K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

In Sem Examination-II Summer 2025	
Exam Seat No.:	
Academic Year: 2024-2025	Semester: VI
Class: TY	Program: B.Tech
Branch Code: ELE	Pattern:2022
Name of Course: PLC and SCADA Automation	Course Code: ELE223014A
Max. Marks: 30	Duration: 1.15 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

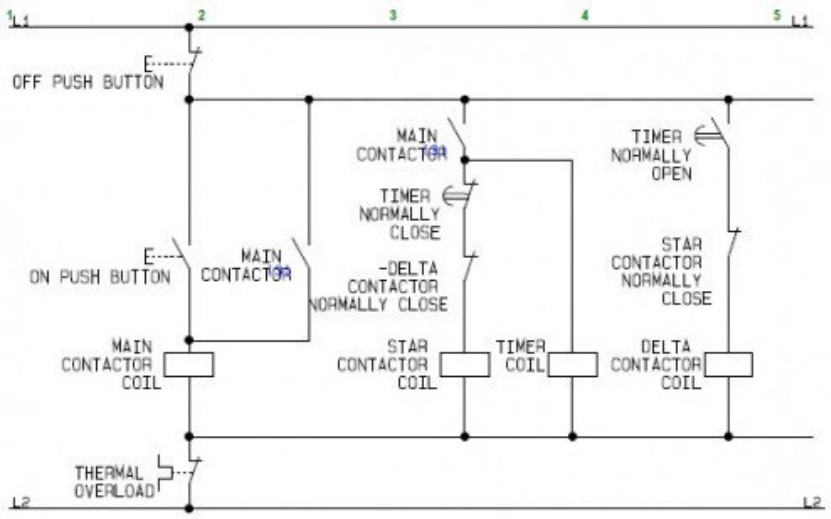
1 a) Define programmable logic controller as per NEMA and explain the criteria for selecting a PLC for any industrial application. (7) CO1

Question No. 2

2 a) Write the types of Proximity sensors and explain the construction and working of inductive proximity sensors with a neat diagram. (8) CO1

OR

2 b) Convert the below electrical schematic diagram of the Star Delta starter into PLC Ladder diagram with an input and output addressing table. (8) CO1, CO2



Question No. 3

3 a) Explain Up Counter with all its bits, instructions, addressing, memory mapping, and timing diagram. (7) CO1, CO2

Question No. 4

4 a)	Draw a ladder diagram for a two-motor system having the following conditions: i. Start push button starts motor 1. ii. After 10 seconds motor 2 is ON. iii. Stop push button stops both motors 1 and 2 simultaneously. Also, draw the timing diagram for both motors.	(8)	CO2, CO4

OR

4 b)	Describe the rules used for ladder diagram development.	(8)	CO1, CO2

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