647510 **MSC4ft1E0112** **Seat No :_____**

M.Sc. (Micro) Semester - 4 (*CBCS*) Examination
April/May-2022 (OLD COURSE)
FERMENTATION TECHNOLOGY -2(ELECTIVE-1)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que-1 **Answer the following (Any seven out of Ten, each of 02 marks)** **[14]**

1. What are precursors?
2. What is a starter culture?
3. What is molasses?
4. Why are enzymes immobilized?
5. What is crystallization in fermentation?
6. How is alcohol extracted from fermentation?
7. What is product recovery in fermentation?
8. What are antifoam agents? Give its uses.
9. What is a carbon source example?
10. What is synthetic media?

Que-2 **Answer the following (Any two out of three, each of 07 marks)** **[14]**

a. Write a note on downstream processes in fermentation industries
b. How do you separate bacterial cells from a fermented broth? Describe
c. Write a note on various ways for microbial cell disintegration

Que-3 **Answer the following**

a. Write a note on various crude carbon sources useful in fermentation industries. **[05]**
b. Write a note on fermentative production of ethanol **[05]**
c. Describe any two techniques for enzyme immobilization **[04]**

OR

Que-3 **Answer the following (Both are compulsory, each of 07 marks)** **[14]**

a. Write a note on techniques for cell immobilization.
b. Write a detailed note on biomass production from Whey.

Que-4 **Answer the following** **(14)**

Answer any two out of three questions (Each of 05 marks)

1. Describe the process of fermentative production of Vitamin B12
2. How the fermentation process produces penicillin? Describe.
3. Write a note on microbial production of Citric acid

Answer any one out of two questions (Each of 04 marks)

1. Write a note on microbial production of lactic acid
2. Briefly discuss industrial applications of free enzymes

Que-5 **Answer the following (Any two out of four, each of 07 marks)** **[14]**

a. Write a note on the sources of various enzymes.
b. Write a note on microbial production of proteases
c. Describe microbial production of xanthan
d. Write a note on microbial production of amylases

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