

CBCS SCHEME

21ME32



Third Semester B.E. Degree Examination, June/July 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. List the different types of pattern. Explain match plate pattern with a neat sketch. (07 Marks)
- b. Briefly discuss the importance of binders and additives in sand moulding. (07 Marks)
- c. With a neat sketch explain Jolt type of Molding machine. (06 Marks)

OR

- 2 a. With a neat sketch explain shell moulding process. (10 Marks)
- b. What is core? Explain the need of core. (04 Marks)
- c. Draw a neat sketch of gating system showing all the elements. (06 Marks)

Module-2

- 3 a. With a neat sketch explain the different zones present in CUPOLA furnace. (12 Marks)
- b. With a neat sketch explain Direct electric arc furnace. (08 Marks)

OR

- 4 a. What is die casting? With a neat sketch explain gravity die casting process. (10 Marks)
- b. With a neat sketch explain continuous casting process. (10 Marks)

Module-3

- 5 a. Differentiate between hot working and cold working process. (04 Marks)
- b. With a sketch explain Gravity (or) board drop hammer. (06 Marks)
- c. Explain with a sketches any four type of rolling mills. (10 Marks)

OR

- 6 a. With respect to sheet metal forming explain :
(i) Blanking process (04 Marks)
(ii) Bending process. (08 Marks)
- b. With a sketches explain progressive die and compound die. (08 Marks)
- c. With a sketch explain explosive high energy rate forming process. (08 Marks)

Module-4

- 7 a. With a neat sketch explain Gas Welding process. Also explain types of flames used in gas welding. (12 Marks)
- b. With a neat sketch explain manual metal arc welding. (08 Marks)

OR

- 8 a. With a sketch explain Gas tungsten arc welding process. (10 Marks)
- b. With a sketch explain Submerged arc welding. (10 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. 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Define Weldability. With respect to the thermal aspects explain the following :
(i) Distortion (i) Shrinkage (iii) Residual stresses. (12 Marks)
b. Briefly explain welding defects and their remedies. (08 Marks)

OR

- 10 a. Explain the following Joining Processes.
i) Soldering
ii) Brazing
iii) Adhesive bonding (12 Marks)
b. Explain with a sketch Resistance arc welding process. Also mention their advantages and limitations. (08 Marks)
