

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, NOVEMBER - 2025**

FUNDAMENTALS OF ELECTRICAL ENGINEERING

[Maximum marks: 75]

[Time: 3 Hours]

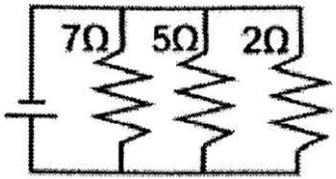
PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark. (9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	Rate of flow of electric charges is called.....	M1.01	R
2	Correct form of ohm's law a) $I = VR$ (b) $V \propto I$ (c) $V = IR$ (d) b and c	M1.02	R
3	Direction of rotation of motor is determined by	M2.01	U
4	List any two applications of single-phase induction motor.	M2.03	R
5	Write the EMF equation for a single-phase transformer.	M3.01	R
6	In the case of immersion heater heat is transformed by.....	M3.03	U
7	List any two different types of resistors.	M4.01	R
8	If DC motor is used without a starter..... will happen a) Heavy sparking at brushes b) It will start smoothly c) Will not start d) Depends on load	M2.04	U
9	SCR in forward conduction type mode can turned off by reducing value of current below minimum value is called.....	M4.04	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks. (8 x 3 = 24 Marks)

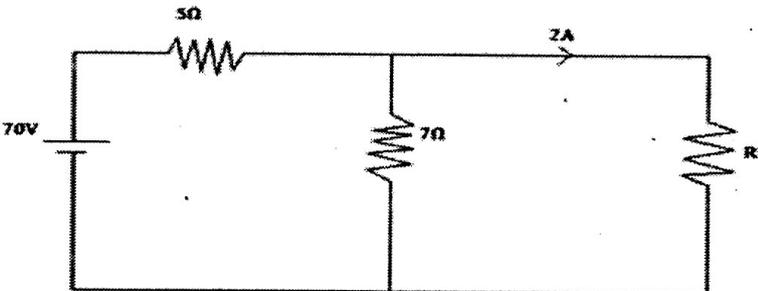
		Module outcome	Cognitive level
1	Determine the equivalent (total) resistance. 	M1.01	U
2	A Motor takes 4 Amperes at 250 volts. Calculate the number of units consumed if this motor is operated for 2 hours.	M1.04	A
3	Identify the different classification of DC motors.	M2.01	R
4	List any six application of three phase AC motors.	M2.02	R
5	Recall any three differences between welding transformer and power transformer.	M3.02	R
6	Explain the working of a chopper.	M4.03	U

7	Explain the working of PN Junction diode.	M4.02	U
8	Draw the block diagram of Electric drive.	M4.04	U
9	Cite any six advantages of electric heating.	M3.03	R
10	Recall any 3 advantages of electric furnaces.	M3.04	R

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 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	M1.01	A
IV	Compute the value of R 	M1.04	A
V	Explain the working of star delta starter with diagram. OR	M2.04	U
VI	Illustrate the working of DC motor.	M2.01	U
VII	Discuss the different modes of heat transfer with examples. OR	M3.03	U
VIII	Explain the working principle of a single phase transformer.	M3.01	U
IX	Illustrate the working of SCR with suitable diagrams. OR	M4.03	U
X	Explain the working of PNP transistor with neat diagrams.	M4.03	U
XI	Outline the following terms briefly 1) Period 2) Form factor 3) Average value 4) Peak factor . OR	M1.03	U
XII	State and explain Kirchoff's laws.	M1.02	U
XIII	Discuss the working of 3-points Starter with help of a diagram. OR	M2.04	U
XIV	Explain the working of three phase induction motor.	M2.02	U
