

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2181710

Date: 04/05/2017

Subject Name: Soft Computing in Control(Departmental Elective - III)

Time: 10:30 AM to 01:00 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 uncertainty and vagueness. Explain concept of fuzziness and membership function. **07**
- (b) State the features of membership functions **02**
- (c) Explain in detail Fuzzy Bayesian Decision Method. **05**
- Q.2** (a) State and explain various methods of de-fuzzification **07**
- (b) With the help of block diagram explain working of conventional control system **07**
- OR**
- (b) With the help of block diagram explain working of fuzzy logic control system **07**
- Q.3** (a) Compare between fuzzy logic control and PID Control **05**
- (b) Explain the concept of learning and state various modes of learning. Explain in detail various laws of learning in detail. **09**
- OR**
- Q.3** (a) Explain steps involved in simple designing of fuzzy control system. **05**
- (b) Explain Adaptive Resonance Theory (ART) Networks, along with its 4 phases in detail. **09**
- Q.4** (a) Explain in detail optimization of Water treatment system using fuzzy logic. **14**
- OR**
- Q.4** (a) Explain in detail application of fuzzy control for optimal operation of Complex Chilling Systems **14**
- Q.5** (a) Explain in detail implementation of fuzzy logic control in control of AC induction motor. **14**
- OR**
- Q.5** (a) Explain in detail implementation of fuzzy logic control in control of Power Plant **14**
