Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–IV • EXAMINATION – SUMMER • 2015

Subject Code: 640009 **Date: 20-05-2015**

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)**	Give a brief comparison between Biological neural network and Artificial neural network.	**07**
	(b)	Define the following terms: 1. Bias 2. Weight 3. Learning Rate	**07**
Q.2	**(a)**	What are the various soft computing techniques? Discuss its application in details.	**07**
	(b)	Explain the architecture and training of Perceptron networks	**07**
		OR	
	(b)	Explain Boltzmann selection in detail.	**07**
Q.3	**(a)**	What are associative memories? Give a brief account of Auto associative memory.	**07**
	(b)	Write a brief account on ART 1.	**07**
		OR	
Q.3	**(a)**	Write the steps involved in training algorithm of Kohonen self organizing features maps.	**07**
	(b)	What are Back propagation networks? Explain its architecture and characteristics.	**07**
Q.4	**(a)**	Explain cross over operator and its types.	**07**
	(b)	Explain mutation and mutation rate.	**07**
		OR	
Q.4	**(a)**	Describe a hybrid system that combines neural network and genetic algorithm	**07**
	(b)	What are the applications of genetic algorithm?	**07**
Q.5	**(a)**	Explain the architecture of a fuzzy logic controller.	**07**
	(b)	Write fuzzy logic control system models.	**07**
		OR	
Q.5	**(a)**	List the various applications of fuzzy logic controller.	**07**
	(b)	Differentiate between fuzzy logic and crisp logic? How rules are defined in fuzzy rule base system	**07**

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