

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt five questions in all, selecting atleast one question from each unit. All questions carry equal marks.

**UNIT-I**

1. (a) What do you mean by neural networks? Explain different application of neural networks. (8)
- (b) Explain the single and multilayer neural networks. (7)
2. (a) What do you mean by perceptron? Explain different types of perceptron in detail. (7)
- (b) Discuss the classification of Neural Network. (8)

**UNIT-II**

3. (a) What is Backpropagation? Why do we need it? Explain its advantages and disadvantages. (7)
- (b) What is the role of activation function in neural networks? List down the names of some popular Activation Functions used in Neural Networks. (8)

4. (a) Write training algorithm for Full Counter Propagation Network. (8)
- (b) Explain Bi-directional associative memories in detail. (8)

**UNIT-III**

5. (a) Explain the architecture of Adaptive Resonance Theory. (8)
- (b) Discuss Image compression using ART. (7)
6. What is Optical Neural Network? Explain its method. (15)

**UNIT-IV**

7. (a) What are the different techniques to improve the Deep Neural Networks? Explain in detail. (8)
- (b) Explain different types of RNN. (7)
8. Explain various Optimization Algorithms for Training Neural Network with its advantages and disadvantages. (15)