



TED (15) – 5042

Reg. No.....

(REVISION — 2015)

Signature .....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019**

**INDUSTRIAL ELECTRONICS AND PLC**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define holding current of SCR.
2. List the merits of DC choppers.
3. Draw the ladder diagram of NAND gate.
4. List any two merits of dielectric heating.
5. List out any four turn-on methods of SCR.

(5×2 = 10)

**PART — B**

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain the working principle of a Power MOSFET.
2. Explain the VI characteristics of SCR with neat diagram.
3. Briefly explain the working of a sequence timer used in resistance welding.
4. Explain the working of a series inverter.
5. Explain single phase Dual converter circuit.
6. Explain the speed control of DC series motor.
7. Briefly explain the T - ON and T - OFF instruction used in PLC programming.

(5×6 = 30)



PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain the working of UJT triggering circuit for SCR with neat diagram. 8  
(b) Explain the construction and VI characteristic of a DIAC. 7

OR

- IV (a) Explain the two transistor analogy of SCR with neat diagram. 8  
(b) Explain the Auxiliary commutation of SCR with the circuit diagram. 7

UNIT — II

- V (a) Describe the working of AC power control using TRIAC. 8  
(b) Draw the circuit diagram and explain the working of single phase bridge converter. 7

OR

- VI (a) Explain the working of a single phase full wave midpoint Cycloconverter with neat sketch. 8  
(b) Describe the working of a step down chopper with circuit diagram. 7

UNIT — III

- VII (a) Explain the working of Online UPS with block diagram. 8  
(b) Explain the Applications of Induction heating. 7

OR

- VIII (a) Name the types of Resistance welding schemes. Briefly explain any three types with figures. 8  
(b) Describe the speed control of an Induction motor by rotor ON-OFF control. 7

UNIT — IV

- IX (a) Explain any four math instructions used in PLC. 8  
(b) Construct a ladder diagram for a square wave generator. 7

OR

- X (a) Briefly explain the ladder logic and ladder diagram. 8  
(b) Implement a half Subtractor using ladder diagram. 7
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