KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KENYA HIGH SCHOOL
CHEMISTRY
PAPER 2
TIME: 2 HOURS

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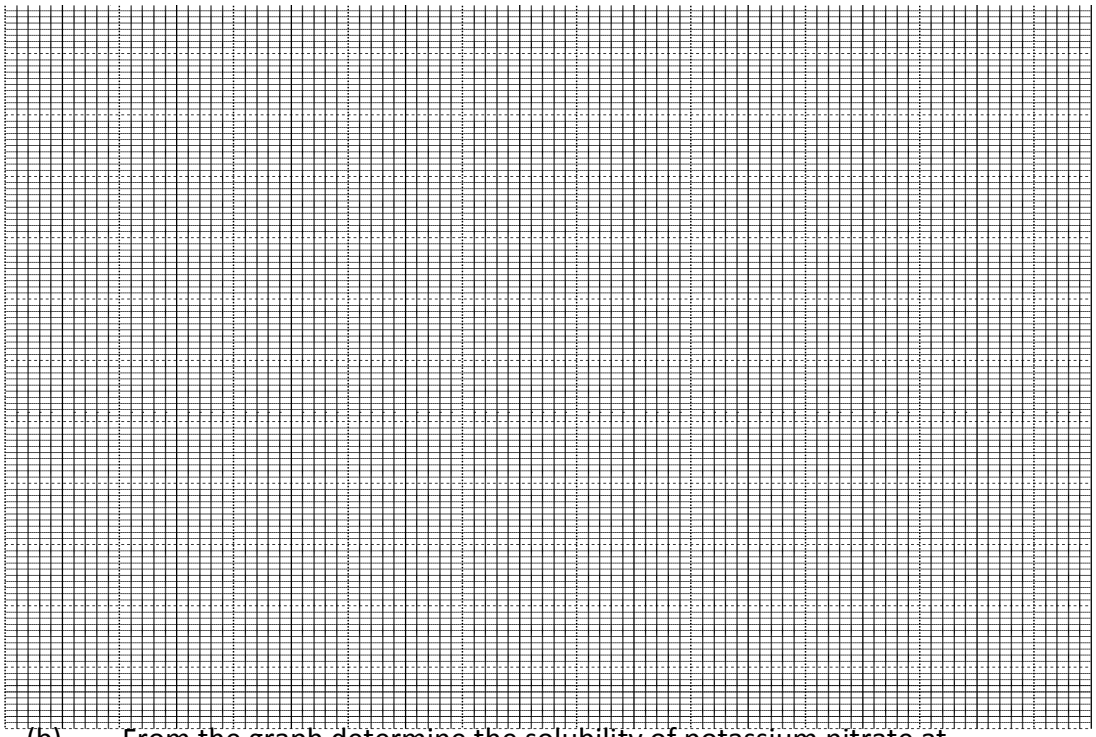
KENYA HIGH SCHOOL KCSE TRIAL AND AND PRACTICE EXAM 2016

Paper 2

1. The table below shows results recorded on an experiment carried out to determine the solubility of potassium nitrate.

Temperature (oC)	20	30	40	50	60	70	80	90
Solubility in g per 100g of water	32	46	64	86	110	138	169	202

(a) Use the data above to plot a graph of solubility against temperature on the grid Provided (3mks)



(b) From the graph determine the solubility of potassium nitrate at (2mks)

(i) 25^{o}C

(ii) 83 ^{o}C

© What mass of potassium nitrate will crystallise when a saturated solution is cooled from 75^{o}C to 20^{o}C. (2mks)

(d) On the same axis sketch a graph showing how solubility of chlorine gas varies with temperature (1mk

(e) The table represents results on four samples of water. Study it an answer the questions that follows.

Sample of water	Drops of soap used to produce lather	
	Before boiling	After boiling
A	20	10
B	3	3
C	15	3
D	20	20

(i) Which sample is likely to be temporary hard water? Explain (2mks)

(ii) Give 2 advantages of hard water (2mks)

2 (a) Draw the structural formulae of the following compounds (3mks)

(i) 2 methyl propene

(ii) Butan –2-ol

(iii) 2-3-di methyl Butane

(b) State the observation made when compound (ii) in (a) above is reacted with a piece of Sodium metal (1mk)

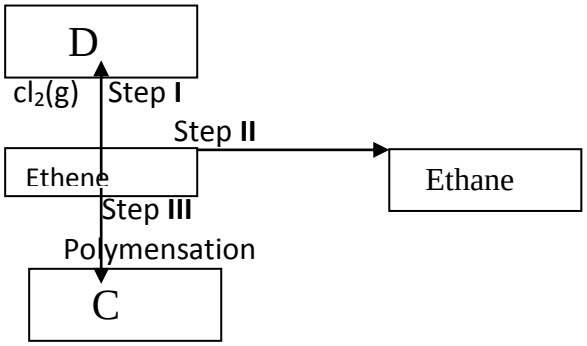
© Compounds (i) and (ii) in (a) above belong to different homologous series

(i) what is a homologous series (1mk)

(ii) Give a chemical test that will distinguish Butan-2-ol from butanoic acid (2mks)

(a) Write an equation for the complete combustion of ethane gas (1mk)

(b) Study the flow chart below and answer the questions that follows.

