Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

I SEMESTER M.TECH (MANUFACTURING ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: ADVANCED MANUFACTURING TECHNOLOGY [MME 537]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A.	What are the industrial needs for nontraditional machining?	**03**
1B.	Derive an expression for metal removal in Ultra-sonic Machining for brittle material.	**04**
1C.	MRR in AJM is 0.5mm^3/sec. Calculate material removal per impact, if mass flow rate of abrasive is 3gm/min and grit size is 60 microns. The density of the grit is 3g/cc. Find indentation radius	**03**
2A.	Reduce the standard equation for Horn design in USM.	**04**
2B.	Derive an expression for metal removal of an alloy in ECM process.	**04**
2C.	Compare Laser beam cutting and Plasma arc cutting.	**02**
3A.	Explain photo chemical machining in brief.	**02**
3B.	Derive an equation for charging current, charging voltage, charging duration, discharge current, discharge voltage, discharge duration and energy dissipated across the gap in RC-type power generator in EDM	**06**
3C.	Compare ECG with conventional grinding.	**02**
4A.	Briefly explain the principle of AJM	**03**
4B.	Explain advantages, limitations and applications of WJM	**03**
4C.	Prove that for the constant current machining, the gap in the ECM process is self-regulated.	**04**
5A.	With a neat sketch explain honing? How it is different from lapping?	**03**
5B.	Sketch and explain laser beam machining.	**03**
5C.	Sketch and explain electron beam machining. State its applications	**04**

6A.	What are the applications of RP technology? Explain Fused deposition modeling with neat sketch.	**04**
6B.	Sketch and explain plasma arc machining.	**03**
6C.	Explain wire cut EDM	**03**