

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3171921****Date:15/12/2021****Subject Name: Metal forming analysis****Time:10:30 AM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Define (1) Yield strength (2) Strain Rate (3) Plasticity.	03
(b) How do you represent strain hardening effect?	04
(c) Explain two dimensional stresses with Mohr Circle Diagram.	07
Q.2 (a) What is upset forging?	03
(b) Differentiate open die forging and closed die forging.	04
(c) Analysis of compression of circular disc with slab method.	07
OR	
(c) Explain VonMises & Tresca theory of yielding.	07
Q.3 (a) Discuss on materials used for making wire drawing dies.	03
(b) What are the benefits of hydrostatics extrusion process?	04
(c) Explain Extrusion and Wire Drawing processes in brief.	07
OR	
Q.3 (a) Why lubricants use in extrusion process?	03
(b) Discuss direct and indirect extrusion with neat sketch.	04
(c) Give list of methods used for calculation of extrusion load and explain any one of them in brief with neat sketch.	07
Q.4 (a) Define angle of bite and discuss its effect in rolling process.	03
(b) Discuss various rolling defects.	04
(c) Explain about Rolling process in brief with its detail classification.	07
OR	
Q.4 (a) Why friction measurement is necessary in forming process?	03
(b) Briefly explain Forming limit curve with a neat sketch.	04
(c) Derive the formula for Rolling Load using Slab Method with usual notations.	07
Q.5 (a) What do you understand by shear on punch and die?	03
(b) State difference between compound and progressive dies.	04
(c) What is Drawability? List and Discuss factor Affecting to Drawability.	07
OR	
Q.5 (a) Define (1) Notching (2) Nibbling (3) Slitting, for pres work.	03
(b) Explain spring back effect in bending process.	04
(c) Discuss stresses developed in deep drawing process with neat sketch.	07
