



C14-EE-606

**4746**

**BOARD DIPLOMA EXAMINATION, (C-14)  
SEPTEMBER/OCTOBER - 2020  
DEEE—SIXTH SEMESTER EXAMINATION  
INDUSTRIAL AUTOMATION**

*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. Mention the requirements of automation.
2. Draw a generalized block diagram and label the parts of feedback control system.
3. List different input devices used in control systems.
4. State the concept and purpose of a tacho-generator.
5. List the types of controller.
6. State the properties of transfer function.
7. List the basic elements of block diagram.
8. Define linear and non-linear control systems.
9. Define programmable logic controller.
10. Draw the ladder diagram for NOR gate and AND gate.

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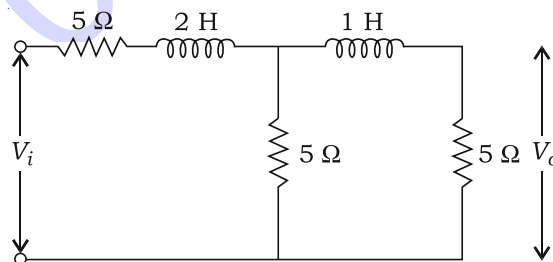
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**PART—B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

- 11.** Explain the open-loop and closed-loop control of temperature controller.
- 12.** (a) Explain briefly the concept of speed control of DC motor. 5  
(b) Explain PI-controller with block diagram. 5
- 13.** Explain the working of electromagnetic relay and reed relay with diagram.
- 14.** Explain the synchros as error detector with a neat diagram.
- 15.** (a) Explain the working principle of a.c. servomotor. 5  
(b) Explain the concept of electronic controller. 5
- 16.** Derive the transfer function for the following electrical network :



- 17.** Explain different parts of PLC by drawing the block diagram.
- 18.** Draw and explain the ladder diagram for star-delta starter.

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