53 (IE 701) IDIN

2018

INDUSTRIAL INSTRUMENTATION

Paper : IE 701

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any five*** *questions out of* ***seven.***

1. Explain the principle, construction and working of *(i)* Inductive torque transducer *(ii)* Drag cup DC Tachogenerator *(iii)* Magnetoelastic load cell *(iv)* Stroboscope. 20

2. *(a)* What is a Vibrational Pickup ? Explain the different methods of calibration of it. 10

   (b) Explain the working and construction of *(i)* Pressure head type densitometer *(ii)* Gas densitometer. 10

3. *(a)* Elaborate how McLeod gauge and thermal conductivity gauge are used for low pressure measurement. 10

(b) Describe the methods of measurement of pressure using *(i)* Capacitive transducer *(ii)* Thermal Conductivity gauges. 10

4. *(a)* Explain in detail the RTD Signal Conditioning and their characteristics. 10

(b) Describe the sources of errors and their compensation of filled in system thermometers ? 10

5. *(a)* Write short notes on Fabrication of Industrial thermocouple. 10

(b) Explain about the principles of radiation used for temperature measurement. 10

6. *(a)* Distinguish between Variable head and Variable area flow meter. 6

(b) Explain the working principle of *any one* type in both variable head flow meter and variable area flow meter with neat sketch. 14

7. (a) Explain in detail about dry and wet bulb psychometer. 10

(b) Describe with neat sketches the principle of operation of *(i)* Capacitive level measurement and *(ii)* Bubble system type level measurement. 10