NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Faculty of Health and Applied Sciences

Department of Health Sciences

QUALIFICATION: BACHELOR OF HUMAN NUTRITION	
QUALIFICATION CODE: 08B0HN	**LEVEL:** 6
COURSE CODE: FCA 621S	**COURSE NAME:** FOOD COMPOSITION AND ANALYSIS
SESSION: NOVEMBER 2019	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

PERMISSIBLE MATERIALS

CALCULATOR

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

SECTION A

QUESTION 1 (46 MARKS)

1.1 Explain the four (4) major reasons for conducting food analysis. (8)

1.2 Explain the following terms used in setting standards of specific food products.

1.2.1 Standard of quality. (2)

1.2.2 Standard of identity. (2)

1.2.3 Standard of fill of container. (2)

1.3 Before conducting analysis of a food sample, it is important to prepare the sample well to minimise errors in the final results.

1.3.1 Explain the three (3) key steps that must be followed during sample preparation. (6)

1.3.2 Outline five (5) components of a sampling plan. (5)

1.4 As a Nutritionist with Katutura State Hospital, you have been asked to prepare fortified milk for feeding malnourished children in the children's ward. You have milk powder containing 83.5 g sugar per 100 g and water containing zero sugar. You are required to prepare 2000 g of milk containing 50 g sugar per 100 g.

1.4.1 Calculate the amount of milk powder you need to prepare the fortified milk. (4)

1.4.2 Calculate the amount of water you need to prepare the fortified milk. (3)

1.5 During the preparation of laboratory reagents for analysis, you have been given a solution of 24% w/v NaCl. How much of NaCl do you need to prepare a solution of 350 ml. (4)

1.6 Briefly explain the difference between following terms in food analysis.

1.6.1 Accuracy and precision. (2)

1.6.2 Sample attribute and sample variable. (2)

1.6.3 Finite and infinite population. (2)

1.6.4 Systematic sampling and Judgmental sampling. (2)

1.6.5 Spectroscopy and colorimetric methods of mineral determination. (2)

SECTION B

QUESTION 2 **(54 MARKS)**

2.1 During determination of fat content of the food sample, preliminary steps involve the following activities; sample drying, grinding the sample to fine particles and acid hydrolysis.

2.1.1 Explain the importance of each of the mentioned activities. (6)

2.1.2 Explain the important factors that should be considered in selecting solvent for fat extraction. (2)

2.1.3 Describe the Soxhlet method for the determination of fat content of food samples (5)

2.2 Explain the three (3) steps involved in determination of protein concentration by the Kjeldahl method. (6)

2.3 Outline two (2) advantages and two (2) disadvantages of the Kjeldah method. (4)

2.4 Explain five (5) factors that must be considered before drying a food sample in a forced daft dry oven. (10)

2.5 Outline (1) disadvantages of a forced draft dry oven. (1)

2.6 Describe the Lane-Eynon method for determination of carbohydrate content of a food sample. (6)

2.7 Outline four (4) disadvantages of the Lane-Eynon method. (4)

2.8 Explain the principle for the determination of ash content of food sample. (2)

2.9 Describe the low temperature dry ashing method used in determination of ash content of food (5)

2.10 Outline one (1) advantage and one (1) disadvantage of the low temperature dry ashing method (3)

GOOD LUCK