

M. Tech in Material Engineering, 1st Year 2nd Sem. Examination, 2018

Electrical and Electronic Materials

Time: Three hours

Full Marks: 100

Answer any five questions from the following.

1. a) Define polarization. Show that polarization is numerically equal to bound charge density. 20
b) Find an expression for the Lorentz internal field for dielectric. 20
2. a) Discuss about the different mechanisms of polarizations occur in a dielectric material. 20
b) Describe the basic features of a ferroelectric ceramics. 20
3. a) Discuss briefly the different types of magnetic materials. 20
b) Describe how saturation magnetization is dependent on temperature? 20
4. Describe the characteristics, basic properties, and potential for applications of a varistor. 20
5. Briefly discuss about the basic features, properties, and possible applications of a PLZT ceramics. Cite some examples. 20
6. Discuss briefly about NTC thermistors, their properties, and their applications. 20
7. Describe the basic features, properties and applications of a ferrite ceramics. Draw it's crystal structure. 20