Register No.:

1173

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. What is GTO? Draw its symbol.

2. What is the function of opto-isolator?

3. Define converters.

4. State any three applications of DC chopper.

5. What are battery banks?

6. State the advantages of SMPS.

7. Draw the ladder diagram for AND logic.

8. What is PLC?

9. Mention the types of electric motors used in the robot.

10. List out any three sensors used in the robot.

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PART – B

11. (a) Explain the working principle of IGBT with its VI characteristics.

(Or)

(b) Write a detailed note on DC triggering, AC triggering and pulse gate triggering of SCR.

12. (a) Describe the operation of single phase fully controlled bridge converter with resistive load.

(Or)

(b) Write a detailed note on Jones chopper.

13. (a) Describe the operation of single phase inverter with RL load.

(Or)

(b) Explain the working of ON-line UPS with block diagram.

14. (a) Describe the types of digital input and output modules in PLC.

(Or)

(b) Draw and explain the ladder diagram for lift control.

15. (a) Explain about the motor drives to control the speed and direction of robot.

(Or)

(b) Discuss about the choice of sensors and actuators for self-driving cars.
