



C14-AEI-502

4608

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**OCT/NOV—2016**  
**DAEIE—FIFTH SEMESTER EXAMINATION**  
**PROCESS CONTROL**

Time : 3 hours ]

[ Total Marks : 80

---

**PART—A**

3×10=30

**Instructions** : (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the block diagram of process control loop.
2. Define error and dead time.
3. List the advantages and disadvantages of PI control.
4. Define derivative control mode.
5. Draw the block diagram of final control operation.
6. List any three types of actuators.
7. State the basic principle of solenoid actuator.
8. State the characteristics of interactive single variable control system.

\* 9. List the applications of adaptive control system.

10. Define piping and instrumentation diagram.

**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain controlled variable and manipulated variable with an example.

12. Explain two position control modes with example and necessary waveforms.

13. Explain the tuning of PID controller by using process reaction curve method.

14. Explain the principle of electro-pneumatic actuator with a diagram.

15. Explain the flow-lift characteristics of control valves.

16. Explain the block diagram of cascade control system with a neat diagram.

17. (a) Explain the operation of ratio control with a diagram. 7

(b) Explain the characteristics of multivariable control system. 3

18. Explain the ISA and ANSI standards used in instrumentation.

\*\*\*