



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ANALYTICAL CHEMISTRY

ACH 2303: INSTRUMENTAL METHODS OF ANALYSIS 2

PAPER 2

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a. What is Analytical chemistry (2marks)
- b. What is the importance of each of the following methods of analysis?
- (i). Qualitative method (2marks)
- (ii). Quantitative method (2marks)
- b. What are the limitations of classical methods of analysis? (4marks)
- c. How does ionization occur? (2marks)
- e. Define the following terms as used in analytical chemistry: (6marks)
- (i). Aerosol
- (ii). Atomization

(iii). Emission

f. During analysis of liquids, the liquid samples are normally turned into an atomic gas in three steps, state and explain the three steps. (6marks)

g. Explain how stratified sampling is carried out (6marks)

Question TWO

a. Outline five applications of atomic spectroscopy (5marks)

b. Draw a well labeled diagram of a typical atomic absorption spectrometer.(10marks)

Question THREE

a. State the importance of the following parts in a flame photometer. (6marks)

(i). Nebulizer and mixing chamber

(ii). Photo detector

(iii). Flame

b. Discuss the various processes occurring in the flame of a flame photometer (9marks)

Question FOUR

a. Discuss the uses and applications of infrared spectroscopy (5marks)

b. Write brief notes about the following: (10marks)

i. Stretching

ii. Bending

iii. Rocking

iv. Wagging

v. Twisting

Question FIVE

Sampling Methods can be classified as either Probability Sampling or Non-probability Sampling. Discuss about these two methods. (15marks)