

# 22420

**23124**

**3 Hours / 70 Marks**

Seat No. 

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- 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) 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) Define active and passive transducers.
  - b) State the need of transducer.
  - c) List out any two pressure measuring devices.
  - d) List the types of electric flow meter.
  - e) Define Reynold's number turbulent flow.
  - f) List any two non-contact type level measurement methods.
  - g) Name the metals used in J&K type thermocouple.
- 2. Attempt any THREE of the following: 12**
- a) Draw and explain the block diagram of instrumentation system.
  - b) Draw constructional detail of C-type Bourdon tube.
  - c) Draw and explain Manometer U-tube.
  - d) List classification of level measurement methods.

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- 3. Attempt any THREE of the following:** **12**
- a) Describe the construction of LVDT with neat diagram.
  - b) Explain the working of Electromagnetic flow meter with neat sketch.
  - c) Draw and explain capacitive type level transducer.
  - d) Compare Thermocouple and Thermistor. (Any four points)
- 4. Attempt any THREE of the following:** **12**
- a) State the selection criteria for transducer.
  - b) Explain the process of calibration of pressure gauge by Dead Weight Tester.
  - c) Draw neat sketch of linear and rotary potentiometer liquid level gauge.
  - d) State applications of temperature measurement transducer :
    - i) RTD
    - ii) Thermometer
  - e) Describe with diagram optical pyrometer type temperature sensor.
- 5. Attempt any TWO of the following:** **12**
- a) Write any three applications of capacitive and inductive transducer.
  - b) Describe construction and working and diagram of orifice plate meter.
  - c) Explain the working of rotameter with neat diagram.

**6. Attempt any TWO of the following:****12**

- a) Describe the salient features of the flow type level measurement transducer.
  - b) Compare between -
    - i) Ultrasonic and radar type level measurement.
    - ii) List out the troubles and related remedies in capacitive type level measurement.
  - c) Explain with neat sketch the working of Bimetallic thermometer and write two applications.
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