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Question Paper Code: 31381

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Electrical and Electronics Engineering

01UEE904 - PROGRAMMABLE LOGIC CONTROLLER AND SCADA

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List out the different programming techniques of PLC.
2. List the general classifications of PLCs.
3. Define MCR instruction.
4. What standard format is used for PLC math instructions.
5. Define SCADA.
6. Name the three primary subsystems of a SCADA system.
7. Why SCADA systems are implemented?
8. Define state estimation.
9. Give any four real time applications of PLC.
10. List the applications of SCADA.

PART - B (5 x 16 = 80 Marks)

11. (a) Describe how the I/O modules connect to the processor in a modular type PLC configuration. (16)

Or

- (b) Explain the operation timers and counters of PLC with an example. (16)

12. (a) Discuss the use of math instructions of PLC for automatic control of upper and lower set point limits. (16)

Or

- (b) Summarize the steps to follow when commissioning a PLC installation. Also discuss about trouble shooting. (16)

13. (a) Explain the various architectures of SCADA with relevant diagram. (16)

Or

- (b) Illustrate the functions, benefits and shortcomings of common communications technologies used in SCADA systems. (16)

14. (a) Elaborate in detail about the IEC 61850 SCADA system architecture. (16)

Or

- (b) Discuss the automatic substation control using SCADA with block diagram. (16)

15. (a) Create a ladder diagram for speed control application using PLC. (16)

Or

- (b) Discuss the SCADA applications in power systems. (16)
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