Code: 13A10701 **R13**

B.Tech IV Year I Semester (R13) Supplementary Examinations June 2017

COMPUTER CONTROL OF PROCESS

(Electronics & Instrumentation Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What are the applications of PLC?
(b) What is the need of computer in control process?
(c) State the advantages of PLC.
(d) List the different types of outputs available in a PLC.
(e) Write the features of a digital PID controller.
(f) Write about the sequencer functions in PLC.
(g) What is sampler and hold?
(h) What is pulse transfer function?
(i) What is dead time compensation?
(j) State the theoretical properties required for a digital control algorithm.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain in detail about input/output modules of PLC.

OR

3 List different types of isolators and explain the functions of an optical isolator in detail.

UNIT – II

4 Explain the following:

(a) Timer and counters in PLC.
(b) Input / output modules in PLC.

OR

5 Explain in detail the basic building blocks of PLC.

UNIT – III

6 Explain the following:

(a) Analog PLC operation.
(b) MCR functions.

OR

7 Write about:

(a) Networking of PLC.
(b) PID functions.

UNIT – IV

8 Explain the following:

(a) Open loop response of sampled data control system.
(b) Closed loop response of sampled data control system.

OR

9 What is Z transform? List its properties.

UNIT – V

10 Explain Dahlin's method in detail.

OR

11 Design a Deadbeat controller for the following system: $G_p(S) = \frac{2e^{-2s}}{4s+1}; T = 1\ sec$

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