

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018****Subject Code:2161504****Date:05/05/2018****Subject Name: Metal Cutting & Advanced manufacturing processes****Time:10:30 AM to 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) What do you understand by economics of metal cutting? **03**  
(b) Explain the use of Merchant's circle diagram. **04**  
(c) Discuss calculation of the work done and power required in metal cutting? **07**
- Q.2** (a) What is chip reduction coefficient? **03**  
(b) Discuss the application of Ultrasonic Machining process. **04**  
(c) Describe electro chemical grinding process in detail. **07**
- OR**
- (c) Write note on Hydro forming process. **07**
- Q.3** (a) What is machinability? **03**  
(b) Give the advantages of CAD. **04**  
(c) Write note on advanced cutting tool materials. **07**
- OR**
- Q.3** (a) Discuss tool life. **03**  
(b) Discuss the effects of various tool angles on tool wear and tool life. **04**  
(c) Explain with the help of neat sketch the complete geometry of a single point cutting tool. **07**
- Q.4** (a) When is negative rake cutting employed? **03**  
(b) Discuss various tool room functions. **04**  
(c) Differentiate between orthogonal cutting and oblique cutting. **07**
- OR**
- Q.4** (a) Give name various elements of metal cutting. **03**  
(b) Compare CNC and DNC system. **04**  
(c) Discuss various types of chips formed in metal cutting and conditions under which each type is formed. **07**
- Q.5** (a) Discuss NC system. **03**  
(b) Discuss Open and closed system. **04**  
(c) Discuss Computer Integrated Manufacturing (CIM). **07**
- OR**
- Q.5** (a) What are Jigs and fixtures used for? **03**  
(b) Discuss principles of location for jig and fixture design. **04**  
(c) How are tools classified? State three examples of each. **07**

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