

USN

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

10AE35

Third Semester B.E. Degree Examination, Dec.2015/Jan.2016
Manufacturing Processes

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. With illustrations, explain the terms involved in casting process. (07 Marks)
- b. Define pattern allowances. Write a short note on, shrinkage allowance, draft allowance, distortion allowance. (08 Marks)
- c. Write a short note on BIS colour coding for pattern. (05 Marks)
- 2 a. Define core. Classify types of cores. (04 Marks)
- b. Write a short note on any four casting defects and mention the remedies. (08 Marks)
- c. Define riser. With illustration, explain blind riser. (08 Marks)
- 3 a. With illustrations, explain the operation of Jolt-Squeeze machine used for moulding. (07 Marks)
- b. With illustrations, explain investment moulding process. (07 Marks)
- c. With illustrations, explain squeeze casting process. (06 Marks)
- 4 a. With illustration, explain metal inert gas (MIG) welding process. (09 Marks)
- b. With illustrations, explain types of welding techniques. (05 Marks)
- c. With illustration, explain working principle and operation of oxy-acetylene gas welding process. (06 Marks)

PART – B

- 5 a. Define Brazing and list the types of brazing methods. (05 Marks)
- b. With illustrations, explain the ultrasonic inspection method used to detect welding/casting defects. (09 Marks)
- c. Define soldering, list the types of soldering methods. Mention advantages and disadvantages of soldering. (06 Marks)
- 6 a. With illustrations, write a short note on ISO tool nomenclature. (05 Marks)
- b. A steel bar of 50 mm diameter was turned at 280 rpm and tool life was found to be 10 min. At 230 rpm, the tool life was increased to 50 min. Based on Taylor's tool life equation, estimate the cutting speed to obtain a tool life of 35 mins. (05 Marks)
- c. Define tool life. Write an expression for tool life and plot the same. List and briefly explain factors affecting tool life. (10 Marks)
- 7 a. List the functions and properties of cutting fluids. (06 Marks)
- b. Write a short note on following cutting tool materials: (i) high carbon steel, (ii) diamond. And list the other types of cutting tool materials. (08 Marks)
- c. With illustration, explain temperature distribution in metal cutting. (06 Marks)
- 8 With illustrations, explain principle, operation, advantages and disadvantages of the following:
 - a. Water jet machining (10 Marks)
 - b. Ultrasonic machining (10 Marks)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.