Code No: **R41103**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, February/March - 2018
PROCESS CONTROL INSTRUMENTATION
(Electronics and Instrumentation Engineering)

Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
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1 a) Discuss the continuous and batch process in process industry?   [8]
  b) List out atleast four important process variables that are controlled in industries.   [7]

2 a) Explain the principle of derivative control action with neat sketch. Summarize its characteristics.   [7]
  b) Explain the method of realizing an electronic PI controller employing delayed positive feedback. Derive the expression for proportional gain and integral time.   [8]

3 a) Illustrate a three mode electronic controller, Derive the expression for the output voltage.   [7]
  b) What are the advantages of the force type pneumatic controllers? Describe with neat diagrams, the working of a force type pneumatic proportional controller.   [8]

4   How do you determine the optimum settings for mathematically described process using time response in detail?   [15]

5 a) Discuss the process reaction method for control loop tuning.   [8]
  b) Explain about the damped oscillation method.   [7]

6 a) Explain about the I/P converter.   [8]
  b) Discuss about the hydraulic actuators.   [7]

7   Write short notes on the following
  a)   Globe Valves
  b)   Ball valves
  c)   Louvers   [15]

8 a) State the fundamental difference feed forward and conventional feedback control.   [8]
  b) What are the main advantages of cascade control? For what kind of processes can you employ cascade control?   [7]