

**III B.Tech II Semester Supplementary Examinations, Apr/May 2006**  
**FOUNDRY TECHNOLOGY**  
**(Metallurgy & Material Technology)**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

\*\*\*\*\*

1. (a) State and Explain the factors that determine the selection of a casting alloy and the casing process to be Employed. [8+8]  
(b) What are the important sections of a Foundry? Briefly Explain the activities in each of the sections.
2. Explain in detail the properties desired for a good molding sand. [16]
3. Compare precision investment casting and shell molding processes from the stand point of process, product and applications. [16]
4. (a) For ease of molding it is decided to replace a spherical riser of diameter 100 mm I by a cylindrical riser. Determine the size of the cylindrical riser that will have the identical solidification time. (Assume Blind risering).  
{Ratio of Height to Radius of Cylinder is 2 : 1} [6+5+5]  
(b) Compare the modulus method with that of CAINE's method for fixing the riser dimensions.  
(c) What are the methods available to a casting designer to increase the casting yield -Explain them.
5. (a) Derive an expression for critical nucleus size during nucleation. [8+8]  
(b) Distinguish between progressive solidification and directional solidification.
6. (a) What is carbon equivalent? How is it computed? If a cast iron has 3 – 4% carbon and 2% silicon is it hypo or Hyper eutectic cast iron? Why? [7+9]  
(b) Explain the significance of the following factors in the operation of cupola.  
(i) Coke-bed height (ii) Blast pressure (iii) air flow rate.
7. (a) What are the materials used; what are their specifications that are used in full mold process. [8+8]  
(b) What is vacuum molding. Explain the process in detail.
8. What are the various casting defects that form due to incomplete / improper feeding? Explain them with suitable figures and suggest suitable remedial measures. [16]

\*\*\*\*\*