Enrolment No.\_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII EXAMINATION – WINTER 2015

Subject Code: 173101		Code: 173101 Date:16/12/2015	
Subject Name: Soft Computing Time: 10:30am to 1:00pm Total Marks: ' Instructions:			
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	What is soft computing? Indicate biological analogies of the basic techniques of soft computing?	07
	<b>(b)</b>	What is importance of training, learning and generalization in ANN?	07
Q.2	(a)	Define Perceptron. Explain the reason why the perceptron cannot be used to implement the EXCLUSIVE-OR function.	07
	<b>(b</b> )	Define: (i) Local minima (ii) Learning Coefficient	07
	( <b>b</b> )	<b>OR</b> Discuss back propagation algorithm	07
01	()	Describe defumilies to chain and	07
Q.3	(a) (b)	Describe defuzzification techniques. Consider the sets $A=\{(2,0.5)(3,0.3)(4,1)(5,0.7)\}$ and $B=\{(2,0.2)(3,0.4)(4,0.7)(5,0.5)\}$ . Find (I) A' (II) B' (III) AUB (IV)A $\cap$ B (V) A B (VI) Verify demorgan's laws.	07 07
0.3	<b>(a)</b>	<b>OK</b> What is mamdani type fuzzy inference? Compare mamdani and sugeno	07
<b>X</b> <sup>10</sup>	(u)	systems.	01
	(b)	Let $X=\{a,b,c,d\} Y=\{1,2,3,4\}$ And $A =\{(a,0)(b,0.8)(c,0.6)(d,1)\}$ $B=\{(1,0.2)(2,1)(3,0.8)(4,0)\}$ $C=\{(1,0)(2,0.4)(3,1)(4,0.8)\}$ Determine the implication relation "If x is A THEN y is B ELSE y is C.	07
Q.4	(a)	Describe how knapsack problem solve by GA. Describe your solution using	07
	(b)	suitable example. Draw a flowchart and explain an evolutionary algorithm . OR	07
Q.4	(a)	How TSP can be solved using GA? Describe operations performed in different	07
	(b)	phases using suitable example. Explain Rank selection method with example.	07
Q.5	(a) (b)	What are hybrid systems? Explain various hybrid systems. What is machine Learning with example? Explain derivational analogy. <b>OR</b>	07 07
Q.5	(a) (b)	Explain ANFIS Architecture Write a short note on rough set theory.	07 07