

EXAM-DAY · 90-MIN REVISION CARD

Metals and Non-metals

Print this · Fold it · Carry to the exam-hall gate · Revise once · Then walk in.

FORMULAS & KEY RESULTS

Reactivity series: $K > Na > Ca > Mg > Al > Zn > Fe > Pb > (H) > Cu > Hg > Ag > Au$

Metal + $O_2 \rightarrow$ Metal oxide (e.g.
 $2Mg + O_2 \rightarrow 2MgO$; $4Al + 3O_2 \rightarrow 2Al_2O_3$)

Active metal + $H_2O \rightarrow$
Hydroxide + H_2 ($2Na + 2H_2O \rightarrow 2NaOH + H_2 \uparrow$)

Metal + dil. acid $\rightarrow$ Salt + H_2 ($Zn + 2HCl \rightarrow ZnCl_2 + H_2 \uparrow$)

Displacement: $A + BX \rightarrow AX + B$
if $A > B$ in series

Roasting (sulphide): $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$

Calcination (carbonate): $ZnCO_3 \rightarrow ZnO + CO_2$ (no air, heat)

Reduction by carbon: $ZnO + C \rightarrow Zn + CO$

Thermite reaction: $2Al + Fe_2O_3 \rightarrow 2Fe(l) + Al_2O_3 + \text{heat}$

Aqua regia: $3HCl : 1HNO_3$
(dissolves Au, Pt)

Rust formation: $4Fe + 3O_2 + xH_2O \rightarrow 2Fe_2O_3 \cdot xH_2O$

Galvanisation: thin Zn layer on Fe to prevent corrosion

TOP 5 PYQ PATTERNS

1 Extraction of moderately reactive metal (Zn/Fe/Cu) — roasting + reduction + refining

5 marks · 90% of years

Three equations: ore $\rightarrow$ oxide $\rightarrow$ metal. Always identify the ore correctly (sulphide $\rightarrow$ roast, carbonate $\rightarrow$ calcine).

2 Reactivity series — predict displacement + explain extraction route

5 marks · 95% of years

List at least 8 metals in correct order and quote ONE balanced displacement equation.

3 Corrosion / rusting — two conditions + two prevention methods

3 marks · 85% of years

Conditions = $O_2 + H_2O$ (both). Methods: galvanisation, painting, alloying, oiling.

4 Properties of ionic compounds (high m.p., conductivity in molten state)

3 marks · 75% of years

Always include WHY (strong electrostatic attraction; ions locked in lattice when solid).

5 Amphoteric oxides — Al_2O_3 / ZnO react with BOTH acid and base

2 marks · 70% of years

Two equations needed: oxide + HCl AND oxide + $NaOH$.

90-MIN REVISION FLOW

0-15 min

Re-read NCERT pp. 35-58. Tick every BOLD term and write a one-line meaning beside it.

15-30 min

Write the reactivity series 5 times from memory until letter-perfect. Quiz yourself by hiding random metals.

30-50 min

Practise the 4 extraction-step equations (concentration $\rightarrow$ roasting/calcination $\rightarrow$ reduction $\rightarrow$ refining) for Zn AND for Fe.

50-70 min

Drill: 15 quick-drill MCQs from this chapter pack. Mark wrong ones; revisit remediation slide id.

70-85 min

Write a model 5-mark answer on Extraction of Metals OR Reactivity Series from memory; check against topper template.

85-90 min

Flash-revise: rust conditions, aqua regia ratio, thermite reaction equation, three common alloys (steel, brass, bronze).

Confidence, not anxiety. You've practised this all year. Trust your steps. Don't change strategy on exam morning.
Helpline: **+91 70330 05444** · **readyforboards.com**