**545/1**

**CHEMISTRY**

**Paper 1**

**Jul/Aug 2016**

**2 ½ Hours**



**MUKONO EXAMINATIONS COUNCIL**

**Uganda Certificate of Education**

**CHEMISTRY**

Paper 1

**1 Hour 30 Minutes**

**INSTRUCTIONS TO CANDIDATES**

* *This paper consists of 50 objective- type questions.*
* *Answer* ***all*** *questions.*
* *You are required to write the correct answer;* ***A****,* ***B****,* ***C*** *and* ***D*** *in the box provided on the right-hand side of each question.*
* *Do not use a pencil.*

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| **For Examiner’s Use Only** | |
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1. Hydrogen can be prepared in the laboratory by reacting dilute nitric acid with

A. copper B. zinc

C. sodium D. magnesium

1. A mixture of iron and Sulphur can be separated by

A. decantation B. sublimation

C. use of a magnet D. crystallization

1. Which one of the following salts is not prepared by neutralization?

A. Magnesium chloride B. Copper (II) carbonate

C. Potassium sulphate D. Lead (II) nitrate

1. Hydrogen reacts with nitrogen according to the following equation.

N2(g)  + 3H2(g) 2NH3(g)

The volume of hydrogen that will react with 50cm3 of nitrogen is

A. 150cm3 B. 50cm3

C. 105cm3 D. 100cm3

1. When sulphurdioxide is bubbled through acidified potassium dichromate solution, the resultant solution turns green. This shows that Sulphurdioxide is

A. an oxidizing agent B. a reducing agent

C. a bleaching agent D. both a reducing and oxidizing agent

1. Which one of the following is used as a catalyst in the manufacture of sulphuric acid?

A. Manganese (IV) oxide B. Platinised asbestos

C. Iron Powder D. Vanadium (V) oxide

1. Which one of the following compounds is an alkane?

A. C4H10  B. C2H2

C. C3H6 D. C6H6

1. The colour of phenolphthalein indicator in potassium hydroxide solution is

A. Orange B. Pink

C. Yellow D. colourless

1. When chlorine is passed through sodium iodide solution, the colourless solution turns brown due to the formation of

A. sodium chloride B. chlorate

C. iodine D. sodium iodide

1. The anion which forms a white precipitate with lead II nitrate solution soluble in nitric acid is

A. SO2-4 B. NO-3 C. Cl- D. CO2-3

1. 25cm3 of 0.2M acid solution was completely neutralized by 20cm3 of 0.5M sodium hydroxide solution. The basicity of the acid is

A. 4 B. 3 C. 2 D. 1

1. An anion has

A. more protons than electrons

B. more electrons than protons

C. same number of electrons and protons

D. more protons than neutrons

1. Which one of the following oxides is not amphoteric?

A. Magnesium oxide B. Zinc oxide

C. Lead (II) oxide D. Aluminium oxide

1. The mass of anhydrous sodium carbonate (Na2CO3) that is contained in 25cm3 of 0.2M solution is

[Na = 23, C=12, O=16]

A.  B. 

C.  D. 

1. Which one of the following nitrates decomposes to leave a metal?

A. AgNO3  B. Pb(NO3)2

C. NaNO3 D. Ca(NO3)2

1. The type of reaction that occurs when concentrated sulphuric acid reacts with ethanol is

A. Addition B. Oxidation

C. Dehydration D. Condensation

1. Which one of the following gases will reduce copper (II) oxide?

A. Oxygen B. Ammonia

C. Chlorine D. Nitrogen

1. The metal which can be extracted from its ore by reduction is

A. Aluminium B. Potassium

C. Sodium D. Iron

1. When heated strongly, zinc carbonate leaves a residue which is

A. yellow when hot brown when cold

B. reddish brown when hot white when cold

C. yellow when cold white when hot

D. yellow when hot white when cold

1. The composition of water in zinc sulphate, ZnSO4.7H2O is

(ZnSO4 = 161, O=16, H=1)

A.  B. %

C.  D. %

1. The gas that turns lime water milky is

A. sulphur dioxide B. carbon dioxide

C. carbon monoxide D. nitrogen dioxide

1. Which one of the following gases is highly soluble in water?

A. Chlorine B. Hydrogen

C. Hydrogen chloride D. oxygen

1. The process of making duralumin from copper is

A. galvanisation B. metal plating

C. glazing D. alloying

1. The substance that will sublime when heated is

A. sulphur B. phosphorus

C. silicon D. iodine

1. The cation that reacts with aqueous ammonia to form a white precipitate soluble in excess ammonia solution is

A. Fe2+ B. Pb2+

C. Zn2+ D. Cu2+

1. Vulcanisation of rubber is done by heating rubber with;

A. zinc B. sulphur

C. iron D. phosphorus

1. A compound R consist of 86.0% carbon and 14.0% hydrogen by mass. The empirical formula of R is

[C=12, H=1]

