Seat No.:	Enrolment No.
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GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- III • EXAMINATION – SUMMER 2015

Subject Code: 730205 Date:02/05		5	
	Subject Name: Fuzzy Logic and Neural Networks Time: 2:30 pm to 5:00 pm Total Marks		
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	2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a) (b)	Short note: Fuzzy Inference System Discuss following with respect to Fuzzy membership function: i. Core ii. Boundary iii. Subnormal fuzzy set	07 07
		iv. Supportv. Height of fuzzy setvi. convex fuzzy setvii. Normal fuzzy set	
Q.2	(a) (b)	Explain Fuzzy c-Means algorithm. What is single layer perceptron? Describe steps of single layer perceptron learning algorithm. OR	07 07
	(b)	Explain back propagation algorithm for training multilayer neural network structure with necessary derivations.	07
Q.3	(a) (b)	Discuss and compare classical sets and fuzzy sets. Describe the properties of Hopfield neural network. Prove that the Hopfield network converge to one of the stored pattern which is local minima of energy function.	
		OR	
Q.3	(a) (b)	Discuss various defuzzification techniques. Differentiate auto-association and hetero association. List methods for hetero association. Explain any one method in brief.	
Q.4	(a)	What is swarm intelligence? Discuss any one method of swarm intelligence in detail.	07
	(b)	Discuss supervised and unsupervised learning. OR	07
Q.4	(a) (b)	Explain the concept and algorithm for Self Organizing Feature Map. Explain multi-objective decision making method.	
Q.5	(a) (b)	Short note: Usage of AI in image segmentation and face reorganization. How artificial neural network can be useful for classification? Explain with an example.	07 07
		OR	
Q.5	(a) (b)	Short note: Fuzzy neural network. Short note: Radial Basis Function.	07 07
