



KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE
DEGREE OF BACHELOR OF SCIENCE IN NUTRITION AND DIETETICS
SECOND SEMESTER, 2021/2022
(FEBRUARY - JUNE, 2022)**

FOND 122: MACRONUTRIENTS

STREAM: Y1 S2

TIME: 2 HOURS

DAY: WEDNESDAY, 12:00 – 2:00 P.M.

DATE: 11/05/2022

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer ALL the Questions in section A [Compulsory] and any other TWO Questions from section B.***

SECTION A (40 marks)

- Define the following terms
 - Limiting amino acids [2 marks]
 - Oligosaccharides [2 marks]
 - Gluconeogenesis [2 marks]
 - High density lipoprotein [2 marks]
 - Cis-fatty acids [2 marks]
- The hydrolysis of sucrose by the enzyme sucrase results in [2 marks]
- Describe the two forms of starch found in the diet [4 marks]
- Explain the circumstances under which Tyrosine is regarded as essential amino acid [3 marks]
- Describe the primary and tertiary structures of proteins [4 marks]
- Alcohol is rich in energy, despite this, it also contributes to malnutrition. Explain. [3 marks]

7. Draw the basic chemical structure of an amino acid stating its difference from lipids and carbohydrates [4 marks]
8. Differentiate between soluble and insoluble fiber and give two examples each on their functions [6 marks]
9. 1 gram of alcohol gives 7kcalories. Why is alcohol intake still associated with malnutrition? [4 marks]

SECTION B (30 marks) ANSWER ANY TWO QUESTIONS

- 1.
- a. Give similarities and differences between triglycerides and phospholipids [2 marks]
 - b. Differentiate between saturated and non-saturated fatty acids and give one example in each category [4 marks]
 - c. What are trans fatty acids [1 marks]
 - d. Why are trans fatty acids of concern regarding health [4 marks]
 - e. Highlight the occurrence of trans fatty acids in foods [4 marks]
- 2.
- a. List and explain the various components of energy expenditure [6 marks]
 - b. Discuss three modifiable factors that affect Basal Metabolic rate (BMR) [6 marks]
 - c. What are the energy values of 1 gram of each of the three macronutrients [3 marks]
3. How does the body digest and absorb dietary protein? Explain the entire process. [15 marks]