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(REVISION — 2015)

Reg. No. .....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 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 impedance.
2. Write the e m f equation of a DC generator.
3. Write the different classifications of D C generator.
4. What are the different types 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. Define the terms Cycle, Time period, Frequency, Amplitude.
2. Describe effect of AC through a RL circuit.
3. State and explain in Kirchhoff's Law.
4. Explain the working of a transfomer on no load.
5. Explain the necessity of a starter in a DC motor.
6. Derive the emf equation of an alternator.
7. Draw and explain the DC servo motor. (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) Explain the method of Plate earthing with a neat sketch. 8

(b) An inductor coil of 2 m H having a resistance of 2Ω, a resistor of 10 Ω and a capacitance of 47μF are connected in series and fed by a 200 V, 50Hz supply. Find Impedance, pf, active power and reactive power. 7

OR

			Marks
IV	(a)	Derive the equation for alternating voltage and current.	7
	(b)	Explain the working of Megger with neat sketch.	8
		UNIT — II	
V	(a)	State and prove Thevenin's Theorem.	7
	(b)	Derive the e m f equation of a transformer and state the voltage transformation ratio.	8
		OR	
VI	(a)	Illustrate the working theory of a transformer.	7
	(b)	State and prove maximum power transfer theorem.	8
		UNIT — III	
VII	(a)	Explain the working principle of DC motor.	8
	(b)	Explain the working of a 3 point starter with relevant sketch.	7
		OR	
VIII	(a)	Derive e m f equation of a DC generator.	7
	(b)	Draw and explain the armature reaction and its effects.	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 the open circuit characteristics of an alternator.	8
		OR	
X	(a)	What is the principle of operation of a universal motor ?	7
	(b)	Explain how the rotating field is produced in an induction motor.	8