



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

PAPER ID : 180208

Roll No.

--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. II) THEORY EXAMINATION, 2014-15 MATERIAL SCIENCE

Time : 3 Hours]

[Total Marks : 80

Note: Attempt all five questions

- 1 Attempt all parts of the following. (10×1=10)
- (a) Write the composition of cast iron and also enlist its types.
 - (b) Define Coordination Number. Also write Coordination Number of SC Structure.
 - (c) Define Brass and Bronze.
 - (d) Define Fatigue and Creep.
 - (e) Define different Ionic bonds.
 - (f) Draw Stress-Strain Diagram for milled steel.
 - (g) Define shear stress and shear strain.
 - (h) Define High Temperature and Low Temperature Superconductor.
 - (i) Define ductility and brittleness.
 - (j) List the different types of magnetic materials.

- 2 Attempt any four parts of the following. (4×5=20)
- (a) Define atomic packing factor. Find out the value of Atomic packing factor of SC, BCC & FCC structure.
 - (b) Explain edge dislocation with burgers circuit and burgers vector.
 - (c) Explain Rutherford's nuclear atomic model in brief.
 - (d) Define impact load and explain impact testing of material with diagram.
 - (e) Explain about Gibbs Phase rule.
- 3 Attempt any two parts of the following. (10×2=20)
- (a) Explain Iron- Carbon equilibrium diagram with neat sketch.
 - (b) Draw and explain iron-carbon equilibrium diagram. Showing various points, temperature and constituents.
 - (c) Explain the following with figure :
 - (i) Magnetic Hysteresis curve.
 - (ii) Meissner effect.
- 4 Attempt any two parts of the following. (10×2=20)
- (a) What are point imperfections? Describe the different types of point imperfection.
 - (b) What is iron? List the different types of iron. Explain the manufacturing of cast iron with neat sketch.
 - (c) Explain why heat treatment of metal is required. Define annealing and its type.

- 5 Attempt any one parts of the following. (10×1=10)
- (a) What are ferrous and non-ferrous metals? Explain aluminium alloy with their composition, properties and application.
 - (b) Explain hardness testing method of material with neat sketch.
-