

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code: 2171709****Date: 25/01/2021****Subject Name: Distributed Control Systems and SCADA****Time: 10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) List out any three names of DCS vendors available in the market.	03
	(b) Explain the difference between PLC and DCS.	04
	(c) What is SCADA? Explain it with suitable diagram in detail.	07
Q.2	(a) What is redundant and fault tolerance system?	03
	(b) Explain any one application of DCS in brief.	04
	(c) What is RTU? Explain various types of RTUs in the context of SCADA.	07
Q.3	(a) What is DCS? Explain its concept in brief.	03
	(b) Explain any one application of SCADA in brief.	04
	(c) Explain SMART Transmitter in detail with suitable diagram.	07
Q.4	(a) What is field bus? Explain it in brief.	03
	(b) Discuss maintenance considerations for DCS.	04
	(c) Discuss in detail in which case DCS can be used in plant automation?	07
Q.5	(a) Briefly explain executive program and its task in DCS.	03
	(b) Explain trend display and mimic display in DCS.	04
	(c) What is Profibus? Explain its access methods, application services and acceptance.	07
Q.6	(a) List out any three names of SCADA vendors available in the market.	03
	(b) Explain the concept of DDC with suitable diagram.	04
	(c) What is Modbus? Explain its access methods, application services and transmission mode methods.	07
Q.7	(a) What is the concept of Man Machine Interface?	03
	(b) Explain various network topologies in detail.	04
	(c) With suitable diagram explain hierarchical structure of DCS in detail.	07
Q.8	(a) What is centralized computer system? Explain briefly.	03
	(b) What is process control programming? Explain any one algorithm for process control.	04
	(c) What is field station in DCS? Explain it in detail.	07

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