

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020**

**Subject Code:2172411**

**Date:21/01/2021**

**Subject Name:Industrial Automation**

**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.

- Q.1** (a) Define PLC and SCADA System. **03**  
(b) What is Automation? Explain in details Components of Industrial automation. **04**  
(c) Draw internal block diagram of PLC CPU and explain various blocks. **07**
- Q.2** (a) Write brief note on: Current Trends in Automation System. **03**  
(b) Explain advantage and Limitation of DCS **04**  
(c) Explain about Ladder & Boolean mnemonics Programming language. **07**
- Q.3** (a) Explain in brief Master Terminal Unit. **03**  
(b) Write a Technical note on: Remote Terminal Unit. **04**  
(c) Explain in Details Data Acquisition and process control system **07**
- Q.4** (a) Draw timing diagram of retentive timer. **03**  
(b) Define term DCS. List at least Six applications of DCS. **04**  
(c) Explain the different levels of DCS systems. **07**
- Q.5** (a) Explain in details Input Module of PLC with necessary diagram. **03**  
(b) Compare Localized Process and Distributed Process. **04**  
(c) Explain the PLC Arithmetic function and draw block format of each. **07**
- Q.6** (a) Explain in details Output Module of PLC with necessary diagram. **03**  
(b) Explain the different steps of automation. **04**  
(c) Explain the PLC Sequencer Function. Write the ladder for sequencer with timer pulsing. **07**
- Q.7** (a) Describe concept of data logging and history generation. **03**  
(b) Explain in brief PLC timer function. **04**  
(c) Explain PLC Move function and illustrate the single register move using an addition process. **07**
- Q.8** (a) Describe concept of data exchange and data availability. **03**  
(b) Explain in brief PLC Counter function. **04**  
(c) Explain the P.L.C. SEQUENCER function. Write the ladder for sequencer with timer pulsing. **07**

\*\*\*\*\*