Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER - VIII • EXAMINATION – WINTER 2014

Subject Code:181701 **Date: 04/11/2014**

Subject Name: Control System Architecture

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)**	Give comparison between operator station and operator panels. State The advantages and disadvantages of operator stations.	**07**
	(b)	Discuss the structure of control sub system and explain various steps Performed by it.	**07**
Q.2	**(a)**	Explain watchdog module of processor subsystem.	**07**
	(b)	Show the information flow from process to various subsystem levels Of DCS system. Based on failure analysis, how availability of DCS System is enhanced?	**07**
		OR	
	(b)	Illustrate the general software structure of the controller. Brief about Real-time scheduling.	**07**
Q.3	**(a)**	Explain with neat sketch "hardware structure. Of controller ".	**07**
	(b)	Discuss various activities in project implementation in chemical plant.	**07**
		OR	
Q.3	**(a)**	Compare centralized I/O (CIO), Remote I/O (RIO) and Field bus I/O (FIO).	**07**
	(b)	Write short note on "Front end Processor"	**07**
Q.4	**(a)**	Explain system availability of communication in DCS & NCS.	**07**
	(b)	Describe the application of DCS in Pulp & paper industry.	**07**
		OR	
Q.4	**(a)**	Explain the followings (i) Regulatory PV point (ii) Regulatory control point	**07**
	(b)	Explain typical SCADA system and its hierarchy.	**07**
Q.5	**(a)**	Explain various displays available within DCS system.	**07**
	(b)	Discuss position PID algorithm with its limitations and features.	**07**
		OR	
Q.5	**(a)**	Write short note Hazard and Operability studies (HAZOP).	**07**
	(b)	Explain about strategy for alarm systems performance improvement.	**07**

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