Total number of printed pages–3

53 (CS 513) NUCP

2021

NEURAL COMPUTING

Paper : CS 513

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(A)* Differentiate between biological neuron and artificial neural network. 5

   (B) What are the different learning rules used in artificial neural network ? 15

2. What is associative memory ? What are the characteristics of associative memory ? Discuss associative memory model. 2+6+12=20

3. *(A)* Explain about Hopfield network. 5

Contd.

(B) What is an activation function ? Name some of the activation functions. 3

(C) What is the solution of non-linearly separable problem ? Explain with the help of an example. 10

(D) What is Perfect recall ? 2

4. (A) Discuss Least Mean Squares (LMS) algorithm. 10

(B) What is Bayes classifier ? Discuss the comparison between Bayes classifer and Perceptron. 8

(C) What is Cover's theorem ? 2

5. Derive the time series equation of weight adjustment for the backpropagation algorithm. 20

6. (A) What is Self-Organizing Map (SOM) ? What are the essential processes in the self-organizing map ? Discuss it. 16

(B) What is Counterpropagation Network ? 2

(C) What are the applications of Self-Organizing Map ? 2

7. (A) Explain neocognitron architecture. 10

(B) Discuss adaptive resonance theory. 8

(C) What are the applications of Spatio-temporal networks (STNs) ? 2