KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KAPSABET BOYS HIGH SCHOOL

CHEMISTRY

PAPER 2

MARKING SCHEME

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KAPSABET BOYS KCSE TRIAL AND PRACTICE EXAM 2016

QUESTION PAPER 2

MARKING SCHEME

1 . a)

b) Galena

Cerussile

Anglesite

c) i) Froth floatation

ii) N – Sulphur (IV) Oxide.

F – Lead (II) oxide

iii) Produce Co_2 which is reduced to CO, a reducing agent.

- produces calcium oxide which precipitates silica impurities.

iv) $CaO_{(s)} + SiO_{2\ (s)} \rightarrow CaSiO_{3\ (l)}$

v) Anode – Impure lead.

Cathode – pure lead.

vi) Manufacture of accumulators

2. i) Manganese iv oxide.

ii) To dissolve traces of hydrogen chloride gas.

iii) $MnO_{2\ (s)} + 4HCl_{(aq)} \rightarrow Cl_{2\ (g)} + 2H_2O_{(l)}$

iv) Sodium hypochlorite

v) $Ca(OH)_{2\ (s)} + Cl_{2\ (g)} \rightarrow CaOCl_{2\ (s)} + 2H_2O_{(l)}$

vi) Manufacture of plastics e.g pvc.

Treatment of water

Manufacture of hydrochloric acid.

Manufacture of chloroform used as anaesthesia

vii) Kcl solution remains colorless. $Br_{2\ (g)}$ is less reactive than chlorine hence cannot displace Cl^- ions from solution.

3. a) Heat change that occurs when one mole of a substance is completely burnt in excess air.

b) (i) $3\ C_{(s)} + 4H_{2\ (g)} \rightarrow C_3H_{8\ (g)}$

$5O_2$ $5O_2$

$3\ CO_{2\ (g)} + 4H_2O$

C) i) heat change = $mc\Delta T$

$= 1000g \times 25.5\ k \times 4.2\ Jg^{-1}\ k^{-1}$

ii) MM = 3(12) + 8(1) = 44g

$\therefore 44g \rightarrow 2218\ kJ$

d) Caloric value = $\frac{\Delta Hc}{mm}$

$= \frac{2218}{44}$

e) - Cost - Easy of storage.

- Availability - should be able to burn controllably.

4. i) Transition metals.

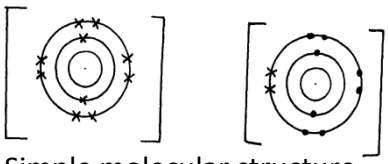
ii) U has larger radius than x. Because x has greater nuclear force of attraction due to higher no of clectrons and protons hence has reduced radius.

iii) Period 2, group 5.

iv) P – it has the smallest atomic radius hence has greater attraction of the outermost clectron.

v) Because it is inert hence prevents oxidation of filament.

vi) $T_3 (PO4)_2$

vii) 

viii) Simple molecular structure.

ix) The number of atoms in a molecule of an element.

5. i) - Lead II oxide changes colour yellow to orange to grey.
- Droplets of a colourless liquid form on cool sides of the combustion tube.

ii) $PbO_{(s)} + H_{2\,(g)} \rightarrow Pb_{(s)} + H_2O_{(l)}$

iii) Reducing property.

iv) Water.

v) Addition reaction

vi) Nickel catalyst.

vii) Sodium peroxide and water.

viii) $2Na_2O_{2\,(l)} + 2H_2O_{(l)} \rightarrow 4NaOH_{(aq)} + O_{2\,(g)}$

a) (i) Carbon iv oxide

(ii) Ammonium chloride.

(iii) Sodium hydrogen carbonate.

b) - Extraction of metals e.g aluminum
– Drying of gases.

c) - Water is required as a reactant.
- For cooling the solvary tower because the reaction is exothermic

d) i) $Ca(OH)_{2\,(aq)} + NH_4Cl_{(aq)} \rightarrow CaCl_{(aq)} + 2NH_{3\,(g)} + H_2O_{(l)}$

ii) $2NaHCO_{3\,(s)} \xrightarrow{\text{heat}} Na_2CO_{3\,(s)} + CO_{2\,(g)} + H_2O_{(l)}$

e) $Ca^{2+}_{(aq)} + CO_3^{2-}{}_{(aq)} \rightarrow Ca\,CO_{3\,(s)}$

f) By dissolving ammonia gas in brine

g) Making baking powder.

7. i) $B_{(s)}$

ii) $E_{cell} = E_{rdn} - E_{oxdn.}$
$= +2.87 - (-2.92) = +5.79v$

A iii) $B_{(s)}/B^+_{(aq)} // ½\,C_{2\,(g)} + C^-_{(g)}$, $E\,\Theta = +5.79$

B i) Left – Anode
Right – Cathode

ii) $4\,OH^-_{(aq)} \rightarrow 2H_2O_{(s)} + O_{2\,(g)} + 4e^-$

iii) - pH is lower
-Colour fades from blue.

iv) Coating of a metal with a more reactive metal using electricity.

v) $Cu_{(s)} \rightarrow Cu^{2+}_{(aq)} + 2e^-$

vi) $Q = It$
$= 2x\,(60x\,75) = 9000C$

Eqn at anode : $4OH^-_{(aq)} \rightarrow 2H_2O_{(l)} + O_2 + 4e^-$

$4(96500)\,c \rightarrow 22.4L$ of O_2

$9000\,c \rightarrow ?$

$\frac{9000 \times 22.4}{386000} = 0.522L.$