13/12/2013 M -

COMP 4 –4 (RC)

S.E. (Computer) (Semester – IV) (RC) Examination, Nov./Dec. 2013

ELECTRONIC MEASUREMENTS

Duration : 3 Hours | Total Marks : 100

Instructions: *1) Answer **five full** questions, at least **one full** question from **each** Module.*

*2) Make suitable assumptions, **wherever** necessary.*

MODULE – 1

1. a) Give the different types of standards of measurement, classified by their function and application. Explain in detail. 8

   b) Explain in brief different types of errors. 7

   c) What accuracy and precision refers to and give distinction between them with illustration. 5

2. a) Mention the elements in an electronic multimeter and give the resistance range selector circuit of a VOM. 5

   b) What are Digital voltmeters ? Explain briefly successive-approximation DVM. 6

   c) What are the advantages of taut-band instrument ? 4

   d) What are the importance of Q-meter and vector impedance meter ? 5

MODULE – 2

3. a) What are the functions of delay line ? Explain distributed parameter delay line. 8

   b) Explain a block diagram of general purpose oscilloscope. 6

   c) Explain CRT in detail. 6

4. a) Give pulse characteristics requirement. 4

   b) With the help of block diagram, explain the working of pulse generator. 8

   c) Explain the frequency synthesized signal generator based on indirect method, using PLL. 8

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MODULE – 3

5. a) What are counters ? Explain cascading ripple counter and cascaded synchronous counters. 8

   b) With neat block diagram explain fundamental suppression harmonic distortion analyzer. 8

   c) Mention applications of Spectrum Analyzer. 4

6. a) Draw a circuit arrangement for measurement of period with pulses involving fast rise and full times. Show waveforms associated with it. 8

   b) Explain heterodyne harmonic analyzer with a neat block diagram. 8

   c) What are measurement errors associated with period measurement ? Discuss. 4

MODULE – 4

7. a) Explain characteristics of instrumentation amplifier. 4

   b) Explain working of phototubes with diagram. 4

   c) Draw and explain in detail principle and working of LVDT. 12

8. a) Discuss effects of guarded measurements. 4

   b). With neat diagram explain digital acquisition system. 8

   c) Discuss in detail two digital to analog multiplexing techniques. 8