

# Model Question Paper - II (CBCS) with effect from 2015-16

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15ME35A

## Third / Fourth Semester B.E. Degree (CBCS) Examination

### Metal Casting and Welding

Time: 3 hrs.

Max. Marks: 80

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

#### MODULE - I

- a. Define Casting? Briefly explain the steps involved in making a sand casting. (08 Marks)
- b. Explain in detail various allowances given to pattern and reasons to provide the allowances (08 Marks)

**OR**

- a. List the types of moulding sand. Discuss the desirable properties of moulding sand. (08 Marks)
- b. With a neat sketch, describe the shell moulding process. List advantages of the process (08 Marks)

#### MODULE - II

- a. With a neat sketch explain the different zones present in CUPOLA furnace (08 Marks)
- b. With a neat sketch explain the constructional features and working of direct arc electrical furnace. (08 Marks)

**OR**

- a. What is die casting? With a neat and labeled sketch, explain hot chamber die casting process? (08 Marks)
- b. With a neat sketch explain continuous casting process and mention its merits and demerits. (08 Marks)

#### MODULE - III

- a. What is nucleation? Explain types of Nucleation with neat sketches (08 Marks)
- b. Explain the factors to control directional solidification (08 Marks)

**OR**

- a. Explain fettling and various casting defects during casting process. (08 Marks)
- b. With a neat sketch, explain the principle of stir casting process. (08 Marks)

#### MODULE - IV

- a. Sketch and explain MIG welding process. Mention its advantages, disadvantages and limitations (08 Marks)
- b. Explain with a neat sketch Submerged Arc Welding (SAW) process. (08 Marks)

**OR**

- a. With a neat sketch explain Electron beam welding and mention its advantages, disadvantages and limitations. (08 Marks)
- b. Sketch and explain Thermit welding process and mention its advantages, disadvantages and limitations. (08 Marks)

#### MODULE - V

- a. What is Heat Affected Zone (HAZ)? Explain the parameters affecting HAZ. (08 Marks)
- b. Write short notes on: a) Electrodes used in welding b) Welding defects (08 Marks)

**OR**

- a. With a neat sketch, explain the Oxy – acetylene gas welding process (08 Marks)
- b. What are different non destructive testing (NDT) methods and explain with a neat sketch Magnetic particle inspection Method (08 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 e.g. 38+2 = 40, will be treated as malpractice.