

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

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

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

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1. (a) What are the advantages of using a thermocouple instrument. Explain one such instrument with the help of neat diagram.  
(b) Define Crest factor with respect to true RMS voltmeter. What are typical RMS voltmeter specifications.
2. (a) Illustrate with block diagram the direct synthesis method.  
(b) Mention and explain different applications of synthesizers.
3. (a) Draw the Anderson bridge and derive the balancing conditions.  
(b) An ac bridge is fed with a source of frequency 1 kHz, across BD. The detector is connected across AB. The arm AB has  $R = 450 \text{ ohm}$ ; arm BC has  $R = 300 \text{ ohm}$  in series with  $C = 0.256 \mu\text{f}$ ; arm CD has the unknown component; arm DA has  $R = 200 \text{ ohm}$  in series with  $L = 15.9 \text{ mH}$ . Find the constants of arm CD.
4. (a) Draw a basic Q meter circuit and discuss how does this measure Q by direct connection method.  
(b) A coil with a resistance of 10 ohm is connected in the "direct measurement" mode. Resonance occurs when the oscillator frequency is 1 MHz and the value of capacitor is 65 pF. Calculate the percentage error introduced in the calculated value of Q by the 0.02 ohm insertion resistance.
5. Describe the following:
  - (a) Sources of Synchronisation.
  - (b) Blanking circuit
  - (c) Focus control
6. (a) Explain the reproducing process of analog recording .  
(b) Discuss about magnetic materials for tape.
7. (a) What are known as pyrometers. Explain the working of an optical pyrometer?  
(b) Describe the working of radiation detectors?
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?

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