E 2992 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, APRIL 2022

Fifth Semester

Core Course 17—INDUSTRIAL BIOTECHNOLOGY

(For B.Sc. Biotechnology)

(2013 to 2016 Admissions)

Time : Three Hours Maximum Marks : 80

Part A

Answer **all** *questions.*

Each question carries 1 *mark.*

1. Name an enzyme which hydrolyze starch.
2. What is down stream processing?
3. What is fauling?
4. Write about importance of sparger in a bioreactor.
5. Expand HPLC.
6. What is a secondary metabolite?
7. Name a bacteria used for citric acid synthesis.
8. What is a chemostat?
9. What is distillation?
10. What is a sparger?

(10 × 1 = 10)

Part B

Answer any **eight** *of the following.*

Each question carries 2 *marks.*

11. What is enrichment culture?
12. Give a short note on Micronutrients.
13. Explain Pasteur effect.
14. Write about two substrate for alcohol production.

Turn over

15. Give an account on amino acid production by fermentation.
16. Write about use of antifoam agents in bioreactors.
17. Explain pure culture and mixed culture.
18. Write a short note on industrial application of enzymes.
19. Explain bacterial growth curve.
20. Write about advantages of bioprocess over chemical processing.
21. Explain importance of filtration in down stream processing.
22. Write a note on industrial production of citric acid.

(8 × 2 = 16)

Part C

Answer any **six** *of the following.*
Each question carries 4 *marks.*

23. Explain factors effect fermentation process.
24. Describe industrial production of amylase enzyme.
25. Explain with example how addition of precursors and inducers helps in enhanced production.
26. Explain how organic acids can be produced through fermentation citing an example.
27. Write about industrial importance of Protease.
28. Write an account on primary and secondary screening of microbes.
29. Write about immobilization of microbes for fermentation.
30. Explain batch and fed batch culture systems.
31. Give an account of chromatographic techniques used for separation and identification of microbial products.

(6 × 4 = 24)

Part D

Answer any **two** *of the following.*
Each question carries 15 *marks.*

32. Explain methods for strain improvement of industrially important microbes.
33. Explain how media can be optimized for enhanced metabolite production.
34. What is fermentation? Explain different types and applications of fermentation.
35. Illustrate and explain parts and functioning of bioreactor.

(2 × 15 = 30)