



# Technical University of Mombasa

Faculty of Applied and Health Sciences

**DEPARTMENT OF PURE AND APPLIED SCIENCES**

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
TECHNOLOGY IN APPLIED CHEMISTRY (ANALYTICAL OPTION)  
**BTAC 11M**

**ACH 4412: BIOANALYTICS II**

SEMESTER EXAMINATION

DECEMBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

## QUESTION ONE

- a) Define the following terms as used in bioanalysis **(8 marks)**
- (i) Mistakes
  - (ii) Analytical techniques
  - (iii) Procedure
  - (iv) Quality control
- b) Outline **FOUR** challenges an analyst faces during sample analysis **(4 marks)**
- c) State **THREE** reasons why it is necessary for an analyst to proceed to an extraction step **(3 marks)**
- d) Briefly discuss **THREE** approaches used to detect the presence of systematic errors in an analysis **(6 marks)**

- e) Briefly explain TWO characteristics of a quality control material **(2 marks)**
- f) State and explain the FOUR phases in clinical trials **(2 marks)**
- g) Explain an analyser? State TWO commonly used analyzers in clinical chemistry and their uses **(5 marks)**

## **QUESTION TWO**

- a) What is bias? Outline TWO ways on how an analyst minimizes or avoids bias during clinical trials? **(4 marks)**
- b) Discuss with examples the types and sources of errors **(16 marks)**

## **QUESTION THREE**

- a) State and explain SEVEN factors to consider when choosing/ selecting the appropriate method in Bioanalysis **(14 marks)**
- b) Outline THREE advantages and THREE disadvantages of instrumental analytical methods **(6 marks)**

## **QUESTION FOUR**

State and explain the features of FOUR technologies used in clinical immuno analysis **(20 marks)**

## **QUESTION FIVE**

- a) What are clinical trials? Give an example **(4 marks)**
- b) State and explain eight components of clinical trials. **(12 marks)**
- c) Briefly explain FOUR ethical norms of clinical trials **(4 marks)**