



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE (ANALYTICAL CHEMISTRY)

SZL 205: PRINCIPLES OF BIOCHEMISTRY

DATE: 17/3/2022

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

ANSWER ALL QUESTIONS IN SECTION A AND ANY OTHER TWO QUESTIONS IN SECTION B

SECTION A (COMPULSORY)

QUESTION 1 (30 MARKS)

- Using examples, explain the meaning of linear biopolymers (3 marks)
- Explain the distribution of various types of RNA molecules in living organisms (3 marks)
- Briefly, describe the role of coenzymes and cofactors in metabolism (3 marks)
- State three functions of proteins in living organisms (3 marks)
- Describe the structural components and organization of carbohydrates (3 marks)
- Discuss the two main categories of nitrogenous bases in nucleic acid molecules (3 marks)
- Describe, the process degradation of lipids in body cells (3 marks)
- Explain the composition and basic structure of fatty acids (3 marks)
- Using examples, explain the structural significance of polysaccharides (3 marks)
- Describe the basic structural organization and composition of amino acids (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION 2 (20 MARKS)

Explain the process of carbohydrate metabolism and breakdown in living organisms

QUESTION 3 (20 MARKS)

Describe the structures and biological functions of various types of lipids

QUESTION 4 (20 MARKS)

- a. Explain the four distinct levels of protein structure (10 marks)
- b. Write short notes on the process of protein biosynthesis and degradation (10 marks)

QUESTION 5 (20 MARKS)

- a. Discuss the main processes of lipid metabolism (10 marks)
- b. Explain the molecular composition, size and tology of nucleic acids (10 marks)