

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER 2013****Subject Code: 161504****Date: 03-06-2013****Subject Name: Metal Cutting and Advanced Manufacturing Processes****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Discuss and Construct Merchant's circle diagram, with standard nomenclature. **07**
(b) Discuss NC system. Discuss Open and closed system. **07**
- Q.2** (a) Discuss chip reduction coefficient and the effect of cutting variables on it. **07**
(b) Draw, Discuss and differentiate orthogonal cutting and oblique cutting. **07**
OR
(b) What are Jigs and fixtures used for? Discuss principles of location for jig and fixture design. **07**
- Q.3** (a) What is the concept of economics of metal cutting? Describe. **07**
(b) Discuss working principle, process characteristics, application, and limitations of Electro-chemical machining (ECM) process. **07**
OR
- Q.3** (a) Discuss various tool room functions. **07**
(b) Discuss the effects of cutting fluid on machining. **07**
- Q.4** (a) Discuss machinability and the factors affecting evaluation of machinability of metal. **07**
(b) Describe electro chemical grinding process in detail. **07**
OR
- Q.4** (a) Write note on advanced cutting tool materials. **07**
(b) Compare CNC and DNC system. **07**
- Q.5** (a) Discuss calculation of the work done and power required in metal cutting? **07**
(b) Discuss Electro Magnetic forming process with its working principle, application, advantages and limitations. **07**
OR
- Q.5** (a) Define tool life. Discuss the effects of various tool angles on tool wear and tool life. **07**
(b) Write note on Hydro forming process. **07**
