



CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

18ME45B/18MEB405

Fourth Semester B.E. Degree Examination, June/July 2023

Metal Casting and Welding

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define manufacturing process. Explain steps involved in casting process. (08 Marks)
- b. What is pattern? Explain various pattern allowances with their importance in manufacturing. (08 Marks)
- c. List various ingredients of moulding sand. Brief about their effect on mould preparation. (04 Marks)

OR

- 2 a. Explain squeeze moulding process with a neat sketch. (08 Marks)
- b. List important sand moulding processes. Explain investment moulding process. (08 Marks)
- c. Define core. List different types of cores and gates. (04 Marks)

Module-2

- 3 a. Classify furnaces. Explain working of coreless induction furnace with a neat sketch. (10 Marks)
- b. With a neat sketch explain construction and working principle of cupola furnace. (10 Marks)

OR

- 4 a. What is a die? Explain gravity die casting process with a sketch. (08 Marks)
- b. Explain continuous casting process with a sketch and name the products manufactured by this process. (08 Marks)
- c. Differentiate between sand moulds and metal moulds. (04 Marks)

Module-3

- 5 a. Define Solidification. List and explain solidification variables. (08 Marks)
- b. What is directional solidification? Explain the methods of achieving directional solidification. (08 Marks)
- c. What is degasification? List the various methods of degassing. (04 Marks)

OR

- 6 a. List various casting defects with their causes, remedies and features. (08 Marks)
- b. Explain the manufacturing of Aluminium alloy casting, using Stir Casting setup. (06 Marks)
- c. Write a note on : (i) Grain Refining (ii) Pouring Temperature (06 Marks)

Module-4

- 7 a. Define Welding. Mention its classification and applications. (06 Marks)
- b. Explain the working principle of Flux Shielded metal arc welding process. (07 Marks)
- c. Explain TIG welding process. (07 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Explain Spot welding process. (07 Marks)
b. Explain Thermit welding process. (07 Marks)
c. Explain Electron Beam Welding process without sketch. (06 Marks)

Module-5

- 9 a. What is HAZ? Explain parameters affecting HAZ. (05 Marks)
b. Write a note on residual stresses developed in welding. (05 Marks)
c. List various welding defects with their causes and remedies. (10 Marks)

OR

- 10 a. Compare soldering and brazing. (04 Marks)
b. Explain Oxy-Acetylene welding process. (06 Marks)
c. Explain magnetic particle inspection method. (10 Marks)

* * * * *