



K22U 2325

Reg. No. :

Name :

**V Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/
Improvement) Examination, November 2022
(2019 Admission Onwards)
Core Course in Microbiology
5B07 MCB : MICROBIAL BIOTECHNOLOGY**

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions in **one** or **two** sentences. **Each** question carries **1** mark.

1. Fed batch fermentation.
2. Types of biosensors.
3. Chemostat.
4. Sparger.
5. Antifoam agents.
6. Filter cake.

(6×1=6)

SECTION – B

Write briefly on **any six** of the following. **Each** question carries **2** marks.

7. What are the chemical methods used for obtaining intracellular products ?
8. What are the difference between batch and continuous fermentation ?
9. Name the microorganism used for the production of glutamic acid.
10. Notes on types of immobilization.
11. Write the parts and functions of a biosensor.
12. Brief notes on production of bread industrially.
13. Notes on Vitamin B₁₂.
14. Write notes on bioinsecticide production.

(6×2=12)

P.T.O.



SECTION – C

Write short essay on **any four** of the following. **Each** question carries **3** marks.

15. Discuss the types of fermenters with suitable diagram.
16. Brief notes on chromatography techniques used downstream process.
17. What are the control and monitoring techniques required in a fermenter ?
18. Write the harvest and recovery process for acetone – butanol production.
19. Discuss the production of beer industrially.
20. Illustrate the strain selection and inoculum preparation for production of penicillin.

(4×3=12)

SECTION – D

Write essays on **any two** of the following. **Each** question carries **5** marks.

21. Describe the screening techniques used for selection of industrially important microorganisms.
 22. What are the different filters and centrifuges used in downstream processing ?
 23. Write about the industrial production process of citric acid and vinegar.
 24. Describe the industrial production of enzymes: protease and amylase. (2×5=10)
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