

Printed Pages : 3



EMT-012

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

PAPER ID : 141652

Roll No.

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B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15

ADVANCED CASTING PROCESS

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

- 1 Attempt any two parts of the following : **2×10=20**
- Define the following terms and give their two types: Pattern, Mould, Core, Gate and Riser.
 - Explain various methods of machine compaction and enlist advantages of machine compaction over hand compaction.
 - Describe different steps of core making. What is the necessity of compaction and core hardening while core making?

- 2 Attempt any two parts of the following : $2 \times 10 = 20$
- (a) Explain the construction and working of an electric arc furnace with the help of a neat sketch.
 - (b) Differentiate between the working principles of an electric arc furnace and electric induction furnace. What are melting losses ?
 - (c) Write notes on melting charge and metal temperature.
- 3 Attempt any two parts of the following : $2 \times 10 = 20$
- (a) Describe investment casting clearly by explaining its various steps. Also state the applications of the process.
 - (b) Differentiate between hot chamber and cold chamber die casting machines.
 - (c) Explain different types of centrifugal casting. How do they differ from each other?
- 4 Attempt any two parts of the following : $2 \times 10 = 20$
- (a) Discuss crystallization and development of cast structure in brief.
 - (b) Describe numerical methods for heat flow analysis during casting-solidification.
 - (c) Write notes on Chvorinov's equation and structure of castings.

- 5** Attempt any two parts of the following : **2×10=20**
- (a) Describe feeding characteristics of alloys and discuss geometric influences on solidification.
 - (b) Explain different methods of feeding the castings in brief with the help of sketches.
 - (c) Describe the advantages of using padding, chills and insulators in a casting. Illustrate your answer.
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