B.E. Instrumentation Engineering (Model Curriculum) Semester - III
IN304M - Electronic Measurements

|||||| *27 4 9*

––

Notes : 1. All questions carry marks as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.

1. a) List the various types of static and dynamic performance characteristics of measuring instruments also explain each in details. **8**

b) Draw the block diagram showing the basic functional elements of instruments and explain the functions of each block. **8**

OR

2. a) Describe in detail the different types of errors in measurement system. **8**

b) Write a short on the following: **8**
i) Fundamental unit
ii) Derived unit

3. a) Draw and explain in detail DC Ammeter. **8**

b) Derive an expression for the measurement of unknown resistance Rx using series type ohmmeter and also draw the scale of series type ohmmeter. **8**

OR

4. a) Describe the construction details and working of an electrodynamometer. **8**

b) Discuss in details the construction and working principle of multi-range voltmeter. **8**

5. a) While measuring low value resistance using Wheatstone bridge, what are the limitations of Wheatstone bridge? How they are overcome in Kelvins double bridge. Also derive the balancing condition in Kelvin double bridge. **8**

b) Derive equation for measuring unknown frequency using Wein's bridge. **8**

OR

6. a) Derive the balancing condition of Wheatstone bridge. **8**

b) Define the Q factor and dissipation factor. Elaborate with the help of neat diagram how the inductance is measured using the Hay's bridge. **8**

7. a) Write a short note on: **8**
i) Amplified DC meter
ii) Electronic Voltmeter

	b)	Elaborate the working principle of digital voltmeter.	**8**

OR

8.	a)	Describe the circuit diagram and working of Q-meter also state it's applications.	**8**
	b)	Discuss in detail A.C. Voltmeter using rectifier.	**8**
9.	a)	With the help of neat block diagram explain the working of dual trace CRO.	**8**
	b)	Describe how the frequency is measured in y-t, and x-y mode of oscilloscope.	**8**

OR

10.	a)	Draw the block diagram of oscilloscope and explain the function of each block.	**8**
	b)	What is delay sweep of CRO? Explain in brief.	**8**

****