

**6418**  
**BOARD DIPLOMA EXAMINATION**  
**JUNE - 2019**

\* **DIPLOMA IN APPLIED ELECTRONICS AND INSTRUMENTATION**  
**INDUSTRIAL ELECTRONICS & CONTROL SYSTEMS**  
**FOURTH SEMESTER EXAMINATION**

**Time: 3 Hours**

**Total Marks: 80**

**PART - A (3m x 10 = 30m)**

*Note 1: Answer all questions and each question carries 3 marks*

*2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences*

1. **Draw the diagram of dot matrix display.**
2. **List any three applications of optocouplers**
3. **List the advantages of Resistance Welding**
4. **Draw the diagram of Induction heating**
5. **Distinguish Between Time variant and Time invariant Control systems**
6. **Define the transfer function**
7. **Define signal flow graph of a system**
8. **List the basic components of block diagram**
9. **Define absolute and relative stability**
10. **State steady state error of type 2 system for unit ramp input**

**PART - B (10m x 5 = 50m)**

*Note 1: Answer any five questions and each carries 10 marks*

*2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer*

11. **Explain the working of Photo transistor with diagram and list the applications**
- \* 12. **Explain the electrodes used in Di-electric Heating**
13. **Explain the principle of Induction heating with diagram and list the applications**
14. **Explain the block diagram of open-loop control system**

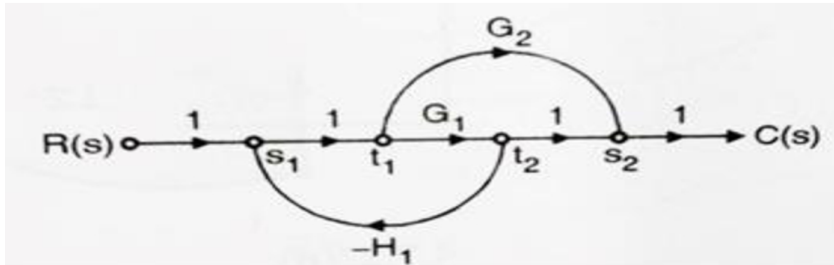
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15. Find the Inverse Laplace Transform of the function

$$F(s) = \frac{1}{(s+2)(s+3)^2}$$

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16. Derive the transfer function using Mason's gain formula for the following signal flow graph



17. Derive the expression for unit step and unit impulse response of first order system

18A. Find the laplace transform of cos at

B. Obtain bode plots for  $G(s)=K$  and  $G(s)=K/s$

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