**Reg. No. :** | | | | | | | | | | |

**Question Paper Code: 36063**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Sixth Semester

Instrumentation and Control Engineering

01UIC603 - PROCESS CONTROL

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Differentiate discontinuous and continuous mode.
2. Distinguish between servo and regulator operation of control system.
3. Define windup of the controller.
4. Design an electronic p-controller with a proportional gain 5.
5. What performance criterion should be used for the selection and tuning of controllers?
6. Give the difference between split-range control and selective control.
7. State control valve sizing.
8. Differentiate flashing and cavitations in a control valve.
9. Why is the electronic controller preferred to pneumatic controller?
10. State the usage of cascade control in distillation coloumn.

PART - B (5 x 16 = 80 Marks)

11. (a) Briefly explain about the self-regulation process with an example. (16)

Or

(b) Deduce the mathematical model of thermal system. (16)

12. (a) Explain the characteristics of ON-OFF and single speed floating control. (16)

Or

(b) Discuss about the electronic controllers to realize: (i) PI (ii) PID control action. (16)

13. (a) Explain the controller tuning method Process reaction curve method. (16)

Or

(b) Explain the process reaction curve method and Ziegler Nichol's method of tuning a controller. (16)

14. (a) Discuss about inherent and installed characteristics of control valve. (16)

Or

(b) Explain about cavitation and flashing. Discuss about the methods to overcome. (16)

15. (a) Explain about the distillation column. (16)

Or

(b) Explain the Continuous Stirred Tank Reactor (CSTR). (16)

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