



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
BTAC 11M

ACH 4407 : BIO-ANALYTICS

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

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

Question ONE

- Outline the activities and analysis that are performed in proteomics (6marks)
- Explain ways of detecting proteins during electrophoresis (6marks)
- Differentiate between paralogs and orthologs are used in bioinformatics (6marks)
- Describe the two methods of establishing the concentration of a standard (6marks)
- Describe the three classes of endonucleases interms of deconing from the recognition site. (6marks)

Question TWO

- a) Outline the advantages and disadvantages of direct and indirect Elisa. **(12marks)**
- b) Outline the application of Elisport **(6marks)**

Question THREE

- a) In an experiment to determine the molecular weight of unkwn protein by SDS-PADE, Aldolase, Catalase, Ferolin and thyroglobullin were used and the data below was obtained.

Protein	Mw (KDa)	Migration distance (Cm)
Aldolase	158	3.56
Catalase	210	3.23
Feratin	440	2.86
Thyroglobulin	669	2.51

If the unknown protein migrated at a distance of 3.03 an in the same gel, determine its molecular weight. **(8marks)**

- b) Outline the advantage of cycling sequencing in determining inflect acid sequences.

(8marks)

- c) Explain the effect of viscosity of the medium drug electrophoresis **(4marks)**

Question FOUR

Discuss the factors that affect the mobility of molecules during electrophoretic separation

(20marks)

Question FIVE

- a) Outline the eight basic steps that are involved in determining the amino acid sequence

(8marks)

- b) Describe Edman degindation reaction in determination of amino acids sequence of a polypeptide chain **(12marks)**