

# CBCS SCHEME

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17ME35A/17MEA305

Third Semester B.E. Degree Examination, Feb./Mar.2022

## 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 the classification of manufacturing process. (10 Marks)  
b. What is pattern? Explain with neat sketch different types of pattern. (10 Marks)

OR

- 2 a. Describe shell moulding process. Give all the details with neat sketch. (10 Marks)  
b. Explain with neat sketch the investment moulding process. (10 Marks)

### Module-2

- 3 a. Explain the construction and working principle of Cupola furnace with a sketch. (10 Marks)  
b. Explain with neat sketch working of a direct arc electric furnace. Mention its advantages. (10 Marks)

OR

- 4 a. With a neat sketch, explain continuous casting process, and its applications. (10 Marks)  
b. Sketch and explain a centrifugal casting process and its uses. (10 Marks)

### Module-3

- 5 a. Define solidification. Explain the methods of achieving directional solidification. (10 Marks)  
b. Write explanatory notes on casting defects, its causes and remedies. (10 Marks)

OR

- 6 a. Explain with a neat sketch, stir casting process. Mention its advantages. (10 Marks)  
b. Write a note on Gas absorption, Grain refinement and pouring temperature in AI castings. (10 Marks)

### Module-4

- 7 a. Define welding, classify it, what are the advantages, limitations and applications of welding. (10 Marks)  
b. Sketch and explain a submerged arc welding set up and its uses. (10 Marks)

OR

- 8 a. Sketch and explain Thermit welding set up with its field of applications. (10 Marks)  
b. With a sketch, explain the Electron beam welding. Mention its applications. (10 Marks)

### Module-5

- 9 a. What is HAZ? Discuss the parameters which affect Heat affected zone. (10 Marks)  
b. Explain the different welding defects, their causes and remedies. (10 Marks)

OR

- 10 a. Discuss the types of flames obtained in oxy acetylene gas welding process giving their applications. (10 Marks)  
b. What is NDT? Explain with a neat sketch holography inspection. (10 Marks)

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