



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:III
Class:SY	Program:B.Tech (Electrical Engineering)
Branch Code:ELE	Pattern:2022
Name of Course:Electrical Engineering Materials	Course Code:ELE222004
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains __02__ page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Question No. 1 Attempt following Question

- 1a) Solve any one (6) CO1

a)Classify the electric materials and state scope of electrical materials

OR

b) Describe operational requirements of different electrical materials in detail

Question No. 2 Attempt following Question

- 2a) Solve any one (6) CO3

a)Determine Clausius Mossotti relation as applied to dielectric materials in a static field.State clearly the assumptions made

OR

b) Discuss the following :

Dielectric constant, Dipole moment, Polarization

Question No. 3 Attempt following Question

- 3a) Explain Breakdown Voltage and Breakdown Strength in detail (8) CO2

OR

3c) Explain with the neat circuit diagram measurement of Liquid insulating material (8) CO2

OR

3d) Explain Primary and Secondary Ionization of Gases in detail (8) CO2

Question No. 4 Attempt following Question

4a) Define the following terms: (8) CO1

1. Permeability
2. Magnetic Susceptibility
3. Magnetization
4. Magnetic Dipole moment

OR

4b) Describe Superconducting magnetic energy storage (SMES) (8) CO3

4c) Define the following (8) CO1

1. Soft magnetic material
2. Paramagnetic material
3. Ferromagnetic Material
4. Diamagnetic Material

OR

4d) Describe Diamagnetic and Paramagnetic material with neat diagram in detail (8) CO3

Question No. 5 Attempt following Question

5a) Discuss different materials used in batteries in detail (8) CO4

OR

5b) Explain optical communication in detail (8) CO3

5c) Discuss Superconductivity and superconducting materials (8) CO4

OR

5d) Explain semiconductor materials used for solar PV (8) CO3

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