2106220067A

Reg.No	•••	•••	•••	 •••	•••	•	•••	•	•••	 •	•
Signature		•••	•••	 	•••	•	•••	•	•••	 •	•

# DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2025

# **ELEMENTARY CONCEPTS OF ELECTRICAL SYSTEMS**

[Maximum marks: 75]

[Time: 3 Hours]

### PART A

## I. Answer all the following questions in one word or one sentence. Each question carries 1 mark

		(9 x 1 = 9 Marks)		
		Module	Cognitive	
1	Device that ensures efficient protection from electric hazard of	M1.02	R	
	shock and fire caused by over current, short circuit, earth leakage			
	and earth fault is			
2	MCCB stands for	M1.02	R	
3	List any two applications of electrolysis.	M2.04	R	
4	Identify the heat transfer mode while a milk is heated in a pan.	M2.02	U	
5	Give any two examples for Diamagnetic materials.	M3.04	U	
6	The nodal agency for coordinating the energy conservation	M1.04	R	
	activities under Energy Conservation act in India is			
	(a) Bureau of Energy education (b) Bureau of energy and			
	environment (c) Bureau of Energy efficiency (d) BIS			
7	List any two examples for storage batteries.	M3.01	R	
8	If two capacitors C1 and C2 are connected in series then write the	M4.04	R	
	equivalent capacitance.			
9	List any two parts of lead acid battery.	M3.02	R	

#### PART B II. Answer any eight questions from the following. Each question carries 3 marks.

		$(8 \times 3 = 24 \text{ Marks})$		
		Module outcome	Cognitive level	
1	Enumerate any six safety precautions to be followed while handling electricity.	M1.01	R	
2	Identify the different electrical safety devices used in residential installations.	M1.02	U	
3	Recall any six requirements of a good heating element.	M2.03	R	
4	List any two properties with examples of different magnetic materials.	M3.04	R	

1

5	Identify any three factors that will affect the performance of a	M3.04	R
	battery.		
6	Define Electric Shock and give its effects.	M1.01	R
7	Compare electric circuit with Magnetic circuit.	M4.02	U
8	State laws of Electrostatics.	M4.03	R
9	List any six advantages of electric heating.	M3.04	R
10	Recall any three points that should be noted while doing battery	M3.02	R
	care and maintenance.		

PART C Answer all questions. Each question carries seven marks

		(6 x 7 = 42 Marks)		
		Module outcome	Cognitive level	
III	Calculate the units of electricity consumed in the month of	M1.03	A	
	November from the following details. One 60W bulb is used for			
	5 hours daily. One 100W bulb is used for 3 hours daily. One			
	1kW electric heater is used for 2 hours daily.			
	OR			
IV	Prepare the detailed specification table of following electrical equipment Ceiling fan.	M1.03	А	
V	Explain with the help of a figure the working of a fluorescent	M2.01	U	
	lamp			
	OR			
VI	Describe the different methods of resistance electric heating.	M2.03	U	
VII	Explain the classification of insulators based on its temperature.	M3.04	U	
	OR			
VIII	Cite the advantages and applications of Lithium-ion battery.	M3.02	U	
IX	Three capacitors, $C1 = 2 \mu F$ , $C2 = 4 \mu F$ , $C3 = 4 \mu F$ , are connected in series and parallel. Determine the capacitance of a single capacitor that will have the same effect as the combination. <b>OR</b>	M4.04	A	
Х	Derive the expression for the equivalent capacitance when capacitors are connected in Series.	M4.04	А	
XI	Explain the different modes of heat transfer.	M2.02	U	
	OR			
XII	Describe Faradays laws of electrolysis.	M2.04	U	
XIII	Describe the concept of B-H Curve with figure	M4.02	U	
	OR			
XIV	Describe the following terms briefly (1) Absolute and relative			
	permittivity (2) Flux density (3) Electric potential.	M4.04	U	

#### \*\*\*\*\*