

Printed Pages : 2



ECS085

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

PAPER ID : 110855

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
NEURAL NETWORKS

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

1. Attempt any FOUR parts of the following: $5 \times 4 = 20$
 - (a) What is a neuron? State the law of neuron.
 - (b) What do you mean by neurocomputing?
 - (c) What is a sigmoidal activation function?
 - (d) What are the different models of artificial neural networks are in practice.
 - (e) Distinguish between supervised learning and unsupervised learning techniques.
 - (f) Describe delta learning rule of artificial neural network (ANN).

2. Attempt any TWO parts of the following: $10 \times 2 = 20$
 - (a) Describe different normalization techniques used in data processing? Explain any two normalization techniques in detail.

- (b) Describe principal component analysis (PCA) technique of feature extraction.
- (c) Explain the following terms in detail :
- Least-mean square algorithm
 - Discriminant analysis.
3. Attempt any TWO parts of the following: $10 \times 2 = 20$
- What is sum-squared error in neural network training?
 - Explain the weight updation process in a back propagation training of neural network.
 - Explain the following techniques in detail :
 - RPROP algorithm
 - Gradient descent rule.
4. Attempt any TWO parts of the following: $10 \times 2 = 20$
- What is feature extraction? Describe any two feature extraction techniques in brief.
 - Describe self-organizing feature map algorithm.
 - Explain the following terms in detail:
 - Recurrent networks
 - Feed-forward networks
 - What are support vectors? Explain the working of support vector machines (SVM).
5. Write short notes on any FOUR of the following: $5 \times 4 = 20$
- Complex-valued neural networks
 - Soft computing
 - Applications of ANN
 - Performance evaluation of ANN
 - Genetic algorithms
 - Strengths and weaknesses of ANNs
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