KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KABARAK HIGH SCHOOL

CHEMISTRY

PAPER 2

MARKING SCHEME

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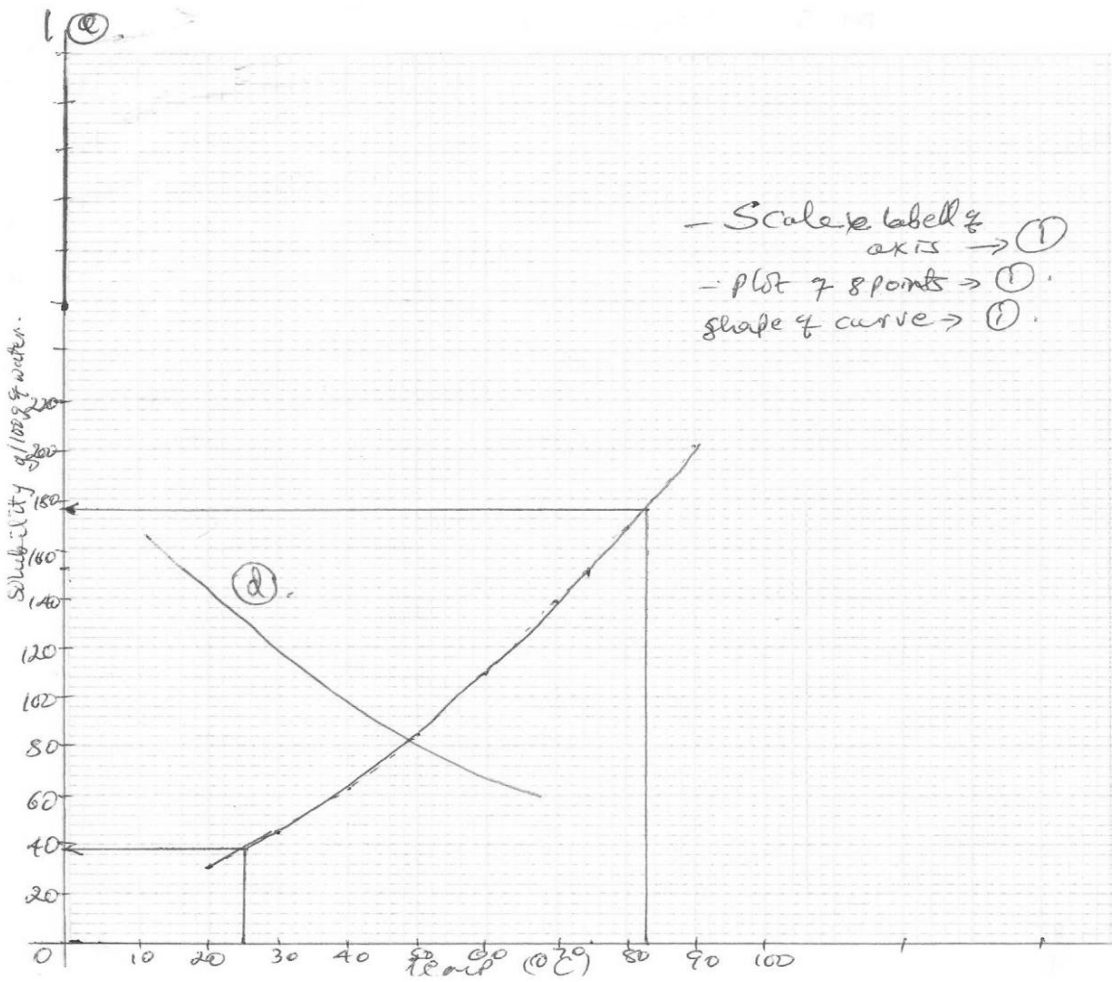
KABARAK HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
QUESTION PAPER 2
MARKING SCHEME

1(a)



(b) (i) 38g ± 1 evidence from graph
(ii) 175 g ± 1

(c) 75^{o} C → 155g
20^{o}C → -32g
123g

(d) Curve decreasing
√ √

(e) (i) A & C; forms lather after boiling
Note: both A & C must be given

(ii) -Provides calcium for strengthening bones
- Forms a layer of carbonate in lead pipes

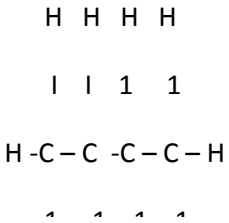
2 (a) (i)

H H

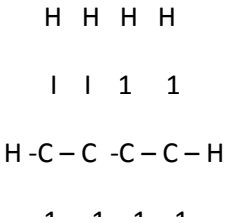
1 1

C = C C H

(ii)



(ii)



Note reject condensed formulae

(b) Bubbles of colourless gas given off.

(c) **I** Compounds with similar chemical properties and shows gradual change in Physical properties.

