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MJD chemistry

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are Available).

NAME :-

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CLASS :-

10th (A)

Roll NO :-

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Submitted to :-

Sir Majid

Day: _____

Date: _____

Day: _____

Date: _____

Gujranwala Board

Annual Paper

Paper No 14

Group: II

Objective Part

QNO1:-

Choose the
Correct Option

1- Main component of natural gas is

- (A) Methane (B) Propane
(C) Butane (D) Propene

2- When the magnitude of K_c is very small, it indicates

- (A) Equilibrium will never establish
(B) All reactants will be converted to products
(C) Reaction will be to completion
(D) the amount of products will be negligible

3- One of the following gases is used to destroy harmful bacteria in water

- (A) Iodine (B) Chlorine
(C) Fluorine (D) Bromine

4- One of the following

is not a green house effect

- (A) Increasing atmospheric temperature
(B) Increasing food chains
(C) Increasing flood risks
(D) Increasing sea-level

5- Concentration is a

- (A) Mixing technique (B) Separating technique
(C) Boiling technique (D) Cooling technique

6- A salt is not composed of

- (A) A metallic cation (B) Non-metallic anion
(C) An anion of a base (D) An anion of an acid

7- The property of water responsible for rising of water in plants is

Day: _____

Date: _____

Day: _____

Date: _____

- (A) Specific heat capacity (B) Sublimation
 (C) Excellent solvent action (D) Capillary action

- (A) A (B) E
 (C) K (D) All of these

8- Helogenation of methane does not produce

- (A) Carbon tetrachloride (B) Chloroform
 (C) Carbon black (D) chloromethane

9- Carbon monoxide is harmful to use because

- (A) It paralyses the lungs
 (B) It damages lungs tissues
 (C) It reducing oxygen carrying of hae-
 (D) It makes the blood coagulate mogoblin

10- One of the fraction is used as jet fuel

- (A) kerosine oil (B) lubricating oil
 (C) Fuel oil (D) disel oil

11- Fat soluble vitamin is

2- Water of crystallization is responsible for

- (A) Melting points of crystal (B) Boiling points of crystal
 (C) Shapes of crystals (D) transition point of crystals

Subjective
Part

QNO2:-

Short

ANSWERS

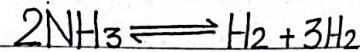
Q (i)

Which type of reaction do not go to completion?

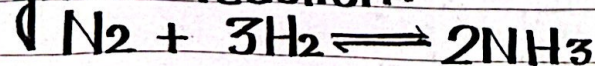
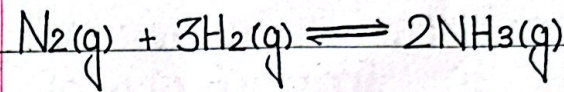
Ans

The reversible type of reactions will never go to completion because they move in both direction, that is forward as well as in reverse direction and never come to an end

For example:-

Q (ii)

Write down equilibrium constant expression for a given reaction.

Ans

$$K_c = \frac{[\text{NH}_3]^2}{[\text{N}_2][\text{H}_2]^3} = \frac{(\text{mol dm}^{-3})^2}{(\text{mol dm}^{-3})(\text{mol dm}^{-3})^3}$$

$$K_c = \frac{1}{(\text{mol dm}^{-3})^2} = \text{mol}^{-2} \text{dm}^6$$

Q (iii)

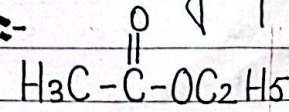
What is an ester group? Write down the formula of ethyl acetate?

Ans

Ester group:-

Organic compound consisting of "RCOOR" functional group are called ester group.

Ethyl acetate:-



Ethyl acetate

== (iv) ==

Is coal tar a compound?
What is importance of coal tar?

