

**BT-8/D-21****48178****FOUNDRY ENGINEERING**

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. Assume missing data, if any, suitably.

**UNIT-I**

1. Explain different types of patterns, patterns allowances and core boxes with neat sketch. 15
2. How do you explain the advantages and limitations of Foundry technology over other manufacturing processes ? 15

**UNIT-II**

3. Illustrate with neat sketch the working, advantages, disadvantages and application of the following casting processes :
  - (a) Gravity and Pressure die casting. (b) Centrifugal casting. 15
4. (a) What is core sand ? Discuss the essential qualities of a core.  
(b) Explain the function of chaplets. Sketch the various forms of chaplets used in the foundry. 15

**UNIT-III**

5. Sketch a common gating system. Label it and explain the function of its various elements. 15
6. How is the shape factor obtained in the case of NRL method of riser design for cylindrical objects ? 15

## UNIT-IV

7. Illustrate with neat sketch the construction, working and application of Cupola furnace. Also elaborate some of the advanced practices adopted recently in Cupola operation. 15
8. (a) Describe the following casting defects with their causes and remedies :
- (i) Pin holes.
  - (ii) Metal penetration.
  - (iii) Misrun and Cold shuts.
  - (iv) Blow holes. 9
- (b) In a large foundry a scheme of SQC is to be introduced. Explain the various test procedures to be followed. 6

