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2005 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS
PROCESS CONTROL
(ELECTRONICS & CONTROL ENGINEERING)

NOVEMBER 2005

TIME – 3 HOUR
MARK – 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Obtain the expression for the resistance and capacitance for gas system.

(b) Differentiate between batch and continuous process. *[10+6]*

2. (a) Discuss about the selection of controller for various Processes.

(b) Discuss about two - position control and single - speed-floating control. *[8+8]*

3. With a suitable example derive the step response of a first order and second order instrument and define the various terms related to it. *[16]*

4. (a) Explain the principle of operation of a displacement type pneumatic proportional controller.

(b) Outline the design steps involved in the implementation of an electronic controller and explain. *[10+6]*

5. (a) What are the fundamental characteristics of a cascade controller?

(b) Explain the basic principle of cascade control with one industrial application. *[8+8]*

6. Explain about boiling liquids and condensing vapors briefly with necessary mathematical equations. *[16]*

7. (a) Derive the conversion rate in the plug flow reactor.

(b) Explain how exothermic reactors are non-self regulated for temperature. *[12+4]*

8. Write about barometric condensers. *[16]*