22443

21222

3 Hours / 70 Marks Seat No. | | | | | | | | |

15 minutes extra for each hour

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. Attempt any FIVE : **5 × 2 = 10**

(a) State the working principle of 'RVDT'.

(b) Name different Torque Measuring Instruments.

(c) State the law of 'Intermediate Temperature'.

(d) Enlist types of flow meters.

(e) Define term 'Natural Frequency'.

(f) Enlist types of speed measurement devices.

(g) List desirable characteristics for force measuring sensor.

2. Attempt any THREE : **3 × 4 = 12**

(a) Differentiate between 'Accuracy' and 'Precision'.

(b) Explain working principle of 'Slip Ring' with neat sketch.

(c) Compare 'Radiation' and 'Optical' Pyrometer.

(d) Explain the working of 'Hot Wire Anemometer.

3. Attempt any THREE : **3 × 4 = 12**

(a) Explain term 'Drift' and 'Sensetivity'.

(b) Draw block diagram of Generalised Measuring System.

(c) Explain 'Infra-Red Sensor' with neat sketch.

(d) Explain working principle of photo-electric pressure transducer with sketch.

4. Attempt any THREE : **3 × 4 = 12**

(a) Draw 'Creep Curve' for force transducer.

(b) Enlist any four applications of 'Optical Pyrometer'.

(c) Draw labelled diagram of 'Pressure Thermometer'.

(d) Explain the procedure of 'Strain Measurement' of cantilever beam.

(e) Write sound level norms as per API.

(i) 4-cylinder I.C. engine

(ii) Centrifugal pump

(iii) Lathe Machine

(iv) Industrial Exhaust fan

5. Attempt any TWO : **2 × 6 = 12**

(a) Write two applications of following :

(i) Contact Transducer

(ii) Active Transducer

(iii) Non-contact Transducer

(b) Draw and explain working of 'Ultrasonic Flow Meter'.

(c) Draw the constructional details of 'Sling Psychrometer'. Write the procedure of measuring air-properties using 'Sling Psychrometer' and 'Psychrometric Chart'.

6. Attempt any TWO : **2 × 6 = 12**

(a) Write any two applications of following :

(i) Orifice Meter

(ii) Venturi Tube

(iii) Pitot Tube

(b) Draw flow diagram of FFT analyser. Enlist any four applications of FFT.

(c) Explain with neat sketch the construction of 'Slipping Clutch Tachometer'.

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