Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 173101 Date: 27-11-2014

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)**	What is Reproduction in Genetic Algorithm? List various Reproduction methods. Describe any one in detail.	**07**
	(b)	Compare Supervised and Unsupervised learning.	**07**
Q.2	**(a)**	Explain Mamdani fuzzy inference model in brief.	**07**
	(b)	Discuss Back Propagation algorithm.	**07**
		OR	
	(b)	What is Linear Separability? Define Perceptron. Why the perceptron cannot be used to implement the EXCLUSIVE-OR function?	**07**
Q.3	**(a)**	For the given training pattern and their respective target, X_1=[-1, 1, -1] t_1= -1 X_2=[1, 1, -1] t_2= +1 With a learning rate given as 0.4 and weight initialize as [0,0,0], apply ADALINE network for one epoch and also check for stopping criteria, mse<0.3.	**07**
	(b)	Write a brief note on Kohonen's Self Organizing networks.	**07**
		OR	
Q.3	**(a)**	Discuss Sequence Prediction in machine learning.	**07**
	(b)	Draw a flowchart and explain an Evolutionary Algorithm.	**07**
Q.4	**(a)**	Let X={a,b,c,d} Y={1,2,3,4}. Let A & B are fuzzy sets such as A={(a,0)(b,0.8)(c,0.6)(d,1)} B={(1,0.2)(2,1)(3,0.8)(4,0)} Determine the implication relations: IF x is A THEN y is B.	**07**
	(b)	Discuss various operations of fuzzy sets with example.	**07**
		OR	
Q.4	**(a)**	Explain 'Adaptive Neuro-Fuzzy Inference System' Architecture.	**07**
	(b)	What is Defuzzification? Describe any two methods of Defuzzification.	**07**
Q.5	**(a)**	Explain Hebbian Learning in detail.	**07**
	(b)	Explain Printed Character Recognition.	**07**
		OR	
Q.5		Write a Short note.	
	(a)	GA based weight optimization	**07**
	(b)	Rough Approximation	**07**

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