

**F 3460**

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Reg. No.....

Name.....

**B.TECH. DEGREE EXAMINATION, NOVEMBER 2014**

**Seventh Semester**

Branch : Applied Electronics and Instrumentation Engineering

**PROCESS DYNAMICS AND CONTROL (A)**

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.  
Each question carries 4 marks.*

1. What are Batch Process ? Explain.
2. Explain Servo-Regulation operation.
3. Explain the basic control Actions.
4. Explain a proportional controller using Op-amps.
5. Explain IATE and Evaluation criteria.
6. Explain Damped oscillation method.
7. Explain the function of fluid valves. Where is it used ?
8. What is the function of an Actuator ? Explain Electrical Actuators.
9. Differentiate between single variable and multivariable control systems.
10. What is Ratio control ? Give some typical applications.



(10 × 4 = 40 marks)

**Part B**

*Answer all questions.  
Each full question carries 12 marks.*

11. Explain the characteristics of a liquid process.
- Or*
12. Explain with diagrams Interacting and Non-Interacting systems.
  13. (a) Discuss the general features of Pneumatic controllers. (6 marks)  
(b) What is two-position control mode ? Give its applications. Also compare it with multiposition control modes. (6 marks)

*Or*

**Turn over**

14. What is an electronic controller ? Implement two position, proportional and Integral control modes using Op-amps.
15. Explain determination of optimum settings for mathematically described process using time Response.

*Or*

16. Explain  $\frac{1}{4}$ <sup>th</sup> Decay ratio; ISE and IAE in detail. Compare them.
17. Explain with diagram Globe, Diaphragm and Ball valves.

*Or*

18. Explain with figure Pneumatic Actuators and Hydraulic Actuators. Compare them.
19. Define the concept of cascade control. Explain it in detail with suitable diagrams.

*Or*

20. Explain the types of feed forward control with diagram. Mention the constraints of feed forward control.

(5 × 12 = 60 marks)

