

JK Lakshmipat University, Jaipur
Institute of Engineering and Technology

End Term Examination
B.Tech III sem 2013-2014



Course Name: Material science in Engineering
Course Code: ME-304

Max Marks: 40
Time: 03:00 hrs

Instructions: Attempt all sections.

Section A

(2X5=10)

Q1. Write short note:

1. True Stress Strain
2. Lever rule/ Tie rule
3. Creep
4. Space lattice
5. Super alloy

Q2. (a) What is Corrosion? Effect of corrosion and prevent of corrosion.

(b) What is an alloy explain important steel alloy.

Section B

Attempt any four questions.

(4X5=20)

Q1. Explain Bauschinger effect and Strain aging.

Q2. Explain word phase diagram and explain Ag and Pt phase diagram.

Q3. Explain the difference between

- (a) Edge and screw dislocation.
- (b) Hardening and tempering.

Q4. What is Heat treatment and its classification and explain Induction hardening.

Q5. Explain cooling curve of iron and also explain allotropes of steel.

Section C

(2X5=10)

Q1. Explain Iron-Carbon Diagram and Explain Isothermal transformation of austenite to pearlite at different temperature with diagram.

Q2 Draw a hypothetical phase diagram A-B with the help of following data:

(a) Melting point of A=1100 C

(b) Melting point of B=1300 C

(c) Eutectic reaction occurs at 1000 C at B composition.

(d) Maximum solubility of B in A and A in B at eutectic temperature is 10% and 5% respectively which drops to Zero at 0 C.

Mark each line area. How the structure of alloy will change if alloy containing 10% B composition is cooled from the liquid state.