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Date: _____

MJD Expert. Com

(Majid Ali)

Youtube:

MJD Chemistry

(Notes, Test &
Past Papers
Are Available)

Past Paper.

NAME: NOOR-UL-HUDA

CLASS :- 10th (A)

ASSIGNMENT
OF :- CHEMISTRY

ACCEPTED
BY :- SIR
MJALD

(Annual
Paper)

(c) Uranga

(ca) rppre

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MJD Chemistry

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Chemistry Paper: 2

Annual

Objective Part

Q1. Choose the correct answer.

Q1. For the reaction $H_2 + I_2 \rightleftharpoons 2HI$ the equilibrium constant expression is.

(a) $K_c = \frac{[HI]^2}{[H_2][I_2]}$ (b) $K_c = \frac{[H_2][I_2]}{[HI]^2}$

(c) $K_c = \frac{[HI]^2}{[H]^2[I_2]}$ (d) $K_c = \frac{[H]^2[I]^2}{[HI]^2}$

Q2. At equilibrium state, there are possibilities.

- (a) 1 (b) 2
(c) 3 (d) 4

Q3. Malic acid is found in.

- (a) Lemon (b) Sour Milk
(c) Orange (d) Apple

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04. Which acid is found in urine?

- (a) Uric Acid (b) Formic Acid
(c) Citric Acid (d) Tartaric Acid

05. Which one of the following is not a fossil fuel?

- (a) Coal (b) Natural gas
(c) Bio gas (d) Petroleum

06. Which one of the following is saturated?

- (a) Methane (b) Ethene
(c) Propyne (d) Propene

07. Which one of the following is triglyceride?

- (a) Carbohydrates (b) Lipids
(c) Proteins (d) Vitamins

08. The formula of stearic acid is:-

- (a) $C_{17}H_{35}COOH$ (b) $C_{17}H_{33}COOH$
(c) $C_{17}H_{37}COOH$ (d) $C_{17}H_{31}COOH$

09. Which one of the following is not a greenhouse effect?

- (a) Increasing atmospheric temperature
(b) Increasing food chains

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(c) Increasing flood risks
(d) Increasing sea level

10. Water shows maximum density at:-

- (a) $0^{\circ}C$ (b) $100^{\circ}C$
(c) $4^{\circ}C$ (d) $-4^{\circ}C$

11. The removal of Mg^{+2} & Ca^{+2} ions which are responsible for the hardness of water is called

- (a) Temporary hardness
(b) Permanent hardness
(c) Softening water
(d) Hydrogen bonding

12. Concentration is a:-
(a) mixing technique
(b) separating technique
(c) boiling technique
(d) cooling technique

PART I

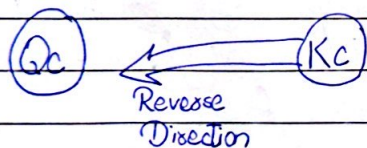
Subjective Part

Question no. 02

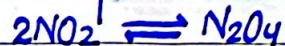
Give short answers.

- i. If reaction quotient Q_c of a reaction is more than K_c . What will be the direction of reaction?

If $Q_c > K_c$; The reaction goes from right to left, i.e., in reverse direction to attain the equilibrium.



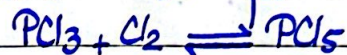
- ii. Write the equilibrium constant unit for reaction:-



As we know that

$$K_c = \frac{[\text{Product}]}{[\text{Reactant}]}, K_c = \frac{[\text{N}_2\text{O}_4]}{[\text{NO}_2]^2}$$

- ii. Write down the equilibrium constant unit for reaction.



As we know that:-

$$K_c = \frac{[\text{Product}]}{[\text{Reactant}]}$$

$$K_c = \frac{[\text{PCl}_5]}{[\text{PCl}_3][\text{Cl}_2]}$$

- ii. Write down the properties of calcium sulphate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$).
Gypsum is used as a fertilizer, to prepare plaster of Paris which is used to make statues, casts, etc.

- ii. Write the formula of an acid and base.

Formula of Acid:-

Hydrochloric Acid (HCl)

Sulphuric Acid (H_2SO_4)

Formula of Base:-

Sodium hydroxide (NaOH)

Potassium hydroxide (KOH)

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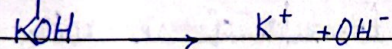
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vi. Why pure water is not a strong electrolyte?

Pure water is not a strong electrolyte because it has low concentration of ions due to its limited dissociation into hydrogen (H^+) and hydroxide (OH^-) ions.

vii. Find out the pH and pOH of 0.001M of KOH.

Potassium hydroxide solution is a strong base. It ionizes completely such that one mole of KOH gives one mole of OH^- ions.



