P2025

[5059] - 630

B.E. (E&TC)

PLC'S & AUTOMATION

(2012 Pattern) (Elective - II) (End Sem.)

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 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) Draw the architecture of Automation and discuss its advantages & limitations.

[8]

OR

Q2) a)   Explain the impact of Automation on society.   **[4]**

   b)   Explain how Automation system improve industrial profitability.   **[4]**

Q3) A measurement of temperature using a sensor that outputs 6.5mv/ºC must measure to 100ºC. A 6-bit ADC with a 10V reference is used.   **[6]**

   a)   Develop a circuit to interface the sensor and the ADC.

   b)   Find the temperature resolution.

OR

Q4) What is Linearization? Explain different approaches for linearization.   **[6]**

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Q5) Explain microprocessor based flow control system. **[6]**

OR

Q6) Explain role of servomotors in automation. **[6]**

Q7) a) Explain following term w.r.t. PLC **[8]**

    i) I/O scan mode

    ii) Execution mode

    iii) Scan time

    iv) Soft PLC.

  b) Draw and explain bottle filling plant. construct Ladder diagram for the same. **[10]**

OR

Q8) Write a short note on **[18]**

  a) IEC 61131

  b) Networking of PLC

  c) RFID

Q9) a) What is SCADA. Explain the functions of Master Terminal unit in detail. **[8]**

  b) Explain elements of DCS with block diagram. **[8]**

OR

Q10) a) What are the characteristics of processes make them potential candidate for SCADA? **[8]**

  b) Explain any two specifications of DCS in detail. **[8]**

*Q11)*a) What are the basic components of numerical control system? Briefly discuss the function of each component. **[8]**

b) What is field bus? Explain important features of field bus. **[8]**

OR

*Q12)*a) Discuss the advantages of employing CNC machines over manual machines. **[8]**

b) Write a short note on Panel Engineering for automation. **[8]**

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