

Total No. of printed pages = 3

Et-402/ET&M/4th Sem/2014/N

## 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) Draw and label different parts of a CRT. 6
- (b) Explain the working principle of CRO with a neat block diagram. 8
2. (a) With the help of a CRO, how you can determine phase relationship between two sinusoidal signals. 8
- (b) Draw Lissajous pattern, when the phase difference between the two signals is exactly (i)  $90^\circ$ , (ii)  $30^\circ$  and (iii)  $0^\circ$ . 6

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3. (a) Name the basic elements of an electronic multimeter. 4
- (b) With the help of neat schematic diagram, explain how voltage can be measured using balanced bridge type electronic multimeter. 10
4. (a) Draw the block diagram of a standard signal generator and explain its working principle. 10
- (b) What is function generator ? 4
5. (a) What is harmonic distortion and total harmonic distortion ? 4
- (b) With the help of a block diagram of harmonic distortion analyser, explain how harmonic distortion can be measured ? 10
6. With the help of a simple diagram of electronic counter, explain how frequency of an unknown signal can be measured. 14
7. What is a data acquisition system ? What are its different types ? Draw block diagram of any one and explain each block. 2+1+11=14

8. Write short notes on 'any two' :  $7 \times 2 = 14$

(i) CRO probes

(ii) Bolometer

(iii) Wave analyzer

(iv) Spectrum analyzer.