

**COLLEGE OF ENGINEERING, PUNE**  
**End Semester Examination : November – December 2012**

**B. Tech/ M. Tech ( Metallurgy )**

**(MT 403): Electronic and Magnetic Materials**

Max.Marks:50

Duration: 3 Hrs

**Instructions**

**Draw the neat figures to support your answers.**

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- Q.1 1) State energy band theory and apply it to differentiate between conductor, semiconductor and insulator 6
- 2) What is the effect of microstructure on critical current density of a superconductor? Explain with the help of examples. 4
- Q.2 1) Explain working principle of bipolar junction transistor and metal oxide semiconductor field effect transistor. 6
- 2) Prove using basis magnetic theory equations that superconductor is a perfect diamagnetic material. 4
- Q.3 1) Write a note on capacitor dielectric materials. 6
- 2) State working of magnetic bubble memory. 4
- Q.4 1) How domains get formed in ferromagnetic materials? 6
- 2) Write a note on typical Piezo electric material. 4
- Q.5 1) Explain LED principle and electro optic effects. 6
- 2) Write a note on optical fiber communication. 4
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