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B. M. S. College of Engineering, Bengaluru - 560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Biotechnology **Duration: 3 hrs.**
Course Code: 19BT5DCBPT **Max Marks: 100**
Course: Bioprocess Technology **Date: 12.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1.	a)	Discuss the different strain improvement methods available to genetically improve the productivity of the microbial strain.	**08**
	b)	Discuss the several methods that have been employed in primary and secondary screening of industrially important microorganisms.	**04**
	c)	Define the term fermentation? With a suitable example give a brief description of the five ranges of fermentation processes.	**08**

UNIT – II

2.	a)	Media formulation is an essential stage in the design of successful laboratory experiments, pilot plant development and manufacturing process. Discuss the statement.	**10**
	b)	Discuss in detail about the basic functional requirements of fermentation process with a neat diagram.	**10**

OR

3.	a)	Describe briefly the design of a fermenter. What factors do you consider as essential for a successful design and operation of fermentation?	**10**
	b)	Discuss the design of batch and continuous sterilization processes.	**10**

UNIT - III

4.	a)	Deliberate the process design criteria for the production and recovery of factor VIII.	**10**
	b)	With a suitable example, explain the cell disruption methods for intracellular products.	**10**

OR

5.	a)	Explain the criteria to be considered in the selection of bio-separation techniques.	**06**
	b)	Give the classification of major products of bioprocess based on their characteristics.	**06**

	c)	With a Schematic representation, discuss the principle and working of rotary drum filter.	**08**

UNIT - IV

6.	a)	With a suitable example discuss the different steps involved in the in-situ product removal.	**10**
	b)	Compare and contrast micro and ultra-filtration membrane based separations.	**10**

UNIT - V

7.	a)	Explain the various types of drying methods used in industry for the product recovery.	**12**
	b)	Explain the principle and theory of crystallization process as secondary product separation techniques.	**08**

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