



Code No. 5312 / M

**FACULTY OF INFORMATICS**

B.E. 4/4 (I.T.) II-Semester (Main) Examination, May / June 2012

Subject : **Soft Computing**  
(Elective-V)

Time : 3 Hours

Max. Marks: 75

**Note:** Answer all questions of Part - A and answer any **five** questions from Part-B.

**PART – A (25 Marks)**

1. Distinguish between supervised and unsupervised learning. (2)
2. Draw the architecture of a back propagation network. (2)
3. State the Outer product rule. (3)
4. What are cooperative neighbour? (2)
5. What is meant by cardinality of fuzzy relations? (3)
6. Define classical sets and fuzzy sets. (2)
7. List the properties of  $\lambda$ -cut sets. (3)
8. What are the different fuzzy qualifiers? (3)
9. Write about multi attribute decision making. (3)
10. Define a Genetic Algorithm. (2)

**PART – B (5x10=50 Marks)**

11. Discuss in detail about Perceptron network.
12. Construct and test the Hamming network to cluster four vectors. Given examples vectors.  
 $e(1) = [1 \ -1 \ -1 \ -1]$ ;  $e(2) = [-1 \ -1 \ -1 \ 1]$   
the bipolar input vectors are  
 $X1 = [-1 \ -1 \ 1 \ -1]$ ;  $X2 = [-1 \ -1 \ 1 \ 1]$   
 $X3 = [-1 \ -1 \ -1 \ -1]$ ;  $X4 = [1 \ 1 \ -1 \ -1]$
13. Discuss the properties of both classical sets and fuzzy sets.
- 14.(a) For the interval  $A = [5, 3]$ , find its image and universe.  
(b) For the two fuzzy vectors find inner and outer product  
 $a = (0.5, 0.2, 1.0, 0.8)$   
 $b = (0.8, 0.1, 0.9, 0.3)$
15. Write about Holland classifier system.
- 16.(a) State any five defuzzification methods.  
(b) Write about individual decision making.
17. Write about the following :  
(a) Linear reparability  
(b) Simulated Annealing Network