SE / Sem IV / Prod / CBGS

T2124 / T1035 MATERIALS TECHNOLOGY

Q.P. Code : 559902

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No.**1** is **compulsory**.
(2) **Attempt** any **three** questions out of remaining **five** questions.
(3) **Assume** suitable **data** if **necessary**.
(4) **Figures** to the right indicate **full** marks.

1. Write short notes on the following : **20**
   (a) Alloys of Copper.
   (b) Frank Reed sources of dislocations.
   (c) Carbonitriding.
   (d) Toughening Mechanisms in Ceramics.

2. (a) Explain the phase diagram for two metals which are completely soluble in liquid and solid states. Also, explain the rules used for finding the composition of phases and relative amounts of each phase. **10**
   (b) Differentiate between edge and screw dislocations. **10**

3. (a) Explain the method used to plot TTT curve. What is critical cooling rate? **10**
   (b) Explain the process of powder metallurgy and state its advantages, limitations and applications. **10**

4. (a) Explain White cast iron and Malleable cast iron in detail. **10**
   (b) Define creep and elaborate the method used for testing it. **10**

5. (a) Briefly, explain FRP. **5**
   (b) Explain the heat treatment processes of Hardening and Tempering. **10**
   (c) Explain flame hardening process. **5**

6. Write short note :- **20**
   (a) Influence of alloying elements on carbide.
   (b) Classification of Ferrous Metals.
   (c) Alloys of Nickel.
   (d) Pearlite.
