

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2162508****Date: 06/12/2019****Subject Name: Metal Forming Technology****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

		MARKS
<b>Q.1</b>	(a) Explain 1.bloom 2.Billet 3.Slab	<b>03</b>
	(b) Explain Recrystallisation Temperature and how it is related to Hot & Cold working process.	<b>04</b>
	(c) Explain the classification Metal forming process and Define what is Hot and Cold working.	<b>07</b>
<b>Q.2</b>	(a) Name different types of operations involved in forging.	<b>03</b>
	(b) What Is The Necessity Of Surface Treatment Process In Sheet Metal Components? Name some heat treatment methods which are suitable for sheet metal components.	<b>04</b>
	(c) Explain closed die forging process with neat sketch and state its advantages.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(c) Explain hydrostatic extrusion and Impact extrusion with neat sketches.	<b>07</b>
	(a) Name different types of Forging allowances.	<b>03</b>
	(b) What Is K-factor In Sheet Metal Fabrication?	<b>04</b>
	(c) Explain the Geometry of Rolling process with neat diagram.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Write a short note on <b>Metal Spinning process</b> .	<b>03</b>
	(b) Explain different types of Metal flow in extrusion when square dies are used.	<b>04</b>
	(c) How the force required for Extrusion is calculated? What are factors effecting extrusion force? What are the disadvantages of hot extrusion?	<b>07</b>
<b>Q.4</b>	(a) Write a short note on stretch forming.	<b>03</b>
	(b) What is Drawability, Limit Drawing ratio and what are the factors affecting Drawability?	<b>04</b>
	(c) Explain Explosive forming technique and mention how to calculate the peak pressure developed because of shock wave.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain Drawing Ratio and Reduction	<b>03</b>
	(b) Write a short on tube drawing process with neat sketch	<b>04</b>
	(c) Explain Deep Drawing Process with neat sketch and mention the formula to calculate the max punch force required for operation.	<b>07</b>
<b>Q.5</b>	(a) Explain extrusion Ratio.	<b>03</b>
	(b) What is Spring back and explain how the force required for bending is calculated.	<b>04</b>
	(c) Explain Electromagnetic forming with necessary diagrams and state its advantages and applications.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) What is press Brake forming	<b>03</b>
	(b) Explain the following defects 1. Wrinkling 2. Orange peel 3. Stretcher grains 4.Earring.	<b>04</b>
	(c) Explain Electro hydraulic forming with necessary diagrams and state its advantages and applications	<b>07</b>

\*\*\*\*\*