



C16-AEI-402

6415

BOARD DIPLOMA EXAMINATION, (C-16)  
OCT/NOV—2018  
DAEI—FOURTH SEMESTER EXAMINATION  
PROCESS CONTROL

Time : 3 hours ]

[ Total Marks : 80

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**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 a process control loop.
2. Define proportional control mode.
3. State the need for tuning of PID controllers.
4. List the continuous control modes.
5. Draw the diagram of pressure to electric converter.
6. Draw the diagram for solenoid valve actuator.
7. Classify control valves.
8. Define interactive single variable control system.
9. List any three applications of ratio control system.
10. List any three standards used in instrumentation.

**PART—B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) The 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 the tuning of PID controller by using process reaction curve method.
13. Explain the proportional integral control mode and mention its characteristics.
14. Explain the flow-lift characteristics control valves such as Quick opening, Liner, Equal percentage valve.
15. Explain the block diagram of final control operation.
16. Explain self-adaptive control system with block diagram.
17. Explain the operation of ratio control system with diagram.
18. (a) Draw the symbols for the transmitters and controllers:
  - (i) Level transmitter
  - (ii) Temperature transmitter
  - (iii) Pressure controller
  - (iv) Flow controller(b) Draw the symbols for the control valves:
  - (i) Hand operated glove valve
  - (ii) Pneumatically operated control valve(c) Explain the use of letter codes for identification of instruments.

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