

III B.Tech II Semester Supplementary Examinations, April/May 2005
ADVANCED METAL CASTING

(Common to Mechanical Engineering and Production Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss the construction and operation of water cooled cupola with a neat sectional view. Also discuss the advantages of water cooled cupola over conventional one.
(b) Explain the advantages, disadvantages and limitations of cupola.
2. (a) Explain with a neat sketch the construction, operation and advantages of direct electric arc furnace.
(b) Describe the melting practice for copper base alloy castings.
3. (a) What are the functions of a good gating system?
(b) Differentiate between pressurized and unpressurized gating systems. Draw neat sketches indicating gating ratios.
4. Explain CO_2 process. Discuss the advantages and limitations and applications of the process.
5. With neat sketches explain the working principle of various moulding machines. Mention the merits and demerits of one over the other.
6. Explain the various casting defects mentioning their causes and remedies.
7. With a neat sketch show the various elements of a gating system. What are the precautions to be taken while designing each element, so that pure metal enters the mould cavity without air aspiration.
8. Explain any THREE of the following:
 - (a) Chvorinovs rule for design of size and shape of riser
 - (b) Raw materials used in cupola
 - (c) Plaster moulding
 - (d) Radiographic test of NDT for inspection of castings.
