

22644

23124

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

-
- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
(7) 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) Draw neat labeled diagram of two effect evaporator.
 - b) Draw P&ID symbol for pneumatic line and Electrical signal.
 - c) State the operating principle of solenoid - valve.
 - d) Draw block diagram of cascade control system.
 - e) State the concept of selective control.
 - f) State the concept of adaptive control.
 - g) Draw feedback control scheme for Heat exchanger unit.

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) Compare Human aided control and Automatic Control.
(Four points)
 - b) Define -
 - i) Cavitation and
 - ii) Flashing
 - c) Describe working of radio control with neat diagram.
 - d) State the merits of DCS over other controller systems.
(Four points)
- 3. Attempt any THREE of the following :** **12**
- a) Draw a neat schematic of motion balance type valve positioner and label different parts.
 - b) Explain feed forward control system with suitable diagram.
 - c) Draw schematic diagram of distillation process. Explain its working.
 - d) Explain selection criteria for a DCS system.
- 4. Attempt any THREE of the following :** **12**
- a) Draw P&ID symbol for
 - i) Level transmitter
 - ii) Pneumatic control valve.
 - b) Compare between a -
 - i) Single seated valve and
 - ii) Double seated valve
 - c) State the concept of split range control. Give one example.
 - d) Draw schematic diagram of double drum dryer. Explain its working.
 - e) Compare between MODBUS and Profibus.

- 5. Attempt any TWO of the following :** **12**
- a) Draw neat labeled schematic of a pneumatic control valve and explain function of each part in brief.
 - b) Explain in detail feed forward control using suitable example.
 - c) Draw the architecture of DCS. Explain the function of each block.
- 6. Attempt any TWO of the following :** **12**
- a) Explain direct and indirect approach of ratio control system with suitable example.
 - b) Compare feedback and cascade control systems for a single effect evaporator unit with neat diagrams.
 - c) Explain three element control scheme for boiler drum level control with neat diagram.
-