OCR A-LEVEL CHEMISTRY · H432

The A* Chemistry Playbook

Not revision notes. A complete system for turning six modules of OCR A Chemistry into one connected subject — **understand it, compress it, apply it to questions you have never seen before.**

All 6 modules, unified | Calculation survival guide | Organic reaction network | Practical & analytical skills | Synoptic problem solving | Command words & mark schemes

MADE BY

Saad Umer

A in OCR A-Level Chemistry (H432) | Consistent A/A* across mock series

ORIENTATION

How the OCR A exam is actually built

Before you learn a single reaction, learn the shape of what you're being tested by. OCR A H432 has **six modules** — but it does not examine them as six separate topics. All three written papers carry synoptic assessment, and Paper 3 is explicitly built to be **unified across Modules 1–6.** Revise like the modules are chapters and you will be ambushed by the exam's actual structure.

The six modules

MODULE	CONTENT	WHERE IT'S EXAMINED
1	Development of practical skills in chemistry	Embedded across Papers 1, 2 and 3
2	Foundations in chemistry — atoms, bonding, moles, redox	Paper 1 and Paper 3
3	Periodic table and energy — periodicity, groups, enthalpy, rates, equilibrium	Paper 1 and Paper 3
4	Core organic chemistry — mechanisms, functional groups to carbonyls	Paper 2 and Paper 3
5	Physical chemistry and transition elements — rate equations, Kc/Kp, acids & buffers, electrode potentials, transition metals	Paper 1 and Paper 3
6	Organic chemistry and analysis — aromatic, carbonyls, acids, nitrogen chemistry, polymers, synthesis, spectroscopy	Paper 2 and Paper 3

The three papers

PAPER	MODULES ASSESSED	LENGTH & MARKS	WEIGHT
Paper 1 Periodic table, elements and physical chemistry	1, 2, 3, 5	2h 15m 100 marks	37%
Paper 2 Synthesis and analytical techniques	1, 2, 4, 6	2h 15m 100 marks	37%
Paper 3 Unified chemistry	**Any** of 1–6	1h 30m 70 marks	26%

WHY THIS MATTERS PRACTICALLY

- Papers 1 and 2 are not "half the course each" in the way students assume — they split content, but each still draws on Module 1 practical skills and can cross-reference the other module pair.
- Paper 3 cannot be revised as "a bit of everything." It is built so that a single question can move from organic mechanism to equilibrium to a calculation in three sub-parts.
- The data booklet and periodic table are provided in every paper — nothing on them is worth memorising, but not knowing where to find a value under pressure costs real time.

USE THE SPEC AS A REVISION CHECKLIST

OCR can only examine what is written in the H432 specification, or a novel application of it. Print the specification content pages. For every statement, mark:

- ✓ — I could write this from memory, correctly.
- **?** — I recognise it but couldn't produce it unprompted.
- ✗ — I could not begin.

Only the ✗ and **?** rows deserve dedicated revision time.

PART 2 · CHAPTER 6

The calculation survival guide

Every Chemistry calculation OCR sets — moles, titrations, rates, Kc, pH — runs through the same six-step routine. Learn the routine once; stop treating each calculation type as a separate topic.

Identify → **Equation** → **Units** → **Substitute** → **Calculate** → **Check**

Moles, mass & concentration

CORE EQUATIONS

$n = m \div M$

$n = c \times V$ (V in dm^3)

$PV = nRT$ (gas calculations)

TRAP

Volumes given in cm^3 must be converted to dm^3 ($\div 1000$) before use in $c = n/V$. This single conversion error is the most common cause of an "otherwise correct" calculation being wrong by a factor of 1000.

Titrations

Identify the two reacting species → write the balanced equation → use the mole ratio from the equation, **not** a 1:1 assumption → find moles of the known solution → scale to the unknown → convert to concentration or mass as asked.

TRAP

Forgetting to use the *mean concordant titre* (titres within 0.10 cm^3 of each other), and forgetting that the mole ratio in the balanced equation may not be 1:1 — always check the equation before dividing.

Percentage yield & atom economy

$$\% \text{ yield} = (\text{actual} \div \text{theoretical}) \times 100$$

$$\% \text{ atom economy} = (M \text{ of desired product} \div \Sigma M \text{ of all reactants}) \times 100$$

Atom economy is about the *equation*, not the experiment — it does not need an actual experimental yield to calculate.

