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C16–EE–105

6039

BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2017

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 any three properties of aluminium.

3. Compare intrinsic and extrinsic semiconductors in three aspects.

4. State any three properties of asbestos.

5. State the applications of PVC.

6. State the permittivity values of the following dielectric materials :

(a) Air

(b) Glass

(c) Transformer oil

7. What is meant by curie point?

8. State the different types of materials used for fuse.

9. What is meant by trickle charging of batteries?

10. State the indications of fully charged lead-acid 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 criterion for valuation is the content but not the length of the answer.

11. *(a)* State the properties and applications of carbon. 5

(b) Explain the colour coding of resistor as per BIS. 5

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

(b) List the differences between copper and aluminium. 5

13. *(a)* Explain the formation of N-type semiconductor. 5

(b) Explain polarization in dielectric materials. 5

14. Explain the types of insulating materials on the basis of temperature. 10

15. Explain soft magnetic materials and hard magnetic materials. 10

16. *(a)* Explain the working of thermocouple and state the materials used. 5

(b) State the need for protective materials and list the properties of lead. 5

17. Explain the construction and working of lead-acid battery. 10

18. *(a)* State the factors affecting the capacity of a cell. 4

(b) Calculate the ampere-hour and watt-hour efficiencies for an accumulator, which is charged for 8 hours at 30 amp at an average voltage of 1·2 volt, and discharged at 24 amp for 9 hours at an average voltage of 1·1 volt. 6

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