



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – NOVEMBER 2015

BT 3825 - BIOPROCESS & PHARMACEUTICAL TECHNOLOGY

Date : 11/11/2015
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

(20 Marks)

I. Choose the correct answer

(5 x 1 = 5)

1. A continuous bioreactor in which only the flow rate is used to control the rate of cell or product productivity is called
a) chemostat b) turbidostat c) level state d) hemostat
2. Yield coefficient represents
a) biomass or product produced b) conversion efficiency of a substrate into product c) conversion rate of a substrate into product d) production time of product
3. Natural citric acid is produced by
a) fruits b) yeasts c) molds d) bacteria
4. Rituximab is used in the treatment of
a) Cancer b) Haemophilia c) Thyroid d) Diabetes
5. Alteplase is used to
a) dissolve blood clots b) increase insulin production
c) control blood pressure d) treat cystic fibrosis

II. State whether the following are true or false, if false, give reason

(5 x 1 = 5)

6. Itaconic acid fermentation is carried out at pH 2.2.
7. Aeration and agitation leads to foam formation
8. Bioanalytical assays are necessary to determine and quantify the protein drug in biological fluids.
9. Peptide mapping is done for identification of proteins.
10. Addition of Polyethylene Glycol to therapeutic proteins increases the stability in the body.

III. Complete the following

(5 x 1 = 5)

11. Primary metabolites are produced during _____.
12. Citric acid is recovered by adding _____.
13. L – glutamic acid is produced by _____ through direct fermentation.
14. Give the name of the medical compound designed to work after the body has activated it _____.
15. The suitable assay for antibiotics is _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5)

16. List the substrates that can be used as a carbon source in fermentation media.
17. Differentiate probiotics from prebiotics.
18. How is fermented milk products classified.
19. What is indigenous fermentation?
20. What are coumarins used for?

PART B

Answer the following, each within 500 words.

(5 x 8 = 40 marks)

Draw diagrams wherever necessary

21. (a) Give a brief account of the different types of agitators in fermentor.

OR

b) Write briefly on the different methods of cell disruption in downstream processing.

22. (a) Discuss strain improvement based on mutation and Recombinant DNA technology.

OR

(b) Write a brief account on the primary and secondary screening of industrially Important microbes.

23. (a) Classify Alcoholic beverages and briefly describe the production of Beer.

OR

(b) Write short notes on liquid – liquid extraction, liquid – solid extraction.

24. (a) Write short notes on Fumaric acid and itaconic acid production

OR

(b) Give a brief account of the various methods of delivering drug to target tissue.

25. (a) Give a brief account of the clinical development of the first therapeutic antibody.

OR

(b) Discuss the activity of tissue Plasminogen activator. Add a note on its production.

PART – C

Answer any TWO of the following, each within 1500 words.

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Write in detail on the different types of fermenter.

27. Explain in detail the production of SCP. Add a note on its advantages and disadvantages.

28. What are the different types of cheese? Explain in detail the production of cheese.

29. Explain the role of FDA and ICMR in clinical trials.
