Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1722801 **Date: 16-06-2014**

Subject Name: Mechanics of Metal Forming

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full mark.**

Q.1	**(a)**	Discuss the fundamental condition for stress strain relations in plastic deformation.	**07**
	(b)	Explain importance of metal forming in manufacturing.	**07**
Q.2	**(a)**	What is work hardening? How does it affect the mechanical properties?	**07**
	(b)	Discuss bulge test. Explain its importance.	**07**
		OR	
	(b)	Discuss about Baushinger effect.	**07**
Q.3	**(a)**	Discuss the role of CAD/CAM applications in sheet metal forming.	**07**
	(b)	Explain super plasticity and strain rate.	**07**
		OR	
Q.3	**(a)**	Explain the importance of upper bound and lower bound theory in forging.	**07**
	(b)	What do you mean by plastic instability in tension test?	**07**
Q.4	**(a)**	Discuss about von-mises yield condition.	**07**
	(b)	Define Plane Strain. Show the relationship between Ŭand ϐ slip lines.	**07**
		OR	
Q.4	**(a)**	Discuss about localized necking in biaxial stretching.	**07**
	(b)	Explain the slab analysis for sheet drawing.	**07**
Q.5	**(a)**	Discuss about bending in sheet metal process with various stresses in bending.	**07**
	(b)	Compare engineering strain and true strain.	**07**
		OR	
Q.5	**(a)**	What is the importance of Mohrôs circle in analysis of metal forming?	**07**
	(b)	Discuss various extrusion processes with applications.	**07**

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