



INTEGRAL UNIVERSITY LUCKNOW

Department of Electronics Engineering

Measurements & Instrumentation

ASSIGNMENT-1

Branch/Sem: B.Tech./E&E/ (VthSEM.)

Faculty-Qazi S. Ahmad

Subject Code: **EC-501**

Session-2012-113

Date of issue-30/07/2012

Date of Submission-**03/07/2012**

- Q1. (a) Define the measurement. What is the difference between primary and secondary standard?
(b) How is the standard meter defined?
- Q2. (a) Explain the standard of length, mass and time?
(b) How the time and frequency standard be disseminated?
- Q3. (a) What is the atomic time? How does this differ from ephemeris time?
(b) What are IEEE standards? How do these standards differ from those maintained by National standards laboratories?
- Q4. (a) What is the difference between accuracy and precision?
(b) What is True value? Is it possible to find T.V. of quantity?
- Q5. (a) List four sources of possible error in instrumentation?
(b) Define (a) instrumental error (b) limiting error (c) calibration error (d) environmental error (e) random error (f) probable error.
(c) What are three general classes of errors?
- Q6. (a) What is Transducer? Explain different types of it?
(b) Explain crystal oscillator.



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ASSIGNMENT-2

Branch/Sem: B.Tech./EEE/ (VthSEM.)
Faculty-Qazi Saeed Ahmad
Subject Code: **EC-501**

Session-2011-12
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Ques.1 Explain the balance condition of different types of bridges.

Ques.2 what are problems faced in high frequency measurements?

Ques.3 What do you mean by quality factor? How the Q-factor is measured?

Ques.4 What do you mean by RF Power and RF voltage? How will you measure it? Explain.

Ques.5 How the Radio frequency impedance is measured?

Ques.6 Explain the block diagram of DSO.

Ques.7 Explain the different methods for pressure measurement.

Ques.8 Explain the working of optical Pyrometer.



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ASSIGNMENT-3

Branch/Sem: B.Tech./EEE/ (VthSEM.)

Faculty-Qazi Saeed Ahmad

Subject Code: **EC-501**

Session-2012-13

Date of issue-

Date of Submission-

- Ques.1 A coil of inductance L is tuned by a capacitance to resonate at 1MHz. A Standard capacitor of 230pF is tuned to resonate with the same coil at 2 MHz, if the resonance is indicated by a VTVM of capacitance 8pF in parallel with the circuit, calculate the value of L and C . (26.6 μ F and 952pF)
- Ques.2 A coil is tuned to resonance at at 500 kHz with a resonating capacitance of 36 μ F. Determine the self capacitance and inductance of the coil. (5.33 μ F and 2451 μ H.)
- Ques.3 A coil was tested using Q-meter and following information was obtained. At a Frequency of 3 MHz the value of capacitance to give maximum voltage across the capacitor was 251pF while at 6 MHz frequency it was 50 pF. Calculate the self capacitance of the coil. (17 pF)
- Ques.4 Determine the value of R and L of an ac bridge of an arm AB if its arm BC has 400 Ω Arm CD has 0.5 μ F in parallel with 1000 Ω resistor and arm DA has 600 Ω resistor. Also determine Q-factor of the coil. ($R=240$, $L=120$ mH, $Q=3.14$)



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ASSIGNMENT-4

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Faculty-Qazi S. Ahmad
Subject Code: **EC-501**

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Ques.1 IEEE-488 interface and RS-232. What are the merits and demerits of this interface?

Ques.2 Explain working operation of A to D and D to A Converter. How many are the different types of this converter.

Ques.3 What do you mean by Data acquisition system? Explain P C based Data acquisition system.

Ques.4 Write short notes on Telemetry, Tracking and command.

Ques.5 Explain Pulse modulation techniques.

Ques.6 Explain working operation of square and pulse wave generator.

Ques.7 What do you mean by Harmonic Distortion Analyzer? Explain.

Ques.8 Explain working operation of sweep frequency generator.

Ques.9 Explain some types of measurement parameter based on optical fiber. How will you measure that variable. Describe.



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ASSIGNMENT-5

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Faculty-Qazi Saeed Ahmad
Subject Code: **EC-501**

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Ques.1 What are the three requirements of automatic test system.

Ques.2 Explain the testing of Audio amplifier and receiver.

Ques.3. Explain the frequency synthesized signal generator.

Ques.4 What are some functions/controls of test equipment that are not easily adapted to computer control? How are some of these functions made controllable?

Ques.5. Describe with the help of block, the operation of spectrum analyzer.

Ques.6. What is meant frequency spectrum of signal?

Ques.7. Define harmonic distortion and give a method for its determination.