

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
FOUNDRY TECHNOLOGY
(Metallurgy & Material Technology)**

Time: 3 hours**Max Marks: 80**

**Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Describe the major activities in metal casting industry through a flow-chart. [8+8]
(b) Explain the major Research and development thrust areas of metal casting in India.
2. (a) What are the ingredients of molding sands? Give the typical composition of green molding sand for grey iron foundry practice. [8+8]
(b) Explain the effect of the following additives on the behavior/ properties of sand molds.
3. (a) Explain the importance of $\frac{r}{D}$ ratio in centrifugal casting process. [6+10]
(b) Describe with the help of neat sketches the principle of investment casting process state the specifications of the materials used and compare this with Full mold process.
4. (a) Explain why bottom pouring ladles are used for pouring the heavy castings. [4+6+6]
(b) State clearly the qualifications of ideal gating system.
(c) What are the limitations of NRL method? How would you overcome them.
5. (a) Derive an expression for critical nucleus size during nucleation. [8+8]
(b) Distinguish between progressive solidification and directional solidification.
6. (a) Define efficiency of cupola. How it can be improved. [5+6+5]
(b) Discuss the different methods available for preheating the blast air.
(c) Discuss the factors on which the melting capacity of the cupola depends.
7. What is full mold process. Explain the process fully. What are the advantages disadvantages and applications of the above process. [16]
8. (a) From which source do Blowholes appear to originate most frequently? Explain them. [8+8]
(b) Explain specifically how mold restraint could contribute to hot tears in castings.
