

QB365 Question Bank Software Study Materials

Types of Chemical Reactions Important 2 Marks Questions With Answers (Book Back and Creative)

10th Standard

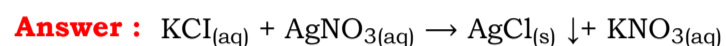
Science

Total Marks : 60

2 Marks

30 x 2 = 60

- 1) When an aqueous solution of potassium chloride is added to an aqueous solution of silver nitrate, a white precipitate is formed. Give the chemical equation of this reaction



white precipitate of AgCl is formed in aqueous solution of potassium nitrate.

- 2) Why does the reaction rate of a reaction increase on raising the temperature?

Answer : (i) The temperature of a reaction increases, the adding heat provides energy to break more bonds of the reactant molecules.

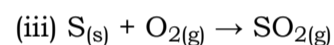
(ii) So more reactants ions increases, produce more products.

(iii) Thus speed of the reaction increases.

- 3) Define combination reaction. Give one example for an exothermic combination reaction.

Answer : (i) A combination reaction is a reaction in which two or more reactants combine to form a compound.

(ii) It is also called as synthesis reaction (or) composition reaction (a single product).



(iv) Sulphur reacts with oxygen it produce sulphur dioxide.

(v) Most of combination reactions are exothermic in nature, because they involve the formation of new bonds, which releases a huge amount of energy in the form of heat.

- 4) Differentiate reversible and irreversible reactions.

Answer :

S.NO	REVERSIBLE REACTION	IRREVERSIBLE REACTION
(i)	Reversible reaction can be reversed under suitable conditions.	Reversible reaction cannot be reversed.
(ii)	Both forward and backward reactions take place simultaneously.	It is unidirectional It proceeds only in a forward direction.
(iii)	It attains equilibrium.	Equilibrium is not attained.
(iv)	The reactants cannot be converted completely into products.	The reactants can be completely converted into products.
(v)	It is relatively slow.	It is fast.

- 5) Calculate the pH of 0.01 M solution of HNO₃?

Answer : $[H^+] = 0.01$

$$PH = -\log_{10} [H^+]$$

$$PH = -\log_{10} [0.01]$$

$$PH = -\log_{10} [1 \times 10^{-2}]$$

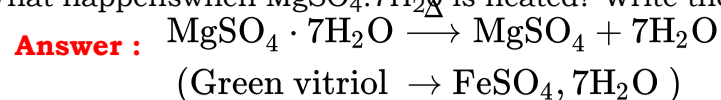
$$PH = (\log_{10} 1 - 2 \log_{10} 10)$$

$$PH = 0 + 2 \times \log_{10} 10$$

$$PH = 0 + 2 \times 1 = 2$$

$$PH = 2.$$

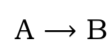
6) What happens when $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ is heated? Write the appropriate equation



7) Define rate of reaction.

Answer : "Rate of a reaction is the change in the amount or concentration of anyone of the reactants or products per unit time".

Consider the following reaction



The rate of this reaction is given by

$$\text{Rate} = -\frac{d[A]}{dt} = +\frac{d[B]}{dt}$$

Where,

[A] - Concentration of A

[B] - Concentration of B

8) Define endothermic reaction. Give an example.

Answer : Reactions in which heat is absorbed are called 'Endothermic reactions'.

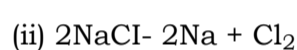
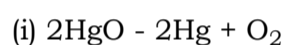


9) What is photolysis?

Answer : Decomposition caused by light is called photolysis.



10) Identify how the following decomposition reactions occur.



Answer : (i) heat (thermolysis)

(ii) electricity (electrolysis)

11) What are metathesis reaction?

Answer : When two compounds react, if their ions are interchanged then the reaction is called double displacement reaction or 'Metathesis Reaction'.

12) What is LPG?

Answer : Liquefied Petroleum Gas is a mixture of hydrocarbon gases like propane, butane, propylene etc

13) Define concentration

Answer : The amount of the substance present in certain volume of the solution is called 'concentration'.

14) Define ionic product of water

Answer : The product of the concentration of hydronium ion and hydroxyl ion is called 'Ionic product of water'. It is denoted as 'K_w' It is mathematically expressed as follows:

$$K_w = [\text{H}^+] [\text{OH}^-]$$

15) What is pH scale?

