Candidates' Name: ……..……..……..……..

Signature: ……..…….....……

Random No.					Personal No.		

(Do not write your school / Center name or Number anywhere on this booklet)

545/2
CHEMISTRY
Paper 2
July / Aug 2024
2 ½ HOURS

KAMTEC EXAMINATIONS BOARD

Uganda Certificate Of Education
CHEMISTRY
Paper 2
TIME: 2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

This paper consists of *one* compulsory 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. A Graph paper will be provided
Mathematical tables and silent non-programmable scientific calculators may be used.
You are not allowed to use reference books.
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.

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FOR EXAMINER'S USE ONLY

ITEM	SCORE(S)	EXAMINER'S SIGNATURE

Item 1

In one of the busy photographic processing laboratories in Mbale, the quality and efficiency of photograph developing solutions are crucial for producing high-quality photographs. The laboratory currently uses a sodium thiosulphate solution in combination with acids for fixing and stopping photographic development. However, the quality of photographs and processing time varies with the concentration of thiosulphate used in the development process. The Chemistry club of your school have been tasked with conducting a scientific investigation to determine the effect of concentration on the chemical reactions using sodium thiosulphate solution, dilute hydrochloric acid and a number of laboratory materials according to the following equation;

$Na_2S_2O_3$ (aq) + 2HCl (aq) ⟶ 2NaCl (aq) + S (s) + H_2O (l) + SO_2 (g)

You are provided with:

BA1 which is a solution of sodium thiosulphate **BA2** which is dilute hydrochloric acid.

Task

As a chemistry learner,

(a) Plan for an experiment you will carry out to the effect of concentration on rate of reaction between **BA1** and **BA2**

(b) Conduct the experiment and record your findings.

(c) Show how you treated your results. Include $\frac{1}{time}$ and explain your findings.

(d) Draw conclusion(s) from your investigation

END