



C16-EE-105

6039

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER—2020
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 annealing.
2. State any three requirements of low resistivity materials.
3. What is meant by doping in semiconductor?
4. State any three factors affecting the insulation resistance.
5. List any three properties of nitrogen gas.
6. Define permittivity and state the permittivity values for
 - (a) Air
 - (b) Transformer oil

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7. What is ^{*} meant by eddy current loss?
8. State the advantages of enamel coated copper wire.
9. Define ampere-hour efficiency and watt-hour efficiency.
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 criteria for valuation are the content but not the length of the answer.

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|------------|---|-----------------|
| 11. | (a) List the properties and applications of Tungsten. | 5 |
| | (b) List the properties and applications of copper. | 5 |
| 12. | (a) List the properties and applications of platinum. | 5 |
| | (b) Explain the colour coding of resistor as per BIS. | 5 |
| 13. | (a) Compare N-type and P-type semiconductors. | 5 |
| | (b) State the applications of dielectric materials. | 5 |
| 14. | Explain the effects of the following on P.V.C. | 10 |
| | (a) Fillers | (b) Stabilizers |
| | (c) Plasticizers | (d) Additives |
| 15. | Explain hysteresis loop with a neat sketch. | 10 |
| 16. | Explain the process of galvanizing and impregnation. | 10 |

17. Explain the ^{*} construction of lead-acid battery with a neat sketch. 10
18. (a) Write the chemical reactions during charging and discharging of nickel-iron cell. 5
- (b) An alkaline cell is discharged at a steady current of 4A for 12 hours, the average terminal voltage being 1.2 volt. To restore to its original state of charge, a steady current of 3 amp for 20 hours is required, the terminal voltage being 1.6 volt. Calculate 5
- (i) Ampere-hour efficiency
- (ii) Watt-hour efficiency

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