

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2171709****Date:16/05/2019****Subject Name:Distributed Control Systems and SCADA****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) What do you mean by DCS? In which automation requirement it is necessary?	<b>03</b>
	(b) Explain the concept of DDC.	<b>04</b>
	(c) Draw and explain the hierarchical structure of DCS in detail	<b>07</b>
<b>Q.2</b>	(a) Briefly explain DCS configurations	<b>03</b>
	(b) Explain the difference between PLC & DCS	<b>04</b>
	(c) What do you mean by "Field Station" in DCS. Explain it in detail	<b>07</b>
	<b>OR</b>	
	(c) What is SCADA? Draw and explain functional architecture of SCADA	<b>07</b>
<b>Q.3</b>	(a) List out SCADA software packages available in the market	<b>03</b>
	(b) Explain the concept of RTU.	<b>04</b>
	(c) Give one application based example of DCS. Draw suitable diagram to explain in detail	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) List out DCS vendors available in the market.	<b>03</b>
	(b) Explain cascade control scheme and algorithm for DCS module	<b>04</b>
	(c) Give one application based example of SCADA. Draw suitable diagram to explain in detail.	<b>07</b>
<b>Q.4</b>	(a) Briefly explain the concept of MMI.	<b>03</b>
	(b) Explain trend display and mimic display for DCS.	<b>04</b>
	(c) Explain industrial communication system in detail.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) List out various network topologies and explain any one.	<b>03</b>
	(b) Explain communication between DCS components.	<b>04</b>
	(c) Explain Field Bus communication in detail.	<b>07</b>
<b>Q.5</b>	(a) Explain the benefits of SCADA system	<b>03</b>
	(b) Explain SMART Transmitter.	<b>04</b>
	(c) Which are the maintenance considerations for DCS?	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Explain the benefits of DCS.	<b>03</b>
	(b) Explain PROFIBUS in brief.	<b>04</b>
	(c) Explain redundant and fault tolerant systems in detail.	<b>07</b>

\*\*\*\*\*