**545/1 CHEMISTRY**

1. Which of the following is a mixture?

C

A. Argon B. Carbon dioxide

C. steel D Water

1. Which one of the following processes decreases the concentration of oxygen in the atmosphere?

C

A. Photosynthesis B. Efflorescence

C. Combustion D. Neutralisation

1. Which of the following allotropes of sulphur is stable at a temperature above 960C?

D

A. Lamp black B. Rhombic

C. Soot D. Monoclinic

1. A mixture of sodium chloride and ammonium chloride can best be separated by

A Filtration. B. Sublimation.

B

C. Decanting. D. Fractional crystallization.

1. Permanent hard water can be softened by

C

1. Adding Sodium carbonate. B. Adding calcium hydroxide.

C. Boiling the water. D. Adding aqueous ammonia.

1. The formula of the compound formed when element X reacts with element Y is

[X= 13, Y= 8]

D

A. X3Y2 B. XY3

C. X2Y D. X2Y3

1. Which one of the following pairs of gases are removed first before air is liquefied?

A. Nitrogen and oxygen B. Water vapour and carbon dioxide

B

C. Carbon dioxide and oxygen D. Water vapour and nitrogen

1. Which one of the following hydrocarbons has 85.7% carbon content? [ C = 12, H = 1)

A. C3H4 B. C3H6

B

C. C2H6 D. C3H8`

1. Which one of the following substances are formed when nitrogen dioxide is dissolved in hot water?

A

1. Nitric Acid and nitrous acid
2. Nitrogen dioxide and water
3. Nitric acid and oxygen
4. Nitrogen, hydrogen and oxygen
5. Which one of the following oxides dissolves in water to form a solution with PH above 7?

A. B. SO3

D

C. NO D. CaO

1. A piece of burning sulphur was lowered into a jar full of oxygen. Which one of the following observations were made?
2. Continues to burn with a bright flame

C

1. Continues to burn with a sooty flame
2. Continues to burn with a blue flame
3. Continues to burn with a yellow flame
4. 20cm3 of ethane were exploded with 100cm3 of oxygen according to the following equation

2C2H6(g) + 7O2(g) 4 CO2(g) + 6H2O(l)

The total volume of the residual gases at room temperature is

B

A. 40cm3 B. 70cm3

C. 30cm3 D. 120cm3

1. When a white solid was heated strongly in a hard glass tube, a colourless gas that formed a white precipitate with calcium hydroxide solution was evolved and a solid residue yellow when hot and white on cooling was formed. The white solid was

C

A. Zinc oxide B. Lead (II) oxide

C. Zinc carbonate D. Lead (II) carbonate

1. Element X forms an ion with the formula X3+ the most likely number of electrons in an atom of element X is

A

A. 13 B. 10

C. 8 D. 3

1. Zinc metal reacts with an acid according to the following equation;

Zn(s) + 2H+(aq) Zn2+(aq) + H2(g)

The volume of hydrogen collected at room temperature when 20cm3 of 1M dilute sulphuric acid reacts with excess Zinc is

A. ( ) cm3 B. ( ) cm3

D

C. ( ) cm3 D. ( ) cm3

1. Which of the following gases is produced when chlorine reacts with excess ammonia?

A. Nitrogen B. Nitrogen dioxide

A

C. Hydrogen D. Hydrogen chloride

1. The concentration of the sulphate ions in a 0.5M ammonium sulphate solution is

A. 0.5M B. 0.25M

A

C. 1.0M D. 1.5M

1. Dilute nitric acid and dilute sulphuric acid may be distinguished by the action on

A. Copper (II) Oxide B. Litmus paper

C

C. Barium chloride solution D. Sodium hydroxide solution

1. Which one of the following atoms contains the greatest number of neutrons?

A. B.

D

C. D.

1. Which one of the following gases is the major sewerage product?

B

A. C2H6 B. CH4

C. N2 D. SO2

1. Iron reacts with steam according to the following equation;

3Fe(s) + 4H2O(g) Fe3O4(s) + 4H2(g)

The mass of iron required to form 662cm3 of hydrogen at room temperature is

B

[Fe = 56, 1 mole of a gas occupies 24dm3 at room temperature]

A. ( ) cm3 B. ( ) cm3

C. ( ) cm3 D. ( ) cm3

1. Duralumin is an alloy of

A. Copper and Zinc. B. Lead and aluminium.

C

C. Magnesium and aluminium. D. Copper and Lead.

1. Which one of the following will give a metal as one of the products?

A. Passing a direct current through dilute solution of sodium chloride using graphite electrodes.

B. Pass dry ammonia over hot aluminium oxide.

D

C. Adding Zinc dust to magnesium nitrate solution.

D. Heating of silver nitrate crystals until there is no further change.

1. Methanol burns in Oxygen according to the following equation.

CH3OH(l) + O2(g) CO2(g) + 2H2O(l)H = 730KJmol-1. The heat given out when 6.4g of methanol turns in oxygen is [H= 1, C = 12, O = 16]

A

A. ( ) KJ B. ( ) KJ

C. ( X ) KJ D. ( X ) KJ

1. Which one of the following is true about the silver plating of iron using an electric current?
2. The anode reduces in size.

B

C

1. The cathode dissolves.
2. Oxidation occurs at the cathode.
3. Electrons flow from the cathode.
4. Sodium hydrogen sulphate is an example of
5. an acid.B. an acid salt.

C. a base. D. a basic salt.

1. The following factors increase the rate of the reaction between calcium carbonate powder and excess dilute hydrochloric acid, except:
2. Increase in the concentration of the acid.
3. Increase in the temperature of reaction.