Answer : pH scale is a scale for measuring hydrogen ion concentration in a solution.

16) Define pH.

Answer : The pH is the negative logarithm of the hydrogen ion concentration

i.e., $\text{pH} = -\log_{10} [\text{H}^+]$

17) Powdered calcium carbonate reacts more readily with hydrochloric acid than marble chips. Give reasons.

Answer : (i) Greater the surface area, greater is the rate of the reaction

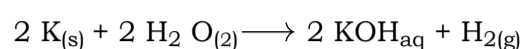
(ii) Powdered calcium carbonate offers large surface area for the reaction to occur at a faster rate.

18) Define reactant and product.

Answer : The compounds or elements which undergo reactions (reactants) are shown to the left of an arrow and the compounds formed (products) are shown to the right of the arrow

19) How to write the chemical reaction in physical state?

Answer : When solid Potassium reacts with liquid water, it produces hydrogen gas and Potassium hydroxide gas and Potassium hydroxide solution. All these information of the reaction is given in the chemical equation as shown below.



20) Write the different types of chemical reactions.

Answer : i) Combination.

ii) Decomposition.

iii) Single displacement.

iv) Double displacement.

v) Combustion reaction.

21) Write the different types of decomposition reaction.

Answer : i) Thermal decomposition reaction.

ii) Electrolytic decomposition reaction.

iii) Photo decomposition reaction.

22) Why does the colour of Copper sulphate change when an iron nail is kept in it? Justify.

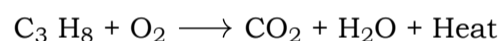
Answer : i) Iron is more reactive than Copper. $\text{Fe} + \text{CuSO}_4 \longrightarrow \text{FeSO}_4 + \text{Cu}$.

ii) In this displacement reaction, Iron displaces Copper from CuSO_4 solution.

iii) Hence, blue colour of the Copper sulphate solution changes into green colour and the Iron nail acquires a brownish colour.

23) What do you mean by exothermic oxidation?

Answer : All these hydrocarbon burns with oxygen to form Carbon dioxide and water.



Heat is evolved. It is an exothermic reaction. As oxygen is added, it is also an oxidation. So combustion may be called as an exothermic oxidation.

24) Physical changes can be reversed easily. Can chemical changes be reversed?

Answer : It is a permanent product is obtained.

25) Can we get back the wood immediately from CO_2 and water?

Answer : We cannot. So it is a permanent change.

26) Why is reaction rate important?

Answer : Faster the reaction, more will be the amount of the product in a specified time. So the rate of the reaction is important for a chemist for designing a process to get a good yield of a product. Rate of reaction is also important for a food processor who hopes to slow down the reactions that cause food to spoil.

27) Write and Tabulate the pH value of some common acids and bases.

Answer :

Common Acids	pH	Common Bases	pH
HCl (4%)	0	Blood plasma	7.4
Stomach acid	1	Egg white	8
Lemon juice	2	Seawater	8
Vinegar	3	Banking soda	9
Oranges	3.5	Antacids	10
Soda, grapes	4	Ammonia water	11
Sour milk	4.5	Drain cleaner	13
Fresh milk	5	Caustic soda	14
Human saliva	6 - 8	4% NaOH	0
Pure water	7	Milk of magnesia	10
Tomato juice	4.2	Coffee	5.6

28) $2\text{H}_2\text{O}_{2(\text{aq})} \rightarrow 2\text{H}_2 + 2\text{O}_{2(\text{g})}$ But H_2O_2 is poured in wound, the backward reaction does not take place. Why?

Answer : When we poured H_2O_2 on wounds, it decomposes into H_2 , and O_2 but oxygen gas moves away from the wound, the backward reaction does not take place.

29) What is the role of manganese dioxide in the heating reaction of potassium chlorate for the production of oxygen gas?

Answer : i) O_2 is prepared in the laboratory by heating KClO_3 which requires to be heated up to a temperature of 630°C . It is dangerous too.

ii) But MnO_2 acts as a positive catalyst which enables the reaction to take place at $200 - 240^\circ\text{C}$ at a much faster rate.

30) Write one example each for chemical reaction to be faster and chemical reactions to be slower in your daily life activities

Answer : a) Faster reaction - Digestion of food

b) Slower reaction - Rusting of iron