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Day: _____

Date: _____

Noor Fatima

Chemistry

Past Paper 2023

Group-I

Paper Code 1486

Bahawalpur Board

Objective Part

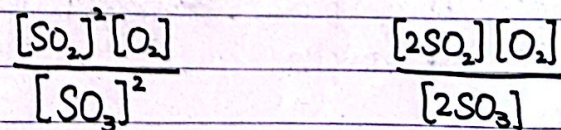
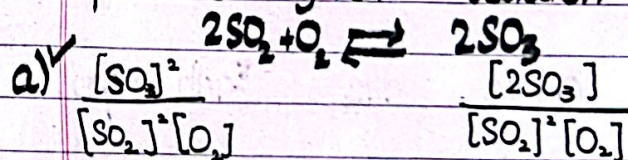
Maximum marks = 12

Question # 01

Choose the correct

answer.

1- The equilibrium constant expression for the given reaction is:-



2- The coal having 60% Carbon is

called:- ✓

- a) Lignite b) Peat c) Bituminous d) Anthracite

3- The example of neutral salt is:-

- a) KCl b) $Al(OH)_2Cl$ c) $Ca(OCl)Cl$

d) $KHSO_4$

4- The product of Acid-Base neutralization is:-

- a) HCl b) NaOH c) H_2O d) H_2SO_4

5- The catalyst required for hydrogenation of $CH_2=CH_2$ is:-

- a) Ni b) Na c) Mg d) Ca

6- The metal which causes clogging of fish gills in Acid Rain:-

- a) Lead b) Chromium c) Mercury d) Aluminium

7- Just above the Earth surface is:-

- a) Mesosphere b) Troposphere c) Thermosphere

d) Stratosphere

8- One of the following is a

water soluble vitamin?

- a) A b) C c) D d) E

9- The type of hepatitis which can be caused by contaminated water:-

- a) E b) C c) D d) B

10- Quick lime is prepared by heating a compound:

- a) $MgCO_3$ b) $ZnCO_3$ c) Na_2CO_3
d) $CaCO_3$

11- Concentration is as:-

- a) Mixing Technique b) Boiling Technique
c) Cooling Technique d) Separating Technique

12- The temperature at which water has maximum density is:-

- a) 4K b) 4°F c) 4°C d) 100°C

Subjective Part

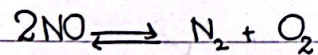
Maximum marks = 48

Short AnswersQuestion # 02

It is compulsory to attempt (5-5) parts from Q.NO. 02, Q.NO. 03 & Q.NO. 4.

Q. i

Write equilibrium constant expression for the decomposition of Dinitrogen Oxide into Oxygen & Nitrogen.

AnswerEquilibrium Constant Expression

$$K_c = \frac{[\text{N}_2][\text{O}_2]}{[\text{NO}_2]^2}$$

Q. ii

Write the characteristic of Irreversible reaction.

AnswerCharacteristics Of Irreversible Reaction

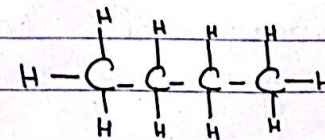
Irreversible reactions proceed only in one direction.

They are represented by single arrow.

They are also known as complete reaction.

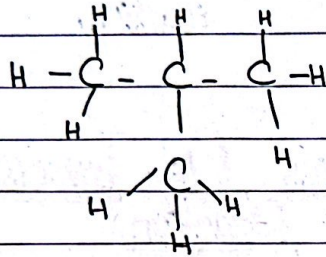
Q. iii

Write the structural formula of n-butane and iso-butane.

AnswerStructural Formulan-butane

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11- Iso-butane

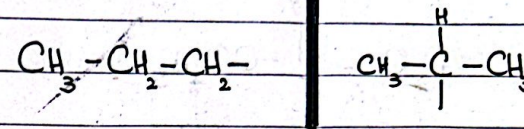
What is the difference b/w n-propyl and iso-propyl radicals with structure?

Answer

<u>n-propyl</u>	<u>Iso-propyl</u>
Definition	
If atom is removed at one end is called n-propyl.	If atom is removed at the central atom is called iso-propyl.

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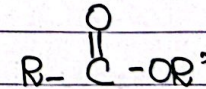
Structure

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

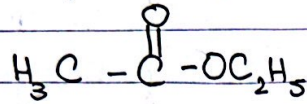
AnswerEster Group

Organic compounds consisting of RCOOR' functional group is called esters.

