

Total No. of printed pages = 3



2021

**INDUSTRIAL INSTRUMENTATION - I**

Full Marks – 100

Time – Three hours

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

Answer any *five* questions.

1. (a) Explain the principles, construction and working of a pH electrode. 10
- (b) Explain the principles, construction and working of a dead weight tester. 10
2. (a) Describe the pressure measurement by the principles of thermal conductivity using a suitable diagram. 10

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- (b) Explain the principles, construction and working of any two elastic elements. 10
3. (a) Describe construction and basic principles of working of a D.C. Tachogenerator. 10
- (b) Explain the principle of electromagnetic induction and discuss the measurement of velocity using the principles of variable reluctance. 10
4. (a) Explain the principles, construction and frequency response characteristics of a piezoelectric crystal. 10
- (b) Discuss the measurement of acceleration of a seismic mass using any suitable transducer. 10
5. (a) Compare RTD, Thermistor, and Thermocouple for temperature measurement. Also, convert  $100^{\circ}\text{C}$  to  $^{\circ}\text{F}$  and  $^{\circ}\text{K}$ . 10
- (b) Draw the diagram of radiation pyrometer and explain its working. 10



6. Write short notes on any *two* of the following :

10×2=20

- (a) Speed measurement using Inductive property.
- (b) Low pressure measurement using McLeod Gauge.
- (c) Manometers.

