C 40963 (Pages : 2) Name.....

Reg. No.....

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)