Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–IV • EXAMINATION – SUMMER • 2014

Subject Code: 640009 **Date: 03-06-2014**

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)**	I.	What is the necessity for activation function in neural network?	**02**
		II.	What is the difference between inhibitory and excitatory weighted connections?	**02**
		III.	Explain bit-wise operators in GA.	**03**
	(b)	I.	Explain the structure of Mexican Hat Net.	**04**
		II.	What is continuous bidirectional associative memory?	**03**
Q.2	**(a)**		What are neurons? Give the difference between supervised and unsupervised learning in artificial neural networks?	**07**
	(b)		Explain the following technologies related to Artificial Neural Networks.	**07**
		I.	Weight	
		II.	Bias	
		III.	Threshold	
			OR	
	(b)		Write the error back propagation learning algorithm.	**07**
Q.3	**(a)**		Which algorithms are developed for training of pattern association nets?	**07**
	(b)	I.	What are the advantages of working with Artificial Neural Network?	**04**
		II.	Compare feed-forward and feedback network.	**03**
			OR	
Q.3	**(a)**		Explain training algorithm in Perceptron network with its architecture and flowchart.	**07**
	(b)		Write the steps involved in training algorithm of Kohonen self organizing features maps.	**07**
Q.4	**(a)**		Difference between fuzzy logic and crisp logic? How rules are defined in fuzzy rule base system.	**07**
	(b)		Write fuzzy logic control system models.	**07**
			OR	
Q.4	**(a)**		Explain mutation & mutation rate.	**07**
	(b)		Explain Boltzmann selection in detail.	**07**
Q.5	**(a)**		Describe a hybrid system that combines neural network and genetic algorithm.	**07**
	(b)		Explain crossover & crossover rate.	**07**
			OR	
Q.5	**(a)**		List the various application of fuzzy logic controller.	**07**
	(b)		Explain the architecture of a fuzzy logic controller.	**07**

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