

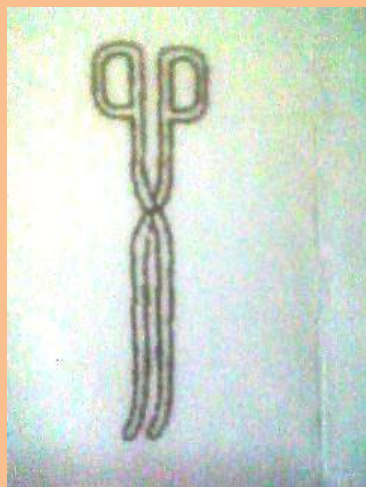
CHEMISTRY PAPER 1

KARAGO INI SECONDARY SCHOOL

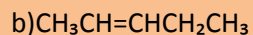
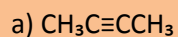
MID TERM EXAM YEAR 2014

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1. Identify and state the use of the apparatus represented below (2mks)



2. Give the systematic name of each of the compounds represented by the formulae below (3mks)

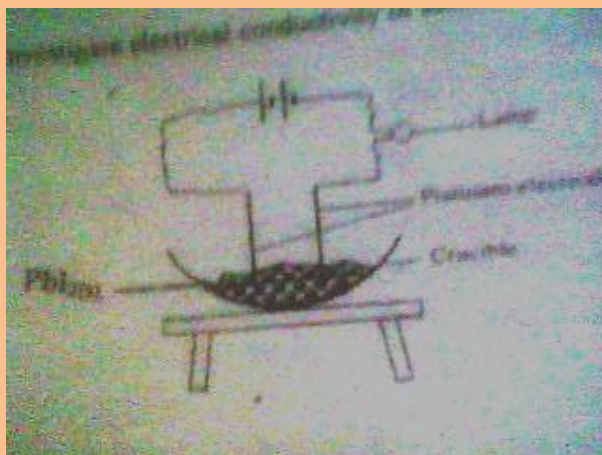


3. A fixed mass of a gas occupies 105cm^3 at -14°C and 650mmHg . At what temperature will it have a volume of 15cm^3 if the pressure is adjusted to 650mmHg (3mks)

4 a) Using dots (.) and crosses (x) to represent electrons, show the bonding in the compounds formed between magnesium and fluorine. (Atomic numbers; $\text{Mg}=12$, $\text{F}=9$) (1mk)

b) State one likely physical property of the compound formed between magnesium and fluorine in (a) above (1mk)

5. A set up to investigate electrical conductivity of substances was assembled as shown below



The bulb did not light

a) what was missing in the set up? (1mk)

b) The bulb lit when the omission was corrected. Explain (2mks)

6. An oxide of copper in a porcelain boat was reduced by a stream of hydrogen. The results obtained were as follows

Mass of porcelain boat = 4.5g

Mass of boat + Oxide = 6.4 g

Mass of boat + Copper = 6.02 g

i) Determine the empirical formula of the oxide (3mks)

ii) If the relative formula mass of the oxide is 80, determine its chemical formula (1mk)

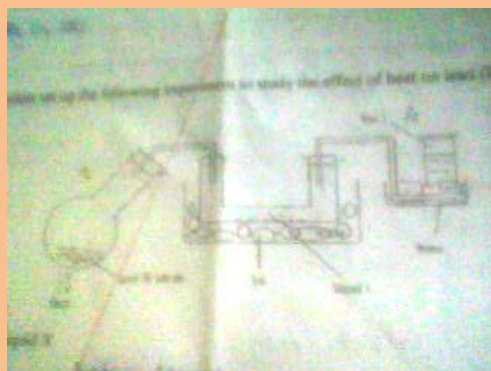
7. Starting with copper metal, describe how to prepare solid copper (II) carbonate (3mks)

8. The ammeter readings below were obtained using separate equal volume of 2M aqueous solutions of ethanoic acid and hydrochloric acid. Study the information and answer the questions that follow.

