



**TECHNICAL UNIVERSITY OF MOMBASA**

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

DIPLOMA IN ANALYTICAL CHEMISTRY

**ACH 2301 : Chemical Analytical Methods II (paper 2)**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: SEPTEMBER 2018**

**TIME: 2 HOURS**

**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 Choose No questions. Attempt Choose instruction.

**Do not write on the question paper.**

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**Question ONE**

- a) Define the following terms as employed in titrimetric analysis;
- I. titrand (2 marks)
  - II. volumetric analysis (2 marks)
  - III. titration error (2 marks)
  - IV. stock solution (2 marks)
- b) name any four indicators employed in redox titrations (3 marks)
- c) describe the working of metallochromic indicators indicators (7 marks)
- d) differentiate between a primary standard substance and secondary standard substance (4 marks)
- e) Give the mathematical expression of molarity (4 marks)
- f) Differentiate between acidimetry and alkalimetry (4 marks)

**Question TWO**

- a) Differentiate iodometry and iodimetry (3 marks)
- b) 20 ml of iodine solution required 15 ml of 0.4M sodium thiosulphate solution for complete reaction.

Calculate the molarity of the iodine solution. Include half and full reaction equations. **(12 marks)**

### **Question THREE**

a) Differentiate masking and demasking as employed in complexometry **(3 marks)**

b) 25 ml of magnesium sulphate solution required 20 ml of 0.2M EDTA solution for complete reaction.

Calculate the molarity of the magnesium sulphate solution. Include the complexation reaction equation. **(12 marks)**

### **Question FOUR**

a) Define solubility product **(3 marks)**

b) Discuss Volhard's titration method **(12 marks)**

### **Question FIVE**

a) What is back titration? **(3 marks)**

b) With examples explain the instances when back titration is applicable **(12marks)**