

G 1709

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Reg. No.....

Name.....

**B.TECH. DEGREE EXAMINATION, MAY 2016**

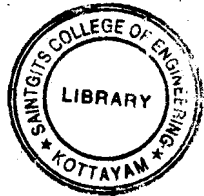
**Eighth Semester**

Branch : Applied Electronics and Instrumentation Engineering

AI 010 804 L01—NEURAL NETWORKS (Elective III) (AI)

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]



Time : Three Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.*

*Each question carries 3 marks.*

1. Distinguish between supervised learning and unsupervised learning techniques.
2. What is local minima and speed energy function ?
3. What are the advantages of associative memory ?
4. What is LVQ ? Also mention what is a codebook vector ?
5. Explain the concept of simulated Annealing.

(5 × 3 = 15 marks)

**Part B**

*Answer all questions.*

*Each question carries 5 marks.*

6. What is error correction learning ? Give an example.
7. Explain the architectural graph of a multilayer perceptron with two hidden layers.
8. Discuss the relevance of the vigilance parameter in ART 1 network.
9. Explain why the self organising map is called a topology preserving mapping.
10. Why is simulated Annealing considered a global optimization technique ? Explain.

(5 × 5 = 25 marks)

**Part C**

*Answer all questions.*

*Each full question carries 12 marks.*

11. (a) Explain the structural organisation of levels in the brain.

(6 marks)

- (b) What are the various learning rules in neural networks ? Explain any *one* of them in detail.

(6 marks)

Or

Turn over

12. Explain the ADALINE architecture and algorithm used for pattern classification.
13. What are the stages involved in training a neural network using Back Propagation algorithm? Explain clearly.

Or

14. Assuming the general structure of a feed forward MLP with a single hidden layer, derive the training rule for the hidden layer neurons and justify the name "error back propagation" training.
15. Draw and explain the architecture of Discrete Hopfield network : How it is trained ?

Or

16. Describe the working of the ART 1 network. How does it overcome the "stability plasticity dilemma"?
17. Explain the Kohonen's Self Organizing Map (SOM). Discuss the "lateral inhibition" and "cooperative learning" with reference to the same.

Or

18. With architecture, give a detailed description of forward only CPN.
19. Discuss how learning takes place in Boltzmann's machine and explain any typical application of the same.

Or

20. Explain travelling salesman problem. How it can be solved ? Explain.

(5 × 12 = 60 marks)

