

B.Tech. Fourth Semester (Food, Pulp & Paper, Oil & Paint & Petro Chem.) (CGS)

11012 : Material Technology - I : 4 CT 04

P. Pages : 2

Time : Three Hours



AU - 2637

Max. Marks : 80

- Notes :
1. All question carry marks as indicated.
 2. Answer **three** question from Section A and **three** question from Section B.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Diagrams and chemical equations should be given wherever necessary.
 6. Illustrate your answer necessary with the help of neat sketches.
 7. Discuss the reaction, mechanism wherever necessary.
 8. Use of cell phone is not allowed in exam.
 9. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What are the various line defects occur in crystals? Explain in detail. 6
b) What do you mean by structure sensitive and structure insensitive properties? Discuss them by giving suitable example. 7

OR

2. a) Define Co-ordinate number. Explain how does the Co-ordinate number of BCC and FCC are calculated? 7
b) Explain the followings. 6
i) Unit cell. ii) Space Lattice.
3. Which mechanical properties are changed due to change in temperature and upto what extent these properties are changing? Give all detailed effects of changing mechanical properties in service conditions. What preventive measures are to be taken to avoid the effect of temperature on materials. 14

OR

4. a) What do you mean by Recovery Grain Growth and Recrystalline involved in the process of heating cold worked metals? 7
b) Explain the effect of high temperature on metal for the following properties :- 7
i) Strength. ii) Ductility.
iii) Plastic Deformation.
5. a) Explain eutectic reaction. Write down the reaction and draw a neat sketch with reference to Iron carbon diagram. 7
b) Differentiate between :- 6
i) White cast Iron and Grey cast Iron.
ii) Alloy and solid solutions.

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