

Code: R7410402

R7

IV B.Tech I Semester (R07) Supplementary Examinations, May 2012
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) What are the two basic characteristics of an instrument and explain briefly about dynamic characteristics.
(b) For the following data calculate
(i) Arithmetic mean (ii) Deviation
(iii) Algebraic sum of deviations (iv) Standard deviation
Data: $x_1 = 49.7$; $x_2 = 50.1$; $x_3 = 50.2$; $x_4 = 49.6$; $x_5 = 49.7$
2. (a) Distinguish between fixed frequency oscillator and variable AF oscillator. Explain briefly about random noise generator.
(b) Explain briefly about the operation of a function generator together with block diagram.
3. (a) Explain briefly about frequency selective wave analyses.
(b) Give block diagram of RF spectrum analyzer and explain the importance of each block.
4. (a) Explain the basic principle of oscilloscope and explain the function of sweep generator.
(b) Explain the importance of delay line in triggered sweep and syn selector circuit generally used.
5. (a) Distinguish between dual trace and dual beam oscilloscope and time relation of dual channel vertical amplifier in alternate mode.
(b) Distinguish between time and period and explain how do you measure time and period.
6. (a) Explain Maxwell's bridge for the measurement of inductance with $\pm 2\%$ error with high Q .
(b) A Maxwell's bridge is used to measure inductive impedance the bridge constants at balance are $C_1 = 0.01 \mu f$, $R_1 = 470 k\Omega$, $R_2 = 5.1 k\Omega$ and $R_3 = 100 k\Omega$.
7. (a) How do you classify strain gauges and explain in detail.
(b) Explain different types of thermistor and mentions its advantages and limitations.
8. (a) What is sensor? Explain how Piezo electric transducers are used for HF accelerometers.
(b) Explain briefly about data acquisition and conversion system.
