

Candidate's Name:

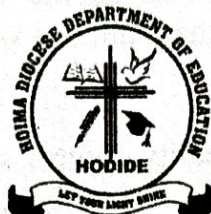
School:.....

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Centre No.				Personal No.			
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P525/2
CHEMISTRY
Paper 2
(Practical)
JULY/AUG. 2026
3¼ hours



HOIMA DIOCESE EXAMINATIONS BOARD

UACE Mock Examination, 2026

CHEMISTRY

INSTRUCTIONS TO CANDIDATES:

*This paper consists of two compulsory examination items. Responses to these items 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.

For Scorers' Use Only			
Item	Basis Code	Weighted Score	Scorers' Initials
1	PE		
	ME		
	DP		
	AN		
	CR		
2	QP		
	QO		
	QD		
	RC		
Total Weighted Score			

Item 1

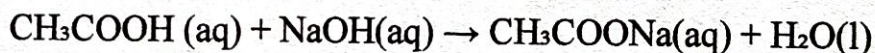
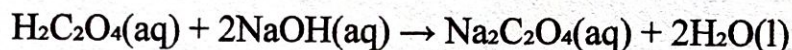
Quality control in food-processing industries often involves the use of acid–base titration to determine the concentration and suitability of products before distribution to consumers.

In Eastern Uganda, a Youth Agro-processing Enterprise prepares fermented vinegar from sugarcane molasses and pineapple waste for supply to street food vendors and small restaurants. However, routine inspections by the Village Health Office revealed that some batches are excessively sour while others are too weak, affecting food quality and consumer safety.

The Enterprise lacks a laboratory quality-control system to verify the concentration of the prepared vinegar before packaging. To reduce acidity, the original vinegar is diluted before bottling. A food technologist advised that the acidity of the vinegar could be determined accurately by titration with a standardised sodium hydroxide solution.

The sodium hydroxide solution available in the factory laboratory had been stored for several months and its concentration could no longer be assumed to be accurate. The technologist therefore recommended that it should first be standardised using a fixed volume of standard solution of ethanedioic acid before being used for vinegar analysis. After standardisation, 25.0 cm³ of the original vinegar should be diluted to 250.0 cm³ with distilled water, and a fixed portion of the diluted solution titrated with the standardised sodium hydroxide solution.

The reactions involved are:



The Enterprise considers the prepared vinegar suitable for commercial distribution if the concentration of ethanoic acid lies between 0.67 - 1.33 mol dm⁻³ before dilution.

Because the cooperative lacked personnel with the required analytical skills, your Chemistry teacher was asked to assist and has assigned you to carry out the investigation.

You are provided with:

- FA1 which is sodium hydroxide solution of unknown concentration
- FA2 which is ethane dioic acid (H₂C₂O₄.2H₂O) solution containing 3.15 g per 500 cm³
- FA3 which is original vinegar sample.
- Phenolphthalein indicator.

Task

As a learner of Chemistry:

- (a) Design and carryout an investigation experiment to help the Youth Agro-processing Enterprise.
- (b) Analyse your results and advise the Youth Agro-processing Enterprise accordingly.

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Lined paper template with 25 horizontal lines.

Item two

Organic compounds are widely used in the food industry because their functional groups determine properties such as flavour, aroma, solubility, and stability.

A local fruit processing company recently received a shipment of an organic liquid intended for use as a flavouring ingredient in fruit juices and other products. However, the identification label was damaged during transportation, making it impossible for the company to verify the nature of the compound before use.

Before incorporating the substance into production, the company must determine its nature to ensure that it will perform the intended function and meet quality requirements. Since the company lacks an analytical laboratory, management has sought assistance from your school's chemistry laboratory. Your chemistry teacher has therefore assigned you the task of analysing the sample and reporting your findings.

You have been provided with:

- Liquid X, the unknown organic compound

Task

As a student Chemist:

- (a) Plan and conduct a systematic investigation to help the fruit processing company. (“*A minimum of eight tests is required*”)
- (b) Deduce the nature of liquid *X* and explain if it is suitable for its intended use in the fruit-processing industry.

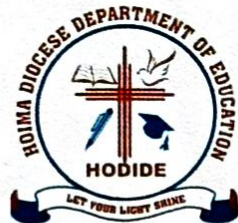
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Lined writing area with horizontal lines.

Lined paper template with 25 horizontal lines.

END

P525/2 Inst. Sch.
CHEMISTRY PRACTICAL
INSTRUCTIONS
July/Aug. 2026



HOIMA DIOCESE EXAMINATIONS BOARD

Uganda Advanced Certificate of Education, Mock Examination

CHEMISTRY PRACTICAL INSTRUCTIONS

Paper P525/2 Inst.Sch.

July/August 2026

CONFIDENTIAL

Great care should be taken that the information given below does not reach the candidates either directly and indirectly.

INSTRUCTIONS FOR PREPARING APPARATUS

N.B: The head teacher must ensure that the teacher responsible for preparing the apparatus hands in his /her trial results properly sealed in separate envelope and firmly fastened (attached) to the candidates' scripts envelope(s).

1. The description of the reagents and chemicals specified below does **not** necessarily correspond with the description in the question paper. Candidates must **not** be informed of the difference.
2. Candidates are **not** allowed to use reference books, i.e., text books, booklets on qualitative analysis etc., during examinations.
3. In addition to the fittings and substances ordinarily contained in a Chemistry laboratory, each candidate will require:

1 burette (50 cm³)

1 pipette (25.0/20.0 cm³)

2 conical flasks (each 250 cm³)

2 volumetric flasks (each 250 cm³)

1 beaker (250 cm³)

1 measuring cylinder (50 cm³ or 100 cm³)

100 cm³ of **FA1**

100 cm³ of **FA2**

30.0 cm³ of **FA3**

Phenolphthalein indicator

500 cm³ of distilled water

10 cm³ of Liquid **X**

Easy access to a heat source.

8 test tubes in a rack.

✓ **FA1** is made by dissolving 4.0 g sodium hydroxide pellets in distilled water and made up to one litre.

✓ **FA2** is made by dissolving 6.3 g of ethanedioic acid dihydrate in distilled water and made up to one litre of solution.

FA3 is prepared by diluting 58.0 cm³ of glacial ethanoic acid to one litre with distilled water.

Liquid **X** is propan-1-ol.

Easy access to:

Heat source.

Common reagents for identifying gases, cations, anions and organic compounds.

Weighing balance reading to at least one decimal point.

Phenolphthalein indicator and methyl orange indicator.

Filter funnel.

Filter papers.