

Day: _____

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MJD Expert. Com

(Majid Ali)

Youtube:

MJD. Chemistry

(Notes, Test &
Past Papers
Are Available)

10th Chemistry past paper

Day: Sahiwal board - 2023
(Group - 2).

USWA ZAHHEER

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P
PAST PAPER

2023

P
PAPER NO. 19

BOARD:

SAHIWAL

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MJD. Chemistry

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Past PaperObjective PartMultiple Choice Questions:-

• The characteristics of reversible reaction are many, except one of the given:-

✓ Products never recombine to form reactants.

(i) They never complete

(ii) They proceed in both ways

(iii) They have a double arrow between reactants and products.

- The pH of a 0.02M Ca(OH)_2 is:-

(i) 1.698

✓ (ii) 1.397

(iii) 12.31

(iv) 12.61

- The water of crystallization is responsible for the:-

(i) Melting point of crystal (ii) Boiling point

✓ (iii) Shape of crystal (iv) Transition point of crystal

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4- Coal having 90% carbon contents is called:-

- i) Peat
- ii) Anthracite
- iii) Lignite
- iv) Bituminous

5- One of the given is substitution reaction:-

- i) Halogenation of alkyne
- ii) Halogenation of alkene
- iii) Halogenation of alkanes
- iv) Bromination of alkyne

6- Which of the given is a disaccharide?

- i) Glucose
- ii) Fructose
- iii) Sucrose
- iv) Starch

7- About 99% atmosphere's mass lies within:-

- i) 30 kilometer
- ii) 15 kilometre
- iii) 35 kilometer
- iv) 11 kilometer

8- Carbon monoxide is harmful to us because:-

- i) It paralyses the lungs
- ii) It's damage lungs
- iii) It reduces oxy-carrying ability of haemoglobin
- iv) It makes the blood coagulate

9- Water dissolves non-ionic compound by:-

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In- ion forces

i) Ion-dipole forces

ii) Dipole-Dipole force

iii) Hydrogen bonding

Specific heat capacity of water:-

i) $4.2 \text{ kJg}^{-1}\text{K}^{-1}$

ii) $4.2 \text{ Jg}^{-1}\text{K}^{-1}$

iii) $2.4 \text{ Jg}^{-1}\text{K}^{-1}$

iv) $2.4 \text{ Jg}^{-1}\text{K}^{-1}$

10- Which one of the given organic compounds is found in gasoline?

i) C_2H_4

ii) C_3H_8

iii) C_6H_{10}

iv) C_6H_6

11- When NaHCO_3 is heated it forms:-

i) CO_2

ii) Ca(OH)_2

iii) CaCO_3

iv) CaO

Subjective Part

Q. NO-02

1- How is dynamic equilibrium established?

Equilibrium state is attainable from either way (from reactants to products).

When the reaction proceeds the rate of reverse reaction then equilibrium state is established.

2- Write equilibrium constant expression for the given reaction.



Rate of forward reaction =

$$R_f = K_f [\text{CO}] [\text{H}_2]^3$$

Rate of reverse reaction =

$$R_r = K_r [\text{CH}_4] [\text{H}_2\text{O}]$$

At equilibrium,

$$R_f = R_r$$

$$K_f [\text{CO}] [\text{H}_2\text{O}] = K_r [\text{CH}_4] [\text{H}_2\text{O}]$$

$$\frac{K_f}{K_r} = \frac{[\text{CH}_4] [\text{H}_2\text{O}]}{[\text{CO}] [\text{H}_2]^3}$$

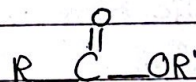
$$\therefore \frac{K_f}{K_r} = K_c = \frac{[\text{CH}_4] [\text{H}_2\text{O}]}{[\text{CO}] [\text{H}_2]^3}$$

3. What is an ester group? Write down formula of Ethyl Acetylene?

* Ester group:-

Organic compounds consisting of RCOOR' functioning as functional group are called esters.

General formula:-



Where R and R' are alkyl group.

They may be same or different.

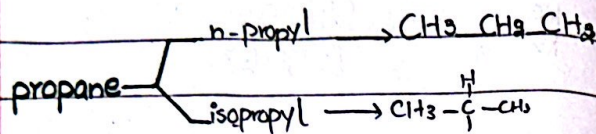
* Formula of ethyl acetylene:-



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4. Explain different radicals of propane:



5- What is ammonical liquor? Give its uses.

* Ammonical liquor:-

Ammonical liquor is a solution of ammonia gas in water. It is used to prepare nitrogenous fertilizers.

6- Define aromatic compounds? Give an example also.

