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C14-AEI-502

**4608**

**BOARD DIPLOMA EXAMINATION, (C-14)**

**JUNE—2019**

**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 process and process control.
2. List the characteristics of proportional-integral control modes.
3. Define proportional band and offset.
4. List the advantages of PID control.
5. Draw the block diagram of final control operation.
6. State the need for electric to pressure and pressure to electric converters.
7. Classify the different types of control valves.
8. Draw the block diagram of feed forward control.
9. List the applications of ratio control system.

- \* **10.** Draw the following line diagrams :
- (a) Fluid pressure line
  - (b) Electric signal
  - (c) Mechanical 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 criteria for valuation are the content but not the length of the answer.

- 11.** Draw the block diagram of a process control loop and explain each element.
- 12.** (a) Explain derivative control mode.  
(b) Explain multi-position control mode.
- 13.** Explain the tuning of PID controller by using ultimate gain method.
- 14.** (a) Explain the principle of pneumatic actuator with a diagram. 6  
(b) Explain the construction and working of butterfly valve. 4
- 15.** Explain the principle and working of stepper motor actuator with a diagram.
- 16.** Explain the block diagram of cascade control system with example.
- \* **17.** Explain the programmed adaptive control system with a block diagram.
- 18.** Explain the ISI and BS standards used in instrumentation.

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