2025/SEM/EVEN/09/27/MIB-653/319

PG Even Semester Exam, May 2025

Microbiology

4th Semester

COURSE NO. MBCC- 653

[Industrial Microbiology & Fermentation Technology]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, selecting one from each unit.

UNIT-I

1. Describe the types of fermentation process and working of typical industrial fermentor. 14
2. Write short notes on the following: 7x2=14
   a. Economic aspects of fermentation
   b. Recent development in Industrial microbiology

UNIT-II

3. Explain the process involved in the isolation, selection, improvement and maintenance of industrially important microbial strains. 14

Turn over

4. Write short notes on the following: 7+7=14
   a. Differentiate between primary & secondary metabolites.
   b. Substrate for Industrial Fermentation.

UNIT-III

5. Write short notes on the following: 7+7=14
   a. Define thermal death time. Why is it important in sterilization.
   b. What is the significance of media formulation in fermentation.
6. Discuss Batch fermentation in details. Explain microbial growth kinetics and effect of environmental factors on fermentation. 14

UNIT-IV

7. Describe the continuous culture system and the parameters affecting productivity and product formation. 14
8. Write short notes on the following: 7x2=14
   a. Oxygen transfer kinetics
   b. Role of sensors in fermentation control.

UNIT-V

9. Elaborate on downstream processing in industrial microbiology. Discuss different methods including filtration, centrifugation, cell disruption, recovery and drying. 14
10. Write short notes on the following: 7+7=14
    a. IPR
    b. Bioethics

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