Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-II Remedial Examination December 2010

Subject code: 720810

Subject Name: Modern Machining Methods

Date: 23 /12 /2010 **Time: 02.30 pm – 05.00 pm**

Total Marks: 60

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.	**06**
	(b)	State the working principle of abrasive jet machining. Discuss advantages, limitations, and field of applications.	**06**
Q.2	**(a)**	Explain with neat sketch ultrasonic machining Process.	**06**
	(b)	Derive the expression for MRR in ultrasonic machining	**06**
		OR	
	(b)	Discuss the various process parameters which affect the MRR in USM.	**06**
Q.3	**(a)**	Explain with neat sketch Electrical discharge wire cutting machining.	**06**
	(b)	Explain with neat sketch Water jet machining process.	**06**
		OR	
Q.3	**(a)**	State the working principle of Electrical Discharge machining. Discuss advantages, limitations, and field of applications.	**06**
	(b)	List the various process parameters of EDM. Discuss how these parameters affect the MRR in EDM.	**06**
Q.4	**(a)**	State the working principle of Electrochemical machining. Discuss advantages, limitations, and field of applications.	**06**
	(b)	List the various power supply circuits which are commonly used in practice in EDM and explain any one with neat sketch.	**06**
		OR	
Q.4	**(a)**	Derive the expression for material removal rate in ECM.	**06**
	(b)	Calculate the metal removal rate (cm^3/min) in an anodic dissolution process of chromium if the current density available has been 250 amp /cm^3. Assume: (1) Atomic weight of chromium= 52 gm, (2) Valancy of chromium at which dissolute = 2 and (3) Density of chromium = 7.2 gm/cm^3.	**06**
Q.5	**(a)**	Explain the Laser machining with schematic diagram and discuss the major applications of laser.	**06**
	(b)	What are the main parameters involved in EBM? Discuss their effect on EBM process.	**06**
		OR	
Q.5	**(a)**	Explain different plasma torches used in plasma arc machining along with their capabilities.	**06**
	(b)	Give comparison between LBM and EBM processes.	**06**

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