



Reg. No. :

Name :

**Fifth Semester B.Tech. Degree Examination, November 2014
(2008 Scheme)**

08.502 : ELECTRONIC INSTRUMENTATION (E)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions in Part – A.

1. What is an actuator ? Explain with an example.
2. Describe the mechanism to convert a (4-20) mA signal to a (3-15) psi signal in process control.
3. What is the significance of using gray code in shaft encoders ?
4. Explain the working of a wide band pass filter.
5. Write short notes on LED.
6. Describe the working of phase shifter using op-amp.
7. What is the significance of sampling rate in Data Acquisition System ?
8. Illustrate the working principle of digital storage oscilloscope.
9. What are the advantages of R-2R ladder DAC when compared to weighted resistor DAC ?
10. Explain the successive approximation method of ADC. **(10×4 = 40 Marks)**





PART – B

Answer **any one** question from **each** Module.

Module – I

11. a) Explain the construction, theory and working of thermocouple. 10
b) Explain the working of optical pyrometers. 10
12. a) Explain the working principle of any one type of strain gauge. Derive the expression for gauge factor. 13
b) Describe the basic structure and operation of programmable logic controller. 7

Module – II

13. a) What is an instrumentation amplifier ? Draw the circuit of an instrumentation amplifier and explain its operation 10
b) Draw and explain the circuit of an isolation amplifier using opto-coupler. 10
14. a) Explain the working of regulated power supply using a linear IC. 12
b) Explain the working of voltage controlled oscillator. 8

Module – III

15. a) Explain any one method of converting a binary word into its analog equivalent. 10
b) Describe any one type of digital multimeter. 10
16. a) With suitable diagrams explain the digital measurement of frequency ? What is the need of the time base circuit ? 14
b) Describe Aperture Time and Acquisition time of sample/hold circuit. 6
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