

Roll No.

Total Pages : 3

10811

LMDQ/D-23

MICROBIAL BIOTECHNOLOGY

Paper : BT-302

Time : Three Hours]

[Maximum Marks : 80

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

Compulsory Question

1. (a) Give importance of fed batch fermentation.
- (b) What are metallothionines?
- (c) Name two microbes involved in silage-making.
- (d) What are primary and secondary metabolites?
- (e) How baffles are important for a reactor?
- (f) What is bioseparation?
- (g) Differentiate between wine and beer.
- (h) Two phase extraction. (8×2=16)

UNIT-I

2. Write notes on :
 - (a) Lyophilization.
 - (b) Continuous fermentation.

- (c) Multistage fermentation.
 - (d) Compare and contrast batch and continuous liquid enrichment technique. (4×4=16)
3. (a) Describe continuous enrichment as a technique for isolation of industrially important microorganisms.
- (b) Discuss the scope of microbial biotechnology in the field of Health care. (8,8)

UNIT-II

4. Write short notes on :
- (a) CSTR.
 - (b) Packed bed reactor.
 - (c) Antifoaming agents. (5,5,6)
5. (a) Explain how decrease in concentration of repressor can be used for overproduction of enzymes.
- (b) How isolation of resistant mutants can be used for overproduction of secondary metabolites? (8,8)

UNIT-III

6. (a) Describe the enzymatic pretreatments required to use lignocelluloses as substrate for ethanol fermentation.
- (b) Under what conditions *Aspergillus niger* produces citric acid?
- (c) Give the raw materials needed for beer fermentation.

7. Write short notes on :
- (a) Glycerol.
 - (b) How genetic engineering can help improving filterability and decreasing diacetyl concentration during beer fermentation?
 - (c) Glutamic acid fermentation. (5,6,5)

UNIT- IV

8. (a) What is pretreatment of fermentation broth ? Briefly describe the chemical methods of cell disruption.
- (b) Explain the basic theory of crystallization and application in purification of bioproducts. (8,8)
9. Write short on :
- (a) SCP.
 - (b) Biotransformation of steroids.
 - (c) Baker's yeast. (5,6,5)
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