KAPSABET HIGH SCHOOL

233/3
CHEMISTRY
Paper 3
(PRACTICAL)
MAY 2022
TIME: 2 HOURS

.Name……Index No……/……

Adm No……Stream……

Date……Sign……..

2022 TRIAL 1 MAY INTERNAL EXAMINATION

Kenya Certificate of Secondary Education (K.C.S.E) Trial Examination
CHEMISTRY PAPER 3

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Answer **ALL** the questions in the spaces provided.
- You are not allowed to start working with the apparatus for the first 15 minutes of the 2¼ hours allowed time for the paper.
- Use the 15 minutes to read through the question paper and note the chemicals you require
- Mathematical tables and electronic calculators may be used.
- All working **MUST** be clearly shown where necessary.

FOR EXAMINER'S USE ONLY.

Question	Maximum score	Candidate's score
1	17	
2	8	
3	15	

Turn over

For marking schemes inbox 0724351706

Total score	40	

This paper consists of 6 printed pages.
Candidates should check to ensure that all pages are printed as indicated and no questions are missing

1. Solution A is prepared by dissolving 6.3g of the organic acid $H_2C_2O_4.nH_2O$ in water to make a litre of the solution.
   Solution B: 0.1M NaOH solution
   Phenolphthalein indicator
   Clamp and stand
   Burette and pipette.

   You are required to determine the value of n in the organic acid $H_2C_2O_4.\ nH_2O$
   Procedure.
   Fill the burette with solution A and adjust the volume to zero mark.

   Add 2 to 3 drops of phenolphthalein indicator and titrate solution A against solution B until thecolour just permanently changes. Record your results in the table below. Repeat the procedure two more times to obtain concordant results.

   a)

Titration	**1**	**2**	**3**
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of solution A used (cm^3)			

4marks

   b) Calculate the average volume of solution A used. **1mark**

   c) Calculate the moles of sodium hydroxide in the volume of solution B used. **2marks**

   d) Given that solution B - Sodium hydroxide and solution A organic acid react in the ration of 2:1, calculate the number of moles of the organic acid –solution A used? **2marks**

e) Calculate the moles of organic acid solution A used per litre of solution **2marks**

f) Calculate the relative formula masses of the organic acid solution A **3marks**

g) Calculate the value of n in $H_2C_2O_4.nH_2O$(H=1, C=12, O=16) **3marks**

2. You are provided with CBI. Carry out the test below. Write your observation and inferences in the spaces provided.
   a) Using a clean spatula, heat about one third of the solid CBI in a non- luminous Bunsen burner flame.

Observation	Inferences
1mark	**1mark**

b) Put a half spatula endful of CBI in a test tube. Heat gently and then strongly. Test for any gas produced using litmus papers.

Observation	Inferences
1mark	**1mark**

c) Put 2cm^3 of dilute hydrochloric acid into a test tube. Add ¼ endful of CBI into the test tube. Test for any gas procedure.

Observation	Inferences
2marks	**2marks**

3. You are provided with solid Q, carry out the test below. Record your observations and inferences in the table. Identify any gas (es) evolved.

   Place all the solid Q provided into boiling tube and add distilled water until the tube is ¼ full. Divide it into five portions.

   a) To the 1st portion add ammonia solution drop wise until excess.

Observation	Inferences
1mark	**1mark**

b) (i) To the 2nd portion add sodium hydroxide solution dropwise until in excess. Keep the resulting mixture for the next test.

Observation	Inferences
1mark	**1mark**

ii) Warm the preserved mixture from b (i) above

Observation	Inferences
1mark	**1mark**

c) i) To the 3rd portion add silver nitrate solution. Preserve the mixture for the next test.

Observation	Inferences
1mark	**1mark**

ii) To the preserved mixture in c (i) above add diluted nitric acid.

Observation	Inferences
1mark	**1mark**

d) To the 4th portion add dilute Barium nitrate solution followed by dilute nitric acid.

Observation	Inferences
1mark	**1mark**

e) To the 5th portion add 2-3 drops of conc. Nitric acid.
Warm the mixture and allow to cool. Add sodium hydroxide solution dropwise until in excess.

Observation	Inferences
1mark	**1mark**