TED (21)5083A
(Revision – 2021)

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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2024

INDUSTRIAL ELECTRONICS AND 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'* mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Write any two applications of power semiconductor devices.	M1.01	U
2.	Draw the symbols of TRIAC & DIAC and mention the terminals.	M1.02	U
3.	Define triggering.	M2.01	U
4.	Write two examples of static switches.	M2.04	U
5.	Write the torque equation of a motor.	M3.01	U
6.	Draw the load characteristics of series motor.	M3.02	U
7.	Any two applications of tachogenerator.	M3.04	U
8.	Define cycloconverter.	M4.01	U
9.	Draw the output waveform of chopper.	M4.02	U

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.	Explain the constructional features of SCR.	M1.01	U
2.	Draw and explain the characteristics of TRIAC.	M1.03	U
3.	Draw the transistor analogy of SCR.	M1.02	U
4.	Draw the RC triggering circuit and waveforms.	M2.01	U
5.	Differentiate line commutation and forced commutation.	M2.02	U
6.	Draw triac light dimmer circuit.	M2.04	U
7.	Write the principle of operation of DC motor.	M3.01	U
8.	Write the application of stepper motor.	M3.04	U
9.	Draw the circuit diagram of a single phase dual converter.	M4.01	U
10.	Compare AC and DC drives.	M4.03	U

PART-C

Answer '*all*' questions from the following. Each question carries *'seven'* marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Draw and explain the power diode characteristics.	M1.01	U
	OR		
IV.	Explain the constructional features and characteristics of DIAC with suitable diagrams.	M1.03	U
V.	Draw and explain the characteristics of SCR.	M1.02	U
	OR		
VI.	Explain the protection circuit of SCR.	M1.04	U
VII.	Draw and explain UJT relaxation oscillator.	M2.01	U
	OR		
VIII.	Draw and explain pulse width modulation.	M2.04	U
IX.	Explain any four types of forced commutation.	M2.02	U
	OR		
X.	Draw the circuit diagram and waveform of three phase inverter.	M2.03	U
XI.	Explain three phase induction motor with suitable diagram.	M3.03	U
	OR		
XII.	Explain the principle and operation of servomotor.	M3.04	U
XIII.	Explain the single phase cycloconverter with suitable diagrams.	M4.01	U
	OR		
XIV.	Explain the working principle and operation of Jones chopper with circuit diagram and waveforms.	M4.02	U

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