

# 22443

**11920**

**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) State the parameters for selection of displacement transducer.
- b) Enlist the applications of load cell.
- c) State the law of intermediate metal.
- d) State the materials of tube and float of rotameter.
- e) Define gauge factor.
- f) State the principle of working of slipping clutch tachometer.
- g) State the characteristics of force measurement.

P.T.O.

2. **Attempt any THREE of the following:** **12**
- a) Define :
    - (i) Fidelity
    - (ii) Threshold
    - (iii) Overshoot
    - (iv) Drift
  - b) Explain with neat sketch working of Eddy current dynamometer.
  - c) Explain with neat sketch Pirani gauge. State advantages also.
  - d) Describe the working principle of “Dall tube”. Also state applications.
3. **Attempt any THREE of the following:** **12**
- a) Explain radiation pyrometer with neat sketch.
  - b) Classify transducers.
  - c) Differentiate :
    - (i) Range and Span
    - (ii) Accuracy and Precision
  - d) Draw a creep curve for force transducer. State significance.
4. **Attempt any THREE of the following:** **12**
- a) Explain the working of slip ring sensor with neat sketch.
  - b) Describe the working of platinum resistance thermometer with neat sketch.
  - c) Explain with neat sketch photoelectric pressure transducer. State advantages.
  - d) State any four desirable characteristics of bonded type resistance strain gauges.
  - e) Explain with neat sketch carbon microphone. State disadvantages.

- 5. Attempt any TWO of the following:** **12**
- a) Classify errors and explain any two types of errors.
  - b) State the necessity of contactless electrical tachometer and describe with neat sketch photoelectric tachometer.
  - c) Explain with neat sketch Coriolis Flowmeter. State advantages and applications.
- 6. Attempt any TWO of the following:** **12**
- a) Draw a labelled block diagram of FFT analyser. State advantages and applications.
  - b) Describe with neat sketch working of Hair Hygrometer. Enlist disadvantages.
  - c) Define ultrasonic flow measurement. Describe working principle of Doppler flow meter with two advantages.
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