Their general formula is:-



When R and R' are alkyl groups. They may be same or different.

Formula of ethyl acetate

What is peat? Write its use.

Peat

- Percentage of Carbon is 60-70.
- It is inferior quality coal used in brick.

Define unsaturated hydrocarbons. Also give example.

Answer

Un-saturated Hydrocarbons

The hydro-carbons in which two C-atom are linked by a double or triple bond is

called unsaturated hydrocarbons.

Example

All the alkenes & alkynes are unsaturated hydro-carbons.

Ethene

Ethyne etc.

Write two uses of acetylene.

AnswerUses of Acetylene

- Acetylene react with oxygen and forms oxy-acetylene flame which is highly exothermic reactions. The heat released during this reaction is used in welding purposes.
- Acetylene is used to prepare other chemicals such as alcohol, acetaldehyde &

acids.

QUESTION # 03

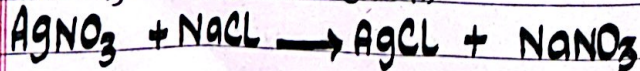
Maximum marks: 10

(i)

How are insoluble salts prepared?

AnswerPreparation Of Insoluble Salts

In this method, usually solution of soluble salts are mixed. During the reaction exchange of ionic radicals (ie metallic radical change with acidic radicals) takes place to produce new salts. One of the salts is insoluble and the other is soluble. The insoluble salt precipitates (solidify in solution)



(ii)
Write the uses of PH.

AnswerUses Of pH

- It is used to determine acidic or basic nature of a solution.
- It is used to produce medicines, culture at a particular concentration of Hydrogen ion.
- It is used to prepare solutions of required concentrations necessary for certain biological reactions.

(iii)

Write reaction of Acid with base.

AnswerReaction Of Acid With Base

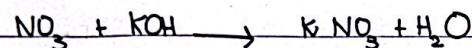
The reaction b/w

acid and base produce
salt and H_2O . This
process is called neutralization.

General Eq.



Example



Write two characteristics of
Disaccharide.

Answer

Characteristics of Disaccharide

- They are white crystalline solids.
- They are easily soluble in water.
- They are sweet in taste.
- They may be reducing or non-reducing.

Lactose is a disaccharide.
Which monosaccharide are
present in it?

Answer

Monosaccharide Present In Lactose

Lactose is a disaccharide consisting of glucose and galactose present in monosaccharides.

How water-borne diseases can be prevented?

Answer

Prevention of Water-Borne Disease

Water-borne disease can be prevented by following ways:-

- Drinking water must be treated

and purified.

- There must be adequate sanitary disposal of sewage. Any type of waste must not be thrown or discharged directly in water supplies or reservoirs.

- There must be strict control over the use of pesticide & other chemicals.

Q. viii
What is scum?

Answer

SCUM

Hard water contains salts of magnesium and calcium. These ions react with soap molecule to form an insoluble precipitate of calcium and magnesium salts of fatty acid called scum.

Q. viii
What is the cause of temporary hardness?

Answer

Causes Of Temporary Hardness

Temporary hardness because of presence of bicarbonates of calcium and magnesium.

QUESTION # 04

Maximum marks = 10

Q. i
How acid rain is formed?

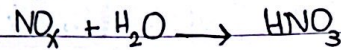
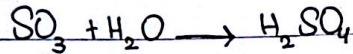
Answer

Formation Of Acid Rain

Burning of fossil fuels produce oxides of sulphur and nitrogen in air. Rain water converts SO_2

into H_2SO_4 and NO_x to
 HNO_3 and acid rain is
 formed.

Reaction



Why does 75% of
 atmospheric mass lie within
 the troposphere?

Answer

Atmospheric Mass Lies In Troposphere

The troposphere holds
 75% of the atmospheric mass
 because gravity pulls most
 of the air molecules down
 toward the Earth's surface.

So, most of the gas
 present near the Earth
 surface.

Why are flood risks
 increasing day by day?

Answer

Increasing Of Flood Risks

Due to green-
 house effect, global warming
 and its effect are
 increasing and it melt
 glaciers and snow caps
 that are increasing flood
 risks and intense tropical
 cyclones.

Why is the temperature
 of upper stratosphere
 higher?

Answer

Temperature Of Upper Stratosphere High

The temperature of

upper stratosphere is higher because it absorbed most of UV radiation coming from the Sun.

Explain granulation of urea.
Answer

Granulation Of Urea

In this stage, liquid urea is evaporated to form granules. When liquid urea is sprayed from towers at high pressure and hot current of air is induced from the base, it evaporates to form granules.

