CBCS SCHEME

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

18MT61

Sixth Semester B.E. Degree Examination, June/July 2023
PLC and SCADA

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Write technical definition of PLC and explain types of PLC. **(10 Marks)**
b. Discuss the processor software/executive software. **(10 Marks)**

OR

2 a. Draw block diagram of PLC and explain each components. **(10 Marks)**
b. Describe advantages and characteristics functions of PLC. **(10 Marks)**

Module-2

3 a. Explain numbering system of inputs and outputs. **(10 Marks)**
b. Illustrate the equivalent ladder diagram for
i) AND ii) OR iii) NOR iv) NAND v) XOR. **(10 Marks)**

OR

4 a. Write equivalent diagram to demonstrate De-Morgan's theorem. **(10 Marks)**
b. Design 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 0 : 0/1. **(10 Marks)**

Module-3

5 a. Explain functional block of timer on with an example. **(10 Marks)**
b. Explain function of counter instruction. **(10 Marks)**

OR

6 a. Explain the following comparison instruction :
i) "EQUAL" or "EQU" instruction
ii) "NOT EQUAL" or "NEQ" instruction
iii) "LESS THAN" or "LES" instruction. **(10 Marks)**
b. Explain counter up with neat ladder diagram. **(10 Marks)**

Module-4

7 a. Explain the practical I/O system and its mapping. **(10 Marks)**
b. Explain the following concept in I/O modules
i) Discrete AC input module
ii) Threshold detection. **(10 Marks)**

OR

8 a. Explain I/O modules in hazardous locations power supply requirements. **(10 Marks)**
b. Describe the sinking and sourcing concept in detail. **(10 Marks)**

Module-5

9	a.	What is SCADA and explain architecture of 1st, 2nd and 3rd generation.	(10 Marks)
	b.	Explain desirable properties of SCADA system.	(10 Marks)

OR

10	a.	Explain Petroleum Refining Process SCADA system.	(10 Marks)
	b.	Explain Water Purification SCADA system.	(10 Marks)

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