

# 17528

**11920**

**3 Hours / 100 Marks**

Seat No.

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- 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.
  - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (6) 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) Give classification of measurement
  - (ii) Define:
    - (1) Range
    - (2) SpanGive one example of each.
  - (iii) State advantages and limitations of potentiometer.
  - (iv) List the devices used for pressure measurement.
  
- b) Attempt any ONE of the following: **06**
  - (i) Classify the errors and explain any two types of errors.
  - (ii) With a neat sketch explain working of ionization gauge for the pressure measurement.

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- 2. Attempt any TWO of the following: 16**
- a) Define transducer. State classification of transducer and explain working of inductive transducer.
  - b) With the neat sketch explain LVDT for displacement measurement and state its application.
  - c) List the temp measurement methods and devices. Explain with neat sketch platinum resistance thermometer.
- 3. Attempt any FOUR of the following: 16**
- a) Compare active and passive transducer
  - b) Define Resolution and Noise related to potentiometer.
  - c) State any two advantages and two disadvantages of Bimetallic thermometer.
  - d) Explain with neat sketch optical pyrometer.
  - e) State the thermometers most suitable for measurement of following temp.
    - (i) – 35 to 510°C
    - (ii) – 65 to 430°C
    - (iii) – 100 to 315°C
    - (iv) – –15 to 3870°C
- 4. a) Attempt any THREE of the following: 12**
- (i) State laws of intermediate temp and intermediate metal with neat sketch.
  - (ii) Draw neat sketch of rotameter and state the material used for float.
  - (iii) Define sound power and sound pressure
  - (iv) Enlist direct and indirect liquid level measurement devices.

- b) **Attempt any ONE of the following:** **06**
- (i) Draw the block diagram of closed loop control system and explain it. State its applications.
  - (ii) Differentiate between hydraulic and pneumatic controllers (any six points)
- 5. Attempt any FOUR of the following:** **16**
- a) Explain with neat sketch slipping clutch tachometer.
  - b) Draw and explain strain gauge transmission dynamometer
  - c) State advantages and disadvantages of Feed Forward control system.
  - d) Define control system. State any two examples of control system.
  - e) Explain with neat sketch PID control action.
  - f) State the application of control system for setup of boiler and air conditioner.
- 6. Attempt any FOUR of the following:** **16**
- a) State any four advantages of electromagnetic flow meter.
  - b) Explain with neat sketch Turbine flow meter.
  - c) Write classification of flow measuring devices.
  - d) Write advantages and disadvantages of photoelectric tachometer.
  - e) Write four metal names used for strain gauge sensing element.
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