

GUJARAT TECHNOLOGICAL UNIVERSITY
ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2720719**Date: 30/05/2017****Subject Name: Artificial Intelligent Application to Power System****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define following terms: (1) α -cut (2) Linguistic variable (3) Membership Function (4) Fuzzy singleton (5) Fuzzification (6) Cross-over **07**
- (b) Explain difference between soft and hard computing. **07**
- Q.2** (a) How Fuzzy logic can be useful for load balancing of electric power three phase distribution system. **07**
- (b) Draw membership functions which are used for Fuzzy logic with mathematical equations. **07**
- OR**
- (b) What are the different methods of defuzzification? Explain anyone with an example. **07**
- Q.3** (a) Discuss various selection methods used with Genetic Algorithm. **07**
- (b) Explain Architecture of Back propagation Network in context of ANN. **07**
- OR**
- Q.3** (a) How artificial neural network can be useful for power system security assessment. **07**
- (b) What are the evolution steps of Genetic Algorithm? Draw Flowchart. **07**
- Q.4** (a) What is learning in ANN? Explain supervised learning and unsupervised learning. **07**
- (b) How AI can be useful for maintaining power system voltage stability? **07**
- OR**
- Q.4** (a) What is a schema? What is the relationship between schema and chromosome? What are the effects caused by crossover and mutation over instances of schema? **07**
- (b) Explain role of different AI techniques in load forecasting. **07**
- Q.5** (a) What is mutation in GA? Explain how mutation can be implemented? Explain various programming logic used for the same. **07**
- (b) How does the GA differ from conventional optimization algorithm? Give the various comparison points. **07**
- OR**
- Q.5** (a) Explain the role of different AI techniques in optimization of economic load dispatch. **07**
- (b) Explain recurrent networks and Multi layer feed forward network in context of ANN. **07**
