Total No. of printed pages = 3

Et-402/ET & M/4th Sem/2013/M

ELECTRONIC TEST AND MEASUREMENT

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) What are the basic elements of an electronic multimeter ?

   (b) How voltage can be measured using digital method ? 7+7 = 14

2. Draw the block diagram of a general purpose CRO and explain it briefly. Also name at least 5 front panel control of CRO. 9+5 = 14

3. (a) Draw and label a CRT of a CRO. 5

(b) What information can we know from Lissajous figure ? Draw Lissajous pattern, when two signals are— 3+6=9

(i) In phase with each other

(ii) 30° out of phase with each other

(iii) 270° out of phase with each other.

4. What are the different uses of signal generator? Draw the block diagram of a standard signal generator and explain its principle of operation. 2+12=14

5. (a) What is function generator ? How it differs from signal generator ? 2+2=4

(b) Draw the block diagram of function generator showing its basic elements and explain briefly. 10

6. Name 3 types of signal analyzer instrument. Discuss briefly about heterodyne wave analyzer with block diagram. Give two applications where wave analyzers are used. 3+9+2 = 14

7. What is total harmonic distortion (HD)? What type of instruments can be used to measure total harmonic distortion? Explain any one with block diagram. 3+2+9 = 14

8. How frequency and time period of an unknown signal can be measured with the help of an electronic counter? Explain briefly. 14

9. Write short notes on any *two* : 2×7 = 14

   (a) IEEE bus interface

   (b) Bolometer

   (c) Pulse generator

   (d) Dual trace CRO

   (e) Spectrum analyzer.