Candidates Name: ……..

Signature: ……..

Random No.						Personal No.		

(*Do not write your School/ Centre Name or Number anywhere on this Booklet.*)

545/2
CHEMISTRY
Paper 2
2024
2 Hours

"Affordable Quality Assessment"

WAKISO – KAMPALA TEACHERS' ASSOCIATION (WAKATA)

WAKATA PRE-MOCK EXAMINATIONS 2024

Uganda Certificate of Education

CHEMISTRY

Paper 2
Practical

2 Hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of **one compulsory** examination *item. Answers to this item are to be written in the spaces provided in this booklet. Use* **blue** *or* **black** *ink.*

All working must be clearly shown. Graph paper will be provided.

Mathematical table and silent non-programmable scientific calculators may be used.

You are **not** *allowed to use reference books (i.e. text books, booklets on qualitative analysis etc.)*

Candidates are advised to carefully read the item, make sure they have all the apparatus and chemicals they may need and then **plan** *appropriately before starting.*

Turn Over

Item 1

A food science laboratory conducted experiments to analyze the acidity of citrus fruits using volumetric analysis methods. One of the experiments focused on determining the citric acid content in lemon juice.

In the food science laboratory, David, a passionate food scientist, undertook an experiment to quantify the citric acid content in lemon juice. Following established procedures, David prepared a burette with a standardized solution of sodium hydroxide and obtained a precise volume of lemon juice in a flask.

As David performed the titration, he carefully noted the pH changes using a pH indicator until reaching the equivalence point. David recorded the burette readings and pH measurements throughout the titration process.

Citric acid reacts with sodium hydroxide according to the following equation:

$$Citric\ acid + 3NaOH \rightarrow Sodium\ citrate + 3H$$

The acid provided is labeled **BA1** and the base provided is labeled **BA2**.

(a) As a food scientist:

(i) Develop an experiment to determine the citric acid content in lemon juice using **BA2** as the titrant.

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(ii) Conduct the titration experiment, ensuring accurate measurement and monitoring of pH changes.

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(iii) Calculate the citric acid content in **BA1** based on the volume of **BA2** used and the equivalence point of the titration.

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(b) Based on your experimental results, discuss the significance of citric acid determination in food analysis and its implications for product labeling and quality control in the food industry.

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