1604N182

Candidate's Seat No :_____

M.Sc Semester-2 Examination

407

Biotechnology

April-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q.1. What is the significance of the medium formulation process? Discuss various nitrogen sources used for large-scale fermentation processes. **14**

OR

Q.1. (A) Discuss the isolation of mutant strains that do not recognize the presence of inhibitors and repressors. **07**

(B) Discuss the optimization of a medium by Plackett-Burman design in detail. **07**

Q.2. Describe the design of a batch fermenter with three multi-bladed impellers with a neat labelled diagram. **14**

OR

Q.2. (A) Explain the monitoring and control of dissolved oxygen in fermenters. **07**

(B) Give a detailed account of various types of airlift fermenters. **07**

Q.3. Explain filtration theory and describe various filters used for media sterilization at industrial-scale fermentation processes. **14**

OR

Q.3. (A) Describe the inoculum development program for any bacterial inocula and the criteria for transferring inoculum. **07**

(B) Discuss the fundamental aspects of scale-up in detail. **07**

Q.4. Discuss the objectives of fermentation economics, factors affecting the economy, and recovery costs. **14**

OR

Q.4. (A) Discuss methods of cell disruption in detail. **07**

(B) Explain the methods used to concentrate fermentative products with examples. **07**

Q.5. Write 1-2 line answers to **any seven** of the following **14**

a. What is corn-steep liquor?

b. What is the yield coefficient?

c. What are the major advantages of lyophilization?

P.T.O

d. What is Rotameter?

e. What is the main difference between in-line and off-line sensors?

f. What are thermistors?

g. What is scale-down?

h. What are pseudoplastic fluids?

i. Explain - Millard reaction.

j. Define the term 'whole broth processing'.

k. What is the role of Lysostaphin in the downstream process?

l. Define - liquid-liquid extraction.

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