



Code No. : 841

FACULTY OF SCIENCE
M.Sc. IV Semester Examination, April/May 2013
PHYSICS WITH ELECTRONIC INSTRUMENTATION SPECIAL
Paper – V : Electronic Instrumentation for Measurement Control, Data
Acquisition and Data Transmission

Time: 3 Hours]

[Max. Marks: 64

Note : Answer all questions from Part A and Part B. Each question carries 3 marks in Part A and 10 marks in Part B.

PART – A

(Short Answers)

(8×3=24 Marks)

1. Write about digital transducers.
2. Draw the circuit diagram of full bridge strain gauge and explain briefly.
3. Write briefly about force balance transducer.
4. Explain the principle of ultrasonic flow meter.
5. Explain the principle of closed loop control with an example.
6. Draw the block diagram of digital to analog multiplexer and explain.
7. What are the transmission channels ? Explain.
8. Discuss about the RF telemetry system.

PART – B

(Long Answers)

(4×10=40 Marks)

9. a) What are the wire strain gauges ? And discuss the various types of bonded strain gauges and unbounded strain gauges with diagrams.

OR

- b) What is the basic requirement of a transducer ? Explain how the displacement can be measured using various capacitance devices.



10. a) Describe the measurement of temperature with resistance thermometer circuits.

OR

b) Describe the construction and working of Venturi tube for the measurement of flow.

11. a) Discuss the liquid level control system. Derive the necessary transfer functions and draw the corresponding block diagram.

OR

b) What are the features of IEEE488 interface bus and draw its block diagram ? Explain its functioning.

12. a) Draw the block diagram of a position telemetry system and explain.

OR

b) Draw the block diagram of a time division multiplexing telemetry system and explain.