

Code: EEPC1T6A

**I M.Tech-I Semester-Regular/Supplementary Examinations
January 2017**

**AI TECHNIQUES
(POWER SYSTEM CONTROL AND AUTOMATION)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Describe in detail about the operation over the organization of the brain and biological neuron. 7 M

b) Explain in detail Potential application of artificial neural networks. 7 M
2. a) State and prove Perceptron convergence theorem. 7 M

b) Discuss in detail about single layer continuous perceptron networks for linearly separable classifications. 7 M
3. a) Derive and explain back propagation training algorithm. 7 M

b) Explain in detail about the architecture of discrete and continuous versions of Hopfield network. 7 M

4. a) Explain in detail the binary encoding with a suitable example. 7 M
- b) How to construct a Genetic Algorithm? Explain. 7 M
5. a) What are the operators of Genetic algorithm? Explain. 7 M
- b) Explain convergence of genetic algorithm. 7 M
6. a) Explain properties, operations and relations of fuzzy sets. 7 M
- b) Describe the role of membership function in fuzzy logic. What are different membership functions in fuzzy logic, also explain their significance in detail. 7 M
7. a) Explain in detail about development of rule base and decision making system. 7 M
- b) Mention the need for the De-fuzzification, explain the three types of De-Fuzzification with its formulae. 7 M
8. a) Explain a step by step procedure in designing of a fuzzy logic controller. 7 M
- b) Explain how ANN is used for Load forecasting. 7 M