



C23-EE-105

23060

BOARD DIPLOMA EXAMINATION, (C-23)

MARCH/APRIL—2025

DEE – FIRST YEAR EXAMINATION

ELECTRICAL ENGINEERING MATERIAL SCIENCE

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. State any six requirements of high resistivity materials.
2. Define the terms (a) Hardening and (b) Annealing.
3. Distinguish between conductors, insulators and semiconductors.
4. List any three of di-electric materials. applications
5. Define eddy current loss?
6. State Faraday's laws of electro-magnetic induction.
7. Draw the field patterns due to (a) Straight current carrying conductor and (b) Solenoid.
8. State Len'z law.
9. State Coulomb's laws of electrostatics.
10. Define the terms (a) Electric flux, (b) Flux density related to electrostatics.

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 is the content but not the length of the answer.

- 11.** State the properties and applications of copper and aluminium. 10
- 12.** Distinguish between intrinsic and extrinsic semi-conductors. 10
- 13.** State the effects of the following on P.V.C. (a) Filler, (b) Stabilizer, (c) Plasticizer and (d) Additives. 10
- 14.** State the properties and applications of (a) Impregnated paper and (b) Glass. 10
- 15.** Explain Hysteresis loop with a neat sketch. 10
- 16.** Explain dynamically and statically induced E.M.F. 10
- 17.** (a) Develop an expression for the energy stored in a magnetic field. 5
(b) Compare magnetic circuit with electric circuit in any five aspects. 5
- 18.** (a) Derive an expression for equivalent capacitance when two capacitors are connected in parallel. 5
(b) State different types of capacitors with its uses. 5

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