



EXAMINATION NO.: _____
THE MALAWI NATIONAL EXAMINATIONS BOARD
2019 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

CHEMISTRY

Subject Number: M038/II

Thursday, 20 June

**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. Before beginning, fill in your **Examination Number** at the top of each page of the question paper.
3. Write your answers on the question paper
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. Marks for **Section B** will be given for observation, accuracy and interpretation of results.
9. In the table provided on this page, tick against the number of the question you have answered.

Question Number	Tick if answered	Do not write in these columns		Marker's name
1				
2				
3				
4				

Continued/...

2. A bottle containing potassium chloride solution of unknown concentration was found in a chemistry laboratory. Describe an experiment that could be done to find the concentration of the potassium chloride solution using **evaporation method**.

(10 marks)

Continued/...

SECTION B (20 marks)

3. You are provided with unknown compounds labelled X, Y and Z in dropper bottles which are alkane, alkanal and alkanone but not necessarily in that order, 3 test tubes in a test tube rack, Tollen's reagent and distilled water in a dropper bottle.

- Put 10 drops of compound X in a test tube.
- Add 5 drops of distilled water in the test tube containing compound X
- Record results in table 1.

Table 1

TEST SOLUTION	WITH DISTILLED WATER	WITH TOLLEN'S REAGENT
X		
Y		
Z		

(6 marks)

- Rinse the test tube with distilled water.
- Put 10 drops of compound X in the test tube.
- Add 2 drops of Tollen's reagent in the test tube containing compound X.
- Record the results in the appropriate space in table 1
- Repeat steps a to g with compounds Y and Z.
- Identify compounds X, Y and Z.

X _____

Y _____

Z _____

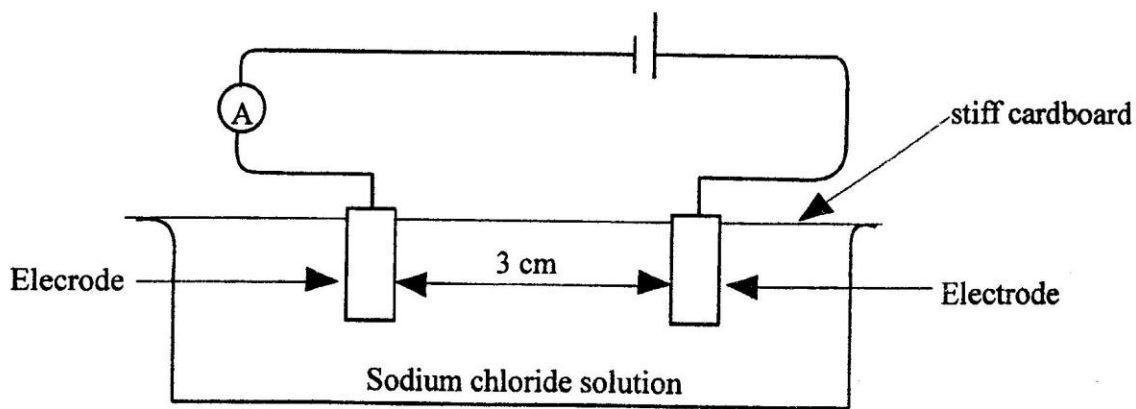
(3 marks)

- Name any one source of error in the experiment.

(1 mark)

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4. You are provided with a beaker, distilled water in a wash bottle, a measuring cylinder, ammeter, **one** cell, **3** connecting wires, **two** carbon electrodes a stiff cardboard and **five** different solutions of sodium chloride (NaCl) of the following concentrations 0.1M, 0.2M, 0.3M, 0.4M and 0.5M.
- Put 50 ml of 0.1M sodium chloride solution into a beaker.
 - Set up conductivity apparatus as shown below.



- Record the reading of the ammeter in **table 2**.

Table 2

Concentration of sodium chloride (M)	0.1	0.2	0.3	0.4	0.5
Current (A)					

(5 marks)

- Rinse the beaker and carbon electrodes with distilled water.
- Repeat steps **a** to **d** using 0.2M, 0.3M, 0.4M and 0.5M NaCl solutions.
- Observe and record the results in the appropriate spaces in **Table 2**.
- Plot a graph of current against concentration of sodium chloride.

