

Your Roll No.....

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School of Pharmaceutical Education and Research
M. Pharm. I Semester Examination (2023-24)

Subject: **Bioprocess Engineering and Technology**

Maximum Marks: **75**

Paper Code: **MPB103T**

Date: **13-03-24**

Time: **Three hours**

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

Note: This paper has two Sections; A and B.

Attempt all the two sections.

Section A: Answer all the questions.

Section B: Answer any 4 out of 6 questions

Abbreviations Used:

CO- Course Outcome, PO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2- Understand; BT level 3- Apply; BT level 4- Analyze; BT level 5- Evaluate; BT level 6- Create.

SECTION-A

Answer the following in brief (Attempt all questions)

5x3= 15 Marks

Q. No 1	Question	BTL	CO	PO
(a)	What is solid state fermentation? how it differs from submerged fermentation process?	2	3	3
(b)	How dissolved oxygen effects the bioprocess?	4	2	3
(c)	Write about the working of a sampling system in a fermenter.	5	3	3
(d)	What is immobilization of cells, how it affects the bioprocess?	1	3	2
(e)	Write about continues mode of fermentation process.	3	3	3

SECTION B

Long type Questions (Attempt any 4 out of 6)

4x15= 60 Marks

	Question	BTL	CO	PO
Q. No 2	Write about different method to screen industrial important microbial cells	2	3	3
Q. No 3	Write about design and working of airlift bioreactors.	2	3	3
Q. No 4	How agitation & Aeration process in a fermenter achieved? Write about their significance in bioprocess.	3	3	3
Q. No 5	Write about fermentation process for Vitamin B12 and Citric acid.	3	3	3
Q. No 6	Describe how intracellular nonpolar molecule is down streamed after the bioprocess, explain with suitable example.	5	3	2
Q. No 7	Write about different type of fermentation media, and how the media components are optimized.	4	3	3