TED (21)5042
(Revision – 2021)

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Reg. No……
Signature…….

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

INDUSTRIAL AUTOMATION

[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.	List any two applications of MOSFET.	M1.01	R
2.	Define commutation.	M1.04	R
3.	What are controlled rectifiers?	M2.01	R
4.	In.....cycloconverters the output frequency is less than supply frequency.	M2.03	R
5.	A device that converts fixed DC I/p to variable DC o/p voltage is called.....	M2.04	R
6.	Name any two resistance welding schemes.	M3.03	R
7.	The device that provides uninterruptable power to the Load is.....	M3.04	R
8.	Name any two program control instructions in PLC.	M4.03	R
9.	Develop ladder diagram for a two input AND gate.	M4.04	A

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.	Draw the VI characteristics of MOSFET and mark different region of operation.	M1.01	R
2.	Draw the circuit symbol and VI characteristics of TRIAC.	M1.01	R
3.	Explain about gate triggering of SCR.	M1.03	U
4.	Explain the operation of a basic inverter circuit.	M2.02	U
5.	List any three applications of cycloconverters.	M2.03	R
6.	State the need for using AC and DC drives in electrical machines.	M3.01	U
7.	State the principle of dielectric heating.	M3.03	U
8.	Develop ladder diagram of a two input Nand gate and NOR gate.	M4.04	A
9.	List any three advantages of PLC.	M4.02	R
10.	Give the working principle of a single phase dual converter.	M2.02	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 the structure and explain the working of TRIAC.	M1.01	U
	OR		
IV.	Explain the VI characteristics of SCR using suitable figure.	M1.01	U
V.	Draw and explain resistance triggering of SCR.	M1.03	U
	OR		
VI.	Explain Class B commutation technique of SCR using figure.	M1.04	U
VII.	Explain the working of a full wave mid- point converter with R- load using diagram.	M2.01	U
	OR		
VIII.	Explain the working of a step down chopper using suitable diagram.	M2.04	U
IX.	Explain a step down cycloconverter using a circuit diagram.	M2.03	U
	OR		
X.	Explain the working of a parallel inverter with diagram.	M2.02	U
XI.	Explain OFF line UPS using a neat block diagram.	M3.04	U
	OR		
XII.	Explain variable voltage variable frequency control method of speed control of induction motor.	M3.03	U
XIII.	Explain types of math instructions used in PLC.	M4.03	U
	OR		
XIV.	State the advantages of PLC over relay.	M4.02	U

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