

CLASS 10

SCIENCE

NCERT SOLUTIONS

NCERT Solutions for Class 10 Science Chapter 2: Acids, Bases and Salts – Free PDF Download

Acids, Bases and Salts is one of the most exam-heavy chapters in the current 2026-27 CBSE Class 10 Science syllabus, mixing conceptual reasoning with reaction-writing. Below are complete, verified solutions to the end-of-chapter exercise. These Class 10 Science Chapter 2 solutions are also useful as quick revision n...

Contents

NCERT Solutions for Class 10 Science Chapter 2: Acids, Bases and Salts

Why This Chapter Matters

CBSE Exam Weightage

How to Use These Solutions

Class 10 Science Chapter 2 – Notes and Extra Questions

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NCERT Solutions for Class 10 Science Chapter 2: Acids, Bases and Salts

Q1. Which of the following gives the correct increasing order of acidic strength? (a) Water < Acetic acid < Hydrochloric acid (b) Acetic acid < Water < Hydrochloric acid (c) Hydrochloric acid < Water < Acetic acid (d) Water < Hydrochloric acid < Acetic acid

Water is neutral, acetic acid is a weak acid, and hydrochloric acid is a strong acid.

Answer: (a).

Q2. A solution turns red litmus blue, its pH is likely to be: (a) 1 (b) 4 (c) 5 (d) 10

Turning red litmus blue means the solution is basic, and only a pH above 7 is basic.

Answer: (d) 10.

Q3. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains: (a) NaCl (b) HCl (c) LiCl (d) KCl

Egg-shells are made of calcium carbonate. Only an acid reacts with a carbonate to release CO₂ gas (which turns lime water milky). Of the options, only HCl is an acid.

Answer: (b) HCl.

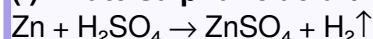
Q4. 10 mL of a solution of NaOH is completely neutralised by 8 mL of a given HCl solution. If we take 20 mL of the same NaOH solution, how much of the same HCl solution is required? (a) 4 mL (b) 8 mL (c) 12 mL (d) 16 mL

The neutralising volume is directly proportional to the NaOH volume: 10 mL needs 8 mL, so 20 mL (double) needs double the acid.

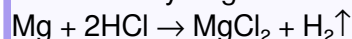
Answer: (d) 16 mL.

Q5. Write word equations and balanced chemical equations for:

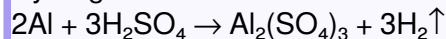
(i) Dilute sulphuric acid + zinc granules: Zinc + Sulphuric acid → Zinc sulphate + Hydrogen.



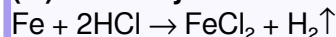
(ii) Dilute hydrochloric acid + magnesium ribbon: Magnesium + Hydrochloric acid → Magnesium chloride + Hydrogen.



(iii) Dilute sulphuric acid + aluminium powder: Aluminium + Sulphuric acid → Aluminium sulphate + Hydrogen.



(iv) Dilute hydrochloric acid + iron filings: Iron + Hydrochloric acid → Iron(II) chloride + Hydrogen.



Q6. Compounds such as alcohols and glucose also contain hydrogen but are not classified as acids. Describe an activity to prove this.

Set up test tubes with dilute HCl, glucose solution, and alcohol, each with two electrodes connected via a battery, bulb and switch (like testing electrolytes). The bulb glows for HCl because it ionises in water to release H⁺ ions, which conduct current. It does not glow for glucose or alcohol because they don't release ions in solution — showing that acidity depends on releasing H⁺ ions, not merely containing hydrogen atoms.

Q7. Why does distilled water not conduct electricity, whereas rain water does?

Distilled water is pure and has no dissolved ions to carry charge. Rain water dissolves atmospheric gases (like CO_2 , forming carbonic acid) and trace impurities, which provide ions, allowing it to conduct.

Q8. Why do acids not show acidic behaviour in the absence of water?

Acids release H^+ ions (as H_3O^+) only when they dissociate in water. Without water, there is no ionisation, so no free H^+ ions are produced and the acidic behaviour is not observed.

