

2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

IV B.TECH. II SEMESTER SUPPLEMENTARY EXAMINATIONS

NEURAL NETWORKS

(ELECTRONICS & COMPUTER ENGINEERING)

JULY -2005

TIME: 3 HOURS
MAX MARKS:80

Answer any FIVE Questions
All Questions carry equal marks

1. What is meant by an activation function in an artificial neuron model. Describe the various activation functions that are employed and compare their merits and demerits.
2. Briefly discuss about linear separability and the solution for EX-OR problem. Also suggest a network that can solve EX-OR problem.
3. Implement a back propagation network to simulate the following EX-OR function. i/p1
i/p2 o/p
1 1 0
1 0 1
0 1 1
0 0 0
Try the architecture in which there is only a single hidden unit and all units are connected with each other. If the network uses very steep sigmoid function, can you find a set of weights right away without running the learning algorithm?
4. Explain the working of a Hopfield network, with a neat sketch of its architecture.
5. Explain the Kohonen's method of unsupervised learning. Discuss any example as its application.
6. Derive expressions for the weight updation involved in counter propagation.
7. (a) What are the advantages of ART network. Discuss about gain control in ART network.
(b) Discuss in detail about orienting subsystem in an ART network.
8. Describe how a neural network may be trained for a pattern recognition task. Illustrate with an example