

Exam. Code : 208604

Subject Code : 4764

M.Sc. Information Technology 4th Sem. (Batch 2020-22)

ARTIFICIAL NEURAL NETWORK

Paper—MIT-403

Time Allowed—3 Hours] [Maximum Marks—100

Note :—Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The **fifth** question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. What is an ANN ? What are the different ANN architectures ? How does an ANN learn ?
2. (a) Explain the steepest descent method.
(b) Differentiate between supervised and unsupervised learning with examples.

SECTION—B

3. What is a Single-layer Perceptron Model ? Explain the different learning algorithms used by a perceptron.
4. Explain Pocket algorithm with and without ratchet for linear machines.

SECTION—C

5. (a) What is Brain-State-in-a Box Network Model ? Discuss its mathematical formulations.
(b) How is Hopfield's neural network used for network optimization ?
6. (a) Differentiate between ART1 and ART2.
(b) Explain K-means clustering algorithm with an example. How is the optimum value of K decided ?

SECTION—D

7. What is a Multi-layer perceptron ? Explain its architecture. Discuss the back propagation technique with an example.
8. Briefly explain the following applications of back-propagation :
 - (a) NETtalk
 - (b) Handwritten character recognition
 - (c) Pattern recognition.