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(Revision- 2021)

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

INDUSTRIAL AUTOMATION AND CONTROL

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

PART–A

I. Answer **all** the following questions in one word or sentence. Each question carries 1 mark.

(9x1=9 marks)

		Module Outcome	Cognitive level
1	Define PLC scan time.	M2.03	R
2	……..is a selective control scheme that involve one manipulated variable and several measurements of control variable.	M1.04	U
3	List any two applications of SCADA.	M2.05	R
4	Write one advantage of Feed Forward Control.	M1.02	U
5	Define crisp set.	M3.05	R
6	Write any two example of fuzzy membership function.	M3.05	R
7	Write the full form of SIS.	M4.04	R
8	Name any two types of gas detector.	M4.03	R
9	Draw P&I symbol for orifice plate.	M4.05	R

PART B

II. Answer **any Eight** questions from the following. Each question carries 3 marks.

(8x3=24 marks)

		Module Outcome	Cognitive level
1	Draw an example of single variable process control.	M1.01	U
2	Explain compound variable process control.	M1.01	U
3	Write the general features of SCADA system.	M2.05	R
4	Draw the block diagram of Supervisory Control.	M2.01	R
5	List the advantages of Lab VIEW.	M3.02	R
6	Compare Virtual Instrument and Traditional Instrument.	M3.02	U
7	Explain the types of activation function in ANN.	M3.03	U
8	Explain the working of flame detector.	M4.03	U
9	List the types of instrument protection.	M4.02	R
10	Write the different layers of safety instrumentation system.	M4.04	R

PART C

Answer **all** questions from the following. Each question carries 7 marks.

(6x7=42marks)

		Module Outcome	Cognitive level
III	Illustrate Cascade control with a suitable example.	M1.03	U
	OR		
IV	With a neat sketch explain Inferential control scheme.	M1.04	U
V	Describe split range control system with suitable diagram.	M1.04	U
	OR		
VI	Compare the feedback and feed forward control system.	M1.02	U
VII	Draw the PLC ladder diagram for the logic gates AND, OR, NOT, XOR, XNOR, NAND, NOR.	M2.04	U
	OR		
VIII	Draw and explain the Block schematic of Data Acquisition System.	M2.01	U
IX	Explain DCS and its architecture.	M2.02	U
	OR		
X	Explain the block diagram of Programmable Logic Controller (PLC).	M2.03	U
XI	Explain Supervised, Unsupervised and reinforcement learning.	M3.04	U
	OR		
XII	Explain the block diagram of Fuzzy controller.	M3.06	U
XIII	Draw the P & ID of signal and process lines.	M4.05	U
	OR		
XIV	Describe the classification of Hazardous area as zones and class.	M4.01	U

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