

(3 Hours)

Total Marks: 80

Note:

1. Question No.1 is compulsory
2. Solve any THREE questions out of remaining FIVE questions.
3. Figure to the right indicate full marks.
4. Assume suitable data if required.

- Q 1** Answer the following:
- a) Discuss different communication media used in SCADA with advantages and disadvantages. (04)
 - b) Compare engineering workstation and operator workstation. (04)
 - c) Explain operating cycle with respect to PLC (04)
 - d) What do you mean by MES? Discuss its advantages. (04)
 - e) Discuss SIL levels for low mode. (04)
- Q 2**
- a) Draw and explain the generic architecture of DCS. (10)
 - b) Explain arithmetic instructions with respect to PLC ladder with a suitable example. (10)
- Q 3**
- a) Give different types of DCS displays with significance of each type. (10)
 - b) Discuss protocol structure with respect to SCADA. (10)
- Q 4**
- a) Define automation. Discuss different types of automation with a suitable example of each. (10)
 - b) Develop a PLC ladder for the traffic control system. Your answer should include process sequence, I/O mapping, graphical user interface and ladder diagram. (10)
- Q5**
- a) Classify PLC according to the arrangement of its components and I/O capacity. (10)
 - b) Define scan interval with respect to SCADA and discuss the factors which affects it. (10)
- Q6** Write short notes—(Any TWO)
- a) Database management System (10)
 - b) Safety Instrumented system (10)
 - c) P, PI, PID controller (10)
