



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF JKUAT)

(A Centre of Excellence)

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

DIPLOMA IN ANALYTICAL CHEMISTRY

(DAC 10M)

ABT 2308: BIOCHEMICAL TECHNIQUES OF ANALYSIS

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: FEBRUARY 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper

- *Answer booklet*

This paper consists of **FIVE** questions.

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

This paper consists of 2 PRINTED pages

Question ONE

- a) (i) Explain why the dissociation constant of water value at 25°C is about $1 \times 10^{-14} \text{ M}^2$ (2marks)
- (ii) Calculate the pH value of 0.0001M Hydrochloric acid solution (2marks)
- b) Explain the following terms;
- (i) Origin
- (ii) Solvent front
- (iii) Location
- (iv) Elution
- c) Explain the application of a sample to a thin layer chromatogram (4marks)
- d) Describe the technique used to distinguish fructose from glucose. (4marks)
- e) State the principle of xanthoproteic test analysis (4marks)
- f) Describe the mechnique for phenolic amino acids. (4marks)
- g) State Beer-lamberty law (4marks)
- h) List materials used as absorbents for thin layer chromatography. (2marks)

Question TWO

- a) Explain the technique for one-dimensional chromatography (8marks)
- b) Outline a scheme for the identification of an unknown carbohydrate. (7marks)

Question THREE

- a) Explain the electrophoresis technique. (8marks)
- b) Outline the analysis technique for sulphur test. (7marks)

Question FOUR

- a) Explain the purification of ordinary water by ion exchange resin. (8marks)
- b) Outline the technique for ninhydrin test for amino acids. (7marks)

Question FIVE

- a) Outline the technique used for identification of a reducing sugar. (8marks)
- b) Draw graphs showing the relationships between absorbance and concentration and percentage transmission. (7marks)