



QUICK DRILL · CBSE CLASS 10

Metals and Non-metals

Science · Chapter 3 · 15 MCQs · 20 minutes · PYQ-tagged with time budgets

DATE _____	TOTAL MARKS 15	DURATION 20 min	MARKING +1 / 0	TARGET ≥ 12/15
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OBJECTIVES

Reinforce the four core topics of Metals and Non-metals via 15 PYQ-derived MCQs. Identify weak sub-topics via concept-node IDs (see answer key). Build per-question time budget habit.

INSTRUCTIONS

Attempt all 15. Time budget shown per Q (use it as pacing guide). Mark answers (A/B/C/D) in the margin. Answer key + explanations on the last page. **Don't peek — score yourself honestly.**

SECTION · QUICK DRILL

Q 1-15 · 20 MIN

Q1. Which of the following metals is liquid at room temperature?

(A) Mercury

(B) Sodium

(C) Aluminium

(D) Iron

PYQ 2019 · Delhi · 1m · 20s

Q2. Which non-metal is a good conductor of electricity?

(A) Sulphur

(B) Diamond

(C) Graphite

(D) Phosphorus

PYQ 2020 · All India · 1m · 25s

Q3. The correct order of decreasing reactivity is

(A) $K > Na > Ca$ (B) $Na > K > Ca$ (C) $Ca > Na > K$ (D) $K > Ca > Na$

PYQ 2022 · Delhi · 1m · 25s

Q4. Balance the equation: $Mg + O_2 \rightarrow MgO$. The correct coefficients are

(A) 1, 1, 1

(B) 2, 1, 2

(C) 2, 2, 2

(D) 1, 2, 1

PYQ 2019 · Outside Delhi · 1m · 30s

Q5. Which metal is stored under kerosene?

(A) Iron

(B) Copper

(C) Sodium

(D) Aluminium

PYQ 2021 · Delhi · 1m · 20s

Q6. Which gas is evolved when zinc reacts with dilute sulphuric acid?

(A) O_2 (B) SO_2 (C) H_2 (D) Cl_2

PYQ 2018 · Delhi · 1m · 25s

Q7. The process of heating a sulphide ore in EXCESS of air is called

(A) Calcination

(B) Roasting

(C) Smelting

(D) Refining

PYQ 2023 · Delhi · 1m · 25s

Q8. The chemical formula of rust is

(A) FeO (B) Fe_2O_3 (C) $Fe_2O_3 \cdot xH_2O$ (D) Fe_3O_4

PYQ 2024 · Delhi · 1m · 30s

Q9. Which of the following will NOT displace hydrogen from dilute HCl?

(A) Mg

(B) Zn

(C) Fe

(D) Cu

PYQ 2020 · Delhi · 1m · 25s

Q10. Which compound is amphoteric (reacts with both acid and base)?

(A) Na_2O (B) MgO (C) Al_2O_3 (D) CaO

PYQ 2022 · All India · 1m · 30s

Q11. Galvanisation is the coating of iron with

- (A) Zinc
(C) Tin

PYQ 2021 · Outside Delhi · 1m · 20s

- (B) Copper
(D) Aluminium

Q12. Aqua regia (a mixture that dissolves gold) is

- (A) $3\text{HCl} + 1\text{HNO}_3$
(C) $1\text{HCl} + 1\text{H}_2\text{SO}_4$

PYQ 2019 · Delhi · 1m · 25s

- (B) $3\text{HNO}_3 + 1\text{HCl}$
(D) $1\text{HNO}_3 + 1\text{H}_2\text{SO}_4$

Q13. Brass is an alloy of

- (A) Cu and Sn
(C) Fe and C

PYQ 2023 · All India · 1m · 20s

- (B) Cu and Zn
(D) Pb and Sn

Q14. Which metal is extracted by electrolysis of its molten oxide?

- (A) Iron
(C) Aluminium

PYQ 2024 · All India · 1m · 30s

- (B) Zinc
(D) Copper

Q15. Solid ionic compounds do not conduct electricity because

- (A) They have no electrons
(C) Ions are locked in the lattice

PYQ 2018 · All India · 1m · 30s

- (B) They lack metallic bonds
(D) They are covalent

ANSWER KEY & EXPLANATIONS

Q 1-15 · MARK YOUR SCORE

Q1. Answer: A

Mercury (Hg) is the only metal that is liquid at ordinary room temperature.

Q2. Answer: C

Graphite, an allotrope of carbon, has delocalised electrons and conducts electricity. Diamond does NOT.

Q3. Answer: A

Reactivity series begins $\text{K} > \text{Na} > \text{Ca}$. K is the most reactive of the three.

Q4. Answer: B

$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$. LHS Mg=2, O=2; RHS Mg=2, O=2. Balanced.

Q5. Answer: C

Na (and K) react vigorously with moist air and catch fire on contact with water — stored under kerosene.

Q6. Answer: C

$\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2 \uparrow$. Active metal + dil. acid $\rightarrow$ salt + hydrogen.

Q7. Answer: B

ROASTING = sulphide ore + excess air $\rightarrow$ metal oxide + SO_2 . Calcination is for carbonates without air.

Q8. Answer: C

Rust is HYDRATED iron(III) oxide $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ — the water of hydration is part of the formula.

Q9. Answer: D

Cu is BELOW H in the reactivity series and cannot displace H^+ from acids.

Q10. Answer: C

Al_2O_3 (and ZnO) react with both acids and alkalis — they are AMPHOTERIC oxides.

Q11. Answer: A

Galvanisation = zinc coating on iron. Zn is more reactive than Fe $\rightarrow$ sacrificial protection.

Q12. Answer: A

Aqua regia = 3 parts conc. HCl + 1 part conc. HNO_3 . It dissolves Au and Pt.

Q13. Answer: B

Brass = Cu (70%) + Zn (30%). Bronze is Cu + Sn; steel is Fe + C; solder is Pb + Sn.

Q14. Answer: C

Al is highly reactive $\rightarrow$ electrolytic reduction of molten Al_2O_3 (Hall-Héroult process). Fe/Zn use C-reduction; Cu use mild heating.

Q15. Answer: C

In the solid lattice, ions are fixed in position and cannot move; in molten/aqueous state, ions are free $\rightarrow$ conduction.