

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

Code: V8MTHK

Questions: 12

Maximum Marks: 24

Generated: 2026-06-25 17:38

**SELECTIONS USED**

Subject	Science
Lessons	3 Metals and Non-metals
Level of understanding	Initial understanding
Question selection	Curated chapter coverage (~3 questions per section)
Model	claude-sonnet-4-6

Composition — Difficulty: 6 straightforward · 6 medium | Types: 7 Short · 3 Very short · 2 MCQ

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

Name two physical properties that are generally used to distinguish metals from non-metals.

◆ Metals and Non-metals

**Q2.** straightforward initial-understanding § 3.1 PHYSICAL PROPERTIES [1]

Which of the following is a physical property generally associated with metals?

- (A) They form acidic oxides when burnt in oxygen.  
(B) They can be beaten into thin sheets.  
(C) They are poor conductors of heat and electricity.  
(D) They are brittle and dull in appearance.

A They form acidic oxides when burnt in air.

B They can be beaten into thin sheets.

C They exist as gases at room temperature.

D They react vigorously with cold water.

◆ Metals and Non-metals

**Q3.** straightforward initial-understanding § 3.2 CHEMICAL PROPERTIES OF METALS [1]

When sodium reacts with cold water, name the two products formed.

◆ Metals and Non-metals

**Q4.** medium initial-understanding § 3.2 CHEMICAL PROPERTIES OF METALS [2]

Potassium and sodium catch fire when they react with cold water, whereas calcium does not, even though all three produce hydrogen gas. What is the reason for this difference in behaviour?

◆ Metals and Non-metals

- Q5.** straightforward initial-understanding § 3.2 CHEMICAL PROPERTIES OF METALS [1]  
Which of the following correctly describes what happens when dilute hydrochloric acid is added to copper?  
(A) Hydrogen gas is evolved and a copper chloride solution forms.  
(B) No reaction takes place.  
(C) Copper displaces hydrogen and forms copper oxide.  
(D) Carbon dioxide gas is evolved.
- A Hydrogen gas is evolved and a copper chloride solution forms.  
B No reaction takes place.  
C Copper displaces hydrogen and forms copper oxide.  
D Carbon dioxide gas is evolved.
- ◆ Metals and Non-metals
- Q6.** medium initial-understanding § 3.2 CHEMICAL PROPERTIES OF METALS [2]  
Why is hydrogen gas not produced when most metals react with nitric acid, even though it is produced when the same metals react with hydrochloric acid?
- ◆ Metals and Non-metals
- Q7.** medium initial-understanding § 3.2 CHEMICAL PROPERTIES OF METALS [3]  
Iron filings are added to copper sulphate solution and copper pieces are added to iron sulphate solution. State what you would observe in each case. What do these observations tell you about the relative reactivity of iron and copper?
- ◆ Metals and Non-metals
- Q8.** straightforward initial-understanding § 3.3 HOW DO METALS AND NON-METALS REACT? [3]  
Sodium reacts with chlorine to form sodium chloride. (i) What are the charges on the sodium and chloride ions formed in this reaction? (ii) What force holds these oppositely charged ions together in sodium chloride? (iii) What is the general name for compounds formed by the transfer of electrons between atoms?
- ◆ Metals and Non-metals
- Q9.** medium initial-understanding § 3.3 HOW DO METALS AND NON-METALS REACT? [3]  
Ionic compounds do not conduct electricity in the solid state but conduct electricity when they are melted or dissolved in water. Give a reason for this difference in behaviour.
- ◆ Metals and Non-metals
- Q10.** straightforward initial-understanding § 3.4 OCCURRENCE OF METALS [1]  
What is the difference between a mineral and an ore?
- ◆ Metals and Non-metals
- Q11.** medium initial-understanding § 3.4 OCCURRENCE OF METALS [3]  
Why cannot highly reactive metals like sodium and aluminium be extracted by heating their oxides with carbon? Name the method used to extract such metals.
- ◆ Metals and Non-metals
- Q12.** medium initial-understanding § 3.4 OCCURRENCE OF METALS [3]  
(i) Why must sulphide and carbonate ores be converted into their oxides before reduction with carbon? (ii) Name the processes used to convert (a) sulphide ores and (b) carbonate ores into their respective oxides.
- ◆ Metals and Non-metals

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