

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – IV • EXAMINATION – SUMMER • 2014****Subject code: 743101****Date: 04-06-2014****Subject Name: Intelligent Control System****Time: 02:30 pm - 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) Give a difference between conventional controller & fuzzy controller. **07**
(b) Give a brief description of classification of ANN. **07**
- Q.2** (a) Explain below given statement with necessary examples. **07**
The fuzzy logic controllers (FLC) make a non-linear mapping between the input & the output using membership functions and linguistic rules (normally in the form if-then).
(b) Define Crisp sets & explain below mentioned operations on crisp sets. **07**
1. Intersection
2. Union
3. Complement
4. Difference
- OR**
- (b) Define Fuzzy sets & explain below mentioned operations on Fuzzy sets. **07**
1. Fuzzy Intersection
2. Fuzzy Union
3. Fuzzy Complement
- Q.3** (a) Write a short note on Mamdani Fuzzy Controller with appropriate examples. **07**
(b) Write a short note on perceptron neural model. **07**
- OR**
- Q.3** (a) Write a short note on Takagi-Sugeno Fuzzy Controller with appropriate examples. **07**
(b) Write an algorithm of Backpropagation. **07**
- Q.4** (a) Explain Fuzzy Associative Memories (FAMS) with necessary examples. **07**
(b) Write a short note on Adaptive Linear neuron (ADALINE). **07**
- OR**
- Q.4** (a) Write a difference between Fuzzy classification and Fuzzy pattern recognition. **07**
(b) Explain the Bayesian or Belief Neural Networks with algorithm. **07**
- Q.5** (a) Write a technical note on ANSIF. **07**
(b) What is alpha cut? Explain the usefulness of alpha cuts with examples. **07**
- OR**
- Q.5** (a) Write a technical note on various application fields of Fuzzy Logic. **07**
(b) What is intelligent control? What is the difference between IC & PID? **07**
