USN | 1 | AY22MT015 | | | | | | | | | BMT601

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Programmable Logic Controller And SCADA Technology

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	List the types of PLCs and highlight the features of various class of PLCs and mention its advantages and limitations.	10	L2	CO1
	b.	Describe the characteristics and tasks performed by PLCs.	10	L2	CO1
		OR			
Q.2	a.	Sketch and explain the architecture of PLC and brief about the functional units.	10	L2	CO1
	b.	With a neat flow chart explain the processor or executive software in PLCs.	10	L2	CO1
		Module – 2			
Q.3	a.	Construct the Ladder diagram for the following : i) X NOR Gate ii) NAND Gate	10	L3	CO2
	b.	State and prove the Demargar's theorems with truth table and ladder diagram.	10	L2	CO2
		OR			
Q.4	a.	Briefly describe the rules to build ladder diagram with an example.	10	L2	CO2
	b.	Develop a 4 x 1 Multiplexer using PLC ladder logic and mark the input/output terminals.	10	L3	CO2
		Module – 3			
Q.5	a.	Explain the classification and characteristics of timer in PLCs.	10	L2	CO3
	b.	Explain the working of DOWN counter with program example.	10	L3	CO3
		OR			
Q.6	a.	Construct the ladder diagram for ON delay timer to ON/OFF lamp and explain its working with programs example.	10	L3	CO4
	b.	Illustrate the following advanced instruction in PLC with example. i) NEQ ii) LIM iii)MEQ	10	L2	CO4
		Module – 4			
Q.7	a.	Explain the practical I/O system and its mapping in PLC.	10	L2	CO3
	b.	Outline the power supply configuration with sinking and sourcing modules.	10	L2	CO3
		OR			
Q.8	a.	Summarize the working of parallel I/O system with a neat diagram.	10	L2	CO4
	b.	With a neat block diagram, explain the discrete DC and AC input modules.	10	L2	CO4
		Module – 5			
Q.9	a.	Draw and explain the working of typical SCADA system Architecture.	10	L2	CO5
	b.	List the properties of SCADA system and sketch the SCADA system Links	10	L2	CO5
		OR			
Q.10	a.	With the help of a block diagram, Explain monolithic architecture of SCADA system.	10	L2	CO5
	b.	Sketch and explain the networked architecture in SCADA and mention its applications.	10	L2	CO5

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