COMP 4-4 (RC)

S.E. (Computer) Semester – IV (RC) Examination, May/June 2012
ELECTRONIC MEASUREMENTS

Duration : 3 Hours | Total Marks : 100

Instructions : *1) Assume suitable data **wherever** required.*
*2) Attempt **any five** questions choosing atleast **one** question from **each** Module.*
*3) Draw neat sketches **wherever** necessary.*

MODULE – I

1. a) Write a short note on "types of errors". **8**
   b) What are fundamental units and derived units ? Distinguish between them. **4**
   c) Show how a Q meter can measure high impedance components. **8**

2. a) What is a digital voltmeter ? List its characteristics. **4**
   b) Write a short note on Dual Slope Digital Voltmeter. **8**
   c) With a neat diagram explain the basic circuit of an electronic multimeter. Also show how resistance is measured. **8**

MODULE – II

3. a) Draw the 10-to-1 oscilloscope probe when connected to an oscilloscope input and explain the effects of probe compensation. **6**
   b) Explain the working of piston type attenuator. **4**
   c) With the help of a block diagram explain a laboratory type pulse generator. **6**
   d) Compare the merits and demerits of the following methods of frequency synthesizers. **4**
      i) Direct frequency synthesizer
      ii) Indirect frequency synthesizer.

4. a) Describe Audio Frequency Signal generator incorporating wein bridge network in detail with block diagram. **10**
   b) Explain with a block diagram the various parts of a CRT. What extra components are needed to make it a CRO ? **7**
   c) What is the working principle of digital storage oscilloscope ? Explain. **3**

P.T.O.

MODULE – III

5. a) Briefly explain, what is signal analysis ? Draw and explain functional block of Heterodyne wave analyser. 8

   b) What is Harmonic Distortion (HD), formulate distortion factor ? Draw and explain tuned – circuit harmonic analyser. 8

   c) Discuss any two applications of spectrum analyser. 4

6. a) Explain in detail basic block diagram of frequency counter. 8

   b) Give detail explanation with diagram of automatic and computing counters. 8

   c) What are display counters ? Give main difference between Ripple and Sychronous construction of counters. 4

MODULE – IV

7. a) Define term "transducer" and give its uses. 4

   b) What are the force summing devices ? Explain its use. Explain capacitive and inductive electrical principles used in measurement of displacement. 10

   c) What is multiplexing ? Explain any one method of D-A multiplexing and give its advantages. 6

8. a) In detail draw and explain elements of digital data-aquisition system. 8

   b) What is seebéck voltage ? Give different methods for joining the two dissimilar metals ? What are two effects of parasitic thermocouple ? 6

   c) With the help of neat diagram, explain operation of linear variable differential transformer. 6