MACHAKOS UNIVERSITY

University Examinations 2022/2023 academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SZL 205: PRINCIPLES OF BIOCHEMISTRY

DATE: **TIME:**

INSTRUCTIONS

1. Anwer Question 1 (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

a)	Define enantiomers and glycosidic bond	(3 marks)
b)	Briefly explain the reaction of aldehydes and ketones	(3 marks)
c)	Describe three principal biomolecules studied in plant biochemistry	(3 marks)
d)	Briefly explain the hydrophobic effect/hydrophobic interactions	(3 marks)
e)	Describe any two bases of the nucleic acids	(3 marks)
f)	Briefly explain the clinical importance of amino acids	(3 marks)
g)	Explain three role of fats	(3 marks)
h)	Draw the structure of maleic acid (*cis*) and fumaric acid (*trans*)	(3 marks)
i)	Briefly explain the properties of amino acids	(3 marks)
j)	Describe three monosaccharide derivatives	(3 marks)

SECTION B : ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

Discuss the structure and function of nucleic acids (DNA and RNA)

QUESTION THREE (20 MARKS)

a)	Distinguish saturated and unsaturated fatty acids beneficial to man.	(10 marks)
b)	Briefly discuss lipid metabolism	(10 marks)

QUESTION FOUR (20 MARKS)

a) Draw the Fischer projection(s) of D & L-glyceraldehyde (6 marks)
b) Discuss the movement of water across the plasma membrane. (14 marks)

QUESTION FIVE (20 MARKS)
Discuss protein structure and levels