

**FACULTY OF ENGINEERING**

**B.E. 3/4 (Prod.) II – Semester (New) (Main) Examination, April / May 2013**

**Subject : Metal Costing and Welding**

**Time : 3 hours**

**Max. Marks : 75**

**Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.**

**PART – A** (10 x 2.5 = 25 Marks)

1. What are the types of pattern materials commonly used in foundries?
2. What are the advantages and limitations of bottom gates?
3. Briefly explain any five defects their causes and remedies.
4. Sketch the setup for continuous casting.
5. What are the types of flames produced in gas welding?
6. Give principle and applications of electro-slag welding.
7. Differentiate between 'spot' welding and seam welding.
8. What factors are taken care in welding of Al alloys and stainless steels?
9. Explain the principle of varestain test.
10. Enlist applications of "MEMS".

**PART – B** (5 x 10 = 50 Marks)

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|---|---|
| 11.a) What are the types of allowances given to pattern?  | 5 |
| b) With a neat sketch explain the principle and applications of Induction furnace.                    | 5 |
| 12.a) Explain the true centrifugal casting process with aid of neat sketch.<br>Give its applications. | 6 |
| b) Discuss the inspection and testing methods of casting.   | 4 |
| 13.a) Differentiate between soldering and brazing.  | 5 |
| b) Explain with help of neat sketch principle and advantages of GTAW.                                 | 5 |
| 14.a) Discuss the principle of flash butt welding.  | 4 |
| b) Explain the principle, applications, advantages of LBW process.                                    | 6 |
| 15.a) Differentiate between cruciform and ring weldability tests.                                     | 5 |
| b) Explain the principle of blow moulding process. Give any two products made by this process.        | 5 |
| 16.a) Explain the properties of moulding sand.  | 5 |
| b) Explain the shell moulding process with help of neat sketches.                                     | 5 |
| 17. Write short notes on the following :  |   |
| a) SMAW   |   |
| b) Machine moulding techniques  |   |
| c) Cupola furnace   |   |