



UNIVERSITY OF RUHUNA
FACULTY OF AGRICULTURE

Third Examination in BSc Agricultural Resource Management and Technology / BSc
Agribusiness Management (Part I)
May 2023



FS3101 Food Preservation and Processing Technology (Compulsory)

INSTRUCTIONS

Answer 4 questions including question number 1

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

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1. a. Write a short account on advantages of thermal food processing. (25 marks)
- b. Briefly describe the effect of hydrolytic rancidity of spoilage of fatty food. (25 marks)
- c. Briefly describe the use of fermentation as a preservation technique. (25 marks)
- d. Briefly discuss the applications of **Size Reduction** in solid foods in the commercial scale food industry with suitable diagram/s. (25 marks)

2. a. Briefly discuss the effect of **Case Hardening** in preserving food using dehydration. (25 marks)
- b. "Compared to slow freezing, fast freezing gives a better quality end product". Elaborate this statement with suitable facts. (25 marks)
- c. Briefly discuss the use of irradiation in food preservation. (25 marks)
- d. Write a short account on chemical preservation of foods. (25 marks)

3. a. i) What does "**Unit Operation**" mean in the food processing industry? (10 marks)
- ii) Briefly discuss the advantages of practicing a **proper unit operation sequence** in food processing. (15 marks)
- b. List down the **major unit operations** in handling raw materials from the field (where you harvest them) to the final consumer. (20 marks)
- c. Briefly discuss the significance of "**Freeze Drying Technology**", which is practiced as one of the advanced technologies in food processing. (20 marks)
- d. i) Describe the **principle** of Drum drying technology using the suitable diagram/s. (15 marks)
- ii) Briefly discuss the industrial application of **Drum Drying** technology while comparing it with the other drying technologies practiced in the food processing industry. (20 marks)

4. a. Write a short account on pasteurization of food products. (25 marks)
- b. Distinguish between Canning (Sterilization) and Aseptic food processing. (25 marks)
- c. Briefly describe the heat transfer characteristics/types in a canned food product. (25 marks)
- d. The process time of a canned food is 25 min. The targeted final microbial population is 10^{-2} CFU/ml. If the D value is 5 min, calculate the initial population level of microorganisms in the food product. (25 marks)
5. a. Briefly discuss the importance of “**Cleaning**” unit operation with suitable examples in the Food processing industry. (25 marks)
- b. i) What are the three **major** stages of baking technology? Briefly explain the importance of one of them in baking a cake. (15 marks)
- ii) Describe the **Extrusion Technology** compared to baking technology. (10 marks)
- c. Briefly describe how you can determine the Slowest Heating Point (Cold Point) in a canned food product. (25 marks)
- d. “Under blanching is not a good phenomenon in food preservation”. Justify this statement with suitable facts. (25 marks)