B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

00135   Term-End Examination
December, 2014

BIEE-013 : ELECTRICAL AND ELECTRONICS ENGINEERING MATERIALS

Time : 3 hours   *Maximum Marks : 70*

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

1. Define the term 'Atomic packing factor'. Calculate its value for simple cube, body centred cube and face centred cube.   *10*

2. What do you mean by 'Miller Indices' ? Explain the procedure for finding Miller indices.   *10*

3. Explain conductivity of metals. What are the factors affecting electrical resistance of materials ?   *10*

4. Describe the phenomenon of superconductivity. What are the applications of superconductors ?   *10*

5. Explain the operation of P-N junction diode and develop its characteristics.   *10*

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6. State and explain 'Hall Effect' with its application. Also write the equation of mobility (μ). *10*

7. What should be the properties of magnetic materials ? Differentiate between Ferromagnetic, Paramagnetic and Diamagnetic materials. *10*

8. What are the characteristics of soft and hard magnetic materials ? Mention two soft and two hard magnetic materials along with their properties. *10*

9. Write short notes on any *two* of the following :

    2×5=10

    (i) Metallic bonds

    (ii) Thermoelectric effect

    (iii) FET

    (iv) Permanent magnet

10. Differentiate between semiconductors, conductors and insulators. *10*

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