1908/103
FOOD CHEMISTRY AND
MICROBIOLOGY
Oct./Nov. 2022
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN FISHERIES SCIENCE AND TECHNOLOGY

MODULE I

FOOD CHEMISTRY AND MICROBIOLOGY

3 hours

INSTRUCTIONS TO CANDIDATES

This paper consists of TWO sections; A and B.
Answer ALL the questions in section A and any FOUR questions from section B in the answer booklet provided.
Each question in section A carries 4 marks while each question in section B carries 15 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 (40 marks)

Answer ALL the questions in this section.

1. Explain the importance of iodine value in fats and oils. (4 marks)

2. State **four** reasons for estimating the number of microorganism in foods. (4 marks)

3. Explain why ascorbic acid (Vitamin C) is more likely to be deficient in human diet than other vitamins. (4 marks)

4. List **four** general symptoms of food poisoning. (4 marks)

5. Differentiate between the properties of fibrous proteins and globular proteins. (4 marks)

6. (a) Distinguish between cocci and bacilli types of bacteria with regard to their shape. (2 marks)

   (b) State **two** causes of the stationary phase of a bacterial colony growth curve. (2 marks)

7. State **four** primary reasons for adding colouring agents to foods. (4 marks)

8. Explain the development of infective bacterial food poisoning. (4 marks)

9. Lactose, fructose, sucrose and maltose are four sugars. Match each sugar with its corresponding attributes in table I. (4 marks)

Table I

Sugar	Attributes			
	Sweetest sugar	**Found in milk**	**Important in brewing**	**Table sugar**
Lactose				
Fructose				
Sucrose				
Maltose				

10. Explain the importance of yeast in the food industry. (4 marks)

SECTION B (60 marks)

*Answer any **FOUR** questions from this section.*

11. (a) Explain **three** types of cross contamination, giving an example in each type. (9 marks)

    (b) State **six** ways of preventing cross contamination. (6 marks)

12. Explain the water-holding capacity of proteins and polysaccharides in foods. (15 marks)

13. Explain how each of the following factors affect sanitation effectiveness of food contact surfaces:

    (a) surface characteristics; (8 marks)

    (b) pH of chlorine solution. (7 marks)

14. (a) In a study of a sampled population, it was observed that while the diet consumed by the population contained the recommended daily allowance of proteins, symptoms of protein deficiency was still evident. Explain the reason for this observation. (8 marks)

    (b) State **seven** recommendations for maximising the preservation of vitamin contents in the foods during storage, preparation and cooking. (7 marks)

15. (a) State **five** causes of food spoilage. (5 marks)

    (b) Explain the roles of a Public Health officer in ensuring food safety. (10 marks)

16. (a) Explain iso-electric point as a property of proteins. (8 marks)

    (b) Explain the importance of protein complementation. (7 marks)

THIS IS THE LAST PRINTED PAGE.