

Roll No. ....

Total Pages : 3

**47246**

**BT-7/M-24**

**NEURAL NETWORKS AND DEEP LEARNING**

**Paper-PE-CS-D-411A**

Time : Three Hours]

[Maximum Marks : 75

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

**UNIT-I**

1. (a) Explain the various models of artificial neural networks with their corresponding advantages and disadvantages. (7)

(b) Compare and Contrast biological neurons with ANN. Explain. (8)

2. (a) Explain in detail unsupervised learning of clusters. What do you mean by Clustering? Explain with example. (7)

(b) Write short notes :

(i) Biological Neural Network.

(ii) Reinforcement Learning.

(iii) Bias.

(iv) Threshold.

(2+2+2+2=8)



## UNIT-II

3. (a) Explain the various Architecture of Hopfield Network in detail. How learning process occurs in Hopfield Network? (7)
- (b) What do you mean by Recurrent Auto Associative Memory? Justify with Example. (8)
4. (a) How Counter Propagation Networks Architecture is different from Hopfield Network Architecture? Justify with Example. (7)
- (b) Explain the Architecture, Association, Encoding and Decoding and Stability Consideration for Bidirectional Associative Memory in detail. (8)

## UNIT-III

5. (a) With a neat architecture, explain the Boltzmann machine. Explain with Example. (7)
- (b) What do you mean by Maps Architecture? Describe the Kohonen selforganization map in detail. (8)
6. (a) With a neat architecture, explain the learning vector quantization architecture. Explain with an example. (7)
- (b) What do you mean by holographic correlators? Why is it used in the Artificial Neural Network? Explain with a suitable example. (8)



## UNIT-IV

7. (a) Describe how deep learning is a kind of representation of learning with the Venn diagram. Explain. (7)
- (b) What do you mean by Deep recurrent Network? Draw the Architecture with steps. (8)
8. (a) Draw and explain the architecture of a convolutional network. (7)
- (b) What is Natural Language Processing (NLP)? Explain the different types of speech recognition in NLP. Explain. (8)