

**B.Tech. Civil (Construction Management)**

**Term-End Examination**

**December, 2015**

00713

**ET-204(A) : MATERIALS SCIENCE**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any **seven** questions. All questions carry equal marks. Use of calculator is permitted.

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1. (a) Distinguish between amorphous and crystalline materials. 5  
(b) Explain in brief the properties of polymers and rubbers. 5
2. (a) Determine the radius of 4<sup>th</sup> orbit for the electron in a hydrogen atom. 5  
(b) Classify solids with reference to their electrical properties and explain them briefly. 5
3. Explain the 14 structures of Bravais lattices with neat sketches. 10
4. With the help of a neat sketch, explain Iron – Iron carbide phase diagram. 10

5. (a) With the help of neat sketches, explain the point defects in crystals. 5
- (b) What is a Burgers vector ? What is its significance ? 5
6. Explain with a neat graphical representation, the elasticity and plasticity of materials through stress-strain relationship. 10
7. Explain the following : 10
- (a) Drift velocity
- (b) Electron hopping
8. With the help of a schematic diagram of tensile strength testing machine, explain how tensile test is conducted. 10
9. Explain the significance of TTT diagrams in materials processing. Explain any one TTT diagram as example. 10
10. (a) Explain Kinetic aspects of corrosion with a suitable example. 5
- (b) Describe the construction and working of a galvanic cell formed by two different metals. 5
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