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## **EC-721**

**B. E. (Seventh Semester) (P. T. D. C.)**

**EXAMINATION, June, 2009**

**(Electronics & Communication Engg. Branch)**

**NEURAL NETWORK**

**(Elective – II)**

**(EC – 721)**

*Time : Three Hours*

*Maximum Marks : 100*

*Minimum Pass Marks : 35*

**Note :** Attempt all questions, having internal choice. All questions carry equal marks.

### **Unit – I**

1. (a) Differentiate between biological neuron and artificial neuron on the basis of structure and function of a single neuron. 10

- (b) Explain the classification of ANN characteristics. 10

*Or*

- (a) Write different training or learning methods used for training neural networks. 10

- (b) Write a short note on Adaline and Madaline Networks. 10

**P. T. O.**

**Unit – II**

2. (a) Give different types of activation functions. How are they useful in multilayer networks. 10
- (b) What is 'forward pass' in back-propagation algorithm ? 10

*Or*

- (a) How a Neural Network recognizes two-dimensional pattern ? Write briefly. 10
- (b) Explain the advantages, applications and limitations of error back propagation algorithm. 10

**Unit – III**

3. (a) Explain the Architecture of Counterpropagation Networks. 10
- (b) Compare the deterministic training with statistical training methods. 10

*Or*

- (a) Explain Simulated Annealing. How is this method different from specific heat method ? 10
- (b) What are the advantages of Boltzmann training method over Cauchy training ? 10

**Unit – IV**

4. (a) What are recurrent networks ? Explain stability recurrent networks. 10
- (b) What is Boltzmann machine ? What problems are associated with this machine ? 10

*Or*

- (a) Explain the significance of hidden layer. How is it useful in pattern recognition and control problems ?

10

- (b) Explain Adaptive Resonance theory and also explain the diagram of ART Network. 10

Unit – V

5. (a) Define Optical Neural Network and give its advantages and disadvantages. 10
- (b) Draw and explain schematic diagram of electro-optical matrix multiplier. 10

*Or*

- (a) What do you mean by Cognition ? Explain it briefly. 10
- (b) Explain structure and working of Neo-cognition. 10