

FACULTY OF INFORMATICS

B.E. 3/4 (I.T.) II-Semester (Main) Examination, May / June 2015

Subject: Digital Instrumentation and Control

(Elective-I)

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

- 1 What do you understand by signal conditioning? (2)
- 2 What is Ramp ADC? (3)
- 3 Write the characteristics of thermistors. (2)
- 4 What are load cells? (2)
- 5 What is Final control operations? (3)
- 6 List different control valve types. (3)
- 7 What is process lag? (2)
- 8 List out the field bus types (2)
- 9 Draw the diagram for process control system. (3)
- 10 Write any four optical sensors. (3)

PART – B (50 Marks)

- 11 (a) Describe the criteria for evaluation of performance of a process control loop.
(b) Draw the typical first order time response curve and explain it.
- 12 (a) Explain the procedure for design of a temperature transducer.
(b) Explain the operating principle of LVDT for displacement measurement.
- 13 Explain the following control system parameters in detail
(i) Error (ii) Cycling
- 14 (a) Describe derivative control mode.
(b) Write the steps to develop a PLC program for a ladder diagram.
- 15 Describe Nozzle flapper system to implement proportional control using pneumatics.
- 16 Explain about photo emissive detectors.
- 17 Write short notes on the following:
(a) Accuracy and Linearity
(b) Control loop stability
(c) Data logging
