CBSE CLASS X

Science (086)

QUESTION PAPER

AI-generated question paper

Code: 0R9OWV **Questions: 21** **Maximum Marks: 47** **Generated: 2026-06-25 13:17**

SELECTIONS USED

Subject	Science
Lessons	1 Chemical Reactions and Equations
Level of understanding	Initial understanding
Question selection	Curated chapter coverage (~3 questions per section)
Model	claude-sonnet-4-6

Composition — Difficulty: 6 straightforward · 13 medium · 2 deep | Types: 13 Short · 6 Very short · 1 MCQ · 1 Long

Q1. straightforward · initial-understanding · § Chapter Introduction **[1]**

Which of the following is NOT a reliable indicator that a chemical reaction has taken place?
(A) Change in colour
(B) Change in shape
(C) Evolution of a gas
(D) Change in temperature

A Change in colour
B Change in shape
C Evolution of a gas
D Change in temperature

◆ **Chemical Reactions and Equations**

Q2. straightforward · initial-understanding · § Chapter Introduction **[1]**

When a magnesium ribbon is burnt in air, a white powdery product is formed. Name this product and write the chemical equation for the reaction.

◆ **Chemical Reactions and Equations**

Q3. medium · initial-understanding · § 1.1 CHEMICAL EQUATIONS **[3]**

The burning of magnesium in air is represented as: $Mg + O_2 \rightarrow MgO$. Is this a balanced chemical equation? Give one reason for your answer and name the law that a balanced chemical equation must satisfy.

◆ **Chemical Reactions and Equations**

Q4. medium · initial-understanding · § 1.1.1 Writing a Chemical Equation **[3]**

The skeletal chemical equation for magnesium burning in oxygen is written as: $Mg + O_2 \rightarrow MgO$. Is this equation balanced? Give a reason for your answer and write the correctly balanced equation.

◆ **Chemical Reactions and Equations**

Q5. straightforward | initial-understanding | § 1.1.2 Balanced Chemical Equations **[1]**

What law of chemistry makes it necessary to balance a chemical equation?

◆ Chemical Reactions and Equations

Q6. straightforward | initial-understanding | § 1.1.2 Balanced Chemical Equations **[1]**

What is a skeletal chemical equation?

◆ Chemical Reactions and Equations

Q7. medium | initial-understanding | § 1.1.2 Balanced Chemical Equations **[2]**

When balancing a chemical equation, why is it not allowed to change the subscripts in a chemical formula?

◆ Chemical Reactions and Equations

Q8. straightforward | initial-understanding | § 1.1.2 Balanced Chemical Equations **[1]**

What do the notations (s), (l), (g) and (aq) represent when written alongside chemical formulae in an equation?

◆ Chemical Reactions and Equations

Q9. medium | initial-understanding | § 1.1.2 Balanced Chemical Equations **[1]**

Water is commonly found as a liquid, but in some chemical reactions it is written as $H_2O(g)$ in the equation. What does this notation tell you about the condition under which water participates in such reactions?

◆ Chemical Reactions and Equations

Q10. deep | initial-understanding | § 1.1.2 Balanced Chemical Equations **[5]**

What does it mean for a chemical equation to be 'balanced'? Using a simple example, describe how you would use the hit-and-trial method to balance an unbalanced equation.

◆ Chemical Reactions and Equations

Q11. medium | initial-understanding | § 1.2 TYPES OF CHEMICAL REACTIONS **[3]**

Iron nails placed in copper sulphate solution turn brownish after some time. What type of chemical reaction is this? Give a reason for the colour change observed in the solution.

◆ Chemical Reactions and Equations

Q12. medium | initial-understanding | § 1.2.1 Combination Reaction **[2]**

When calcium oxide is added to water, the resulting mixture feels hot to the touch. What does this tell you about the nature of the reaction, and what term is used to describe such reactions?

◆ Chemical Reactions and Equations

Q13. deep | initial-understanding | § 1.2.1 Combination Reaction **[3]**

Freshly whitewashed walls initially have a dull finish, but after two to three days they develop a shiny appearance. Explain the chemical reason for this change.

◆ Chemical Reactions and Equations

Q14. straightforward | initial-understanding | § 1.2.2 Decomposition Reaction **[2]**

When ferrous sulphate crystals are heated, what change in colour occurs and what products are formed?

◆ Chemical Reactions and Equations

Q15. medium initial-understanding § 1.2.2 Decomposition Reaction **[3]**

Name the three types of decomposition reactions based on the energy used to bring them about, and give one example reaction for each.

◆ **Chemical Reactions and Equations**

Q16. medium initial-understanding § 1.2.2 Decomposition Reaction **[1]**

Why are decomposition reactions described as endothermic reactions?

◆ **Chemical Reactions and Equations**

Q17. medium initial-understanding § 1.2.2 Decomposition Reaction **[3]**

When lead nitrate is heated, brown fumes are produced along with a solid residue and oxygen gas. (i) Identify the brown fumes and the solid residue. (ii) Write the balanced chemical equation for this reaction and state the type of chemical reaction it represents, giving a reason for your answer.

◆ **Chemical Reactions and Equations**

Q18. medium initial-understanding § 1.2.3 Displacement Reaction **[3]**

When an iron nail is dipped in copper sulphate solution, the blue colour of the solution fades and a brownish coating appears on the nail. What type of reaction is this, and why does the blue colour fade?

◆ **Chemical Reactions and Equations**

Q19. medium initial-understanding § 1.2.4 Double Displacement Reaction **[3]**

When sodium sulphate solution is mixed with barium chloride solution, a white precipitate forms. What type of reaction is this, and why is it given that name?

◆ **Chemical Reactions and Equations**

Q20. medium initial-understanding § 1.2.5 Oxidation and Reduction **[3]**

When copper(II) oxide is heated with hydrogen gas, which substance is reduced? Give one reason based on gain or loss of oxygen.

◆ **Chemical Reactions and Equations**

Q21. medium initial-understanding § 1.3 HAVE YOU OBSERVED THE EFFECTS OF OXIDATION REACTIONS IN EVERYDAY LIFE? **[2]**

Chips manufacturers flush bags of chips with nitrogen gas before sealing them. What problem does this prevent, and why does nitrogen help?

◆ **Chemical Reactions and Equations**

Available for free from:
https://cbsegrade10studyguide.com
https://github.com/orgs/cbse-free-resources/repositories