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 guage with a guage 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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