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C20-EE–105

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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

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

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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