Therefore, 0.001M solution of KOH produces 0.001M OH^- ions.

$$[OH^-] = 0.001M \text{ or } 10^{-3}M$$

$$pOH = -\log 10^{-3}$$

$$= 3$$

$$pH = 14 - 3$$

$$= 11$$

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viii. Which two generalizations can be made about direction of chemical reaction?

Two generalizations about the direction of chemical reaction.

- i. Spontaneous reactions move from higher energy to lower energy.
- ii. Reactions tend to move from a state of higher disorder to lower disorder.

Question No. 03

Give short answers.

i. What is natural gas?

Natural Gas is a fuel from underground, mainly methane (CH_4) used for cooking, heating and electricity.

ii. What are fossil fuels? Write any two uses of fossil fuels.

Fossil fuels are the substances that are produced by the

decomposition of dead plants and animals buried underground. Due to bacterial decomposition at high temperature and pressure, dead plants and animals are converted into fossil fuels. It is very slow process.

Uses:-

- i. It is used for generating electricity.
- ii. It is used for powering vehicles.

iii. What is Coke? For what purpose it is used?

Coke is a pure form of carbon, obtained by heating coal.

Uses:-

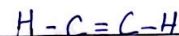
- It is used for steel production.
- metal smelting and industrial heating due to its high heat output.

iv. Write the molecular, dot-cross and structural formulae of Ethyne.

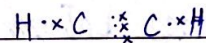
Molecular formula of Ethyne:-



Structural formula of Ethyne:-



Dot-Cross Formula of Ethyne:-



v. Describe two properties of alkenes.

- i. The first member of series ethene is slightly less dense than air.
- ii. Alkenes are non-polar, therefore, they are insoluble in water but soluble in organic solvents.

vi. Define polysaccharides and write its properties.

Polysaccharides are macromolecular carbohydrates consisting of hundreds to thousands of monosaccharide.

Properties:-

- i. They are amorphous solids.
- ii. They are tasteless and insoluble in water.
- iii. They are non-reducing in nature.

vii. What is difference between non-essential and essential amino acids?

Essential Amino Acids	Non-essential Amino Acids
Ten which can't be synthesized by our bodies are called essential amino acids.	Ten out of twenty amino acids can be synthesized by human body. These are called non-essential amino acids.

These amino acids are taken through our diet.

There is no need to take through our diet.

viii. Write two sources of Vitamin D.

Two sources of Vitamin D is:-

- i. Sunlight
- ii. Fatty Fish

Question no. 4

Give short answers.

i. Write one usefulness of ozone layer.

Ozone layer protects the Earth from ultraviolet radiations which can cause many diseases like skin cancer etc.

ii. What is Global Warming?

The temperature of Earth is increased day by day due to

green house effect is called
global warming

iii. How surface tension of water is responsible for survival of land plants?

This unique property of water is responsible for its high capillary action. Capillary action is the process by which water rises up from roots of plants to leaves. This process is vital for the survival of land plants.

iv. What is difference between slag and matte?

Slag

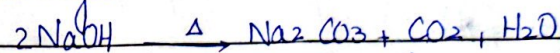
During extraction of metals from concentrated ore, the impurities float on surface of metal which is called slag.

Matte

The molten mixture of cuprous sulphide and ferrous sulphide is called matte.

i. Give the process of calcination in Solvay's process!

Sodium bicarbonate is heated to get sodium carbonate.



CO_2 is again used in Na_2CO_3 . It's about half of CO_2 needed in process.

ii. Write the Uses of Fuel Oil.

It is used in ships and industries to heat boilers and furnaces.

iii. Define Scum and Leaching process.

Scum:- Salt is sodium salt of a long chain carboxylic acid. Hard water contains Mg^{2+} & Ca^{2+} . These ions react with soap molecule to form insoluble precipitates of Ca , Mg salts of fatty acids called scum.

Leaching Process:-

Intensive cultivation of crops causes these chemicals

from fertilizers and pesticides to seep into groundwaters commonly called leaching process. The high nitrates contents in groundwaters is mainly because of irrigation run off from the agricultural fields.

viii- What is the role of Government to control pollution?

The Government plays an important role in controlling pollution by:-

Promoting public awareness and education

Implementing waste management systems.

• Pollution Control Boards (PCBs) etc.

PART II

Question no. 06

(a) Write five Uses of Acetylenes

USES OF ACETYLENES:-

- i. Acetylenes produce oxy-acetylene flame with oxygen. It is highly exothermic reaction. Heat is released is used for welding purposes.
- ii. They are flammable. They produce smokier flame than those of alkanes, alkenes.
- iii. They are used for ripening of fruits.
- iv. They are used for making polymer products like polyvinyl acetate, polyvinyl chloride and synthetic rubber like neoprene.
- v. They are also used for manufacture of many chemicals like alcohols, acetaldehyde and acids.

