

# SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch :B.E - EEE/ETCE

Title of the Paper :Measurements and Instrumentation Max. Marks :80

Sub. Code :6C0096

Time : 3 Hours

Date :19/04/2010

Session :FN

## PART - A

(10 x 2 = 20)

Answer ALL the Questions

1. Define the terms accuracy and precision.
2. What are the applications of Sweep frequency generators?
3. What is meant by Piezoelectric transducer?
4. Draw the Vector diagram of Wien's bridge.
5. What are the different types of Ohm meters?
6. What are the applications of storage oscilloscope?
7. What is meant by automatic Zeroing?
8. State the advantages of digital instruments over analog instruments.
9. What are the basic components of a magnetic tape recorder?
10. What are the materials used for doping in LED?

## PART – B

(5 x 12 = 60)

Answer All the Questions

11. (a) Explain the various types of static errors in instruments. (8)  
(b) The current through a resistor is 2.5A, but the measurement yields a value of 2.45A. Calculate the absolute error and the percentage error of the measurement. (4)

(or)

12. Draw the block diagram of a function generator and explain its operations.
13. Explain the construction of LVDT and explain its principle of operation.

(or)

14. A wheatstone bridge has the following resistances.  $AB=200\Omega$ ,  $BC = 20\Omega$ ,  $CD = 8\Omega$ ,  $DA = 100\Omega$ .  
A galvanometer of  $40\Omega$  is connected across BD. Find the current through the galvanometer when a potential difference of 20v is applied across AC.

15. With neat diagram explain the construction and operation of permanent magnet moving coil instruments. Derive the expression for the torque.

(or)

16. Draw the basic block diagram of an Oscilloscope and explain the functions of each block.

17. What are the various types of Digital Voltmeters? Explain the basic principle and operation of any one of them.

(or)

18. Explain the operation of a counter which is used for measuring.  
(a) Frequency (b) Time (c) Period.

19. Draw the block diagram of X-Y recorder and explain its operation. List out the applications of X-Y recorder.

(or)

20. Explain with a neat diagram the method of realizing a 7 segment numeric display using LEDS.