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C20-EE-105

**7039**

**BOARD DIPLOMA EXAMINATION, (C-20)**

**FEBRUARY/MARCH —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 electrical properties of conducting materials. 3
2. State any three requirements of low resistivity materials. 3
3. State any three properties of impregnated paper. 3
4. Define polarization in dielectric materials. 3
5. State any three applications of di-electric materials. 3
6. Classify the magnetic materials. 3
7. Define Curie point in magnetic materials. 3
8. What is meant by soldering? State the soldering materials. 1+2
9. State any three applications of nickel-iron cell. 3
10. State any three indications of fully charged lead-acid battery. 3

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[ Contd...

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**PART—B**

- 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) State the properties and applications of aluminium.

**(OR)**

(b) State the properties and applications of tungsten. 8

12. (a) Explain the formation of N-type semiconductor with a neat sketch.

**(OR)**

(b) Distinguish between P-type and N-type semiconducting materials. 8

13. (a) State the properties and applications of PVC.

**(OR)**

(b) State the properties and applications of ceramics as insulating material. 8

\* 14. (a) Explain the working of thermocouple and state the materials used. 6+2

**(OR)**

(b) Define fuse and state the materials used for fuse wires. 2+6

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

**(OR)**

(b) State the precautions to be taken during charging and discharging of batteries. 8

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**PART—C**

10×1=10

- Instructions :** (1) Answer the following question.  
(2) The question carries **ten** marks.

- 16.** Explain the chemical reactions during charging and discharging of lead-acid battery.

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