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ET-204 (A)

B.TECH. CIVIL (CONSTRUCTION MANAGEMENT)

Term-End Examination, 2019

ET-204(A) : MATERIALS SCIENCE

Time : 3 Hours]

[Maximum Marks : 70

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

1. (a) What are four P's that characterise the materials for selections of materials ? Briefly explain. [4]
- (b) Write a short notes on following : [6]
 - (i) Ceramics
 - (ii) Glasses
 - (iii) Cermets
2. (a) Distinguish between ionic and covalent compounds. Give examples for each. [5]
- (b) Explain the metallic bond and discuss its properties. [5]

3. With neat sketches describe the various Crystal lattice structures. [10]
4. Draw the Iron-Iron Carbide phase diagram and show all the phases and different metallurgic structure. [10]
5. Explain the following with neat sketches : [10]
 - (a) Vacancy
 - (b) Interstitial defect
 - (c) Substitutional defect
 - (d) Frankel defect
 - (e) Scholkey defect
6. Write short notes on the following :
 - (a) Plasticity [5]
 - (b) Viscous deformation [5]
7. List out the various properties of metals. Explain their significance. [10]
8. (a) Discuss the role of valence electronics in determining properties of a substance. [5]

- (b) What is phonon ? What is phonon scattering ?
What is its significance ? [5]
9. Write short notes on the following : [10]
- (a) Welding and Machining
- (b) Casting
10. Explain the mechanism of corrosion in metals. What are the measures to be taken to prevent corrosion ? What is the effect of mechanical stresses on corrosion ? [10]

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