

2913/303
FOOD PROCESSING AND
PRESERVATION II
Oct./Nov. 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN FOOD SCIENCE AND PROCESSING TECHNOLOGY

MODULE III

FOOD PROCESSING AND PRESERVATION II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

answer booklet;

non-programmable scientific calculator.

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A and any TWO questions from section B in the answer booklet provided.

Each question in section A carries 15 marks while each question in section B carries 20 marks.

Maximum marks for each part of a question are as shown.

Candidates should answer the questions in English.

This paper consists of 3 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (60 marks)

Answer ALL questions in this section.

- (2 marks)
1. (a) Define food additive. (5 marks)
- (b) State **five** desirable qualities of a food additive. (8 marks)
- (c) Explain the use of benzoic acid in food.
2. (a) Name **four** parameters which are regulated in controlled atmosphere storage. (4 marks)
- (b) Differentiate between controlled and modified atmosphere storage. (4 marks)
- (c) Explain the application of controlled atmosphere storage in the food industry. (7 marks)
3. (a) Define food irradiation. (2 marks)
- (b) State **five** areas of application of irradiation in food processing and preservation. (5 marks)
- (c) Explain **four** factors which determine the irradiation dosage in food preservation. (8 marks)
4. (a) Name **eight** types of packages used for packaging foods. (4 marks)
- (b) Explain **three** disadvantages of food packaging. (6 marks)
- (c) Describe the aseptic packaging of milk. (5 marks)

SECTION B (40 marks)

Answer any TWO questions from this section.

5. (a) State **six** objectives of additives in the food industry. (6 marks)
- (b) Explain each of the following acronyms used in describing food additives:
- (i) GRAS; (2 marks)
- (ii) NOAEL. (2 marks)
- (c) Describe the steps involved in the approval of a substance for use as a food additive. (10 marks)

6. (a) State **six** benefits obtained from controlled atmosphere storage. (6 marks)
- (b) Explain each of the following methods used in controlled atmosphere storage and modified atmosphere packaging:
- (i) intelligent packaging; (4 marks)
 - (ii) scavenging of ethylene. (4 marks)
- (c) Explain **three** limitations in the application of controlled atmosphere storage in the food industry in Kenya. (6 marks)
7. (a) State **four** advantages of irradiation as a food preservation method. (4 marks)
- (b) Explain **three** methods used in controlling the negative effects of irradiation. (6 marks)
- (c) Explain **five** factors which influence the susceptibility of micro-organisms to irradiation. (10 marks)
8. (a) Explain the packaging of each of the following processed foods:
- (i) biscuit; (5 marks)
 - (ii) sterilized milk. (6 marks)
- (b) Explain each of the following functions of food packaging:
- (i) convenience; (4 marks)
 - (ii) protection. (5 marks)

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