

Q.P. Code : 726501

(3 Hours)

[Total Marks : 80

- N.B. :** (1) Question No.1 is compulsory
(2) Attempt any **three** questions from remaining **five** questions
(3) **Draw** neat well **labeled** sketches
(4) **Figure** at right side **indicate** marks

1. Write short notes on **any four** 20
(a) Types of point defects in crystals.
(b) Normalizing.
(c) Elastomers
(d) Ductile to Brittle transition.
(e) Ferro electricity
(f) Magneto Rheological fluids
2. (a) What is a surface defect? Explain various types of surface defects along with their significance. 10
(b) Name any two alloys having Copper as their base metal. Enumerate their properties, composition and applications. 10
3. (a) Define creep. Explain creep testing. Draw classical creep curve and explain each stage of the curve in detail. 10
(b) Draw Iron-Iron Carbide phase diagram name the various fields, lines and reactions. 10
4. (a) Explain various methods employed for the production of metal powders. 10
(b) (i) Compare ceramics with metals with regards to their properties and structure. 5
(ii) Write brief note on lasers. 5
5. (a) Explain the following terms with respect to polymers: 10
(i) Thermoplastic (ii) Thermosetting plastic (iii) Elastomers
(b) What are nanostructure materials? Also state their applications. 10
6. (a) Differentiate between particle reinforced composite and fiber reinforced composites. List some of the engineering applications of ceramics. 10
(b) Classify magnetic materials in detail and list their applications 10