

Ex/PG/MatE/T/129A/2024

**M Tech in Material Engineering, 2nd Sem.
Examination, 2024**

Electrical and Electronic Materials

Time: Three hours

Full Marks: 100

Answer any five questions from the following.

1. a) Describe the polarization for a dielectric Material. Discuss about the different types of polarizations occur in a dielectric materials.
b) Describe the loss factor for a dielectric Material. 20
2. a) Discuss briefly the different types of magnetic materials.
b) Write short note on Saturation Magnetization and hysteresis loss. 20
3. Briefly discuss about the basic features, properties, and possible applications of a Electro-optic ceramics. Cite some examples. 20
4. Describe the characteristics, basic properties, and potential for applications of a varistor. 20
5. Describe the basic features, properties and applications of a ferrite ceramics. 20
6. Discuss briefly about NTC thermistors, their properties and their applications. 20
7. a) Find the expectation value $\langle x \rangle$ of the position of a particle trapped in a box L wide.
b) Write short notes on Finite potential well and tunneling effect. 20