ET-204(A)

00381

B.Tech. Civil (Construction Management)
Term-End Examination
December, 2013

ET-204(A) : MATERIALS SCIENCE

Time : 3 hours   *Maximum Marks : 70*

Note :   *Answer **any seven** questions. Use of calculator is allowed.*

1. (a) What is "Recyclability"? Classify materials based on Recyclability. Give some examples.   5

   (b) Distinguish between alloys and compounds.   5

2. (a) Differentiate the properties of Ionic and covalent compounds.   6

   (b) Describe metallic bond with examples.   4

3. Define unit cell. Give various Bravais Lattice structures with neat sketches.   5+5=10

4. Explain the following :   5+5=10

   (a) Phase Rule

   (b) Lever Rule

5. With neat sketches explain schottkey defect and Frankel defect in solid crystals.   5+5=10

6. (a) Define the term elasticity and explain the   5
         elastic deformation.

    (b) Write a note on dislocation theory.   5

7. (a) Discuss   the   phenomenon   of   5
         superconductivity is solids.

    (b) What is "Meissner Effect" ? Explain.   5

8. Discuss the effect of the following variables on
    mechanical properties of solids.   10

    (a) Grain size   (b) Temperature

    (c) Strain Rate   (d) Fatigue

9. Write short notes on :   5+5=10

    (a) Age hardening (b) TTT diagrams

10. (a) Explain the kinetic aspects of corrosion   5

    (b) What is atmospheric degradation ? Discuss.   5

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