Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

A Constituent Institute of Manipal University, Manipal

III SEMESTER B.TECH (IP ENGG.) END SEMESTER EXAMINATIONS, NOVEMBER 2017

SUBJECT: MANUFACTURING PROCESS ENGINEERING [MME 2111]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Draw neat sketches using pencil only

1A. With a neat sketch explain sand slinger machine. **03**

1B. With a neat sketch explain shell mold casting process. List its applications. **04**

1C. The following details relates to an orthogonal cutting operation. Undeformed chip thickness 1.15mm, chip thickness 1.75mm, rake angle of tool 10°. Calculate chip thickness ratio and shear plane angle. If the shear stress is 525 N/mm^2, width of cut=10mm, cutting speed=30m/min. and co-efficient of friction=0.5, determine the shearing force and cutting force. **03**

2A. With a neat sketch explain spot welding equipment. List advantages and disadvantages of electric resistance welding. **04**

2B. With a neat sketch, list different forces in orthogonal cutting process. **03**

2C. With neat sketches explain piercing, embossing, curling operations. **03**

3A. With a neat sketch explain the welding process which makes use of wax pattern. List its advantages and disadvantages. **05**

3B. List any two functions of lathe bed and with neat sketch explain in detail about the back gear mechanism in lathe. **05**

4A. Explain the radial drilling machine with neat sketch. **03**

4B. Index periphery of the work piece into 273 divisions. Use standard index plate 3 having 37, 39, 41,43,47,49 holes. **04**

4C. List any four major differences between shaper and planer. **03**

5A. Explain briefly about grinding wheel and expand the code W A 46 K 5 V BE. **02**

5B. With a neat sketch explain the horizontal spindle surface grinding machine with reciprocating table. **04**

5C. With neat sketch explain the fused deposition modeling method of rapid prototyping. **04**