

***B. Tech Degree VII Semester (Supplementary)
Examination, July 2009***

IT/CS/EC/EI/EB 705 (C) ARTIFICIAL NEURAL NETWORKS
(2002 Scheme)

Time: 3 Hours

Maximum Marks: 100

- I. a. Explain the architecture of a multi-layer artificial neural network. Give a labelled diagram and show its working. (10)
 b. What is meant by Linear Separability? Explain a problem which is not linearly separable and suggest a method to solve it. (10)
- OR**
- II. a. What are activation functions? Give three examples with necessary graphical representation. (12)
 b. Explain (i) Hebbian learning Rule (ii) Delta Rule (8)
- III. a. Explain the Back propagation learning algorithm. Also draw the architecture of the Network. (12)
 b. What is meant by the momentum technique. (4)
 c. What is meant by (i) Local minima (ii) temporal instability (4)
- OR**
- IV. a. Explain the problems involved in Back propagation Training methods. (10)
 b. Explain how the initial weights and learning rate parameter is selected in Back propagation algorithm. (10)
- V. a. Draw the architecture of a counter propagation network and explain its normal mode of operation. (8)
 b. Explain the training process in the Kohonen layer and Grossberg layer of a CPN. (12)
- OR**
- VI. a. In Kohonen learning, how are the initial weights assigned. Discuss the various methods used. (10)
 b. Show how input –vectors are preprocessed in a CPN with help of an example (5)
 c. Discuss the problems involved when weights are assigned randomly in the Kohonen layer of a CPN? (5)
- VII. a. Explain what you mean by statistical methods. Give an example. (10)
 b. Discuss the application of statistical methods to general non-linear optimization problems. (10)
- OR**
- VIII. a. Compare and contrast Boltzman Training and Cauchy Training. Give their graphs. (10)
 b. Explain what you mean by
 (i) Simulated annealing
 (ii) Artificial specific heat methods (10)
- IX. a. Explain the architecture of a Hop field Network. How is it related to Bidirectional Associative memory and how are its weights assigned? (12)
 b. What do you mean by
 (i) mutation in genetic algorithms
 (ii) Cross-over in genetic algorithms. (8)
- OR**
- X. a. Draw the architecture of BAM, properly labelled. Give a problem that can be solved with the help of the Network. (10)
 b. Explain how weights are computed in Bidirectional Associative memory. Also show how associations are stored and retrieved. (10)

