

Code No. 4338 / CBCS / NON-CBCS

FACULTY OF SCIENCE

M.Sc. IV – Semester Examination, May / June 2015

Subject: Physics (Electronic Instrumentation Spl.)

Paper – V New / IV Old

Instrumentation for Measurement, Control, Data Acquisition & Data Transmission

Time: 3 Hours

Max.Marks: 80

**Note: Answer all questions from Part-A and Part-B.
Each question carries 4 marks in Part-A and 12 marks in Part-B.**

PART – A (8x4 = 32 Marks)

[Short Answer Type]

- 1 Distinguish between active and passive transducers
- 2 Explain the operation of strain gauge load cell
- 3 Explain the functioning of piezoelectric transducer
- 4 What is a thermocouple? Explain seebeck effect
- 5 What are the main parts of digital data acquisition system?
- 6 Discuss closed loop control with an example
- 7 Write the advantages and disadvantages of land line telemetry
- 8 Explain the functional blocks of telemetry system.

PART – B (4x12 = 48 Marks)

[Essay Answer Type]

- 9 a) Discuss in detail different types of variable inductance devices for displacement measurement.

OR

- b) What is a strain gauge? Derive an expression for gauge factor.

- 10 a) Explain the working of C-type, spiral and helical type Bourdon tubes for pressure measurement.

OR

- b) Explain the construction and working of LVDT. Write its advantages and disadvantages.

- 11 a) Define resolution. Explain the operation of digital to analog multiplexer.

OR

- b) Explain the interfacing of a transducer with microprocessor with a neat block diagram.

- 12 a) Explain the multiplexing in telemetering system in detail.

OR

- b) What is pulse code modulation? Explain pulse amplitude modulation (PAM) telemetry.
