **07**
- OR**
- Q.4** (a) Explain fuzzy rule based system with an example. **07**  
(b) State and explain the different defuzzification methods for a fuzzy logic control systems. **07**
- Q.5** (a) Explain architecture and Operation of FLC System. **07**  
(b) Explain the working principle of Genetic Algorithm. **07**
- OR**
- Q.5** (a) Explain different crossover operators and mutation operators in genetic algorithm. **07**  
(b) Explain difference between **07**  
a. Fuzzy Set and Crisp Set  
b. Fuzzy Relations and Crisp Relations

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