Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VII SEMESTER B.TECH (MECHANICAL ENGINEERING)

END SEMESTER EXAMINATIONS (MAKE-UP), DEC 2015/JAN 2016

SUBJECT: COMPUTER INTEGRATED MANUFACTURING [MME 405]

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. Sketch the basic configuration of machine structure and explain the different types of loads acting on them and state their effect and remedial measures **04**

1B. Explain the principle of working of point to point, straight line and contouring type of NC system **03**

1C. Explain the constituents of DNC in an NC machine shop. **03**

2A. Sketch and explain the working of hydrodynamic and hydrostatic bearings **03**

2B. Briefly explain any two torque transmission elements Used in CNC **03**

2C. Write a part program to obtain the component as shown in the Fig 2C. **04**

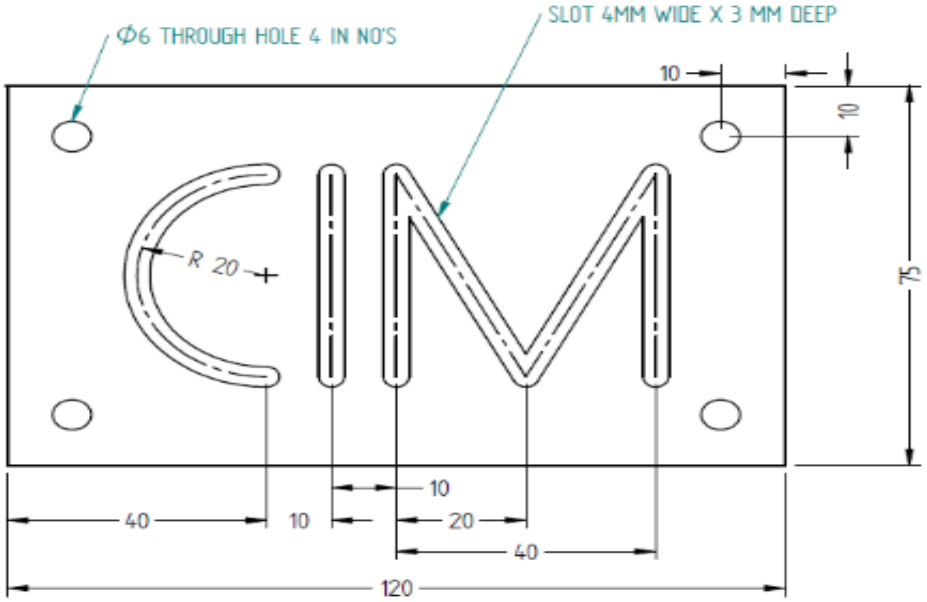

Fig. 2C

3A. Write a part program to perform the square slab milling operation on a workpiece of dimensions 100mm X 100mm X10 mm. The slab's dimension is 64mm X 64mm X 6mm and is located at the center of the workpiece. Use a cutter diameter of 10mm. Take program zero at the left bottom end of the workpiece. **04**

3B. Write a part program to obtain the component as shown in the Fig 3B. **03**

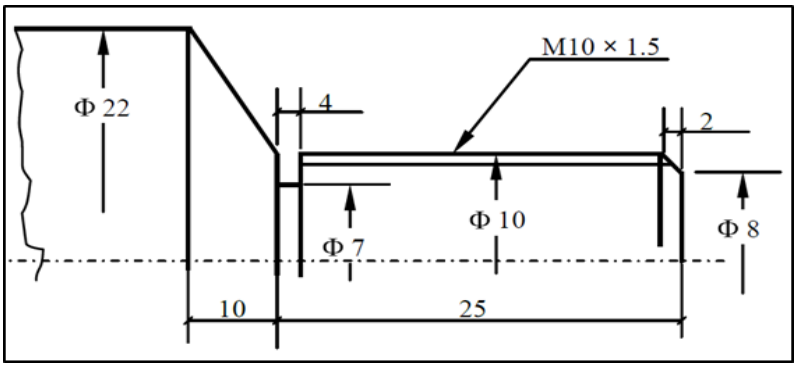

Fig 3B

3C. Write a CNC part program for the workpiece as shown in Fig 3C **03**

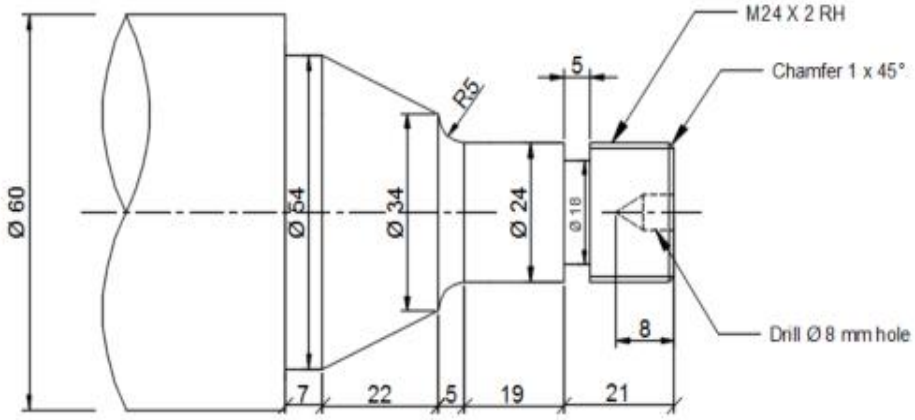

Fig 3C

4A. Draw the sketch of following robot configuration and show clearly all the movements for body-arm assembly. i) Cartesian ii) Cylindrical **03**

4B. Explain inline and robot centered type of layouts used in FMS system with sketch. **03**

4C. Find the homogenous transformation matrix T, which represents a rotation of 40^0 angle about OY axis followed by translation of 15 units along OY axis, followed by translation of 7 units along OZ axis, followed by a rotation of 30^0 angle about OZ axis. **04**

5A.	Explain the principle of working of retrieval type of computer assisted process planning system.	**03**
5B.	Explain any 3 types of automatic data identification methods.	**03**
5C.	Explain the features of MICLASS classification and coding system.	**04**
6A.	Explain basic MRP concepts and list the benefits of MRP.	**04**
6B.	What are the functions of a shop floor control system? Explain.	**03**
6C.	With an example, explain how the composite part concept helps in the work cell design in group technology.	**03**