

Roll No. ....

24489

**B. Tech 7th Semester (CSE)  
Examination – May, 2018**

**NEURAL NETWORKS**

Paper : CSE-407-F

Time : Three Hours ]

[ Maximum Marks : 100

Before he questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

*Note :* Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) Correction Learning Rule 4 × 5 = 20  
(b) Differentiate Auto & Hetro Associative Memory  
(c) Learning factors  
(d) Applications of ANN

**SECTION – A**

2. What are biological Neurons ? How they help in creating artificial neuron model. Compare and

Contrast biological neurons with Artificial Neural Networks. 20

3. (a) Explain Hebbian Learning Rule. 10
- (b) Explain McCulloch - Pitts neuron to design logic Networks of AND and OR logic functions. 10

### SECTION - B

4. (a) Explain the Single layer continuous perceptron training algorithm for linearly separable classification. 10
- (b) Explain linear separable classification with suitable example. 10
5. Write short notes on :
- (a) Error Propagation Training 10
- (b) Generalized Delta Learning Rule 10

### SECTION - C

6. Explain the various architectures of Hopfield networks in detail. How learning process occurs in Hopfield Networks? 20

7. Explain Bi directional Associative Memory. Design a Bi directional Associative Memory to encode the following Pattern. : 20

$$A_1 = 100001$$

$$B_1 = 11000$$

$$A_2 = 011000$$

$$B_2 = 10100$$

$$A_3 = 001011$$

$$B_3 = 01110$$

Check it for  $A_3$

### SECTION - D

8. Explain unsupervised learning of clusters in detail. 20
9. Write short notes on :
- (a) Separation limitation of unsupervised learning. 10
  - (b) Recall Mode. 10
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