



DESHA EXAMINATION BOARD
2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION
MOCK EXAMINATION

CHEMISTRY

Subject Number: M038/II

Thursday 14th March, 2024

Time Allowed: 2 hour sessions

PAPER II
(40 marks)
Practical

Instructions

- This paper contains 6 pages.
- Please check.
- Write your Examination Number at the top of each page of this question paper.
- Answer all the 4 questions in the spaces provided.
- Use of electronic calculators is allowed.
- The maximum number of marks for each answer is indicated against each question.
- In the table provided on this page, **tick** against the number of questions you have answered.
- You should hand in your question paper to the invigilator when you are called to stop writing

Question number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			

Section A (20 marks)

1. With the aid of a well labeled diagram, explain how the electrolysis of molten **Lead(II)Bromide ($PbBr_2$)** occurs. In your explanation, include the appropriate half equation.

(10 marks)

2. Construct a flow diagram that could be used to identify **ethanol, propanone, acetic acid, ethanal and hexane**, using tests that make use of distilled water, sodium hydroxide solution, phenolphthalein indicator, Brady's solution and Tollen's reagent.

(10 marks)

Section B (20 marks)

- 3.** You are provided with **3** test tubes, measuring cylinder, distilled water, a test tube rack, copper sulphate solution, magnesium sulphate solution, iron sulphate solution, copper foil, magnesium foil and iron nails.
- Pour **5cm³** of copper sulphate solution in each of the **3** test tubes
 - Place a piece of copper foil, magnesium foil and an iron nail in each test tube.
 - Observe and record the results by indicating “**reaction** or “**no reaction**” in the appropriate spaces in the **Table 1**.
 - Rinse the test tubes using distilled water.
 - Repeat steps **(a)** to **(d)** using magnesium sulphate and iron sulphate solution,

Table 1

Metal	Copper Sulphate solution	Magnesium Sulphate Solution	Iron Sulphate solution
Copper			
Magnesium			
Iron			

(6 marks)

- f. Arrange the metals in order of their reactivity, with the most reactive metal at the top.

(2 marks)

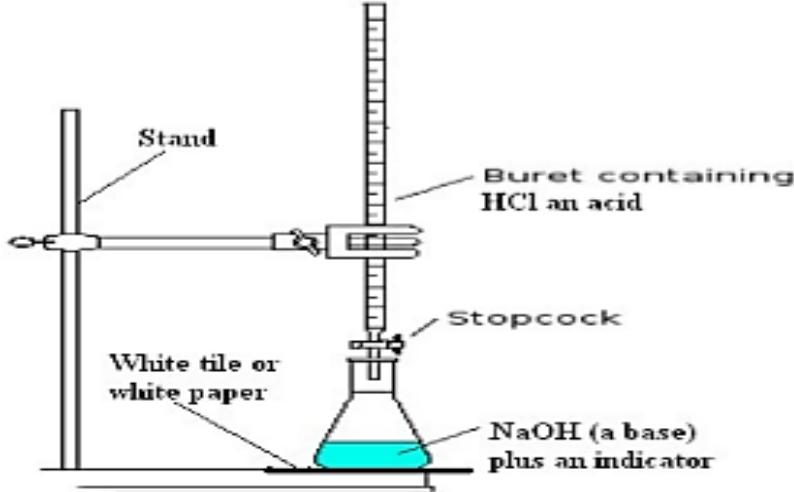
- g. Which of the metals is the strongest reducing agent?

(1 mark)

h. Give a reason for your answer.

(1 mark)

4. You are provided with a burette, a funnel, a measuring cylinder, beaker or conical flask, a clamp stand, a dropper, Hydrochloric acid (**HCl**) of unknown concentration, **0.1M** sodium hydroxide (**0.1M NaOH**) and phenolphthalein indicator.
- a. Set up the apparatus as shown in **Figure 1**



- b. Measure **10ml** of the **0.1 M** sodium hydroxide and pour it into a beaker
- c. Add **2** drops of phenolphthalein indicator into the beaker
- d. Fill the burette with hydrochloric acid (**HCl**) to the zero mark
- e. Slowly add the hydrochloric acid from the burette into the beaker and shake until colour change is observed
- f. Record the result in the appropriate spaces in the table of results.

Table of Results

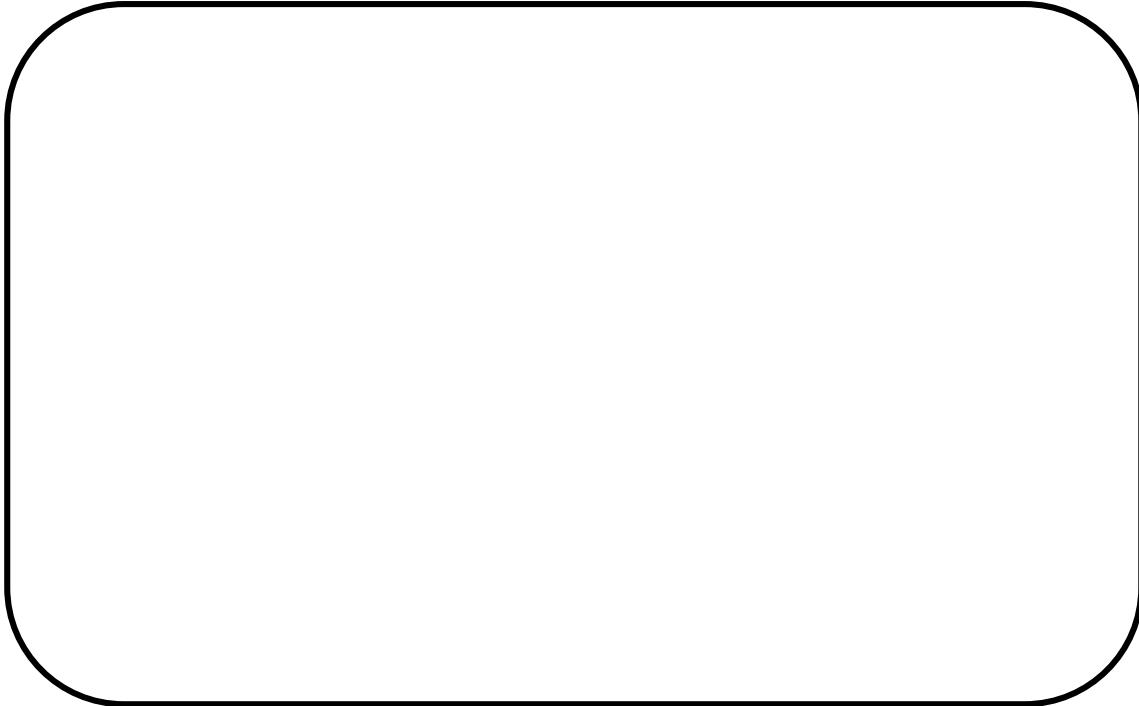
Initial volume of acid (ml)	Final volume of acid (ml)	Volume of acid used (ml)

(3 marks)

- g.** Write a balanced chemical equation for the reaction

(2 marks)

- h.** Calculate the concentration of hydrochloric acid used in the experiment



(3 marks)

- i.** Give any **two** way of reducing errors in the experiment

(2 marks)

END OF QUESTION PAPER

NB: This paper contains **6** printed pages