

Reg. No

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K4745

Name ...

**SIXTH SEMESTER B.TECH. DEGREE EXAMINATION  
MAY / JUNE- 2006  
(2003 Scheme)**

**03 – 603 ELECTRONIC INSTRUMENTATION (E)**

**Time: 3 Hours**

**Max. Marks: 100**

**PART – A**

*Answer all questions.*

1. What is meant by instrumentation system?
2. What is a transducer? How they are classified?
3. Write short note on Gray code encoder.
4. What are the basic building blocks of an operational amplifier?
5. What are the different type of filters used? Explain the working interms of its frequency response.
6. Explain the terms lock range, capture range and pull in time with respect to PLL.
7. What is the significance of resolution in the working of ADCs.
8. What are the advantages of using digital meters for measurement?
9. Explain the working of a sample and hold circuit.
10. What is meant by multiplexing?

**(10 x 4 = 40 Marks)**

**PART – B**

*Answer one question from each module.*

**Module - I**

11. a) Explain the time response of a first order system and second order system. How this affects an instrumentation system?
- b) Discuss a suitable method to measure the temperature in a furnace. Give justification for your transducer selected.

**OR**

12. a) Explain the working of LVDT.  
b) Discuss any one method of torque measurement.

**Module - II**

13. a) Describe the three amplifier configuration of instrumentation amplifier. Where they are used in instrumentation systems?  
b) Design a fifth order low pass Butterworth filter having a cut off frequency of 1.5KHz.

OR

14. a) What is a regulated power supply? Explain the design procedure with a suitable example.  
b) Write short note on  
1) Isolation amplifier.  
2) LED Display.

**Module - III**

15. a) Explain an accurate method to convert an analog signal to digital signal.  
b) What is the significance of data acquisition system in instrumentation?

OR

16. With suitable diagram explain the working of digital storage oscilloscope.

**(3 x 20 = 60 Marks)**