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 2)**

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. Analytical chemistry **(2 marks)**
   - II. Quantitative analysis **(2 marks)**
   - III. Qual;itative analysis **(2 marks)**
   - IV. Structural analysis **(2 marks)**

b) State any four areas of application of analytical chemistry **(4 marks)**

c) Give the steps involved in an overall analytical procedure **(7 marks)**

d) Differentiate between an analytical technique and analytical method **(4 marks)**

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

f) Explain why a sample must be properly stored **(3 marks)**

Question TWO

Explain the follwing types of errors as encountered in analyticasl chemistry

I) Determinate errors **(5 marks)**

II) Indeterminate errors **(5 marks)**

III Accumulated errors **(5 marks)**

Question THREE

a) Briefly describe the factors which determine gross sample size **(3 marks)**

b) Describe the procedure for Sampling Metals and Alloys **(12 marks)**

Question FOUR

a) Differentiate between accuracy and precision in analysis **(3 marks)**

b) The followng are five titre values obtained by an analyst during a certain titration.In oeder to assess the precision of the data calculate the estimated standard deviation, **s**. **(12 marks)**

Titre values (cm^3)
20.16
20.18
20.20
20.22
20.24

Question FIVE

Explain the following as applied in analytical chemistry

I. Noise signal ratio **(5 marks)**
II. Signal processing **(5 marks)**
III. dynamic range selectivity **(5 marks)**