2013

MCA

5th SEMESTER EXAMINATION

PAPER—503

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

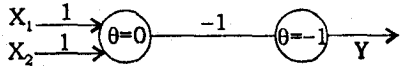
Elective–I

(NEURAL NETWORK)

Answer any *five* questions.

1. (a) What is Artificial Neural Network? Discuss several advantages of Neural network. Computing System over Conventional computing system. 2+5

(b) Explain the functiionalities of the different components / elements of biological nervous system along with suitable diagram. 7

2. (a) 

What does the above network do? 7

(b) What is network topology? Mention the different topologies of Neural network. 2+5

(Turn Over)

3. (a) With the help of suitable diagram explain the Roselblatt's perceptron model of neuron. 7

   (b) How MP models are used to represent the different logical gates. Discuss with the help of examples. 7

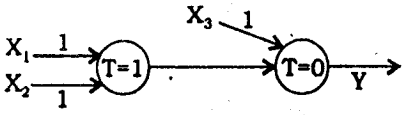
4. (a) Briefly explain the different architecture of Neural networks. 9

   (b) What are the three basic types of learning associated with Neural network. Explain any two of them. 5

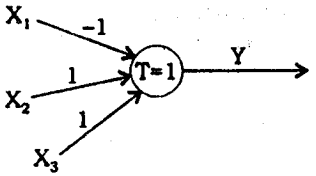
5. (a) A fully connected feed forward network has 10 source nodes, 2 hidden layers, one with 4 neurons and other with 3 neurons and a single output neuron. Construct the architectural graph of this network. 5

   (b) Find the truth table of the logic functions implemented in the networks (i), (ii) & (iii) : 3×3

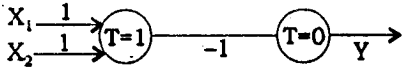
(i)



(ii)



(iii)



6. (a) What is activation function? What are the significance of biased value and activation function in neuron models. Mention any two types of activation function. 2+5+2

   (b) Discuss how machine intelligence differs from human. 5

7. (a) Write shorts notes on (any *three*) : 3×3

   (i) Hebbian Leaning ;

   (ii) Competitive bearing ;

   (iii) Back propagation learning algorithm ;

   (iv) Stochastic learning.

   (b) Mention some application domains where neural network are applied for the solution of a variety of problems. 5

[*Internal Assessment*] 30