



UNIVERSITY OF SWAZILAND  
Faculty of Health Sciences

DEGREE IN ENVIRONMENTAL HEALTH  
FINAL EXAMINATION PAPER 2005

**TITLE OF PAPER** : **FOOD CHEMISTRY AND ANALYSIS**

**COURSE CODE** : **EHS 511**

**DURATION** : **2 HOURS**

**MARKS** : **100**

**INSTRUCTIONS** :

- : **READ THE QUESTIONS & INSTRUCTIONS CAREFULLY**
- : **ANSWER ANY FIVE QUESTIONS**
- : **EACH QUESTION CARRIES 20 MARKS.**
- : **WRITE NEATLY & CLEARLY**
- : **NO PAPER SHOULD BE BROUGHT INTO OR OUT OF THE EXAMINATION ROOM.**
- : **BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.**

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

**QUESTION 1**

Discuss and illustrate hydrogen bonding of water and its role in gel formation

(20 Marks)

**QUESTION 2**

- a) Briefly discuss ascorbic acid and retinol. (10 Marks)  
 b) Explain two reasons why water is essential to living things (10 Marks)

**QUESTION 3**

Using structures to illustrate your answer, briefly discuss:

- a) Amino sugars. (10 Marks)  
 b) Polar positively charged amino acids. (10 Marks)

**QUESTION 4**

Using illustrations to demonstrate your answer contrast glycosidic bonds and peptide bonds of food biopolymers. (20 Marks)

**QUESTION 5**

- a) Describe and illustrate triacylglycerides and what are their natural food source (10 Marks)  
 b) Describe and illustrate lactose and what is its natural food source (10 Marks)

**QUESTION 6**

Some qualitative tests were done on food samples and the results were as shown on Table 1:

Sample	Molisch test	Biuret test	Fehling test	Seliwanoff test	Sakaguchi's test
A	--	--	--	--	++
B	++	--	--	++	--
C	++	--	--	--	--
D	--	++	--	--	++
E	++	--	++	--	--

**Key: ++ denote positive results and --denote negative results**

Which of the sample(s) contained: Lactose; Sucrose; Gelatine; Arginine; and Starch? (10 Marks). Justify your answer (10 Marks).