MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : OE-EC604A Electronic Measurements and Measuring Instruments

UPID : 006753

Time Allotted : 3 Hours *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following : [1 x 10 = 10]

(I) The deflection torque in moving coil instrument is proportional to _____?

(II) An instrument whose output is a sinusoidal voltage that varies over a complete frequency band (generally at an audio rate) slowly & continuously is referred as _____

(III) List the various controls on the front panel of a CRO.

(IV) Noise in transducer is added due to which reason.

(V) Accuracy of Kelvin bridge is of the order of _____.

(VI) What is meant by static error?

(VII) What are the basic components of CRO?

(VIII) The principle of operation of LVDT is based on the variation of___

(IX) Give one application of Maxwell Bridge?

(X) Discuss the difference between accuracy and precision of measurement..

(XI) What do you understand by static characteristics?

(XII) _____ is an instrument designed to provide graphical display of the spectrum of frequencies on the CRT with amplitude of signal vs frequency.

Group-B (Short Answer Type Question)

Answer any three of the following : [5 x 3 = 15]

2. Suggest instrument to measure unknown frequency above 5 MHz and store result. Justify it. [5]
3. Describe the applications and limitations of Wheatstone bridge. [5]
4. Show the block diagram of a typical measurement system and indicate the functional elements in detail. [5]
5. Explain with sketches the working principle of LVDT. [5]
6. Compare between spectrum analyzer and harmonic distortion analyzer. [5]

Group-C (Long Answer Type Question)

Answer any three of the following : [15 x 3 = 45]

7. (a) Draw and explain in detail the shunt type Ohmmeter. [8]
   (b) Give the classification of errors and explain them. [7]
8. (a) Analyze the basic wave analyzer and explain its working principle. [10]
   (b) Discuss the frequency range of different types of signal analyzers. [5]
9. (a) Explain how the piezoelectric transducer can be used to measure force and pressure. [10]
   (b) What is a Transducer? Give the classification of transducers. [5]
10. (a) Explain how unknown inductance can be measured using Maxwell Bridge. [8]
    (b) Write short notes on data acquisition system [7]
11. (a) Explain the operation of vertical amplifier used in a CRO. [8]
    (b) Write short notes on Digital Storage oscilloscopes. [7]

*** END OF PAPER ***