500 Register No.: [ ]

April 2024

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. Compare power MOSFET and power IGBT.
2. List the triggering circuits.
3. Differentiate between natural commutation and forced commutation.
4. Define chopper.
5. Define inverter.
6. Define UPS. List its types.
7. Define PLC. Give its basic input and output modules.
8. List the logic functions supported by PLC.
9. What are actuators?
10. List the types of sensors.

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PART – B

11. (a) Explain the working principle and characteristics of IGBT.

(Or)

(b) (i) Explain pulse gate triggering. (7)
(ii) Explain working of opto isolator. (7)

12. (a) Explain single phase fully controlled bridge converter with RL load.

(Or)

(b) With diagram explain the operation of Jones Chopper.

13. (a) Explain the mechanism of voltage control with single phase inverter using RL load.

(Or)

(b) Explain SMPS with its block diagram.

14. (a) Compare the functions of PLC with relay logic.

(Or)

(b) Explain the ladder logic for conveyor control.

15. (a) Explain the basic building blocks of a robot.

(Or)

(b) Explain the choice of sensors and actuators for a maze solving robot.
