TED (15) – 3043

(REVISION — 2015)

Reg. No.....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

ELECTRICAL TECHNOLOGY

[*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 inductive reactance.
2. Write the primary and secondary e m f equations of a single phase transformer.
3. List any 2 applications of D C motor.
4. What are the different types of stepper motor ?
5. Define Kirchhoff's Voltage Law (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe effect of AC through a RLC circuit.
2. Explain the pipe earthing method with neat sketch.
3. Derive the emf equation of transformer.
4. State and prove Thevenin's Theorem.
5. Explain the working of a 3 point starter.
6. Draw and explain the AC servo motor.
7. What is the relation between the speed and frequency of an alternator ? (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

Unit — I

III (a) Explain how the insulation resistance can be measured by a Megger. 7

(b) An inductor coil of 2 H with a resistance of 100Ω and a capacitance of 10μF are connected in series and fed by a 220 V, 50Hz supply. Find Impedance, pf, active power and reactive power. 8

Or

IV (a) Derive the equation of alternating voltage and current. 8

(b) Define the terms Impedance, RMS value, Cycle, form factor. 7

Unit — II

V (a) State and explain Superposition Theorem with suitable example. 7

(b) Explain the working principle of a transformer. 8

Or

VI (a) Illustrate the no load working of a transformer. 7

(b) State and prove maximum power transfer theorem. 8

Unit — III

VII (a) Draw and explain the working of a DC motor. 8

(b) Explain Armature reaction and its effect. 7

Or

VIII (a) Draw and explain the classification of DC generator. 8

(b) What is the significance of back emf in DC motor. 7

Unit — IV

IX (a) Derive the emf equation of an alternator. 7

(b) With the help of relevant figures explain how a single phase induction motor is made Self starting. 8

Or

X (a) How the rotating field is produced in an Induction motor ? 7

(b) What are the different types of stepper motor and its application ? 8