

CBCS SCHEME

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Third Semester B.E. Degree Examination, Aug./Sept.2020

Metal Casting and Welding

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the steps involved in metal casting process, with a neat flow diagram. (08 Marks)
- b. Sketch and explain the elements of a Gating system. (06 Marks)
- c. Write a note on Additives and Binders. (06 Marks)

OR

- 2 a. What are Pattern Allowances? Explain any two. (05 Marks)
- b. Sketch and explain Sand Slinger Machine. (05 Marks)
- c. Explain the Investment moulding, with a neat sketch. (10 Marks)

Module-2

- 3 a. Explain the construction and working principle of Cupola furnace with a neat sketch. (12 Marks)
- b. Sketch and explain the coreless induction furnace. (08 Marks)

OR

- 4 a. With a neat sketch, explain the continuous casting process. Mention the advantages and disadvantages. (10 Marks)
- b. What is Die Casting? With a neat sketch, explain the Hot Chamber Die Casting Process. (10 Marks)

Module-3

- 5 a. Define Solidification. Explain Progressive and Directional Solidification. (10 Marks)
- b. What are Casting defects? Explain the features and remedies. (06 Marks)
- c. Differentiate between Homogeneous and Heterogeneous Nucleation. (04 Marks)

OR

- 6 a. Define de - Gassification. Explain any two methods of de - Gassification. (06 Marks)
- b. Sketch and explain the stir casting set up. Mention the advantages and disadvantages. (08 Marks)
- c. Explain the steps involved in Fettling and cleaning of castings. (06 Marks)

Module-4

- 7 a. What is Welding? Mention the advantages and disadvantages of Welding Process. (06 Marks)
- b. Explain Tungsten inert gas welding process with figure. Mention the advantages. (06 Marks)
- c. Sketch and explain the Thermit Welding Process. Mention the application. (08 Marks)

OR

- 8 a. Explain the principle of seam welding with neat sketch. Mention the advantages. (06 Marks)
- b. With neat sketch, explain the explosive Welding Process. List the applications. (06 Marks)
- c. Sketch and explain the Laser beam welding process. Mention its application. (08 Marks)

1 of 2

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.

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Module-5

- 9 a. Sketch and explain the structure of Weld. (06 Marks)
b. How does Shrinkage and residual stresses affect the Welding Joints? (06 Marks)
c. Explain briefly welding defects and its causes and remedies. (08 Marks)

OR

- 10 a. Distinguish between Soldering , Brazing and Welding. (10 Marks)
b. Explain the following NDT methods of inspection : (10 Marks)
i) Radiographic inspection ii) Ultrasonic inspection.

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