



**COMP 4-4 (RC)**

**S.E.(Comp.) (Sem. – IV) (Revised 2007-08) Examination, May/June 2010**  
**ELECTRONIC MEASUREMENT**

Duration: 3 Hours

Total Marks : 100

*Instruction : Attempt five questions by taking atleast one question from each Module.*

**MODULE – I**

1. a) What are the three principles followed by the metric system of units ? 6  
b) Distinguish between accuracy and precision with example. 3  
c) Describe the different types of errors found in measurement systems. 8  
d) What are IEEE standards ? 3
2. a) Explain the electronic multimeter in detail. 8  
b) Explain the principle of operation of the following Dvm's (Block diagrams not expected) 6  
i) Successive approximation Dvm's  
ii) Ramp type Dvm's  
iii) Dual slope Dvm's  
c) Show how a Q-meter can measure high impedance components ? 6

**MODULE – II**

3. a) With a neat diagram distinguish between dual beam and dual trace CRO. 8  
b) Explain how focussing of the electron beam is called out in an oscilloscope ? 5  
c) Describe the working of a current probe. 4  
d) What are the functions of delay line ? 3
4. a) With the help of a block diagram, explain the working of a pulse generator. 8  
b) Draw a block diagram and explain the working of a function generator. 6

**P.T.O.**



- c) Compare the merits and demerits of the following methods of frequency synthesizers.

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- i) Direct frequency synthesizer
- ii) Indirect frequency synthesizer.

## MODULE – III

5. a) With the help of a suitable block diagram explain the operation of the heterodyne wave analyzer. 8
- b) With the help of a block diagram, explain in detail the Harmonic distortion analyzer. 10
- c) Mention and explain any two applications of wave analyzers. 2
6. a) Explain automatic and computing counters with neat block diagram. 8
- b) Draw the block diagram of an electronic counter and explain its operation. 8
- c) Explain how a frequency counter can be used to measure period of a wave form. 4

## MODULE – IV

7. a) Describe the working principle of LVDT for measuring displacement, with suitable diagrams. 8
- b) Explain with the help of a diagram, the operation of a photomultiplier tube. 5
- c) Explain the working of a piezo-electric transducer. 4
- d) Explain capacitive transducer. What are its disadvantages ? 3
8. a) What is signal conditioner ? Explain what are the basic elements of a signal conditioner ? 8
- b) What is a thermistor ? Sketch the typical characteristic of a thermistor and explain. Mention any two applications of thermistor. 8
- c) Explain analog to digital multiplexing. 4