Printed Pages : 3

EMT-012

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

PAPER ID : 141652

Roll No.

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**

(a) Define the following terms and give their two types: Pattern, Mould, Core, Gate and Riser.

(b) Explain various methods of machine compaction and enlist advantages of machine compaction over hand compaction.

(c) 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 : **2×10=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 : **2×10=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 : **2×10=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.
