

1905

April 2025

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 about phase failure relay.
2. Write a note on solenoid type contactor.
3. What are counter EMF starters?
4. What is meant by dynamic braking in DC motor?
5. Why conveyor system should be switched ON in sequential manner?
6. Write about planner machine control.
7. Define automation.
8. Compare hardwire control systems and PLC systems.
9. What is DCS?
10. What is meant by ladder diagram?

[Turn over.....]

PART - B

11. (a) (i) Explain the construction and working principle of magnetic dashpot oil filled relay. (10)
(ii) Write about proximity switch. (4)
(Or)

- (b) (i) Explain the working principle of thermal timer. (7)
(ii) Draw and explain simple ON-OFF motor control circuit. (7)

12. (a) Draw and explain the control circuit for jogging of DC motor in both the directions of rotation.

(Or)

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

13. (a) Draw the control circuit of compressor motor and explain its sequence of operation.

(Or)

- (b) Draw the control circuit of an elevator and explain its sequence of operation.

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

(Or)

- (b) (i) List the criteria to select the PLC for particular application. (7)
(ii) List out the various PLCs available in the market. (7)

15. (a) With the help of timing diagram explain the sequence of operation of T_{ON} instruction.

(Or)

- (b) Develop ladder logic for automatic EB to Generator changeover system and explain.