22640

21222

3 Hours / 70 Marks   Seat No.

15 minutes extra for each hour

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

(2) Answer each next main Question on a new page.

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

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) 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) List any two benefits of automation.

b) Define scan time of PLC.

c) List any two specification of DO module.

d) Name different programming languages of PLC.

e) Define SCADA.

f) Define "tag" in SCADA system.

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

a) List any four advantages of PLC.

b) Explain sourcing and sinking wiring concept in PLC.

c) Analyze following address of PLC.

i)   I : 0/3

ii) O : 1/3

d) List the steps for linking SCADA object.

P.T.O.

Marks

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

   a) List any four specifications of analog input module.

   b) Explain TON instruction of PLC in detail.

   c) Verify truth table the following logic gate using PLC ladder program

      i) AND gate

      ii) OR gate

   d) Draw a neat labelled connection diagram to link PLC with SCADA system.

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

   a) List and explain different types of PLC.

   b) Draw a neat labelled block diagram of DI module.

   c) Develop a ladder diagram for following logic

      i) The system start when start push button is pressed and stops when stop push button is pressed.

      ii) Motor M1 start when system start and stops after 20 sec.

      iii) Motor M2 start when M1 stop and stops after 30 sec.

   d) Draw and explain single master single remote SCADA system.

   e) List ten steps for creating screen in SCADA system.

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

   a) Explain the selection criteria of I/O module in PLC.

   b) Develop a ladder diagram for traffic light control system. List and address different I/O device in the system.

   c) Develop water treatment plant application in SCADA. List the alarms tags to be interlinked with PLC.

Marks

6. **Attempt any <u>TWO</u> of the following:** **12**

a) Develop ladder diagram for elevator control. List and address different I/O device in the system.

b) Develop ladder diagram for tank level control system. List and address different I/O devices in the system.

c) Draw block diagram of SCADA system and explain function of each block.

————