



C09-AEI-406

**3416**

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**APRIL/MAY—2015**  
**DAEIE—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. Define batch process.
2. What is two-position control mode?
3. Define proportional band.
4. List different types of control valves.
5. Draw a neat sketch of pneumatic actuator.
6. List the applications of adaptive control system.
7. List the characteristics of single variable control.

- \* 8. Define the ratio control.
- 9. Draw the line diagrams for general instruments.
- 10. Draw the symbols for (a) control valve and (b) pneumatic actuator.

**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 process control loop and explain each element.
- 12. Explain the tuning of PID controller with process reaction curve method.
- 13. Define control system parameters such as error, variable range, controller parameter range, control lag.
- 14. (a) Explain derivative control mode. 6  
 (b) List the advantages and disadvantages of derivative controller. 4
- 15. Explain the single-seat plug, double-seat plug, control valves.
- 16. Explain the operation of P to I converter.
- 17. Draw the block diagram of feed-forward control system and explain it with examples.
- \* 18. Explain about ISI.

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