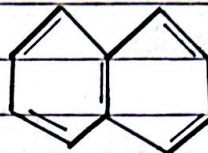
* Aromatic compounds:-

These organic compounds contain at least one benzene ring in their molecules. A benzene ring is made up of six carbon atoms with three alternating double bonds. They are called aromatic because of aroma or

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smell they have



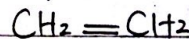
Naphthalene

7- Define unsaturated hydrocarbons with example.

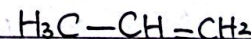
* Unsaturated hydrocarbons:-

The hydrocarbons in which two carbon atoms are linked by a double or triple bond is called unsaturated hydrocarbons.

* Example:-



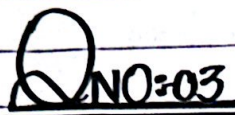
Ethene



Propene

8- Why alkenes are called olefins?

The alkenes are known as olefins because first member form oily product when react with halogens.



1. What is indicators?

* Indicators

Indicators are organic compounds.

They give different colours to acidic and basic solutions.

* Example

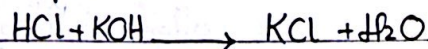
- i) Litmus ii) Phenolphthalein

2. Definitions of:

* Normal Salts

A salt formed by the total replacement of ionization of H^+ ions of an acid by a positive metal ion or NH_4^+ ion is called normal salt and neutral salt.

* Example



* Basic salts

Basic salts are formed by the incomplete neutralization of a

polyhydroxy base by an acid.

* Example



3. What is pH scale?

* pH scale

The scale used to measure pH is called pH. Its value is 0-14

4. What is the function of vitamin A and B?

* Vitamin A

Maintain the health of the epithelium and acts on the retina's dark adaptation mechanism.

* Vitamin B

Vitamin B plays vital role in conversion of food into energy.

5. Why excessive use of vitamin D is harmful?

Accumulation of vitamin D in the body causes bone pain and bone like deposits in kidney.

6. Define Scum and leaching process.

* Scum:

In hard water, calcium and magnesium ions react with the soap molecules to form an insoluble precipitate of calcium and magnesium salts of fatty acids called scum.

* Leaching process:

Cultivation of crops causes these chemicals from fertilizers and pesticides to seep into the ground water commonly called leaching process.

7. Write the difference between temporary and permanent hardness of water?

* Temporary hardness:

Temporary hardness is because of bicarbonates of calcium and magnesium.

* Permanent hardness:

Permanent hardness is because of presence of sulphates and chlorides of calcium and magnesium.

3. Which forces are responsible for dissolving polar substances in water?

Ion-dipole forces are responsible for dissolving polar substances in water.

Q NO: 04

1. Difference between primary and secondary air pollutants?

* Primary pollutants:

Primary pollutants are the wastes

as exhaust products driven out because of com

Difference b/w

Primary pollutants

Secondary pollut...

Definition

Primary pollutants are wastes or exhaust product driven out because of combustion of fossil fuels and organic matter.

Secondary pollutants are produced by various reaction of primary pollutants.

Example

- 1- Oxides of Sulphur
- 2- Oxides of nitrogen

- 1- Hydrochloric acid
- 2- Nitric acid

2. Write the major source of CO and CO₂ emission.

1. Sources of CO and CO₂:

i) Volcanic eruption:

Both these gases are emitted due to volcanic eruption and decomposition of organic matter.

3. How is CO₂ responsible for heating of atmosphere?

Because CO₂ in the atmosphere acts like a glass wall of greenhouse. It traps some the infrared radiations emitted by the Earth's surface. Hence increased concentration of CO₂ layer absorbs the infrared radiations emitted by the Earth's surface and prevents heat energy escaping from the earth surface. It helps to stop the surface from cooling down during night. As the concentration of carbon dioxide in air increases, less heat energy is lost from the surface of the Earth. Therefore, the average temperature of the surface gradually increases.

How does acid rain increases the acidity of soil?

Soil is also affected by acid rain. The hydronium ion of acid rain also mobilize toxin and release aluminium in the soil and also leach away essential nutrients and minerals such as magnesium which further lowers the pH of soil and increase the acidity of soil.

5. What the names of metallurgical operations?

* Metallurgical operations:-

The process involved in metallurgy for extraction of a metal in the pure form are:-

1. Concentration of the ore
2. Extraction of the metal.
3. Refining of the metal.

6. How roasting is carried out?

It is a process of heating the

concentrated ore to a high temperature in the excess of air.

For example:-

Copper pyrite.

Difference between:-

Ore

Minerals

Definition

These minerals from which the metals are extracted commercially at a comparatively low cost with minimum efforts are called ores of the metal.

The solid natural material found beneath the earth's surface, which contains compounds of metals in the combined state along with earthly impurities are called minerals.

