DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2024

INDUSTRIAL ELECTRONICS & DRIVES

[Maximum Marks:75]   [Time: 3 Hours]

PART - A

I.   **Answer all the following questions in one word or one sentence. Each question carries 'one' marks.**

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1	The role of n⁻ layer in power diode is ………	M1.01	R
2	Define holding current.	M1.02	R
3	Draw the symbol of TRIAC.	M1.03	R
4	List the limitation of R triggering.	M2.01	R
5	UJT stands for ……..	M2.02	R
6	Define back emf.	M3.01	R
7	Give two applications of tachogenerator.	M3.04	R
8	List two applications of dual converters.	M4.01	R
9	Define choppers.	M4.02	R

PART - B

II.   **Answer *any eight* questions from the following. Each question carries 'Three' marks.**

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1	Briefly explain the structure of DIAC.	M1.03	U
2	List the specifications of SCR.	M1.02	R
3	Name the various protection methods of SCR.	M1.04	R
4	Brief on the need of commutation circuits in SCR.	M2.02	R
5	State Fleming's left-hand rule with relevant diagrams.	M3.01	R
6	Draw the TRIAC light dimming circuit.	M2.02	R

7	Give the applications of stepper motors.	M3.04	R
8	List the applications of single-phase induction motor.	M3.03	R
9	Define ac and dc drives.	M4.03	R
10	List the applications of choppers.	M4.02	R

PART - C
Answer all the questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

Module Outcome   Cognitive level

III.	Describe the construction and operations of SCR.	M1.02	U
	OR		
IV.	Explain V-I characteristics of power diode.	M1.01	U
V.	Explain the working of TRIAC.	M1.03	U
	OR		
VI.	Explain VI characteristics of DIAC.	M1.03	U
VII.	Explain UJT triggering of SCR with waveforms.	M2.01	U
	OR		
VIII.	Describe the operation of single-phase inverter with neat diagrams.	M2.03	U
IX.	Explain class B commutation technique.	M2.02	U
	OR		
X.	Define PWM. Explain in detail the PWM chip SG 352.	M2.04	U
XI.	Explain the working of servo motors.	M3.04	U
	OR		
XII.	Describe in detail the operation of Universal motors.	M3.03	U
XIII.	Explain step up and step-down choppers.	M4.02	U
	OR		
XIV.	Explain speed control of DC drives.	M4.03	U

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