

2913/302  
FOOD CHEMISTRY II AND  
FOOD MICROBIOLOGY II  
Oct./Nov. 2022  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN FOOD SCIENCE AND PROCESSING TECHNOLOGY

MODULE III

FOOD CHEMISTRY II AND FOOD MICROBIOLOGY II

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have an answer booklet for this examination.*

*This paper consists of TWO sections; A and B.*

*Answer ALL 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.**

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**SECTION A (60 marks)**

*Answer ALL questions in this section.*

1. (a) Distinguish between food infection and food intoxication. (4 marks)
- (b) State five factors which contribute to the outbreak of food poisoning. (5 marks)
- (c) State six preventive measures of staphylococcus food poisoning. (6 marks)
  
2. (a) State four illegitimate uses of food additives. (4 marks)
- (b) Explain the toxicity of cyanogenic glycosides. (5 marks)
- (c) Describe stabilizers as food additives. (6 marks)
  
3. (a) (i) Define zoonoses. (2 marks)
- (ii) Name four zoonotic diseases beside anthrax. (2 marks)
- (b) Explain the risk factors associated with contracting anthrax. (5 marks)
- (c) Explain three applications of biotechnology in food industry. (6 marks)
  
4. (a) Explain each of the following non-specific saporous substances:
  - (i) flavour enhancer; (2 marks)
  - (ii) astringency; (2 marks)
  - (iii) pungency. (2 marks)
- (b) Outline the importance of nutritional assessment. (4 marks)
- (c) State five properties that antioxidants must possess for effective use in the food industry. (5 marks)

**SECTION B (40 marks)**

*Answer any TWO questions from this section.*

5. (a) Differentiate between taste thresholds and compensation as used in food flavour. (4 marks)
- (b) State four ways of inhibiting maillard reaction during food processing. (4 marks)
- (c) With the aid of a diagram, describe the distribution of taste buds on the tongue. (4 marks)
- (d) (i) Explain the toxicity of gliotrogens. (6 marks)  
(ii) Name any two foods containing gliotrogens. (2 marks)
6. Explain the ochratoxin and patulin intoxications in relation to each of the following:
- (a) causative organisms; (2 marks)
- (b) foods involved; (2 marks)
- (c) symptoms; (8 marks)
- (d) management. (8 marks)
7. (a) Explain with the use of a flow diagram enzymic browning in tea manufacture. (10 marks)
- (b) With the aid of a schematic diagram, explain the changes that occur to chlorophyll during the processing of vegetables. (10 marks)
8. (a) Explain each of the following:
- (i) gene cloning; (5 marks)  
(ii) recombinant DNA. (5 marks)
- (b) Describe malnutrition in relation to the following:
- (i) undernutrition; (5 marks)  
(ii) overnutrition. (5 marks)

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