

LAIKIPIA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

**FOURTH YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN BIOCHEMISTRY**

BIOC 421: CLINICAL BIOCHEMISTRY

STREAM: BIOCHEMISTRY

TIME: 2 HRS

DAY: FRIDAY [11.30A.M – 1.30P.M]

DATE: 12/04/2024

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.



INSTRUCTIONS

- i. Answer **ALL** questions in Section A and **ANY ONE** question in Section B
- ii. Illustrate your answers with diagrams where applicable
- iii. Do not write on the question paper

SECTION A: ANSWER ALL QUESTIONS**QUESTION ONE**

Elucidate the following:

- a. The molecular basis of sickle cell anaemia **(3 Marks)**
- b. Any **THREE** importance of urinalysis **(3 Marks)**
- c. **FOUR** markers for liver dysfunction **(4 Marks)**

QUESTION TWO

Outline the following aspects:

- a. The importance of blood grouping **(5 Marks)**
- b. Biochemical events resulting to Hemolytic Disease of Newborn **(5 Marks)**

QUESTION THREE

Describe the following in relation to their clinical significance

- a. Illustrate enzymes concentration in serum following uncomplicated myocardial infarction **(5 Marks)**
- b. Clinical significance of Amylase **(5 Marks)**

QUESTION FOUR

Explain the following:

- a. Causes of pre-hepatic (hemolytic) jaundice **(5 Marks)**
- b. Loading/unloading of Oxygen depends on P_{O_2} of environment and its affinity with hemoglobin. **(5 Marks)**



QUESTION FIVE

Discuss the metabolic changes that occur in Diabetes Mellitus

(10 Marks)

SECTION B: CHOOSE ONLY ONE QUESTION (20 MARKS)

QUESTION SIX (20 MARKS)

Phenylketonuria is an in born error of amino acid metabolism. Discuss phenylketonuria using the following topics **(20 Marks)**

- a. Metabolic cause that include molecular genetics
- b. Methods of assay and reference values
- c. Pathophysiology

QUESTION SEVEN (20 MARKS)

Physiological buffers act as the second line of defence against pH shift. Describe the three mechanism involved in renal regulation of pH **(20 Marks)**

