Total number of printed pages:02

Diploma(D)/5th/DIE502

2023

Industrial Instrumentation-1

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 performance characteristics of an instrument with suitable example?	10
	b)	Describe the construction and working of any two types of elastic elements?	10
2.	a)	With the neat sketch, explain the construction and working of magnetostrictive load?	10
	b)	Explain the construction and working of in-line rotatory torque sensor and in-line rotating torque sensor?	10
3.	a)	Describe the principle and construction of eddy current drag-cup tachometer?	10
	b)	Explain the DC tachogenerator with diagram and mention its merits and demerits	10
4.	a)	With neat diagram explain, the construction and working of stroboscope for the measurement of speed with neat diagram	10
	b)	Discuss the construction and working of potentiometric type seismic accelerometer?	10
5.	a)	Discuss in detail the principle, construction and working of RTD with a neat diagram	8
	b)	A platinum RTD PT100 measures 100 Ω at 0 °C and 139.1 Ω at 100 °C. (3M) i) Calculate the TCR for platinum. ii) Calculate the resistance of the RTD at 60 °C. iii) Calculate the temperature when the resistance is 115 Ω.	4
	c)	Explain in detail the principle, construction and working of Thermocouples?	8
6.	a)	Explain the working principle of radiation pyrometer with neat sketch?	7

	b)	Convert 14 °F to degree Centigrade, Degree Kelvin & Degree Rankine?	3
	c)	Convert 1 atm in to psi, kg/cm^2, mmHG, mmWG & bar.	5
	d)	Write short note on filled system thermometer (with one example)?	5
7.		Explain the pressure measurement for the following categories (i) Dead weight pressure gauge (ii) Hot cathode ionization gauge	20

END