GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 173101   **Date: 06/05/2017**

Subject Name: Soft Computing

Time: 02:30 PM to 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)**	Define supervised and unsupervised learning. Differentiate between AI and ANN.	**07**
	(b)	Why training algorithms required? Explain the Hebbian Learning Rule.	**07**
Q.2	**(a)**	What is Genetic algorithm? How it is different from traditional algorithm?	**07**
	(b)	Explain the error back propagation algorithm.	**07**
		OR	
	(b)	What is traveling salesperson problem? Explain cross-over operation for the solution of the same problem using genetic algorithm.	**07**
Q.3	**(a)**	Explain counter propagation network. How counter propagation works in normal and training mode?	**07**
	(b)	Enlist and discuss reproduction methods in genetic algorithm.	**07**
		OR	
Q.3	**(a)**	Discuss various operations of fuzzy sets with example.	**07**
	(b)	Write the differences between classical algorithm and genetic algorithm. Explain different types of cross-over methods in genetic algorithm with example(s).	**07**
Q.4	**(a)**	Explain how Genetic algorithm used for weight determination in neural network.	**07**
	(b)	Explain the working of artificial neuron and explain how it differs from biological neuron.	**07**
		OR	
Q.4	**(a)**	What is defuzzification? Describe any two methods of defuzzification.	**07**
	(b)	Explain rank selection method with example.	**07**
Q.5	**(a)**	What are the factors which influence a system's ability to learn?	**07**
	(b)	Write a short note on rough set theory.	**07**
		OR	
Q.5	**(a)**	Write detailed note on 'GA based weight optimization'.	**07**
	(b)	Discuss sequence prediction in machine learning.	**07**

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