

P. P. SAVANI UNIVERSITY

Third Semester of M.Sc. Examination

December-2021

SSMB8010–Bioprocess Technology II

06.12.2021, Monday

Time: 09:00 p.m. to 011:30 p.m.

Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Make suitable assumptions and draw neat figures wherever required.
3. Use of scientific calculator is allowed.

Section-I

Q.1 Very Short Questions (Attempt any five) [10]

- 1.1 Define Fermentation and Bioprocess Technology
- 1.2 What is Fed Batch?
- 1.3 Name any two types of Bioreactors.
- 1.4 Define Solid state and submerged Fermentation.
- 1.5 What is Batch and Continuous Culture?
- 1.6 Name 4 parts of Fermenters.

Q.2 Write Short Notes (Attempt any two) [06]

- 2.1 Bubble Column Reactor
- 2.2 Airlift Reactor
- 2.3 Fluidized Bioreactors

Q.3 Detail questions (Attempt any two) [14]

- 3.1 Explain Solid State and Submerged Fermentation in detail with its application.
- 3.2 Explain all phases of batch culture and derive equations for all the phases
- 3.3 Derive equations for continuous culture and prove that specific growth rate is controlled by dilution rate.

Section-II

Q.1 Very Short Questions (Attempt any five) [10]

- 1.1 How tetracycline inhibits bacterial growth?
- 1.2 Name two uses of lactic acid.
- 1.3 Name two application of citric acid.
- 1.4 What is ABE fermentation?
- 1.5 Name the ingredients or raw material required for brewing.
- 1.6 Name two applications of Vitamin A.

Q.2 Write Short Notes (Attempt any two) [06]

- 2.1 Name aromatic antibiotics; explain its mechanism of inhibiting bacteria.
- 2.2 What are advantage and disadvantages of Single cell protein?
- 2.3 What are the causes and symptoms of vit. B₁₂ deficiency?

Q.3 Detail questions (Attempt any two) [14]

- 3.1 Explain industrial production of enzymes.
- 3.2 What is single cell protein and how to obtain it?
- 3.3 Write a detailed note on organic acid production.

