Register No.:

764

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. Draw the symbol of GTO and draw its V-I characteristics.

2. Give the difference between Natural Commutation and Forced Commutation.

3. What is extinction angle control of single-phase converter?

4. Define surge current rating.

5. What is meant by Step -up and Step-down chopper?

6. What are all the merits of 120-degree mode inverter?

7. Write down the basic DC motor speed equation.

8. What is four quadrant control of DC Motors?

9. What are the various means of speed control of Induction Motors?

10. Write the principle of operation of Cyclo converter.

[Turn over....

PART – B

11. (a) Explain the different ratings of SCRs and give their significance.

(Or)

(b) Explain the concept of class B, class D commutations with necessary waveforms.

12. (a) Explain the operation of Single-Phase Semi Converter with continuous and discontinuous load current with the necessary waveform and circuit.

(Or)

(b) Explain three phase half controlled converter with neat waveforms.

13. (a) With the neat diagram and waveform, explain the operation of Morgan Chopper and parallel inverter.

(Or)

(b) Explain Single Pulse Width Modulated inverter with suitable circuit.

14. (a) Draw and explain the operation of Three Phase Semi Converter Drive circuit and derive the output voltage equation.

(Or)

(b) Explain the principle of microprocessor based closed loop control of DC drives.

15. (a) With the block diagram explain the operation of closed Loop control of AC drive.

(Or)

(b) Explain the induction motor operation when the V/F ratio is held constant. Also derive the expression for the Maximum Torque.
