

19.12.14

QP Code : 12583

(3 Hours)

[Total Marks : 80

- N.B.** (1) Questions No.1 is **Compulsary**.
 (2) Attempt any **three** questions out of remaining **Five** questions.
 (3) Assume suitable data is necessary.
 (4) **Figures** to right indicate **full** marks.

1. Write short note on:- 20
 - (a) Edge and screw dislocations
 - (b) Age hardening
 - (c) Ductility transition
 - (d) Ausforming process
 - (e) 18-4-1 tool steel composition and applications

2. (a) Discuss methods of powder manufacture in powder metallurgy. Also discuss applications of oil impregnated bearings. 12
 (b) Draw iron-iron carbide phase diagram and explain various phase transformations in different regions of the diagram. 8

3. (a) Write short note on recrystallization annealing and discuss its engineering importance and explain its stages in detail. 10
 (b) Explain properties and application of any three alloys of aluminium. 6
 (c) Write short note on application of nano materials. 4

4. (a) Write short note on creep testing, data presentation and analysis 10
 (b) Write short note on how composites are classified on the basis of matrix material. Give example of each type with applications. 10

5. Write short note on (any four) 20
 - (a) Ductile fracture
 - (b) sub zero treatment
 - (c) Cyaniding
 - (d) Effect of alloying element on tempering
 - (e) Toughening mechanism in ceramics

6. (a) State and explain various types of ingot defects and suggest remedies for these defects. 10
 (b) Explain strain hardening and write its significance. Also discuss how dislocations are generated by Frank Reed Source. 10