Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.C.A -IVth SEMESTER–EXAMINATION – MAY- 2012

Subject code: 640009 **Date: 19/05/2012**

Subject Name: Soft Computing (SC)

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)**	(i) What are the advantages of working with artificial Neural Network? (ii) Compare feed-forward and feedback network	**07**
	(b)	Which algorithms are developed for training of pattern association nets?	**07**
Q.2	**(a)**	Write the steps involved in training algorithm of Kohonen self organizing feature maps.	**07**
	(b)	What is the principle behind simulated annealing network? Which components are required for annealing algorithm?	**07**
		OR	
	(b)	Write the testing algorithm for Boltzmann Machine.	**07**
Q.3	**(a)**	(i) Explain unsupervised learning.	**04**
		(ii) Write the perceptron learning rule.	**03**
	(b)	Explain the architecture of a fuzzy logic controller.	**07**
		OR	
Q.3	**(a)**	(i) What is the role of supplemental units in Adaptive Resonance theory 1 network? What difficulties are faced by computational units?	**04**
		(ii) State the significance of Adaptive Resonance theory 2 network?	**03**
	(b)	List the various applications of fuzzy logic controller.	**07**
Q.4	**(a)**	Explain the following technologies related to Artificial Neural Networks. (i) Weights (ii) Bias (iii) Threshold	**07**
	(b)	(i) In which neural net, the training input and the target output vectors are different?	**04**
		(ii) What is continuous bidirectional associative memory.	**03**
		OR	
Q.4	**(a)**	Write the error back propagation learning algorithm.	**07**
	(b)	(i) Explain the structure of Mexican Hat Net.	**04**
		(ii) What is the idea of competition in Fixed weight competitive nets?	**03**
Q.5	**(a)**	Write the general genetic algorithm.	**07**
	(b)	Explain in detail about the various operators involved in genetic algorithm.	**07**
		OR	
Q.5	**(a)**	What are the various types of crossover and mutation techniques?	**07**
	(b)	Write the applications of genetic algorithm.	**07**

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