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Reg. No.....

(REVISION — 2015)

Signature

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019**

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 time period.
2. Write voltage transformation ratio of a transformer.
3. How can limit Eddy Current Loss ?
4. Which starter is suitable for starting of a DC series motor.
5. List any two advantages of poly phase motor.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Derive the equation impedance, power and power factor of RLC series circuit.
2. State and explain maximum power transfer theorem.
3. Explain the different types of losses in a transformer.
4. Classify DC generators based on its field excitation.
5. Derive the EMF equation of a DC generator.
6. Compare Single phase and three phase induction motor.
7. State the advantages of stationary armature in an alternator.

(5×6 = 30)



PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) A circuit having a resistance of 12 Ohms an inductance of 0.15 H and capacitance of 100 Micro Farads connected in series across a 100 V, 15 Hz supply. Calculate the impedance, current, power factor and power consumed. 8
- (b) Draw and explain plate earthing. 7

OR

- IV (a) Define the terms - Inductive reactance, Capacitive reactance, Impedance, Power Factor. 8
- (b) An inductance of 0.03H is connected in series with a 4 Ohms resistance. Calculate impedance, current power factor when connected across 200V, 50 Hz Supply. 7

UNIT — II

- V (a) Illustrate the on load working of a transformer. 8
- (b) State and explain Kirchoff's Law. 7

OR

- VI (a) A 25KVA single phase transformer has a 250 turns on the primary and 40 turns on the secondary winding. The primary is connected to 1500V, 50Hz mains. Calculate
- (i) Primary & Secondary Current on full load
- (ii) Secondary EMF
- (iii) Maximum Flux in the core 8
- (b) Explain the working of a auto transformer and list its advantages. 7

UNIT — III

- VII (a) Explain the principal of operation of DC generator. 8
- (b) Explain the necessity of starter in a DC motor starting. 7

OR

- VIII (a) A 6 pole lap wound DC generator has 600 conductors on its armature. The flux per pole is 0.02 wb. Calculate
- (i) The speed at which the generator must be run to generate 300 V.
- (ii) What would be the speed if the generator were wave wound ? 8
- (b) Draw and explain the characteristics of DC shunt motor. 7

UNIT — IV

- IX (a) Explain the construction and working of a capacitor start induction run motor. 8
- (b) To explain the relation between speed and frequency of an alternator. 7

OR

- X (a) Derive the EMF equation of an alternator. 8
- (b) Compare squirrel cage and slip-ring induction motor. 7