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C14-EE–105

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BOARD DIPLOMA EXAMINATION, (C–14)
MARCH/APRIL—2018
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 *(a)* annealing and *(b)* hardening.

2. List the requirements of high resistivity materials.

3. Define semiconductor with examples.

4. List the factors affecting insulation resistance.

5. Define dielectric strength and also mention its units.

6. Classify the magnetic materials with examples.

7. Why is the enamel is coated over conductors?

8. List the common methods of impregnation.

9. What is trickle charging of batteries?

10. Define ampere-hour efficiency and watt-hour efficiency of a battery.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criteria for evaluation is the content but not the length of the answer.

11. *(a)* State the properties of ACSR conductors and mention its applications. 5
(b) State the properties and applications of carbon. 5

12. *(a)* State the properties and applications of tungsten. 5
(b) State the properties and applications of constantan. 5

13. *(a)* Explain the formation of N-type semiconductors with neat sketch. 5
(b) Distinguish between P-type and N-type semiconductors in any five aspects. 5

14. *(a)* Explain thermoplastic and thermosetting resins with examples. 5
(b) State the properties and applications of PVC. 5

15. *(a)* Explain polarization with neat sketch. 5
(b) Explain the process of impregnation with a neat sketch. 5

16. *(a)* Briefly explain about eddy current loss. 5
(b) Explain B-H curve with a neat sketch. 5

17. *(a)* Describe the charging and discharging of lead acid cell. 5

(b) Explain the charging of battery by constant current method with a neat sketch. 5

18. *(a)* Explain the construction and working of maintenance free battery. 5

(b) Determine the ampere-hour and watt-hour efficiencies of an accumulator which is charged for 8 hours at 30A at an average voltage of 1.2V, and discharged at 24A for 9 hours at an average voltage of 1.1V. 5