Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem-VI Examination May 2011

Subject code: 161504

Subject Name: Metal Cutting & Advanced Manufacturing Processes

Date:21/05/2011 **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)**	Differentiate between orthogonal cutting and oblique cutting.	**07**
	(b)	Discuss working principle, process characteristics, application, and limitations of Electro-chemical machining (ECM) process.	**07**
Q.2	**(a)**	Explain the construction and use of Merchant's circle diagram.	**07**
	(b)	Write note on Abrasive jet machining process.	**07**
		OR	
	(b)	Explain open loop and closed loop numerical control system.	**07**
Q.3	**(a)**	What is chip reduction coefficient ? What are the effects of cutting variables on the chip reduction coefficient ?	**07**
	(b)	Discuss principles of location for jig and fixture design.	**07**
		OR	
Q.3	**(a)**	What do you understand by economics of metal cutting ? Discuss in detail.	**07**
	(b)	Discuss the effects of cutting fluid on machining.	**07**
Q.4	**(a)**	What is machinability ? State the factors which come in to play while evaluating machinability of any metal.	**07**
	(b)	Describe electron beam machining 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)**	How will you calculate the work done and power required in metal cutting?	**07**
	(b)	Discuss Plasma arc machining 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 high velocity forming process.	**07**

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