Year 2013

MMMD 103

Rgpv, bhopal

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carries equal marks.

1. Describe the following imperfections in detail with sketches
   i) Zero dimensional
   ii) One dimensional
   iii) Two dimensional
   iv) Three dimensional

2. Explain semiconductors in detail also explain with neat sketches the following terms associated to semiconductors.
   i) Intrinsic semiconductors
   ii) Extrinsic semiconductors
   iii) n-type crystal
   iv) p-type crystal

3. Explain the terms related to deformation of metals:-
   i) Strain hardening
   ii) Work hardening effect
   iii) Bauschinger effect
   iv) Griffith's theory

4. Explain in detail with the aid of sketch about the following points:-
   i) Formation of pearlite

   ii) Formation of martensite
   iii) Hot working techniques

5. Write an assay about "ceramic material" with respect to
   i) Composition
   ii) Crystal structure
   iii) Electrical and mechanical properties

6. a) What is the difference between configuration and conformation in relation to polymer chains?
   b) Write about the fracture toughness with neat sketch.

7. Classify the crystal on the basis of types of bond. Also sketch the table on the basis of following heads:-
   i) Crystal type with example
   ii) Banding force
   iii) Units that occupy lattice sites
   iv) Properties hardness brittleness, melting point, electrical conductivity

8. Write short notes on the following terms:-
   a) Advanced ceramic
   b) Relaxation time
   c) Strain aging and strain rate
   d) Dislocation phenomenon