Roll No .....

IT-802

B.E. VIII Semester

Examination June, 2013

Soft Computing

Time : Three Hours

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

Note: Attempt all questions. All questions carry equal marks.

1. a) What are the various active building blocks of neural networks? Explain the current mirror and inverter based neuron in detail. 10

   b) Distinguish between the feed forward and feedback neural networks. Compare their input-output mapping. 10

Or

2. a) What are the different types of learning schemes used in training of artificial neural networks? Explain each of them clearly with suitable examples. 10

   b) Explain the working of perceptron. Write the training algorithm of multi category single layer perceptron networks. 10

3. a) Explain linear separability. Why can a single layer of perceptron not be used to solve linear separable problems? 10

b) Discuss the applications of neural networks in the area of: 10

i) Image compression

ii) Data compression

Or

4. What is the back propagation? Derive its weight update algorithm with a schematic two layer feed forward neural network. Also explain the learning difficulties and improvements. http://www.rgpvonline.com 20

5. a) Explain the architectures of popular self organizing maps. Derive the training algorithm of kohonen network. 10

b) Illustrate with a neat figure, the two basic units of ART network. Prove BAM stability theorem. 10

Or

6. a) Explain the architectures of Counter-propagation Networks and their training algorithms. 10

b) How an optimization problem formulated for solution using a neural network model. 10

7. Using your own intuition, develop fuzzy membership functions on the real line for the fuzzy number "approximately 2 to approximately 8", using the following function shapes.

a) Symmetric triangles

b) Trapezoids

c) Gaussian functions 20

Or

8. a) Explain briefly : 10

i) Fuzzy inference system

ii) Fuzzy logic controlled GA

b) What is fuzzy logic? Explain its importance. Also write down its applications. 10

9. a) Explain the application of GA step by step for maximizing the function $f(x) = x^2$, where x is permitted to vary between 0 and 31. Solve the problem for two generations. 10

b) Discuss the following : 10

i) Crossover and inversion

ii) Deletion and duplication.

Or

10 a) Explain the convergence criteria of genetic algorithm. http://www.rgpvonline.com 10

b) Discuss travelling salesman problem using Genetic algorithm? 10

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