

2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS
ELECTRONICS MEASUREMENTS AND INSTRUMENTATION
(ELECTRONICS & COMMUNICATION ENGINEERING)

NOVEMBER 2006

TIME -3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

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. [16]
2. (a) Explain gating errors and time base errors.
(b) Explain the zero crossing detector and explain how it is used for frequency measurement. [10+6]
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 μ A. 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. [8+8]
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 [6+6+4]
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.
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