CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE FOOD SCIENCE AND TECHNOLOGY

FOST 241: FOOD PROCESSING & PRESERVATION

STREAMS: BSC. FOST **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 07/07/2021 **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS:

- **Answer all questions in Section A and any two questions in section B**

SECTION A

1. Discuss the main dry cleaning methods for raw food materials before processing. (10 marks)
2. Describe the key steps during in-container processing (sterilization) of food. (8 marks)
3. a) It is often observed that microbial inactivation by thermal processes follows first order reaction kinetics.
   (i) Using a diagram illustrate the relationship between the population of microorganisms and time at a constant heating temperature. (4 marks)
   (ii) Explain the term, D-value. (2 marks)

   b) A soup with an organism with a D_{70} value of 10 s, is heated for 60 s at 70^0C. Calculate percentage microorganisms population remaining after the heat treatment. (2 marks)

4. Explain the importance of sulphiting of fruits and vegetables in food processing and name two permitted sulphiting agents. (4 marks)

SECTION B

5. a) Describe the general effects and mechanisms of irradiation in food processing. (12 marks)

   b) Outline the advantages of high pressure processing of foods. (8 marks)

6. a) Describe drying by the application of Dielectric Energy and its disadvantages. (14 marks)

   b) Explain the purpose of blanching during vegetables processing. (6 marks)

7. Explain the operations of the following drying equipments;

   (i) Tunnel drier (6 marks)

   (ii) Conveyor (Belt) drier (6 marks)

   (iii) Fluidised Bed drier (8 marks)

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