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

132/3A

**CHEMISTRY 3A
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 TO UNAUTHORIZED PERSONS EITHER DIRECTLY OR INDIRECTLY.
- 1.2 MAKE SURE THAT THE CANDIDATES ARE PROVIDED WITH CHEMICALS AND APPARATUSES AS INDICATED IN THESE 3 HOURS PRACTICAL ADVANCE INSTRUCTIONS ONLY AND **NOT** OTHERWISE.

2.0 PREPARATION AND LABELLING OF CHEMICALS AND APPARATUSES

2.1 Question 1

- Mix 4.8 g of sodium hydroxide and 6.36 g of anhydrous sodium carbonate. Dissolve the contents to make 1 dm³ of solution and label it **T1**. Allow 150 cm³ per candidate.
- Prepare 0.2 M hydrochloric acid and label it **T2**. Allow 125 cm³ per candidate.
- Prepare phenolphthalein indicator and label it **POP**.
- Prepare methyl orange indicator and label it **MO**.
- Provide each candidate with 1 burette, 1 wire gauze, 1 white tile, 1 pipette (20 or 25 cm³), 2 titration flasks, 1 retort stand with accessories.
- Provide each candidate with a pipette filler.

2.2 Question 2

- Dissolve 49.6 g of hydrated sodium thiosulphate, Na₂S₂O₃.5H₂O in distilled water to make 1 dm³ solution. Label it **P1** and allow 50 cm³ per candidate.
- Prepare 0.1 M hydrochloric acid and label it **P2**. Allow 50 cm³ per candidate.
- Provide 50 cm³ distilled water per candidate and label it **distilled water**.
- Provide 1 stop watch per candidate.
- Provide each candidate with a 50 cm³ beaker.
- Provide each candidate with a 10 cm³ measuring cylinder.
- Provide a white plain paper uniformly marked **X** for each candidate.

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2.3 Question 3

- Prepare a mixture of equal amount of iron (II) chloride (FeCl_2) and copper (II) chloride (CuCl_2) and label it **U**. Allow 4 g per candidate.
- Provide about 300 cm^3 distilled water per candidate.
- Provide a centrifuge to candidates in the ratio of 1:4 or provide each candidate with a filter paper and a funnel.
- Prepare hydrogen sulphide gas source for sharing in a maximum ratio of 1:4.
- Prepare aqua regia (3 parts concentrated HCl and 1 part HNO_3): Each candidate will require about 5 cm^3 .
- Provide each candidate with 2 test tube holders.
- Provide each candidate with a piece of nichrome wire or platinum wire of about 15 cm in length).
- Provide sodium hydroxide, dilute hydrochloric acid, concentrated hydrochloric acid and sulphuric acid, potassium ferricyanide or potassium hexacyanoferrate(II), ammonia solution, dilute nitric acid and silver nitrate as bench reagents.
- Prepare heat source or burner for sharing in a maximum ratio of 1:4.