

17528

16117

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 : 12
- (a) Define : Hysterisis, speed of response, fidelity, overshoot.
- (b) What are active and passive transducers ? Give two examples of each.
- (c) Explain working of any one displacement transducer.
- (d) How pressure is measured by piezoelectric transducer ? Explain.
- (B) Attempt any ONE : 06
- (a) Explain : Observation and instrument errors.
- (b) With a neat sketch explain working of ionization guage for the pressure measurement.

- 2. Attempt any TWO : 16**
- (a) State and define four desirable and four undesirable characteristics of measuring instruments.
 - (b) Explain working of LVDT with the help of a neat sketch and state its application and working range.
 - (c) Explain working of a total radiation pyrometer with the help of a neat sketch. State its temperature range and application.
- 3. Attempt any FOUR : 16**
- (a) What is calibration of instruments ? Why it is done ?
 - (b) Draw the characteristics of LVDT and state its significance.
 - (c) Explain the working of pressure thermometer with a neat sketch.
 - (d) State the law of intermediate temperature and law of intermediate metals with their practical relevance for a thermocouple.
 - (e) Differentiate between resistance thermometer and thermistor.
- 4. (A) Attempt any THREE : 12**
- (a) Explain working of hair hygrometer with a neat sketch.
 - (b) Define : intensity of sound, sound pressure, sound power, sound speed.
 - (c) Write the working of bi-metallic temperature measuring instrument.
 - (d) With a neat sketch, explain working of variable area flow meter.
- (B) Attempt any ONE : 06**
- (a) Differentiate between electronic and pneumatic control system.
 - (b) With a neat sketch, explain working of servo motor mechanism. Write two applications.

5. Attempt any FOUR :**16**

- (a) Draw a neat sketch and explain working of a stroboscope.
- (b) Explain how sound is measured by carbon – microphone.
- (c) Write advantages and disadvantages of close loop control system.
- (d) Describe working of control system setup for air conditioner.
- (e) Explain briefly feed forward control system.
- (f) With a neat sketch, explain working of PID control system.

6. Attempt any FOUR :**16**

- (a) Write the principle of turbine meter with two applications.
 - (b) Explain working of velocity flow meter with a neat sketch.
 - (c) State the principle of vortex shedding flow meter. Give its advantages.
 - (d) What are the various materials used for strain gauges ?
 - (e) Explain principle of eddy current dynamometer with a neat sketch.
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