C09–AEI–**406**

3416

BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2013
DAEIE—FOURTH SEMESTER EXAMINATION

PROCESS CONTROL

Time : 3 hours] [*Total Marks* : 80

PART—A

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

1. Define controlled variable and manipulated variable.

2. Define the terms dead time and cycling.

3. Write a short note on the term offset.

4. Give the principle involved in the final control operation.

5. Give the flow-lift characteristics of quick-opening valve.

6. Define the terms interactive variable and compound variable control.

7. Give the applications of the ratio control system.

8. Draw the block diagram of programmed adaptive control system.

9. Draw the line diagrams of the following :

(a) Fluid pressure line

(b) Capillary line

(c) Electric line

10. Write the procedure for installation of equipment.

PART—B

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

11. Draw the block diagram of a process control loop and describe each element.   10

12. *(a)* Explain the integral control mode with characteristics.   6

(b) List the advantages and disadvantages of integral controller.   4

13. Explain the operation of two-position and multi-position control modes.   10

14. Explain about the ultimate gain method of tuning of PID controller.   10

15. Explain the principle of operation of P/I and I/P converter.   10

16. Write short notes on the following :

(a) Electro-pneumatic actuator   5

(b) Hydraulic actuator   5

17. Explain the block diagram of self-adaptive control system with neat diagram.   10

18. Explain about the following standards :

(a) ISI   5

(b) ISA   5

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