Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Sem. – IInd - Examination – June/July- 2011

Subject code: 1720808

Subject Name: Manufacturing Processes & Analysis

Date:29/06/2011 **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)**	Give complete analysis of any one forming process.	**08**
	(b)	Describe the yield criteria's of metals.	**06**
Q.2	**(a)**	Define flow curve and prove that $\sigma = R\,\varepsilon^n$	**07**
	(b)	Write short note on Die block design.	**07**
		OR	
	(b)	Write short note on Punch design.	**07**
Q.3	**(a)**	What are the Metallurgical advantages of metal casting? Explain.	**06**
	(b)	Explain Centrifugal casting process with neat sketch.	**08**
		OR	
Q.3	**(a)**	Describe heat transfer in continuous casting process.	**06**
	(b)	Explain Functional design of casting with example.	**08**
Q.4	**(a)**	Design a fillet weld for a connection between a hollow rectangular section and a plate as shown in figure 01. Take maximum allowable stress as 160N/mm^2.	**08**

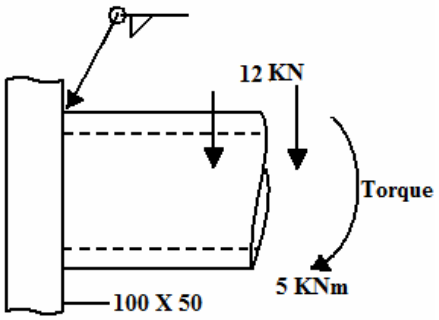

Figure 01

	(b)	Explain the causes of the development of residual stresses.	**06**
		OR	
Q.4	**(a)**	List the practical ways of controlling distortion. Describe any two.	**06**
	(b)	What is Stand off Distance (SOD) in AJM? Explain with neat sketch how it affects MRR and accuracy.	**08**
Q.5	**(a)**	What is LASER? How it is used to machine the materials? Give thermal features of LBM.	**06**
	(b)	Describe the RP technology called Three Dimensional Printing.	**08**
		OR	
Q.5	**(a)**	Explain micro-machining with neat sketch.	**06**
	(b)	Write the basic principles of RP. What are the three types of starting materials in RP?	**08**

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