

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
ELECTRONICS MEASUREMENTS AND INSTRUMENTATION
(Electronics & Telematics)**

Time: 3 hours**Max Marks: 80**

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

1. (a) Determine the resistor value required to use a 0-1mA d'Arsonval meter with an internal resistance 250Ω for 0-25V meter.
(b) What value of shunt resistance is required for using a 50μ A meter movement, with an internal resistance of 150Ω for measuring 0-800mA.
(c) Write about various thermocouples . [5+5+6]
2. Explain the principle of frequency counter. How is the multiplexed display used in a frequency counter? [16]
3. (a) Explain the technique of measuring resistance using Wheatstone bridge.
(b) Express the unknown resistance value in terms of the other circuit elements.
(c) Compare the measuring accuracy of a Wheatstone bridge with the accuracy of an ordinary ammeter. [6+4+6]
4. (a) With the help of relevant curves, discuss the effects of variations in burden, Power Factor and frequency on the performance of a CT
(b) Define Ratio error and phase angle errors in a CT. [10+6]
5. (a) Derive the equations for Resistive voltage divider and capacitive voltage divider of compensated attenuator .
(b) Explain the method of finding phase, frequency relationship of two waveforms using Lissajous figures.
(c) What are the advantages of using an active probe. [6+6+4]
6. (a) Explain the Digital data recording technique.
(b) Explain the tracking generator counter applications. [8+8]
7. (a) Explain the construction and working of a Doppler shift ultrasonic flow meter?
(b) How is fluid velocity measured using a pulse ultrasonic flow meter?
8. (a) Show with an example, how the capacitive transducer has excellent frequency response?
(b) Explain how a thermocouple is used in a potentiometer for temperature measurement?
