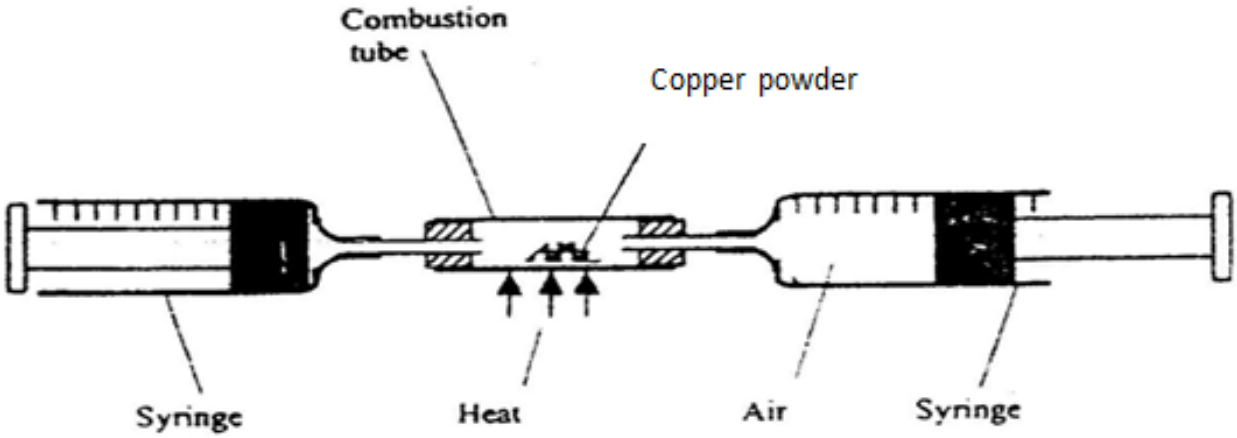
CHEMISTRY PAPER 1 - KCSE 2019 MOCK EXAMINATION - KAKAMEGA

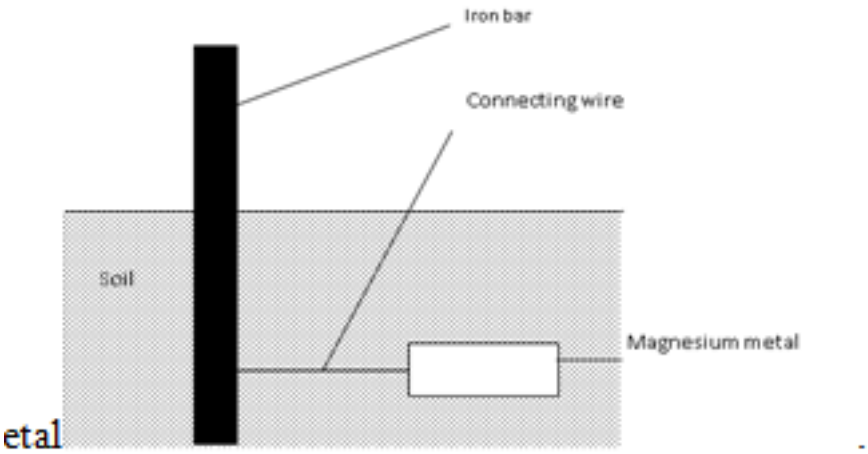
1.
   a. Explain why there is effervescence when lemon juice is added to sodium hydrogen carbonate. (1mk)
   b. Write ionic equation for the observation made above. (1mk)

2. In an experiment a certain volume of air was passed repeatedly from syringe over heated excess copper powder as shown in the diagram below.



   The experiment was repeated using excess magnesium powder. In which of the experiments was the change in volume of air greatest? Give reasons. (3mks)

3. The diagram below shows an iron bar, which supports a bridge. The iron is connected to a piece of magnesium metal.



   Explain why it is necessary to connect the piece of magnesium metal to the iron bar. (2mks)

4. The diagram below is a set up for the laboratory preparation of oxygen gas.

i. Hydroxide of Q (1mk)
ii. Nitride of R (1mk)

b. Which element is likely to form a soluble carbonate (1mk)

MARKING SCHEME

a. Explain why there is effervescence when lemon juice is added to sodium hydrogen carbonate (1mk)

The juice contains acid/H^+ that react with the carbonate to produce CO_2 gas.

b. Write ionic equation for the observation made above. (1mk)

$H^+_{(aq)} + \quad HCO^-_{(aq)} \rightarrow H_2O_{(l)} + CO_{2\,(g)}$

3. In an experiment a certain volume of air was passed repeatedly from syringe over heated excess copper powder as shown in the diagram below.
The experiment was repeated using excess magnesium powder. In which of the experiments was the change in volume of air greatest? Give reasons. (3mks)

When magnesium is used(1mk) because Mg reacts with other components of air/is more reactive (1mk) hence reacts with nitrogen and carbon (iv) oxide and moisture(any 2 mentioned) 1mk

4. The diagram below shows an iron bar, which supports a bridge. The iron is connected to a piece of magnesium metal.

Explain why it is necessary to connect the piece of magnesium metal to the iron bar. (2mks)

Mg being more reactive(1Mk) will react in preference to iron hence protect iron(1Mk)

4. The diagram below is a set up for the laboratory preparation of oxygen gas.

a. Name solid R. (1mk)

manganese (iv) oxide

b. Write an equation for the reaction that takes place in the flask. (1mk)

$2H_2O_{2(l)} \rightarrow 2\ H_2O_{(l\,)} + \quad O_{2(g)}$

c. Give one commercial use of oxygen. (1mk)