

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 110855

Roll No.

**B.TECH.**

**Theory Examination (Semester-VIII) 2015-16**

**NEURAL NETWORKS**

*Time : 3 Hours*

*Max. Marks : 100*

**Section-A**

**1. Attempt all questions from this section. (2×10=20)**

- (a) Define accelerated learning in back-propagation network.
- (b) Compare the flow of 2D and 3D information process in neural network.
- (c) What are the factors to be considered while designing a learning rule?
- (d) Define temporal feed-forward network.
- (e) State the hebb learning rule neural network.
- (f) What is an activation function? List the various activa-

tion functions used in neural networks for obtaining the output.

- (g) How XOR problem can be solved by multilayer perceptron model?
- (h) What do you mean by neuro-computing?
- (i) Describe delta learning rule of artificial neural network.
- (j) What is the difference between artificial intelligence and neural networks?

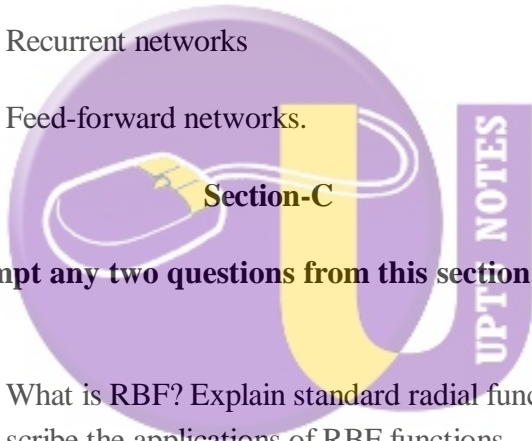
**Section-B**

**2. Attempt any five questions from this section.**

**(5×10=50)**

- a. What do you mean by linearly separable and non- linearly separable problems?
- b. Write and explain important properties that neuronal signal functions.
- c. Describe the activation functions commonly used in BP algorithm. Explain the gradient function for them.
- d. What are different normalization techniques used in data processing? Elaborate any two normalization techniques in detail.

- e. What do you understand by over training of a network? How can it be avoided?
- f. Describe Principal Component Analysis (PCA) technique of feature extraction.
- g. What is expert system? Explain applications of expert system.
- h. Explain the following terms in detail:
  - (i) Recurrent networks
  - (ii) Feed-forward networks.



**Attempt any two questions from this section.**

**(2×15=30)**

- 3. (a) What is RBF? Explain standard radial functions. Describe the applications of RBF functions.
- (b) Describe the learning process of SOM. Assume suitable equations to describe it.
- 4. Explain the following terms in detail:
  - (a) Neuro-fuzzy-genetic algorithm.
  - (b) Soft-computing

5. Write short notes on:

- (a) Complexity analysis of neural network models
- (b) Applications of neural networks

