



CBCS SCHEME

BMT601

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2026 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.	Sketch and explain the architecture of PLC and brief about the functional units.	10	L2	CO1
	b.	With a neat flowchart, explain the processor executive software in PLCs.	10	L2	CO1
OR					
Q.2	a.	List the types of PLCs and highlight the features of various classes of PLCs.	10	L2	CO1
	b.	Describe the characteristics and tasks performed by PLCs.	10	L2	CO1
Module – 2					
Q.3	a.	Construct the ladder diagram the following : i) XNOR gate ii) NAND gate	10	L2	CO2
	b.	State and prove Demorgan's Law with truth table and ladder diagram.	10	L2	CO2
OR					
Q.4	a.	Develop a 1: 4 Demultiplexer circuit using ladder logic.	10	L2	CO2
	b.	Develop a 4:1 MUX using ladder logic. Assume the inputs are connected to I : 0/1 and I : 0/2 , I : 0/3 and I : 0/4 ; control signals are connected to I : 0/5 and I : 0/6 and the terminal is O : 0/1.	10	L2	CO2
Module – 3					
Q.5	a.	Explain the timer characteristics and classification in PLCs.	10	L2	CO3
	b.	Explain the working of UP counter in detail with program example.	10	L2	CO3
OR					
Q.6	a.	Describe the following advanced instructions in PLC with example : i) EQU ii) NEQ iii) LIM	10	L2	CO3
	b.	Illustrate the format of timer instruction in PLCs with example.	10	L2	CO3
Module – 4					
Q.7	a.	Explain the practical IO system and its mapping in PLC.	10	L2	CO4
	b.	With a neat block diagram explain the discrete DC and AC input module.	10	L2	CO4
OR					
Q.8	a.	Explain the power supply configuration with sinking and source modules.	10	L2	CO4
	b.	Illustrate the parallel and serial IO system with neat diagram.	10	L2	CO4
Module – 5					
Q.9	a.	Explain the SCADA architecture with a neat block diagram.	10	L2	CO5
	b.	Summarize the desirable properties of SCADA systems with advantages and limitations.	10	L2	CO5
OR					
Q.10	a.	Explain the following SCADA architecture with a neat diagram : i) Monolithic ii) Distributed	10	L2	CO5
	b.	List and explain the communication system requirements of SCADA system.	10	L2	CO5
