

Sem-IV/Prod/CBGS/M.T/NOV-16/28-12-1

Material Tech.



Q.P. Code : 559900

(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 20
 - (a) Peritectic Transformation
 - (b) Age Hardening
 - (c) Rule of mixtures in composites
 - (d) Fatigue and significance of cyclic stress

2. (a) State and explain various types of ingot defects and suggest remedies for these defects. 10
(b) Explain toughening mechanism in ceramics and write applications of ceramics. 10

3. (a) Draw iron and iron-carbide phase diagram and explain various phase transformation reactions from different regions of the diagram. 10
(b) Write short note on creep testing, data presentation and analysis. 10

4. (a) Explain strain hardening and write its significance. Also discuss how dislocations are generated by Frank Reed Source. 10
(b) Draw and label a TTT diagram for 0.8% carbon steel. Superimpose various cooling curves on it and explain the process. 10

5. (a) Write short note on recovery, recrystallization and grain growth. 10
(b) Explain how stainless steels are classified. Explain each type with composition, properties and applications. 10

6. Write short note (any **four**) 20
 - (a) Dispersion Hardening
 - (b) Spheroidising
 - (c) Ausforming
 - (d) 18-4-1 tool steel
 - (e) Cemented Carbide
 - (f) Nano Technology