Example

• Cu_2S and CuFeS_2

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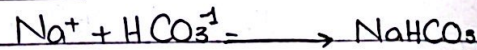
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8. What are the principles of Solvey's process?

* Principles:-

Principals of solvey's process lies in the low solubility of sodium bicarbonate at low temperature at 15°C . When CO_2 is passed through an ammonical solution NaCl called ammonical brine. Only NaHCO_3 precipitates.

* Equation:-



Part II

Long Questions QNO:5

* Methods to remove temporary hardness:-

* these are two methods:-

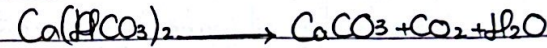
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* Boiling of water:-

When water boil then soluble calcium or magnesium bicarbonate are converted into insoluble calcium and magnesium carbonate.

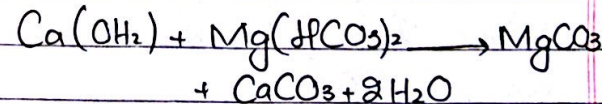
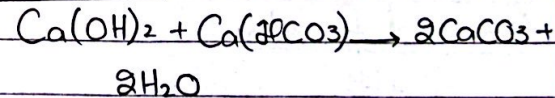
* Reactions:-



* Clark's method:-

A cleaning method to remove temporary hardness is by the addition of slaked lime $\text{Ca}(\text{OH})_2$.

* Reactions:-



* these are the methods to remove temporary hardness from water.

(ii)

Law of mass action:

Law of mass-action was given by Guldberg Waadage in 1869.

* Statements:

The rate at which a substance act is directly proportional to its active masses and the rate of reaction is directly proportional to the product of their active masses of reacting substance.

Mathematically:* General formula:

1. Where A and B are reactants and C and D are products.
2. Square bracket is used to present molar concentration of its unit is mol dm^{-3} .

Rate of forward reaction:

Rate of forward reaction $\propto [A]^a [B]^b$

$$R_f \propto [A]^a [B]^b$$

$$R_f = k_f [A]^a [B]^b$$

Rate of reverse reaction:

Rate of reverse reaction $\propto [C]^c [D]^d$

$$R_r \propto [C]^c [D]^d$$

$$R_r = k_r [C]^c [D]^d$$

At equilibrium constant:

$$R_f = R_r$$

$$k_f [A]^a [B]^b = k_r [C]^c [D]^d$$

$$\frac{k_f}{k_r} = \frac{[C]^c [D]^d}{[A]^a [B]^b}$$

$$K_c = \frac{k_f}{k_r}$$

$$K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$$

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* Solvay's process:-

• Advantages:-

1- Cheap process:-

It is a cheap process as raw material are available at very low prices.

2- Recovery of gases:-

Carbon dioxide and ammonia are recovered and reused.

3- Pollution free:-

Process is pollution free, because the only waste is calcium chloride solution.

4- Pure products:-

Sodium carbonate of very high purity is obtained.

5- Less fuel consumption:-

Consumption of fuel is very less since no solution is to be evaporated.

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(i)

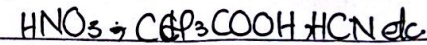
* Acids and Bases concepts:-

1- Arrhenius concept:-

* Acid:-

Acid is a substance which dissociates in aqueous solution to give hydrogen ions.

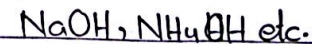
• Example:-



* Base:-

Base is a substance which dissociates in aqueous solution to give hydroxide ions.

• Example:-



2- Bronsted-Lowry Con:-

* Acid:-

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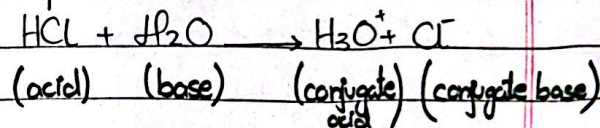
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An acid is a substance that can donate a proton to another substance.

* Base:-

A base is a substance that can accept a proton from another substance.

Example:-



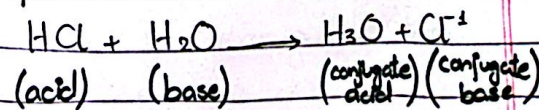
* Conjugate acid:-

A conjugate acid is a species formed by acceptance of proton by base.

* Conjugate base:-

A conjugate base is a species formed by donating proton by acid.

Example:-



(ii)

Sources and Uses of

Lipids:-

1. Animal fats

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

2. Soap Industry

Animal fats are used in soap industry.

3. Plants Lipids:-

Plants synthesize oils and store them in seeds, such as sunflower oil, coconut oil, groundnut oil and corn oil. These oils are used as vegetable oils and ghee for cooking and other

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purposes
4- Marine Lipids:

Marine animals like salmon
and whales are also sources of
oils. These oils are used as medicines
e.g. cod liver oil.

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