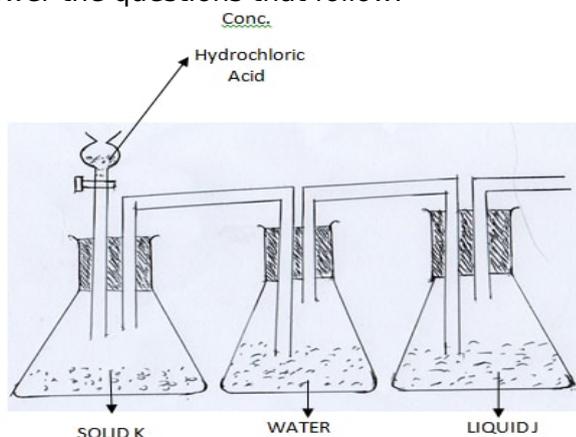


CHEMISTRY PAPER 2 - KCSE 2019 MASENO MOCK EXAMINATION (WITH MARKING SCHEME)

QUESTIONS

1.

- a. The diagram below shows a set up for laboratory preparation of chlorine gas. Study it and answer the questions that follow.



- i. Complete the set up to show how dry chlorine may be collected (1 mk)

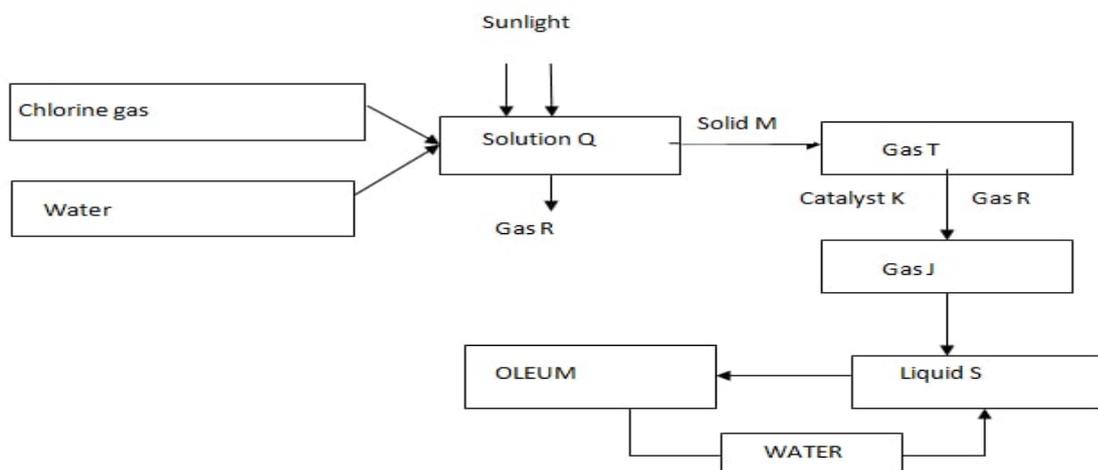
ii. Name

- Solid K (2 mks)
- Liquid J

iii. State and explain the observation made when chlorine gas is bubbled through a solution of potassium iodide (2 mks)

iv. Write an ionic equation for the reaction that occurs in iii) above (1 mk)

v. Study the flow chart below and answer the questions that follow



b.

i. Identify the following; (2 mks)

- Gas R
- Solid M
- Gas J
- Liquid S

ii. Write a chemical equation for the formation of gas T (1 mk)

iii. Name catalyst K (1 mk)

iv. State two uses of liquid S (2mks)

(1 mk)

(1 mk)

(2mks)

MARKING SCHEME

1.

a. Downward delivery

i. K; potassium manganate vii

J; Concentrated sulphuric vi acid

ii. Brown solution; chlorine oxidises iodide ions to iodine.

iii. $\text{Cl}_2 (\text{g}) + 2\text{I}^- (\text{aq}) \rightarrow 2\text{Cl}^- (\text{aq}) + \text{I}_2 (\text{aq})$

b.

i.

• R; Oxygen

• M; Sodium sulphite

* Accept correct formulas

• J; Sulphur iv oxide

• S; Concsulphuric vi acid

ii. $\text{Na}_2\text{SO}_3 (\text{s}) + 2\text{HCl} (\text{aq}) \rightarrow 2\text{NaCl} (\text{aq}) + \text{SO}_2 (\text{g}) + \text{H}_2\text{O} (\text{l})$

iii. Vanadium v oxide/ platinum

iv. - manufacture of fertilizers

- manufacture of detergents

- Manufacture of plastics

* any two

- in lead acid accumulators

- In making dyes and paints

- processing metal ores

2.

a.

i. Alkaline earth metals

ii. H is more reactive than C; H has lower ionization energy/ H has more ease of losing an electron

i. $\text{DCl}_3 / \text{D}_2\text{Cl}_6 // \text{AlCl}_3 / \text{Al}_2\text{Cl}_6$

ii. Molecular structure

c. The atomic radius is lower than the ionic radius; This is due to repulsion between existing electrons and the gained electrons;
(correct electron distribution)

d.

i. - zinc glows

- Yellow solid when hot (and white when cool)

ii. To drive out air initially present in the tube

iii. Extinguishes/ puts off a burning splint with a pop sound

3.

a. Enthalpy of atomization of $\text{Na}_{(\text{s})}$

b. DH reaction

$$= (\text{H} - \text{H} + \text{Cl} - \text{Cl}) - (2 \times \text{H} - \text{Cl})$$

$$= (435 + 243) - (2 \times 431)$$

$$= - 184 \text{ kJ / Mol}$$

c.

i. Is the heat change which occur when a compound is formed from its constituent elements in their standard state.

ii.