**MWAKICAN JOINT EXAMINATION.**

**CHEMISTRY PAPER 1 FORM FOUR**

**MARKING SCHEME.**

1. It is very hot.

Does not from soot each ½ mks

1. R.A.M=35.5

35.5= ¾ ×35 + ¼ × x (1mk)

142=105 + x (1mk)

X = 37 (1mk)

1. (a) ChloroHorocarbon (1mk)

(b) When ozone layer is depleted high energy radiation reach the earth and may cause cancer to human beings. (1mk)

(c) Global warming. (1mk)

1. (a) NH4NO3(S) heat N2O(3)+2H2O(3) (1mk)

(b) Over warm water, it’s fairly soluble in cold water (1mk)

(c) Both red blue litmus paper were not affected / did not change. (1mk)

1. RS02 = MG 1mk

RG M SO2

25 = MG

26.26 64

MG = 25 64 1mk

 26.26

 = 7.6166

MG = 58 1mk

1. (a) Group I ( ½ mk)

 Period 6 (½ mk)

 b. 2Y(S) + CL2 (g) 2YCL(s) (1mk

1. C2H3CL3

H CL H H

 H C C CL CL C C H

 H CL CL CL

 (Each 1mk)

1. H2SO4(aq) + 2NaOH(aq) Na2SO4(aq) +2H2O(l)

Moles of KOH 30×0.2

 1000

 = 6/1000

 =0.006 MOLES (1MK)

Moles of H2SO4 reacting ratio 1:2

 = moles of H2SO4 =0.006

 2

 = 0.003 moles (1MK)

 0.003 = 0.6×V

 0.6

 = 3/0.6 = 5cm3 (1MK)

 

 C H O

1. % Composition 69.42 4.13 26.45 ½ MK

R.A.M 12 1 16

MOLES 5.785 4.13 1.653 ½ MK

MOLES RATIO 5.785 4.13 1.653 = 1

 1.653 1.653 1.653

 3.5 2.5

Whole number ratio 3.5×2=7 2.5×2=5 1×2=2 ½ mk

 EF C7H5O2 ½ MK

 (C7H5O2)n =242

 (84+5+32)n=242

 121n=242

 n =2 (½ mk)

 MF= (C7H5O2)2

 = C14H10O4 ½ MK

1. It means that a maximum of 19g of cuso4 dissolves in 100g of water at 150c. 1mk
2. - Manufacture of O2Hcl(aq)
* Manufacture of ammonia
* Hardening of oils into fats.
* In hydrogen flame which is used in welding (any two 1mk)
1. Add water to the mixture potassium chloride dissolves it is ionic while sulphure is molecular. Filter the mixture to obtain sulphure as residue and potassium chloride as filtrate. Evaporate the filtrate to obtain solid KCL.
2. Pale blue precipitate is formed. 1mk

b. Deep blue solution will be formed. 1mk

1. with water

 Mg(s) +2H2O (l) Mg (OH)2 (aq) + H2 (g) 1mk

 With steam

 Mg(s) + H2O(g) MgO (S) + H2 (g) 1mk

1. (a) Y 1mk

(b) Y and Z (1mk) because they have the same (1mk) number of protons but different number of neutrons.

1. (i) An element is a substance made of one kind of atom and cannot be split into simpler substance by chemical means. 1mk

(ii) Atomic number is the number of protons in an atom of an element.

(b) Ti2 (SO4)3

1. Anion SO42- 1MK

Cation Zn2+ 1mk

Ba2+(aq) SO2+4 (aq) BaSO4 (S) 1mk

1. Sublimation 1mk
2. Ca (OH)2 + CO2 (g) CaCO3 (S) +H2O

The white precipitate would dissolve due to formation of soluble calcium hydrogen carbonate. 1mk

1. 2, 2 –dimethylpropane.

Pent-2-yne

1. Burning magnesium produces a lot of heat which breaks the bond between sulphur and oxygen in SO2. Magnesium then uses the oxygen which was broken from sulphure to continue burning; a burning splint does not produce a lot of heat.
2. Yellow solid (sulphur) is deposited. 1mk

H2s (3) +2FeCl3 (aq) 2Fecl2 (aq) + S (S) +2Hcl (aq)

H2s is oxidized to sulphur 1mk

1. This existence of an element in more than one form in the same physical state. 1mk

Diamond 1mk

Graphite 1mk

1. 2NH3 (s) +H2(l)SO4 (NH4)2 SO4 (aq)

R.M.M of (NH4)2 SO4 = 28+8+32+64

 =132

Moles required to produce 25kg

 25000g

 Moles =25000g =189.39 moles 14mks

 132

Moles of H2SO4 required =189.39 moles

 R.M.M of H2SO4 =98

Mass = 98× 189.39 1mk

 =18560g

 =18.56kg 1mk

1. 6NaOH(aq) 3Cl2 (g) NaClO3 + 5Nacl(aq) +3H2O(l)

Manufacture of bleaching agents.

1. Methylbenzene is a non- polar compound hence hydrogen chloride in it does not ionize but exist as a molecule substance but in water hydrogen chloride ionizes to give H+ and cl-  ions that’s why it conduct electricity in water.
2. It is endothermic 1mk . This is because the products are heavy more than energy than the reactants. 1mk.
3. These are oxides which react with both acids and alkalis. 1mk

Al2O3, ZnO and Pbo. Any two

1. It would react with HCl(g) since it is basic and Hcl is acidic to form calcium chloride and water.

Concentrated H2SO4

Anhydrous calcium chloride.

1. (a) Propanoic acid 1mk

H H O

 H C C C OH 1mk

 H H

(b) Esters

1. (a) X2+ 2.8.8

 Y2- 2.8

(b) XY