Code No: NR310401 **NR**

III B.Tech I Semester Supplementary Examinations, November 2006
ELECTRONICS MEASUREMENTS AND INSTRUMENTATION
(Electronics & Communication Engineering)

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. [8+8]

2. (a) Explain gating errors and time base errors.
   (b) Explain the zero crossing detector and explain how it is used for frequency measurement. [16]

3. The standard resistor arm of a Wheatstone bridge has a range from 10 to 110 ohm with a resolution of .001 ohm. The galvanometer has an internal resistance of 150 ohm and can be read to 0.45 μA. The other two arms have each 1.5 k-ohm. The bridge is supplied with a 12 V DC source. If the unknown resistance is 75 ohm, find the resolution of the bridge in
   (a) ohms and
   (b) per cent of the unknown. [16]

4. (a) With suitable sketches discuss how the Wilson compensation method reduces both ratio and phase errors in a CT.
   (b) What are the two types of CTs ? Discuss their constructional features with figures. [8+8]

5. Describe the following:
   (a) Sources of Synchronisation.
   (b) Blanking circuit
   (c) Focus control [5+6+5]

6. (a) What are the advantages and disadvantages of direct recording.
   (b) Explain the following two terms in FM recording.
      i. percentage deviation.
      ii. deviation ratio. [8+8]

7. (a) Write down the advantages and disadvantages of ultrasonic flow meters.
   (b) Explain how they are used for the measurement of blood flow. [16]

8. (a) How will you apply microelectronic circuit technology for solid state transducers, especially for pressure measurements- Explain.
   (b) Write short notes on resistive transducer [10+6]

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