Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

A Constituent Institute of Manipal University, Manipal

III SEMESTER B.TECH (INDUSTRIAL & PRODUCTION ENGG.)

END SEMESTER EXAMINATIONS, NOV. 2016

SUBJECT: MANUFACTURING PROCESS ENGINEERING [MME 2111]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. Explain with neat sketches two casting methods which are used to produce hollow object without the use of cores. **04**

1B. With a neat sketch explain atomic hydrogen welding process. **04**

1C. List eight differences between hot working and cold working. **02**

2A. The following details related to an orthogonal cutting are given **04**

Chip thickness(mm)	Undeformed chip thickness(mm)	Rake angle
2	1.25	10^0

Calculate chip thickness ratio and shear angle. If the shear stress is 6000kg/cm^2, width of cut=10mm, cutting speed=25m/min and coefficient of friction=0.7 determine shearing force and cutting force.

2B. Sketch and explain jolt squeeze machine. **03**

2C. With a neat sketch explain electroslag welding process. **03**

3A. List and explain four types of sand molding methods. **02**

3B. Derive an expression for shear plane angle using Merchant's circle diagram. **03**

3C. List the steps of the data flow for the basic rapid prototyping process and with sketch explain the stereolithography technique. **05**

4A. With sketches explain the facing and grooving operations in lathe. **04**

4B. Find the time required for drilling 18 mm hole in a work piece having thickness 50 mm. Assume cutting speed 12 m/minute and feed 0.2 mm/revolution. Neglect the length of approach. **02**

4C. Calculate the index crank movement to divide the periphery of the job into 87 **04**

divisions using plate 2 of Brown and Sharp having 21, 23, 27,29,31,33 holes by compound indexing method.

5A. With neat sketches explain the horizontal and vertical cutting operations in a shaper. **04**

5B. With a neat sketch explain the open and cross belt drive mechanism of a double housing planer. **03**

5C. Sketch and explain the centreless grinding machine. **03**