

316334

25226

3 Hours / 70 Marks

Seat No.

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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) Assume suitable data, if necessary.

(5) 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) Write features of Automation.
- b) Define the term –
 - i) Scanning Cycle
 - ii) Speed of execution in PLC.
- c) State the standard language in PLC.
- d) List the tools in automation.
- e) State the term –
 - i) Retentive timer
 - ii) Preset timer
- f) Write the function of –
 - i) HMI
 - ii) RTU in SCADA
- g) State the following instruction –
 - i) MOVE
 - ii) ADD

P.T.O.

2. Attempt any THREE of the following : 12

- a) Explain distributed control system.
- b) Draw the block diagram of discrete AC input module and explain each block.
- c) Compare conventional control and PLC based control on basis of –
 - i) Power consumption
 - ii) Maintenance
 - iii) Reliability
 - iv) Diagnosing problem
- d) List data handling instruction and explain any two.

3. Attempt any THREE of the following : 12

- a) Explain PLC to cloud interconnection.
- b) Compare fixed PLC and Modular PLC on basis –
 - i) I/O
 - ii) Memory Capacity
 - iii) Size
 - iv) Application
- c) Draw and explain ladder diagram to verify –
 - i) AND gate
 - ii) EX-OR gate
- d) Describe following instruction –
 - i) NEQ
 - ii) GRT

4. Attempt any THREE of the following :

12

- Draw and explain five level of Automation.
- Explain functional block diagram of ladder.
- Explain I/O addressing of PLC.
- Write steps for sending data from PLC to cloud.
- Compare ladder logic and AFC programming.

5. Attempt any TWO of the following :

12

- Draw the ladder diagram for 2 motor operation.
 - When start button is pushed motor M1 and M2 start.
 - After 10 seconds, motor M1 stops
 - Motor M2 stops 15 seconds after motor M1 has stopped.
 - Both M1 and M2 will stop when push button is pressed.
- Identify the missing block and redraw discrete DC input block diagram also explain missing block.

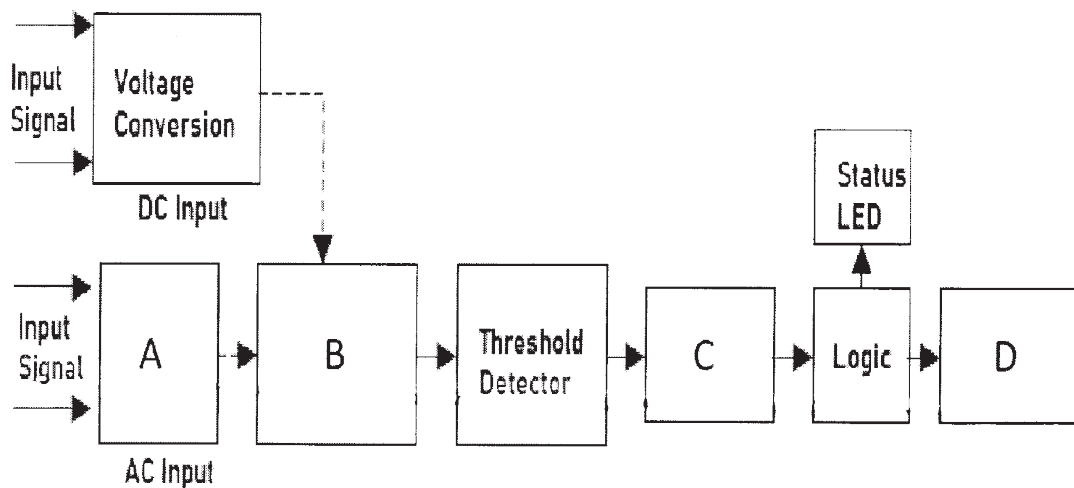


Fig. No. 1

- Explain Automatic tank level control system on following :
 - System design
 - I/O listing
 - Ladder logic

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[4]

Marks

6. Attempt any TWO of the following :

12

- a) Draw the ladder diagram program for automatic traffic light control.
 - b) Describe the sinking and sourcing concept in DC input module in PLC.
 - c) Draw and explain TCP/IP protocol.
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