

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL – 2024**

ELECTRICAL TECHNOLOGY

[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. Define impedance.
2. State superposition Theorem.
3. What are the types of DC generator?
4. Write any 2 applications of stepper motor.
5. State the general classification of three phase induction motor.

(5x2=10)

PART – B
(Maximum Marks : 30)

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

1. Derive an equation of impedance of an RLC series circuit.
2. State and explain Thevenin's theorem.
3. Explain the different types of losses in a transformer.
4. Types of DC Motor.
5. Explain NO-LOAD Characteristics of DC generator.
6. Explain the working principle of servomotor.
7. Derive EMF equation of an alternator.

(5x6=30)

PART – C
(Maximum Marks : 60)

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

UNIT – I

III. (a) An inductor coil of 0.2H with a resistance of 20Ω and capacitance of $160\mu\text{f}$ are connected in series and fed by a 230v, 50Hz supply. Find the impedance, pf, active power and reactive power. (7)

(b) Define (1) RMS value (2) Amplitude (3) Phase (4) Frequency. (8)

OR

IV. (a) A resistance of 10Ω , an inductance of 20mh and a capacitance of $47\mu\text{f}$ are

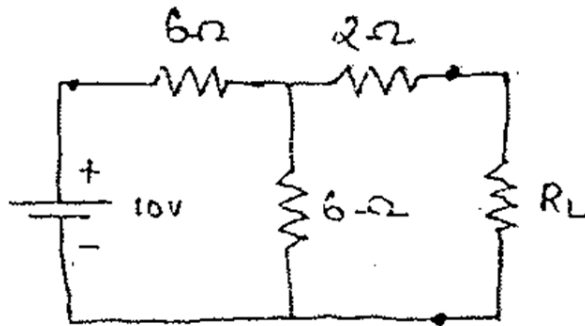
connected in series 230 V, 50Hz Supply.

Determine (i) the voltage across R,L,C (ii) Power in watts. (8)

(b) With neat sketch explain the working of megger. (7)

UNIT – II

V. (a) In the network shown in figure; find the value of RL and maximum possible power will be transferred to RL. (8)



(b) Explain the construction of transformer. (7)

OR

VI. (a) State and explain Superposition Theorem. (8)

(b) Derive the EMF equation of the transformer. (7)

UNIT –III

VII. (a) Explain the working principle of DC generator with neat sketch. (8)

(b) Explain the working of a three point starter. (7)

OR

VIII. (a) Explain the working principle of DC motor with neat sketch. (8)

(b) Explain the necessity of starter in a DC motor starting. (7)

UNIT – IV

IX. (a) Explain the relation between speed and frequency of an alternator. (7)

(b) Explain the working of single phase induction motor with neat sketch. (8)

OR

X. (a) Explain the working of stepper motor. (8)

(b) Explain the working principle of an alternator. (7)
