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15ME35A

Third Semester B.E. Degree Examination, July/August 2022 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. With a neat sketch, explain the steps involved in Casting process. (08 Marks)
b. What are Pattern Allowance? Explain any two Pattern Allowance, with a neat sketch. (08 Marks)

OR

- 2 a. Explain with a neat sketch, Sheet Mould and CO₂ Mould process. (08 Marks)
b. Write down the advantages and limitations of Green Sand Moulds. (08 Marks)

Module-2

- 3 a. Explain with a diagram, the working of Electrical Arc Furnace. (08 Marks)
b. Explain with a neat sketch, the Principle of working of Resistance Furnace. (08 Marks)

OR

- 4 a. Explain Continuous Casting Process, with a neat sketch. (08 Marks)
b. Explain Squeeze Casting process, with a neat diagram. (08 Marks)

Module-3

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

OR

- 6 a. Explain the Sand Casting defects, causes, features and remedies. (08 Marks)
b. Explain with a neat sketch, Working and Principle of Stir Casting techniques adopted for Composites. (08 Marks)

Module-4

- 7 a. What is Welding? Mention the advantages and limitations of Welding process. (08 Marks)
b. Explain with a neat sketch, TIG Welding. Mention its advantages and limitations. (08 Marks)

OR

- 8 a. Explain the Flux Shielding Metal Arc Welding, with a neat sketch. (08 Marks)
b. With a neat sketch, explain the Principle of Spot Welding. (08 Marks)

Module-5

- 9 a. What is meant by Heat Affected Zone (HAZ)? Explain the various regions of HAZ in Low Carbon Steel during Welding. (08 Marks)
b. Discuss the various type of Welding defects, their causes and remedies. (08 Marks)

OR

- 10 a. Explain with a neat sketch, Oxy – Acetylene Welding with application. (08 Marks)
b. Explain Ultrasonic Inspection method to test welded parts and write advantages and disadvantages. (08 Marks)

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