Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

III SEMESTER B.TECH (MECHANICAL ENGG.) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: MANUFACTURING TECHNOLOGY [MME 2105]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A.	Explain how the permeability number of moulding sand is determined with neat sketches?	**4**
1B.	What are the steps involved in Shell Mould casting? Explain with sketches.	**3**
1C.	How is Thermit welding carried out? Explain with a sketch.	**3**
2A.	Explain the following special casting techniques with sketches. i) Continuous casting ii) Investment casting	**4**
2B.	Explain the following plastic processing techniques i) Injection Moulding ii) Thermoforming	**3**
2C.	Explain the principle of Spot Welding. Also, discuss the different stages involved in spot welding with graphical representation.	**3**
3A.	What do you mean by spring back effect in bending of sheet metal? Explain the three methods to overcome it.	**4**
3B.	With a neat sketch explain centreless grinding.	**3**
3C.	Explain the different parts of the twist drill body with the help of a neat sketch.	**3**
4A.	What are the differences between conventional grinding and electrochemical grinding?	**4**
4B.	Explain with a neat sketch the working of electric discharge machining.	**3**
4C.	With a neat sketch explain the working of plasma arc machining.	**3**
5A.	With a neat sketch explain the working of column and knee type milling machine.	**4**

5B. What are the advantages, limitations and applications of ultrasonic machining? **3**

5C. Estimate the actual machining time required for the component (C40 steel) shown in figure below. The available spindle speeds are 70, 110, 176, 280, 440, 700, 1100, 1760 and 2800 rpm. Use a roughing speed of 30 m/min and finish speed of 60 m/min. The feed for roughing is 0.24 mm/rev while that for finishing is 0.10 mm/rev. The maximum depth of cut for roughing is 2 mm. Finish allowance may be taken as 0.75 mm. Blank to be used for machining is 50 mm in diameter. **3**