



RIGHT CHEMISTRY

For a 100 per cent positive reaction

Fetching full marks in Chemistry is not at all difficult, says Deepti Gupta



COURTESY: SANSKRITI SCHOOL

Chapter 1: Rate of chemical reaction and chemical equilibrium

- Writing of expression of equilibrium constant and of average rate in terms of disappearance of reactants or appearance of products.
- Numerical to find average rate of a reaction and equilibrium constant. The answer should be reported to two decimal places and if asked, mention units correctly.
- Factors affecting rate of a reaction.

- Meaning of dynamic equilibrium
- pH scale.

Question: In a chemical reaction, $2A \rightarrow 4B + C$; express the relationship between the rate of appearance of B, C and disappearance of A

Answer: For the reaction, $\text{Rate} = -\frac{1}{2} \frac{\Delta[A]}{\Delta t} = \frac{1}{4} \frac{\Delta[B]}{\Delta t} = \frac{\Delta[C]}{\Delta t}$

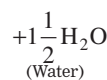
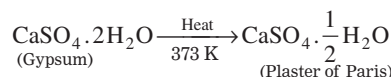
Chapter 2: Some important chemical compounds

- Flow diagram of Solvay process with the reactions.
- Why is baking powder, and not baking soda, added in the preparation of cake or bread?
- What is the real bleaching agent in bleaching powder?
- Reactions for the preparations of gypsum and plaster of Paris
- Why is there a hissing sound when lime is added to water?
- Bessemer process with the diagram and reactions
- Composition of cement
 - What is RCC and why is gypsum added to cement?
 - Types of glass with properties and uses.
 - Quenching, annealing, tempering of steel and uses of different types of steel

Question: Name the compound used in hospitals for fractured bones. Write its chemical name and formula. How is it prepared?

Answer: The compound used in hospitals to set fractured bones is Plaster of Paris. Its chemical name is calcium sulphate hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$). Plaster of Paris is prepared by heat-

ing gypsum



Question: A white powdered solid when added to water produces a hissing sound. Identify the compound. How does this compound react with moist hydrogen chloride gas?

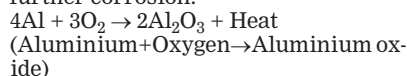
Answer: The white powdered solid that produces a hissing sound when added to water is calcium oxide (lime). When lime reacts with moist hydrogen chloride gas, calcium chloride is formed.
 $\text{CaO} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O}$
 (Calcium Oxide + Hydrogen chloride \rightarrow Calcium chloride + water)

Chapter 14: Metals and Non-metals

- All steps involved in metallurgical processes namely: Concentration of different types of ores, conversion of an ore to its metal oxide by roasting or calcination, reduction of metal oxide to metal and refining of metal.
- Complete metallurgy of iron and aluminium.
- Thermite reaction
- Alloys and corrosion
- Haber's process for the preparation of ammonia
- Why is there a deep blue colour when a solution of ammonium hydroxide is added to copper sulphate?
- Frasch process for the extraction of sulphur
- Points of difference between rhombic and monoclinic sulphur
- Oxidising and the reducing action of sulphur dioxide
- Contact process for the manufacture of sulphuric acid and the equations to indicate that sulphuric acid acts as a dehydrating agent

Question: Aluminium is more reactive than iron, yet there is less corrosion of aluminium when both are exposed to air. Explain.

Answer: When aluminium metal is exposed to air, it combines with the oxygen present in the air to form a thin layer of unreactive aluminium oxide which protects aluminium metal from further corrosion.



But in the case of iron, the rust formed due to the reaction of iron with oxygen

and water present in the air is flaky, so it cannot protect the metal underneath. Therefore, the sample of iron corrodes with time but aluminium does not.

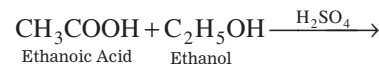
Chapter 15: Carbon compounds

- Nomenclature of different organic compounds
- Preparation of ethanol by fermentation
- Oxidation of ethanol using different reagents, esterification and saponification reactions, denatured alcohol and rectified spirit
- What is formalin?
- Tollen's and Fehling's test with their complete balanced equations
- Addition of hydrogen cyanide to methanol and propanone
- Preparation of propanone using cumene
- Reaction of acetic acid with sodium carbonate, sodium bicarbonate, sodium hydroxide and decarboxylation reaction

Question: An organic compound 'A' has molecular formula $\text{C}_2\text{H}_4\text{O}_2$ and is acidic in nature. On heating with ethyl alcohol and concentrated sulphuric acid, vapours with pleasant fruity smell are released. What is the chemical compound 'A' and what is the chemical equation involved in the reaction?

Answer: The compound 'A' with the molecular formula $\text{C}_2\text{H}_4\text{O}_2$ is Ethanoic acid (CH_3COOH).

On heating with ethyl alcohol and concentrated sulphuric acid, vapours of ethyl ethanoate are formed which have a pleasant fruity smell. The reaction is known as esterification reaction.



All chemical equations should be thoroughly learnt and practiced. When writing a chemical equation, the names of the reactants and products should be clearly mentioned. Diagrams should be neatly drawn and all the labeling must be on one side.

The MCQ paper will test the students for their knowledge of experiments done in Chemistry, Physics, and Biology and practical skills along with the precautions that a student must take in the laboratory.

Revision should be done regularly and written practice of concepts and equations is a must.

All the best!



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