

CT Inst. of E

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (ME) (Sem.-3rd)

ENGINEERING MATERIALS & METALLURGY

Subject Code : BTME-306 (2011 Batch)

Paper ID : [A1143]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A**I. Write briefly :**

- a) What is FCC Structure?
- b) Show that Atomic Packing Factor for BCC is 0.68.
- c) What is meant by atomic bonding? Name the various atomic bonds in solids.
- d) What is a Gibbs Phase Rule?
- e) What is retained austenite?
- f) What is meant by limited solubility in solid state?
- g) Define Harden ability.
- h) Why annealing is done?
- i) Write two applications of steel containing Mo.
- j) Which properties of tool steel will be affected by chromium?

SECTION-B

2. Explain the method of crystallographic notation for the atomic planes of close packed hexagonal lattice.
3. Explain the theories associated with the plastic deformation.
4. What are various types of equilibrium diagrams? Explain any one with detail.
5. What is meant by surface hardening? Explain in detail.
6. What should be the properties of a cutting tool elements suitable for the same?

SECTION-C

7. Explain the principle and applications of time-temperature transformation curves.
8. What is Diffusion Mechanisms? Explain the factors affecting diffusion.
9. How the Normalizing is done? Explain the treatment and how these can be removed?