(5 marks)

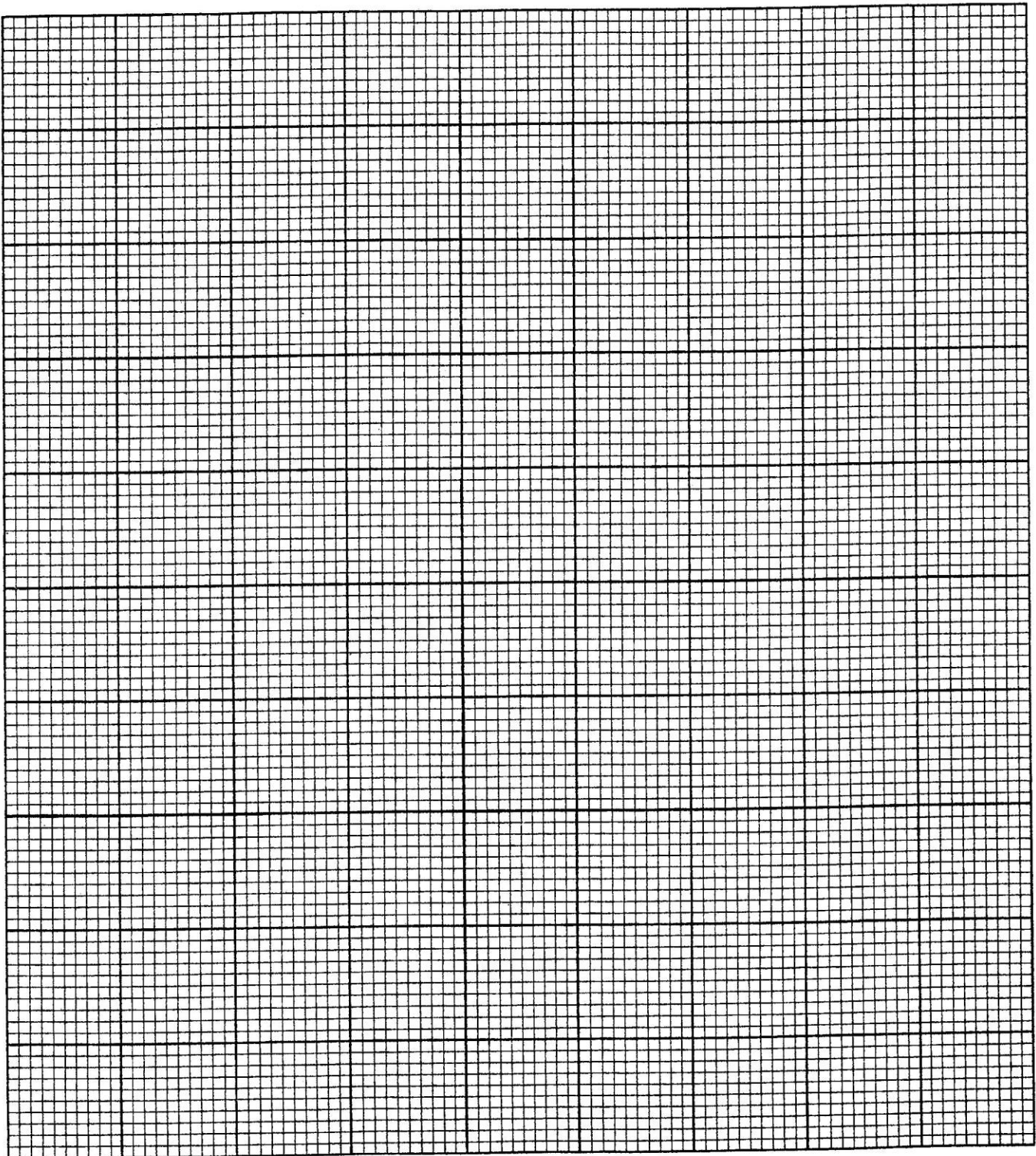
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END OF QUESTION PAPER

NB: This paper contains 6 printed pages.