

22227

21819

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) Define Repeatability of an instrument.
 - (b) Define direct and indirect measurement.
 - (c) Enlist any four units of pressure.
 - (d) Convert 100 °C into °F and °k.
 - (e) Draw labelled diagram of liquid in glass thermometer.
 - (f) Enlist any four types of flow meters.
 - (g) Identify instrument used for speed measurement of extruder screw & list its other two types.

2. **Attempt any THREE of the following :** **12**
 - (a) Explain any four types of errors in measurement.
 - (b) Draw neat sketch of capacitive transducer and explain its working principle.
 - (c) State working principle of pressure thermometer with neat sketch.
 - (d) Describe with neat figure the working of turbine meter.

- 3. Attempt any THREE of the following : 12**
- (a) Describe with neat sketch the Bourdon tube pressure gauge.
 - (b) Explain principle and working of Hair Hygrometer with neat figure.
 - (c) Describe with neat sketch the construction of Vortex shedding flow meter.
 - (d) Explain working of inductive pickup stroboscope with neat figure.
- 4. Attempt any THREE of the following : 12**
- (a) Explain working principle of McLeod gauge for pressure measurement with neat sketch.
 - (b) Explain with neat figure the principle and working of temperature measurement device in extruder.
 - (c) Describe method for liquid level measurement for oil tank in injection moulding machine.
 - (d) Explain with neat figure the semiconductor type bonded strain gauge.
 - (e) Explain stress-strain relationship with neat figure.
- 5. Attempt any TWO of the following : 12**
- (a) Draw neat labelled figure of Bellows gauge. Describe its construction and working.
 - (b) Explain construction and working of radiation pyrometer with neat figure.
 - (c) Explain the working of eddy current dynamometer with neat figure.
- 6. Attempt any TWO of the following : 12**
- (a) Describe construction and working of photo-electric pressure gauge with neat labelled figure.
 - (b) Explain seebeck and Peltier effect with neat figure.
 - (c) Explain with neat figure the construction and working of contactless electrical tachometer.
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