4. a) What do you mean by fuzzy if-than rules? How they assists in fuzzy reasoning? Explain with suitable example. 7
   b) Explain the following terms:
      i) Fuzzy decision making.
      ii) Fuzzy automata. 7

5. How decision tree is differ from regression tree? How the best splitter node is decided during the creation of decision tree? When the tree pruning is to be carried out? 14

6. Explain the K-mean algorithm for clustering number of objects. Trace out the K-mean algorithm on the following sets where k = 2.
   (30, 5) (50, 25) (50, 15) (25, 5) (30, 10) (55, 25) 14

7. a) Explain the basic principle of genetic algorithm. Explain also its applications. 7
   b) Explain the following with example.
      i) How crossover and mutation is carried out.
      ii) Reproduction. 7

8. Write short notes on any two: 14
   i) AI search algorithm
   ii) Simulated annealing
   iii) Hopfield network.

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Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MCTA - 201

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

Examination, June 2014

Soft Computing

Time : Three Hours

Maximum Marks : 70

Note : There are eight questions. Any five questions to be solved.

1. a) Explain the importance of soft computing. Explain its applications also. 6
   b) A single layer neural network is to have six inputs and two outputs. The output is to be limited to and continuous over the range O to I. Specify the following.
      i) How many neurons are required?
      ii) What are the dimensions of the weight matrix?
      iii) What kind of transfer functions could be used? 8

2. Justify your answer with example whether back propagation is supervise learning or unsupervise learning? Why network is called back propagation? Write also back propagation learning algorithm. 14

3. a) Explain the classes of parameterization function commonly used to define Membership Functions (MF) of one and two dimension. 9
   b) How the following operations are performed on two fuzzy sets.
      i) Union and Intersection