



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**Faculty of Health, Natural  
Resources and Applied  
Sciences**

School of Health Sciences

Department of Preventative  
Health Sciences

13 Jackson Kaujeua Street T: +264 61 207 2970  
Private Bag 13388 F: +264 61 207 9970  
Windhoek E: dphs@nust.na  
NAMIBIA W: www.nust.na

<b>QUALIFICATION : BACHELOR OF HUMAN NUTRITION</b>	
<b>QUALIFICATION CODE: 08BOHN</b>	<b>LEVEL: 6</b>
<b>COURSE: FOOD COMPOSITION AND ANALYSIS</b>	<b>COURSE CODE: FCA621S</b>
<b>DATE: JANUARY 2024</b>	<b>SESSION: 2</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

**SECOND OPPORTUNITY / SUPPLEMENTARY: EXAMINATION QUESTION PAPER**

**EXAMINER: MS. EFAISHE TWUHANGA ANGALENI KAVELA**

**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. No Permissible materials

**This paper consists of 4 pages including this front page**

**QUESTION 1: MULTIPLE CHOICE QUESTIONS****(10 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. [10]

1.1 The standard of identity (1)

- A. sets minimum requirements for colour and tenderness of food.
- B. states how full a container must be to avoid consumer deception.
- C. determines the quality of food.
- D. specifies the type and amounts of ingredients that certain foods must contain if they are to be called by a particular name on the food label.

1.2 Food composition and analysis focuses on the following properties: (1)

- A. Physical properties of food
- B. Sensory properties of food
- C. Rheological properties of food
- D. Chemical composition of food

1.3 Researchers in the university laboratory analyze the food to ensure: (1)

- A. Food industries provide safe food
- B. Fairness in food prices
- C. Food quality maintenance
- D. Development or improvement of existing products

1.4 How would you define a Laboratory sample? (1)

- A. A small portion taken from a population.
- B. A sample taken to the laboratory.
- C. A fraction taken from the sample for final laboratory analysis.
- D. Part of the population.

1.5 The ash content is used to indicate: (1)

- A. The total amount of specific mineral in a sample
- B. The physical properties of water
- C. The dry matter
- D. The total amount of minerals present

1.6 The basic principle of protein determination includes: (1)

- A. Determination of scattering properties.
- B. Determination of other food components.
- C. Determination of food texture.
- D. All the above

- 1.7 Kjeldahl methods was developed in \_\_\_\_\_ Low- Temperature plasma Ashing is based on the application of (1)
- 1988
  - 1889
  - 1898
  - 1883
- 1.8 Low- Temperature plasma Ashing is based on the application of. (1)
- Heat > 150°C, using activated oxygen.
  - Heat <150°C using oxygen.
  - Heat ≤ 140°C using activated oxygen.
  - Heat < 150°C using activated CO<sup>2</sup>.
- 1.9 The only reliable method for the determination of total starch is based on the complete conversion of (1)
- Starch into D-glucose
  - Monosaccharides into D-glucose
  - Maltose into D-glucose
  - All sugars into D-glucose
- 1.10 The microbial Assay is one of the classes of vitamin assays that is used for: (1)
- Water soluble vitamins only
  - All food types
  - All Vitamins
  - Fat-soluble vitamins only

## SECTION B: SHORT ANSWER QUESTIONS

[ 54 MARKS ]

Please answer ALL of the questions in this section.

### QUESTION 2

(54 MARKS)

- 2.1 Differentiate between the following terms. (20)
- A Heterogeneous and Homogeneous population (4)
  - A population and a sample (4)
  - Continuous population and a compartmentalized population (4)
  - Attribute sampling and variable sampling (4)
  - Mineral contents and ash content (4)
- 2.2 Outline five (5) reasons for analyzing food. (5)
- 2.3 Mention five (5) important techniques used to measure the moisture content in food. (5)
- 2.4 Give five (5) advantages of dry-ash method (5)

- 2.5 Why it is important to analyze protein from food? (5)
- 2.6 Outline the precautional measures to keep in mind during sampling and handling of samples to be analysed for moisture content acid method. (10)
- 2.7 For you to successfully analyze the properties of food material, you need to successfully complete different steps. Outline four (4) steps you have learned. (4)

**SECTION C: LONG ANSWER QUESTIONS**

**[36 MARKS]**

**QUESTION 3** (10 MARKS)

Discuss the principle of total carbohydrates: phenol-sulfuric acid method?

**QUESTION 4** (12)

With a clear flow diagram, describe the sample preparation and extraction of mono- and disaccharides.

**QUESTION 5** (6)

Discuss three (3) forms of water in food.

**QUESTION 6** (8)

Assume you have collected samples and you would like to analyze them for some food components. Discuss four (4) steps you would follow to prepare your laboratory samples. (10)

---

**END OF QUESTION PAPER**

**GOOD LUCK**