== (Ans) ==

Coal tar is not a compound. It is a thick black-liquid. It is a mixture of more than **200** different organic compounds, mostly aromatic. The aromatic compound, such as benzene, phenol etc and there are used to synthesize drugs, dyes, explosives, plants varnishes, plastics synthetic fiber and pesticides. Besides these some valuable chemicals, the black residue of the coal tar is called pitch. It is used for surfacing of roads and roofs.

== (v) ==

Define petroleum?

== (Ans) ==

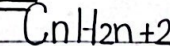
Petroleum means rock oils. It is a complex mixture of several gaseous, liquids and solid hydrocarbons having water, salts and earth particles with it.

== (vi) ==

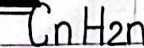
Write down general formula of alkanes and alkenes?

== (Ans) ==

General formula alkanes:-



General formula alkenes:-

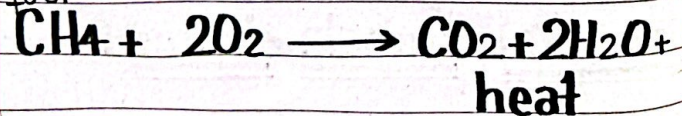


Q (vii)

Why are the alkanes used as fuel?

AnsAlkanes as fuel:-

Alkanes burn in the presence of excess of air or oxygen to produce a lot of heat, carbon dioxide and water. This reaction takes place in automobile combustion, engines, domestic, heating and cooking appliances. It is highly exothermic reaction and because of it alkanes are used as fuel.



The heat energy thus produced is used to meet needs to energy in homes, transportation as well

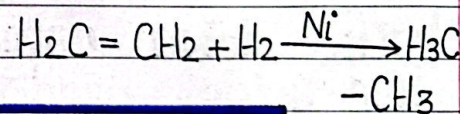
as, in industries.

Q (viii)

What are addition reactions? Explain with an example?

AnsAddition reaction:-

The reactions in which the products are formed by the addition of some reagents like H_2 , Cl_2 etc., to an unsaturated organic compound.

Example :-Q NO 3 :-Short Question

Q (i)

Define pH? What is pH of pure water?

Ans

PH :-

PH is the negative logarithm of molar concentration of the hydrogen ions.

PH of pure water:-

The pH of pure water is 7

Q (ii)

Write down names of two acids used in manufacturing of fertilizers?

Ans

Sulphuric acid (H_2SO_4), Nitric acid

HNO_3 are used in the preparation of fertilizers.

Q (iii)

Why is a salt neutral? Give example?

Ans

Salts are neutral compound. Although they do not compose of equal number of positive and negative ions, but have equal number of positive and negative charges. NaCl is a neutral salt. Because Na^+ is a positive ions and Cl^- is a negative ions charges carrier. Both charges are equal.

Q (iv)

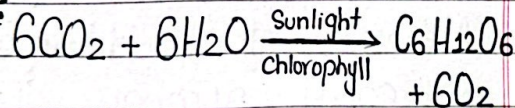
How plants synthesize

Carbonhydrates? *

== (Ans) ==

Carbohydrates are synthesized by plants through photosynthesis process from carbon dioxide and water in the presence of sunlight and green pigment chlorophyll.

Example:-



== (v) ==

What are the function of DNA? *

== (Ans) ==

Function of DNA :-

→ DNA is the permanent storage place for genetic information in the

nucleus of a cell.

- It carries and stores all genetic informations of the cell.
- It passes these informations as instructions from generation to generation how to synthesize particular proteins from amino acids. These instructions are "genetic code of life".

== (vi*) ==

Give a brief account of disease cholera? *

== (Ans) ==

Cholera :-

Cholera is an acute infection caused by the bacteria. *Vibrios cholera*, which may be found in water contaminated by human faeces. Cholera cause severe diarrheea and can be fatal.

Q(vii)

What is acute cadmium poisoning?

Ans

Heavy metals like cadmium lead and mercury are toxic and health hazards. Acute cadmium poisoning causes high blood pressure, kidney damage and destruction of red blood cells.

