KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

MARANDA HIGH SCHOOL

CHEMISTRY

PAPER 2

MARKING SCHEME

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

1. a) Is a solution in which no more solute can dissolve at that given temperature

b) i) - (Fractional) Distillation

ii) - It has high specific heat capacity

- It has the highest boiling point

iii) This is because it has got lower boiling point

c) i) Heat the mixture , Ammonia chloride

Sublimes, Add water to the remaining mixture, and filter out lead II chloride as the residue then evaporate the filtrate to saturation point. Allow 15 minutes cool and then filter out the crystals of sodium chloride

ii) I. A – Compression

B – Fractional Distillation

II. to absorb/ remove carbon (iv) oxide gas / $CO_{2\ (g)}$

To dry the gas mixture to remove water vapour.

2. a) i) Propan – 1- 01/ Propanol

ii) Propanoic acid

b) i) $C_n H_{2n}$

ii) 70

iii) 5 x 12 + 2 n = 70

60 + 2n= 70

2n = 70 – 60

N = 5

c) Step I

Hydrogen ./ Nickel catalyst

Step II

Hydrogen chloride

Step III

1 – chloroethene

ii) $4CH = CH + 5/2\ O_{2(g)}$ _____ $4\ CO_2 + 2H_2O$

Penalise ½ for wrong or missing symbols

Award zero of

iii) Continued use of product formed in a step III

Pollutes environment since they are non broilegible

3 a) i) A – Hot compressed Air of 15 atmospheric

Pressure: to produce height fourth

Consisting of a mixture of molten sulphur and water

C- Supper heated water at 170^oC to ensure that the water remains in liquid state at the high temperature

II I – Transition temperature

II – Rhombic are bright yellow crystalline solid with an octahedral shape, while mon clinic are pale yellow crystalline solid, which appear needle like shaped

b) i) - Zinc blende (2ns)

- Copper pyntes ($cuFes_2$)

- Galena (Pbs)

ii) - Dust particles

- Water vapour in the air

iii) They reduce the surface area of the catalyst, thus impairing its efficiency

C i) I Lowers the production of So2(g) (sulphur (iv) Oxide). This is because the reaction is exothermic. Increase in temperature disturbs the dynamic equilibrium. Such that it swifts to the left favouring more production of products.

ii) Lowers the production of SO_2 gas . This is because a decrease in pressure disturbs the dynamic equilibrium where by it favours the direction of the r eaction that forms more molecules

iii) Vanadium (V) oxide. This is because it is not expensive and not easily being poisoned.

iii) SO_2 gas react with rain water to form acidic rain fog which causes

- Stunted growth in plants due to loss of chlorophyll from plants
- Death of plants as a result of defoliation
- Destruction of aquatic life in acidified lakes
- Leading away of mineral salts from the solid
- Irritation of the respiratory system, thus worsening respiratory illness

4 a) i) K or L any correct

ii) Abundant in earths crust - Reacts with water from alkaline solutions

b) F has a bigger atomic radius. Across the period nuclear change increases while electrons are being added in the same energy level.

c) C and I

d) D _____ $D^{2+} + 2e$

e) i) DBr_2 ii) C_2SO_4

f) i) Ionic

ii) Covalent

g) J is bigger than I. the bigger the molecule the stranger the intermolecular forces of attraction

h) i) Energy required to remove the 1st electron form an atom in gaseous state

ii) The 2nd electron is being removed from a stable energy level/ any energy level closes the nucleus the first electron being removed from the outermost energy level

iii) 420 + 3100 + 4800 = 8320 K /Mol

5. a) i) $Al_2O_3 . 2 H_2O$

ii) $Al_2O_3 + 2NaOH\ aq + H_2O$ ___ 2 Na Al $(OH)_2$

iii) SiO_2

iv) Seeding Some Al_2O_3 added Some CO2 bubbled through Na $Al(OH)_4$ to precipitate out $Al(OH)_3$

b) Lower melting point of electrolyte

- Improve electrolytic properties of Al_2O_3 (g)

c) Anode

$2O^{2-}$ (l) _____ $O_{2(g)} + 4e$

Carthode

$Al^{3+} + 3e$ _____ Al(g)

d) Low density

- Does not corrode easily

6. a) i and ii

b) 0.80 – 0.34
0.46

c) (i) $Ag^{+}_{(aq)}$ reject Ag

ii) Zn reject Zn^{2+}

d) (i) $Zn_{(s)}$ _____ $Zn^{2+}_{(aq)} + 2e$

(ii) $Zn_{(s)} + Pb_{(aq)}$ ____ $Zn^{2+}_{(al)} + Pb_{(s)}$

(iii) Maintains the balance of ions in the two half alls
Completes the circuit

e) i) To remove any oxide layer

(ii) a) Q = Its
= 0.75 x 64 x 60
= 2880c

b) $\frac{0.52}{52}$ = 0.01 moles

7. a) i) Reactants _____ M
Production _____ T

20_g _____ 40 g _____ 60 g _____ 80 g ____ 100 g _____ 120 g
1 2 3 4 5

No of half lives = 5

:- $(1/2)^n$ x original Mass = Remaining Mass of the substance

$(1/2)^5$ x Y = 3.5

(½ x ½ x ½ x ½ x ½).Y = 3.5

(1/32. Y) = 3.5
Y = 32 x 3.5
= 112 g

I Step I Alpha (***) particle

II Step II Beta (β) Particle

II - The equation for the nuclear reaction

$^{210}_{84}PO$ **** (particles) $^{206}_{82}Pb + ^{4}_{2}He$

C i) DH_1 – Heat of atomization

ii) DH_3 – Heat of reaction

iv) $-DH_1 + DH_2$