[This question paper contains 2 printed pages.]

Sr. No. of Question Paper: 6535 D Your Roll No......

Unique Paper Code : 253505

Name of the Course : B.Sc. (Honours) Microbiology, Part III

Name of the Paper : Industrial Microbiology (MIHT 510)

Semester : V

Duration: 3 Hours Maximum Marks: 75

## **Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.

- 2. Attempt any five questions.
- 3. All questions carry equal marks.
- 4. Attempt all the parts of the same question together.
- 1. Differentiate between the following (any 5):-
  - (a) Solid State and Submerged Fermentation
  - (b) Continuous and Fed-Batch Fermentation
  - (c) Seed Fermenter and Production Fermenter
  - (d) Complex Fermentation Media and Synthetic Fermentation Media
  - (e) Corn Steep Liquor and Sulfite Waste Liquor
  - (f) Fixed Bed and Fluidized Bed Reactor (3×5=15)
- 2. (a) How can you measure and control foaming during fermentation? (4)
  - (b) Describe the various methods used to disrupt microbial cells. (6)
  - (c) Draw a well labeled diagram of Continuously Stirred Tank Reactor (CSTR). (5)

3.	(a)	Write short notes on the following:—	
		(i) Spargers	
		(ii) Molasses	
		(iii) Primary Screening (4×	3=12)
	(b)	Name the microbial producers and give the uses of the different ty proteases.	rpes of (3)
4.	(a)	Give the industrial producing organism and write about the ferment process involved in the production of the following:—	
		(i) Riboflavin	
		(ii) Ethanol (6×	2=12)
	(b)	Outline the contributions of Louis Pasteur in the field of indimicrobiology.	ustrial (2)
	(c)	Define Aspect Ratio.	(1)
5.	(a)	Discuss the different methods of enzyme immobilization.	(5)
	(b)	Why are hops used in beer manufacture?	(2)
	(c)	Describe various methods for strain improvement.	(5)
	(d)	What are baffles and their utility?	(2)
	(e)	Who coined the term 'Antibiotic'?	(1)
6.	(a)	What is the role of penicillin acylase in the pharmaceutical industry	? (3)
	(b)	How is glutamic acid accumulated in the fermentation medium by will strains?	ld type (3)
	(c)	Describe the industrial production of Bt Toxin.	(5)
	(d)	What is Lyophilization and its importance?	(2)
	(e)	Give the importance and utility of an Airlift Fermenter.	(2)