Seat No.: _____ Enrolment No._____

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. ñThe 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).ò	**07**
	(b)	Define Crisp sets & explain below mentioned operations on crisp sets. 1. Intersection 2. Union 3. Complement 4. Difference	**07**
		OR	
	(b)	Define Fuzzy sets & explain below mentioned operations on Fuzzy sets. 1. Fuzzy Intersection 2. Fuzzy Union 3. Fuzzy Complement	**07**
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**

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