2019 SCHOOL: _____ **CANDIDATE'S NAME**_____

PROVIDENCE CLUSTER MOCK EXAMINATION

2019 MSCE MOCK EXAMINATION

CHEMISTRY

Subject Number: M038/II
Friday, 28 March **Time allowed: 2 hour sessions**
10:00am onwards

PAPER II
(40 Marks)

PRACTICAL

Instructions

1. **This paper contains 7 Printed pages. Please check**
2. Before beginning, write your **name** 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 include 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**. 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 columns	
1			
2			
3			
4			

SECTION A (20 marks)

1. Describe an experiment you would do to find out the percentage of water in blue copper sulphate ($CuSO_4xH_2O$). In your description, include: materials, procedure, conclusion with relevant equation (s).

(10 marks)

2. Students of Phunziro Secondary School carried out an experiment on the titration of 0.1M NaOH with HCl. The results of the experiment were recorded in **Table 1:**

Volume of HCl (cm^3)	0	5	10	15	20
Volume of HCl + NaOH (cm^3)	20	25	30	35	40

Table 1

a. What was the aim of the experiment?

_____

_____

(1 mark)

b. (i) Which solution was a standard solution?

_____

(1 mark)

(ii) Give a reason to your answer in Q2 b(i).

_____

(1 mark)

c. Plot a graph of volume of HCl + NaOH against volume of HCl

(5 marks)

d. Write a balanced equation for the reaction between NaOH and HCl

_____

(1 mark)

SECTION B (20 marks)

3. You are provided with two test tubes, measuring cylinder, metal ribbons of magnesium (Mg), Zinc (Zn) and Copper (Cu); and solutions of these metals i.e. Magnesium sulphate, $MgSO_4$, Zinc sulphate, $ZnSO_4$ and Copper sulphate, $CuSO_4$.
   a. Pour 5cm3 of MgSO4 into each of the two test tubes.
   b. Add a piece of zinc and copper metals to each test tube.
   c. Observe whether a reaction takes place or not by ticking for a reaction and crossing for no reaction.
   d. Record your observations in **Table 2**.

      NB: Do not conduct cancelled experiments.

Metal / **Solution**	**Mg**	**Zn**	**Cu**
$MgSO_4$			
$ZnSO_4$			
$CuSO_4$			

Table 2

(6 marks)

   e. Arrange the metals in order of increasing reactivity.

      _____

      _____

_____

(3 marks)

f. How did you know whether a reaction took place or not?

_____

_____

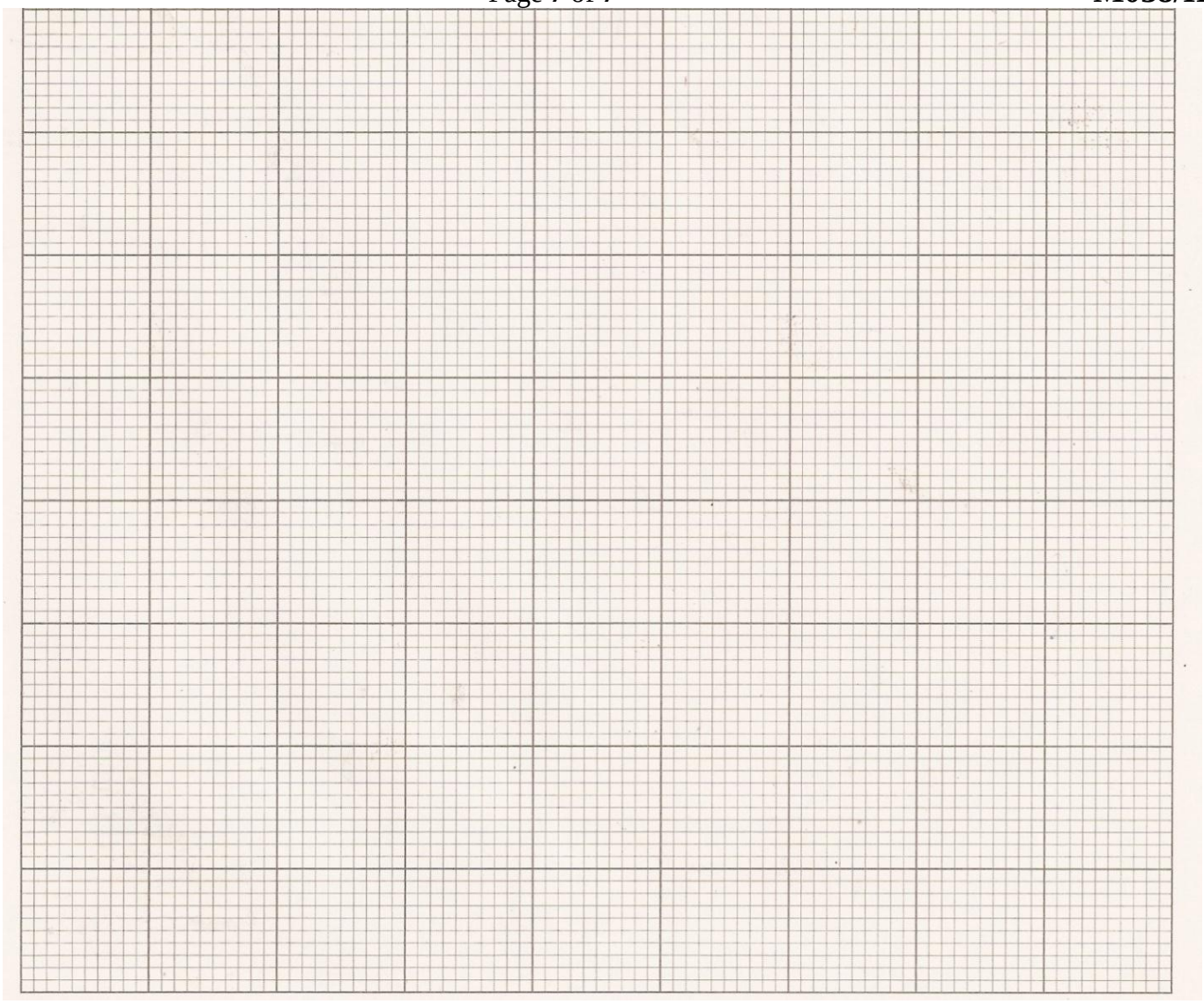
(1 mark)

4. You are provided with ball bearings and a measuring cylinder.
   a. Pour water in the measuring cylinder to a $5cm^3$ mark.
   b. Add 2 ball bearings to the measuring cylinder.
   c. Note and record the volume of the contents in the measuring cylinder.
   d. Repeating adding the ball bearings as indicated in T**able 3**.

Number of ball bearings	0	2	4	6	8
Volume of contents (cm^3)	5				

Table 3

e. Plot a graph of volume against number of ball bearings.



(5 marks)

f. Using your graph, what volume would 5 ball bearings give?

_____

(1 mark)

END OF QUESTION PAPER

NB: This paper contains 7 printed pages.