



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

**DIGREE IN ENVIRONMENTAL HEALTH WITH FOOD
SANITATION AND TECHNOLOGY**

FINAL EXAMINATION PAPER 2011

- TITLE OF PAPER** : FOOD ANALYSIS
- COURSE CODE** : EHS 502
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
 - : ANSWER ANY **FOUR (4)** QUESTIONS
 - : EACH QUESTION CARRIES 25 MARKS.
 - : WRITE NEATLY & CLEARLY
 - :
 - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS
GRANTED BY THE INVIGILATOR.**

Question 1

(a) Discuss the initial procedures and principles behind the commonly used quantitative methods of determination of carbohydrates. [20 Marks]

(b) During an analysis by Luff-Schoorl method of two samples the following sugars percentages were obtained;

- (i) 12 %
- (ii) 45 %

Using your knowledge of determination of Carbohydrates, suggest the possible likely types of products [5 Marks]

Question 2

(a) The use of instruments and special techniques in the analysis of food play significant role in the industry. As a Food Technologist give an account about the Instrumentation and Practical Consideration of one of the following;

- (i) Spectroanalytical methods
- (ii) Chromatographic methods

[20 Marks]

(b) List down the qualitative methods for determination of carbohydrates [5 Marks]

Question 3

Given the following data for laboratory analysis of Dry Matter (DM);

Parameter	Weight (g)	Weight (g)
W ₀ (crucible)	54.0212	84.6978
W ₁ (crucible + sample before drying)	60.0903	90.7221
W ₂ (crucible + sample after drying for 2 hours)	56.0945	86.6951
W ₃ (crucible + sample after drying for 3 hours)	56.0754	86.6693

(a) Calculate the Dry Matter and Moisture content of sample [10 Marks]

(b) Distinguish if the sample was likely to be Bread or Meat [5 Marks]

Given the following laboratory analysis data;

Parameter	Weight (g)
Weight of beaker (W ₀)	31.4960
Weight of beaker + sample	31.9157

Titration (0.05 N Hydrochloric acid)	Volume (ml)
Volume at beginning (V ₀)	01.00
Volume at end (V ₁)	16.55

(c) Calculate the percentage of crude protein in the sample [10 Marks]

Question 4

- (a) One of the common methods used in determination of crude protein is The Kjeldahl procedure. Discuss how you would go about estimate the crude protein of bread using the Kjeldahl procedure. Support your procedure with chemical equations **[20 Marks]**
- (b) What are the temperatures range used during determination of moisture with Oven Drying? What are the disadvantages of using this method? **[5 Marks]**

Question 5

- (a) Outline the ways you can use to break down bound lipids **[5 Marks]**
- (b) What is degradation rancidity and elaborate on techniques used to determine hydrolytic and oxidative rancidity? **[20 Marks]**