

QP CODE: 25047380



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2025

Third Semester

M Sc PLANT BIOTECHNOLOGY

Core Course - BS010304 - BIOPROCESS TECHNOLOGY AND ENGINEERING

2019 ADMISSION ONWARDS

5728315F

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Five major group of fermentation process.
2. Quality checking of preserved cultures.
3. Sequential feedback inhibition.
4. Richards rapid method for the design of sterilization cycles.
5. Draw a flow diagram of continuous injector flash cooler sterilizer.
6. What is the relation between the value of 'k' and the nature of filter material?
7. How the quantity of inoculum is important for a fermentation process?
8. What are the major service provisions required for a fermentation plant?
9. Importance of measuring the power consumption of a fermenter.
10. Give an account on mechanical antifoam devices.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Explain the importance of the stationary phase of microbial growth in the fermentation process with examples?
12. Give an account on industrial application of fed-batch culture with examples.
13. Discuss the advantages and disadvantages of hydrocarbon and its derivatives as substrates for fermentation.
14. General principles for development of seed culture.





15. Hazard assessment system of a fermenter and its use in containment regulation.
16. Containment regulation and its importance in fermentation.
17. Explain the aspect of redox potential in fermentation.
18. With the help of a flow chart explain feed forward control and cascade control.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain the stoichiometry of growth and product formation in fermentation.
20. What are antifoaming agents and what are the criteria for their selection? What are the consequences faced by foaming in fermentation?
21. What are the criteria for the development of inocula for fermentation? Explain the inoculum development of bacteria, fungi and yeast with examples.
22. Explain in detail about the important downstream processing methods used in the fermentation process.

(2×5=10 weightage)

