B.TECH. DEGREE EXAMINATION, MAY 2014

Eighth Semester

Branch : Applied Electronics and Instrumentation Engineering

AI 010 804 L01 – NEURAL NETWORKS (Elective III) [AI]

(New Scheme–2010 Admissions)

[Regular]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What is meant by training and recall in artificial neural networks?

2. Why back propagation learning is also called generalized delta rule?

3. What are the requirements of an associative memory?

4. What are the components of a competitive learning network?

5. What is the basis for Boltzmann learning law?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Distinguish between Linearly separable and Non-linearly separable problems. Give examples.

7. What is the significance of momentum term in back propagation learning?

8. Write a note on vector quantization.

9. What is self-organization network?

10. What are the limitations of Boltzmann learning?

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Describe the Perceptron classifier and show how its learning can be interpreted as a Gradient Descent method.

(12 marks)

Or

Turn over

12. (a) Compare the different models of artificial neurons.

(b) Differentiate between activation dynamics and synaptic dynamics.

(8 + 4 = 12 marks)

13. What is back propagation learning ? Discuss a few tasks that can be performed by a back propagation network.

(12 marks)

Or

14. Give the architecture and learning method of a multilayer feed forward network.

(12 marks)

15. Briefly explain the working principle of ART network. What is the significance of 'resonance' in ART network?

(12 marks)

Or

16. (a) Compare Auto associative and Hetero associative memory.

(b) Write a note on recurrent network.

(6 + 6 = 12 marks)

17. With a neat diagram, explain the working of a forward only counter propagation network.

(12 marks)

Or

18. (a) Explain the features of Kohonen's self organizing map.

(b) Discuss any *two* competitive learning laws.

(6 + 6 = 12 marks)

19. How to perform the following tasks by a Boltzmann machine?

(a) Pattern completion.

(b) Pattern association.

(12 marks)

Or

20. Briefly explain the concept of simulated annealing. What is the Markov property of the simulated annealing process?

(12 marks)

[5 × 12 = 60 marks]