

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

**Time: 3 hours**

**Max Marks: 80**

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

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1. (a) State and Explain the factors that determine the selection of a casting alloy and the casing process to be Employed.  
(b) What are the important sections of a Foundry? Briefly Explain the activities in each of the sections.
2. (a) Explain the importance of coal dust in the foundry sand.  
(b) What is the need of core-print. What considerations are to be looked into the calculation of core-print size.
3. (a) Discuss in detail the principle operation, advantages and limitations of  $CO_2$  process.  
(b) Is it possible to obtain a sound casting of a solid bar by centrifugal casting? Give reasons in support of your answer.  
(c) Explain why most die castings not made out of high strength materials.
4. Distinguish between pressurized and non-pressurized gating system used in foundry shop. Explain with 'suitable examples.
5. (a) Describe the important ways in which natural contraction of a casting on cooling might markedly affect it's design.  
(b) Explain the major differences between an Embryo and Nucleus. Also explain what is the critical radius of a solidifying material.
6. (a) Why steel scrap is added in cupola and to what extent it can be accommodated in the cupola charge.  
(b) Enumerate the advantages of hot blast cupola over conventional cupola unit.
7. (a) Describe in detail about isocyanate process.  
(b) With a neat sketch explain the working principle of continuous casting of aluminium strips.
8. Explain the following casting defects:
  - (a) Metal Penetration
  - (b) Core shift
  - (c) COLD SHUTS
  - (d) Pinhole porosity

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