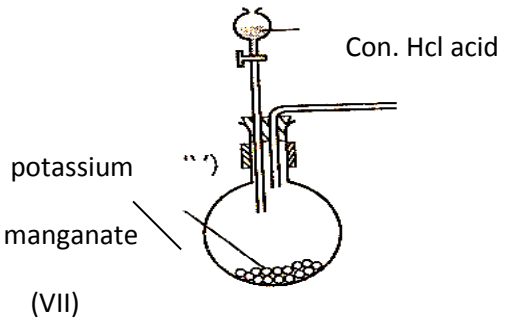


(i) Give the reagents and conditions for step **II** to occur (2mks)

(ii) Give the industrial importance of step **II** (1mk)

(iii) Name the compounds

3 The setup below was used to prepare and collect a dry sample of gas X. Study it and answer the questions that follow.



(1mk)

Identify gas X .(1mk)

(a) Complete the setup to show how gas X is dried and collected (3mks)

(b) Write an equation for the above reaction. (1mk)

© An aqueous solution of zinc sulphate is electrolysed using platinum electrodes. State and explain what happens to the concentration of zinc sulphate (2mks)

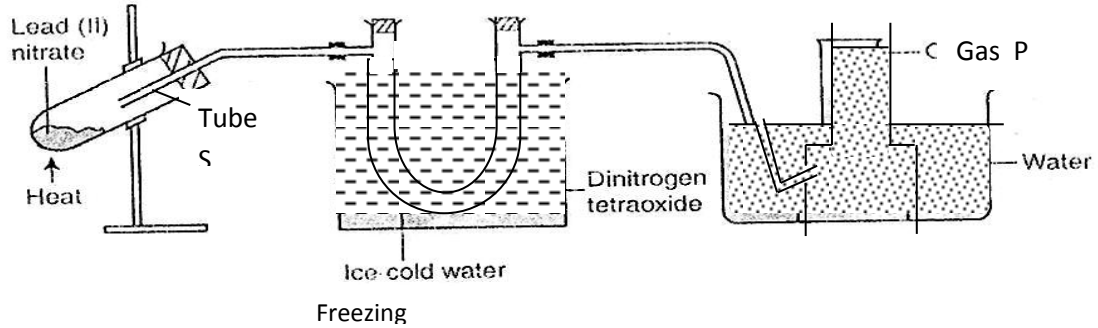
(d) State the ratio of the products of the anode and cathode using the equations (2mks)

(f) Give one use of electrolysis (1mk)

(g) What is anodization of aluminium (1mk)

4. The diagram below represents a set up that can be used to prepare and collect Nitrogen (IV) oxide.

(a) Name gas P (1mk)



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

© Give **Two** observation that would be made in tube S (2mks)

(d) What property of Nitrogen (IV) oxide make it possible for its collection as shown above. (2mks)

(e) Why is it not advisable to use other Nitrates (1mk)

(f) Write an equation showing a reaction of Nitrogen (IV) oxide and water (1mk)

(g) Explain the following observation, a piece of burning magnesium is lowered in a gas jar full of Nitrogen (IV) oxide it continues to burn forming a white solid and a colourless gas. (2mks)

(i) Name the white solid (1mk)

(ii) Name the colourless gas (1mk)

5. Study the table below and answer the questions that follow. The letters do not represent the actual symbols of elements.

A								
				D			E	
B	C					F	G	
	K						H	

(a) Choose the most reactive non-metal (1mk)

(b) On the grid indicate the position of element X whose ion is X^{-2} and has an electron Arrangement of 2,8 (2mks)

© Write the formulae of the compound formed between G and D. (1mk)

(d) What is the family name of E,G, H (1mk)

(e) How does the electronegativity of E, G, and H vary? Explain (2mks)

(f) Compare the reactivity of A and water and that of C and water. (2mks)

(g) Name the type of oxide formed by B (1mk)

(b) Give one use of element F (1mk)

6 (a) Name the process in which sodium metal is extracted (1mk)

(b) What is the function of calcium chloride during extraction of sodium meta (1mk)

(c) Write an equation for the reaction taking place at the anode (1mk)

(d) Apart from liquid sodium what else can be collected at the cathode, and how is it separated from sodium . (2mks)

(e) Calculate the volume of hydrogen gas produced at s.t.p when 1.15g of sodium metal react with water. (Na=23, molar gas volume=22400cm^3) (3mks)

(f) (i) State one environmental hazard that is caused during extraction of sodium metal (2mk

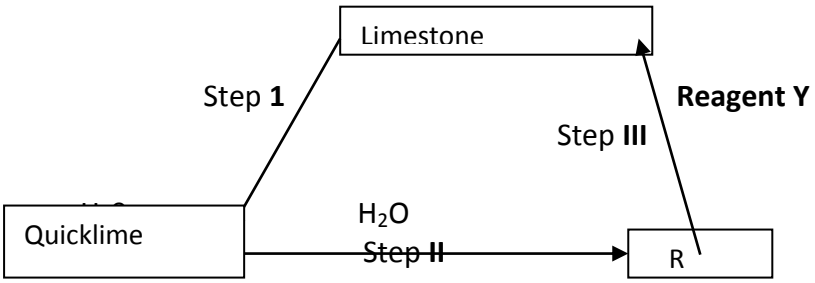
(ii) Give 2 uses of sodium metal (2mks)

7 (a) Define the following terms (2mks)

(c) Duplet

(b) Hydrogen bonding

(b) Below is a flow chart. Study it and answer the questions that follow: -



(i) Name the process in step **I** (1mk)

(ii) Name compound R (1mk)

Reagent Y (1mk)

(iii) Write equation for the reaction in step II

(c) Explain why 0.1 M hydrochloric acid has a pH of 1 while 0.1M ethanoic acid has a pH of 3 (2mks)

(d) (i) Write down the observation made when a sample of copper (II) carbonate is heated in a test tub (1mk)

(ii) Write an equation for the action of heat on copper (II) carbonate (1mk)