



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – APRIL 2016

BT 3825 - BIOPROCESS & PHARMACEUTICAL BIOTECHNOLOGY

Date: 25-04-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A (20 Marks)

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- Alteplase is used to
 - dissolve blood clots
 - increase insulin production
 - control blood pressure
 - treat cystic fibrosis
- Which of the following is not a physical method for disruption of cells
 - milling
 - homogenisation
 - ultrasonication
 - enzymatic digestion
- Heterofermentative lactic acid bacteria includes species of
 - Streptococcus*
 - Leuconostoc*
 - Pediococcus*
 - All the above
- Muromonab – CD 3 is used for
 - reversal of kidney transplant rejections
 - anaemia
 - prevention of blood clotting
 - diabetes mellitus
- In wine production, malo lactic fermentation is carried out by
 - acetic acid bacteria
 - propionic acid bacteria
 - lactic acid bacteria
 - yeasts

II. State whether the following are true or false, if false, give reason (5x1=5 Marks)

- Aeration and agitation leads to foam formation
- Bioanalytical assays are necessary to determine and quantify the protein drug in biological fluids.
- The edible seaweed *Porphyra* belongs to red algae.
- In SCP production the advantage of using bacteria is that they have faster growth rate than molds.
- Amino acids can be produced by direct fermentation from carbon source.

III. Complete the following

(5 x 1 = 5 Marks)

- Citric acid is recovered by adding _____.
- L – glutamic acid is produced by _____ through direct fermentation.
- Itaconic acid is produced by _____.
- During beer production, the conversion of barley starch to sugar is called _____.
- Phenolic acids are potent _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5 Marks)

16. What are the rules to be followed while doing scale up studies?
17. How ionizing radiations cause mutation?
18. What is indigenous fermentation?
19. What are coumarins used for?
20. What is an informed consent?

PART B

Answer the following, each within 500 words. Draw diagram wherever necessary

(5 x 8 = 40 marks)

21. (a) What is a fermenter? Give the basic structure of a fermenter.

OR

- b) Give a detailed account of cell separation techniques.

22. (a) Discuss the different types of biotech pharmaceuticals

OR

- (b) Give the structural details and application of fluidized bed reactor and tower fermenter.

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

OR

- (b) Write short notes on liquid – liquid extraction and 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. Draw diagrams wherever necessary.

(2 x 20 = 40 Marks)

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. Explain in detail the protocol and different phases of a clinical trial.

29. Explain bioanalytical method validation and its pharmaceutical application.
