

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2171913

Date:19/01/2021

Subject Name:Metal Forming Analysis

Time:10:30 AM TO 12:30 PM

Total Marks: 56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Draw flow curves for 1) rigid- ideal plastic 2) rigid plastic 3) elastic plastic.	03
	(b) Differentiate between cold forming, hot forming and warm forming.	04
	(c) Derive the relationship between Yield strength in Shear and Yield strength in Tension according to Von Mises' hypothesis of yielding.	07
Q.2	(a) Draw different types of rolling mills used in rolling process.	03
	(b) Explain spring back effect in bending process.	04
	(c) Draw and explain typical stress-strain diagram for ductile material.	07
Q.3	(a) Explain compound and progressive dies.	03
	(b) Discuss Anisotropy and its effects in deep drawing.	04
	(c) Discuss stresses developed in deep drawing process with neat sketch.	07
Q.4	(a) Differentiate blanking and punching operation with sketch.	03
	(b) Discuss direct and indirect extrusion with neat sketch.	04
	(c) Discuss stress and strain in bending.	07
Q.5	(a) What is upset forging?	03
	(b) Discuss various rolling defects.	04
	(c) Derive the formula for Rolling Load using Slab Method with usual notations.	07
Q.6	(a) Define (i) dry drawing (ii) wet drawing (iii) tube drawing.	03
	(b) Discuss effect of friction in forming process.	04
	(c) Analysis of compression of circular disc with slab method	07
Q.7	(a) Discuss Forging defects.	03
	(b) Discuss effect of temperature on yield strength.	04
	(c) Explain various operations performed on sheet-metal press machine.	07
Q.8	(a) Define angle of bite and discuss its effect in rolling process.	03
	(b) Briefly explain Forming limit curve with a neat sketch.	04
	(c) With neat sketch explain the steps of close die forging process.	07
