



C09-AEI-406

3416

BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2017
DAEIE—FOURTH 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 process and process control.
2. List the advantages and disadvantages of two-position controller.
3. Define the terms cycling and error.
4. List different types of actuators.
5. Draw the diagram of single-seat plug valve.
6. List the applications of cascade control system.
7. Draw the block diagram of feed forward control system.
8. Define adaptive control.

- * 9. Draw the diagrams of the following :
- (a) Hydraulic line
 - (b) Process line
 - (c) Capillary tube
10. Draw the diagrams of the following :
- (a) Fluid pressure line
 - (b) Electric signal
 - (c) Pneumatic line

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. Draw the block diagram of a process control loop and explain each block in it.
12. Explain the tuning of PID controllers using process reaction curve method.
13. Explain the proportional control mode and list its advantages and disadvantages.
14. Explain the implementation of PID controller mode using Op-Amp.
15. Explain the flow lift characteristics of control valves such as quick opening, linear, equal percentage valves with diagrams.
16. Explain the principle of operation of P/I converter with diagram.
17. Explain the operation of ratio controller with diagram.
- * 18. Explain the following standards that is widely used in instrumentation :
- (a) ANSI
 - (b) BS
