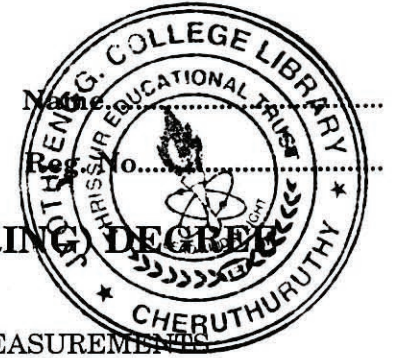


C 40963

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**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, APRIL 2013**

AI 09 406 – ELECTRONIC INSTRUMENTATION AND MEASUREMENTS

(Regular/Supplementary/Improvement)

(2009 Scheme)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. What are the major functional elements of an instrumentation system?
2. Define Accuracy.
3. Write down the transfer function for a first order system.
4. What do you mean by quantizing error?
5. What is mean by roll mode operation of a DSO?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Explain : (a) Line fitting ; (b) Curve fitting.
7. A digital voltmeter has a read out range from 0 to 9999 counts. Determine the resolution of the instrument in volts when the full scale reading is 9.999 V.
8. With schematic give an example of zero-order system.
9. What voltage resolution is possible using a 10-stage ladder network with a 5 V reference voltage?
10. What is the function of a plotter? Give any two applications.
11. Explain the principle of thermocouple wattmeter.

(4 × 5 = 20 marks)

Turn over

Part C

Answer either Section (a) or Section (b) from each module.

MODULE I

12. (a) Explain in detail, the various types of errors occurring in a measurement system.

Or

- (b) Write notes on :
- (i) Goodness of fit.
 - (ii) Chi-squared distribution.

MODULE II

13. (a) With schematic, explain the operation of a low frequency signal generator.

Or

- (b) With block diagram, explain the operation of arbitrary waveform generator.

MODULE III

14. (a) With schematic, explain the working of Successive Approximation ADC.

Or

- (b) Explain the working of a R-2R ladder DAC and find expression for output voltage.

MODULE IV

15. (a) With schematic, explain analog storage oscilloscope.

Or

- (b) With block diagram, explain the operation of X-Y recorder.

(4 × 10 = 40 marks)