

**C 61595**

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Name .....

Reg. No. ....

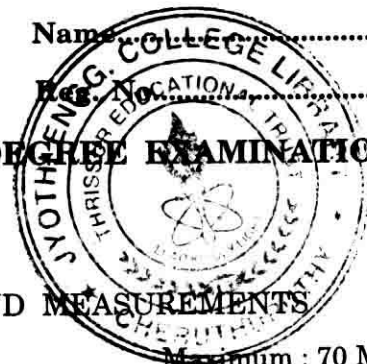
**FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
APRIL 2014**

(2009 Scheme)

**AI 09 406—ELECTRONIC INSTRUMENTATION AND MEASUREMENTS**

Time : Three Hours

Maximum : 70 Marks



**Part A**

*Answer all questions.*

*Each question carries 2 marks.*

1. Define Precision.
2. Name the different standards of measurement.
3. What do you mean by the order of a system ?
4. What is the use of sample and hold circuit in an ADC ?
5. What is the necessity of time delay circuit in a CRO ?

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

*Each question carries 5 marks.*

6. Explain a typical instrumentation system with the help of block diagram.
7. A certain resistor has a voltage drop of 110.2 V and a current of 5.3 A. The uncertainties in the measurement are  $\pm 0.2$  V and  $\pm 0.06$  A respectively. Calculate the power dissipated in the resistor and the uncertainty in power.
8. Explain the response of a first order system to ramp input.
9. List any four applications of DSO.
10. A 6 bit DAC designed with weighted resistor network has a resistance of 320 k $\Omega$  in LSB position. The reference voltage is 10 V. The output of resistive network is connected to an Op-amp with a feedback resistance of 5 k $\Omega$ . What is the output voltage for a binary input is 111010.
11. Explain the construction of bistable storage CRT.

(4 × 5 = 20 marks)

**Turn over**

**Part C****Module I**

12. (a) What are the various types of errors occurring in a measuring system ? Explain.

*Or*

- (b) It is known that the statistics of a well defined voltage signal are given by  $x^1 = 8.5 \text{ V}$  and  $\sigma^2 = 2.25 \text{ V}^2$ . If a single measurement of voltage signal is made, determine the probability that the measured value indicated will be between 10.0 and 11.5 V.

**Module II**

13. (a) With block diagram, explain an RF signal generator.

*Or*

- (b) Explain the principle of operation of frequency synthesizer.

**Module III**

14. (a) With Schematic explain integrating type ADC.

*Or*

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

**Module IV**

15. (a) With the help of a diagram describe the principle of operation of strip chart recorder.

*Or*

- (b) With schematic explain the principle of Q-meter.

(4 × 10 = 40 marks)