

Roll No.

Total Pages : 3

10802

LMDQ/D-23

**MICROBIAL BIOTECHNOLOGY AND
INDUSTRIAL MICROBIOLOGY**

Paper : MMB-302

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each unit and compulsory Question No. 1.

Compulsory Question

1. Explain/define/comment :
- (a) Inoculum development.
 - (b) Primary vs. Secondary screening.
 - (c) Molasses as substrate for industrial fermentation.
 - (d) Fed batch culture system.
 - (e) Photobioreactor.
 - (f) Oxygen mass transfer coefficient.
 - (g) SCP.
 - (h) Downstream processing. (8×2=16)

UNIT-I

2. (a) Write a note on recent developments in fermentation technology.

- (b) Describe different classical strategies for the improvement of microbial strains for industrial fermentation. (2×8=16)

3. (a) Tabulate a list of industrially important microorganisms with their industrial importance. Write down different criteria followed for microorganisms to be suitable for industrial applications. 8
- (b) Write down latest trends in preservation and maintenance of microorganisms of industrial importance. 8

UNIT-II

4. (a) Write a note on Response surface methodology. How this tool is used for optimization of fermentation process? 8
- (b) Write down Monod Kinetics of Microbial growth. 8
5. Write note on :
- (a) Immobilised cell reactor : Advantages and disadvantages. 8
- (b) Kinetics of microbial growth and product formation during continuous cultivation. 8

UNIT-III

6. (a) Write a note on sterilization of large scale bioreactor. 8
- (b) Write down detailed account of fluid rheology during a fermentation process in a bioreactor. 8
7. (a) Describe briefly the functions of impellers, baffles, antifoam, and dissolved oxygen on microbial production of metabolites in a bioreactor. 8
- (b) What is OTR? How it is measured by sulphite oxidation technique. 8

UNIT-IV

8. Write note on :
- (a) Biotransformations of industrial importance. 8
- (b) Microbial process for industrial production of whisky. 8
9. Write note on :
- (a) Industrial production of citric acid. 8
- (b) Whole sequences of events followed for industrial production of biofertilizers. 8
-

