

22227

22232

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) 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. Attempt any FIVE of the following :

10

- (a) State Indirect Measurement with suitable example.
- (b) State the principle of thermistor.
- (c) State the disadvantages of RTD.
- (d) State any four factors to be considered while selecting the displacement transducers.
- (e) State the advantages of RVDT.
- (f) State any two metals alloys with compositions used for Strain Gauge Sensing element.
- (g) State the difference between static and dynamic characteristics of measurement.



- 2. Attempt any THREE of the following : 12**
- (a) Describe different types of errors in measurement.
 - (b) State various materials of Thermocouple and their temperature ranges of measurement.
 - (c) Describe the instrument required for measurement of pressure in the inflated tyre with neat sketch.
 - (d) Explain the construction and working of Drag Cup Tachometer with neat sketch.
- 3. Attempt any THREE of the following : 12**
- (a) Explain with a neat diagram the working of bimetal thermometer.
 - (b) Describe the use of Hair hygrometer with neat sketch for humidity measurement.
 - (c) State the advantages and disadvantages of potentiometers.
 - (d) Describe with a neat diagram the working of bonded strain gauge.
- 4. Attempt any THREE of the following : 12**
- (a) Differentiate between Thermocouple and Thermistor.
 - (b) Describe the construction and working McLeod gauge with neat sketch.
 - (c) Explain the Float and Shaft gauge for liquid level measurement with neat sketch.
 - (d) Describe the construction and working of Eddy Current Dynamometer with neat sketch.
 - (e) State the types of contactless electrical tachometers. Explain any one with neat sketch.

5. Attempt any TWO of the following : 12

- (a) Explain the construction and working of Radiation Pyrometer. State its advantages and applications.
- (b) Describe the construction and working of LVDT with neat sketch. State its applications.
- (c) Describe the principle, construction and working of Vortex Flowmeter. State its applications.

6. Attempt any TWO of the following : 12

- (a) Explain the Law of Intermediate Temperature, Law of Intermediate Metals and Seebeck effect.
 - (b) Describe the Stroboscope with neat diagram. State its advantages.
 - (c) Describe the Hot Wire Anemometer with Constant Current and Constant Temperature mode.
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