



K24U 2755

Reg. No. :

Name :

V Semester B.Sc. Degree (C.B.C.S.S. – O.B.E.-Regular/Supplementary/
Improvement) Examination, November 2024

(2019 to 2022 Admissions)

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. (6×1=6)

1. Define solid-state fermentation.
2. What is the purpose of a biosensor ?
3. Name the microorganism used in the production of citric acid.
4. What is the function of an impeller in a fermenter ?
5. Define downstream processing.
6. Which bacteria is used for the Industrial production of Vitamin B12 (cobalamin) ?

SECTION – B

Write briefly on **any six** of the following. **Each** question carries **2** marks. (6×2=12)

7. Differentiate between primary and secondary screening techniques.
8. Explain the importance of pH control in fermentation processes.
9. Describe two methods used for strain improvement of industrially important microorganisms.
10. What are the advantages of immobilized enzymes ?

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11. List four components of a typical fermenter.
12. Briefly explain the role of Bacillus thuringiensis as a bio-insecticide.
13. What is the significance of dissolved oxygen in fermentation ?
14. Describe two applications of chromatography in downstream processing.

SECTION – C

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

(4×3=12)

15. Explain the process of inoculum development for industrial fermentation.
16. Discuss the importance of sterilization in fermentation technology.
17. Describe the industrial production process of beer.
18. Explain the principle and applications of enzyme immobilization.
19. Outline the steps involved in the production of Penicillin G.
20. Discuss the advantages and challenges of submerged fermentation.

SECTION – D

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

(2×5=10)

21. Describe in detail the design and components of a typical fermenter, explaining the function of each part with a suitable diagram.
 22. Explain the industrial production process of glutamic acid, including the microorganism used, fermentation conditions and recovery methods.
 23. Discuss the various techniques used in downstream processing for the recovery and purification of fermentation products.
 24. Describe the production process of industrial alcohol, including the microorganisms involved, fermentation conditions and purification methods.
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