BT-7/S-16

NEURAL NETWORK AND FUZZY LOGIC
Paper–CSE-402

Time allowed : 3 hours]   [Maximum marks : 100

Note :   Attempt *five* questions in all, selecting at least **one** question from each unit.

Unit–I

1.   (a)   What is ANN ? Describe breifly some important applications of Artificial Neural Networks.

     (b)   Compare biological and artificial neural networks.

2.   (a)   If the net input to an output neuron is 0.61, calculate its output when the activation function used is (i) binary sigmoidal (ii) bipolar sigmoidal.

     (b)   Discuss the various types of learning used in artificial neural networks.

Unit–II

3.   (a)   Explain the working of a Hopfield network, with a neat sketch of its architecture.

     (b)   Define discrete Hopfield net. Write the energy function for discrete Hopfield network.

4.   (a)   Explain the back-propagation algorithm and derive the expressions for weight update relations ?

     (b)   Explain the working of Kohonen's self-organizing map. Derive expressions for the weight updation involved in counter propagation.

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Unit–III

5. What is Adaptive Resonance Theory (ART) ? Write a note on the architecture of ART network and explain its operation with relevant equations.

6. (a) Write a note on image compression using ART.

   (b) What do you understand by BAM ? Differentiate between continuous and discreate BAM ? Discuss the algorithm of discrete BAM.

Unit–IV

7. What is evolutionary algorithm ? What are the essential conditions for evolution ? Explain the crossover operator used in genetic algorithm using suitable examples.

8. What is optical neural network ? What are holographic correlators ? Write a note on its use in image recognition system ?

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