

Total No. of Questions : 12]

SEAT No. :

P3609

[Total No. of Pages : 2

[4959] - 1090
B.E. (E & Tc)
PLC's and Automation
(Elective - II) (2012 Course)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:-

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right side indicate full marks.*
- 4) Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) Assume Suitable data if necessary*

Q1) a) Explain different process control principles. **[4]**

b) Explain role of automation in modern developments. **[4]**

OR

Q2) Explain different approaches to design digital control systems. **[8]**

Q3) A sensor output voltage ranging from - 2.4 volts to -1.11 volts. To interface it to an analog to digital converter, this needs to be 0 to 2.5 volts. Develop the signal conditioning circuit. **[6]**

OR

Q4) Discuss the typical issues & guidelines for analog signal conditioning design. **[6]**

Q5) List and explain different types of switches. **[6]**

OR

Q6) Explain programmable automation controller [PAC] **[6]**

Q7) a) Draw and explain block diagram for elevator system. Develop the ladder diagram for the same. **[10]**

P.T.O.

- b) Write a short note on : [8]
- i) MIS
 - ii) MES

OR

- Q8)** a) Define the term HMI. Explain its application in automation. [6]
- b) Define the term PLC. Explain its typical specifications. [6]
- c) Draw the ladder diagram for the following sequence : [6]
- i) If push button PB1 is pressed the red light turns ON.
 - ii) If push button PB 2 is pressed, the green light turns ON.
 - iii) If both the bush buttons [PB1 & PB2] are pressed at once, neither light turns ON

- Q9)** a) Explain functions of various elements used in SCADA system. [8]
- b) Draw and explain block diagram of distributed control system. [8]

OR

- Q10)** a) Define the term SCADA. Explain various features of SCADA system.[8]
- b) What factors makes DCS different from other control systems? Justify.[8]

- Q11)** a) List the applications of CNC machines in manufacturing Industry. Explain any one in detail [8]
- b) Write a short note on : [8]
- i) Ethernet
 - ii) TCP/IP

OR

- Q12)** a) What are the different media used to input information for NC machines? Discuss the advantages of each medium [8]
- b) Write a short note on : [8]
- i) control net.
 - ii) FF - HSE.

