Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E –IIst SEMESTER–EXAMINATION – JULY- 2012

Subject code: 1722801 **Date: 06/07/2012**

Subject Name: Mechanics of Metal Forming

Time: 10:30 am – 13:00 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 basic principle of metal forming	**07**
	(b)	What is work hardening & how does it affect the mechanical properties	**07**
Q.2	**(a)**	Explain the slab analysis for sheet drawing.	**07**
	(b)	Explain slip line theory.	**07**
		OR	
	(b)	Explain the importance of upper bound & lower bound theory in forging.	**07**
Q.3	**(a)**	Explain the importance of CAD/CAM application in extrusion, forging.	**07**
	(b)	How does Mohr's circle help in analysis of metal forming?	**07**
		OR	
Q.3	**(a)**	Explain bending theory with various stresses.	**07**
	(b)	What do you mean by plastic instability in tension test?	**07**
Q.4	**(a)**	Explain stress strain relationship in plastic deformation.	**07**
	(b)	Differentiate between local & bulk deformation.	**07**
		OR	
Q.4	**(a)**	What is super plasticity & Strain rate?	**07**
Q.4	**(b)**	Explain the effect of strain rate in metal forming.	**07**
Q.5	**(a)**	What is Hill's anisotropic plasticity theory?	**07**
	(b)	What is Baushinger effect?	**07**
		OR	
Q.5	**(a)**	Explain localized necking in biaxial stretching.	**07**
	(b)	Explain various extrusion processes	**07**

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