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Third Semester B.E. Degree Examination, June/July 2013
Manufacturing Process – I

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Explain the basic steps involved in a casting process. (06 Marks)
- b. What are pattern allowances? Explain any two. (05 Marks)
- c. What are additives? List the various additives used in moulding sand. (04 Marks)
- d. Explain with neat sketch sweep pattern. (05 Marks)
- 2 a. Describe the desirable properties of a moulding sand. (06 Marks)
- b. What are the casting defects? Explain any two. (06 Marks)
- c. With neat sketch, explain Jolt-squeeze moulding machine. (08 Marks)
- 3 a. Explain briefly the following with sketches:
i) CO₂ – moulding ii) Shell moulding. (10 Marks)
- b. Explain the following with neat sketch,
i) Centrifuging ii) Squeeze casting. (10 Marks)
- 4 a. Explain the construction and working of direct electric arc furnace. List the advantages. (10 Marks)
- b. Explain with neat sketch working principle of resistance furnace. List the advantages, disadvantages and applications. (10 Marks)

PART – B

- 5 a. Define welding. Give classification of welding process. (06 Marks)
- b. Explain Inert Gas Metal Arc Welding (MIG) and Atomic hydrogen welding process. (08 Marks)
- c. Explain briefly forward and backward welding methods in gas welding. (06 Marks)
- 6 a. Explain the principle of seam welding with neat sketch. (06 Marks)
- b. With neat sketch, explain projection welding process. List the advantages of projection welding. (08 Marks)
- c. With neat sketch, explain explosive welding process. List the applications. (06 Marks)
- 7 a. Discuss the factors affecting weldability of metals. (06 Marks)
- b. Explain the parameters affecting Heat Affected Zone (HAZ) briefly. (06 Marks)
- c. Explain briefly welding defects and its causes. (08 Marks)
- 8 a. Compare soldering and brazing processes. Mention their advantages and disadvantages. (10 Marks)
- b. What is NDT? Explain radiography and Eddy current method of inspection of metals. (10 Marks)