



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:VII
Class:FINAL	Program:B.Tech
Branch Code:ROB	Pattern:2022
Name of Course:PLC & SCADA Programming	Course Code:ROB224001
Max. Marks:60	Duration:2.30 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 02 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**

- 1a) Define Programmable Logic Controller (PLC) and advantages over traditional control systems. (6) CO1

**Question No. 2**

- 2a) Explain the architecture of a PLC with a neat diagram. Describe the role of the Central Processing Unit (CPU). (6) CO1, CO2, CO3, CO4, CO5

**Question No. 3**

- 3a) Give application of Timers in Industrial Automation. (8) CO4, CO5

**OR**

- 3b) Enlist types of Timers also explain in-detail Retentive timer by giving it's structure (8) CO4, CO5
- 3c) Explain in detail UP-Counter by using suitable ladder logic example. (8) CO4, CO5

**OR**

- 3d) Explain in detail about on delay Timer and off Delay Timer by drawing its structure also explain bits. (8) CO4, CO5

**Question No. 4**

- 4a) Explain in-detail SCADA Architecture (8) CO4

**OR**

- 4b) Enlist & Explain Function of SCADA. (8) CO4
- 4c) Enlist & Explain Basic components of SCADA. (8) CO4

**OR**

- 4d) Explain in-detail Centralized vs distributed SCADA (8) CO4

**Question No. 5**

- 5a) Draw and explain ladder logic programming for Start-Stop motor control with interlock (8) CO3, CO4

**OR**

- 5b) Draw and explain ladder logic programming for Automatic water level controller application (8) CO3, CO4

- 5c) Draw and explain ladder logic programming for Automatic street light control using LDR. (8) CO3, CO4

**OR**

- 5d) Draw and explain ladder logic programming for Two-tank liquid filling system. (8) CO3, CO4

**..... End of question paper.....**