

TED (15) – 3043

(REVISION – 2015)

Reg. No.

Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY — OCTOBER, 2016

ELECTRICAL TECHNOLOGY

(Common for EL, EC & BM)

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries two marks.

1. Define the power factor in terms of phase.
2. Define transformation ratio.
3. List two effects of armature reaction.
4. Identify the principle of operation of an alternator.
5. State the speciality of universal motor compared to other types of motors. (5×2=10)

PART — B

(Maximum marks : 30)

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

1. Derive an equation for instantaneous value of an alternating quantity.
2. Define :
(i) RMS value (ii) Cycle (iii) Time period
3. State and explain Kirchhoff's law.
4. Derive EMF equation of transformer.
5. Explain the classification of DC generator with neat circuit diagram of each type.
6. List out the applications of stepper motor.
7. Explain the working of servomotor. (5×6=30)

[173]

[P.T.O.]

PART — C
(Maximum marks : 60)

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

UNIT — I

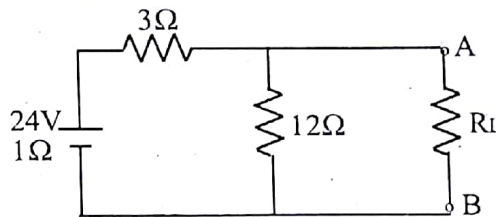
- III (a) A resistance of 50Ω , an inductance of 0.015 H and a capacitance of $250\mu\text{F}$ are connected in series in an ac circuit, across a 250V , 50Hz supply. Find the power and factor of the circuit. 8
- (b) Draw the diagram and explain plate earthing. 7

OR

- IV (a) Explain the operation of megger for measuring insulation resistance with sketch. 8
- (b) Define impedance and derive an equation for finding impedance in R-L series circuit. 7

UNIT — II

- V (a) Explain the construction and types of transformer. 8
- (b) Find the equivalent EMF of the network by using Thevenin's theorem, when viewed from terminal A & B.



OR

- VI (a) State and explain super position Theorem and Maximum power transfer Theorem. 8
- (b) Explain the various losses in transformer. 7

UNIT — III

- VII (a) Explain the principle of operation of a DC motor. 8
- (b) Derive EMF equation of a DC generator. 7

OR

- VIII (a) Explain the function of a DC three point starter with neat sketch. 8
- (b) Explain the no load characteristics of a DC generator. 7

UNIT — IV

- IX (a) Explain the operation of a stepper motor. 8
- (b) Explain the relation between the speed and frequency of an alternator. 7

OR

- X (a) Explain the working principle of a three phase induction motor. 8
- (b) Explain the working principle of universal motor and its application. 7