



C14-EE-606

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BOARD DIPLOMA EXAMINATION, (C-14)  
OCT/NOV—2018  
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. List the advantages of feedback control system.
2. Define open-loop system and closed-loop system.
3. List the applications of pilot lamps.
4. Write a brief note on tachogenerator.
5. List the merits and demerits of hydraulic controllers.
6. State the properties of transfer function.
7. Write the Laplace form for resistance and capacitance.
8. Describe linear and nonlinear control systems.
9. List the advantages of PLC.
10. Draw the ladder diagram for NOR gate and AND gate.

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**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.** (a) Explain speed control of DC motor with neat diagram in control system. 7  
(b) Define the transfer function. 3
- 12.** (a) Explain level control and pressure sensing devices. 6  
(b) Compare between electromagnetic relay and reed relay. 4
- 13.** Explain the potentiometer as a controller and list out the specifications of potentiometer. 10
- 14.** (a) Explain the digital controller with block diagram. 7  
(b) List the types of controller. 3
- 15.** (a) Draw the block diagram of a closed-loop system with feedback element. 4  
(b) Explain the rules to follow in block diagram reduction method. 6
- 16.** (a) Explain continuous data control system and sampled data system. 5  
(b) Write the force balance equations of mechanical elements and their analogous electrical elements in force-voltage analogy. 5
- 17.** (a) Explain the ladder diagram and label the parts. 5  
(b) Explain  $T_{on}$  and RTD commands. 5
- 18.** Draw and explain the ladder diagram for water level controller. 10

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