



**C20-AEI-504**

**7609**

**BOARD DIPLOMA EXAMINATION, (C-20)**

**OCTOBER/NOVEMBER—2023**

**DAEI – FIFTH SEMESTER EXAMINATION**

**INDUSTRIAL AUTOMATION**

*Time : 3 Hours ]*

*[ Total Marks : 80*

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. List any three manufacturers of PLC.
2. Define the term 'Automation'.
3. Define ladder diagram.
4. Draw the ladder diagram of OR and NAND gates.
5. List any three applications of SCADA.
6. List the three components of SCADA.
7. List any three applications of data logger.
8. Define the term 'Robot'.
9. State the need of communication interface.
10. List any three components of embedded systems.

**PART—B**

8×5=40

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **eight** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

**11.** (a) Compare relay based and PLC based control panel.

**(OR)**

(b) Explain the interfacing of PLC with PC.

**12.** (a) Explain the ladder diagram of Star-Delta starter.

**(OR)**

(b) Explain the ladder diagram for level control controller.

**13.** (a) Explain the master station of SCADA.

**(OR)**

(b) Explain the communication infrastructure of SCADA with diagram.

**14.** (a) Explain the block diagram of data acquisition system with diagram.

**(OR)**

(b) Explain the operation of simple robot with block diagram.

**15.** (a) Explain serial communication using USB.

**(OR)**

(b) Explain the hardware architecture of embedded system.

**PART—C**

10×1=10

- Instructions :** (1) Answer the following question.  
(2) The question carries **ten** marks.  
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

**16.** Draw and explain the ladder diagram for traffic light controller.

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