



C14-AEI-502

4608

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**OCT/NOV—2017**  
**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. Define batch process and continuous process.
2. Define process lag and control lag.
3. List the discontinuous control modes.
4. List the advantages and disadvantages of PD control.
5. Draw the diagram of pressure to electric converter.
6. List the different types of actuator.
7. Draw the flow-lift characteristics of control valves.
8. List the applications of cascade control.

\* 9. Define adaptive control.

10. Draw the process line diagrams for the following :

(a) Pneumatic signal

(b) Hydraulic signal

(c) Internal system link

**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 a physical control system with block diagram.

12. Explain proportional-integral-derivative control mode and its characteristics.

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

14. Explain the block diagram of final control operation.

15. Explain the principle of operation of electric to pressure converter with a diagram.

16. (a) Explain the feed forward control system with an example. 6

(b) Distinguish between feedback and feed forward control systems. 4

\* **17.** Explain the self-adaptive control system with a block diagram.

**18. (a) (i)** Draw the following general instruments by balloon symbols :

6

- (1) Instrument at locally mounted
- (2) Instrument at control center
- (3) Instrument-bifunctional/two services

Draw the symbols for the following controllers and transmitters :

- (4) Flow transmitter
- (5) Pressure controller (panel mounted)
- (6) Flow controller (locally mounted)

*(b)* Explain the use of letter codes for identification of instruments.

4

\*\*\*