

6E3091

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B. Tech. VI Semester (Main/Back) Exam. May/June, 2013

ELECTRONICS & COMMUNICATION ENGINEERING # 6EC6.0

NEURAL NETWORKS

Time : 3 Hours

Min. Passing Marks : 24

Maximum Marks : 80

Instruction to Candidates :

Attempt any *five* questions, selecting *one* question from *each* unit. All questions carry *equal* marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

Unit-I

- (a) Draw the structure of a biological neuron and develop the artificial neural network from it. [8]
- (b) What is significance of weight used in artificial neural network? And define the activation function. [8]

OR

- Realize the OR, AND and Ex-OR gate using McCulloch Pitt's model of ANN. [16]

Unit-II

- Explain the different types of learning and compare them. [16]

OR

- (a) Using the Hebb rule, find the weight required to perform classifications: vector (1111) and (-11-1-1) are members of class (with target value 1); vectors (111-1) and (1-1-11) are not members of class (with target value - 1).
(b) Using each of the training X vectors as input, test the response of net. [16]

Unit-III

- Develop a perception for the AND function with binary and bipolar targets without bias up to 2 epochs (take first with (0,0) and next without (0,0)). [16]

OR

- Compare the operations of the AND gate functions with Hebb's net bipolar inputs and targets using Hebb's net and perception net. [16]

Unit-IV

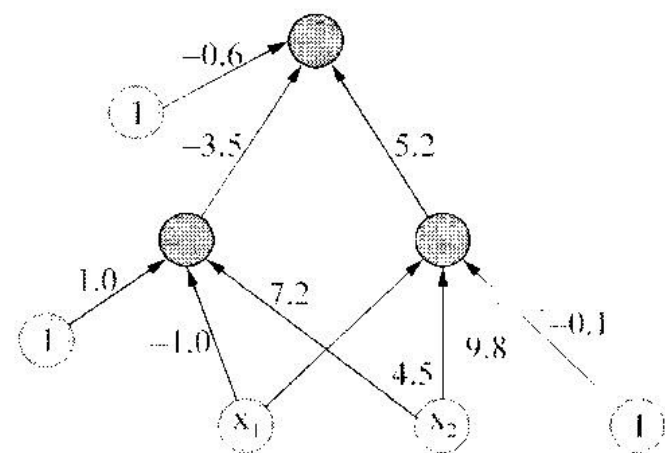
- Explain Back propagation Rule and architecture of it and training algorithm. [16]

OR

- Explain output representation and decision Rule in detail for multilayer perceptron model. [16]

Unit-V

- Generate a neural net using BPN algorithm for XOR logic function. The architecture and values of initial weights and biases are as. [16]



OR

- Explain Kohonen's Self Organizing Feature Map (SOM) and architecture and training algorithm. [16]