T.E. (ETRX) Sem II (R) 22-05-09

VT-April-09- 270

3 p.m. to 6 p.m

Con. 2837–09. **(REVISED COURSE)** **VR–5097**

Electronic Measuring Instruments

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No.**1** is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks.
(4) Draw **neat** diagram.

1. (a) Why is a delay line used in the vertical section of an oscilloscope ? **5**
   (b) Give standard specifications of a signal generator. **5**
   (c) Explain factors involved in selection of voltmeter. **5**
   (d) Describe the intensity modulation and velocity modulation in a CRO. **5**

2. (a) Draw the functional block diagram of a general purpose C.R.O. Explain the working of each block in detail. **10**
   (b) What are Lissajuous patterns ? How are they used for measurement of frequency and phase ? **10**

3. (a) Explain in detail the construction and working of storage oscilloscope. **10**
   (b) Explain factors involved in selection of Electronic Voltmeter. Explain the working of Electronic Voltmeter using FET bridge. **10**

4. (a) Explain with the help of block diagram working of digital phase meter and states its merits and demerits. **10**
   (b) Explain with the help of neat diagram Fastest A/D Analog to Digital Converter. Its merits and demerits. **10**

5. (a) With the help of neat diagram, explain the working of function generator with proper waveforms at various points. **10**
   (b) Discuss the principle of operation of Q-meter and Impedance measurement using Q-meter. **10**

6. (a) Explain with block diagram AF sine and square wave generator. Also state the front panel of signal generator. **10**
   (b) Draw the functional block diagram of op-amp and state the ideal characteristics of op-amp. **10**

7. Write short notes on (any **three**) :– **20**
   (a) Beat frequency oscillators
   (b) CRT tube
   (c) Any one method of Digital-to-Analog converter
   (d) Requirements of pulse generator.

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