Code No: **N0221** **R07** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, March – 2017

NEURAL NETWORKS AND FUZZY LOGIC

(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Explain with neat sketch the McCulloch-Pitts model of artificial neural network? [8]

b) Compare the biological and artificial neuron models? [8]

2 a) What are the learning strategies? Explain any two? [8]

b) Describe the activation dynamic models?

3 a) Discuss the working of single layer perceptron and multilayer perceptron with relevant algorithm and compare them. [10]

b) Write about the applications of perceptron model? [6]

4 a) The optimum number of hidden layers in back propagation is two justify? What happens if number of hidden layers increases? Explain. [10]

b) What are the limitations of back propagation algorithm? [6]

5 a) Differentiate between discrete time Hop- field network and continuous type Hopfield network. [8]

b) With suitable examples, explain different types of associative memories. [8]

6 a) Define membership? What are different types of membership functions with neat schematic? [8]

b) Let $\tilde{R} = \begin{bmatrix} 0.4 & 0.3 \\ 0.1 & 0.9 \\ 0.8 & 0.5 \end{bmatrix}$ be a fuzzy relation on X={x_1, x_2, x_3}, Y={y_1, y_2} and $\tilde{S} = \begin{bmatrix} 0.5 & 0.4 & 0.6 \\ 0.3 & 0.5 & 0.7 \end{bmatrix}$ be a fuzzy relation on Y={y_1, y_2} , Z={z_1, z_2, z_3}. Find R*o*S by max-min composition? [8]

7 a) Discuss any two membership value assignment? [8]

b) How do you convert a fuzzy set to single crisp value and discuss the methods to be used? [8]

8 Describe how a neural network may be trained for a load forecasting task. Illustrate with an example. [16]