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15ME35A

Third Semester B.E. Degree Examination, Dec.2017/Jan.2018

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. What is Casting? Briefly discuss steps involved in making of castings. (06 Marks)
 b. What is Pattern? What are the functions of pattern? (04 Marks)
 c. What are the different allowance given to the pattern? Explain briefly. (06 Marks)

OR

- 2 a. What are the ingredients of moulding sand? Explain briefly. (04 Marks)
 b. With a neat sketch, explain Shell moulding process. (06 Marks)
 c. Describe the working operation of squeeze type moulding machine. (06 Marks)

Module-2

- 3 a. What are the zones in cupola? With a neat sketch, explain cupola furnace. (08 Marks)
 b. What is the principle of Electric Arc Furnace? Explain with sketch. (08 Marks)

OR

- 4 a. Differentiate between Gravity and pressure die casting. (04 Marks)
 b. With a neat sketch, explain the working principle of Hot – Chamber die casting method. (06 Marks)
 c. Explain with neat sketch, Centrifugal casting process. (06 Marks)

Module-3

- 5 a. Define Solidification. (02 Marks)
 b. Explain Nucleation process in Solidification of metals. (06 Marks)
 c. What is Degasification in liquid metals? Explain the methods of Degasification, with neat sketches. (08 Marks)

OR

- 6 a. Explain briefly Sand Casting defects. (04 Marks)
 b. What are the advantages and limitations of Aluminum castings? (06 Marks)
 c. Sketch and explain Stir casting setup. (06 Marks)

Module-4

- 7 a. How welding process is classified? (04 Marks)
 b. Explain with sketch, principle of Flux Shielded Metal Arc Welding. (06 Marks)
 c. Explain Submerged Arc Welding. (06 Marks)

OR

- 8 a. Explain principle of Resistance Welding. (04 Marks)
 b. With a neat sketches, explain : i) Spot Welding ii) LASER Welding. (08 Marks)
 c. Explain Thermit Welding. (04 Marks)

Module-5

- 9 a. Explain different zones which are formed during welding process. (08 Marks)
b. What are Welding defects? Explain the methods to detect the welding defects. (08 Marks)

OR

- 10 a. Differentiate between Soldering and Brazing. (04 Marks)
b. Explain with a sketch, Principle of Oxy – Acetylene Welding. (06 Marks)
c. Explain the methods used for Inspection of casting and welding. (06 Marks)
