



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL DIPLOMA

IN

FOOD SCIENCE AND TECHNOLOGY

MODULE: Food Chemistry

PAPER NO: 544/23/M01

DURATION: 3 Hours

NOVEMBER / DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer all questions in Section A – (40 marks).
2. Answer any three (3) questions in Section B – (60 marks).
3. Do not write your name on the answer script.

SECTION A – 40 MARKS

Answer all questions.

QUESTION 1

- a) State three (3) major components of food. (3 marks)
- b) Briefly describe the four (4) classes of carbohydrates. (16 marks)
- c)
 - i) Illustrate the structure of a general amino acid. (5 marks)
 - ii) Name four (4) levels of protein structure. (4 marks)
- d) Discuss the function of food lipids in processing. (12 marks)

SECTION B – 60 MARKS

Answer any three (3) questions.

QUESTION 2

- a) Explain the term antinutrients. (3 marks)
- b)
 - i) State any five (5) examples of antinutrients that may be present in food. (5 marks)
 - ii) Discuss the effects of antinutrients on bioavailability of food. (12 marks)

QUESTION 3

- a) Describe a colloidal system with regards to food. (4 marks)
- b) Give an account of the following colloidal systems;
 - i) Emulsions (4 marks)
 - ii) Gels (4 marks)
 - iii) Foams (4 marks)
 - iv) Sols (4 marks)

QUESTION 4

Describe the following reactions in food processing;

- a) Non-enzymatic browning (7 marks)
- b) Lipid oxidation (7 marks)
- c) Vitamin degradation (6 marks)

QUESTION 5

- a) Briefly explain the factors considered when selecting an analytical technique for food analysis. (15 marks)
- b) Highlight the principles and application of chromatography with regards to food analysis. (5 marks)

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