LAIKIPIA UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND SEMESTER 2023/2024 ACADEMIC YEAR

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF BIOMEDICAL SCIENCE AND TECHNOLOGY (BMED)

BMED 323: LABORATORY TECHNIQUES II

STREAM: R ***TIME: 2 HRS***

DAY: WEDNESDAY [8.30A.M – 10.30A.M] ***DATE: 10/04/2024***

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

Instructions

Answer **ALL** questions in section **A** and any **TWO** questions in section **B**

SECTION A (40 MARKS)

QUESTION ONE

Define the following terms **(5 Marks)**

i. Ampholyte
ii. Microfuges
iii. Isotachophoresis
iv. Yield
v. Svedberg

QUESTION TWO

Show Stokes' equation and define all its terms **(5 Marks)**

QUESTION THREE

Calculate the number of revolutions per minute needed to centrifuge a sample at 10,000 x g using a rotor with a radius 7 cm. (**5 Marks)**

QUESTION FOUR

Describe the types of rotors used in centrifuges **(4 Marks)**

QUESTION FIVE

Outline the procedure for assaying for the enzyme luciferase **(3 Marks)**

QUESTION SIX

Differentiate between native and gradient gels **(4 Marks)**

QUESTION SEVEN

State the use of the SDS, TEMED, APS, Coomassie Brilliant Blue, and mercaptoethanol in gel electrophoresis **(5 Marks)**

QUESTION EIGHT

Describe two-dimensional polyacrylamide gel electrophoresis **(5 Marks)**

QUESTION NINE

Outline the uses of protein sequence data **(4 Marks)**

SECTION B (30 MARKS)

QUESTION TEN

Explain the utility of agarose gel electrophoresis in determining the success of restriction digest experiment **(15 marks)**

QUESTION ELEVEN

Describe any three methods for determination of protein concentration in a sample (15 marks)

QUESTION TWELVE

Describe the application of immunosorbent assays in the diagnosis of infectious agents in blood (15 marks)