

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2021****Subject Code:2172204****Date:07/08/2021****Subject Name:Mineral Processing****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.

		MARKS
<b>Q.1</b>	(a) Define:	<b>03</b>
	i. Gangue	
	ii. Mineral	
	iii. Reduction ratio	
	(b) Compare crushing and grinding.	<b>04</b>
	(c) Explain the advantages of mineral processing to mining industry.	<b>07</b>
<b>Q.2</b>	(a) Define:	<b>03</b>
	i. Communitation	
	ii. Liberation	
	(b) Explain the principle steps of mineral processing.	<b>04</b>
	(c) Define laws of communitation. Explain the importance of these laws and derive.	<b>07</b>
<b>OR</b>		
	(c) Explain jaw crusher.	<b>07</b>
<b>Q.3</b>	(a) Explain 'open circuit' and 'closed circuit' grinding?	<b>03</b>
	(b) Explain sieve analysis.	<b>04</b>
	(c) Describe froth floatation process for the concentration of minerals. Give names of any two ores which can be concentrated using this process.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Classify industrial screens.	<b>03</b>
	(b) Name the reagents used as:	<b>04</b>
	i. Collectors	
	ii. Frothers	
	iii. Stabilizers	
	(c) Explain the Ball mill. Show various zones created in ball mill during grinding.	<b>07</b>
<b>Q.4</b>	(a) Classify classifiers.	<b>03</b>
	(b) Explain gravity classifier.	<b>04</b>
	(c) Explain Heavy Media Separation with neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain magnetic separator.	<b>03</b>
	(b) Explain froth floatation method.	<b>04</b>
	(c) Draw and explain flow sheet for lead and zinc.	<b>07</b>
<b>Q.5</b>	(a) Explain thickening.	<b>03</b>
	(b) Explain electrostatic separator.	<b>04</b>
	(c) Explain the drying and dewatering process for coal.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Write a note on sample preparation.	<b>03</b>
	(b) Explain types of sampling methods used in mining.	<b>04</b>
	(c) Draw and explain flow sheet for bituminous coal.	<b>07</b>

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