

IV B.Tech I Semester Supplementary Examinations, April/May 2005
NEURAL NETWORKS & FUZZY LOGIC CONTROL
(Electronics & Control Engineering)

Time: 3 hours**Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is the significance of momentum term in back propagation learning.
 (b) Why convergence is not guaranteed for the back propagation-learning algorithm.
2. What are the modes of operation of a Hopfield network?. Explain the algorithm for storage of information in a Hopfield network. Similarly explain the recall algorithm.
3. (a) Explain the architecture of self-organizing map network.
 (b) Explain the training algorithm of Kohonen's layer training algorithm.
4. Explain the procedure of identification of dynamical system using neural networks.
5. Let $X = \{1, 2, 3, \dots, 10\}$. Determine the cardinalities and relative cardinalities of the following fuzzy sets.
 - (a) $\tilde{A} = \{(3, 10), (4, 0.2), (5, 0.3), (6, 0.4), (7, 0.6), (8, 0.8), (10, 1), (12, 0.8), (14, 0.6)\}$
 - (b) $\tilde{B} = \{(2, 0.4), (3, 0.6), (4, 0.8), (5, 1.0), (6, 0.8), (7, 0.6), (8, 0.4)\}$
 - (c) $\tilde{C} = \{(2, 0.4), (4, 0.8), (5, 1.0), (7, 0.6)\}$
6. Draw a block diagram of a possible fuzzy logic control system. Explain about each block.
7. (a) Compare and contrast fuzzy logic control and classical control system.
 (b) Summarize in a point form the design steps of fuzzy logic control.
8. Design and develop a pressure process control by FLC model. Formulate necessary membership functions and required fuzzy rules for the application.
