Roll No .....

MCSE - 205

M.E./M.Tech., II Semester

Examination, July 2015

Soft Computing

Time : Three Hours

Maximum Marks : 70

Note : Total number of questions eight. Attempt any five questions.

1. a) Give an example of a problem for which breadth first search would work better than depth-first search. Give an example of problem for which depth-first search would work better than breadth-first search.
   b) Explain Working of AO* algorithm with suitable example.

2. a) Describe back propagation learning techniques. Discuss learning rule for the hyperbolic tangent activation function with necessary derivations.
   b) Discuss various operations of fuzzy sets and fuzzy preposition with example.

3. a) How does universal appoximatiρn play an important role in hybrid approach of soft computing? How can genetic algorithm be controlled by Fuzzy Logic?
   b) Explain working of ADALINE and MADALINE with example.

4. a) Write the need of defuzzification in fuzzy set theory. Enlist and explain different methods of defuzzification in brief.

   b) What do you mean by Genetic algorithm? How it is different from traditional algorithm?

5. a) Why Population is required? Which operator is applied first to the population? Discuss about mutation techniques in GA in detail.
   b) What is linear separability? Give example of linearly separable and inseparable problem? Why single layer perceptron is not capable of solving linearly inseparable problem explain with example?

6. a) Give the problem statement of travelling salesman problem. Solve the same problem using Genetic Algorithm.
   b) 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 relation IF x is A THEN y is B.

7. Write Short Note on:-
   a) ART 1 and ART 2
   b) EBPA (Error Back propagation algorithm)
   c) Fuzzy Associative Memory.
   d) Activation functions in ANN.

8. Prepare a comparative analysis for merits and limitations following of algorithms. j) BFS k) DFS l) Best First Search m) Generate-And- Test n) Simple Hill Climbing o) Steepest Ascent Hill Climbing p) Simulated Annealing q) A*

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