

KIYALA HIGH SCHOOL
MID-TERM TWO ASSESSMENT TEST 2024

CHEMISTRY

S.2

TRJ-COPY

Time: 2 Hours

INSTRUCTIONS:

- This paper consists of three assessment items.
- Section A has two *compulsory* item.
- Section B has *one* items
- Attempt *all the items* in both sections.
- Use of *illustrations* and *drawings* will earn you more scores.
- Any additional item answered will not be *scored*.

SECTION A

Answer the item in this section

Item 1

Cooks from Kiyala high school one day forgot a knife from outside the compound near the kitchen for a winter night, when they came the following morning, they found out that the knife was covered with a dark brown coating.



Task

As a chemistry learner;

- a) What chemical name is given to the reddish brown coating that was formed on the surface of the knife? (2 scores)

Hydrated iron (III) oxide being ~~hydrated~~ without hydrated.

- b) What conditions led to the formation of the dark brown coating. (4 scores)

Oxygen Moisture

- c) How the reddish brown coating be stopped from appearing on metal surfaces? Use the knowledge of chemistry. (5 scores)

Rusting can be stopped by;

- Greasing
- Electroplating
- Painting
- Galvanising
- Proper storage

- d) State the advantages of the above process to the economy. (4 scores)

- Creates market for the manufactured paint hence income.
- Job opportunities to the painters is provided.

Item 2

A student carried an experiment using two solutions X and Y and obtained the following results



X



Y

He also mixed the two solutions X and Y and decided to add three drops of universal indicator, the resultant solution turned to green.

Task

a) State the nature of;

i) Solution X

Acid

01

(1 score)

ii) Solution Y

Alkali / Base

01

(1 score)

b)

i) Give the name used for the reaction that occurred between solution X and Y.

(2 scores)

Neutralisation reaction; because during the reaction, a neutral solution was formed. 02

ii) write a general word equation for the above reaction.

(1 score)

Acid + Base \longrightarrow Salt + water. 01

c) Discuss the reaction of solution X with the following substances and in each case, write a general word equation.

i) Metals.

(3 scores)

~~Acids react~~
Dilute acids react with metals to form a salt and hydrogen gas.
Equation: $\text{Acid} + \text{Metal} \rightarrow \text{Metal salt} + \text{Hydrogen}$ 0.3

ii) Metal oxides.

(3 scores)

Dilute acids react with metal oxides to form a salt and water.
Eqn: $\text{Acids} + \text{Metal oxides} \rightarrow \text{Salt} + \text{water}$ 0.3

iii) Metal carbonates.

(3 scores)

Acids react with metal carbonates to form a salt and water liberating carbon dioxide gas.
Eqn: $\text{Acids} + \text{Metal carbonates} \rightarrow \text{Salt} + \text{water} + \text{Carbon dioxide}$ 0.3

d) What are the uses of solution X.

(3 scores)

- Used in preservation of drinks e.g. Carbonic acid. 0.3
- Used in manufacture of fertilizers, paints e.g. Sulphuric acid
- Used in car batteries e.g. Sulphuric acid.

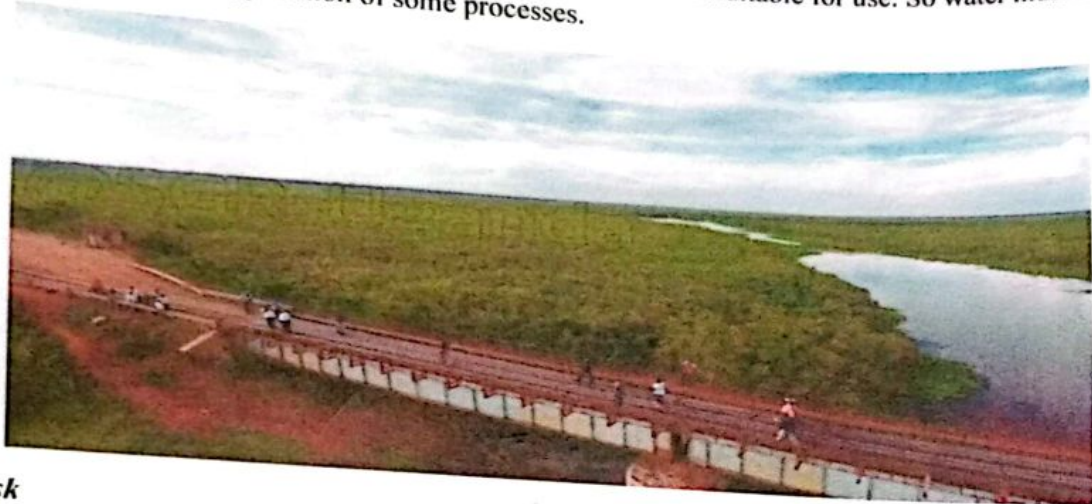
e) Discuss the applications of the type of reaction mentioned in b (i) above in everyday life.

- Manufacture of antacid tablets
 - Control of pH of soil 0.3
 - In waste water treatment
 - Curing bee stings and ant bites, using baking powder.
- (3 scores)

SECTION B
Attempt the item in this section

Item 3

Oceans, lakes, rivers and seas serve as the source of water we use in our daily lives. However, water from these sources possess different properties and qualities. In addition to that human way life has greatly affected water quality which makes it unsuitable for use. So water must be made fit for use by application of some processes.



Task

- a) State how the purity of water can be tested. (3 scores)
- b)
 - i) Which chemical substance is used to test for the presence of water. (2 scores)
 - ii) State what is observed when the substance stated in b (i) above is treated with water. (2 scores)
- c) Write a list of human activities that have contributed to water pollution. (4 scores)
- d) What are the stages involved in water treatment? (list them in order). (4 scores)
- e) Pupils of Kiyala Primary School always complain that the borehole water they always use makes them use a lot of soap during washing. Okitioi a student of Kiyala High School then mentioned that this water is hard water.
 - i) Explain what Okitioi means by hard water. (1 score)
 - ii) How can this borehole water be made soft? (4 scores)

Compiled by Solomon

Hom 3.

a)

Purity of water can be tested by determining its boiling point.

• Melting point. 0.3

If we had an impure

Pure water boils at 100°C and freezes at 0°C .

b)

i). Anhydrous copper (II) Sulphate

• Anhydrous cobalt chloride

• Cobalt chloride paper ✓

Any one of T/S

ii) with white Anhydrous copper (II) Sulphate, A blue solution is formed. 0.2

Any T/S 0.2

with Blue Anhydrous cobalt chloride or Blue cobalt chloride paper. 0.2
Water turns it to pink.

Any T/S

c) Water pollution is the addition of poisonous substance that endangers the lives of aquatic animals.

e). Improper Solid water disposal is sewage waste. Agricultural runoff is improper application of fertilizers and pesticides to Industrial waste which dumps which find their way into water bodies. Any four T/S

• Deforestation, leading to global warming, this temperatures in water bodies to rise.

• Improper disposal of sewage and waste water.

d)

- Filtration ✓
- Sedimentation ✓
- Chlorination ✓
- PTH adjustment. ✓

e) i) Hard water is the type of water that does not form lather easily with soap.

ii) Methods of softening water

- Boiling ✓
- Addition of ^(soda ash) washing soda (Sodium carbonate). ✓
- Passing water through ion exchange column.
- Addition of slaked lime (Calcium hydroxide) ✓