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Question Paper Code: 39304

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. Mention the role of counters in PLC.
3. Define MCR instruction.
4. List the sequence of operations carried out in PLC programming.
5. Define SCADA.
6. List the different levels of SCADA.
7. State the salient features of IEC 61850 SCADA.
8. State the role of energy management system functions.
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) Describe the operation of a typical input and output modules of PLC Systems. (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) Illustrate the functions, benefits and shortcomings of common communications technologies used in SCADA systems. (16)

Or

- (b) Describe the Intelligent electronic devices in detail. (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) Illustrate how the SCADA is used for substation monitoring and automatic control. (16)