

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.

SIXTH SEMESTER – APRIL 2010

PB 6606 - FERMENTATION TECHNOLOGY

Date & Time: 20/04/2010 / 9:00 - 12:00

Dept. No.

Max. : 100 Marks

PART –A(20 marks)

I. Choose the correct answer

(5x1=5)

1. Chemical salt precipitation of enzyme is done using
a. Calcium sulphate b. Sodium sulphate c. Selenium sulphate d. None
2. The substance used as antifoam agent is
a. Lard oil b. Glycerol c. Glycol d. Butanol
3. The fermenters are not made of
a. Glass b. Stainless steel c. Copper d. Plastic
4. The organisms of industrial importance are preserved by
a. Lyophilisation b. Hydration c. Ozonation d. moist heat
5. The organism used in production of protease enzyme
a. *Corynebacterium glutamicum* b. *Staphylococcus aureus*
c. *Bacillus subtilis* d. *Pseudomonas aeruginosa*

II. State whether the following statements are True or False

(5x1=5)

6. *Propionobacterium shermani* is used in cheese production.
7. Filter sterilisation is done to sterilise heat sensitive media.
8. Spargers transfer air to the media in the fermenter.
9. Biosensors play an important role in fermentation.
10. Crystallisation of fermented product helps storing the product for long period.

III. Complete the following

(5x1=5)

11. _____ is the organism produced on large scale as SCP.
12. Corn steep liquor is used as _____ source in fermentation media.
13. _____ are parts of fermenter which help mixing of media.
14. The function of DO probe is to estimate _____ in media.
15. _____ is used as solvent in precipitation of fermented products.

(P.T.O)

IV. Answer the following each within 50 words

(5x1=5)

Write short notes on:

- 16. Transformation process in fermentation.**
- 17. Fed batch kinetics.**
- 18. Steam traps in fermenter.**
- 19. Containment.**
- 20. Membrane filters.**

PART – B

Answer the following, each within 500 words. Draw diagrams/flow charts wherever necessary.

(5 x 7 = 35 marks)

21. a) Write in detail the range of fermentation process.

(OR)

b) What is Microbial biomass production?

22. a) Explain the types of sterilization used in fermentation.

(OR)

b) Discuss the types of preservation of industrially important organism.

23. a) Describe the types of fermenters.

(OR)

b) Write a note on aerators and agitators.

24. a) Describe the computerized control system of fermenters.

(OR)

b) Elaborate on the use of biosensors in fermentation.

25. a) Explain the use of chromatography in fermentation.

(OR)

b) Discuss in detail effluent treatment of fermentation industry waste.

PART – C

Answer any THREE of the following, each within 1200 words, draw diagrams/flow charts wherever necessary.

(3 x 15 = 45 marks)

- 26. Write in detail the down stream processing of charged fermented products.**
- 27. Describe the measurement of different variables in fermentation.**
- 28. Discuss in detail the different parts of fermenter and its function.**
- 29. Elaborate on isolation and strain improvement of industrially important organism.**
- 30. Fermentation is an necessary process for our day to day life- Justify.**

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