



Sixth Semester B.E. Degree Examination, May/June 2010
Electronic Instrumentation

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. What are the sources of errors in the measurement? (06 Marks)
b. What are the different types of static errors? Explain how they can be minimized. (10 Marks)
c. The expected value of the voltage across a resistor is 90 volts. However while measuring, it gave a value of 88 volts. Determine : i) Absolute error ; ii) Percentage error. (04 Marks)
- 2 a. With a neat sketch, explain the TRUE RMS voltmeter. (10 Marks)
b. With a neat sketch, explain the micro – voltmeter. (10 Marks)
- 3 a. With a neat figure explain the digital tachometer. (05 Marks)
b. Explain the principle of operation of a digital frequency meter. With a neat sketch, explain the frequency measurement using flip flops. (10 Marks)
c. With the necessary figure, explain a digital capacitance meter. (05 Marks)
- 4 a. Why recorders are essential? Classify them. (03 Marks)
b. With a neat figure, explain the strip chart recorder. What are the different types of marking systems used in strip chart recorders? (10 Marks)
c. Explain the operating principle of null recorders. Explain any one of it. (07 Marks)

PART – B

- 5 a. Differentiate between function generator and signal generator. (04 Marks)
b. With a neat sketch, explain function generator. (10 Marks)
c. With a neat figure, explain AF sine and square wave generator. (06 Marks)
- 6 a. Explain practical Q-meter circuit, with a neat figure. What are the applications of Q-meter? (08 Marks)
b. With a neat figure, explain the R – X meter. (08 Marks)
c. Determine the self capacitance of the coil, when following measurements were made. At frequency (f_1) = 2 Mhz, the capacitance of capacitor (c_1) = 450 PF. When the frequency is increased to (f_2) = 6 Mhz, the capacitance of capacitor (c_2) = 60 PF. (04 Marks)
- 7 a. For the wire wound resistance guage, , obtain the equation of guage factor neglecting the piezoresistive effect (08 Marks)
b. With a neat sketch, explain LVDT. Bring out any two merits and demerits of LVDT. (08 Marks)
c. A resistance strain guage with the guage factor of 3, cemented to a steel member, is subjected to strain of 2.5×10^{-6} . If the original value of resistance is 115 Ω , calculate the change in the resistance. (04 Marks)
- 8 Write briefly on the following :
 - a. Megger
 - b. Thermister
 - c. X – Y recorder
 - d. Dual slope integrating tpe DVM.(20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.