

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**

- 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 RoS 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]