



# CBCS SCHEME

21ME32

## Third Semester B.E. Degree Examination, Jan./Feb. 2023 Metal Casting, Forming And Joining Processes

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define pattern and explain with neat sketches any four pattern allowances. (10 Marks)  
b. Explain with a neat sketch sand slinger. (10 Marks)

OR

- 2 a. Explain with a neat sketch investment moulding process. (10 Marks)  
b. Explain in detail the procedure to determine the permeability member of green sand in foundry lab. (10 Marks)

### Module-2

- 3 a. Explain with a neat sketch cupola furnace showing different zones. (10 Marks)  
b. Explain with a neat sketch coreless induction furnace. (10 Marks)

OR

- 4 a. Explain with a neat sketch continuous casting process. (10 Marks)  
b. Explain with a neat sketch any five casting defects. (10 Marks)

### Module-3

- 5 a. Explain the following yield criteria :  
i) Tresca yield criterion ii) Von Mises Yield criterion. (10 Marks)  
b. Explain temperature factor in metal forming and also write the comparison between hot working and cold working process. (10 Marks)

OR

- 6 a. Derive an expression for forging pressure and load by slab analysis. (10 Marks)  
b. Explain the following sheet metal forming processes with neat sketch.  
i) Blanking ii) Piercing iii) Bending. (10 Marks)

### Module-4

- 7 a. Explain with a neat sketch Oxy-Acetylene gas welding process. (10 Marks)  
b. Explain with a neat sketch types of flames produced in Oxy – Acetylene welding process. (10 Marks)

OR

- 8 a. Explain with a neat sketch Manual metal arc welding and also mention advantages disadvantages and applications. (10 Marks)  
b. Explain with a neat sketch Metal Inert Gas (MIG) welding, mention its advantages, disadvantages and applications. (10 Marks)

### Module-5

- 9 a. Explain with neat sketch shrinkage in welded structures. (10 Marks)  
b. Explain with a neat sketch any five welding defects. (10 Marks)

OR

- 10 a. Write short note for the following : i) Soldering ii) Brazing. (10 Marks)  
b. Explain with a neat sketch resistance spot welding process. (10 Marks)

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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.