



UNIVERSITY OF RUHUNA
FACULTY OF AGRICULTURE

Third Examination in BSc Agricultural Resource Management and Technology (Part I)

July 2022

FS3102 Fermentation Technology - Theory (Elective)

INSTRUCTIONS

Answer Three questions including first question.

Only non-programmable calculators are permitted.

Mobile phones are NOT permitted.

Attach the question paper to the end of the answer script

TIME: 2 (two) Hours

INDEX NUMBER

1.
 - a) Briefly explain the properties of a fermented food product. (25 marks)
 - b) Microbial strain selection is the most important step in any microbial fermentation system.
Briefly explain how you would achieve this. (25 marks)
 - c) Briefly discuss the role of yeasts in the food fermentation industry. (25 marks)
 - d) Briefly discuss the challenges that you would face in the fermentation industry. (25 marks)

2.
 - a) Giving examples differentiate between submerged and solid-state fermentation systems. (25 marks)
 - b) Briefly explain the concerned factors when selecting the raw material for the microbial growth media. (25 marks)
 - c) Discuss the main features and their specific functions of a microbial fermenter. (25 marks)
 - d) Alpha Amylase is an enzyme that is used for starch hydrolysis. Briefly explain the production steps of this enzyme using a microbial fermentation system. (25 marks)

3.
 - a) i) What is meant by "**Food yeasts**"? (10 marks)
ii) Elaborate on the improvements in **Bakers yeasts** to enhance their efficiency and fermentation productivity. (15 marks)
 - b) Briefly discuss the conditions necessary for yeast fermentation. (25 marks)
 - c) i) State the role of "**Saccharomyces yeasts**" in the fermentation industry. (10 marks)
ii) What is the significant role of "**Non-Saccharomyces yeasts**" in the food fermentation industry? (15 marks)
 - d) Briefly discuss the application/s of **Brewery yeasts** while giving some example/s of their use in the fermentation industry. (25 marks)



UNIVERSITY OF RUHUNA
FACULTY OF AGRICULTURE

Third Examination in BSc Agricultural Resource Management and Technology (Part I)

July 2022

FS3102 Fermentation Technology - Theory (Elective)

INSTRUCTIONS

Answer Three questions including first question.

Only non-programmable calculators are permitted.

Mobile phones are NOT permitted.

Attach the question paper to the end of the answer script

TIME: 2 (two) Hours

INDEX NUMBER

1.
 - a) Briefly explain the properties of a fermented food product. (25 marks)
 - b) Microbial strain selection is the most important step in any microbial fermentation system.
Briefly explain how you would achieve this. (25 marks)
 - c) Briefly discuss the role of yeasts in the food fermentation industry. (25 marks)
 - d) Briefly discuss the challenges that you would face in the fermentation industry. (25 marks)

2.
 - a) Giving examples differentiate between submerged and solid-state fermentation systems. (25 marks)
 - b) Briefly explain the concerned factors when selecting the raw material for the microbial growth media. (25 marks)
 - c) Discuss the main features and their specific functions of a microbial fermenter. (25 marks)
 - d) Alpha Amylase is an enzyme that is used for starch hydrolysis. Briefly explain the production steps of this enzyme using a microbial fermentation system. (25 marks)

3.
 - a) i) What is meant by "**Food yeasts**"? (10 marks)
ii) Elaborate on the improvements in **Bakers yeasts** to enhance their efficiency and fermentation productivity. (15 marks)
 - b) Briefly discuss the conditions necessary for yeast fermentation. (25 marks)
 - c) i) State the role of "**Saccharomyces yeasts**" in the fermentation industry. (10 marks)
ii) What is the significant role of "**Non-Saccharomyces yeasts**" in the food fermentation industry? (15 marks)
 - d) Briefly discuss the application/s of **Brewery yeasts** while giving some example/s of their use in the fermentation industry. (25 marks)

4.

- a) Based on their sugar fermentation pattern, Lactic Acid Bacteria can be divided into two broad categories. Briefly explain about those two categories while highlighting their importance in the fermentation industry. (25 marks)
- b) Briefly describe the use of Lactic Acid Bacteria in dairy industry. (25 marks)
- c) Acetate overoxidation by Acetic Acid Bacteria is having both positive and negative aspects. Briefly discuss on this statements. (25 marks)
- d) Briefly describe the use of Acetic Acid Bacteria in production of Bacterial Cellulose.(25 marks)