

Seat No. : _____

NE-124

November -2021

B.Sc., Sem.-V

**304 : Microbiology
(Fermentation Technology)**

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All questions in **Section – I** carry equal marks.
 - (2) Attempt any **three** questions in **Section – I**.
 - (3) **Section – II** is **Compulsory**.

Section – I

- 1. (A) Discuss microbial biomass and enzymes as range of fermentation processes. 7
- (B) Describe how an established fermentation process can be divided into six component parts. 7
- 2. (A) Describe the development of fermentation industry after 1964. 7
- (B) Explain microbial metabolites and recombinant products as fermentation products. 7
- 3. (A) Discuss secondary screening of industrially important micro organisms. 7
- (B) Explain the over production of amino acids. 7
- 4. (A) Describe the use of recombination for strain improvement. 7
- (B) Describe the methods for preservation of industrial organisms. 7
- 5. (A) Explain the development of bacterial and yeast inoculum for fermentation process. 7
- (B) Give details of Nitrogen sources used as fermentation media ingredient. 7

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| 6. | (A) | Explain the batch method for fermentation media sterilization. | 7 |
| | (B) | Explain the role of precursors, inhibitors and antifoam agents in fermentation media formulation. | 7 |
| 7. | (A) | Highlight the essential features of a bioreactor. | 7 |
| | (B) | Discuss the types and role of impellers, baffles and spargers in a bioreactor. | 7 |
| 8. | (A) | Describe the design and working of airlift bioreactor. | 7 |
| | (B) | Explain the monitoring of pH, temperature and oxygen in a bioreactor. | 7 |

Section – II

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| 9. | Answers the following in 1-2 lines : (any 8) | | 8 |
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- (1) Define the term fermentation.
 - (2) What is Del factor ?
 - (3) Give two examples of primary metabolites.
 - (4) Which material is used in the body construction of bioreactor ?
 - (5) What is dissolved oxygen ?
 - (6) Name two methods of continuous sterilization.
 - (7) What is the function of agitator in a bioreactor ?
 - (8) What are protoplasts ?
 - (9) Define mutation.
 - (10) Which mutants are isolated by gradient plate technique ?
 - (11) Give any two applications of cyclone fermenter.
 - (12) Name the media for primary screening of organic acid producers.
 - (13) Name two chelators used as media ingredient.
 - (14) Give two examples of filters used for media sterilization.
 - (15) Name the organism used as index of sterilization.
 - (16) Name two amylase producers.
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