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BIEE-013

00483

B.TECH. - ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

Decemebr, 2012

BIEE-013 : ELECTRICAL AND ELECTRONICS ENGINEERING MATERIALS

Time : 3 Hours *Maximum Marks : 70*

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

1. Explain the composition of a solid illustrating crystals, unit cells, atoms and electrons in it. **10**

2. Describe the factors that influence the bonding characteristics and properties. **10**

3. Explain the role of electrons in conductivity of metals. **10**

4. Discuss the various thermo electric effects and write their applications. **10**

5. Explain the effect of critical magnetic field, critical current and isotopic mass on critical temperature of a super conducting material. **10**

6. Enumerate different types of semiconductors show that the Fermi level for a pure germanium lies in the middle of its forbidden gap. 10

7. Describe the construction and working of a P-N junction diode in its inherent state. 10

8. What are the effects of dipole moments on magnetic behaviour of materials ? 10

9. What is magnetostriction ? Discuss its mechanism and salient features. Name some magnetostrictive materials. 10

10. Write notes on **any two** of the following : 2x5=10

(a) atomic packing factor.

(b) mechanical properties of metals.

(c) Permanent magnetic materials.
