

The Algorithmic Blueprint: Half-Reaction Method

A foolproof, step-by-step visual matrix for
balancing complex redox reactions.

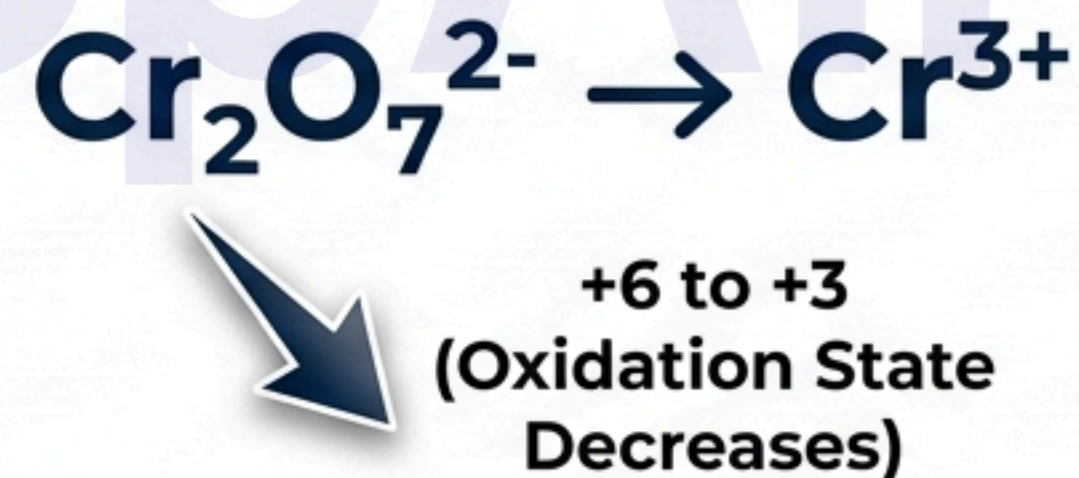




Oxidation Half



Reduction Half



Oxidation Half



(Already balanced: 1 Fe on both sides)

Reduction Half



Formula Bank

Rule: Balance all atoms EXCEPT Oxygen and Hydrogen first.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Acidic Medium

Oxidation Half



(No O or H present)

Reduction Half

Step 3a:



Step 3b:

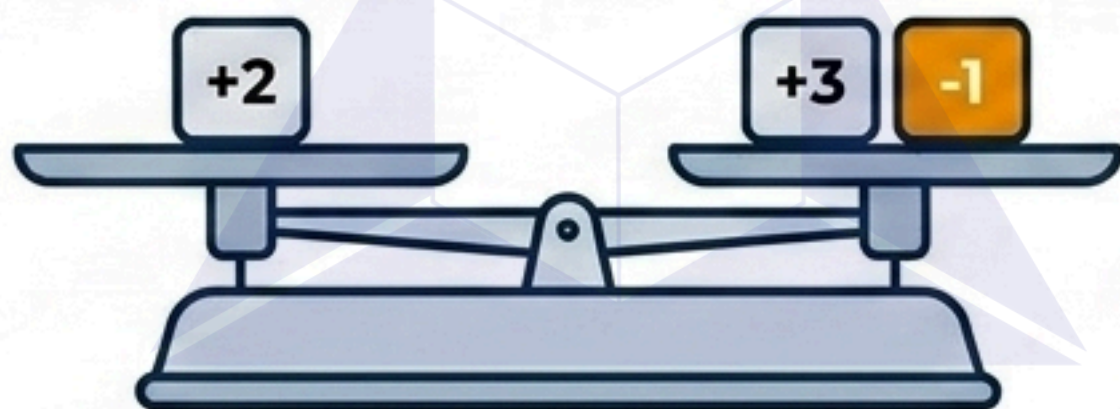


Formula Bank

Rule: Add H_2O to balance O.
Add H^+ to balance H.

Acidic Medium

Oxidation Half

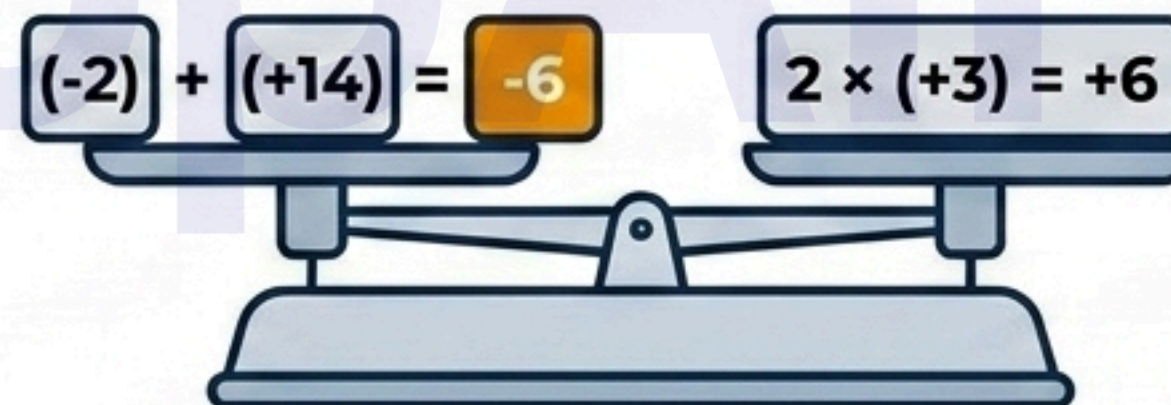


Action: Add $1e^{-}$ to the right.

