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Third Semester B.E. Degree Examination, Dec.2013/Jan.2014
Manufacturing Process

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Define casting process and explain the various steps involved in making casting. (10 Marks)
- b. What is the need for providing allowances for pattern? Explain any two allowances provided on pattern. (05 Marks)
- c. List the various additives used in moulding sand clearly indicating how it is used to improve the properties. (05 Marks)
- 2 a. List different types of sand moulds and explain any two. (06 Marks)
- b. State the essential ingredients of a green sand. (06 Marks)
- c. Explain the different types of gating systems with neat sketches. (08 Marks)
- 3 a. Sketch and explain the working of a jolt-squeeze machine. (10 Marks)
- b. Explain briefly the principle process, application and limitation on any two of the following with neat sketches: i) Pressure die casting; ii) Centrifugal casting; iii) Shell moulding; iv) Investment moulding. (10 Marks)
- 4 a. What are the advantages and limitations of welding process? (05 Marks)
- b. Briefly explain the oxy-acetylene welding and reactions involved in the welding process. (08 Marks)
- c. Explain with neat sketch any one of the following welding process: i) FSW; ii) TIG. (07 Marks)

PART – B

- 5 a. Differentiate between welding, soldering and brazing. (06 Marks)
- b. List different methods of brazing and explain any two methods with neat sketch. (08 Marks)
- c. Explain any one: i) Magnetic particle; ii) Radiography inspection. (06 Marks)
- 6 a. Define the various tool parts of a single point cutting tool with neat diagram. What are the standard angles of cutting tool? Describe them. (10 Marks)
- b. Using Merchant's circle diagram, derive the equations to find:
 - i) Specific energy of cutting and power consumption, shear and friction.
 - ii) Kinetic coefficient of friction.
 - iii) Normal shear stresses on rake and shear plane. (10 Marks)
- 7 a. Write note on the followings cutting tool materials:
 - i) HSS; ii) Cemented carbides; iii) Ceramics; iv) Diamond tools; v) Abrasives. (10 Marks)
- b. List the various types of cutting fluid and explain any two cutting fluids. (05 Marks)
- c. Why heat generated in cutting metals? What are its effects? How heat can be removed? (05 Marks)
- 8 a. Briefly describe the principle, operation and applications of LBM. (10 Marks)
- b. Explain any one of the following:
 - i) Abrasive jet machining; ii) Water jet machining. (10 Marks)