No. of Printed Pages : 02 **Roll No. .....**

H23

B. Tech. EXAMINATION, 2020

(Eighth Semester)

(B. Scheme) (Main & Re-appear)

(EE, EEE)

EE424B

FUZZY CONTROL SYSTEM

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What are benefits of fuzzy control ? **7.5**

(b) Discuss the role of fuzzy logic in the following fields : **7.5**

(i) Fault Diagnosis

(ii) Planning and scheduling

(iii) Supervisory control.

2. (a) Discuss different modellings in KBC's. **7.5**

(b) What do you understand by vagueness in fuzzy logic ? **7.5**

Unit II

3. (a) Write down and explain the equations for different types of FKBC. **7.5**

(b) How the membership functions are selected from all the available choices ? **7.5**

4. Discuss different fuzzification and defuzification methods. How a suitable fuzzification procedure is selected ? **15**

Unit III

5. (a) FKBC has non-linear properties of the computational structure of the controller. Prove this statement. **7.5**

(b) Discuss sliding mode FKBC. How the sliding mode FKBC is used as a state dependent filter ? **7.5**

6. (a) What is role of process monitoring and adaption mechanism in an adaptive controller ? Explain. **7.5**

(b) What are self organizing fuzzy controller ? How does they work ? **7.5**

Unit IV

7. (a) Discuss the conicity criterion for analysis of stability of a fuzzy system. **7.5**

(b) What are stability and robustness indicies ? Explain. **7.5**

8. Write notes on the following :

(a) State space approach for stability **7.5**

(b) Neural network based fuzzy systems. **7.5**