Q(viii)

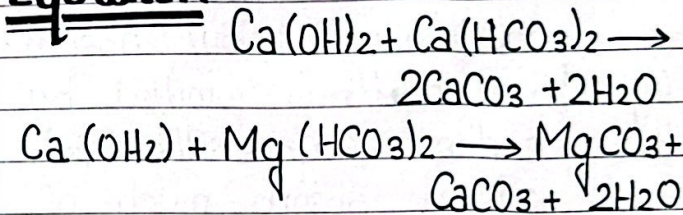
Give a balanced chemical equation for Clark's method?

Ans

A chemical method to remove

temporary hardness is by the addition of slacked lime Ca(OH)_2 is called Clark's method. A calculated amount of this is added to remove temporary hard water.

Equation:-



QNO4 :-

Short Question

Q(i)

How is the temperature of atmosphere maintained?

Ans

Carbon dioxide and water vapours play a significant role in maintaining temperature of the atmosphere. Both of these gases allow visible light to pass through but absorb infrared radiations emitted by the earth's surface. Therefore these gases absorb much of the outgoing radiation and warm the atmosphere.

Ans (ii)

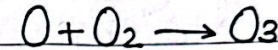
How and where ozone is formed?

Ans

When monoatomic oxygen is combined with the molecular oxygen in the

middle region of stratosphere than ozone is formed.

Reaction :-



Ans (iii)

Write down names of two primary air pollutants?

Ans

- 1 Oxides of sulphur (SO_2 and SO_3)
- 2 Oxides of carbon (CO_2 and CO)

Ans (iv)

Write down two effects of acid rain?

Ans

- 1- Acid rain attacks the calcium

carbonate present in the marble and limestone of buildings and monuments. Thus these buildings are getting dull and eroded day by day.

- 2- Acid rain increases the acidity of the soil, many crops and plants cannot grow properly in such soil.

==Q(v)B==

Define ores?

==Q(Ans)B==

Ores :-

Those minerals from which the metals are extracted commercially and comparatively low cost with minimum effort are called ores of the metals.

Example :-

Copper Glance (Cu_2S)

==Q(vi)B==

Write down gravity separation process?

==Q(Ans)B==

Gravity separation is based on the difference in densities of the metallic ore and the gangue particles.

Producer :-

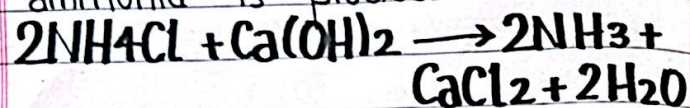
In the process, the powdered heavy metal bearing or settles down on agitation in a stream of water, while the lighter gangue particles, are carried away by the water.

==Q(vii)B==

How is ammonia recovered in the solvey's process?

Ans

When ammonia chloride is reacted with slacked lime, ammonia is produced.



(viii)

Describe the difference between diesel oil and fuel oil?

Ans

Diesel oil

Fuel for buses, truck, railway, engines, ships tube well engines and other heavy vehicle.

Fuel oil

Used in industries to heat boilers and furnaces.

LONG QUESTION

QNO5 :-

(a)

Describe five properties of water?

Ans

Properties of water :-

1- Neutral :-

It is neutral to litmus.

2- Freezing and boiling Point :-

Its freezing point is 0°C and boiling point is 100°C at sea level.

3- Density :-

Its maximum density

is 1 gem - 3 at 4°C
 4- Solve Int nature :-

It is excellent solvent for ionic as well as molecular compounds.

5- High heat capacity :-

It has unusually high heat capacity about $4.2 \text{ J g}^{-1} \text{ K}^{-1}$, which is about six times greater than that of rocks. This specific property of water is responsible for keeping the earth's temperature within limits.

== (b) ==

State the law of mass action. Derive the expression for equilibrium constant for following reaction. $A + B \rightleftharpoons C + D$

== (Ans) ==

Law of mass action :-

Law of mass action was given by Guldberg waadge.

