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Set No. 1

Code No: R41026

IV B.Tech I Semester Supplementary Examinations, February - 2019 INSTRUMENTATION

(Common to Electrical and Electronics Engineering, Electronics and Communication Engineering and Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions All Questions carry equal marks *****

1	a) b)	Define the following terms with respect to Measuring Instruments: (i) Sensitivity (ii) Accuracy (iii) Precision (iv) Uncertainity Explain the significance of Statistical analysis of Test Data with an example.	[8] [7]
2	a) b)	Explain the different types of signals and how they are classified. What is a modulated Signal and give its significance?	[8] [7]
3	a)	List and explain the basic requirements of Transducers and also give its desired specifications.	[7]
	b)	Explain the working of a Piezo electric device as a transducer and give its desirable properties.	[8]
4	a)	Explain the working of a Microprocessor based Ramp type Digital voltmeter with a neat block diagram.	[8]
	b)	What is the resolution of a $4\frac{1}{2}$ digit display? How would 23.95 V be displayed on a 10 v range and 0.5213 V on a 1 V and 10 V ranges?	[7]
5	a)	Derive an expression for vertical deflection of an electron beam in a cathode ray tube.	[8]
	b)	Explain the following (i) Transient recorder (ii) Lissajous patterns.	[7]
6	a)	Explain the working of a Resonant or Basic Wave analyzer with a neat circuit.	[8]
	b)	What is a Spectrum Analyzer and what does the spectrum analysis of a Signal provides?	[7]
7	a)	Explain how two gauges in Half bridge are used for Strain measurement with a neat bridge circuit.	[8]
	b)	Explain the working of a capacitive Pick up tachometer.	[7]
8	a)	Explain briefly the following types of Pressure elements: (i) Bourdon tube (ii) Diaphragm (iii) Bellows	[8]
	b)	Explain with a neat sketch the working of electromagnetic flow meter.	[7]

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