Printed Pages : 02 MME-258

(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID : MF8

Roll No. | | | | | | | | | | |

M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16

HEAT TREATMENT OF METALS

Time : 3 Hours Total Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. Explain the construction of TTT diagram according to the first principle. Why it is called S-curve?

2. (a) Differentiate between stress relieving and tempering.
   (b) Discuss the heat treatment process of copper-beryllium alloy.

3. (a) Explain martempering process with the help of suitable diagram. How it is differ from austempering?
   (b) What are the various methods of determining the hardenability? Explain briefly.

4. (a) Explain the mechanism of heat removal from a work piece during quenching.
   (b) Differentiate between cyaniding and carbonitriding case hardening process.

5. (a) Describe the characteristics of quenchants.

(b) What is the basic principle involved in thermomechanical treatment of steels? Give a classification of thermomechanical treatment for steels.

6. (a) Discuss the heat treatment process used for Ni-resist cast irons.

(b) Describe the following process:

(i) Sub-zero treatment

(ii) Normalising.

7. (a) Discuss solution and ageing treatment for Ni-alloys.

(b) Explain briefly the heat treatment processes involved for Al alloys.

8. (a) What is the heat treatment processes used for Ti alloys? Explain any two processes briefly.

(b) Describe the mechanism of formation of upper and lower bainite.

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