



CBCS SCHEME

18BT71

Seventh Semester B.E. Degree Examination, June/July 2024 Bioprocess Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define Fermentation and explain submerged and solid state fermentation processes. (10 Marks)
b. Discuss in detail about microbial growth kinetics in fermentation. (10 Marks)

OR

- 2 a. Give an account on principal components of fermentor (10 Marks)
b. Write about the strategies to optimize fermentation process. (10 Marks)

Module-2

- 3 a. Elaborate on methods of preservation of microbial cultures. (10 Marks)
b. What are secondary metabolites and discuss about optimizing product yield. (10 Marks)

OR

- 4 a. Discuss about industrial applications of secondary metabolites. (10 Marks)
b. Write about steps involved in the production of antibiotics. (10 Marks)

Module-3

- 5 a. Discuss on economics of downstream processing and its cost cutting strategies. (10 Marks)
b. Give an account on cell disruption methods for recovering intracellular product. (10 Marks)

OR

- 6 a. Define centrifugal and explain different methods of centrifugation. (10 Marks)
b. Write a note on different approaches on filtration methods. (10 Marks)

Module-4

- 7 a. Discuss about design and theory of membrane based separations. (10 Marks)
b. What is reverse osmosis and explain working theory of it. (10 Marks)

OR

- 8 a. Give an account on solute polarization and cake formation in membrane. (10 Marks)
b. Discuss the consequences and control techniques in Ultra filtration. (10 Marks)

Module-5

- 9 a. Elaborate on principle and protocol of twin layer chromatography. (10 Marks)
b. Discuss working theory of Affinity chromatography. (10 Marks)

OR

- 10 a. Write about working principle and instrumentation of Gas chromatography. (10 Marks)
b. Give an account on instrumentation and working theory of HPLC. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.