

22227

21718

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 accuracy and sensitivity of an instrument.
- (b) Define dead zone and speed of response.
- (c) Draw labelled diagram of U-tube manometer.
- (d) State working principle of pyrometer.
- (e) Draw labelled diagram of mercury in glass thermometer.
- (f) List types of flow meter.
- (g) Enlist four metal alloys used for strain gauge sensing element.

2. Attempt any THREE of the following : 12

- (a) A thermometer has range 0°C to 100°C . It has accuracy of $\pm 1\%$ of full scale value. Find the error in reading of 73°C .
- (b) Draw neat sketch of RVDT and explain its working principle.
- (c) State working principle of bimetallic thermometer with neat sketch.
- (d) Describe with labelled diagram construction of ultrasonic flow meter.

3. Attempt any THREE of the following : 12

- (a) Describe with neat sketch diaphragm pressure gauge.
- (b) Explain principle and working of sling psychrometer with neat sketch.
- (c) Describe ultrasonic flow meter with neat sketch.
- (d) Explain working of stroboscope with neat diagram.

4. Attempt any THREE of the following : 12

- (a) Explain working principle of Pirani gauge for vacuum measurement with neat sketch.
- (b) Explain working of platinum resistance thermometer with neat figure.
- (c) Explain with neat diagram foil type bonded strain gauge.
- (d) Explain sight glass method for liquid level measurement with neat figure.
- (e) Explain with neat figure inductive pickup tachometer.

5. Attempt any TWO of the following : 12

- (a) Describe construction and working of McLeod gauge with labelled diagram.
- (b) Explain construction and working of optical pyrometer.
- (c) Explain working of strain gauge transmission dynamometer with labelled diagram.

6. Attempt any TWO of the following : 12

- (a) Describe construction and working of piezoelectric pressure gauge.
 - (b) Explain construction and working of radiation pyrometer with labelled diagram.
 - (c) Explain with neat figure, construction and working of eddy current dynamometer.
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