Register Number | | | | | | | |

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E-EEE/P-ECE
Title of the Paper: Measurements and Instrumentation Max. Marks: 80
Sub. Code: 6C0096-6CPT0030 Time: 3 Hours
Date: 27/11/2010 Session: AN

PART - A (10 X 2 = 20)

Answer ALL the Questions

1. Define the terms resolution and sensitivity.
2. What is calibration?
3. State the limitations of Wheatstone bridge.
4. Give the applications on Wien's bridge.
5. Why is the graduation of scale of moving iron instrument not uniform throughout?
6. How is damping attained in a D' Arsonval galvanometer?
7. What are the essential part of a ramp type Digital voltmeter?
8. List out the application of the digital voltmeter.
9. What is recorder? How they are classified?
10. What is the working principle of sampling oscilloscope?

PART – B (5 x 12 = 60)

Answer All the Questions

11. Explain the working of a standard sweep generator with a neat diagram.

(or)

12. With the neat block diagram explain the function of a AF signal generator.

13. Draw the circuit diagram of Maxwell's bridge and derive the equation for determining unknown quantities.

(or)

14. The arms of a four arm bridge abcd supplied with sinusoidal voltage have the following values.
Arm ab- A resistance of 200 ohms in parallel with a capacitance of 1 μF.
Arm bc – A resistance of 400 ohms.
Arm cd – A resistance of 1000 ohms.
Arm da – A resistance R_2 ohms in series with a 2 μF capacitance.
Determine the value of R_2 and the frequency at which the bridge will balance.

15. Describe the constructional details and principle of operation of a D'Arsonval galvanometer. Derive the expression for steady state deflection.

(or)

16. Draw the block diagram of a general purpose CRO & explain the function of the following controls.
(a) intensity (b) focus

17. Draw and explain the circuit of a digital frequency meter.

(or)

18. Discuss briefly about various types of Digital Voltmeters.

19. Sketch the basic block diagram of a dual trace oscilloscope. Sketch the waveforms through out the system and explain its operation.

(or)

20. Explain the various application of the Spectrum analyzer.