

B. Tech Degree IV Semester Examination, April 2009

ME 402 METALLURGY AND MATERIAL SCIENCE

(Common for 1999 & 2002 Schemes)

Time: 3 Hours

Maximum Marks: 100

(All questions carry **EQUAL** marks)

- I. a. Explain Miller indices?
b. What is atomic packing factor? Give examples.
OR
- II. a. With the help of figure explain screw dislocation?
b. What are the factors affecting diffusion?
- III. a. Explain Gibb's phase rule where it can be applied?
b. With neat sketch explain Pb-Sn system.
OR
- IV. a. Explain different types of solid solutions.
b. With neat sketch explain Cu-Ni System.
- V. a. Draw TTT diagram and explain its use.
b. Describe Annealing process in detail.
OR
- VI. a. With neat sketch explain Metal Cladding
b. Explain (i) Carburising (ii) Jomini Test
- VII. a. Explain the mechanism of Twinning.
b. Distinguish between Hot working and Cold working.
OR
- VIII. a. Explain Griffith's Theory.
b. Explain 'Fatigue'. Draw SN curve and explain its applications.
- IX. a. Explain the process of manufacturing steel?
b. What are the effect of different alloying elements in steel? Give examples.
c. What are the common alloys of Cu? Give example & approximate composition.
OR
- X. Write notes on :
(i) Bearing Metals
(ii) HSS
(iii) Cast Iron.

