

CBSE CLASS X
Science (086)QUESTION PAPER
AI-generated question paper

Code: 6BPP8E

Questions: 16

Maximum Marks: 30

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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: 7 straightforward · 9 medium | Types: 10 Short · 5 Very short · 1 MCQ

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

Which of the following observations does NOT indicate that a chemical reaction has taken place?

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

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

◆ Chemical Reactions and Equations

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

When a magnesium ribbon is burned in air, it produces a white powder. What is this powder, and what two substances reacted to form it?

◆ Chemical Reactions and Equations

Q3. straightforward initial-understanding § 1.1 CHEMICAL EQUATIONS [2]

Why is it necessary to balance a chemical equation?

◆ Chemical Reactions and Equations

Q4. straightforward initial-understanding § 1.1.1 Writing a Chemical Equation [1]

What is the difference between a skeletal chemical equation and a balanced chemical equation?

◆ Chemical Reactions and Equations

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

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

◆ Chemical Reactions and Equations

Q6. medium initial-understanding § 1.1.2 Balanced Chemical Equations [2]

A student writes the equation: $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$. Is this a complete and balanced chemical equation? State two ways in which it is incomplete or incorrect.

◆ Chemical Reactions and Equations

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

While balancing a chemical equation, a student writes H_2O_4 instead of $4\text{H}_2\text{O}$ to increase the number of oxygen atoms. Why is this approach incorrect?

◆ Chemical Reactions and Equations

Q8. medium initial-understanding § 1.2 TYPES OF CHEMICAL REACTIONS [3]

Iron nails are dipped in copper sulphate solution. After some time, the blue colour of the solution fades. (i) Name the type of chemical reaction taking place. (ii) What substance is deposited on the iron nails, and why?

◆ Chemical Reactions and Equations

Q9. straightforward initial-understanding § 1.2.1 Combination Reaction [2]

What is a combination reaction? Give one example from everyday life where two substances combine to form a single product.

◆ Chemical Reactions and Equations

Q10. medium initial-understanding § 1.2.1 Combination Reaction [1]

Calcium oxide reacts with water to form calcium hydroxide. What type of energy change occurs in this reaction, and how would you detect it?

◆ Chemical Reactions and Equations

Q11. medium initial-understanding § 1.2.2 Decomposition Reaction [2]

When lead nitrate is heated strongly, brown fumes are produced along with a solid residue and oxygen gas. (i) Name the brown gas evolved. (ii) What type of decomposition reaction is this?

◆ Chemical Reactions and Equations

Q12. medium initial-understanding § 1.2.2 Decomposition Reaction [3]

Decomposition reactions can be brought about by different forms of energy. Name the three forms of energy that can cause decomposition, and give one example of a reaction for each.

◆ Chemical Reactions and Equations

Q13. medium initial-understanding § 1.2.3 Displacement Reaction [3]

Iron nails are dipped in copper sulphate solution and left for some time. Name the type of chemical reaction that takes place and explain why the blue colour of the solution fades.

◆ Chemical Reactions and Equations

Q14. medium initial-understanding § 1.2.4 Double Displacement Reaction [2]

When sodium sulphate solution is mixed with barium chloride solution, a white precipitate of barium sulphate is formed. Name the type of chemical reaction involved and give one reason for your answer.

◆ Chemical Reactions and Equations

Q15. medium initial-understanding § 1.2.5 Oxidation and Reduction [3]

In the reaction between copper(II) oxide and hydrogen gas, copper(II) oxide is converted to copper. Is copper(II) oxide oxidised or reduced in this reaction? Give one reason for your answer.

◆ Chemical Reactions and Equations

Q16. straightforward initial-understanding § 1.3 HAVE YOU OBSERVED THE EFFECTS OF OXIDATION REACTIONS IN EVERYDAY LIFE? [1]

Why do chips manufacturers flush bags of chips with nitrogen gas before sealing them?

◆ Chemical Reactions and Equations

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