Reg. No. ....

Signature ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 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 impedance.

2. Write the primary emf equation of a single phase transformer.

3. What are the different types of D C motor ?

4. Write any 2 applications of stepper motor.

5. State superposition Theorem.   (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 of Megger.

2. State and explain Kirchhoff's Laws.

3. Derive the emf equation of transformer.

4. Explain the armature reaction and it's effects.

5. Explain the working principle of stepper motor.

6. Draw and explain the DC servo motor.

7. Define the terms cycle, time period, frequency, amplitude.   (5 × 6 = 30)

[36]   [P.T.O.

Marks

PART — C

(Maximum marks : 60)

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

Unit — I

III (a) Describe effect of AC through a RLC circuit. 8

(b) An inductor coil of 0.2H with a resistance of 20Ω and a capacitance of 160 μF are connected in series and fed by a 230V, 50Hz supply. Find impedance, pf, active power and reactive power. 7

OR

IV (a) A resistance of 10Ω, an inductance of 20mH and a capacitance of 47μF are connected in series 220V, 50Hz supply. Determine (i) the voltage across R, L and C (ii) power in watts. 7

(b) Explain the plate earthing method with neat sketch. 8

Unit — II

V (a) State and prove Thevenin's Theorem. 7

(b) Explain the construction of a transformer. 8

OR

VI (a) Illustrate the elementary theory of an ideal transformer. 7

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

Unit — III

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

(b) Explain the necessity of starter in a DC motor and working of a 3 point starter. 7

OR

VIII (a) Derive emf equation of a DC generator. 7

(b) Draw the electrical and mechanical characteristics of a DC series motor and explain it. 8

Unit — IV

IX (a) What is the relation between the speed and frequency 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) What is the principle of operation of a 3Φ Induction motor. 7

(b) Explain the working principle of an alternator. 8

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