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Roll No.

18AA1057

M.Tech. EXAMINATION, May 2019

(First Semester)

(C. Scheme) (Re-appear)

EE(I&C)

MIC527C

SCADA SYSTEM AND PLC

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

(3-38/6) M-18AA1057

P.T.O.

Unit I

1. Define data acquisition systems. Explain the various types of monitoring and supervisory functions of SCADA. **15**
2. (a) List and explain SCADA applications in utility automation in detail. **10**
(b) Discuss the role of SCADA in generation. **5**

Unit II

3. Write short notes on the following :
 - (a) SCADA Server
 - (b) SCADA/HMI Systems
 - (c) Communication Network. **15**
4. With the help of neat and clean diagram explain the terms “RTU” and “IED” ? **15**

Unit III

5. (a) Discuss Hardware architecture of SCADA system with the help of neat and clean diagram. **8**

- (b) Explain open standard communication protocols. **7**

6. What do you understand by the term SCADA Communication ? Explain the various types of industrial communication technologies in SCADA System. **15**

Unit IV

7. (a) Define PLC and explain its functional block. **5**
(b) Explain discrete I/O system and analog I/O system with its applications and benefits. **10**
8. Write short notes on the following :
 - (a) Ladder diagram elements
 - (b) Utility application of PLC
 - (c) Discrete state variables. **15**