Roll No. ..... Total Pages : 3

BT-8/M-20 **38178**

FOUNDRY ENGINEERING (THEORY)

Paper–ME-422-N

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) How do you explain the advantages of Foundry technology over other manufacturing processes? 8

   (b) Explain different types of patterns and pattern allowances with neat sketch. 7

2. Describe the different sections in a foundry and their functions. 15

UNIT–II

3. (a) Describe the procedure to test the following properties of Molding sand : 8

   (i) Permeability.

   (ii) Compressibility.

   (b) Explain Machine Molding Process. 7

4. Illustrate with neat sketch the working, advantages disadvantages and applications of the following casting processes : 15

   (a) Centrifugal casting.

   (b) Investment casting.

UNIT–III

5. (a) With the help of neat diagram, explain the basic working principles and construction of various types of dross traps used in gating systems. 9

   (b) Differentiate between the function of top riser and blind riser. Which of the above contributed higher yield? 6

6. (a) Discuss the application of the continuity equation and Bernoulli's equation to the study of metal flow and design of the gating system of a casting. How can aspiration of gases into the gating system be prevented? 9

   (b) How is the shape factor obtained in the case of NRL method of riser design for Cylindrical objects? 6

UNIT–IV

7. Illustrate with neat sketch the construction of Cupola furnace. Elaborate some of the advanced practices adopted recently in Cupola operation. 15

8. (a) In a large foundry a scheme of SQC is to be introduced. Explain the procedure to be followed. 6

(b) Describe following casting defects with their causes and remedies : 9

(i) Blow Holes.

(ii) Slag Inclusion.

(iii) Cold Shuts.