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E35A/15MEA305

**Third Semester B.E. Degree 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-1

- 1 a. Define Manufacturing Process. Briefly explain the classification of Manufacturing Processes. (07 Marks)
- b. Explain different pattern allowances with neat sketches. (09 Marks)

OR

- 2 a. Explain the different properties of Moulding Sand. (06 Marks)
- b. Explain the following processes:
(i) Sweep Moulding
(ii) Sand Slinger (10 Marks)

Module-2

- 3 a. With a neat sketch, explain coreless induction furnace and mention its merits and demerits. (08 Marks)
- b. Sketch and explain construction and operation of Cupola. (08 Marks)

OR

- 4 a. Explain Gravity die casting with neat sketch. (08 Marks)
- b. With neat sketches, explain thixo casting and slush casting. (08 Marks)

Module-3

- 5 a. Explain Mechanism of Solidification. (08 Marks)
- b. Explain the different types of Nucleation. (08 Marks)

OR

- 6 a. Define the term Defect. Explain the different defects in casting. What are the causes and remedies? (08 Marks)
- b. Define the term degasification. With neat sketch explain any two methods of degasification. (08 Marks)

Module-4

- 7 a. With neat sketches explain TIG and MIG welding. (10 Marks)
- b. With neat sketch explain Thermit welding process. Mention its merits and demerits. (06 Marks)

OR

- 8 a. Explain Projection welding process with a neat sketch, list out advantages and disadvantages. (08 Marks)
- b. Explain briefly the following :
(i) Seam Welding (ii) Explosive Welding. (08 Marks)

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Module-5

- 9 a. What is meant by HAZ? Explain the various regions of HAZ in low carbon steel during welding. (08 Marks)
- b. Discuss the various types of welding defects their causes and remedies. (08 Marks)

OR

- 10 a. Differentiate between soldering and Brazing list out merits, demerits and applications of these two processes. (08 Marks)
- b. Explain ultrasonic inspection method to test welded part with advantages and disadvantages. (08 Marks)

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