GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017			
Subject Code: 2171913Date: 29/04/2017Subject Name: Metal Forming Analysis(Department Elective - I)			
Instr	uctio	as:	
	1.	Attempt all questions.	
	2. 3.	Figures to the right indicate full marks.	
Q.1	(a) (b)	Define the following terms: (i) Hot forming, (ii) Cold Forming, (iii) Yield Strength, (iv) Flow Stress, (v) Strain Rate, (vi) Principal Stress, (vii) Plasticity. Give short note on Two Dimensional Mohr's circle method for stress analysis	07 07
	(U)	Give short hote on Two-Dimensional wom's circle method for stress analysis.	07
Q.2	(a)	Derive the relationship between Yield strength in Shear and Yield strength in Tension according to Tresca's hypothesis of yielding.	07
	(b)	What is work hardening? How does it affect the mechanical properties? OR	07
	(b)	Derive the relationship between Yield strength in Shear and Yield strength in Tension according to Von Mises' hypothesis of yielding.	07
Q.3	(a) (b)	Explain Isotropic and Kinematic work hardening with neat sketches. Explain about importance of Upper bound and Lower bound theorem in metal forming.	07 07
		OR	
Q.3	(a) (b)	Give short note on Forging process with its classification. Explain metal flow during forging of a circular disc.	07 07
Q.4	(a) (b)	Explain Extrusion and Wire Drawing processes in brief. Explain about Rolling process in brief with its detail classification. OR	07 07
Q.4	(a) (b)	Explain analysis of compression of circular disc with slab method. Give list of methods used for calculation of extrusion load and explain any one of them in brief with neat sketch.	07 07
Q.5	(a)	Give list of different sheet metal forming processes and explain Blanking operation with neat sketch.	07
	(b)	Give short note on friction and lubrication in forming processes. OR	07
Q.5	(a) (b)	Explain methods of changing Roll Camber with neat sketches. Explain about Compound and Progressive dies operation.	07 07
