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MCSE - 205

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

Examination, June 2014

Soft Computing

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions.

1. a) What is the significance of adding alpha-beta cut offs MINMAX search? Explain with example. 7

   b) Explain the training algorithm of radial basis function network. 7

2. a) Explain Ao* algorithm. 7

   b) State and prove Dempster Shafer theorem. 7

3. Explain the following: 14

   a) Memorization and generalization

   b) Gradient descent method

   c) Delta learning rule

4. a) Explain the different thresholding function with their mathematical representation. 6

   b) Construct an ART1 network to cluster four vector (1, 0, 1, 1), (1, 1, 1, 0), (1, 0, 0, 0) and (0, 1, 0, 1) in at most three clusters using very low vigilance parameter. Assume necessary parameter. 8

5. a) State the application of Kohonen self-organizing maps. 7

   b) Discuss the issues associated with support vector machines. 7

6. Differentiate the following: 14

   a) Convex and non convex fuzzy set.

   b) Normal and subnormal fuzzy set.

7. a) Consider the given fuzzy relation.

$$R = \begin{bmatrix} 0.25 & 0.35 & 0.75 & 0.62 \\ 0 & 1 & 0.8 & 0.9 \\ 0.5 & 0.3 & 0.6 & 0.7 \\ 0.4 & 0 & 1 & 0.9 \end{bmatrix}$$

   Find the λ-cut relations for λ = 0.3, 0.5, 0, 0.9, 0.7. 10

   b) Differentiate between center of sums and weighted average method. 4

8. a) Differentiate between Messy GA and Parallax Genetic Algorithm. 4

   b) Explain the various operators involved in genetic algorithm. 6

   c) State Charles Darwin's theory of evolution. 4

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