

STUDENT'S NAME: _____ SCHOOL: _____

LILONGWE GIRLS CLUSTER

2021 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATION

CHEMISTRY

Subject Number: M036/II

Thursday, 29 July

Time Allowed: 2 hour sessions
10:00 am onwards

PAPER II PRACTICAL (40 marks)

Instructions

1. This paper contains 6 printed pages. Please check.
2. Write your **Name and School** at the top of each page of your question paper.
3. Write your answers in the spaces provided
4. This paper consists of **two** sections **A** and **B**
5. Section **A** consists of two descriptive questions on practical work to be answered in **1 hour**. Marks will be given for accurate and orderly presentation of facts supported by relevant diagrams.
6. In section **B** there are two practical questions to be answered in **1 hour**.
7. You should spend 30 minutes on each question. The 30 minute period allowed for each question includes 3 minutes to tidy up the apparatus and have it checked by the supervisor.
8. In the table provided on this page, **tick** against the question number you have answered.

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

SECTION A (20 marks)

1. Given that you are provided with distilled water, bromine solution, sodium hydroxide solution, phenolphthalein indicator, ethanol, cyclohexene, ethanoic acid and hexane.

Using a flow diagram identify the organic compounds.

(10 marks)

2. In an experiment to investigate change in mass of reactants with time, a student mixed 1.8g of small marble chips and 40 cm³ of 2.0 M hydrochloric acid. The results were recorded in the table below.

Table of results

Time(s)	Loss of mass(g)
20	0.15
40	0.28
60	0.53
80	0.60
100	0.62
140	0.63
180	0.63

- a) Write down a balanced chemical equation of the reaction

 (2 marks)

- b) Use the data in the table of results to plot a graph of loss in mass against time taken.

(5 marks)

- c) Use the graph in **2b** to describe the rate of reaction of HCl and CaCO₃ from 0 seconds to 180 seconds

(3 marks)

3. You are provided with two conical flasks, white paper, distilled water, stirring rod, stopwatch, sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$), 2 M hydrochloric acid, measuring cylinder and black ink.
- Pour 100 cm^3 of distilled water in each conical flask labelled **A** and **B**.
 - Put 1 spatula endful of sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$) in flask **A**, and stir.
 - Make a cross on a white paper using black ink
 - Place beaker **A** on the white paper with a cross.
 - Add 5 cm^3 of HCl to the flask **A**, and immediately start the stopwatch and continuously swirl the contents
 - Note and record in the table below, the time taken for the cross to disappear on the paper.

Table of results

Amount of sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$)	Time Taken (s)
1 Spatula	
2 Spatula	

(2 marks)

vii) Rinse the beaker and repeat steps **ii** to **vi** with 2 spatula endful of $\text{Na}_2\text{S}_2\text{O}_3$ in flask **B**.

- a) State the factor affecting rate of reaction being experimented above.

(1 mark)

- b) (i) In which beaker did the cross disappear first.

(1 mark)

- (i) Give a reason to your answer in **2b(ii)** above.

(1 mark)

- c) Write down a balanced chemical equation of the reaction between HCl and $\text{Na}_2\text{S}_2\text{O}_3$.

(3 marks)

d) State the name of the yellow precipitate produced

_____ (1 mark)

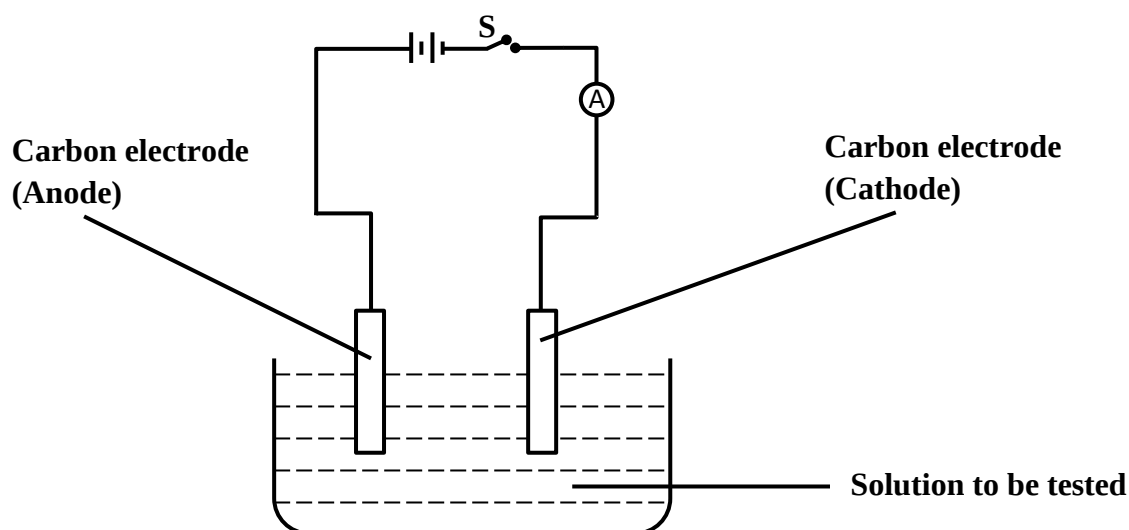
e) What was the purpose of stirring when sodium thiosulphate was added to distilled water?

 _____ (1 mark)

4. You are provided with 4 connecting wires, ammeter, beaker, carbon rods, switch, 2 cells and solutions, A, B, C and D.

Procedure:

a) Connect the circuit as shown below.



b) Pour solution A in the beaker and close the switch

c) Note and record in the table, the ammeter readings.

Solution	Observation	
	Conduct	Do not conduct
A		
B		
C		
D		

(4 marks)

d) Remove the electrodes and wash them with distilled water

e) Repeat steps **a** to **d** with solutions **B**, **C** and **D**.

f) Which solution(s) are ionic compounds

(2 marks)

g) Give a reason for your answer in **4f** above

(1 mark)

h) Which solution(s) are covalent compounds

(2 marks)

i) Give a reason for your answer in **4f** above

(1 mark)

END OF QUESTION PAPER

NB: This paper contains 6 printed pages.