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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.

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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.

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