

Code No: **R41026**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, Oct/Nov - 2018 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)	Explain in detail about the gross errors, systematic errors and random errors. Explain in detail about static and dynamic characteristics of instruments.	[8] [7]
2	a) b)	Distinguish between periodic signal and aperiodic signal with an example of each type. Explain in detail about pulse code modulation.	[8] [7]
3	a) b)	Define a transducer and give the broad classification of transducers with suitable examples. Explain how the pressure can be measured by using LVDT.	[8] [7]
4	a)	Explain the characteristic features of digital voltmeters.	[7]
	b)	Explain with a neat block diagram the working of a ramp type digital voltmeter.	[8]
5	a) b)	Explain the functioning of a time base generator in a CRO. A CRT has an anode voltage of 4 KV and parallel deflecting plates 4 cm long and 6 mm apart. The screen is 35 cm from the centre of the plates. Find the input voltage required to deflect the beam though 5 cm. The input voltage is applied to the deflecting plates through amplifiers having an overall gain of 120.	[8]
6	a)	List and explain the characteristics of spectrum analyzer.	[7]
	b)	Explain the working of a peak reading voltmeter with a neat diagram.	[8]
7	a)	Explain the usage of a strain gauge and list and explain the different types of strain gauges.	[8]
	b)	Explain in detail how small displacement can be measured by linear or differential transformers.	[7]
8	a)	Explain how a dummy gauge is used for temperature compensation in strain gauge bridge circuit.	[7]
	b)	Explain the construction and working of a thermocouple vacuum gauge. Give its advantages and disadvantages.	[8]