Roll No .....

CS - 801

B.E. VIII Semester

Examination June, 2013

Soft Computing

Time : Three Hours

Maximum Marks : 100 ***Minimum Pass Marks :35***

Note: Attempt one question from each unit. Each unit have internal choice. Assume data/value, if required.

Unit - I

1. a) Discuss the various techniques of soft computing. 10
   b) Algorithm A* does not terminate until a goal node is selected for expansion. How ever, a path to the goal node might be reached long before that node is selected for expansion. Why does not it terminate as soon as a goal node has been found? Illustrate your answer with an example. 10

Or

2. a) Explain the problems in hill-climbing techniques along with ways to solve this problem. 10
   b) Show that the following formula are valid by giving tableau proof of each of 10

$\sim (A \vee B) \leftrightarrow (\sim A \wedge \sim B)$

Unit - II

3. a) State the training and application algorithm of the Adeline net. 10
   b) Explain in detail the algorithm for Hebb Rule used in pattern association. 10

Or

4. a) Why Training Algorithms are required? Explain widrow and HOFF's learning rule. 10
   b) Prove that if linear activation. Function is used with MLP then its performance will be the same as single layer perceptron. 10

Unit - III

5. a) Briefly describe the Architecture of an ARTZ Network. 10
   b) Full CPN is more efficient than the forward only CPN; Justify. 10

Or

6. a) Give the limitations and applications of Hopfield Network and Boltzmann machine. 10
   b) Consider a recurrent Auto Associative net used to store the vector [1 1 -1 1]. Determine whether it recognizes a stored vector with three missing components (00-10), (1000), (0100), (0001). 10

Unit - IV

7. a) Suppose there are five people in a story writing competition. Assume their relative goodness of performance is given by a fuzzy set F as $\{(P_1, 0.3), (P_2, 0.7), (P_3, 0.9), (P_4, 0.4), (P_5, 0.7)\}$ proposition. There are about two persons who had good performance. 10
   b) The transitivity property of conventional (crisp) sets states that if $A \subset B$ and $B \subset C$ then $A \subset C$. Is this property satisfied by fuzzy sets. Explain. 10

Or

8. a) Define crisp sets with its fundamental concepts. 10
   b) Explain the features of membership functions. 10

Unit - V

9. a) Write short note on mutation operator. 10
   b) Describe the working principle of genetic algorithm. 10

Or

10. a) Explain advanced in GA. 10
    b) Discuss the categorization of bit-wise operator. 10

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