



C14-EE-105

4045

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2015

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. Write the application of hard drawn copper and annealed copper.
2. A resistor has a colour band sequence of 'red, green, orange, and silver'. Determine its resistance value.
3. Write any three applications of semiconductor materials.
4. Define insulation resistance.
5. Define polarization in dielectric materials.
6. Define permeability and reluctance.
7. State any three commonly used protective materials.
8. State the advantages of fuse.

- * 9. Define capacity of a battery and state the factors affecting it.
10. State any three applications of maintenance free batteries.

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. Write the properties and applications of copper. 10
12. (a) What are the properties of conducting materials? 5
(b) Write the applications of Manganin. 5
13. Explain the formation of 'P type' and 'N type' semiconductors with a neat diagram. 10
14. (a) Explain the materials added to PVC to improve its properties. 5
(b) Define impregnation and write the effects of impregnation on insulating material. 5
15. (a) Define dielectric loss and state the factors affecting it. 5
(b) Write a short note on soldering. 5
16. (a) Write a short note on eddy current loss. 5
(b) What is the importance of Hysteresis loop for magnetic materials? 5
17. (a) Write chemical reactions during charging and discharging of lead-acid cell. 5
(b) State the indications of a fully charged cell. 5
- * 18. (a) Compare lead-acid cell with Ni-Fe cell. 5
(b) Calculate the ampere-hour and watt-hour efficiency for an alkaline cell, which discharges 20 A for 10 hours at an average voltage of 2.25 V and it is charged from a supply at 25 A for 12 hours at an average voltage of 2.5 V. 5
