

17641

21415

3 Hours / 100 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) 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 :

20

- (a) Explain the concept of NO & NC contact. State its applications.
- (b) What is solenoid valve ? Explain its working with the help of diagram.
- (c) List any four applications of servomotor.
- (d) Draw the block diagram of PLC power supply and explain the function of each block.
- (e) List any four input and output of PLC.
- (f) Explain the offset in proportional controller.
- (g) Why derivative action is not used alone ?

2. Attempt any TWO :

16

- (a) Draw control and power circuit for plugging of 3-phase induction motor and describe its working.
- (b) Draw a neat labelled block diagram of PLC. Explain the function of each block.
- (c) Explain the ON delay timer & OFF delay timer of PLC.

P.T.O.

- 3. Attempt any FOUR : 16**
- (a) Differentiate between two wire and three wire control.
 - (b) Draw and explain construction of AC Servo motor.
 - (c) What is proximity sensor ? State its four applications.
 - (d) Explain the function of ROM & RAM memory of PLC.
 - (e) Draw a ladder diagram to verify :
 - (i) EXOR gate (ii) NOT gate
 - (f) Draw and explain working of PI controller.
- 4. Attempt any FOUR : 16**
- (a) Differentiate between control wiring and power wiring (four points).
 - (b) Draw the power and control circuit for 3 phase induction motor using auto transformer type starter.
 - (c) What is opto isolator ? Explain the role of opto isolator in PLC.
 - (d) Develop ladder diagram for DOL starter.
 - (e) Draw and explain analog input module of PLC.
 - (f) Explain the integral control action in detail.
- 5. Attempt any TWO : 16**
- (a) Draw and explain the control and power diagram for D.C. injection braking.
 - (b)
 - (i) List and explain the types of ROM.
 - (ii) List any four advantages of PLC.
 - (c) List and explain the different counters of PLC in detail.
- 6. Attempt any FOUR : 16**
- (a) Explain the construction and working of electronic overload relay.
 - (b) Develop power and control diagram to control forward & reverse motion of 3-phase induction motor.
 - (c) Draw digital output-module and give its rating.
 - (d) Using ladder diagram develop standard start-stop-seal circuit.
 - (e) Draw the block diagram of PID controller and explain its working.
 - (f) Compare Integral controller with derivate controller.
-