TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ANALYTICAL CHEMISTRY

ACH 2201 : **Chemical Analytical Methods I (paper 1)**

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

Question ONE

a) Define the following terms as employed in analytical chemistry;
   - I. Analyte **(2 marks)**
   - II. Matrix **(2 marks)**
   - III. Analysis **(2 marks)**
   - IV. Sample **(2 marks)**

b) State the purpose of analytical chemistry **(3 marks)**

c) Discuss the scope of analytical chemistry **(8 marks)**

d) Differentiate between quantitative and qualitative analysis **(4 marks)**

e) Briefly explain method validation **(4 marks)**

f) Explain why sample pre-treatment is neccessary **(3 marks)**

Question TWO

a) Differentiate between absolute and relative errors **(3 marks)**

b) With examples describe systemic errors **(12 marks)**

Question THREE

a) Briefly explain the steps involved in sampling in order to obtain a laboratory sample

(3 marks)

b) Describe the procedure for Sampling Homogeneous Solutions of Liquids and Gases

(12 marks)

Question FOUR

a) Explain the importance of computing standard deviation in data analysis **(3 marks)**

b) The followng are five weight values obtained by an analyst during gravimetric analysis. Calculate the estimated standard deviation, **s**. **(12 marks)**

weight in mg
20.16
20.18
20.20
20.22
20.24

Question FIVE

Explain the following as applied in analytical chemistry

I. Signal processing **(5 marks)**
II. Sensitivity **(5 marks)**
III. Detection limit **(5 marks)**