0105N097

Candidate's Seat No :_____

MSc Sem.-2 Examination

407

Biotechnology

May-2025

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

Q.1. Write the importance of the medium formulation process and discuss various carbon sources used for large-scale fermentation processes. **14**

OR

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

(B) Explain use of Plackett-Burman design for medium optimisation. **07**

Q.2. Write a elabrotive note on 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 temperature in fermenters. **07**

(B) Describe various types of non-impellered fermenters. **07**

Q.3. Explain use of steam for media sterilisation at industrial-scale fermentation processes. **14**

OR

Q.3. (A) Write the inoculum development program for any one fungal inocula and the criteria for transferring inoculum. **07**

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

Q.4. Describe methods of cell separation and product recovery from fermentation broth. **14**

OR

Q.4. (A) Compare mechanical and non-mechanical methods of cell disruption. **07**

(B) Discuss 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 molasses?

b. Define - yield coefficient.

c. Enlsit advantages of lyophilisation.

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d. Define - enrichment liquid culture.

e. Give difference between in-line and off-line sensors.

f. What are thermistors?

g. What is scale-down?

h. What are non-Newtonian fluids?

i. What is Millard reaction?

j. Define chromatography technique and enlist its types.

k. Define the terminology 'whole broth processing'

l. What is the full form of CBER, and what is its significance?

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