Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

A Constituent Institute of Manipal University, Manipal

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

SUBJECT: TOOL ENGINEERING AND DESIGN [MME 4111]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A.	Design a flat form tool to produce a V groove for inclined angle $2\beta=60^0$ and depth of groove=30mm. Assume diameter of work piece=100mm. Take rake angle=15^0 and clearance angle=10^0.	**4**
1B.	Derive an expression cross section of a single point cutting tools with strength consideration.	**4**
1C.	If in turning of a Titanium alloy by a given cutting tool at a given machining condition under a given environment, the tool life decreases from 80 min to 20 min. due to increase in cutting velocity from 60 m/min to 120 m/min., then at what cutting velocity the life of that tool under the same condition and environment will be 40 min.?	**2**
2A.	Sketch and explain methods of reducing cutting forces in press tools	**4**
2B.	Write a short note on drill bushes with the help of neat sketches.	**4**
2C.	Explain the variables effecting the tool life.	**2**
3A.	With the help of neat sketches explain any two types of locating and clamping systems.	**4**
3B.	Explain Center of pressure and Scrap strip layout	**4**
3C.	Derive an expression for Taylor's tool life equation and modified Taylor's tool life equation	**2**
4A.	Write a short note on Broaching Operation and Forming operation	**4**
4B.	Sketch orthogonal rake system geometry and single point tool geometry.	**4**
4C.	With a sketch explain Burr formation	**2**
5A.	Sketch the fixture for facing cylindrical work pieces in lathe	**4**
5B.	Design a Jig for four equi-spaced through holes	**4**
5C.	What are the factors effecting Drawing operation	**2**