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C16-EE-105

**6039**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**JANUARY/FEBRUARY—2022**

**DEEE - FIRST YEAR EXAMINATION**

**ELECTRICAL ENGINEERING MATERIALS**

Time : 3 hours ]

[ Total Marks : 80

**PART—A**

- 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. State any three requirements of high resistivity materials. 3
2. State the properties of AAAC conductors. 3
3. Distinguish between P-type and N-type semiconductors in three aspects. 3
4. State the factors affecting insulating resistance. 3
5. State any three applications of sulphur hexafluoride. 3
6. Define dielectric constant and state the dielectric constant values of paper porcelain.  $2 + \frac{1}{2} + \frac{1}{2} = 3$
7. What is meant by Eddy current loss? 3
8. What is meant by soldering? 3
9. What are the uses of lithium ion battery? 3
10. State any three precautions to be taken while maintaining Lead-Acid

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batteries.

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### PART—B

**Instructions :** (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Compare the properties of copper and aluminium. 10
12. (a) State the requirements of low resistivity materials. 4  
(b) Write the properties and applications of constantan. 6
13. (a) What is extrinsic semiconductors? Explain various types of it. 5  
(b) Explain the process of polarization in dielectric materials. 5
14. State the properties and applications of PVC. 6+4=10
15. (a) Draw B-H curve and explain briefly. 5  
(b) Compare soft magnetic materials and hard magnetic materials in five aspects. 5
16. Classify the soldering materials and explain them. 10
17. Explain the chemical reactions during charging and discharging of Lead acid battery. Also state its indications. 10
18. Calculate the ampere hour efficiency of battery having 20 hours charge rate of 10A and delivering 5A for 36 hours as discharge with a mean voltage of 2V. Also calculate the average voltage during charge if the watt hour efficiency is 80%. 5+5=10

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