

22526

23124

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) Draw the symbol of following components.
 - (i) Limit switch
 - (ii) Pressure switch
 - (iii) Overload relay
 - (iv) Earthing
- (b) Draw block diagram of PLC.
- (c) State the need of automation.
- (d) Draw ladder diagram for OR operation.
- (e) State any two uses of HMI.
- (f) Draw ladder diagram of seal in circuit.
- (g) List the different components of ladder diagram. (any four)



2. Attempt any THREE of the following : 12

- (a) Draw power & control circuit for FWD-STOP-REV control circuit of an induction motor.
- (b) Explain with block diagram digital output module of PLC.
- (c) Explain the following relay type instructions
 - (i) IF-OPEN
 - (ii) IF-CLOSE with its symbol.
- (d) Develop ladder & wiring diagram for DOL starter with OLR contacts.

3. Attempt any THREE of the following : 12

- (a) Explain on delay timer instruction with timing diagram.
- (b) Draw block diagram of SCADA & list different components of it.
- (c) Develop the ladder diagram for stepper motor control.
- (d) Explain different programming languages used in PLC.

4. Attempt any THREE of the following : 12

- (a) State the function of latching of relay using PLC.
- (b) Classify & explain the PLCs available in the market.
- (c) Explain with block diagram working of soft starter.
- (d) Explain the working of STAR-DELTA starter with power circuit diagram.
- (e) Explain any four speciality modules of PLC.

5. Attempt any TWO of the following : 12

- (a) Develop a generalized DCS architecture for control of plant.
- (b) Explain PLC based water level controller with the help of ladder diagram.
- (c) Develop control & power circuit for conveyor control.

6. Attempt any TWO of the following : 12

- (a) Explain up counter instruction in PLC with timing diagram.
 - (b) Draw and explain the block diagram of analog input module of PLC.
 - (c) Develop ladder diagram for traffic light controller.
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