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

PAPER ID : 110855

Roll No. | | |

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: 5×4=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: 10×2=20
   (a) Describe different normalization techniques used in data processing? Explain any two normalization techniques in detail.

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(b) Describe principal component analysis (PCA) technique of feature extraction.

(c) Explain the following terms in detail :
   (i) Least-mean square algorithm
   (ii) Discriminant analysis.

3. Attempt any TWO parts of the following: 10×2=20

(a) What is sum-squared error in neural network training?

(b) Explain the weight updation process in a back propagation training of neural network.

(c) Explain the following techniques in detail :
   (i) RPROP algorithm
   (ii) Gradient descent rule.

4. Attempt any TWO parts of the following: 10×2=20

(a) (i) What is feature extraction? Describe any two feature extraction techniques in brief.
   (iii) Describe self-organizing feature map algorithm.

(b) Explain the following terms in detail:
   (i) Recurrent networks
   (ii) Feed-forward networks

(c) What are support vectors? Explain the working of support vector machines (SVM).

5 Write short notes on any FOUR of the following: 5×4=20

(a) Complex-valued neural networks
(b) Soft computing
(c) Applications of ANN
(d) Performance evaluation of ANN
(e) Genetic algorithms
(f) Strengths and weaknesses of ANNs

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