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C16-EE–105

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BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—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 conducting and insulating materials.

2. State any six properties of copper.

3. Write the types of semiconducting material with examples.

4. Define dielectric strength and write its units.

5. What are the applications of asbestos?

6. What are the electrical properties of insulating materials?

7. Mention the types of magnetic materials with examples.

8. Name different types of special purpose materials.

9. Write any six differences between primary and secondary cells.

10. Explain trickle charging.

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. Distinguish between copper and aluminum in any ten aspects. 10

12. State properties of ACSR conductors and write its applications. 10

13. *(a)* Distinguish between P-type and N-type semiconductors in any five aspects. 5

(b) Explain polarization related to dielectric material. 5

14. What are the properties and applications of sulphur-hexafluoride (SF_6) gas? 10

15. Explain hysteresis loop by neat sketch along with connection diagram. 10

16. Explain the process of impregnation with a neat sketch. 10

17. Calculate the ampere-hour and watt-hour efficiencies of a battery, which is charged for 7 hours at 25 amps at an average voltage of 1.6 V and discharged at 20 A for 8 hours at an average voltage of 1·3 V. 10

18. Explain briefly *(a)* lithium ion cell and *(b)* silver oxide cell. 5+5=10

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