1380

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. Draw the symbol of LASCR and its VI characteristics.

2. What is commutation in SCR?

3. What is dual converter? Mention its uses.

4. Write a note on dv/dt protection.

5. What are the control strategies adopted in a DC chopper?

6. Mention the types of Pulse Width Modulation (PWM) techniques used in the inverters.

7. What are constant torque and constant HP regions?

8. Draw the circuit diagram of DC to DC converter using MOSFET.

9. What are the speed control methods in three phase induction motors?

10. Write the working principle of cyclo converter.

[Turn over.....

PART – B

11. (a) Explain the following triggering methods of SCR:
(i) R triggering (ii) RC triggering

(Or)

(b) Discuss about the working of class E and Class F commutation circuits with neat diagrams.

12. (a) Explain the working of single phase semi converter with discontinuous load current.

(Or)

(b) Discuss about the operation of three phase half controlled bridge converter with RL load.

13. (a) Explain the working of four quadrant chopper with neat sketch.

(Or)

(b) Explain the 120 degrees mode operation of three phase inverter with necessary diagrams and waveforms.

14. (a) Explain the operation of single phase dual converter DC drives.

(Or)

(b) Discuss about the working of phase locked loop control of DC drives with a block diagram.

15. (a) Explain about the speed control in an induction motor by variable frequency control method.

(Or)

(b) Discuss about the slip power recovery scheme of speed control of an induction motor.
