

Printed Pages : 2



AG-102

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 990102**

Roll No.

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**B. Tech.**

(SEM. I) (ODD SEM.) THEORY  
EXAMINATION, 2014-15  
**MATERIAL SCIENCE**

Time : 3 Hours]

[Total Marks : 80

- 1 Attempt any **four** parts from the following : **4×4=16**
- Explain Atomic Packing Factor.
  - Explain in brief about “Space Lattice”.
  - Explain any two modes of Fracture.
  - What are the different types of phase diagrams exists? Explain Phase.
  - Describe the following in very short
    - Resilience
    - Hardness
  - What are the differences between Screw and Mixed dislocations?
- 2 Attempt any **four** parts of the following : **4×4=16**
- Explain the difference between any two atomic models.
  - Draw and explain iron Carbon equilibrium diagram.

- (c) What is Gibb's Phase rule? Explain.
  - (d) What is Fatigue failure? Explain.
  - (e) Describe the following in brief
    - (i) Creep Strength
    - (ii) Binary Diagrams
  - (f) What do you know about the point defects in Solids?
- 3** Attempt any **two** parts of the following : **2×8=16**
- (a) Describe the process of case hardening.
  - (b) Differentiate between Annealing and Normalizing.
  - (c) Explain the process of quenching and the effect of quenching media on the mechanical properties of steel.
- 4** Attempt any **two** parts of the following : **2×8=16**
- (a) What is P-N Junction? Describe Extrinsic and Intrinsic Semiconductor.
  - (b) What is Hysteresis? Explain dia, para&ferro magnetic materials.
  - (c) What is Meissner effect? Explain.
- 5** Attempt any Two parts of the following : **2×8=16**
- (a) Explain the properties and applications of Alloy Steels.
  - (b) Explain the properties and applications of Chromium.
  - (c) Write short notes of the following
    - (i) Hysteresis Effect
    - (ii) Types of Defects in Solids.