

TH3-Engineering Material

Full Marks:80

Time:3Hours

Answer any Five Questions including Q No. 1&2
Figures in the right hand margin indicates marks

1. Answer all questions 2×10
 - (a) What do you mean by Ductility?
 - (b) Give any two suitable examples of nonferrous material.
 - (c) Write down any two applications of low carbon steel.
 - (d) What is phase diagram?
 - (e) What are the limitations of a iron-carbon phase diagram?
 - (f) What do you mean by Point defect in a crystal?
 - (g) What do you mean by Tempering?
 - (h) Write down the composition of Brass.
 - (i) Give any two suitable examples of ceramic material.
 - (j) Write down any two properties of elastomers. 5×6
2. Answer any six questions
 - (a) Briefly classify materials into ferrous and non ferrous category.
 - (b) Write down the effects of various alloying elements such as Cr, Mn, Ni and V on mechanical properties of ferrous materials.
 - (c) Write down the difference between Edge and Screw dislocation.
 - (d) Briefly explain carburizing process.
 - (e) Write down the composition, property and usage of Duralumin.
 - (f) Differentiate between thermosetting and thermoplastic polymers.
 - (g) Briefly classify ceramics and write down their uses.

3. Draw Iron-Carbon phase diagram showing various micro-constituents and phases. 7+3
Briefly explain various reactions that occurs in a Iron-Carbon phase diagram.
4. (a) What are the purposes of Heat treatment process? 4
(b) Explain the following Heat treatment processes.
(i) Normalizing 6
(ii) Annealing
5. (a) Differentiate between Slip and Twinning. 5
(b) Write down various types of point defects and their causes. 5
6. Write down the composition,properties and uses of fiber reinforced composites. 10
7. Write short notes on
(i) Tool steel 2.5×4
(ii) Y-alloy
(iii) Iron-base spring material
(iv) Babbit metal

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