

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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