

October 2023

*Time - Three hours*  
*(Maximum Marks: 100)*

- [N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.  
2. Answer all the questions either (A) or (B) in Part-B. Each question carries 14 marks.]

**PART - A**

1. Write short note on temperature switch.
2. What is remote control operation?
3. What is the function of field failure relay?
4. How do you reverse the direction of induction motor?
5. Write about planner machine.
6. Write about testing of fuses using voltmeter.
7. Define automation.
8. List out types of programming devices.
9. What is preset in timer instruction?
10. What are the major components of DCS?

[Turn over.....]

PART - B

EEE

11. (a) With a neat sketch explain the construction and operation of Limit switch.

(Or)

(b) Explain the construction and working principle of bimetallic thermal overload relay.

12. (a) With neat sketch, explain the operation of series relay starter.

(Or)

(b) (i) Draw the control circuit and power circuit for autotransformer starter of closed circuit transition. (7)

(ii) Draw and explain the control circuit and main circuit of semi-automatic star-delta starter. (7)

13. (a) Explain the schematic arrangement and control circuit of automatic control of water pump.

(Or)

(b) Draw the control circuit of battery operated Truck. Also explain its sequence of operation.

14. (a) Draw and explain the block diagram of memory organization.

(Or)

(b) (i) List the criteria by which PLCs are categorized.(7)

(ii) List any seven factors affecting the memory size needed for a particular PLC installation.(7)

15. (a) Explain the various types of programming methods to program a PLC.

(Or)

(b) With neat block diagram explain the operation of SCADA.

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