QUALIFICATION: **BACHELOR OF HUMAN NUTRITION**	
QUALIFICATION CODE: **08BOHN**	LEVEL: **6**
COURSE: **FOOD COMPOSITION AND ANALYSIS**	COURSE CODE: **FCA621S**
DATE: **JANUARY 2025**	SESSION: **2**
DURATION: **3 HOURS**	MARKS: **100**

SECOND OPPORTUNITY EXAMINATION: QUESTION PAPER

EXAMINER: *MS FIINA K. NAMUKWAMBI*

MODERATOR: *MR GEORGE WALIOMUZIBU MUKISA*

INSTRUCTIONS:

1. Answer all questions on the separate answer sheet.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

PERMISSIBLE MATERIALS:

1. None

ATTACHMENTS

1. None

This question paper consists of 5 pages including this front page

QUESTION 1: MULTIPLE CHOICE QUESTIONS   **[15 MARKS]**
Evaluate the statements in each numbered section and select the most appropriate answer or phrase from the given possibilities. Fill in the appropriate letter next to the number of the correct statement/phrase on your ANSWER SHEET.

1.1 Standard of identity means specify type and amounts of ingredients that certain foods must contain if they are to be called by a particular name on the food label.   (1)

    A. True
    B. False

1.2 _____ a small portion taken for analysis   (1)

    A. Sampling
    B. Population
    C. Sample
    D. Selection

1.3 The ability to measures the lowest concentration of a component that can be detected by a given procedure.   (1)
    A. Precision
    B. Flexibility
    C. Sensitivity
    D. Reproducibility

1.4 The Forced draft oven used in moisture content determination employs.   (1)
    A. Air circulated by a fan that forces air flow throughout the oven
    B. Use gravity convection
    C. They are often characterized by considerable temperature variations inside the chamber.
    D. All of the above

1.5 Mid-infrared spectroscopy is used in infrared milk analysers to determine milk protein content.

                                               (1)

    A. True
    B. False

1.6 Direct method of moisture content analysis includes determine the sample property that correlate with water present in a sample.   (1)

    A. True
    B. False

1.7 Proteins are complex polymers of amino acids: (1)
    A. True
    B. False

1.8 Lowry method detects substances containing at least two peptide bonds, i.e. large peptides and all proteins.   (1)
    A. True
    B. False

1.9 In many foods the lipid component plays a major role in determining the overall
physical characteristics, such as flavour, texture, mouthfeel and appearance. (1)
   A. True
   B. False

1.10 Measurement of adsorption of radiation in lipids includes. (1)
   A. Infrared
   B. UV-visible
   C. All of the above
   D. None of the above

1.11 This is a Monosaccharide (1)
   A. Galactose
   B. Maltose
   C. Cellulose
   D. Starch

1.12 Analytical techniques used in lipid determination includes. (1)

   A. Solvent extraction.
   B. Instrumental methods
   C. All of the above
   D. None of the above

1.13 Vitamins are found in food as precursors which are known as provitamins. (1)
   A. False
   B. True

1.14 Functional foods are food that contains components that offer health benefits beyond
Their basic nutritional value. (1)

   A. True
   B. False

1.15 AOAC stands for. (1)

   A. American Analytical Control Center
   B. Association of the Official Analytical Chemists
   C. American Association of Cereal Chemists
   D. Africa Association of Control chemists

Please answer ALL of the questions in this section.

QUESTION 2: [20 MARKS]

2.1 Briefly discuss *any* **five (5)** reasons for food analysis. (10)

2.2 Analysis of the properties of a food material depends on the successful completion of several
 steps. Outline these steps. (6)

2.3 State the importance of moisture content analyses. (4)

QUESTION 3: [27 MARKS]

3.1 Outline the importance of vitamins analysis. (3)

3.2 Give details on general extraction procedures of the following vitamins
 3.2.1   Ascorbic acid: (1)
 3.2.2   Vitamin B1 and B2: (1)
 3.2.3   Niacin: (1)
 3.2.4   Folate: (1)

3.3 Clarify steps in testing for Niacin using Microbiological assay. (7)

3.4 Differentiate between Minerals and Minerals content. (4)

3.5 Examine procedures of sample preparation during ash content determination. (5)

3.6 Mention **five (5)** traditional methods used for analysing minerals. (4)

QUESTION 4: [26 MARKS]

4.1   The Kjeldahl method is a common method used in protein analysis. Clearly name and describe
       the **five (5) steps** carried out in sequence when using Kjeldahl method. (10)

4.2   List the factors to be considered during protein separation procedures. (2)

4.3   In summary, compose the procedures of carbohydrates: Somogyi –Nelson method. (6)

4.4   Explain the sample preparation in solvent extraction methods in lipids. (8)

QUESTION 5: [12 MARKS]

5.1 State the advantages of IR (Infrared lamp) drying. (5)

5.2 During carbohydrates analysis using HPLC there is stationary phases. Outline three (3) stationary phases. (3)

5.3 Describe the health benefits functional components of food. (4)

END OF QUESTION PAPER