

EXAMINATION NUMBER: _____

BLANTYRE RURAL DISTRICT EXAMINATIONS

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATIONS

CHEMISTRY

Time Allowed: 2 hours 10:00 am onwards

PAPER II (40 marks)

PRACTICAL

Instructions

1. This paper contains **6** printed papers.
Please check.
2. Write your answers on the question paper in the spaces provided. The maximum number of marks for each answer is indicated against each question
3. Before you begin, fill in your examination number on top of each page of the question paper.
4. At the end of the examination, hand in your paper to the invigilator

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

SECTION A (20 MARKS)

- 1. a.** In the experiment to test purity and hardness of water, some samples were collected and analyzed. The results are shown in the table below

Table 1.

Test	Results		
	Sample	X	Y
Boiled first and then shaken with soap solution	Good lather	Good lather	Poor lather
Some bath salts added, then shaken with soap solution after filtering	Good lather	Good lather	Good lather
Shaken with soap solution	Poor lather	Good lather	Poor lather

- i.** Identify the sample that is pure water. Explain your answer.

(2 marks)

- ii.** The other samples from the table were both from hard and soft water areas

1. Which one contained temporary hardness?

(1 mark)

2. Which one contained permanent hardness? Explain your answer.

(2 marks)

- b.** In an experiment of electrolysis, John and Mary observed that after changing solutions of an ionic compound, bulbs gave different brightness. They set up an experiment to investigate whether concentration affect the brightness of the bulb or not.

i. Identify the problem that was being investigated in this experiment.

_____ (1 mark)

ii. State one possible hypothesis to be tested.

_____ (1 mark)

iii. Mention one factor that could be controlled in this experiment.

_____ (1 mark)

iv. Explain any two ways how the data collected would be presented

_____ (2 marks)

2. Describe the functions of the three pipes during the extraction of Sulphur by the frasch process.

(4 marks)

SECTION B (20 MARKS)

3. You are provided with two beakers, two test tubes, a measuring cylinder, a spatula, a stirring rod, a thermometer, water, sodium hydroxide (NaOH) pellets and potassium chloride crystals.
- Measure 10 ml of water and pour in one test tube.
 - Measure and record the initial temperature of the water.
 - Add half a spatula of Sodium hydroxide pellets and stir to dissolve.
 - Measure and record the constant final temperature of the solution.
 - Repeat steps a to d using potassium chloride.

	Initial Temperature (<i>i</i>) (°C)	Final Temperature (<i>f</i>) (°C)	Temper change (<i>f - i</i>) (°C)
Sodium hydroxide			
Potassium Chloride			

(3marks)

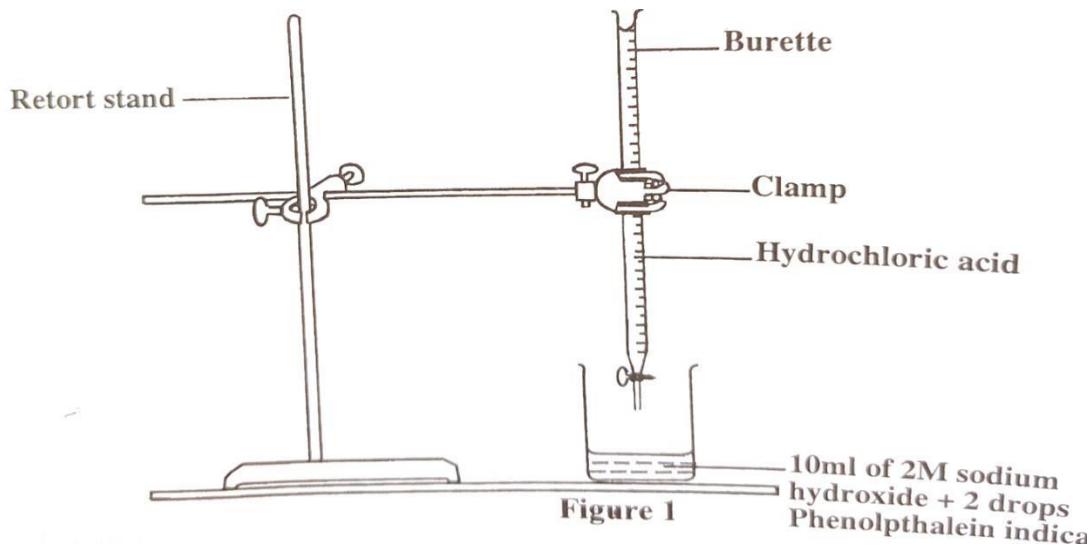
- (i). Identify the exothermic and endothermic reactions from the above experiments.

(2 marks)

- (ii). Draw the energy level diagrams of the reaction between sodium hydroxide and water.

(5 marks)

4. You are provided with a burette, a beaker, 0.1M sodium hydroxide (NaOH), Hydrochloric acid (HCl), measuring cylinder, a beaker, funnel, phenolphthalein indicator, dropper, clamp and clamp stand, white tile.
- Put 10ml NaOH in a beaker
 - Arrange the set up as below



- Add 2 to 3 drops of phenolphthalein indicator into the beaker.
- Fill the burette to zero mark with hydrochloric acid (HCl).
- Record initial volume of acid in **Table 2**.

Table 2

Initial volume of HCl	Final volume of HCl	HCl used

(3 marks)f. Gradually add **HCl** into **0.1M NaOH** until endpoint is reached.g. Record final volume of **HCl** in **Table 2**.

- i. Calculate the concentration of acid used.

(5 marks)

- ii. Identify the standard solution from the experiment.

(1 marks)

- iii. State the function of the white tile in this experiment.

(1 marks)