

**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.

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

\*\*\*\*\*