

Exam.Code:0919
Sub. Code: 6375

1108
B.E. (Computer Science and Engineering)
Seventh Semester
Elective – III
CS-705B: Neural Networks

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Compare and contrast biological neuron and artificial neuron.
- b) What is back propagation algorithm?
- c) Draw any three types of activations functions?
- d) What are associative neural networks?
- e) What do you mean by supervised learning?

(5x2)

UNIT – I

- II. a) Design a Hebbian network to implement logical OR function.
b) What is the role of hidden layer in neural networks?

(7,3)

III. What is back propagation algorithm? What are its various heuristics? Write in detail back propagation algorithm?

(10)

IV. a) Discuss Least Mean Squares algorithm.

b) How can multi-layered perceptrons be trained?

(2x5)

UNIT – II

V. a) What is Principal component analysis? Why do we use principal component analysis? What type of data should be used for PCA?

b) How PCA can be used for dimensionality reduction?

(6,4)

P.T.O.

(2)

- VI. a) Construct an auto-associative network to store vector $[1 \ -1 \ +1 \ -1]$. Use iterative auto-associative network to test the vector with three missing elements.
- b) What are Kohonen self-organizing maps? (6,4)
- VII. Define Radial basis function network. What is the main advantage of Radial Basis Function (RBF) network over a Multi-Layer Perceptron (MLP) network carrying out the same function? Explain various learning mechanism in Radial basis function networks. (10)

x-x-x