



\* 3717 \*

C09-AEI-604

**3717**

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**MARCH/APRIL—2014**  
**DAEI—SIXTH SEMESTER EXAMINATION**  
**INDUSTRIAL AUTOMATION**

Time : 3 hours ]

[ Total Marks : 80

---

**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 different parts of PLC.
2. List the applications of PLC.
3. Draw the block diagram of a PLC.
4. State the principle of operation of rotary encoder.
5. List the control elements used in automation.
6. Define SCADA.
7. List the important features of SCADA.

- \* 8. List the drawbacks of DDC.
- 9. Draw the block diagram of data acquisition system.
- 10. List the applications of robot.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11. Explain about bit instructions used in PLC programming.
- 12. Draw and explain the PLC ladder diagram to control the induction motor in forward and reverse direction.
- 13. (a) List out the differences between relay-based and PLC-based control panels. 5
- (b) Explain how to use the SCADA software to develop graphical symbols. 5
- 14. Explain the working of inductive and capacitive proximity switches.
- 15. Explain the principle of operation of fiberoptic and linear sensors.
- 16. Explain the hardware and software architecture of SCADA.
- \* 17. Explain direct digital control (DDC) with block diagram.
- 18. Define robot and explain the working of a simple robot.

\*\*\*