Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– V • EXAMINATION – WINTER 2016

Subject Code: 151704 **Date: 28/11/2016**
Subject Name: Industrial Control Systems (Institute Elective II)
Time: 10:30AM - -1:00PM **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)**	What are the difficulties and requirements of process control implementation?	**07**
	(b)	What are the types and uses of mathematical modeling?	**07**
Q.2	**(a)**	Write short note on electronic discontinuous controllers.	**07**
	(b)	Give steps in synthesis of control systems.	**07**
		OR	
	(b)	Explain servo versus regulator operation of closed loop system.	**07**
Q.3	**(a)**	Write short note on integral anti windup.	**07**
	(b)	Write short note on SCADA hardware and software.	**07**
		OR	
Q.3	**(a)**	What is DDC? Explain components and working of DDC.	**07**
	(b)	Write short note on digital controller realization.	**07**
Q.4	**(a)**	What do you mean by controller tuning? Explain any one method of tuning PID controller.	**07**
	(b)	Draw and explain the characteristics of Control Valve	**07**
		OR	
Q.4	**(a)**	Explain the selection criterion of control valves in details.	**07**
	(b)	Write short note on electronic derivative controller? Why derivative action can't be used alone?	**07**
Q.5	**(a)**	Write short note on ratio controller along with suitable example	**07**
	(b)	Write short note on DCS hardware and software.	**07**
		OR	
Q.5	**(a)**	Draw and explain cascade control scheme in detail.	**07**
	(b)	Explain PLC Counters with suitable diagram and example.	**07**

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