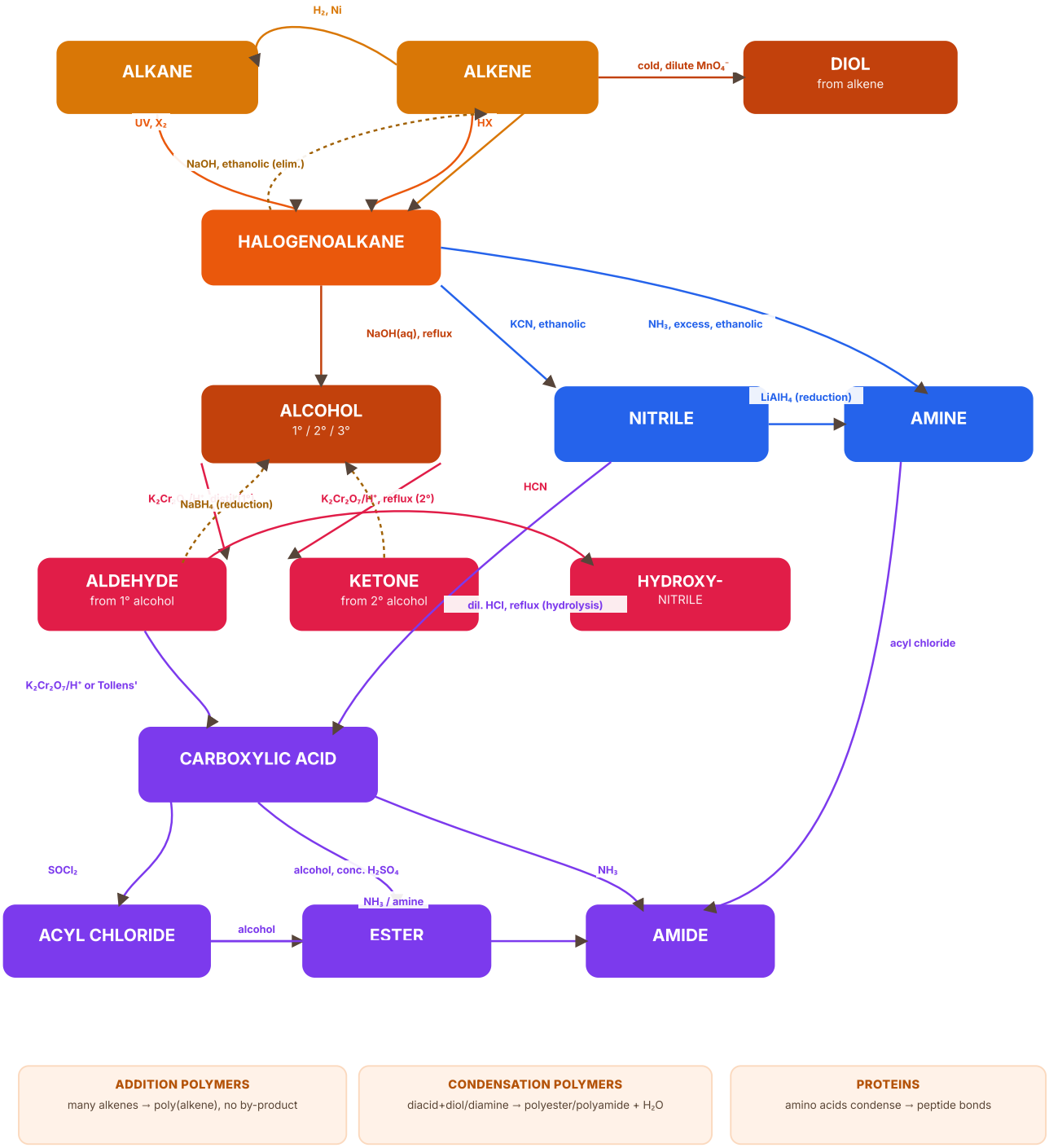
Empirical & molecular formula

Mass (or %) → divide each by atomic mass → divide all by the smallest → round to simplest whole-number ratio → this is the empirical formula. Molecular formula = empirical formula × n, where n = M_r(molecular) ÷ M_r(empirical).

PART 4 · CHAPTER 18

The functional-group master flowchart

Every organic reaction you need is a route between two nodes on this map. Learn the map, and "which reaction is this?" becomes "which arrow connects these two boxes?"



Solid arrows are the reactions worth knowing cold; dashed arrows are reverse reductions and the elimination side-route. Aromatic, phenol and nitrogen chemistry continue on the next page.