C

1. Use of calcium carbonate with large particle Size.
2. Increase in the mass of the calcium carbonate powder.
3. Which one of the following is used as a confirmatory test for chlorine?
4. Turns moist Red litmus paper blue.

B

1. Turns moist blue litmus paper red and it bleaches it.
2. Forms dense white fumes with ammonia.
3. Forms a white precipitate with silver nitrate.
4. 24.0cm3 of a 0.5M acid, HnX completely neutralized 25.0cm3 of 1.5M monovalent metal hydroxide. The value of n is

B

A. 1 B. 3

C. 2 D. 4

1. Which one of the following cations forms a yellow precipitate with Sodium iodide solution?

A. Pb2+ B. NH4+

A

C. Al3+ D. Cu2+

1. Which one of the following does not cause water pollution?
2. Detergents. B. inorganic fertilizers.

D

C. Petroleum products. D. Carbon dioxide.

1. Which one of the following is not a raw material used in the extraction of iron?

A. Coke B. Limestone

B

C. Hematite D. Quick lime

1. The loss in mass when 20g of calcium carbonate is heated until no further change occurs is [Ca= 40, O= 16, C = 12]

A. g B. g

A

C. g D. g

1. Hot excess concentrated sulphuric reacts with ethanol to give a colourless gas that decolourises bromine water. The gas is;
2. Ethene. B. Methane.

C

C. Ethene . D. Ethyne.

1. Which one of the following sets of elements are arranged in their correct order of reactivity, beginning with the least reactive?
2. Magnesium, hydrogen, copper.

C

1. Hydrogen, copper, magnesium.
2. Copper, hydrogen, magnesium.
3. Hydrogen, magnesium, copper.
4. An oxide of an element M contains 50% of M.The simplest formula of the oxide of M is

[ M= 24, O=16]

D

A. M2O B. MO

C. MO2 D. M2O3

1. Which one of the following salts can be prepared by precipitation?

A. Calcium sulphate B. Copper (II) chloride

A

C. Lead (II) nitrate D. Sodium chloride

1. Which one of the following is the formula of the ion formed when excess sodium hydroxide solution is added to an aqueous solution of aluminium chloride?

A. [Al(OH)4]3+ B. [Al(OH)4]-

B

C. [Al(OH)4]3- D. [Al(OH)4]+

1. Which one of the following is the name given to the process by which many molecules of ethene react to form a white solid whose relative molecular mass is more than 10,000?

A. Fermentation B. Polymerization

B

C. Dehydration D. Hydrogenation

1. When 3g of butter is oxidized in the body, 45KJ of energy is produced. The energy produced in the body of a person who eats 1g of butter daily for one week is

C

A. 1050KJ B. 15KJ

C. 105 KJ D. 10.5 KJ

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

Select;

1. If both the assertion and the reason are **true** statement and the reason is **correct** explanation of the assertion
2. If both the assertion and the reason are **true** statements but the reason is **not a correct** explanation of the assertion.
3. If the assertion is **true** but the reason is **not a correct** statement
4. If the assertion is **not** correct but the reason is a **correct** statement

**INSTRUCTIONS SUMMARIZED**

|  |  |
| --- | --- |
| **Assertion** | **Reason** |
| 1. True 2. True 3. True 4. Incorrect | true (reason is a correct explanation)  true (reason is not a correct explanation  incorrect  correct |

D

1. Carbon dioxide extinguishes burning magnesium **because** carbon dioxide does not support combustion

B

1. When hot platinum wire is brought into contact with ammonia vapour in air, the platinum glows red **because** platinum catalyses the oxidation of ammonia

B

A

B

1. Isotopes of an element show similar chemical properties **because** Isotopes of an element have the same number of electrons
2. Concentrated sulphuric acid is used to prepare hydrogen chloride from sodium chloride **because** sulphuric acid is stronger acid than hydrochloric acid.
3. Equal volume of different gases at s.t.p contain the same number of molecules **because** gases are composed of tiny moving particles

**In each of the questions 46 to 50, one or more of the answers given may be correct. Read each question carefully and then indicate the correct answer according to the following;**

1. If 1,2 and 3 only are correct
2. If 1 and 3 only are correct
3. If 2 and 4 only are correct
4. If 4 only is correct
5. When barium nitrate solution was added to a solution X, a white precipitate was formed. The precipitate dissolved with effervescence on addition of dilute nitric acid. X contained
6. Sulphite ions
7. Sulphate ions

B

1. Carbonate ions
2. Chloride ions
3. Which of the following ions cause (s) hardness in water?
4. SO42-

A

D

1. Cu2+
2. Cl-
3. Mg2+
4. Which of the following substances is /are formed when anhydrous copper (II) nitrate is heated strongly?
5. Copper (II) oxide
6. Nitrogen dioxide
7. Oxygen
8. Copper metal
9. Sulphur dioxide reacts with hydrogen sulphide according to the following equation;

2H2S(g) + SO2(g) 2H2O(l) + 3S(g)

Which of the following is/are true about the reaction between sulphur dioxide and hydrogen sulphide?

1. Both gases act as reducing agents.

D

1. Both gases act as oxidizing agents.
2. Hydrogen sulphide is reduced to sulphur.
3. Hydrogen sulphide is oxidized to sulphur.
4. Which of the following statements is/ are true about the halogens?
5. Are oxidizing agents.
6. Belong to the same period of the periodic table.

B

1. Reactivity of the halogens decreases down the group.
2. Reactivity of the halogens increases down the group.

**END**