MOI HIGH SCHOOL
KABARAK

# FORM 3 2026 END TERM 3 EXAMS

**Paving Way For Kenya Certificate of Secondary Education Success**

Name …….. Admission no…….

Candidate's Signature…… Date…….

**FORM 3**

**CHEMISTRY**

**PAPER 3**

**TIME: 2Hours**

**Instructions**

a. Write your name, admission number and sign in the spaces provided above
b. Answer all questions in the spaces provided
c. Non-programmable silent electronic calculators and KNEC mathematics tables may be used.

**For Examiners only**

| | | |
|---|---|---|
| **QUESTION 1** | 14 | |
| **QUESTION 2** | 6 | |
| **TOTAL** | 20 | |

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1. **You are provided with:**

- 5 g of impure anhydrous sodium carbonate labelled as solid X
- 2M hydrochloric acid labelled as solution Y
- 0.4M sodium hydroxide solution as solution Z

You are required to determine the percentage purity of solid X.

**Procedure**

i. Using a measuring cylinder place 80$cm^3$ of solution Y in a beaker.
ii. Add all solid X and stir the solution using a stirring rod until effervescence stops.
iii. Transfer this solution into a 250 $cm^3$ volumetric flask and add distilled water to the mark. Label this as solution T.
iv. Place solution T in a clean burette.
v. Using a pipette filler, put 25 $cm^3$ of solution Z in a conical flask.
vi. Add 2 drops of methyl-orange and titrate using solution T.
vii. Repeat the titration two more times and complete the table below.

| | **I** | **II** | **III** |
|---|---|---|---|
| ***Final burette reading ($cm^3$)*** | | | |
| ***Initial burette reading ($cm^3$)*** | | | |
| ***Volume of solution T used ($cm^3$)*** | | | |

**( 4mks)**

a) Calculate the:

i. Average volume of solution T used **(1 mark)**

ii. The number of moles of solution Z used in titration **(2 marks)**

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iii. Concentration of solution T in moles per liter. **(2 marks)**

iv. Calculate the mass of sodium carbonate that reacted with solution Y. (Na= 23, C= 12, O= 16) **(3marks)**

v. Work out the percentage purity of solid X. **(1 mark)**

b) Write the ionic equation between solid X and solution Y. **(1 mark)**

2. **You are provided with solid L. Carry out the test below and record your observations and inferences in the spaces provided.**

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a) Describe solid. **(2 marks)**

b) Place half spatula of L in a non-luminous flame of a Bunsen burner.

| Observations | Inference |
|---|---|
| **(½ mark)** | **(½ mark)** |

c) Dissolve the remaining solid L in the distilled water and divide the solution into four portions.

i. To the fourth portion, add few drops of acidified potassium chromate (vii) and warm.

| Observations | Inference |
|---|---|
| **(½ mark)** | **(½ mark)** |

ii. To the second portion, add few drops of bromine water and warm.

| Observations | Inference |
|---|---|
| **(½ mark)** | **(½ mark)** |

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iii. To the third portion add few drops of acidified potassium manganite (vii) and warm.

| Observations | Inference |
|---|---|
| **(½ mark)** | **(½ mark)** |

iv. To the fourth portion add a quarter spatula end-full of sodium hydrogen carbonate.

| Observations | Inference |
|---|---|
| **(½ mark)** | **(½ mark)** |

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