

**D 70232**

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Name.....

Reg. No.....

**SEVENTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE  
EXAMINATION, NOVEMBER 2014**

**AI 09 701—PROCESS CONTROL INSTRUMENTATION**

Time :Three Hours



**Part A**

*Answer all questions.*

1. State the principle of a pneumatic actuator.
2. What is self regulation ?
3. Define discrete state process control.
4. What is the need for adaptive control ?
5. Distinguish between interacting and non-interacting control.

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. Distinguish between batch and continuous process.
7. Draw and explain the VI characteristics of a DIAC.
8. What is cavitation ?
9. What is event sequencing ?
10. Mention the factors involved in the selection of PLC's.
11. What do you mean by pulse testing ?

(4 × 5 = 20 marks)

**Part C**

*Answer all questions.*

*Module I*

12. (a) Explain in detail about I/P and P/I converters.

*Or*

- (b) Explain the working principle of a hydraulic actuator.

(10 marks)

**Turn over**

*Module II*

13. (a) Explain in detail about inferential control.

Or

(b) Explain the different types of control valves.

(10 marks)

*Module III*

14. (a) Discuss in detail about controllability of multivariable systems.

Or

(b) Explain the various forms of process identification.

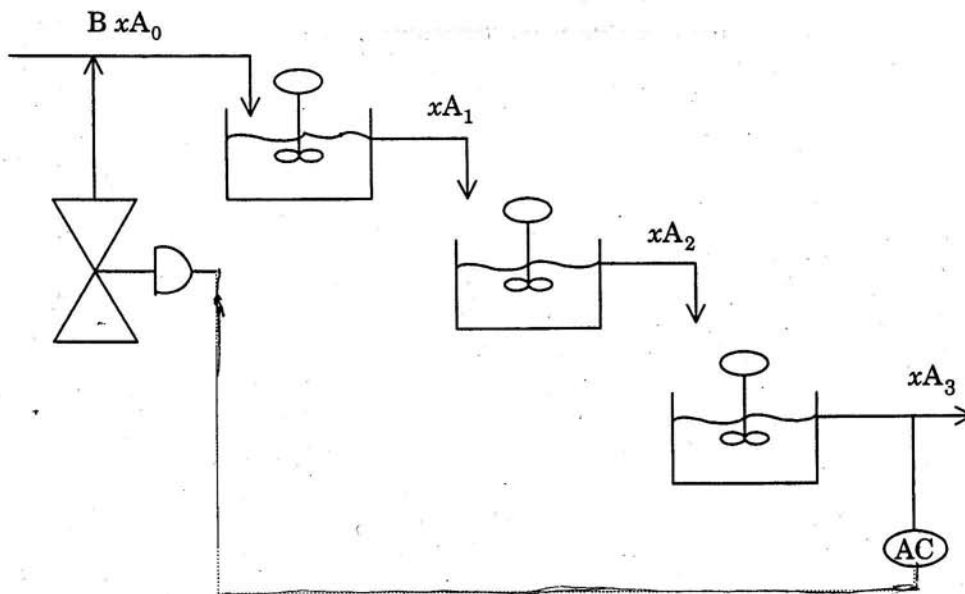
(10 marks)

*Module IV*

15. (a) Explain the architecture of a PLC with a neat block diagram.

Or

(b) Draw a ladder diagram logic for a three tank mixing process shown in Figure below.



(4 × 10 = 40 marks)