



# Technical University of Mombasa

Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
SCIENCE IN COMMUNITY HEALTH  
**BSCH 14J**

**AABT 4210 : INTRODUCTION TO BIOMOLECULES**

SEMESTER : EXAMINATION

APRIL 2014 SERIES

2 HOURS

Instructions to candidates:

This paper consists of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

## QUESTION ONE

- a) Explain the following terms with reference to enzymes
  - (i) Active site (2 marks)
  - (ii) Zymogens (2 marks)
  - (iii) Activation energy (2 marks)
  - (iv) Enzyme reaction (2 marks)
- b) Differentiate between primary DNA structure and secondary DNA structure (4 marks)
- c) Elaborate on the following amino acids
  - (i) Essential amino acids (2 marks)
  - (ii) Non polar Amino acids (2 marks)
  - (iii) Acidic amino acids (1 mark)
- d) Differentiate between  $\alpha$  helix and  $\beta$  sheet structure of protein peptides (4 marks)
- e) Explain the classification of lipids (5 marks)

- f) Describe Cytoplasmic membrane of a cell structure **(4 marks)**

## **QUESTION TWO**

Discuss classification of amino acid with reference to

- (i) Nature classification **(3 marks)**
- (ii) Electrochemical classification **(3 marks)**
- (iii) Biological / Physiological classification **(4 marks)**
- (iv) Fate of each amino acid **(5 marks)**
- (v) Metabolic interaction with water **(5 marks)**

## **QUESTION THREE**

a) Explain protein classification in relation to

- (i) Composition **(2 marks)**
- (ii) Solubility **(3 marks)**
- (iii) Overall shape **(3 marks)**

b) Discuss the following protein structures

- (i) Primary structure **(7 marks)**
- (ii) Tertiary structure **(5 marks)**

## **QUESTION FOUR**

Discuss

- (i) At least 5 factors affecting enzymatic activities **(10 marks)**
- (ii) 5 Properties of enzymes **(10 marks)**

## **QUESTION FIVE**

Discuss the following types of carbohydrates

- (i) Monosaccharide **(5 marks)**
- (ii) Disaccharide **(5 marks)**

(iii) Homopolysaccharide

**(5 marks)**

(iv) Hetero poly saccharide

**(5 marks)**