

Roll No .....

**MMIP - 105****M.E./M.Tech. I Semester**

Examination, December 2015

**Manufacturing Science***Time : Three Hours**Maximum Marks : 70*

**Note :** Attempt any five questions. All questions carry equal marks.  
Draw neat diagrams wherever required.

1. a) Define the term mould. List out any four defects in casting.  
b) State the essential properties of moulding sand.
2. a) Define the term rolling. Compare hot and cold rolling processes.  
b) Classify the types of extrusion. Explain the forward and back extrusion process.
3. a) Compare orthogonal and oblique cutting. State the Taylor's tool life equation.  
b) Define tool life and tool wear. State the factors affecting it.
4. a) What are the objectives and functions of cutting fluids? List the essential characteristics of a cutting fluid.

- b) Under what conditions of production the numerically controlled machine tools are employed? Explain the various elements of NC machine.
5. a) What is the principle of resistance welding? Why laser welding is used only for micro-welding applications?  
b) State the classification of modern machining process. Explain AJM.
6. a) Explain the working principle of Electron Beam Machining (EBM). State its applications.  
b) State the basic design consideration in jigs and fixtures.
7. a) Explain the principles of Die design.  
b) Explain the principle of injection moulding process. Which type of plastic is used for manufacturing electrical switches? Why?
8. Write short note on following: (**Any Two**)
  - a) Standards of measurement
  - b) Geometrical and form errors
  - c) Measurement of surface roughness.

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