

CBCS Scheme

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15ME45A

Fourth Semester B.E. Degree Examination, June/July 2017 Metal Casting and Welding

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. List and briefly explain the steps involved in making sand casting. (08 Marks)
b. Explain in detail various allowance given to pattern and reasons to provide the allowance. (08 Marks)

OR

- 2 a. List the types of moulding sand. Briefly explain the properties of moulding sand. (08 Marks)
b. With a neat sketch, explain the working principle of Jolt and Squeeze machine. (08 Marks)

Module-2

- 3 a. With a neat sketch, explain the different zones present in CUPOLA FURNACE. (08 Marks)
b. How do you classify the melting furnace? Draw a neat sketch and explain the working of gas fired pit furnace. (08 Marks)

OR

- 4 a. What is die casting? Draw a neat sketch and explain the Hot chamber die casting process. (08 Marks)
b. With a neat sketch, explain centrifugal casting process. Mention merits and demerits. (08 Marks)

Module-3

- 5 a. What is nucleation? Explain types of nucleation with neat sketches. (08 Marks)
b. What is degasification in liquid metals? Mention the methods explain any one. (08 Marks)

OR

- 6 a. What is Fettling? Mention the steps involved in Fettling. Explain with sketch of any two casting defects. (08 Marks)
b. With a neat sketch, explain the principle of lift-out crucible furnace. (08 Marks)

Module-4

- 7 a. Sketch and explain TIG welding process. Mention its advantages and disadvantages. (08 Marks)
b. Explain with a neat sketch, atomic hydrogen welding. (08 Marks)

OR

- 8 a. With a neat sketch, explain LASER beam welding and mention its advantages, disadvantages and limitations. (08 Marks)
b. Sketch and explain seam welding. Mention advantages, disadvantages and applications. (08 Marks)

Module-5

- 9 a. What is heat affected zone (HAZ)? Explain the parameters affecting HAZ. (08 Marks)
b. Write short notes on: i) Welding defects, ii) Residual stresses. (08 Marks)

OR

- 10 a. With neat sketch, explain Oxy-acetylene welding process. (08 Marks)
b. What are different non-destructive testing (NDT) methods and explain with a neat sketch ultrasonic inspection method. (08 Marks)

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