Formula Bank

Rule: Balance charge by adding electrons (e^{-}).

Reduction Half



Action: Add $6e^{-}$ to the left.

Acidic Medium

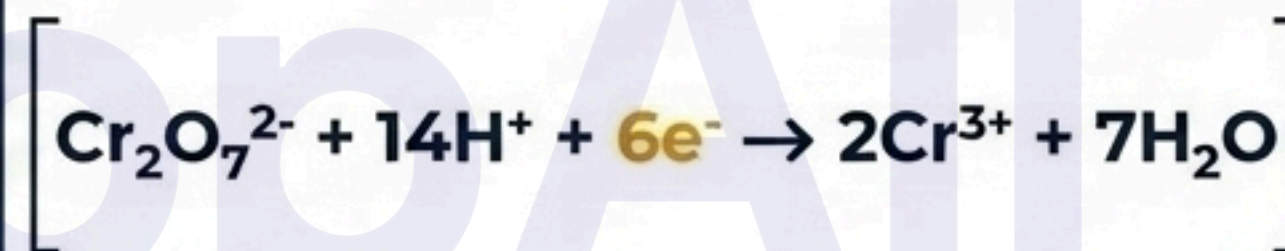
Oxidation Half

[× 6]



Reduction Half

[× 1]



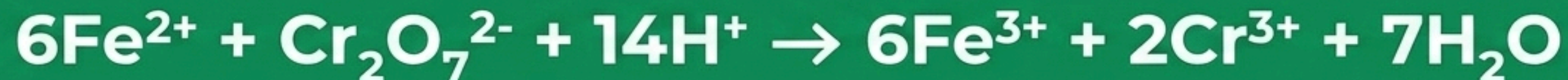
Key Takeaways

Find the Lowest Common Multiple (LCM) of electrons. Multiply entire half-reactions to match electron counts.

The Master Synthesis

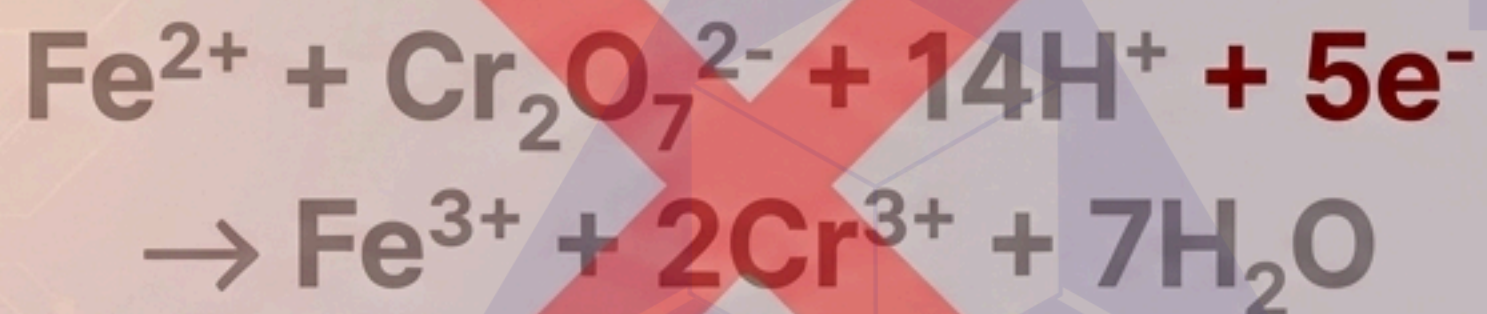


Fully Balanced Equation



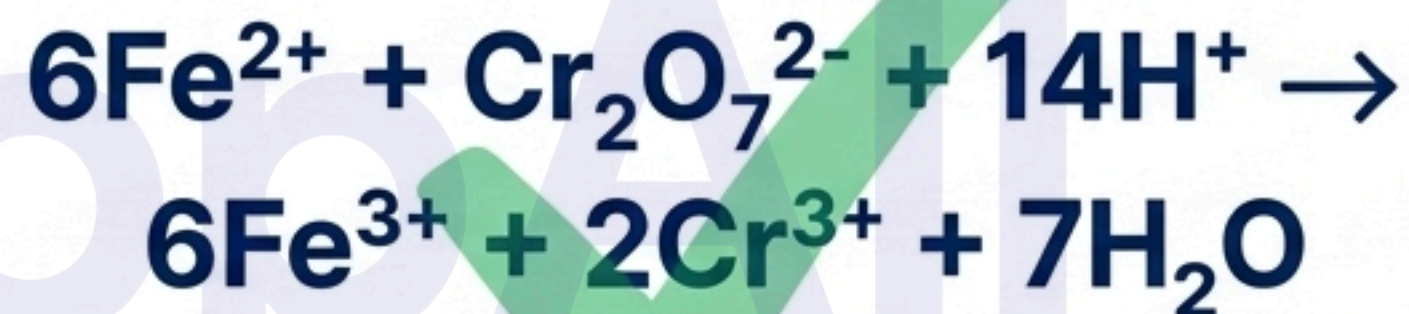
JEE Trap Alert: The Leftover Electron

The Trap



If your final equation contains free electrons, your LCM was wrong. **Instant 0 marks.**

The Gold Standard



Key Takeaways

- ✓ Atoms balanced on both sides.
- ✓ Net charge is identical on both sides (e.g., +24 on left = +24 on right).
- ✓ **ZERO** free electrons remaining.



You've Learned the Theory.

Now Let's Test It.

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Practicing MCQs gets you marks.

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Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

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