

(Pages : 3)

N – 1596 A

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2022
Career Related First Degree Programme Under CBCSS
Group 2(a) – Botany and Biotechnology
BB 1671 : INDUSTRIAL BIOTECHNOLOGY
(2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. What are antifoam agents?
2. Define probiotics.
3. What is the function of baffles?
4. Name the largest biotechnology company in India.
5. What is filtration?
6. Define industrial biotechnology.
7. What is alcoholic fermentation?
8. Define bioprocess.
9. What is a selective medium?
10. Write any two agricultural waste used in fermentation.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any eight** questions. **Each** question carries **2** marks. (Answer not to exceed one paragraph)

11. What is enzyme immobilization?
12. Explain downstream processing in fermentation.
13. What is continuous fermentation?
14. Comment on any two biotechnology industries in India.
15. What is shelf life period?
16. Mention two industrial applications of fermentation.
17. What is chemostatic culture?
18. Which microorganisms are used for the production of vitamin B₁₂?
19. What is a starter culture?
20. Comment on diffusion bioreactor.
21. Name the microorganisms used for the production of glutamic acid.
22. Differentiate between a bioreactor and a fermentor.
23. Discuss the factors that may alter scale up during fermentation.
24. What is fed batch culture?
25. What is product recovery in fermentation?
26. Mention the use of airlift bioreactors.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. **Each** question carries **4** marks. (Answer not to exceed **120** words)

27. Brief a note on scope and applications of industrial biotechnology.
28. Write the steps in beer production.
29. Describe microbial production of butanol.

30. Discuss different types of bioreactors.
31. What are the features of batch fermentation?
32. Comment on solid state fermentation
33. What are the applications of cell immobilisation?
34. Explain media sterilization methods used in bioprocess.
35. What are the steps in upstream processing?
36. List any four products of fermentation.
37. Differentiate between primary and secondary screening of microorganisms
38. How is a chemostat used to culture bacteria?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks. (Answer not to exceed **three** pages)

39. Describe the production of single cell proteins.
40. Explain industrial production of enzymes.
41. What is fermentation media? What are the characteristics of an ideal production media?
42. Discuss various methods for separation of fermented products in downstream processing.
43. What are bioreactors? Explain the design and parts of a bioreactor.
44. Explain the microbial production of Penicillin.

(2 × 15 = 30 Marks)