

17551

21819

3 Hours / 100 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. a) **Attempt any THREE of the following:** **12**
 - (i) Distinguish between accuracy and precision.
 - (ii) State advantages and disadvantages of LVDT.
 - (iii) Explain with sketch liquid in glass thermometer.
 - (iv) State advantages and limitations of Rota meter.

- b) **Attempt any ONE of the following:** **6**
 - (i) Explain with sketch thermo-resistive transducer.
 - (ii) Explain with sketch piezo-electric type pressure guage.

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- 2. Attempt any TWO of the following:** **16**
- a) Illustrate with sketch platinum resistance thermometer.
 - b) Explain with sketch Rossets with neat sketches and give their application.
 - c) Demonstrate with sketch Vortex shedding flow meter.
- 3. Attempt any FOUR of the following:** **16**
- a) Differentiate between RTD and thermocouple.
 - b) Explain with sketch Rotational type potentiometer.
 - c) What is environmental error? How to reduce it?
 - d) Explain with sketch hair hygrometer. A thermometer has a range of 0°C to 100°C and accuracy of $\pm 0.5\%$ of full scale value. Find error in reading of 65°C .
 - e) Explain with sketch stroboscope.
- 4. a) Attempt any THREE of the following:** **12**
- (i) What do you understand by threshold and resolution?
 - (ii) State in brief any four materials used for strain gauge.
 - (iii) Give advantages and disadvantages of bi-metallic thermometer.
 - (iv) Explain with sketch piezo-electric transducer
- b) Attempt any ONE of the following:** **6**
- (i) Explain with neat sketch thermocouple vacuum gauge.
 - (ii) Name different dynamic characteristics of instruments. Explain:
 - 1) Speed of response
 - 2) Overshoot.

5. Attempt any TWO of the following:**16**

- a) Demonstrate with sketch, variable capacitor type pressure gauge.
- b) State application of:
 - (i) Turbine meter.
 - (ii) Ultrasonic flow meter.
 - (iii) Hot wire anemometer.
 - (iv) Rotameter.
- c) Explain with sketch strain gauge transmission dynamometer.

6. Attempt any FOUR of the following:**16**

- a) Depending upon construction state with sketches different types of thermistors.
 - b) Explain with sketch electromagnetic flow meter.
 - c) Explain with sketch capacitive transducer.
 - d) What is span of instrument? How it is differ from range.
 - e) Explain in brief selection and installation of strain gauge.
 - f) State advantages and disadvantages of thermocouple.
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