Define natural fertilizer.
Answer

Natural Fertilizers

Natural fertilizers contain all natural bio-degradable materials from live stock and human waste and foliage of plants. These materials are decomposed by bacteria. Decomposed materials contain useful nutrients for plants.

Write the use of diesel oil and Fuel Oil.

Answer

Use Of Diesel Oil

Diesel Oil is used as a fuel for buses, trucks, railway engines, ships and other heavy vehicle.

Use Of Fuel

Fuel Oil is used in ships and industries to heat boiler and furnace.

What is Fractional distillation?

Answer

Fractional Distillation

Fractional distillation is based upon separation of substances depending upon their boiling point.

Fractions Of Petroleum

Following are the

fractions of petroleum.

- Petroleum Gas
- Petroleum ether
- Gasoline
- Kerosene Oil
- Diesel Oil
- Fuel Oil

LONG ANSWERS

Question # 05

18-8x9

Write five properties of water.

Properties Of Water

Water has following

properties.

1- Neutral

It is neutral

to litmus.

2- Freezing & Boiling Points

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

3- Density

Its maximum density is 1gcm^{-3} at 4°C.

4- Solvent Nature

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

5- High Heat Capacity

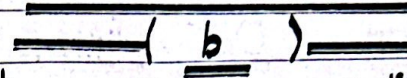
It has usually high heat capacity, which is $4.2 \text{ Jg}^{-1}\text{K}^{-1}$, which is about six times greater than that of rocks.

This specific property of water is responsible for keeping the Earth temperature within limits.

6- High Surface Tension

It has high surface tension. This unique property of water is responsible for its high capillary action. Capillary action is a process by which water rises up from the roots of plants

to leaves.



What is equilibrium constant? How it is helpful in predicting the extent of reaction?

Answer

Equilibrium Constant

It is a ratio of the product of the concentration of products raised to the power of coefficient to the product of concentration of reactants raised to the power of coefficient as expressed in the balanced chemical e.g.

Representation

It is represented

Dependence

K_c value is depend

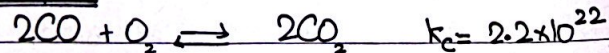
on temperature.

Prediction Of Extent Chemical Reaction

a) Large Numerical Value Of K_c

The large numerical value of K_c indicates that at equilibrium position the reaction mixture consists of almost all types of products and reactants are negligible. This reaction has almost gone to completion.

Example

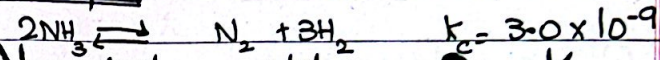


b) Small Numerical Value Of K_c

The small value of K_c indicates that at equilibrium position the reaction mixture consists of all

reactants and products are negligible. This reaction is incomplete.

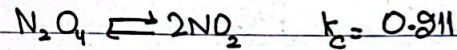
Example



c) Numerical Value Of K_c is Neither Small Nor Large

Such a reactions have comparable amount of reactants and products at equilibrium position.

Example



Question # 06

or a 13

Write down the advantages of solvay's process.

AnswerAdvantages Of Solvay's Processi- Cheap Process

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

ii- Recovery Of Gases

CO_2 and NH_3 are recovered and re-used.

iii- Pollution Free

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

iv- Pure Product

Sodium carbonate of very high purity is obtained.

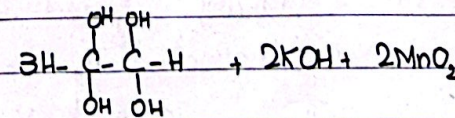
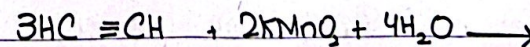
v- Less Fuel Consumption

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

Explain the oxidation of acetylene.

AnswerOxidation Of Acetylene With KMnO_4

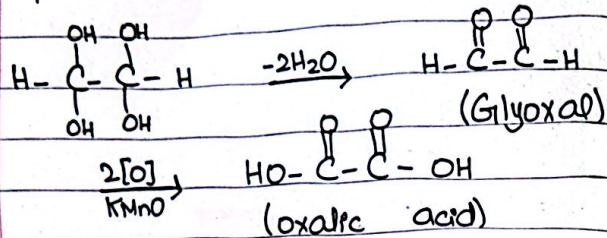
Alkyne react with KMnO_4 and colour of KMnO_4 is discharged.



