



**TECHNICAL UNIVERSITY OF MOMBASA**

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SCHOOL OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR**

**DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY**

ABT 2208: STRUCTURAL BIOCHEMISTRY

END OF SEMESTER EXAMINATION

**SERIES: DEC 2024**

**TIME: 2 HOURS**

**DATE: DEC 2024**

**Instructions to Candidates**

You should have the following for this examination

*Answer Booklet, industrial examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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**Question ONE**

- a) Name **TWO** forms of Nucleic acid and describe each in relation to its functions (8 marks)
- b) Name **THREE** types of structural representation of carbohydrates (3 marks)
- c) Name **TWO** classes of Phospholipids and give an example of each. (2 marks)
- d) Name **TWO** types of fibrous protein (2 marks)
- e) Describe **TWO** Main functions of Proteins (2 marks)
- g) Differentiate between Essential and Non-essential Amino acids (2 marks)
- h) Discuss **THREE** levels of cell organization molecules that make up living organisms (3 marks)
- i) State and elaborate **FOUR** main functions of Carbohydrates (4 marks)

### Question TWO

- (a). Draw structures of (4 marks)
- i) Phenylalanine (Phe)
  - ii) Histidine (His)
- (b) Explain **Five** physical properties of amino acids (5 marks)
- (c) Outline **THREE** current trends in Biochemistry (6 marks)

### Question THREE

- (a) Define a Peptide bond, describe the formation of a peptide bond, and state Two characteristics of a peptide bond. (6 marks)
- b) Discuss the chemical properties of nucleic acids (5 marks):
- c) Describe chemical properties of carbohydrates (4 marks)

### Question FOUR

- a) Describe functions of amino acids (6 marks)
- b) Discuss functions performed by different types of protein (6 marks)
- c) Outline the procedure for Xanthoproteic test (3 marks)

### **Question FIVE**

- a) Discuss functions of lipids in a living organisms' body **(5 marks)**
- b) Explain **Two** types of protein based-chemical classification nature, exiting examples for each **(6 marks)**
- c) Illustrate with the help of diagrams D and L isomers are enantiomers **(4 marks)**