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15ME35A

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Third Semester B.E. Degree Examination, June/July 2019
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] flowchart and 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 the construction and working principle of cupola furnace with a neat sketch. (10 Marks)
b. How the melting furnaces classified? Give the basis and list them. (06 Marks)

OR

- 4 a. Explain with a neat sketch the working of cold chamber die casting. (08 Marks)
b. Explain with a neat sketch the principle of a continuous casting process. (08 Marks)

Module-3

- 5 a. Explain the directional solidification needs and its methods. (08 Marks)
b. Explain degassing in liquid melt technology and sources of degassing. List out the degassing agents used. (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 adapted 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. What are special welding process? How they are classified? What are the advantages and limitations of special welding process? (08 Marks)
b. Explain with a neat sketch the principle process and application of projection welding. (08 Marks)

Important Note

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Module-5

- 9 a. Write short notes on:
- (i) HAZ (Explain heat affected zone with figure) (05 Marks)
 - (ii) What is Residual Stresses in Welding (03 Marks)
- b. Mention the advantages and disadvantages of soldering and brazing. (08 Marks)

OR

- 10 a. Explain the inspection methods with sketches:
- (i) Magnetic particle inspection (08 Marks)
 - (ii) Radiography Technique (08 Marks)
- b. Explain with a sketch of Oxy-Acetylene welding with application. (08 Marks)

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