

--	--	--	--	--	--	--	--	--	--

Third Semester B.E. Degree Examination, Dec.08/Jan.09
Manufacturing Process - I

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions
selecting at least two questions from each part.*

Part A

- 1
 - a. With a simple flow chart, show the different steps involved in casting process (sand moulding). (05 Marks)
 - b. List down the functions of a pattern. (05 Marks)
 - c. What is a binder? How are they classified? Which is the common binder employed for regular castings. (05 Marks)
 - d. Explain the need for an additive in moulding sand. Mention the type of additives used for different requirement, as an example. (05 Marks)
- 2
 - a. With a neat sketch show all the details of green sand mould (cross section), which is ready to receive molten metal. (05 Marks)
 - b. With a neat diagram show how carbon dioxide core is made. Give the reaction involved in bonding. (05 Marks)
 - c. Show the different components of a horizontal gating system for a large plate casting with a neat figure. (05 Marks)
 - d. Draw a neat sketch of a Jolt type molding machine. Show all the details on it, including the pattern and mould box. (05 Marks)
- 3
 - a. Describe investment shell moulding process. Give all the details with neat sketches. What are the advantages of the process? (10 Marks)
 - b. Explain cold chamber die casting process with neat sketches. Include all the details on the sketch. What are the limitations of the process. (10 Marks)
- 4
 - a. How are melting furnaces classified? Give the basis. (05 Marks)
 - b. With a neat sketch, explain the melting operations involved in a Cupola furnace. Show various zones in it. Mention the popular metal/alloy that can be produced in the furnace. (10 Marks)
 - c. What are casting defects? Explain the cause for any two defects. (05 Marks)

Part B

- 5
 - a. Explain clearly the principle of Arc Welding Process. (05 Marks)
 - b. Briefly highlight submerged arc welding process with a neat figure. (07 Marks)
 - c. What is oxy-acetylene welding? Explain the reaction involved. Identify the different zones in the gas flame. (08 Marks)
- 6
 - a. What is the principle of resistance welding? Mention the major application of the process. (05 Marks)
 - b. Differentiate between Butt and Seam welding with neat figures. (05 Marks)
 - c. Describe laser-welding process with a neat figure. List the advantages and limitations of the process. Identify the important application. (10 Marks)
- 7
 - a. Write a short note on electrodes and filler rods. (05 Marks)
 - b. After welding a medium carbon steel, what changes are observed in the microstructure. Explain in detail the different zones formed with a neat and clear figure. What is its influence on the weld properties? (10 Marks)
 - c. Write a note on shrinkage and residual stresses in welds. (05 Marks)
- 8

Write short notes on any four:

 - a. Parameters in soldering.
 - b. Furnace brazing.
 - c. Chemicals and fluxes in brazing and soldering
 - d. Significance of inspection methods (NDT)
 - e. Ultrasonic inspection.
 - f. Eddy current inspection. (20 Marks)

* * * * *