

**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2010**

ME 04 704 – METAL CASTING AND JOINING

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) What are some of the factors affecting the fluidity of a molten metal during pouring into a mold cavity?
(b) Explain how melting practice is an important aspect of casting operation.
(c) Explain Ceramic mold casting.
(d) What are the advances of pressure casting?
(e) Why is the quality of submerged arc welding is very good?
(f) What is meant by heat affected zone? Explain.
(g) Explain the mechanics of slag - metal interaction.
(h) What is meant by adhesive bonding? Classify Adhesives.
- (8 × 5 = 40 marks)
2. (a) Discuss the phenomena of solute redistribution in cellular solidification.
- Or
- (b) Describe the various types of melting furnaces that are in use in Foundries with neat sketches.
- (15 marks)
3. (a) Describe the step by step procedure of (i) Investment casting ; (ii) Die casting.
- Or
- (b) What are the requirements of an ideal gating system? How gating systems are classified? Also describe runners and risers.
- (15 marks)
4. (a) Describe (i) Shielded metal arc welding ; (ii) Submerged arc welding.
- Or
- (b) What is meant by friction welding? There are two types of friction welding. Describe and distinguish the two types.
- (15 marks)

Turn over

5. (a) Explain:

- (i) The mechanism of gas absorption in welding.
- (ii) Dilution and uniformity of the weld deposit.

Or

(b) Explain how plastics can be joined. Describe the process of joining thermoplastics and thermosets.

(15 marks)

[4 x 15 = 60 marks]

Maximum : 100 Marks

(8 x 5 = 40 marks)

(15 marks)

(15 marks)

(15 marks)

Turn over