

Code: R7410201

R07**IV B.Tech I Semester (R07) Supplementary Examinations, May 2012****NEURAL NETWORKS AND FUZZY LOGIC**

(Electrical & Electronics Engineering and Electronics & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions**All Questions carry equal marks**

1. (a) Explain in detail the working of Biological Neuron.
(b) Explain the architecture of Hodgkin - Huxley Neuron Model.
2. (a) Compare activation dynamics and synaptic dynamics models.
(b) Explain Reinforcement learning strategy.
3. (a) Explain why single layer perceptron network couldn't solve even EX-OR problem.
(b) Derive the equation for weight change for discrete perceptron network.
4. (a) State and explain Kolmogorov theorem.
(b) Explain in detail how to describe the number of hidden layer neurons, input layer neurons and output layer neurons in back propagation network.
5. (a) Explain the architecture of BAM.
(b) Prove BAM stability theorem.
6. (a) Explain the operation of fuzzy sets.
(b) For the following fuzzy relations, perform the MIN – MAX composition.

$$R1 = \begin{bmatrix} 1 & 0.4 & 0.1 \\ 0.2 & 0.6 & 0.8 \\ 0.1 & 0.4 & 0.8 \\ 0.9 & 0.3 & 0 \end{bmatrix} \quad R2 = \begin{bmatrix} 0.1 & 0.2 & 0.4 & 0.9 \\ 1 & 0.1 & 0.7 & 1 \\ 0.8 & 0.7 & 0.1 & 0.5 \end{bmatrix}$$

7. List the various defuzzification techniques. Explain each of them in detail.
8. (a) Explain the application of fuzzy logic for classification.
(b) Explain how ANN is used for load forecasting.
