Seat No.:	Enrolment No
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Subject Code: 181701

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII • EXAMINATION – SUMMER 2014

Date: 05-06-2014

Subject 1	Name:	Control System Architectures	
		m TO 01:00 pm Total Marks: 70	
2.	Attemp Make s	ot all questions. suitable assumptions wherever necessary. s to the right indicate full marks.	
Q.1	(a)	Describe structure of instrumentation subsystem for continuous I/O devices with examples.	07
	(b)	 Draw the general structure of control subsystem. Define operator panel. List out commonly used active display & control elements. 	03 04
Q.2	(a)	Explain "Hybrid control-Two step with dead band" automation strategy with an example.	07
	(b)	With necessary sketch explain Rack, Bus & Modules in controller hardware structure.	07
		OR	
	(b)	With neat sketch explain controller capacity expansion using Bus Extension Modules.	07
Q.3	(a) (b)	Explain the functions of all layers in software structure of controller. Discuss difference between PLC, loop controller & Programmable controller. Explain PAC in detail.	07 07
		OR	
Q.3	(a)	Write short note on: Front End Processor.	07
	(b)	 List merits and demerits of operator station. Explain Display Screen Layout of operator station. 	03 04
Q.4	(a)	Draw the structure of SCADA and explain RTU in detail.	07
Q. 4	(a) (b)	Describe Cold & Hot standby. Explain availability enhancement in DCS. OR	07
Q.4	(a) (b)	Explain Fieldbus Input - Output with merits & demerits. Explain configuration of following control function in DCS: (i)Function Block Diagram, (ii) Instruction List	07 07
Q.5	(a) (b)	Describe the application of DCS in Petroleum – refining industry. 1. Give classification for types of alarms. 2. Explain graphic display & control group display for DCS reporting. OR	07 03 04
Q.5	(a)	Explain PID control algorithm with application.	07
Ų.S	(a) (b)	List down alarm detection methods for generation of alarm. Explain any three in detail.	07
