

NTSE

NCERT Solutions for Class 10 Science
CHEMISTRY – Chemical Reactions and Equations



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NCERT ANNEXURE

Below are the questions and answers for your reference:

1. Why should a magnesium ribbon be cleaned before burning in air?

Ans. When magnesium ribbon remains exposed to moist air, a white layer of magnesium oxide is formed on its surface. This hinders the burning of Magnesium. Hence, before burning, this layer is first removed by rubbing with sandpaper.

2. What is a balanced chemical equation? Why should chemical equations be balanced ?

Ans. The chemical equation in which the number of atoms of each element is the same on both the sides (reactants & products) of the equation is known as a balanced chemical equation.

A chemical equation should be balanced to satisfy the law of conservation of mass which states that mass can neither be created nor be destroyed in a chemical reaction. That is, the total mass of the products is always equal to the total mass of the reactants.

3. What is the difference between displacement and double displacement reactions? Write equations for these reactions.

Ans.

Displacement Reaction	Double Displacement Reaction
In a displacement reaction, a more reactive element displaces a less reactive element from its salt solution. Example: $\text{Zn(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$ Here, Zn being more reactive displaces Cu from its salt solution.	In a double displacement reaction, there is an exchange of ions between the solutions of two ionic compounds, to form two new compounds. Example: $\text{BaCl}_2(\text{aq.}) + \text{Na}_2\text{SO}_4(\text{aq.}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{aq.})$ In this reaction, BaCl_2 and Na_2SO_4 exchange their ions to form two new compounds.

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4. Oil and fat containing food items are flushed with nitrogen. Why?

Ans. Oil and fat containing food items are flushed with nitrogen to prevent rancidity, which is the oxidation of oil or fat present in food. Nitrogen being an unreactive gas, does not react with food & also prevents the contact of food with air/ oxygen. In this way, food remains fresh for a much longer time.

5. Explain the following terms with one example each.

(a) Corrosion

(b) Rancidity

Ans. (a) Corrosion: The process of slow eating up of metals due to attack of atmospheric gases such as Oxygen, Carbon dioxide, Hydrogen sulphide, water vapour etc. on the surface of metals so as to form a layer of oxide, carbonate, sulphide etc. on the surface is known as corrosion. Specifically, the corrosion of Iron metal is known as rusting.

(b) Rancidity: The oxidation of oils or fats in food, on exposure to air for a long time, resulting in the formation of compounds having unpleasant smell and taste, is known as rancidity.

For example, potato chips turn rancid and become unfit for eating when kept exposed to air for a long time.

NCERT EXEMPLAR

Below are few objective type questions and their answers:

1. Which of the following statements about the given reaction are correct?



(i) Iron metal is getting oxidised

(ii) Water is getting reduced

(iii) Water is acting as reducing agent

(iv) Water is acting as oxidising agent

(A) (i), (ii) and (iii) (B) (iii) and (iv) (C) (i), (ii) and (iv) (D) (ii) and (iv)

Ans. (C) Hint— The substance which oxidises the other substances in a chemical reaction is known as an oxidising agent. Likewise, the substance which reduces the other substance in a chemical reaction is known as reducing agent.

2. A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

(A) KMnO_4 is an oxidising agent, it oxidises FeSO_4

(B) FeSO_4 acts as an oxidising agent and oxidized KMnO_4

(C) The colour disappears due to dilution; no reaction is involved

(D) KMnO_4 is an unstable compound and decomposes in presence of FeSO_4 to a colourless compound.

Ans. (A)

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3. Which among the following statement(s) is(are) true? Exposure of silver chloride to sunlight for a long duration turns grey due to:

- (i) The formation of silver by decomposition of silver chloride
- (ii) Sublimation of silver chloride
- (iii) Decomposition of chlorine gas from silver chloride
- (iv) Oxidation of silver chloride

(A) (i) only (B) (i) and (iii) (C) (ii) and (iii) (D) (iv) only

Ans. (A)

4. Solid calcium oxide reacts vigorously with water to form calcium hydroxide accompanied by liberation of heat. This process is called slaking of lime. Calcium hydroxide dissolves in water to form its solution called lime water. Which among the following is (are) true about slaking of lime and the solution formed?

- (i) It is an endothermic reaction.
- (ii) It is an exothermic reaction.
- (iii) The pH of the resulting solution will be more than seven.
- (iv) The pH of the resulting solution will be less than seven.

(A) (i) and (ii) (B) (ii) and (iii) (C) (i) and (iv) (D) (iii) and (iv)

Ans. (B)

5. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water respectively is:

(A) 1:1 (B) 2:1 (C) 4:1 (D) 1:2

Ans. (B)

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