

M.Sc. MICROBIOLOGY  
THIRD SEMESTER  
FOOD MICROBIOLOGY AND FERMENTATION TECHNOLOGY  
MMB-304

**SET  
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

**(Objective)**

Marks: 10

Choose the correct answer from the following:

1×10=10

- Single cell protein (SCP) production is an outcome of:
  - Extracellular proteins
  - Fermentation of waste products
  - Intracellular proteins extraction
  - Metabolites
- Which among the following is not a probiotic?
  - Escherichia coli
  - Saccharomyces cerevisiae
  - Fungi
  - Lactobacillus
- Which of the following procedure has a great application in strain improvement?
  - rDNA Technology
  - Transformation
  - Transduction
  - All of these
- Which of the following is not a Carbon source?
  - Blackstrap molasses
  - Corn molasses
  - Beet molasses
  - Yeast extract
- What raw material is used for production of acholic drink Tequila?
  - Potato
  - Mollases
  - Rice
  - Rice bran
- Chemostat bioreactors:
  - Carbohydrate concentration
  - O<sub>2</sub> concentration
  - Salt concentration
  - All of these
- Turbidostat Bioreactor monitors:
  - Biomass concentration
  - Carbohydrate concentration
  - O<sub>2</sub> concentration
  - All of these
- Mesophile range refers to:
  - >45°C
  - <20°C
  - 20-45°C
  - All of these
- $\mu < \mu_{max}$  when:
  - Substrate concentration is low
  - Substrate concentration is high
  - Substrate concentration is null
  - None of these

10. In batch fermentation:
- a. Substrate is inoculated with the microbes
  - b. Substrate is inoculated without microbes
  - c. Microbes are inoculated without substrate
  - d. None of these

-- -- --

**(Descriptive)**

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

- |   |        |
|---|--------|
| 1. Discuss about typical bioreactor with appropriate diagram.                                       | 5      |
| 2. Write a detailed note on media used in industrial fermentation featuring all salient components. | 10     |
| 3. Write notes on:  | 5+5=10 |
| a) Growth kinetics of microorganism   |        |
| b) Measurement and control of bioprocess parameter  |        |
| 4. Write a distinctive short note on Economical aspects of industrial fermentation.                 | 10     |
| 5. Write notes on:  | 5+5=10 |
| a) Cell Disruption  |        |
| b) Batch Culture or Batch Fermentation  |        |

== \*\*\* ==