

B.Tech. (CSE) 7th Semester (G-Scheme)

Examination, December-2022

NEURAL NETWORKS

Paper - PCC-CSE-401-G

*Time allowed : 3 hours* *[Maximum marks : 75]*

*Note: All questions carry equal marks. Question no. 1 is compulsory. In addition to the compulsory question, student will have to attempt four more questions selecting one question from each unit.*

**1. Compulsory Question :**

- (a) Discuss evolution of neural network.
- (b) Explain the Competitive Learning.
- (c) Obtain the output of neuron Y neuron having three input  $x_1 = 1$ ,  $x_2 = 2$ , and  $x_3 = 3$  and weight are  $w_1 = 1$ ,  $w_2 = 1$ ,  $w_3 = 2$  by using Threshold and Sigmoidal activation functions.
- (d) Discuss the concept of Storage capacity in Associative Memory.

**Unit - I**

2. Explain the component of a Biological Neuron. Also focus on Biological neuron equivalencies to artificial neuron model.
3. What is Activation Function? Why it is used? Give different types of activation function in detail.

**Unit - II**

4. What is perceptron? Also realize if for OR function for bipolar data.
5. Explain Linear Separability Concept by taking a suitable example, also classify the output of OR function using it.

**Unit - III**

6. Derive Gradient Decent algorithm and compare it with generalized delta learning rule.
7. What is Learning? Explain its different types.

**Unit - IV**

8. Store the vector (1 1 -1 -1) in Auto Associative Network, And
  - (a) Find the Weight Matrix
  - (b) Test the net with input vector
  - (c) Test with one mistake in input
  - (d) Test with one missing in input
  - (e) Test with two missing in input
  - (f) Test with two mistake in input
9. What is Associative Memory? Explain Auto Associative Memory with its architecture, training (insertion) and testing (Retrieval) Algorithm.