(Tetrahydroxyethane)

Tetrahydroxyethane eliminate water

The oxidation of Glyoxal produce oxalic acid.



Question # 07

Write any a five type of salts.

Answer

Salt

Salt are ionic compounds generally formed by the neutralization of an acid with a base.

Example

- NaCl
- KCl

Types Of Salt

Following are the main classes of salt.

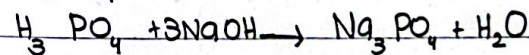
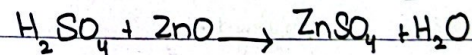
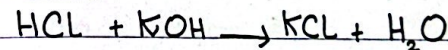
Normal Salt	Acidic Salt
Basic Salt	Double Salt
Mixed Salt	Complex Salt

Types Explanation

i- Normal Salt

Those salt which are formed by complete replacement of hydrogen ion is called normal neutral salt.

Reaction



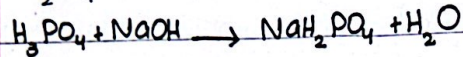
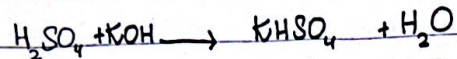
ii- Acidic Salt

Those salt which are formed by partial replacement of replaceable H^+ ions of an acid by a

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by a positive metal ion.



These salts turn

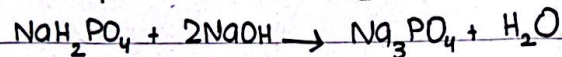
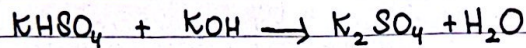
blue litmus into red.

Acidic salts react

with bases to form

normal salt.

Reaction With Bases



iii- Basic Salts

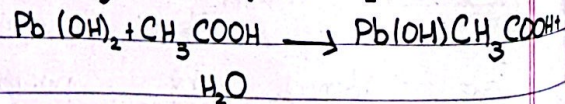
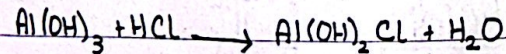
Basic salt are formed

by the incomplete neutralization

of a polyhydroxy base

by an acid.

Reaction



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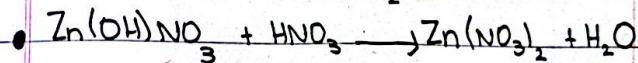
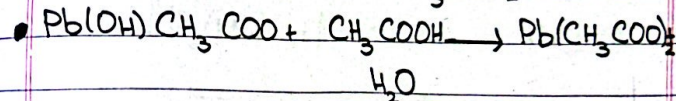
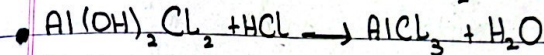
Reaction Of Basic Salt With Acidic

Basic salts is

further react with acid

to form normal salts.

Reaction



iv- Double Salt

Double salts are

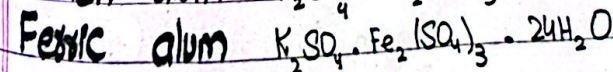
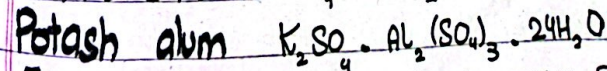
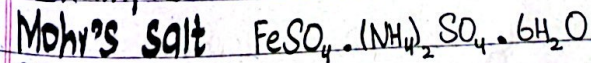
formed by two normal salts

when they are crystallized

from a mixture of equimolar

saturated solution.

Example



v- Complex Salt

Complex salts on dissociation provides a simple cation and a complex anion or vice-versa.

Example

Potassium ferrocyanide $K_4 [Fe(CN)_6]$ gives on ionization a simple cation K^+ and complex anion $[Fe(CN)_6]^{-4}$.

(b)

Define water soluble vitamins.

Write a note on importance of vitamins.

Answer

Water Soluble Vitamins

The vitamins that dissolve in water are called water soluble vitamins.

Example

Vitamin B complex (this

10 vitamins) and vitamin C (ascorbic vitamin)

• Advantages Of Water Soluble Vitamins

Water soluble vitamins are rapidly excreted from the body. Hence, these vitamins are non-toxic even if taken in large quantity. However, their deficiency cause diseases.

• Importance Of Vitamins

In addition to carbohydrates, proteins and fats, there are other substances needed for normal growth in small quantity is called vitamins.

Each vitamin play a important role in healthy development of our body.

- They are absolutely necessary for our normal growth.
 - They help to regulate our body's metabolism.
 - Deficiency of vitamins cause different diseases.
-