R09

Code No: C5509

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I - Semester Examinations, March/April-2011
NEURAL NETWORKS AND APPLICATIONS
(EMBEDDED SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
- - -

1 a) A fully connect feed forward network has 10 source nodes, 2 hidden layers, one with 4 neurons and the other with 3 neurons, and a single output neuron. Construct the architectural graph of this network.
b) Compare the correlation and competitive learning rules. [12]

2. Show that Ex-OR problem cannot be represented by Perceptron. Explain pertron convergence theorem. [12]

3. What is the role of momentum in the convergence of back propagation network? With the necessary expressions explain the forward computing and back word computing in back propagation network. [12]

4. a)Explain the behavior of attractors with respect to the Hopfield recurrent network.
b) Consider the TWO fundamental memories (stable states**) (1,-1,1) and (-1,1,-1**) of Hopfield network. Compute the Weight matrix and obtain the convergence of probe vectors **(-1,-1,1) and (1,1,-1).** [12]

5. It is some times said that the SOM algorithm preserves the topological relationships that exist in the input space. Strictly speaking, this property can be guaranteed only for an input space of equal or lower dimensionality than that of neural lattice. Discuss the validity of the statement. [12]

6. Explain the features of cluster discover Networks (ART1) briefly, explain how the patterns stored and recalled during the probe. [12]

7. What is simulated annealing and how Boltzmann machines are capable of pattern classification? [12]

8. Answer any **THREE**

i) Out-star learning rule ii) Bi-directional associate memories

iii) Principle Component analysis

iv) Similarity measures used in clustering process. [12]

* * * * * *