

**II B.Tech II Semester Supplementary Examinations, April/May 2005**  
**ELECTRICAL AND ELECTRONICS MEASUREMENTS**  
**( Common to Electronics & Instrumentation Engineering and Electronics & Control Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain about the loading effect in measurements and its effect on the accuracy of measurement. How this can be prevented?  
(b) A voltmeter with a sensitivity of  $1000\Omega/v$  is being used, to measure the voltage across a  $40\text{ k}\Omega$  resistor. The voltage is measured on 50v range. Determine the error in the reading due to loading effect.
2. (a) Explain in detail the measurement of power using electro-dynamometer.  
(b) Write short notes on watt-hour meter.
3. Draw the block diagram of a dual-slope digital volt meter and explain how it is advantageous to use dual slope A/D converter in DVM?
4. (a) How do you measure R, L and C using electronic instruments?  
(b) How do you perform all-electronic capacitance measurements where the measurement is not performed by a comparison? Explain one method in detail.
5. (a) Explain the working operation of triggered time base for an oscilloscope.  
(b) Why horizontal and vertical deflections are required for an oscilloscope.
6. (a) How does the sampling oscilloscope increase the apparent frequency response of an oscilloscope?  
(b) What precautions must be taken when using a sampling oscilloscope?
7. (a) Discuss in detail about AF square wave generator.  
(b) Explain the importance of Wide band amplifier in the block diagram of a signal generator.
8. (a) Explain an automated frequency counter using block diagram.  
(b) If the internal time base of a frequency counter is 15MHz, what frequency range is best measured by a period measurement and why.

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