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**B.TECH. - ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

June, 2013

**BIEE-013 : ELECTRICAL AND ELECTRONICS
ENGINEERING MATERIALS**

Time : 3 Hours

Maximum Marks : 70

Note : All questions carry equal marks. Answer any seven questions.

1. What is the importance of Miller indices ? How does it help in the study of crystallography ? **10**

2. Classify various types of bonds, and illustrate their examples. What is the basis of classifying the bonds as primary or secondary ? **10**

3. Discuss Drude - Lorentz theory from the view point of electrical conductivity. What are doubts in this theory ? **10**

4. Enumerate the characteristics of a good conductor. Discuss the effects of different factors on resistivity of a conductor. **10**

5. What is superconductivity ? How is it different from conductivity and semiconductivity ? 10
 6. Explain how electrons and holes both conduct in a pure silicon crystal. How is conductivity influenced by mobility of electrons and holes ? 10
 7. Explain the phenomenon of Hall effect. Discuss the method of identifying an unknown piece as n-type or p-type semiconductor. 10
 8. Explain magnetic hysteresis curve. Why is it called so ? 10
 9. What is magneto-striction ? Discuss its mechanism and salient features. Name some magneto-strictive materials. 10
 10. Write notes on *any two* of the following : 2x5=10
 - (a) Coordination number
 - (b) Properties of semiconducting materials
 - (c) Soft and hard magnetic materials
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