Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 151704 **Date: 15/05/2017**

Subject Name: Industrial Control Systems(Institute Elective-II)

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)**	Draw and explain the functional diagram of closed loop control system with suitable example.	**07**
	(b)	Derive the mathematical and transfer function of physical system.	**07**
Q.2	**(a)**	What is the use of integral action in controller? Explain response of proportional-integral (PI) controller.	**07**
	(b)	Explain in brief discontinuous controller and continuous controller.	**07**
		OR	
	(b)	What is controller tuning? Explain tuning method for controller.	**07**
Q.3	**(a)**	Explain with circuit diagram electronic proportional controller.	**07**
	(b)	Draw and explain control valve characteristics.	**07**
		OR	
Q.3	**(a)**	Explain with circuit diagram electronic proportional-derivative controller.	**07**
	(b)	Discuss the selection criteria for control valve.	**07**
Q.4	**(a)**	Explain the P & I diagram with suitable example.	**07**
	(b)	Draw and explain cascade control system.	**07**
		OR	
Q.4	**(a)**	Draw and explain ratio control system.	**07**
	(b)	Draw and explain the block diagram of PLC.	**07**
Q.5	**(a)**	Explain the timer and counter in the PLC with example.	**07**
	(b)	Discuss the advantages and disadvantages of DCS.	**07**
		OR	
Q.5	**(a)**	Draw and explain architecture of DCS.	**07**
	(b)	Draw and explain architecture of SCADA.	**07**

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