QP Code: U25C032

Reg. No : ....
Name : ....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (FYUGP) DEGREE EXAMINATIONS, OCTOBER 2025
B. Sc Biotechnology
BTY3MN201 : FOOD AND FERMENTATION TECHNOLOGY
2024 Admission Onwards
(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks.* ***(Ceiling: 24 Marks)***

1. Explain fermentation. Name the microbes responsible for alcoholic and lactic acid fermentation.
2. Critically examine how lactic acid bacteria contribute to both preservation and sensory attributes of fermented foods.
3. What are precursors? Name the precursors used in Penicillin G, cyclosporin A and vitamin B12.
4. What is liquid medium method of secondary screening?
5. Compare batch and fed batch fermentations.
6. Descibe SCP. Discuss the factors affecting biomass production.
7. Classify aerobic and anaerobic fermentation with examples.
8. Discuss the role of ultrasonic waves treatment in fermentation.
9. Analyze the importance of various minerals in media formulation.
10. Interpret the importance of impellers in a bioreactor. Illustrate axial and radial impellers with a diagram.

Section B

*Answer **all**. Each question carries **6** Marks.* ***(Ceiling: 36 Marks)***

11. Examine the stages of incoculum development.
12. Analyze the importance of handling of cultures and equipments while transferring the inoculum to the fermenter.
13. Analyse the product separation and recovery methods for penicillin production.
14. Present the inoculum development of *Pencilium chrysogenum* culture for penicilin production.

Turn Over

15. Bioreactors are classified by their aeration and mixing capabilities. Evaluate Solid State Fermentation models based on mixing.

16. Express the benefits while using biomass from previous fermentation as inoculum.

17. Discuss the proper maintenance of impeller and baffles in agitation system.

18. Examine and write the upstream fermentation processing of submerged fermentation.

Section C

Answer ***any one****. Each question carries* ***10*** *Marks.* ***(1x10=10marks)***

19. Illustrate various parts of a typical fermenter and their roles.

20. Evaluate the use of photobioreactors and membrane bioreactors in waste water treatment.

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