

Name of the Paper: **Industrial and Environmental Microbiology (DSE-3)**

Name of the Course: **Botany (Hons.)**, Semester: **VI**

Sample Question Bank (OBE): **Unit 1,3,4,5**

These questions are for practice purpose so that students get acquainted with OBE pattern. They are made as per the syllabus and only for the revision purpose for student of B.Sc. (Hons.), Botany, 6<sup>th</sup> semester of Shivaji College.

1. What do you understand by ideal production media? What should be its important characteristics and composition?
2. How the microbe is screened for new products for its intended use in Industrial production?
3. Compare primary and secondary screening. How secondary screening is industrially important?
4. Discuss the principle and working of autoclave and laminar air flow. Why they are so important in microbiological studies?
5. Why it is important to study industrial microbiology?
6. What is the scope of Environmental microbiology?
7. Discuss the application of fermentation in food industries giving suitable examples.
8. Discuss the application of fermentation in pharmaceutical industries giving suitable examples.
9. Define fermentation. What are the general requirements of industrial fermentation process?
10. What is the difference between upstream and downstream processing? What are the major stages in product recovery?
11. Discuss the recovery process of **any one** in detail:  
i) Ethanol ii) Amylase/Lipase iii) Penicillin iv) Citric acid/glutamic acid
12. Define enzyme immobilization. What are the different methods to immobilize an enzyme?
13. What are the advantages of enzyme immobilization? Discuss its applications in an industry with special focus on glucose isomerase and Penicillin acylase.
14. Compare Physical and Chemical immobilization of enzymes. Compare Adsorption and Encapsulation of enzyme.
15. Discuss the role of centrifugation in downstream processing.
16. Discuss the role of cell disruption in downstream processing.
17. What is the need of ultrafiltration in downstream processing? Discuss.
18. Discuss any two methods for isolation of microbes from air, soil and water.
19. Discuss about **any one** method and its significance in microbiology:  
Casein hydrolysis, Starch hydrolysis, Cellulose hydrolysis
20. Discuss the following techniques used in microbiology:
  - a. Serial dilution methods
  - b. Plating techniques (pour plate, settle plate, streak plate etc.)
  - c. Multiple tube fermentation method