

Code No: **R41026**

**R10**

**Set No. 1**

**IV B.Tech I Semester Supplementary Examinations, October/November - 2019**

**INSTRUMENTATION**

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

**Time: 3 hours**

**Max. Marks: 75**

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

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- 1 a) Explain the errors in measurements by giving suitable examples. How they are usually minimized. [8]  
b) Enumerate the dynamic characteristics in a measurement system. [7]
- 2 a) Explain in detail about the differences between periodic and aperiodic signals with examples. [8]  
b) Discuss about the applications of pulse code modulation. [7]
- 3 a) Draw and explain the connection diagram of an LVDT. [8]  
b) Derive the expression for gauge factor of a strain gauge. [7]
- 4 a) Explain the working of digital frequency meter with neat sketch. [8]  
b) Describe the operating principle of dual slope integrating type DVM with neat diagram. [7]
- 5 a) Distinguish between the analog and digital type data logger. [8]  
b) A CRT has an anode voltage of 2000 V and 2 cm long and 5 mm apart parallel deflecting plates. The screen is 30 cm from the centre of the plates. Find the input voltage required to deflect the beam through 3 cm. The input voltage is applied to the deflecting plates through amplifiers having overall gain of 75. [7]
- 6 a) Discuss the wave analyzer used for frequency range 20Hz to 20kHz measurement and draw its attenuation curve. [8]  
b) Explain the working of vector impedance meter with neat sketch. [7]
- 7 a) Explain the construction, working of a drag cup type tachogenerator. [8]  
b) Explain the principle of measurement of torque using magnetostrictive transducer. [7]
- 8 a) Describe the different electrical methods for measurement of liquid level. [8]  
b) Explain the measurement of vacuum using pirani gauge. [7]