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.

Turn over

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 posses 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 tate buds on the tongue. (4 marks)

(d) (i) Explain the toxicity of giotrogens. (6 marks)
(ii) Name any **two** foods containing giotrogens. (2 marks)

6. Explain the ocharatoxin 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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