Candidate's name: .....

Signature: ..... COMBINATION: .....

P525/2
CHEMISTRY
Paper 2
(Practical)
April.2026
2 hours

Total Weighted Score		
Initials		

ANAKA INTERGRATED SECONDARY SCHOOL
PREMOCK ASSESSMENT S.6

Paper 2
2 hours

For scorers' Use Only

Basic code	Weighted Score	Scorers' Initials
A		
H		
V		
P		
R		
D		
Dr		
I		
C		
Total weighted score		

INSTRUCTION TO CANDIDATES:

This paper consists of **one compulsory** *examination item. Responses 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 is provided.

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

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

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

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Item one;

A textile factory uses a copyrighted **"*scouring agent***. Scouring agents remove dirt and impurities form raw cotton and linen fibers, without damaging them in preparation for dyeing. The active ingredient is a precise mixture of oxalic acid dihydrate **($H_2C_2O_4 \cdot 2H_2O$)** and sodium oxalate **($Na_2C_2O_4$)**. The optimal performance requires the sodium oxalate content to be between 20-40% by mass.

The workshop manager has become concerned that a recent batch of Mixture ***X*** is not working as effectively as previous batches. Suspecting an error in its composition, the manager, who is an old girl of your school, has asked your chemistry teacher if students could help verify the composition of the mixture as part of a practical chemistry project.

Your class has been entrusted with this task. You are to determine the percentage by mass of sodium oxalate in the supplied sample of Mixture **X**. This can be done by reacting an aqueous solution of the mixture of **X**, made by dissolving exactly **2.40g** of the solid in 250cm^3 of distilled water, with a fixed volume of sodium hydroxide solution using phenolphthalein indicator. However, a fixed volume of sodium hydroxide solution must first be standardized by dilute sulphuric acid using the same indicator.

Sodium hydroxide reacts with **only** oxalic acid in the mixture according to the equation;

$$2NaOH(aq) + H_2C_2O_4(aq) \longrightarrow Na_2C_2O_4(aq) + H_2O(l)$$

The base also reacts with sulphuric acid according to the equation;

$$2NaOH(aq) + H_2SO_4(aq) \longrightarrow Na_2SO_4(aq) + 2H_2O(l)$$

You are provided with;

- 3.0 g of mixture X.
- 100cm^3 of FA1 which is a solution of sodium hydroxide of unknown concentration.
- 100cm^3 of FA2 which is a solution containing 0.05moles per litre of dilute sulphuric acid.
- distilled water, sufficient for solution preparation and rinsing
- phenolphthalein indicator
- 250.0 cm³ volumetric flask
- Other laboratory apparatus suitable for a titration experiment.

Task;

As a chemistry learner;

(a) Design an experiment to standardize ***FA1. (Your design should include; aim, hypothesis, variables, apparatus and materials, procedure, risks and their mitigations, data and data analysis and then conclusion.***

Experiment one;

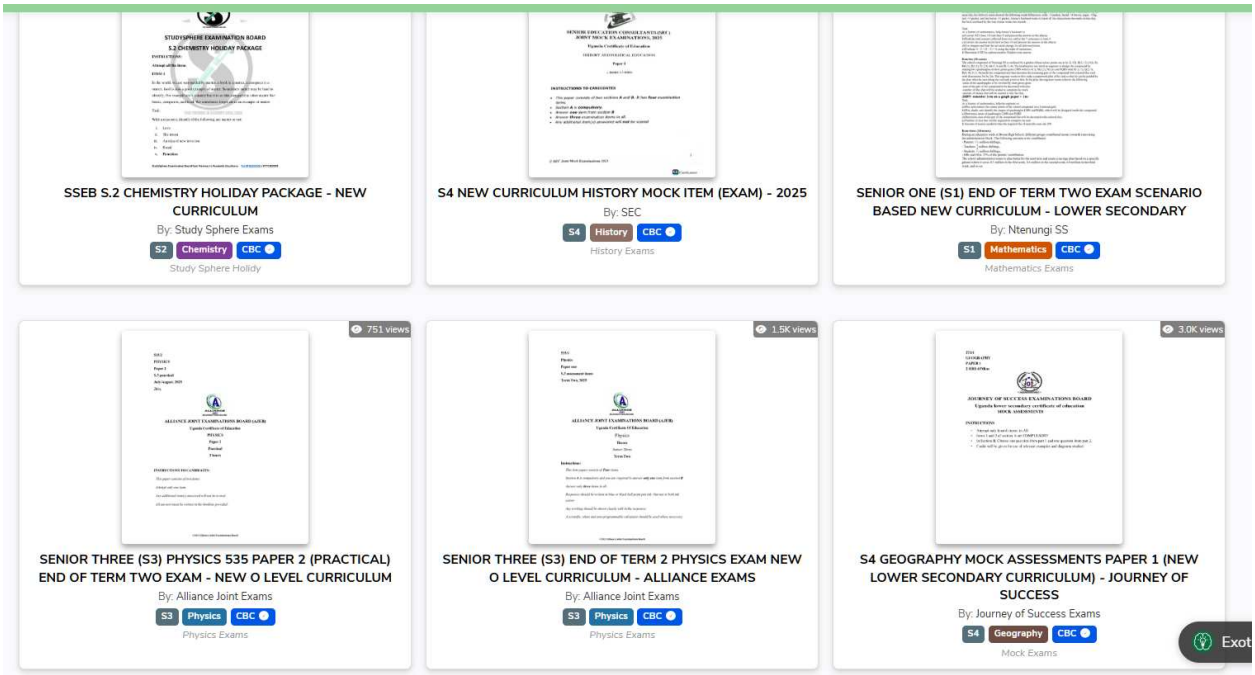
b) Carryout the experiment and record your findings. (minimum of three data sets required)

c) Analyze and interpret your data.

d) What do you conclude from the results and inform the workshop manager accordingly.

END

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