



C14-EE-606

4746

BOARD DIPLOMA EXAMINATION, (C-14)  
MARCH/APRIL—2017  
DEEE—SIXTH SEMESTER EXAMINATION  
INDUSTRIAL AUTOMATION

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. Mention the requirements of automation.
2. State the need for feedback in a control system.
3. What is meant by normally open and normally closed contact types?
4. List the advantages and disadvantages of hydraulic controllers.
5. Give the concept of electronic controller.
6. Give the Laplace transform of a resistor and an inductor.
7. State the limitations of transfer functions of systems.

8. What is nonlinear system?
9. List the applications of PLC.
10. Draw the ladder diagram for NAND gate and NOR gate.

**PART—B**

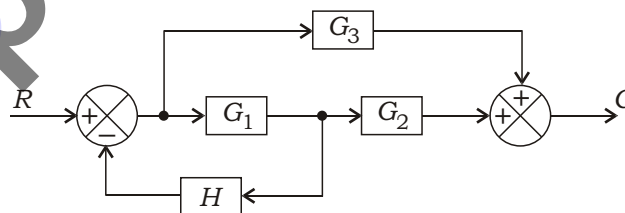
10×5=50

**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. Write the force balance equation of mechanical elements and their analog electrical elements in force-current analogy.
12. (a) Explain briefly the concept of speed control of DC motor.  
(b) With the help of block diagram, explain the concept of PI controller.
13. Explain the working of reed relay.
14. State the working principle of AC servomotors.
15. Explain the working of synchro as error detector.
16. Reduce the block diagram shown in figure and find C/R :



17. Explain the working of CTU counter.
18. Draw and explain the ladder diagrams for staircase lighting and DOL starter.

5+5

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