22227

12425

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

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) 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 measurement and write classification of measurement.

(b) Mention any two applications of displacement transducer.

(c) Define Photoelectric pressure.

(d) Explain seebeck effect in thermocouple.

(e) Draw neat sketch of Rotameter.

(f) Write difference between inductive pick-up and capacitive pick-up.

(g) Explain strain measurement principle for wire.

2. Attempt any FOUR of the following : **12**

(a) Explain with neat sketch of working principle of transducers.

(b) Describe with neat sketch of construction & working principle of bourdon tube.

(c) Write difference between gauge pressure and absolute pressure.

(d) Describe with neat sketch of construction of bimetallic thermometer.

(e) Explain with neat sketch of vortex shedding flow meter.

3. Attempt any FOUR of the following : **12**

(a) Describe with neat sketch of working principle of thermocouple.

(b) What do you mean by thermo emf measurement ?

(c) Explain with sketches the working of the electromagnetic flowmeter.

(d) Differentiate salient features of following liquid measurement transducers : Direct & Indirect methods.

(e) Explain stress-strain graph for polyolefin polymer.

4. Attempt any THREE of the following : **12**

(a) Describe the types of errors in measurement system, also state correct measurement process.

(b) Explain with neat sketch the working principle of LVDT.

(c) Describe with neat sketch the construction of RTD.

(d) Explain with neat sketch the construction & working principle of Electromagnetic flow meter.

(e) Explain working principle of speed measurement sensor.

5. Attempt any TWO of the following : **12**

(a) Elaborate a note on following :

(i) McLeod gauge

(ii) Pirani gauge

(b) Select proper temperature & humidity measurement system for PVC pipe manufacturing process & justify it.

(c) Explain the working principle of Strain gauge – bounded & unbounded.

6. Attempt any TWO of the following : **12**

(a) Explain with neat sketches following pressure measurement devices :

(i) Manometer

(ii) Diaphragm

(b) Describe with neat sketch of radiation and optical pyrometer.

(c) Describe working of mechanical & electrical tachometer, also write difference between them.
