

Name :

Reg. No:

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, OCTOBER 2012

AI 09 701 – PROCESS CONTROL INSTRUMENTATION

Time : Three Hours

Maximum : 70 Marks



PART A

Short Answer Questions

5 X 2 = 10 Marks

- 1) What is a final control element?
- 2) How can the power of a Pneumatic actuator be increased?
- 3) Define C_v factor of a control valve.
- 4) List out the merits of PLC over conventional electromagnetic relays.
- 5) What is controllability?

PART B

Answer any four Questions

4 X 5 = 20 Marks

- 1) Differentiate between interacting and non-interacting systems with suitable examples.
- 2) Explain in detail about valve sizing.
- 3) Write short notes on adaptive control.
- 4) What are the methods to reduce noise in control valves?
- 5) What is event sequencing?
- 6) What is a micro PLC?

PART C

Answer one Question from Each Module

10 X 4 = 40 Marks

- I. a) Explain in detail about I / P and P / I converters. (10 Marks)
(OR)
b) Explain in detail about batch and continuous process with suitable examples. (10 Marks)
- II. a) Explain in detail about cascade and feed forward control. (10 Marks)
(OR)
b) Explain in detail about the different types of control valves industries. (10 Marks)
- III. a) Write short notes on step testing and pulse testing. (10 Marks)
(OR)
b) Explain the method of examining the stability of a multivariable system. (10 Marks)
- IV. a) Explain the functional blocks of a Programmable Logic Controller with a neat block diagram. (10 Marks)
(OR)
b) How can PID control be achieved using a PLC? (10 Marks)