Model Question Paper-2 with effect from 2022-23 (CBCS Scheme)

USN | | | | | | | | | | |

Fourth Semester B.E. Degree Examination

PROGRAMMABLE LOGIC CONTROLLER AND SCADA TECHNOLOGY

TIME: 03 Hours Max. Marks: 100

Note: 01.Answer any FIVE full questions, choosing at least ONE question from each MODULE.

		Module -1	COs	*Bloom's Taxonomy Level	Marks
Q.01	a	Elucidate the Architecture of PLC	CO1	BL2	10
	b	Explain the types of PLCs	CO1	BL2	10
		OR			
Q.02	a	Explain processor software / executive software	CO1	BL2	10
	b	Explain characteristics of PLC in detail	CO1	BL2	10
		Module-2			
Q.03	a	Construct ladder diagram for the following: A) NOR gate B) X – NOR gate	CO2	BL3	8
	b	Develop a 4:1 multiplexer 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 output terminal is O:0/1.	CO2	BL3	6
	c	Construct a ladder diagram for "the compliment of the product of two variables is equal to the sum of the compliment of each variable"	CO2	BL3	6
		OR			
Q.04	a	Construct ladder diagram for the following: A) NAND gate B) EX - OR gate	CO2	BL3	8
	b	Develop a 1:4 de-mux using ladder logic. Assume the inputs is connected to I:0/1and control signals are connected to I:0/2, I:0/3 and the output terminals at O:0/1, O:0/2, O:0/3, O:0/4	CO2	BL3	6
	c	Construct a ladder diagram for "the compliment of the sum of two variables is equal to the product of the compliment of each variable"	CO2	BL3	6
		Module-3			
Q.05	a	Explain the working of UP counter in detail with program example	CO2	BL3	10
	b	Explain MEQ, EQU, LEQ, LIM comparison instruction in detail with program example	CO2	BL3	10
		OR			
Q.06	a	Explain the working of DOWN counter in detail with program example	CO2	BL3	10

	b	Construct a ladder diagram for ON timer to ON/OFF lamp and explain its working with program example	CO2	BL3	10

		Module-4			
Q.07	a	Examine I/O modules in hazardous environment	CO3	BL4	10
	b	Examine the types of analog I/O modules	CO3	BL4	10
		OR			
Q.08	a	Analyze power supply configuration and sinking – sourcing modules	CO3	BL4	10
	b	Analyze the block diagram of discrete AC I/O modules	CO3	BL4	10
		Module-5			
Q.09	a	Examine the 3 SCADA architectures in detail	CO4	BL4	10
	b	Examine the typical SCADA architecture and define SCADA	CO4	BL4	10
		OR			
Q.10	a	Examine the SCADA security system and its desirable properties	CO4	BL4	10
	b	Analyze a SCADA application system with architecture in detail	CO4	BL4	10