No. of Printed Pages : **2**

BIEE-013

00569

B.TECH. - VIEP-ELECTRICAL ENGINEERING

Term-End Examination

December, 2011

BIEE-013 : ELECTRICAL AND ELECTRONICS ENGINEERING MATERIALS

Time : 3 hours *Maximum Marks : 70*

Note : *Answer* ***any seven questions.*** *Each carries* ***10*** *marks.*

1. Describe briefly the basic

(a) Seven crystal systems **5**

(b) What is coordination number ? **5**

2. What do you mean by atomic parking factor ? Calculate its value for simple cube, body centered cube and face centred cube. **10**

3. (a) What do you mean by Miller indice's ? **5**

(b) Obtain the Miller indices of a plane which intercepts at a , b/2, 3c in a simple cubic unit cell. **5**

4. What is Bragg's law ? Also write short note on Bragg's X-ray diffraction analysis of crystals. **10**

5. Derive the expression for heat developed in a current carrying conductor. **10**

6. Explain the term 'super-conductivity'. Name some of the important super-conductivity elements, compounds and alloys. **10**

7. What are the different type of semiconductors ? Explain their formation. Also give examples of each. **10**

8. (a) Write short note on P-N junction diode and also draw and explain its V-I characteristics. **5**

   (b) Explain with a neat diagram, the working of an N-P-N Transistor. **5**

9. What is Hall's effect ? What are its applications ? How can we determine mobility using Hall's effect ? **10**

10. Write short notes on ***any two :*** **5x2=10**

    (a) Paramagnetism

    (b) Ferromagnetism

    (c) Drift and Diffusion