1048

B.E. (Electronics and Communication Engineering)
Eighth Semester
Elective : II & III
EC-810: Neural Network and Fuzzy Logic

Time allowed: 3 Hours

Max. Marks: 50

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

x-x-x

I. Attempt the following:-
    a) State the characteristics of an artificial neural network
    b) State the advantages of associative memory
    c) List the characteristics of ART network
    d) State the importance of membership function in fuzzy logic
    e) List the different methods of defuzzification process   (5x2)

UNIT – I

II. a) Justify XOR function is non-linearly separable by a single decision boundary line.

    b) What is the necessity of activation functions? List commonly used activation functions.   (2x5)

III. a) Implement OR function with binary inputs and bipolar targets using perceptron training algorithm upto 3 epochs.

    b) Explain the architecture and training algorithm of back propagation network.

IV. What is a Hopfield net? Construct and test an associative discrete Hopfield network? with input vector [1 -1 1 1].Test the network with missing entries in first and fourth components of the stored vector.   (10)

UNIT – II

V. a) With architecture, explain the training algorithm of self organizing feature maps (SOFM).

    b) Explain the structure and flow chart of Maxican hat network?   (2x5)

VI. a) Explain the Vector Quantization.

    b) Explain the architecture and training algorithm used in ART network.   (2x5)

VII. a) Describe the modes of approximate reasoning. Why approximate reasoning is important in fuzzy logic.

    b) Define expert system. How is a fuzzy expert system formed? State its importance.   (2x5)

x-x-x