



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MICROBIOLOGY AND BIOTECHNOLOGY

ABT 2208 : STRUCTURES OF BIOMOLECULES

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

Question ONE

- a) Define the following terms
- Isomerism
 - Chiral carbon
 - An epimer
 - Nucleoside
 - Mutarotation (5mks)
- b) Using the general structure of an amino acid illustrate the amphoteric nature of amino acids (5mks)
- c) Using examples differentiate the following carbohydrate molecules
- D and L sugars
 - Homopolysaccharide and heteropolysaccharide (4mks)
- d) When glucose was dissolved in water its initial optical rotation observed was $+112^\circ$, after a while its optical rotation changed to $+19^\circ$ and finally changed to $+52.5^\circ$. Explain this observation. (5mks)
- e) Outline the functions of DNA in living organisms (4mks)
- f) Using structural illustration, differentiate between
- saturated and unsaturated fatty acids
 - Cis and trans fatty acids (6mks)

Question TWO

Discuss the various types of isomerism of monosaccharides giving examples (15mks)

Question THREE

a) Differentiate between basic and acidic amino acids giving examples (6mks)

b) Discuss the functions of the different types of RNAs (8mks)

Question FOUR

Discuss the functional classification of proteins (15mks)

Question FIVE

a) Discuss the properties of DNA in solution (5 mks)

b) Outline the functions of lipids (10MKS)