

Roll No.

24489

**B. Tech. 7th Semester (CSE) (Common
with Special Chance)**

Examination – December, 2019

NEURAL NETWORKS

Paper : CSE-407-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the 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 selecting one question from each Section and question no. 1 is compulsory.

1. Write a short note on : 20
- (a) What is Linear associator ? Explain briefly.
 - (b) What do you mean by activation function and threshold activation function ?
 - (c) What are Separability Limitations in Unsupervised Learning ?
 - (d) Differentiate between Feedforward and Feedback Networks.

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SECTION – A

2. How biological neural is different from the artificial neural networks ? Explain the architecture of biological neural networks. 20
3. (a) Describe the following learning Rules : 10
- (i) Delta learning Rule
 - (ii) Winner Take All Learning Rule
- (b) Explain any *three* learning rules. 10

SECTION – B

4. Explain the linearly and non-separable pattern classification in detail. 20
5. (a) Discuss the Classification model, Features & Decision regions in detail. 10
- (b) Explain error back-propagation algorithm in details. 10

SECTION – C

6. Explain the various architectures of Hopfield network detail. How learning process does occur in Hopfield network ? 20

7. (a) Explain the architecture of associative memory in detail. Also discuss its retrieval algorithm. 10
- (b) Design a bi-directional associative memory to encode the following pattern : 10
- | | |
|----------------|---------------|
| $A_1 = 100001$ | $B_1 = 11000$ |
| $A_2 = 011000$ | $B_2 = 10100$ |
| $A_3 = 001011$ | $B_3 = 01110$ |
- Check it for A_3 .

SECTION – D

8. Write a short note on : 20
- (a) Winner-take-all learning in unsupervised learning.
- (b) Initialization of weights.
9. What is clustering ? Explain unsupervised learning of clusters in detail. 20
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