

Roll No.

23056

**M. Tech. 1st Sem. (Mech. Engg.)
(Manufacturing & Automation)
Examination – December, 2013**

FOUNDRY TECHNOLOGY

Paper : 835/M-609-A

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Discuss the casting defects which may be possible in case of iron casting. Explain the remedial measures you would like to adopt to overcome those defects. 10
- (b) Explain the advantages, disadvantages of foundry technology over other manufacturing processes ? 10
2. (a) Discuss the practice adopted for melting aluminium base alloys with special reference to

- (i) Melting furnaces
 - (ii) Grain refinement
- (b) Compare different types of furnaces generally used in foundry. 10
3. (a) Critically explain the solidification of metals and alloys in casting process and explain why is directional solidification essential in casting? 10
- (b) List out various factors which should be taken into consideration while designing pattern and core. 10
4. (a) Discuss the application of the continuity equation and Bernoulli's equation to the study of metal flow and design of the gating system of a casting. How can aspiration of gases into the gating system be prevented? 10
- (b) Discuss the factors to be considered in designing blind risers. 10
5. (a) What is low pressure die casting? How does it differ from hot chamber pressure die casting? 10
- (b) Shell molding technique is normally not advisable for steel casting, explain. 10
6. (a) State the factors which determine the selection of a casting alloys and the casting process to be employed. 10
- (b) What are the different methods of visual and instrumental inspection of casting? Explain. 10

7. (a) In a large foundry a scheme of SQC is to be introduced. Explain the procedure to be followed. 10
- (b) With proper illustration distinguish among mechanization, automation and modernization with particular reference to foundries. 10
8. Explain the following : 20
- (i) Heat Treatment of casting
 - (ii) Pollution control in foundry
 - (iii) Fettling
 - (iv) Repair and salvage of casting
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