Roll No ....

MCTA - 201
M.E./M.Tech., II Semester
Examination, December 2015

Soft Computing

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. a) Discuss the basic models of artificial neural network.   7

   b) "Soft computing techniques give best solution to complex problems". Justify.   7

2. a) What is learning? Explain different types of learning.   7

   b) Let $A = \{(x_1, 0.2), (x_2, 0.7), (x_3, 0.4)\}$ and $B = \{(y_1, 0.5), (y_2, 0.6)\}$ be two fuzzy sets defined on the universe of disclosures $X = \{x_1, x_2, x_3\}$ and $Y = \{y_1, y_2, y_3\}$ respective. Find the Cartesian product of the A and B and Fuzzy relation R.   7

3. a) Illustrate the step by step procedure of the Back propagation algorithm.   7

   b) Mention the need for the De-fuzzification. Explain the three types of De-fuzzification with its formulae.   7

4. a) Explain the concept of clustering. Explain any two methods of data clustering.   7

   b) Generate X-OR function using McCulloch-Pitts neuron models.   7

5. a) Differentiate between A* and AO* search algorithm.   7

   b) What do you mean by genetic algorithm? Explain two basic operations that all genetic algorithms contain.   7

6. a) Explain why MLP does not learn if the initial weights and biases are all zeros.   7

   b) Explain feedback control system with plant dynamics and linear controllers.   7

7. a) Explain the concepts of non-specificity and fuzziness of fuzzy set with the help of suitable example.   7

   b) Differentiate subtractive clustering with mountain clustering.   7

8. Explain the following: 14

   a) Counter propagation network

   b) Bidirectional associative memory

   c) Hopfield network

   d) Rules interference

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