

2053  
B.E. (Electronics and Communication Engineering)  
Eighth Semester  
EC-810: Neural Networks and Fuzzy Logic

Time allowed: 3 Hours

Max. Marks: 50

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

x-x-x

- I. Attempt the following:-
- What is classical Artificial Intelligence?
  - How supervised learning is different from unsupervised learning?
  - Explain the application of ART Networks.
  - Differentiate between fuzzy logic and classical logic.
  - Analyze the role of neurons in neural networks. (5x2)

**UNIT - I**

- II. a) What are the characteristics and advantages of neural networks over conventional networks?  
b) With the help of suitable diagram explain the concept of back propagation training model. (2x5)
- III. a) Analyze the working of Hopfield neural network model.  
b) Explain the concept of perceptron learning and mention its advantages. (2x5)
- IV. a) Why there is need of Bidirectional associative memories? Explain the architecture of Bidirectional associative memories.  
b) Explain the role and types of activation function in neural networks. (2x5)

**UNIT - II**

- V. Explain the concept of Adaptive Resonant Theory. Differentiate between ART1 and ART2 networks. (10)
- VI. a) What are Self Organized Maps? Explain the SOFM algorithm.  
b) With the help of suitable example demonstrate the operation of union, interception and min-max operation in fuzzy logic. (2x5)
- VII. a) Taking suitable example explain Mamdani fuzzy inference system.  
b) What is defuzzification and explain the various techniques of defuzzification. (2x5)

x-x-x