12/6/14 M.

COMP 4 – 4 (RC)

S.E. (Comp.) (Semester – IV) (RC) Examination, May/June 2014
ELECTRONIC MEASUREMENTS

Duration : 3 Hours | Total Marks : 100

Instructions *: 1) Attempt* ***five*** *questions by taking at least* ***one*** *question from* ***each*** *Module.*
2) ***Draw*** *neat, labelled diagrams* ***where*** *necessary.*
3) ***Assume*** suitable *data* ***wherever*** *necessary.*

MODULE – I

1. a) Draw the block diagram of a vector impedance meter and explain its operation. **10**

1. b) With a neat diagram explain principle and working of a staircase-ramp digital voltmeter. **10**

2. a) Write short note on : **(3x5=15)**
   i) Gross errors.
   ii) Systematic errors.
   iii) Random errors.

2. b) Explain briefly how is the Absolute Ampere determined. **5**

MODULE – II

3. a) With a block diagram explain the working of a digital storage oscilloscope. List any two advantages of a DSO over a conventional analog oscilloscope. **8**

3. b) Explain how an oscilloscope is used to determine time, frequency and phase measurement of signals. **6**

3. c) Explain the need of delay line used in the vertical section of an oscilloscope. **6**

4. a) With the help of block diagram explain the working of a pulse generator. **7**

4. b) Write a short note on Audio frequency signal generator. **6**

4. c) Draw and explain the operation of frequency synthesized signal generator. **7**

P.T.O.

MODULE – III

5. a) Draw and explain functional block diagram of Heterodyne wave analyzer. **8**

5. b) With help of a block diagram explain general purpose spectrum analyser. **8**

5. c) Write a short note on Harmonic distortion. **4**

6. a) Write short note on : **8**
   i) Gating error.
   ii) Time base error.

6. b) With a suitable diagram explain how frequency counter can be used to measure the period of a waveform. **6**

6. c) Draw and explain the logic diagram of a binary synchronous counter. **6**

MODULE – IV

7. a) Explain with a neat diagram the following types of strain gauges. **8**
   i) Unbonded strain gauge.
   ii) Bonded strain gauge.

7. b) Indicate if the following transducers are active or passive with suitable justification : **4**
   i) Thermistor
   ii) Thermocouple
   iii) Piezoelectric crystal
   iv) Strain gauge.

7. c) Explain briefly what factors are to be considered while selecting a transducer. **8**

8. a) With a neat block diagram explain the elements of a digital data acquisition system. **8**

8. b) Explain digital to analog multiplexing. **8**

8. c) List and explain different sources of errors in case of thermocouple. **4**