

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, NOVEMBER-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 turn off time of SCR.
2. Write the difference between SCR and TRIAC.
3. Define line communication.
4. List any two applications of servomotors.
5. What is cycloconverter. (3 x 2 = 6)

**PART – B**

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

1. With the help of diagrams. Explain the working and VI characteristics of Diac
2. Draw and explain the operation of single phase half wave bridge inverter.
3. Write short notes on static transfer switch.
4. What are the factors affecting the speed of DC motors.
5. Explain the working principle of DC servomotor.
6. With circuit diagram, explain the working of step up chopper.
7. Compare DC and AC 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) Draw and explain the static VI characteristics of SCR. (8)  
(b) Draw and explain R triggering of SCR. (7)

OR

- IV.(a) Draw and explain two transistor analogy of SCR. (8)

(b) Draw and explain the structure of power diode. (7)

**UNIT-II**

V. (a) Draw and explain the operation of single phase full wave controlled rectifier with R load. (8)

(b) With neat circuit diagram, describe class D commutation. (7)

**OR**

VI.(a) Draw and explain the working of single phase parallel inverter. (8)

(b) Draw and explain light dimming circuit using Triac. (7)

**UNIT-III**

VII.(a) Draw and explain the principle of operation of three phase induction motor. (8)

(b) Draw and explain the working principle of DC motor. (7)

**OR**

VIII.(a) Draw and explain the working of Universal motor and list any two applications. (8)

(b) With neat sketch, explain the working of DC tachogenerator (7)

**UNIT-IV**

IX. (a) With circuit diagram and waveforms, describe the operation of Jone's chopper (8)

(b) With necessary sketches, explain the working of single phase cycloconverter. (7)

**OR**

X. (a) Draw and explain the operation of single phase dual converter and list any two applications. (8)

(b) Draw and explain the working of AC chopper. (7)

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