

22335

12425

03 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) 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) Compare Analog and Digital Transducers (Two Points)
  - b) Define :
    - i) Absolute pressure
    - ii) Gauge pressure
  - c) Give classification of pressure measuring devices.
  - d) Define flow and its units.
  - e) State the formula for Reynolds number.
  - f) List any two application of air purge level measurement.
  - g) State working principle of thermocouple.

P.T.O.

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

- a) Write one example and application of –
  - i) Electrical transducer
  - ii) Capacitive transducer
  - iii) Inductive transducer
  - iv) Piezoelectric transducer
- b) Explain with neat labelled sketch the working of Diaphragm.
- c) Describe with sketch the calibration procedure for dead weight tester.
- d) Differentiate between Orifice and Rotameter with reference.
  - i) Construction
  - ii) Application
  - iii) Shape
  - v) Cost

**3. Attempt any THREE of the following :****12**

- a) Draw and explain functional Block diagram of Instrumentation system.
- b) Explain with neat labelled sketch the working of piezoelectric transducer.
- c) Convert the value of 500mm of Hg into bar and psi units.
- d) Explain with neat labelled sketch working of Electromagnetic flow meter.

**4. Attempt any THREE of the following :****12**

- a) Explain the selection criteria for Transducers (Any four points)
- b) Sketch U tube manometer and explain its working.
- c) Explain with neat sketch the working of nuclear radiation type level measurement.
- d) Explain with neat sketch the working of Hydrostatic type level measurement.
- e) Calculate output resistance of RTD pt 100 at temp 0°C and 60°C.

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

- a) Describe with neat labelled sketch the capacitance level measurement with reference to –
  - i) Calibration procedure
  - ii) Merits
- b) i) Write the specification of K type thermocouple.
  - ii) Convert 75°K into three other temperature scales.
- c) Describe coriolis mass flow meter with reference to –
  - i) Construction
  - ii) Working
  - iii) Merits

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

- a) Describe with neat labelled sketch the Ultrasonic flow meter type with reference to –
    - i) Construction
    - ii) Working
    - iii) Merits
  - b) Describe with neat labelled sketch the Radar type with reference to –
    - i) Construction
    - ii) Working
    - iii) Merits
  - c) Describe with neat labelled sketch the optical Pyrometer with reference to –
    - i) Construction
    - ii) Working
    - iii) Merits
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