23124

3 Hours / 70 Marks Seat No. ☐☐☐☐☐☐☐☐

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) List any two electrical transducer.

(b) List any two pressure transducer.

(c) Define Laminor Flow.

(d) List any two applications of RTD.

(e) Draw block diagram of instrumentation system.

(f) List objectives of data acquisition system.

(g) Define absolute humidity.

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

(a) Describe briefly bounded type strain gauge.

(b) Explain working principle of Bellows with neat diagram.

(c) Explain with neat sketch working principle of wet-bulb thermometer.

(d) Compare analog & digital display devices.

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

(a) Define (i) Absolute pressure (ii) Atmospheric pressure (iii) Vacuum pressure (iv) Gauge pressure.

(b) Explain construction and working of thermocouple.

(c) Define temperation. Give its unit. List different temperation scales.

(d) Draw block diagram of data acquisition system. Explain function of each block.

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

(a) Describe the procedure to calibrate pressure gauge using dead weight tester.

(b) Explain need of level measurement.

(c) Compare thermistor to RTD on any four points.

(d) Explain pneumatic transmission system.

(e) Describe working of voltage telemetry system.

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

(a) With the help of neat block diagram explain LVDT.

(b) Compare strip chart recorder and X-Y recorder.

(c) Explain with neat diagram working principle of magnetic pick-up measurement technic.

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

(a) List criteria for selection of sensor for industrial application.

(b) A Newtonian fluid having viscosity of 0.53 Ns/m^2, specific gravity of 0.97 flows through 30 mm diameter pipe with the velocity of 2.6 m/s. Calculate Reynolds number. State type of flow based on Reynolds number.

(c) Explain working principle of Well-type manometer with neat diagram.

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