Statement :-

"The rate at which a substance reacts is directly proportional to its active mass and the rate of a reaction is directly proportional to the product of the active masses of the reacting substances."

Mathematically :-



Where "A and B" are reactant and "C and D" are product.

- Square bracket [] is used to represent molar concentration and its unit is " mol dm^{-3} "

Rate of forward reaction :-

Rate of forward reaction $\propto [A][B]$
 $R_f \propto [A][B]$
 $R_f = K_f [A][B]$

Rate of reverse reaction :-

Rate of reverse reaction $\propto [C][D]$

$$R_r \propto [C][D]$$

$$R_r = k_r [C][D]$$

$$R_f = R_r$$

$$k_f [A][B] = k_r [C][D]$$

$$\frac{k_f}{k_r} = \frac{[C][D]}{[A][B]}$$

$$K_c = \frac{[C][D]}{[A][B]}$$

Q106 :-Ans :-

Describe the purification of metal by electrolysis?

Ans :-Refining the impure metal :-

Refining the impure metal by electrolysis is the most widely used process of refining metals.

Electrolytic refining of copper :-

Electrolytic refining of copper is carried out in an electrolytic tank having copper sulphate solution in it.

Electrodes :-

Two electrodes; one of impure copper metal that acts as anode and the other of pure copper metal that acts as cathode are suspended in the electrolytic solution.

Ionization :-

Copper sulphate solution ionizes to give copper ion Cu^{2+} and sulphate ions SO_4^{2-} on passing the electric current through the solution.

Importance of Anode :-

On passing the electric current through the solution, anode (impure copper) dissolves to provide Cu^{2+} ions to the solution.

Importance of Cathode :-

The produced Cu^{2+} ions are discharged by gaining of electrons from the cathode.

Deposition of copper :-

There by copper atoms deposit on the cathode, making it thick block of pure copper metal.

Anode mud :-

The impurities like gold and silver settle down as anode mud.

== (b) ==

Write down the physical properties of alkanes?

== (Ans) ==

- Alkanes form a homologous series of compounds.

First four member of the series are gases. The alkanes consisting of C_5 to C_{10} are liquids while higher members of the series are solid.

- They are non-polar, therefore, they are insoluble in water but soluble in organic solvent.

- The density of alkanes increases gradually with the increase of molecular size.

- The melting and boiling points of alkanes increase regularly with the increase of molecular size. This is because of increase of attractive forces b/w the molecules of alkanes.

5- The alkanes become more viscous as their molecular sizes increase.

6- Alkanes becomes less flammable i.e more difficult to burn with the increase of molecular sizes.

QNO7 :-

Q(a) :-

Write down five uses of acids ?

Q(Ans) :-

Sulphuric acid :-

Sulphuric acid is used to manufacture fertilizers ammonium sulphates, calcium sulphates, explosives, paints, dyes, drugs. It is also used as an electrolyte in lead storage

batteries.

Nitric acid :-

Nitric acid is used in manufacturing of fertilizers (ammonia nitrate), explosives, paints, drugs and etching designs on copper plates.

Hydrochloric acid :-

It is used for cleaning metals, tanning and in printing industries.

Benzoic acid :-

It is used for food preservation.

Acetic acid :-

It is used for flavouring food and food preservation. It is also used to cure the sting of wasps.

Q(b) :-

Explain the sources of and uses of lipids ?

(Ans)

Sources and uses of lipid:-

1- Animal fat:-

Animals fats are found in adipose tissue cells. Animals secret milk from which butter and ghee is obtained. Butter and ghee are used for cooking and frying of food, for preparing bakery products and sweets.

2- Soap industry:-

Animal fats are used in soap industry.

3- Plants lipids:-

Plants synthesize oil and store them in such as sunflower oil, coconut oil. These oils are used vegetable oils or ghee for cooking and (other purposes).

4- Marine lipids:-

Marine animal like salmon and whales are also source of oil.

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