TED (21) - 5042
(REVISION-2021)

2109230089

Reg.No……
Signature…….

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER - 2023

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' marks.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1	Draw the symbol of IGBT and name the terminals.	M1.01	R
2	Define Communication of Thyristor.	M1.04	R
3	In step down cyclo converter, output frequency f_o and supply frequency f_s relation is given as ……	M2.03	R
4	In a fully controlled Rectifier, the load voltage is controlled by controlling the …….. of the Rectifier.	M2.01	U
5	Name two Industrial heating methods	M3.03	R
6	What is UPS?	M3.04	R
7	…… the welding method which is used to join thin metal sheets	M3.03	U
8	Develop the ladder diagram for NOT logic	M4.04	A
9	In a ladder diagram normally open contacts in series represents …….. function	M4.03	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	Draw the symbol and structure of DIAC	M1.01	R
2	List out the turn on methods of SCR	M1.03	R

3	State the difference between inverter and dual converter	M2.02	U
4	Draw the circuit diagram of a step down chopper	M2.04	R
5	List various methods for speed control of induction motor	M3.02	R
6	State the working principle of Resistance welding	M3.03	R
7	State the principle of Induction heating	M3.03	R
8	Write six applications of PLC	M4.02	R
9	Develop the Ladder diagram of $(\overline{A+B})$ C	M4.04	A
10	Draw the basic block diagram of PLC	M4.01	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 mode of operation of SCR.	M1.01	U
	OR		
IV	Explain the working of RC triggering circuit with neat diagram.	M1.03	U
V	Explain with circuit diagram the working of class D commutation.	M1.04	U
	OR		
VI	Draw and Explain the VI characteristics of DIAC.	M1.02	U
VII	Explain with diagram the working of a parallel inverter circuit.	M2.02	U
	OR		
VIII	Describe the working of step up chopper with diagram.	M2.04	U
IX	Draw and explain single phase midpoint converter with RL load.	M2.01	U
	OR		
X	Explain with diagram the operation of a dual converter circuit.	M2.02	U
XI	Explain the working of ON line UPS with block diagram.	M3.04	U
	OR		
XII	Compare AC and DC drives.	M3.01	U
XIII	Explain Timer instruction used in PLC programming.	M4.03	U
	OR		
XIV	Develop a ladder program for a staircase light control.	M4.04	A

****