

22645

23124

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) 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) List any two DCS brands along with their manufacturers.
 - b) Compare PLC with DCS on any two points.
 - c) State the need of remote input and output module.
 - d) List the different types of DCS configuration.
 - e) State the different types of alarms.
 - f) List various types of PROFIBUS.
 - g) State the developers of following protocols.
 - i) MODBUS
 - ii) PROFIBUS

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) Differentiate between DCS and CCS (Centralized computer system)
 - b) Explain redundancy in DCS system.
 - c) Explain SFC with suitable diagram.
 - d) State user defined display in DCS. Draw neat diagram of trend display.
- 3. Attempt any THREE of the following :** **12**
- a) Draw a general DCS architecture and explain it in brief.
 - b) Explain different types of workstation used in DCS.
 - c) Explain the types of program used in process control programming.
 - d) Draw neat diagram of group display and explain it in brief.
- 4. Attempt any THREE of the following :** **12**
- a) Explain the functions of following I/O modules:
 - i) Communication module
 - ii) Power supply module
 - b) List different reports generated in DCS. Explain any one in detail.
 - c) Elaborate MAP / TOP protocol. State its significance in DCS.
 - d) Explain bus access method of MODBUS.
 - e) List the features of fieldbus. State its any two advantages.

- 5. Attempt any TWO of the following :** **12**
- a) Explain single loop integrity and fault tolerance with respect to DCS.
 - b) Explain cascade and ratio control algorithm for suitable process control loop.
 - c) Compare PROFIBUS and FIPBUS on any six points.
- 6. Attempt any TWO of the following :** **12**
- a) Define algorithm. Explain position and velocity algorithms in brief.
 - b) State the levels to various operating parameters configuration. Justify the need of security at different levels of DCS.
 - c) Explain bus access method of foundation fieldbus. Give features of smart transmitters.
-