



C20-EE-105

7039

BOARD DIPLOMA EXAMINATION, (C-20)  
SEPTEMBER/OCTOBER—2021  
DEEE - FIRST YEAR EXAMINATION  
ELECTRICAL ENGINEERING MATERIALS

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. Define the term 'hardening'.
2. State the requirements of low resistivity materials.
3. State the factors affecting insulation resistance.
4. What is dielectric material? Give example.
5. Define polarisation.
6. Classify the magnetic materials with examples.
7. Define magnetostriction.
8. Define fuse and state the material used for fuse element.
9. Classify different types of storage cells.
10. What is meant by trickle charging of batteries?

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[ Contd...

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## PART—B

8×5=40

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **eight** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain the properties of manganin and state its applications.

**OR**

(b) Distinguish between copper and aluminium.

12. (a) Explain the conduction of intrinsic semiconductors with neat sketch.

**OR**

(b) Explain the formation of N-type semiconductors with neat sketch.

13. (a) Explain the properties of mica and state its applications.

**OR**

(b) State the effect of stabilizers and plasticizers additives on PVC.

14. (a) Explain the operation of bi-metals with neat sketch.

**OR**

(b) Explain the process of impregnation with neat sketch.

\* 15. (a) Explain the construction and working of maintenance free battery.

**OR**

(b) Compare lead acid battery with maintenance free battery.

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**PART—C**

10×1=10

- Instructions :** (1) Answer the following question.  
(2) It carries **ten** marks.  
(3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

**16.** State the properties and applications of mercury and tungsten.

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