nAMIBIA UNIVERSITY
OF SCIEnCE AnD TECHnOLOGY

FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES

DEPARTMENT OF HEALTH SCIENCES

QUALIFICATION : BACHELOR OF HUMAN NUTRITION	
QUALIFICATION CODE: 08BOHN	**LEVEL:** 6
COURSE NAME: FOOD COMPOSITION AND ANALYSIS	**COURSE CODE:** FCA621S
SESSION: JANUARY 2023	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

SUPPLEMENTARY/SECOND OPPORTUNITY QUESTION PAPER	
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INSTRUCTIONS
1. This paper consists of 5 questions
2. Answer ALL the questions.
3. Write legibly and neatly.
4. Number all answers clearly.
5. Do not copy

PERMISSIBLE MATERIALS
NONE

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

SECTION A

QUESTION 1   **[10 MARKS]**

Read the following questions carefully and circle the correct answer *(Each question carries 1 mark.)*

 1.1   Food composition and analysis provides information about a wide variety of different characteristics of foods, including:

   A.   Characteristics of food

   B.   Food composition

   C.   None of the above

   D.   All the above

 1.2   Standards of food quality includes:

   A.   How full the container should be

   B.   Minimum requirements for mass and defects from defects

   C.   The type and amounts of ingredients that certain foods

   D.   All the above

 1.3   Nutritional labeling is important for almost food types so that:

   A.   To avoid deceiving consumers

   B.   To ensure fair marketing competition

   C.   To help consumers maintain their diet properly

   D.   To ensure consistency in the food quality

 1.4   During data analysis, sometimes the measures values can be compared to the true/known value. However, _____ is calculated when the true/known value is not known:

   A.   Coefficient of variance

   B.   Accuracy

   C.   Precision

   D.   The mean

 1.5   The water that retains its physical properties and acts as a dispersing agent for colloids and the solvent for salts is known as:

   A.   Evaporated water

   B.   Adsorbed water

   C.   Water of hydration

D. Free water

1.6 The Forced draft oven used in moisture content determination employs:

A. The use of gravity convection

B. Air circulated by a fan

C. The use of a muffle furnace

D. All the above

1.7 Low- Temperature plasma Ashing is based on the application of:

A. Heat > 150°C, using activated oxygen

B. Heat ≤ 140°C using activated oxygen

C. Heat <150°C using oxygen

D. Heat < 150°C using activated CO_2

1.8 Total carbohydrates can be measured using Phenol-Sulfuric acid method and the absorbance is read at:

A. 760nm

B. 460nm

C. 500nm

D. 490nm

1.9 The only reliable method for determination of total starch is based on complete conversion of:

A. Monosaccharides into D-glucose

B. Maltose into D-glucose

C. Starch into D-glucose

D. All sugars into D-glucose

1.10 Vitamins in food is found as:

A. Ascorbic acid

B. Sugars

C. Precursors

D. Niacin

QUESTION 2 [30 MARKS]

2.1 Differentiate between the following terms (20)

    2.1.1 Precision and Accuracy (4)

    2.1.2 Reproducibility and specificity (4)

    2.1.3 Population and a sample (4)

    2.1.4 Mineral contents and Ash contents (4)

2.2 In food analysis, there are various analytical procedures available, and can be obtained from several different sources. Mention five (5) of these sources (5)

2.3 Give five (5) reasons why it is important to analyze food (5)

SECTION B

QUESTION 3 [28 MARKS]

3.1 As an analyst, you should always keep a detailed notebook, so that should anything happens, traceability will be easy. What information would you keep in this notebook? (4)

3.2 Discuss features specified in a sampling plan (6)

3.3 What is the general principle of Oven drying method used in moisture content determination? (4)

3.4 Outline the general procedures you would follow for ash content analysis using the dry ashing method (10)

3.5 Outline four (4) properties of lipids in food (4)

SECTION C

QUESTION 4 [16 MARKS]

4.1 The Kjeldahl method is a common method used in protein analysis. Clearly discuss the four (4) steps carried out in sequence when using Kjeldahl method. (14)

4.2 Mention any two (2) classes of vitamins assays (2)

QUESTION 5 [16 MARKS]

5.1 Somogyi –Nelson method is a common method used in determination of total reducing sugar. Outline the procedures used in this method to determine the total reducing sugar content (7)

5.2 Mention any four (4) methods used specific analysis of Mono- and Oligosaccharides (4)

5.3 Give three (3) stationary phases of the HPLC (3)

5.4 Give any two (2) physical methods used to determine carbohydrates concentration in food (2)

The End

Good Luck