Q9. Five solutions A, B, C, D and E, tested with universal indicator, showed pH values of 4, 1, 11, 7 and 9 respectively. Identify: which is neutral, strongly alkaline, strongly acidic, weakly acidic, and weakly alkaline? Arrange them in increasing order of H^+ ion concentration.

D (pH 7) = neutral. C (pH 11) = strongly alkaline. B (pH 1) = strongly acidic. A (pH 4) = weakly acidic. E (pH 9) = weakly alkaline.

H^+ concentration increases as pH decreases, so the increasing order of H^+ concentration is: **C < E < D < A < B.**

Q10. Equal lengths of magnesium ribbon are taken in test tubes A and B. Hydrochloric acid (HCl) is added to test tube A, and acetic acid (CH_3COOH) of the same concentration is added to test tube B. More gas bubbles are seen in test tube A. Give a reason.

HCl is a strong acid and ionises almost completely in water, producing a high concentration of H^+ ions. Acetic acid is a weak acid and ionises only partially, producing fewer H^+ ions at the same concentration. More H^+ ions means a faster reaction with magnesium, so more hydrogen gas is produced in test tube A.

Q11. Fresh milk has a pH of 6. How does the pH change as it turns into curd? Explain.

The pH decreases (the solution becomes more acidic). This happens because lactic acid bacteria convert lactose in milk into lactic acid during fermentation.

Q12. A milkman adds a very small amount of baking soda to fresh milk. Why does this milk take longer to set as curd? What effect does the baking soda have on the taste of the milk?

Baking soda is mildly basic, so it shifts the milk's pH towards the alkaline side. Since curdling needs the pH to drop to an acidic level, starting from a more alkaline point means the lactic acid bacteria take longer to bring the pH down enough — delaying curdling. The milk also tastes slightly bitter/soapy because of the added base.

Q13. Plaster of Paris should be stored in a moisture-proof container. Explain why.

Plaster of Paris ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$) readily absorbs moisture from the air and reacts with it, converting back into gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) and hardening into a solid, unusable mass. A moisture-proof container prevents this reaction from happening before it's needed.

Q14. What is a neutralisation reaction? Give two examples.

A neutralisation reaction is a reaction between an acid and a base that cancels out each other's properties, producing a salt and water.

Examples: $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$, and $\text{Ca}(\text{OH})_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{H}_2\text{O}$ (this is also how farmers neutralise acidic soil using lime, and how antacids neutralise excess stomach acid).

Q15. Give two important uses of (i) Washing soda and (ii) Baking soda.

Washing soda ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$): used in the manufacture of glass, soap and paper; and for removing the permanent hardness of water.

Baking soda (NaHCO_3): used as an ingredient in baking powder to make cakes soft and fluffy; and as a mild antacid to relieve acidity/heartburn.

Why This Chapter Matters

Acids, Bases and Salts is a reliable source of 8–10 marks in the CBSE board paper, spread across MCQs, reaction-writing, and reasoning-based questions. It also connects directly to everyday chemistry — antacids, soil pH, food preservation, and common household chemicals — which is why it's a favourite for case-study/passage-based questions in recent board papers.

CBSE Exam Weightage

This chapter falls under **Unit I: Chemical Substances – Nature and Behaviour** in the CBSE Class 10 Science board exam syllabus. This unit typically carries around **25 marks (31.25%)** of the 80-mark theory paper, based on CBSE's published unit-wise weightage (Question Paper Design). CBSE sets weightage at the unit level rather than chapter-by-chapter, so the exact share from this specific chapter can vary a little between years and sample papers.

How to Use These Solutions

Practice writing the balanced equations from memory rather than just reading them — equation-writing questions are the most commonly dropped marks in this chapter. You can download the full chapter directly from our [Class 10 Science NCERT book page](#), or browse every Class 10 subject on our [Class 10 hub](#).

Class 10 Science Chapter 2 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 10 Science Chapter 2 Extra Questions](#) and [Class 10 Science Chapter 2 Revision Notes](#) for quick revision and extra practice.