IT-802(N)

B. E. (Eighth Semester) EXAMINATION, June, 2011

SOFT COMPUTING [IT-802(N)

Time : Three Hours Maximum Marks : 100 Minimum Pass Marks : 35

Note : Attempt any one question from each Unit. All questions carry equal marks.

Unit-I

1. (a) (i) What are the basic models of an artificial neural network ? 5

(ii) What is the necessity of activation function ? 5

(b) Design neural networks with only one M-PO neuron that implements the three basic logic operations : 10

(i) NOT (*!),&>) OR (JCLJCZ)

(ii) NAND ( $x_h x_2$ ) where xi and $x_2$ E {0,1}.

Or

2. (a) Differentiate between the following : 10

(i) Feedforward and feedback network

(ii) Supervised and unsupervised learning

(b) Why is the Mcculloch Pitts neuron widely used in logic functions ? 10

Unit-II

3- (a) (i) State the importance of activation function used in perception network. 5

(ii) State the activation function used in perception network. 5

(b) With suitable example, discuss the perception network training with and without bias. 10

Or

4. (a) How is Madaline network formed ? Is it true that Madaline network consists of many perceptions ? 10

(b) Implement AND function using Madaline network. 10

Unit-III

5. (a) Sketch the architecture of full counter propagation network. 10

(b) Differentiate between ART networks and CPN networks. 10

Or

6. (a) Mention the limitation of ART1 network and how is it overcome in ART2 network. 10

(b) Differentiate between fast and slow learning. How slow learning and fast learning is achieved in ART2 network ? 10

Unit-IV

7- (a) Explain the importance of fuzzy sets. Discuss the operations of fuzzy sets with examples. 10

(b) Consider two membership function as follows for fuzzy set : 10

$$\underset{\sim}{A} : \mu_A(x) = \frac{|(60 - x)|}{8} + 1$$

$$\underset{\sim}{B} : \mu_B(x) = \frac{|(40 - x)|}{8} + 1$$

Find the following :

(i) $\underset{\sim}{A} \cup \underset{\sim}{B}$

(ii) $\overline{\underset{\sim}{A}}$

(iii) $\overline{\underset{\sim}{B}}$

Or

8. (a) Discuss the logic application of fuzzy logic, in solving engineering problems. 10

(b) Define membership and state its. importance in fuzzy logic. What are the features of membership function ? 10

Unit-V

9.(a) State the importance of genetic algorithm and. compore it with genetic programming. 10

(b) Explain in detail about the various operators involved in genetic algorithm. 10

Or

10. (a) Discuss the application of genetic algorithm. 10

(b) Explain various types of crossover and mutation techniques. 10