

C 80703

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Name .....

Reg. No. ....

**FOURTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE  
EXAMINATION, APRIL 2015**

AI 09 406—ELECTRONIC INSTRUMENTATION AND MEASUREMENTS

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

1. Define Resolution.
2. What do you mean by dead zone ?
3. Name the standard test signals used for studying the dynamic behaviour of a system.
4. What is the effect of quantizing error in the output accuracy of ADC ?
5. What is meant by interpolation in digital oscilloscope ?

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. With block diagram, explain the functional elements of a measurement system.
7. A 0–25 A ammeter has a guaranteed accuracy of 1 % of full scale reading. The current measured by this instrument is 10 A. Determine the limiting error in percentage.
8. With circuit diagram, explain the working of a sinewave to squarewave converter using diode clipping.
9. With schematic explain a weighted resistor DAC.
10. For a DSO explain (a) autotest ; and (b) zoom and restart.
11. With circuit diagram, explain a thermocouple bridge.

(4 × 5 = 20 marks)

**Part C**

*Answer either section (A) or (B) from each module.*

**Module I**

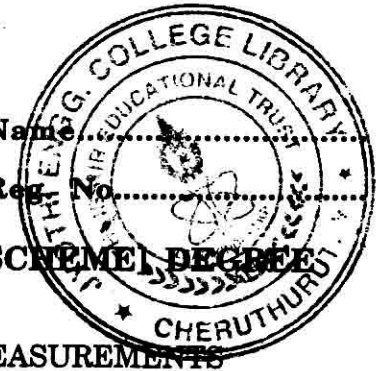
12. (A) Explain the terms :

- |                   |                   |
|-------------------|-------------------|
| (i) Threshold.    | (ii) Gross Error. |
| (iii) Hysteresis. | (iv) Bias.        |

Or

- (B) Explain the propagation of error in uncertainty analysis.

**Turn over**



**Module II**

13. (A) With schematic, explain the response of a first order system to a unit step input.

*Or*

(B) With block diagram, explain a sweep frequency generator.

**Module III**

14. (A) Explain the working principle of flash ADC with the help of block diagram.

*Or*

(B) With schematic explain :

(a) Potentiometric DAC.

(b) Master Slave DAC.

**Module IV**

15. (A) Describe the working of a Sampling oscilloscope with the help of diagram.

*Or*

(B) With block schematic, explain the principle of operation of spectrum analyser.

(4 × 10 = 40 marks)