

Code No: 09A50406

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, June/July - 2014

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

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- 1.a) What are the essential characteristics for selecting the most suitable instrument for specific measuring jobs. Explain?
- b) The expected value of the voltage across a resistor is 110V. However the measurement gives a value of 100V calculate (i) absolute error (ii) %error (iii) relative accuracy (iv) % of accuracy
- 2.a) Explain the working of a standard sweep generator with a diagram.
- b) How are broad band sweep frequencies generated using a sweep generator.
- 3.a) Compare a wein bridge harmonic distortion analyzer to a bridge T-type harmonic distortion analyzer.
- b) Explain the operation of capacitance- voltage meters.
- 4.a) Describe the operation and balance conditions of the wagner's earth connection.
- b) Explain Twin T and bridge T networks.
5. Draw the basic block diagram of an Oscilloscope and explain the basic principle of operation.
- 6.a) How does the sampling CRO increase the apparent frequency response of an Oscilloscope.
- b) What is the difference between a strip chart recorder and an x-y recorder?
- 7.a) Explain with diagrams, the bounded and unbounded type of strain gauges.
- b) Find the strain that result from a tensile force of 1000N applied to a 10m long aluminum bar having cross sectional area of $4 \times 10^{-4} \text{m}^2$. The modulus of elasticity of aluminum is 69GN/m^2 .
- 8.a) Explain the operation of Data Acquisition Systems.
- b) Discuss the measurement of any one physical parameter.
