

R09

Code No: 09A70203

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, May/June - 2013

Instrumentation

(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions

All Questions Carry Equal Marks

- 1.a) What are the different types of errors associated with measuring systems? Discuss them with examples.
- b) Explain the static characteristics of measuring systems. [7+8]
- 2.a) What are the various types of standard test signals? Discuss the behaviour of first order systems for these signals?
- b) Discuss about pulse modulation and pulse coded modulation. [7+8]
- 3.a) Explain the operation of digital storage CRO with the help of a block diagram.
- b) Discuss about the following components of CRO.
i) horizontal amplifiers ii) Probes iii) Screens [7+8]
4. Explain the principle and operation of
a) Dual slope integration type DVM
b) Successive approximation type DVM. [7+8]
- 5.a) What is a wave analyzer? List out some applications of wave analyzers.
- b) Discuss about the principle and operation of
i) vector impedance meter ii) Heterodyne Wave Analyzer
iii) Q meter. [15]
- 6.a) What is a transducer? What are the advantages of electrical transducers?
- b) What is the selection criterion for a transducer?
- c) Derive the expression for the gauge factor of a strain gauge transducer. What is the necessity for compensation for strain gauges? [15]
- 7.a) Explain the displacement measurement using any two types of transducers.
- b) Explain the angular velocity measurement using stroboscope
- c) Discuss about optical encoders. [15]
- 8.a) Explain the temperature measurement using optical pyrometers.
- b) Discuss the Flow measurement by electromagnetic method.
- c) Explain about any one device used for vacuum measurement. [15]

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