

Roll No

EC - 7013**B.E. VII Semester**

Examination, December 2015

Neural Networks**Time : Three Hours****Maximum Marks : 70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each question are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Differentiate between Neural Network and Artificial intelligence.
 b) Write the application of Neural Networks.
 c) What do you understand by competitive learning?
 d) With the help of a suitable diagram discuss functioning of a simple artificial neuron. Explain how the functionality is affected if two such neuron are connected in series?

OR

How does neuron act as auto associative memory? Explain the functioning with a three neuron model.

2. a) Explain adaptive filtering problem.
 b) Write the Perceptron convergence theorem.
 c) Differentiate between linear least squares filter and least mean square algorithm.
 d) Discuss Back Propagation algorithm for a multilayer network. Also draw the architecture of the Network.

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OR

What is Pruning? Explain the different types of Network Pruning techniques functions.

3. a) Explain the supervised learning technique with real time example.
 b) Explain the properties of Radial Basis Function (RBF).
 c) Write the comparison of Radial Basis Function and Multilayer Perceptron.
 d) How does SVM classify non-linearly separable classes? Explain it through the Kernel function. Where will be you apply this classification?

OR

Explain the details of different categories learning strategies.

4. a) Write a note on Kullback-Leibler divergence.
 b) Explain with suitable example entropy principle.
 c) Write the principle of maximum mutual information.
 d) Prove that using the linear activation function with multilayer perception will make it behave like single layer perception.

OR

What do you mean by generalized network? How training is done for such networks?

5. a) Explain State Space Model.
 b) Discuss real time recurrent learning.
 c) Explain Kalman filtering approaches.
 d) Draw the schematic diagram of adaptive resonance theory network and explain its architecture.

OR

What are the limitations of error back propagation algorithm? Define its characteristics and applications.