TED (10) – 3057

(REVISION — 2010)

Reg. No. .....

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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. Explain transformation ratio of a transformer.
2. What is inductive reactance ?
3. State the functions of a commutator in DC generator.
4. What is the principle of alternator ?
5. List the two applications of 3 phase induction motor. $(5 \times 2 = 10)$

PART — B

(Maximum marks : 30)

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

1. Derive emf equation of a transformer.
2. State and explain Thevenin's theorem.
3. Classify dc generators based on its field excitation.
4. Explain the electrical characteristics of DC shunt motor.
5. Compare star connection and delta connection in 3 phase AC system.
6. What are the advantages of stationary armature in an alternator ?
7. Compare squirrel cage and slip ring induction motor. $(5 \times 6 = 30)$

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) State and explain Kirchhoff's law. 7

(b) An inductance 0.03 H is connected in series with a resistance of 4Ω across 200 volts, 50 Hz supply. Calculate current, power factor and power consumed. 8

OR

IV (a) Find an expression for impedance, current and power in RLC series circuit. 9

(b) Write the advantages of an auto-transformer. 6

UNIT — II

V (a) Explain armature reaction in DC machine and explain its effects. 7

(b) Derive torque equation of a DC motor. 8

OR

VI (a) Draw and explain electrical characteristics of DC shunt generator. 9

(b) Explain the significance of back emf in DC motor. 6

UNIT — III

VII (a) Explain the principle of operation of synchronous motor. 8

(b) Explain the construction and working of a cylindrical type alternator. 7

OR

VIII (a) Explain the working of universal Motor. 7

(b) Draw the construction of salient pole rotor of an alternator. 8

UNIT — IV

IX (a) With a neat diagram and explain the functions of DOL starter. 7

(b) Draw and explain plate earthing. 8

OR

X (a) Explain the construction of capacitor start induction run single phase Induction motor. 7

(b) Explain the measurement of earth resistance with megger. 8
