Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: 1720808 **Date: 02/01/2013**

Subject Name: Manufacturing Processes and Analysis

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)**	Explain the slab method for analysis of metal forming process and derive its equation.	**07**
	(b)	Explain centrifugal casting and give its advantage, disadvantage and Limitation over other type of casting.	**07**
Q.2	**(a)**	Write down principles of welded joint design. What are the variables affecting the strength of a welded joint?	**07**
	(b)	Explain the Slip-line field theory for analysis of metal forming processes.	**07**
		OR	
	(b)	Describe the hydrostatic pressure and workability of forming.	**07**
Q.3	**(a)**	Write short note Investment Moulding.	**07**
	(b)	Explain and analyze flask-less moulding process.	**07**
		OR	
Q.3	**(a)**	Describe heat transfer in continuous casting process.	**07**
	(b)	Explain micro-machining with neat sketch.	**07**
Q.4	**(a)**	Write methods of improving fatigue life of welded structures and explain any one method.	**07**
	(b)	Define residual stresses in welding. Describe types of residual stresses in welding. How residual stresses in welding can be controlled?	**07**
		OR	
Q.4	**(a)**	What is hot machining? Explain it's working principle. Write application of hot machining.	**07**
	(b)	In an EDM operation employing relaxation circuit, discuss the effects of (i) supply voltage and break down voltage (ii) charging resistance (iii) Capacitance on the metal removal rate.	**07**
Q.5	**(a)**	Describe the effects of various parameters in ultra sonic machining.	**07**
	(b)	What is Standoff Distance (SOD) in AJM? Explain with neat sketch how it affects MRR and accuracy.	**07**
		OR	
Q.5	**(a)**	With a neat sketch explain about Three Dimensional Printing.	**07**
	(b)	Define Rapid prototyping with basic process step.	**07**

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