NAME…………………………………………………INDEX NO. ………………CLASS………

ADM NO…………………….DATE: …………………………...SIGN: ……………………..………

CHEMISTRY
PRACTICAL
233/3
TIME: 2 ¼ Hours

POST MOCK Term 3 2019
Kenya Certificate of Secondary Education (KCSE)

INSTRUCTIONS TO CANDIDATES

- Write your **name** and **indexnumber** in the spaces provided.
- **Sign** and write the **date** of examination in the spaces provided.
- Answer *all* the questions in the spaces provided in the question paper.
- You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus you need.
- All working **must** be clearly shown where necessary.
- Mathematical tables and electronic calculators may be used

For examiners use only

Question	Maximum Score	Candidate's Score
1	22	
2	10	
3	08	
TOTAL	40	

1. You are provided with;
   - Solution **A**, 2M Hydrochloric acid
   - Solution **B**, 0.2M Sodium hydroxide
   - 6 pieces of 2cm length of **magnesium** ribbon.

You are required to determine the mass of magnesium ribbon that reacted with hydrochloric acid.

PROCEDURE I

i)   Using clean measuring cylinder, measure 50cm^3 of solution **A** into a 100ml glass beaker
ii) Put one piece of **magnesium ribbon** into solution **A** in the 100ml glass beaker and **simultaneously** start the stop watch
iii) Record the **time taken** by magnesium ribbon to get completely finished in the table I.
Repeat procedure (ii) and (ii) using the same solution in procedure (i) adding each piece of solution, M and **RETAIN** it for procedure II   (5marks)
TABLE I

Magnesium ribbon	1st	2nd	3rd	4th	5th	6th
Time taken(s)						
$\dfrac{1}{time}$ (s^{-1})						

a)   Plot graph of 1 (vertical axis) against the magnesium ribbon.   (3marks)
     time
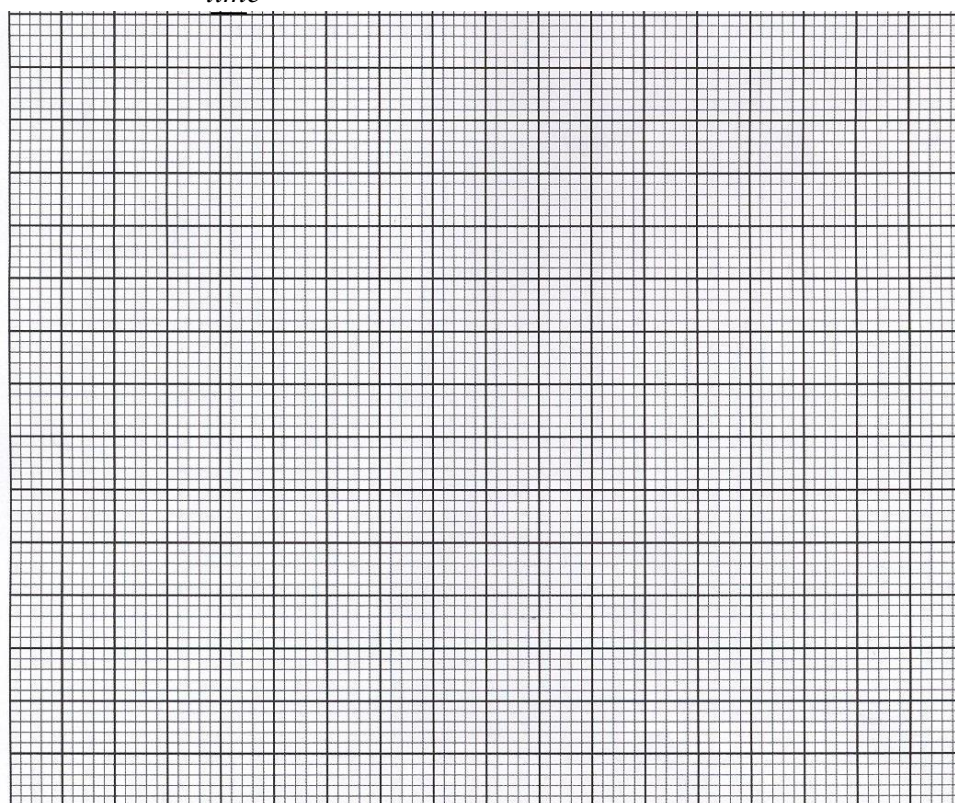
b)   From the graph determine the time that would be taken for 5cm piece of the ribbon to get completely finished.   (2marks)

PROCEDURE II

Transfer all the solution **M** from procedure I into a 250ml volumetric flask. Top up the flask to the mark with distilled water and shake. Label as solution **N.**

   -    Fill the burette with solution **N.**

- Using a pipette and pipette filler, place 25cm^3 of solution **B** in a 250ml conical flask. Add 2 drops of phenolphthalein indicator and titrate with solution **N.**

- Record your results in table II. Repeat the titration two more times and complete the table.

TABLE I

	I	II	III
Final burette reading			
Initial burette reading			
Volume of solution **N** used (cm^3)			

(4marks)

c) Calculate the;

    i.   Average volume of solution **N**(1mk)

    ii.   Mole of sodium hydroxide, solution **B** used   (1mk)

    iii.   Moles of hydrochloric acid, solution **N,** used.   (1mk)

    iv.   Moles of hydrochloric acid in 250cm^{3}of solution **N**.   (1mk)

    v.   Moles of hydrochloric acid in 50cm^3 of solution **A.**(1mk)

    vi.   Moles of hydrochloric acid in solution **A** that reacted with all the pieces of magnesium ribbon. (1mk)

vii.   Mass of magnesium ribbon used in the reacted (Mg = 24)   (2mks)

2. You have provided with solid K carry out the test below and record your observation and inferences in the spaces provided.

a) Place all of solid K in a boiling tube. Add $10cm^3$ of distilled water and shake. Keep the mixture for the test in part (b) below.

Observations	Inferences
(1mark)	(1mark)

b) Divide the mixture from (a) above into 4 portions

i) To the first portion, add aqueous ammonia drop wise until in excess.

Observations	Inferences
(1mark)	(1mark)

Dip a clean end of glass rod into the second portion, and place in on a non-luminous flame.

Observation	Inferences

ii) To the third portion, add four drops of barium chloride solution.

(1mark)   (1mark)

Observations	Inferences

iii) To the fourth portion, add two drops of acidified potassium manganate (VII) solution (1mark)

Observations	Inferences

(1mark)   (1mark)

3. You are provided with liquid Z. Carry out the tests below.
a) Place about $1cm^3$ of liquid Z on a watch glass and light using a burning splint.

Observation	Inference

½ mk   ½ mk

b) Place about $5cm^3$ of liquid Z in a boiling tube. Add 3cm3 of distilled water and shake the mixture.

Observation	Inference

½ mk

½ mk

c) Divide the solution above into four portions;
(i) To the first portion test with litmus papers

Observation	Inference

½ mk   ½ mk

(ii) To the 2nd portion, add 2-3 drops of universal indicator.

Observation	Inference
1 mk	1 mk

(iii)To the 3rd portion, add a little Sodium Carbonate

Observation	Inference
½ mk	½ mk

(iv)To the fourth portion add 2-3 drops of acidified Potassium dichromate (VII) solution then warm

Observation	Inference
1mk	1mk