

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

**Term-End Examination**

**December, 2013**

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

*Time : 3 Hours*

*Maximum Marks : 70*

*Note : Attempt any seven questions. Assume the missing data if any.*

1. What is co-ordination number ? Explain what is the relation between crystal structure and co-ordination number. 10
2. What are the major types of crystal structures? Give a comparison among them. 10
3. Give a classification of materials based on energy band. 10
4. What is electrical resistance of a materials ? What are the major factors affecting, electrical resistance ? 10

5. Define Resistivity and Conductivity of a material. Also discuss about thermal conductivity of materials. **10**
  6. Discuss the formation of semi-conductor with the help of neat diagram. Also give the classification of semi-conductors. **10**
  7. Explain the formation of p-n junction with the help of a neat diagram. Also discuss the working of p-n junction diod in various modes. **10**
  8. Explain the formation of Field-Effect Transistor (FET) with help of neat diagram. Why FET are some times called unipolar transistors. **10**
  9. What are the soft and hard magnetic materials? Give a comparison between them. **10**
  10. Write the short notes on *any two* of the following : **10**
    - (a) Miller Indices
    - (b) Drift and diffusion currents
    - (c) Diamagnetism
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