THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION 2023

032/2A

CHEMISTRY 2A
ACTUAL PRACTICAL A

3 HOURS PRACTICAL ADVANCE INSTRUCTIONS

1.0 IMPORTANT

1.1 GREAT CARE MUST BE TAKEN **NOT** TO DIVULGE THESE INSTRUCTIONS TO BOTH CANDIDATES AND UNAUTHORIZED PERSONS EITHER DIRECTLY OR INDIRECTLY.

1.2 MAKE SURE THAT THE CANDIDATES ARE PROVIDED WITH CHEMICALS AND APPARATUSES AS INDICATED IN THESE PRACTICAL INSTRUCTIONS ONLY AND NOT OTHERWISE.

2.0 PREPARATION AND LABELLING OF CHEMICALS AND APPARATUSES

2.1 Question 1

- Prepare 0.1 M HCl, label it V1 and allow 125 cm^3 per candidate. Choose from the following table the appropriate volume of stock (concentrated) solution to be diluted to make 1 L solution basing on the specification indicated on the bottle of stock solution.

S/n	Percentage Purity/Assay or its Average when Given in a Range	Density of a Stock Solution (g/cc)	Volume of Stock Solution to be Diluted to make 1 L (cm^3)
1	31 - 32	1.16	9.81
2	≃34	1.18	9.09
3	≃35	1.18	8.83
4	≃36	1.18	8.58
5	≃37	1.18	8.35
6	≃38	1.18	8.13

Dilute the selected volume with water to make 1 L of 0.1 HCl solution.

- Prepare 0.1 M of sodium hydroxide by dissolving 4 g of the base in water to make 1 L solution. Label it V2 and allow 100 cm^3 per candidate.
- Provide each candidate with methyl orange (MO) indicator.
- Provide each candidate with two test tubes.
- Provide blue and red litmus papers, each one per candidate.

- Provide each candidate with 1 burette, 1 titration flask (250 cm^3), 1 pipette (20 cm^3 or 25 cm^3), 1 white tile, 1 glass/plastic funnel, 1 pipette filler, 2 test tubes, 1 retort stand and a clamp.

2.2 Question 2

- Prepare 0.2 M $Na_2S_2O_3.5H_2O$ by dissolving 49.636 g of hydrated sodium thiosulphate in water to make 1 L solution. Label it **RR** and allow 70 cm^3 per candidate.
- Prepare 1 M HCl, label it **SS** and allow 70 cm^3 per candidate. Choose from the following table the appropriate volume of stock (concentrated) solution to be diluted to make 1 L solution basing on the specification indicated on the bottle of stock solution.

S/n	Percentage Purity/Assay or its Average when Given in a Range	Density of a Stock Solution (g/cc)	Volume of Stock Solution to be Diluted to make 1 L (cm^3)
1	31 - 32	1.16	99.78
2	≃34	1.18	90.88
3	≃35	1.18	88.28
4	≃36	1.18	85.83
5	≃37	1.18	83.51
6	≃38	1.18	81.31

Dilute the selected volume with water to make 1 L of 0.1 HCl solution.

- Provide each candidate with a stop watch and a thermometer.
- Provide each candidate with 60 cm^3 distilled water.
- Using a blue pen, draw a uniform mark **M** on one side of a 8 cm × 8 cm piece of white paper and allow one piece per candidate.
- Provide each candidate with a 50 cm^3 beaker.
- Provide each candidate with a 10 cm^3 measuring cylinder.