2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS
NEURAL NETWORKS
(ELECTRONICS & COMPUTER ENGINEERING)

Apr/May 2006

TIME – 3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. What are the modes of operation of a Hopfield network? Explain the algorithm for storage of information in a Hopfield network. Similarly explain the recall algorithm. [16]

2. Compare the similarities and differences between single layer and multi layer perceptrons and also discuss in what aspects multi layer perceptrons are advantageous over single laye perceptrons. [16]

3. Explain the backpropagation algorithm and derive the expressions for weight update relations? [16]

4. Describe the Hopfield model. In this model why is the energy of the all zero state always '0' in any net of any size? Use this fact to argue that at least one threshold must be negative for the all-zero state not to be stabilize well. [16]

5. Discuss how the "Winner-Take-All" in the Kohonen's layer is implemented and explain the architecture, Also explain the training algorithm. [16]

6. Explain the architecture of the Grossberg layer and its training algorithm [16]

7. (a) What are the advantages of ART network. Discuss about gain control in ART network. [8]

(b) Discuss in detail about orienting subsystem in an ART network. [8]

8. Explain the concept of pattern recognition and how artificial neural network is helping in the pattern recognition problems