Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013

Subject code: 1720810 **Date: 04-01-2014**

Subject Name: Modern Machining Methods

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 conventional and unconventional machining process.	**07**
	(b)	Explain the working principle of Abrasive Jet Machining. Discuss the advantages and disadvantages.	**07**
Q.2	**(a)**	Discuss the factors that influence the quality of the cut in Water jet machining.	**07**
	(b)	Discuss effect of amplitude and frequency of vibration, abrasive grit size and static load on MRR and surface finish in USM.	**07**
		OR	
	(b)	Discuss the role of following in the ultrasonic machining process. (i) Surry (ii) Velocity Horn (iii) Abrasive type and Size	**07**
Q.3	**(a)**	Discuss the mechanics of material removal in EDM	**07**
	(b)	State the working principle of Electrical Discharge machining. Discuss advantages, limitations, and field of applications.	**07**
		OR	
Q.3	**(a)**	What is WEDM process? How it defers from EDM? Enlist its major applications.	**07**
	(b)	List the various power supply circuits which are commonly used in practice in EDM and explain any one with neat sketch.	**07**
Q.4	**(a)**	Differentiate between EDM and ECM.	**07**
	(b)	State the working principle of Electrochemical machining. Discuss advantages, limitations, and field of applications.	**07**
		OR	
Q.4	**(a)**	Give your thoughts on requirements, methods of heating and specific applications of Hot machining.	**07**
Q.4	**(b)**	Discuss the effect of current density, gap voltage, Feed rate and electrolyte properties on accuracy in ECM.	**07**
Q.5	**(a)**	Discuss the factors that influence the quality of the cut in Plasma Arc machining.	**07**
	(b)	Discuss the EBM process with neat sketch. Also state its major applications.	**07**
		OR	
Q.5	**(a)**	Explain laser machining with schematic diagram.	**07**
	(b)	Make a detailed comparison between LASER beam and Electron beam machining processes on the basis of their Process mechanics, Capabilities, Specific applications and limitations	**07**

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