KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KENYA HIGH SCHOOL
CHEMISTRY
PAPER 2
MARKING SCHEME

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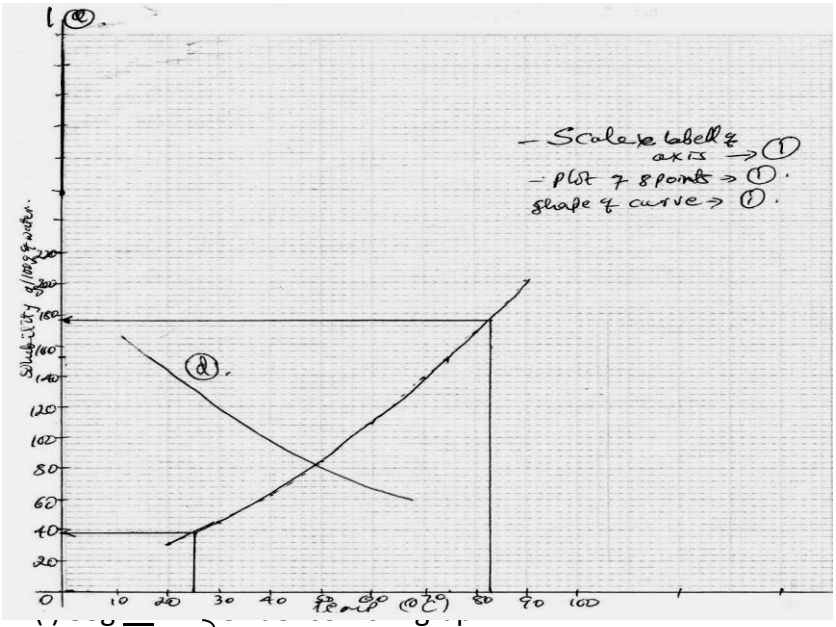
KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
QUESTION PAPER 2
MARKING SCHEME

1(a)



(b) (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)

H H H H

I I 1 1

H -C – C -C – C – H

(ii)

H H H H

I I 1 1

H -C – C -C – C – H

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

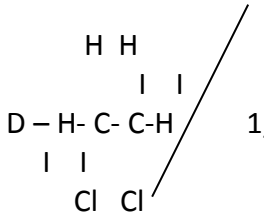
(d) $2C_2H_{6(g)} + 7O_{2(g)} \longrightarrow 4CO_{2(g)} + 6H_2O_{(l)}$

(e) (i) reagents – H2 (g) √

conditions – Ni catalyst, √ 150°C-250°C Note: both must be given

(ii) Manufacture of solid fats

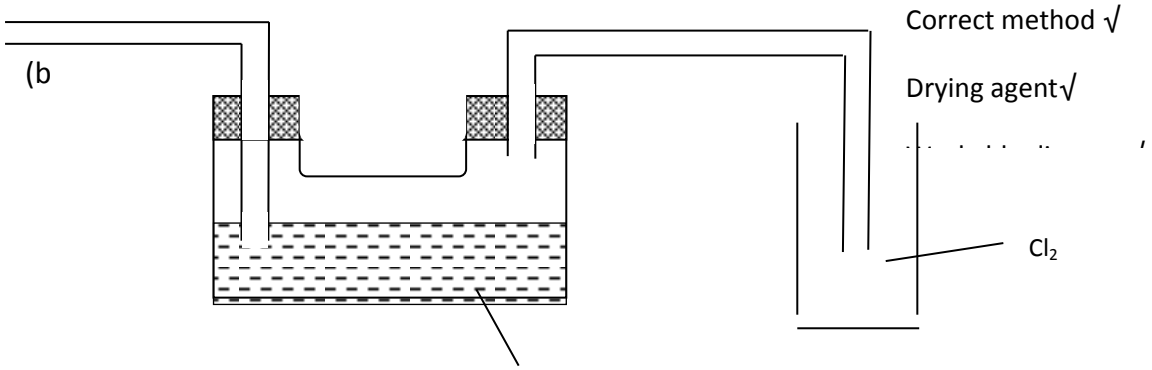
(iii) C- polyethene



1,2-dichloroethane

Accept formula

3 (a) gas X-chlorine



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

(d) It increasesV; water elements areV discharged at the electrodes i.e.H_2 and O_2

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

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

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 <u>sulphuric acid</u> and aluminium article used as the <u>anode</u>

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

l) Above F to the left of E

m) P G_3

n) Halogens

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

p) A & water – very vigorous – group 1

C & water – vigorous – group II

q) – Basic oxide

r) – 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) $CuCO_{3(s)} \longrightarrow CuO_{(s)} + CO_{2(g)}$