(b) What are fat soluble and water soluble vitamins. Give e.g.

FAT SOLUBLE VITAMINS-

Definition:-

The vitamins which dissolve in fats are called fat soluble vitamins.

→ If these vitamins are taken in large quantity, they accumulate in body and cause diseases.

Example:-

Vitamins A, D, E, K.

WATER SOLUBLE VITAMINS-

Definition:-

The vitamins which dissolve in water is called water soluble vitamins.

→ They are rapidly excreted from body. Hence, these vitamins are not toxic if taken in large quantity.

Example:-

Vitamins B, C.

Question no. 7

Write a detailed note on important fractions of petroleum.

IMPORTANT FRACTIONS OF

PETROLEUM:-

PETROLEUM GAS:-

Composition:-

C₁ to C₄

Boiling points:-

upto 25°C

Uses:-

It is used as a fuel such as in form of LPG, used for production of carbon black, hydrogen gas.

PETROLEUM ETHER:-

Composition:-

C₅ to C₇

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Boiling Point:-

30°C To 80°C

Uses:-

It is used as laboratory solvent and for dry cleaning purposes.

iii. GASOLINE

Composition:-

C7 To C10

Boiling Point:-

80°C To 170°C

Uses:-

It is used as fuel in motor cycles, motor cars and other light vehicles. It is more volatile than kerosine oil. It is used for dry cleaning.

iv. KEROSINE OIL

Composition:-

C10 To C12

Boiling point:-

170°C To 250°C

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Uses:-

It is used as jet fuel and as domestic fuel.

v. DIESEL OIL

Composition:-

C13 To C15

Boiling point:-

250°C To 350°C

Uses:-

It is used as a fuel in buses, trucks, railway engines, Tubewell engines and other heavy vehicles.

vi. FUEL OIL

Composition:-

C15 To C18

Boiling Point:-

350°C To 400°C

Uses:-

It is used in ships, industries to heat the boilers and furnaces.

(b) Write down the effects of Industrial Effluents.

Effects Of Industrial Effluents-

i. Detoxiation of Water:-

They deteriorate the quality of water.

ii. Reduction of O₂ in Water:-

They reduce the quantity of dissolved oxygen which ultimately affects aquatic life.

iii. Cause of Diseases:-

Industrial effluents seep down the Earth. It contaminates the water deposit. If this water is used by human then it causes several diseases like cholera, hepatitis etc.

iv. Heavy Metals:-

Industrial effluents contain heavy metals like Ca, lead, Mercury. These heavy metals affect human.

Cadmium poisoning causes destruction of red blood cells cause high blood pressure, effect kidney.

Mercury poisoning causes the neurological disorder.

Lead poisoning causes dysfunction of liver, kidney, brain and central nervous system.

Question NO. 05

(b) Write General methods for preparation of insoluble salts.

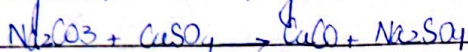
METHODS FOR PREPARATION OF

INSOLUBLE SALTS-

In this method, usually solutions of soluble salts are mixed. During the reaction exchange of ionic radicals takes place to produce new salts. One of salts is insoluble and other

is soluble. The insoluble salt precipitates (solidify in solution).

Reactions:-

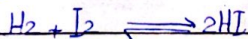


(a) Describe reversible reaction with the help of Graph.

Reversible Reaction:-

Those reactions in which products are recombine to form reactants are called reversible reaction.

Example:-



Characteristics:-

- i. They are represented by double arrow.
- ii. They are known as incomplete reaction.
- iii. They proceed in both directions.

Explanation With the help of Graph:-

→ The Graph is between the Time^{on} x-axis and reaction rate on y-axis.

→ At beginning, the rate of forward reaction is very fast and rate of reverse reaction is negligible.

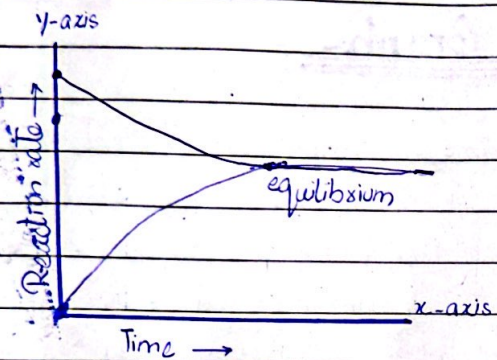
→ With the passage of time, the rate of forward reaction is slow and rate of reverse reaction is very fast.

→ After some time, the rate of reverse reaction and forward reaction becomes equal that state is dynamic equilibrium.

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Graph



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