

Code: EE7T5B

IV B.Tech - I Semester – Regular Examinations - November 2015

**ARTIFICIAL INTELLIGENCE TECHNIQUES IN
ELECTRICAL ENGINEERING
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

- 1 a) Enumerate the Differences between Supervised and Unsupervised Learning. 7 M
- b) Explain in detail the model of biological neuron. 7 M
- 2 Explain the different steps in Back Propagation Algorithm in detail. 14 M
- 3 The following vectors need to be stored in a recurrent auto associative memory: 14 M
- $$S^{(1)} = [1 \ 1 \ 1 \ 1 \ 1]^T$$
- $$S^{(2)} = [1 \ -1 \ -1 \ 1 \ -1]^T$$
- $$S^{(3)} = [-1 \ 1 \ 1 \ 1 \ 1]^T$$
- Compute the weight matrix W.
- 4 a) Define Fuzzy Set with an example. 7 M

- b) What is membership function? Enumerate the types of membership function with examples. 7 M
- 5 Explain different Defuzzification methods with examples. 14 M
- 6 a) What is fitness function? Quantify it with an expression. 4 M
- b) Explain the roulette wheel selection process model with an example. 10 M
- 7 a) Elaborate the method of crossover with an example. 6 M
- b) Explain the advantages of Genetic Algorithms over other traditional methods of optimization. 8 M
- 8 Describe the application of Short term Load forecasting using neural networks. 14 M