

FACULTY OF INFORMATICS

Code No. 6411 / N

B. E. 4/4 (IT) I – Semester (New) (Supplementary) Examination, July 2010

Subject : **Digital Instrumentation and Control**
(Elective – II)

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. Give a list of DAC characteristics and mention their significance. (3)
2. What is Data acquisition system ? (2)
3. Define thermo electric effects. (2)
4. Describe the working principle of vapour pressure thermometer. (3)
5. Describe the working principle of a pneumatic actuator. (3)
6. Define actuating error. (2)
7. What is a discrete state process ? What is a discrete state process control system ? (3)
8. Describe the derivative control mode. (2)
9. Explain the operation of a digital two state controller. (3)
10. Distinguish between analog and digital controllers. (2)

PART – B (5x10=50 Marks)

- 11.(a) List different digital to Analog converters. Explain any one of them. (5)
(b) Draw the block diagram and explain the elements of a process control system.(5)
- 12.(a) What is final control operation and explain various control elements? (5)
(b) Discuss about thermistor along with its advantages and disadvantages. (5)
- 13.(a) Explain the characteristics of PID controller. (5)
(b) Name different photodetectors. Explain the working of phototransistors. (5)
- 14.(a) Explain the concept of programmable logic controllers. (5)
(b) Describe the principles and structures of optical pyrometers. (5)
- 15.(a) Develop of PLC program from the ladder diagram of discrete state process-control application. (6)
(b) Explain different interlocking systems in discrete control system. (4)
- 16.(a) Explain about Ziegler-Nicholos method. (5)
(b) Distinguish between unipolar and bipolar operation of an analog to digital converter. (5)
17. Write brief notes on the following topics.