

**NRT/KS/19/2904**

**Master of Science (M.Sc.) Fourth Semester (C.B.C.S.) (Microbiology) Examination**

**MICROBIAL FERMENTATION TECHNOLOGY (MFT)**

**Compulsory Paper-2**

**Paper-II**

Time : Three Hours]

[Maximum Marks : 80

**N.B.** :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw well labelled diagram wherever necessary.

1. Explain the substrate, biomass and product balance equation for chemostat and discuss their significance.

**OR**

Describe various types of fermentation processes and enlist the factors affecting fermentation process.

16

2. Write a note on the different criteria involved in scale up process for industrial production of secondary metabolites.

**OR**

Describe various methods of harvest and recovery of biomass from fermented medium.

16

3. Discuss the process for the production of streptomycin and add a note on defining medium composition for optimum yield of product.

**OR**

What is the significance of biofuel fermentation industry in supplementing fuel demand and discuss microbial process of hydrogen production ?

16

4. Describe process of production of SCP and give merits and demerits of different types of SCP.

**OR**

Describe the process of industrial production of riboflavin.

16

5. Write a note on :

(a) Fluidized bed reactor

4

(b) Scale down process

4

(c) Bio surfactants

4

(d) Production of oleate.

4

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Master of Science (M.Sc.) (Microbiology) Semester—IV (C.B.C.S.) Examination  
**MICROBIAL FERMENTATION TECHNOLOGY (MFT)**

**Paper—II**  
**(Compulsory)**

Time : Three Hours]

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw diagram wherever necessary.

[Maximum Marks : 80

1. Describe different types of bioreactors used for microbial fermentation processes. 16

OR

Explain how substrate, biomass and product balance is achieved in chemostat and give its equation. 16

2. Discuss basic control theory of scale up process. 16

OR

Describe harvest and recovery of product from fermented broth. 16

3. Describe industrial production process of streptomycin hydrochloride. Add a note on nitrogen source used in production medium for optimum yield of streptomycin. 16

OR

(a) Give an account on thermostable proteases. 8

(b) Discuss production of methane. 8

4. Describe the production of riboflavin along with flow diagram. 16

OR

Discuss microbial production of carotenoides.

5. Write a note on :— 16

(a) Turbidostat 4

(b) Scale down 4

(c) Bio-surfactants 4

(d) Bacteria 4

Master of Science (M.Sc.) Sem.-IV Choice Based Credit System (CBCS) (Microbiology) Examination  
**MICROBIAL FERMENTATION TECHNOLOGY (MFT)**

**Compulsory Paper—2**

**Paper-II**

Time : Three Hours]

[Maximum Marks : 80

N.B. :- (1) All questions are compulsory.

(2) Draw well labelled diagrams.

(3) All questions carry equal marks.

1. Describe various types of fermentation processes in detail. 10  
16
- OR
- Discuss various factors that affect process optimization. 16  
16
2. Describe physical methods for the recovery of biomass from fermented media. 16  
16
- OR
- Discuss the major criteria involved in scale up process. 16  
16
3. Describe the industrial production and recovery of synthetic penicillin. 16
- OR
- What are the advantages of bio fuels over fossil fuels? Add a note on process of microbial production of ethanol. 16
4. What are the different substrates used for SCP production? Discuss the basic steps involved in SCP production. 16  
16
- OR
- Explain in detail the industrial production and recovery of vitamin - B12. 16
5. Write notes on :
- (a) Turbidostat 4
- (b) Cryogenic storage 4
- (c) Xanthan gum 4
- (d) Industrial important fatty acids. 4

08  
40  
48-52

117

117

**Compulsory Paper-II - Microbial Fermentation Technology (MFT)**

P. Pages : 1

Time : Three Hours



PRS/KS/24/1707

Max. Marks : 80

- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw diagram wherever necessary.

1. Describe various types of fermentation processes. 16

**OR**

Explain the substrate, biomass and product balance equation chemostat and discuss their significance.

2. Describe various methods of harvest and recovery of biomass form fermented medium. 16

**OR**

Write a detail note on the different criteria involved in scale up process.

3. What is the significance of biofuel fermentation industry in supplementing fuel demand and discuss microbial process of hydrogen production? 16

**OR**

Discuss the process for the production of streptomycin.

4. Describe the process of industrial production of riboflavin. 16

**OR**

Describe process of production of SCP and give merits and demerits of different types of SCP.

5. Write a note on:

- a) Fluidized bed reactor 4
- b) Scale down process 4
- c) Bio surfactants 4
- d) Production of oleate 4

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