B.Tech. Sem - V (2020 course) Electrical Winter - 2022

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - V ELECTRICAL : WINTER- 2022
SUBJECT : INDUSTRIAL AUTOMATION

Day : Monday | Time : 02:30 PM-05:30 PM

Date : 12/12/2022 | W-24558-2022 | Max. Marks : 60

N.B.:

1) All questions are **COMPUSLORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q.1	**a)**	Explain in detail history of PLC.	(05)
	b)	Draw block diagram of CPU and explain.	(05)
		OR	
Q.1	**a)**	How do you explain solid state memory with examples?	(05)
	b)	What is selection criteria for PLC?	(05)
Q.2	**a)**	How do you differentiate between relay logic and Boolean logic?	(05)
	b)	What are basic components and symbols used in ladder programming?	(05)
		OR	
Q.2	**a)**	Draw ladder diagram to verify truth table of NAND logic gate with symbol.	(05)
	b)	What are different steps involved in creating ladder diagram?	(05)
Q.3	**a)**	Draw block diagram of closed loop control system for water level control and explain the same.	(05)
	b)	Explain PID control of continuous processes.	(05)
		OR	
Q.3	**a)**	Explain with neat diagram about variable speed (variable frequency) AC motor drive.	(05)
	b)	Why PID controller is more accurate compared to other controllers? Explain.	(05)
Q.4	**a)**	What is role of master terminal unit in SCADA operation?	(05)
	b)	Explain use of SCADA in real time applications.	(05)
		OR	
Q.4	**a)**	Define SCADA and give overview of SCADA system.	(05)
	b)	Draw basic SCADA system architecture and explain the same.	(05)
Q.5	**a)**	What are different types of SCADA? Explain any one with diagram.	(05)
	b)	Explain operation and control of interconnected power system.	(05)
		OR	
Q.5	**a)**	Explain use of SCADA in automatic substation control.	(05)
	b)	Draw block diagram of SCADA system for petroleum refining process.	(05)
Q.6	**a)**	Explain IEC layered architecture.	(05)
	b)	Draw all the layers of OSI model and explain role of each layer.	(05)
		OR	
Q.6	**a)**	Explain process field bus (profibus) with applications.	(05)
	b)	Explain functions of Internet protocol briefly.	(05)

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