

TED (15/19) – 3021  
(Revision – 2015/19)

**N22 - 07847**

Reg.No.....  
Signature.....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE – NOVEMBER – 2022  
ELECTRICAL & ELECTRONICS ENGINEERING**

(Maximum Marks : 100)

(Time : 3 hours)

**PART – A**  
(Maximum Marks : 10)

Marks

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

1. State Ohm's law.
2. State the working principle of DC Motors.
3. List any two industrial applications of electric heating.
4. List one instrument used for measuring DC quantities, both AC and DC quantities.
5. List any two active components and passive components. (5x2=10)

**PART –B**  
(Maximum Marks : 30)

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

1. Derive the expression for equivalent resistance when resistors are connected in series and parallel combination.
2. Describe the principle and working of DC Generator.
3. Explain the D.C. motors based on field connection.
4. Describe the e.m.f equation of transformer.
5. Explain the power measurement in three phase AC system by two wattmeter method.
6. Describe the working of PN junction diode in Forward biased condition.
7. Describe the need of automation. (5x6=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 constructional details of 3 phase Alternator. (8)  
(b) Derive the equation for current in a pure inductive ac circuit. (7)

**OR**

- IV.** (a) Describe the working and constructional details of lead acid cell. (8)  
(b) Derive the relation between line voltage and phase voltage in star connected system. (7)

**UNIT – II**

- V.** (a) Explain the working of 3 Point starter. (8)  
(b) Describe the working of 3 phase induction motor. (7)

**OR**

- VI.** (a) Explain the working of star delta starter. (8)  
(b) Describe the working of single phase induction motor. (7)

**UNIT –III**

- VII.** (a) Explain the constructional details of Moving Coil instruments. (8)  
(b) Explain the principle of dielectric heating. (7)

**OR**

- VIII.** (a) Explain the principle of induction heating. (8)  
(b) Describe the working principle of dynamometer type wattmeter. (7)

**UNIT – IV**

- IX.** (a) Explain the working of full wave rectifier using four diodes. (8)  
(b) Explain the logic gates - OR, AND, NOT, NAND and NOR. (7)

**OR**

- X.** (a) Explain the basic block diagram of control system. (8)  
(b) Explain the working principle of SCR. (7)

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