	Ammeter reading (A)
Ethanoic acid	0.3
Hydrochloric acid	1.0

Explain the difference in the ammeter reading for the two acids (3mks)

9. A student set up the following experiment to study the effect of heat on lead (II) nitrate

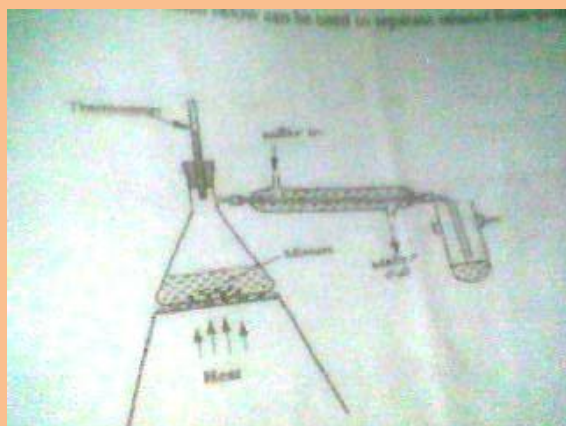


i) Identify liquid X (1mk)

ii) Describe the test for gas Y (1mk)

iii) Write a balanced chemical equation for the reaction (1mk)

10. The set up represented below can be used to separate ethanol from its mixture with water



a) Identify an error in the set-up (1mk)

b) Name this method of separation (1mk)

c) What properties make it possible to separate ethanol from water by this method (1mk)

11. Describe how to distinguish between substances I and II below using sodium carbonate (3mks)

I) HOCH_2CH_3 II) $\text{HOOCCH}_2\text{CH}_3$

12. Element K has two isotopes $(20)\text{K}$ and $(22)\text{K}$ with relative abundance of 90% and 10% respectively

a) What are isotopes (1mk)

b) Determine the relative atomic mass of element K (2mk)

13. Give one application of calcium oxide (1mk)

14.State one use of;

a)Calcium nitrate (1mk)

b)Magnesium hydroxide (1mk)

15.Sulphur burns in air to form a gaseous product

i)What is the colour of the of the flame of burning sulphur (1mk)

ii)Give an equation for the reaction that takes place when the gaseous product is bubbled through water (1mk)

iii)State one importance of the product formed in 15(ii) above (1mk)

16.Four metals are labeled P,Q,R and S(not actual symbols).Metal P displaces metal S from its oxide but cannot displace R from its oxide.Q when mixed with the oxide of R and heated, a reaction occurs.

Arrange the metals in order of reactivity, starting with the most reactive (2mks)

17.The following results were obtained in an experiment to determine the solubility of a salt at 25°C

Mass of evaporating dish=21.2 g

Mass of evaporating dish + saturated solution =37.4 g

Mass of evaporating dish + dry solid salt = 25.4 g

Calculate the solubility of the salt at 25°C (3mks)

18.The table below shows the first ionization energies of element P and Q

Element	1 st Ionization energy kJ/mole
P	494
Q	418

a)What do the values suggest about the reactivity of P compared to that of Q? Explain (2mks)

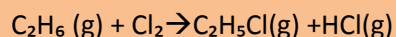
b)State two factors that influence ionization energy (1mk)

19.Steam is passed over heated iron filling in a combustion tube

a)Name the products of this reaction (2mks)

b)Write an equation for the reaction that occurs (1mk)

20.Ethane reacts with chlorine as shown below



a) Give the name of this type of reaction (1mk)

b) Identify the overall bonds that are broken and those that are formed (2mks)

Bonds broken

.....

Bonds formed

.....

21. 30cm^3 of 0.5M hydrochloric acid was used to neutralize 25cm^3 of sodium hydroxide solution. Determine the concentration of sodium hydroxide in grams per litre (3mks)

22 a) Write a balanced chemical equation for the reaction between chlorine and

i) Concentrated sodium hydroxide (1mks)

ii) Dilute sodium hydroxide (1mk)

b) State one observation made when a gas jar of moist hydrogen sulphide is inverted over a gas jar of dry chlorine gas (1mk)

23 a) Hydrogen sulphide gas is bubbled through bromine water

i) Give two observations made (1m k)

ii) Write an equation for the reaction that takes place (1mk)

b) State the test for hydrogen sulphide gas (1mk)

24 a) State Gay-Lussac's law (1mk)

b) When 100cm^3 of a gaseous hydrocarbon burns in 300cm^3 of oxygen, 200cm^3 of carbon iv oxide and 200cm^3 of steam formed

Deduce the formula of the hydrocarbon (2mks)