

R13**Code No: 115AM****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech III Year I Semester Examinations, March - 2017****ELECTRONIC MEASUREMENTS AND INSTRUMENTATION****(Electronics and Communication Engineering)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A**(25 Marks)**

- 1.a) Define Accuracy. [2]
- b) What is meant by D'Arsonval Movement? [3]
- c) What is meant by Harmonic Distortion? [2]
- d) What is Sweep frequency generator? [3]
- e) What is the function of electron gun? [2]
- f) List the different control knobs available on the front panel of the CRO. [3]
- g) Define Gauge factor. [2]
- h) What is the purpose of Hotwire Anemometer? [3]
- i) List the advantages of Wheatstone bridge. [2]
- j) What is the method for the measurement of Liquid level? [3]

PART - B**(50 Marks)**

- 2.a) Discuss briefly the different types of static errors of a measuring instrument.
- b) Explain the working of a true RMS voltmeter with the help of a suitable block diagram. [5+5]

OR

- 3.a) Explain the working of Ramp type DVM.
- b) Discuss the advantages of a digital voltmeter over an analog voltmeter. [5+5]

- 4.a) Discuss the working of spectrum analyzer with its basic circuit.
- b) Explain the working of Power Analyzer with a neat diagram. [5+5]

OR

- 5.a) With a neat diagram explain the working of Pulse and Square wave generator.
- b) Explain the working of Capacitance-Voltage meter. [5+5]

- 6.a) Briefly explain the different types of storage oscilloscopes.
- b) What is the role of Time base generator? Explain. [5+5]

OR

- 7.a) What is sampling oscilloscope? Mention its advantages and disadvantages.
- b) Explain how time and frequency is measured using CRO. [5+5]

- 8.a) What are the factors to be considered for the selection of better transducer? Explain.
b) Explain the principle and working of an LVDT. [5+5]

OR

- 9.a) What is a transducer? Explain the working of Variable Capacitance transducer.
b) A 100Ω strain gauge with a gauge factor of 1 is affixed to a metal bar. The bar is stretched and this causes a change in resistance of 0.001Ω . Find the change in length if the original length is 10cm. [5+5]
- 10.a) With a neat diagram explain the working of Maxwell Bridge.
b) Explain the methods for the measurement of temperature. [5+5]

OR

- 11.a) What are the limitation of Wheat stone's bridge? Derive the balance equation of Kelvin's double bridge for unknown low resistance.
b) Discuss the principle of working of Displacement meters. [5+5]

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