Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017 Subject Code: 2171709 Date: 04/05/2017

Subject Name: Distributed Control Systems and SCADA

Time: 02.30 PM to 05.00 PM	Total Marks: 70
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Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

Q.1	(a)	Explain Overview displays and Detail displays – a feature of DCS.	07
	(b)	Brief about : (i) HLOI, (ii) LCU, and (iii) Multiplexer	07
Q.2	(a)	Draw block diagram of direct digital control system. State the advantages and disadvantages of centralized control system.	07
	(b)	Brief about hardware and software compatibility in context of DCS. OR	07
	(b)	Discuss various ways by which reliability of DCS system is increased.	07
Q.3	(a)	Discuss Velocity algorithm in detail.	07
	(b)	What is controller function configuration in context of DCS? Discuss SAMA symbology and ISA symbology.	07
		OR	
Q.3	(a)	Brief about executive program and its task. What is application program?	07
	(b)	Brief about various network access protocols. Also state the network topology.	07
Q.4	(a)	Brief about MODBUS, it's BUS Access method, features & Acceptance.	07
	(b)	Discuss various cable options for data highway. OR	07
Q.4	(a)	Brief about PROFIBUS, it's BUS Access method, features & Acceptance.	07
	(b)	Explain about RTU and its hardware structure.	07
Q.5	(a)	Explain, with a neat diagram typical SCADA system and its hierarchy.	07
	(b)	Discuss Smart transmitters in detail.	07
		OR	
Q.5	(a)	Explain level 1, 2, 3, 4A and 4B Automation.	07
	(b)	What is super-commutation and sub-commutation. Explain radial, remote and	07
		party line multiplexing systems.	
