

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL-2021**

INDUSTRIAL ELECTRONICS AND CONTROL DRIVES

[Maximum marks: 75]

(Time: 2.15 Hours)

PART – A

I (Answer any *three* questions in one or two sentences. Each question carries 2 marks)

1. Define the term holding current.
2. Write four turn on methods of SCR
3. What is converter?
4. List four applications of servomotors
5. State the requirements of variable speed drive. (3 x 2 = 6)

PART – B

II (Answer any *four* of the following questions. Each question carries 6 marks)

1. Explain the structure of TRIAC.
2. Describe the transistor analogy of SCR.
3. Explain CLASS A commutation technique of SCR
4. Explain the working of single phase series inverter.
5. Explain the principle of operation of DC motors.
6. Explain the principle of operations of stepper motor
7. Distinguish between AC and DC drives. (4 x 6=24)

PART – C

(Answer *any of the three units* from the following. Each full question carries 15 marks)

UNIT –I

- III.(a) Explain the structure of SCR (8)
(b) Explain the RC triggering turn on method of SCR. (7)

OR

- IV. (a) Describe the static V-I characteristics of power diode (8)
(b) Explain the structure and working principle of a DIAC (7)

UNIT-II

V. Describe single phase half wave converter (both R and R-L load) with relevant waveform (15)

OR

VI. Explain the circuit and operation of three phase full wave bridge converter. (15)

UNIT-III

VII.(a) Give comparison of AC&DC tachogenerator. (8)

(b) Explain the principle of operation of single phase induction motors. (7)

OR

VIII.(a) Describe the principle of operation of Universal motor. (8)

(b) Describe variable voltage speed control method of induction motors. (7)

UNIT-IV

IX. (a) Describe the construction and working of Jones chopper circuit diagram (8)

(b) Explain the principle of operation of Cycloconverter (7)

OR

X. Explain step up and step down choppers with circuits and appropriate Derivations. (15)