II (i) Add to both Na_2CO_3 solid no reaction in butan-2-ol

(ii) Add acidified $KMnO_4$ to Butanol, purple colour disappears, but no observable Change butanoic acid

- or any correct test
- both observations must be given

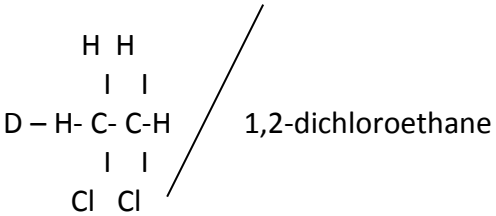
(d) $2C_2H_{6(g)} + 7O_{2(g)} \longrightarrow 4CO_{2(g)} + 6H_2O_{(l)}$

(e) (i) reagents – H2 (g) √

conditions – Ni catalyst, √ 150^oC-250^oC Note: both must be given

(ii) Manufacture of solid fats

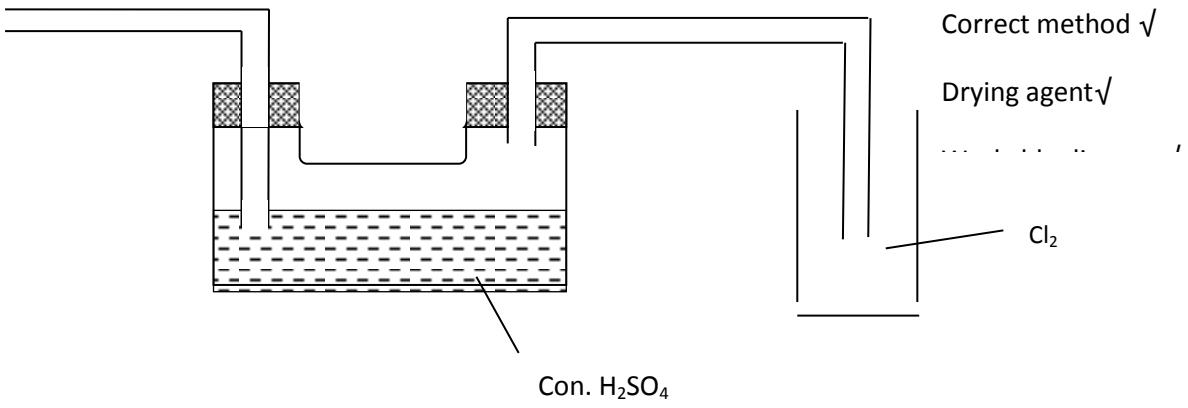
(iii) C- polyethene



Accept formula

3 (a) gas X-chlorine

(b



(c) $16Hcl_{(l)} + 2KMnO_{7(s)} \longrightarrow 5Cl_{2(g)} + 2Kcl_{(aq))} + 2Mncl_{2(aq)} + 8H_2O_{(l)}$

(d) It increases√; water elements are√ discharged at the electrodes i.e.H_2 and O_2

(e) Anode $\longrightarrow$ $4\ OH^-_{(aq)} \longrightarrow 2H_2O_{(l)} + O_{2(g)} + 4e$√

Cathode $\longrightarrow$ $4H^+_{(aq)} + 4e \longrightarrow 2H_{2(g)}$ √

Ratio 2:1 - equations must be balance (scores 2 marks)
-ratios along (no marks)

(f) - Electroplating

- Extraction of metals
- Purification of copper

(g) The corrosion of articles made of aluminum prevented by reinforcing their aluminium oxide coating during electrolysis of dilute sulphuric acid and aluminium article used as the anode

4. (a) P - oxygen

(b) $2Pb(NO_3)_{2(s)} \longrightarrow 4NO_{2(g)} + O_{2g} + 2PbO_{(s)}$

(c) - cracking sound
- Brown fumes

(d) Liquifies quickly

(e) They decompose forming water crystallisation

(f) $2NO_{2(g)} + H_20_{(l)} \longrightarrow HNO_{2(aq)} + HNO_{3(aq)}$

(g) Burning Mg **splits** √ NO_2 into nitrogen√ ½ and oxygen√ ½

(i) White solid - MgO

(ii) Gas – N_2

5. (a) E

(b) Above F to the left of E

(c) P G_3

(d) Halogens

(e) It decreases√ down the group with increase in energy levels√

(f) A & water – very vigorous – group 1

C & water – vigorous – group II

(g) – Basic oxide

(h) – manufacture of H_2SO_4
- manufacture of drugs
- Vulcanization of rubber

6 (a) Down's cell

(b) To lower melting pt of sodium chloride from $800^oC \longrightarrow 600^oC$

(c) $2Cl^-_{(l)} \longrightarrow Cl_{2(g)} + 2e$ - correct state symbols

(d) Liquid calcium√; it crystallises√ first when it cools

(e) $2Na_{(s)} + 2H_2O(l) \longrightarrow 2NaOH_{(aq)} + H_{2(g)}$ √

No. of moles $= \frac{1.15}{23}$ √½

$= 0.05$

H_2 moles $= \frac{0.05}{2}$ √ ½ dividing by 2

$= 0.025$

Volume = 0.025 x 22400√ ½ multiplying = $560cm^3$ √½

f) (i) Cl_2 gas is poisonous

(ii) Sodium vapour – for street lamps
- Manufacture of NaCN for extraction of gold (sodium cyanide)
- alloy of Na & K as a nuclear reactant coolant
- Alloy with lead for anti-knock

Any 2

7 (a) (i) A stable electron configuration of 2

(ii) Intermolecular force in which positive atom of hydrogen is joined to a negative

atom of another molecule

(b) (i) Heating

(ii) R – $Ca(OH)_2$

Y –$CO_{2(g)}$

(iii) $CaO_{(s)} + H_2O_{(l)} \longrightarrow Ca(OH)_{2(aq)}$

(c) 0.1MHCl ⟶ ionises completely

0.1M ethanoic ⟶ ionises partially

d) (i) Green colour turns black

(ii) $CuCO_{3\,(s)} \longrightarrow CuO_{(s)} + CO_{2(g)}$

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