

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

### M.SC. INDUSTRIAL BIOTECHNOLOGY SEMESTER - 1 WINTER 2022 EXAMINATION

**Subject Code:1310102**

**Date: 12 Jan 2023**

**Subject Name:Industrial Microbiology**

**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. Draw neat and clean diagrams as required.

<b>Q.1</b>		<b>Write a note on following</b>	<b>(Marks-10X2=20)</b>
	1.	Preservation by Lyophilization	
	2.	Secondary Metabolites	
	3.	Exponential growth phase	
	4.	Extremophiles	
	5.	Bacterial Spores	
	6.	Role of Sparger in fermenter	
	7.	Process control and monitoring	
	8.	List various natural substrates of solid-state fermentation	
	9.	Actinomycetes	
	10.	Give any 2 examples of Motile bacteria	
<b>Q.2</b>		<b>Answer the following (Any 2 out of 3)</b>	<b>(Marks-2X10=20)</b>
	1.	Explain the basic design of a fermentor. What are the different types of fermentors used?	
	2.	Describe Solid State Fermentation in detail with its merits and demerits	
	3.	Describe various techniques for strain improvement .	
<b>Q.3</b>		<b>Answer the following (Any 6 out of 8)</b>	<b>(Marks-6X5=30)</b>
	1.	Write a note on Enrichment Media with examples	
	2.	Write on Differential staining methods in Microbiology with exaples	
	3.	Write various techniques for the preservation of Microorganisms	
	4.	Morphological classification of bacteria	
	5.	Give the difference between open and closed Gel Microdroplets	
	6.	Short note on enzyme immobilization	
	7.	Write various Commercial uses of enzymes	
	8.	Write a short note on Continues fermentation	

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