22645

3 Hours / 70 Marks   Seat No.

Instructions –   (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE of the following:**   **10**

a) Elaborate the term SCADA.

b) List the different types of programs used for programming a process control application.

c) List any two user designed displays used in DCS.

d) Enlist features of Experion DCS (any four).

e) Enlist any two features of MODBUS.

f) Give comparison between MAP and TOP protocol.

g) What is PLC? Give its applications.

2.   **Attempt any THREE of the following:**   **12**

a) Explain in brief the functions of all levels of hierarchical control in automation with respect to DCS.

b) Describe the functions of controller module and power supply module w.r.t. DCS with neat sketches.

c) Explain operating system configuration w.r.t. DCS.

d) Explain the procedure to maintain DCS system.

Marks

3. **Attempt any THREE of the following:** **12**

   a) Explain fault tolerance in distributed system and its difference with redundancy.

   b) Describe with neat sketch the functions of workstation.

   c) Compare PLC and DCS on any four points.

   d) Explain sequential flow chart (SFC).

4. **Attempt any THREE of the following:** **12**

   a) Explain group display with neat sketches.

   b) Describe bus access method for fieldbus.

   c) Describe alarm processing method followed in DCS.

   d) Explain backup systems and fault tolerant system with respect to DCS maintenance.

   e) Describe with sketches different types of logs and reports generated in DCS.

5. **Attempt any TWO of the following:** **12**

   a) Draw feedback control algorithm for level control. Explain it.

   b) Explain plant mimic display with neat sketch. Give its importance.

   c) Explain bus access method for PROFIBUS. Give its features and applications.

6. **Attempt any TWO of the following:** **12**

   a) Compare foundation fieldbus and MODBUS on any six points.

   b) Explain Rackbus in detail with its advantages.

   c) Define algorithm. Draw feed forward control algorithm for flow control loop.

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