A. CH2 B. CH C. CH3 D. CH4

1. Which one of the following substances will not give off oxygen when heated strongly?

A. Sodium carbonate B. Sodium nitrate

C. Potassium chlorate D. Mercury (II) oxide

1. Anhydrous iron (II) chloride can best be prepared by

A. passing dry chlorine over heated iron

B. passing dry hydrogen chloride over heated iron

C. addition of dilute hydrochloric acid to heated iron

D. addition of dilute hydrochloric acid to iron II oxide

1. Which one of the following substance is efflorescent?

A. Sodium hydroxide B. Potassium hydroxide

C. Sodium carbonate -10-water D. Calcium chloride

1. The mass of 1660cm3 of chlorine at room temperature is

[Cl=35.5, 1 mole of gas occupies 2400cm3 at r.t.p]

A.  B. 

C.  D. 

1. Excess Sulphur dioxide was bubbled into sodium hydroxide solution. The resulting solution contains

A. sodium sulphite B. sodium hydrogen sulphate

C. sodium sulphate D. sodium hydrogen sulphite

1. The use of limestone in the blast furnace during the extraction of iron is

A. lower the melting point of iron ore

B. speed up the reduction

C. remove impurities

D. produce carbon used to reduce iron ores

1. The number of moles of hydrogen ions in 250cm3 of 0.5M phosphoric acid is

A. 0.125 B. 0.375

C. 0.250 D. 0.325

1. Which one of the following metals will displace copper from copper (II) sulphate solution easily ?

A. Magnesium B. Silver

C. Mercury D. Lead

1. Ammonia solution is a weak electrolyte. This means that the alkali is

A. not fully ionized B. fully ionized

C. gives off ammonia on warming D. absorbs water on exposure to air

1. Which of the following elements have the same number of electrons in their outer-most energy level?

A. Li and B B. He and H

C. Mg and Ca D. Al and Si

1. 50cm3 of hydrochloric acid dissolves 3g of magnesium ribbon. The molarity of the acid is [Mg = 24]

A. 0.025 B. 5.0 C. 25 D. 0.25

1. Sodium hydrogen carbonate cannot be obtained from its solution by evaporation to dryness because it is

A. easily decomposed B. deliquescent

C. hygroscopic D. efflorescent

1. Which one of the following is not a property of ethane?
2. It turns potassium permanganate colourless
3. It is an unsaturated hydro carbon
4. It decomposes bromine water
5. It is a saturated hydrocarbon

Each of the questions 41 and 45 consists of an assertion (statement) on the left-hand side and a reason on the right-hand side.

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| --- | --- | --- |
|  | **Assertion** | **Reason** |
| A | True | True (reason is a correct explanation) |
| B | True | True (Reason is not a correct explanation) |
| C | True | Incorrect |
| D | Incorrect | True |

1. Water is a mixture of because when water is heated oxygen

oxygen and hydrogen is given off.

1. Sulphuric acid is dibasic because it is a strong acid
2. Sodium chloride is a because it contains no replaceable

normal salt hydrogen.

1. Alkali metals are highly because they have one electron in their

electropositive outer most shell.

1. Carbohydrates are because carbohydrates react with concentrated

hydrocarbons sulphuric acid to form carbon

In each of the questions 40 – 45, one or more of the answers given may be correct. Read each question carefully and then write the correct answer **A**, **B**, **C** or **D** according to the following.

1. If 1, 2, 3 only are correct
2. If 1,3 only are correct
3. If 2, 4 only are correct
4. If 4 only is correct
5. Which of the following solutions contain the same number of hydrogen ions?

1. 2dm3 of 1M H2SO4 3. 2dm3 of 2M HCl

2. 4dm3 of 1M HNO3 4. 4dm3 of 2M HBr

1. Chlorine, bromine and iodide

1. are all gases at room temperature

2. form ions with a single negative charge

3. are very soluble in water

4. are salt makers

1. The sulphates which are readily soluble in water are

1. sodium sulphate 2. lead II sulphate

3. zinc sulphate 4. barium sulphate

1. Which of the following will react with hydrogen sulphide to produce a precipitate of Sulphur?

1. iron II chloride solution 2. hydrochloric acid

3. copper II sulphate 4. sulphur dioxide

1. When potassium chlorate is heated with manganese (IV) oxide it decomposes to give

1. Oxygen 2. Chloride

3. Potassium chloride 4. Manganese (II) chloride

***End -***