

22542

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) Define :
 - (i) Resistance lag
 - (ii) Process lag
- (b) List different ranges of standard electronic and pneumatic signals of transmission system.
- (c) State the application DAS system (any two points).
- (d) Define :
 - (i) Control lag
 - (ii) Transients
- (e) Classify the following materials into appropriate hazardous area :
 - (i) Hydrogen
 - (ii) Wheat flour
- (f) State the meaning of process load.
- (g) State the meaning of IP XX.



- 2. Attempt any THREE of the following :** **12**
- (a) State benefits of process Instrumentation.
 - (b) Explain live zero concept.
 - (c) Sketch X-Y recorder and write its specification.
 - (d) Explain current to pressure converter with neat schematic.
- 3. Attempt any THREE of the following :** **12**
- (a) Explain calibration procedure for DP pneumatic transmitter.
 - (b) Draw control room layout with neat labelling.
 - (c) Explain any four ergonomic consideration for design of control panel.
 - (d) Describe intrinsic safety circuit with diagram.
- 4. Attempt any THREE of the following :** **12**
- (a) Draw diagram of process control system and explain it.
 - (b) Explain installation procedure for temperature transmitter.
 - (c) Explain salient features of SMART transmitter.
 - (d) Draw the schematic of (i) Console (ii) Break front control panels.
 - (e) Describe oil immersion and purging protection method.
- 5. Attempt any TWO of the following :** **12**
- (a) Draw the diagram of DP type electronic flow transmitter. Explain its working.
 - (b) Describe multichannel DAS with a neat block diagram.
 - (c) Classify ingress protection for enclosures.
- 6. Attempt any TWO of the following :** **12**
- (a) Draw the diagram of force balance pressure transmitter. Explain its working.
 - (b) (i) Compare strip chart (X-t) and X-Y recorder.
(ii) State the need of recorder.
 - (c) Draw the schematic diagram of a typical alarm annunciator. Explain its operating sequence.
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