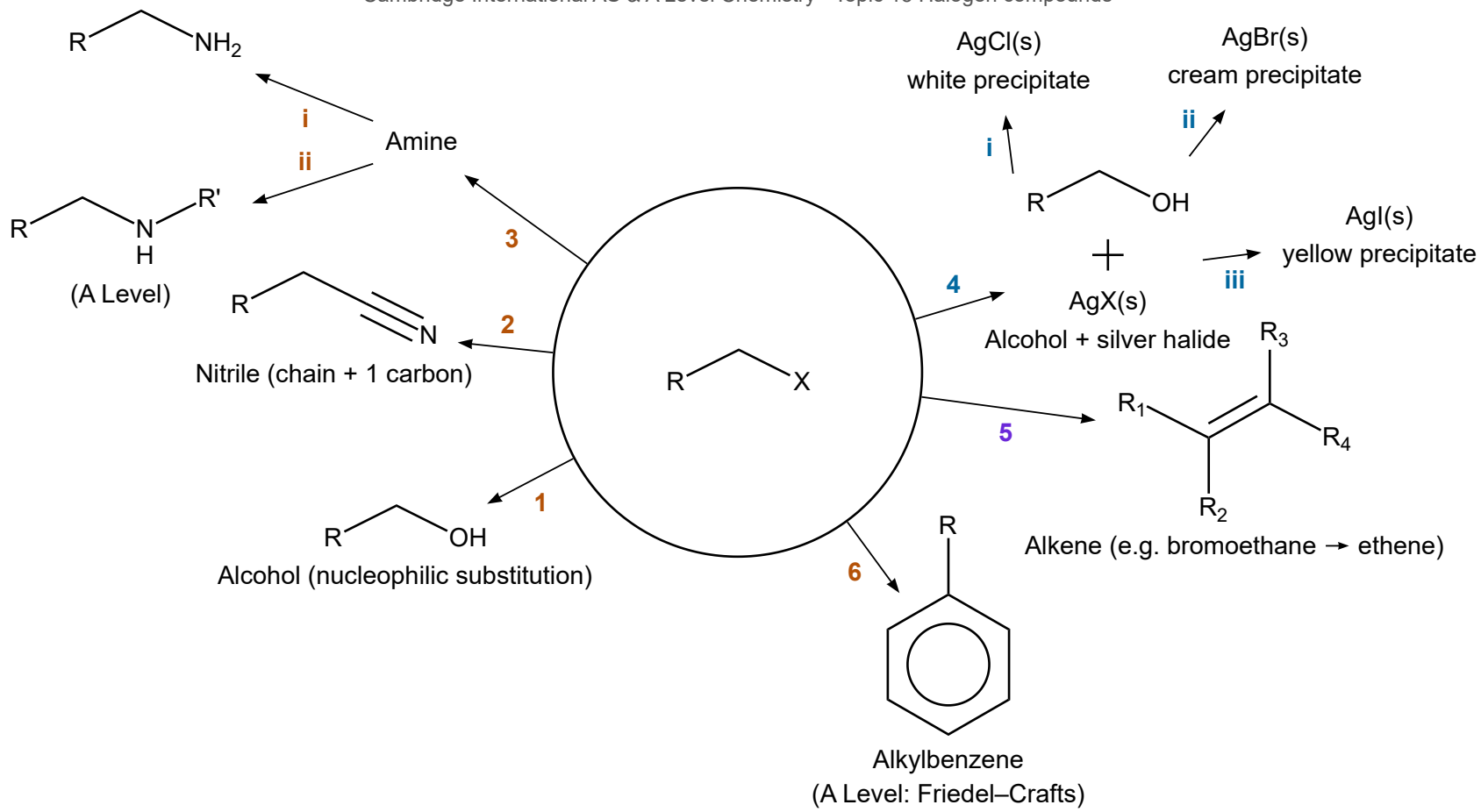
Halogenoalkanes Map

Cambridge International AS & A Level Chemistry · Topic 15 Halogen compounds



1 substitution: NaOH(aq), heat

2 substitution: KCN in ethanol, heat

3 substitution: NH_3 in ethanol, heat under pressure
- **i** NH_3 in ethanol, heat under pressure → primary amine
- **ii** primary amine, $R'NH_2$, in ethanol, heat in a sealed tube → secondary amine

4 hydrolysis: $AgNO_3$(aq) in ethanol, warm
- **i** slowest (C–Cl strongest)
- **ii** intermediate rate
- **iii** fastest (C–I weakest)

5 elimination: NaOH in ethanol, heat

6 substitution (electrophilic): benzene, $AlCl_3$, heat (e.g. CH_3Cl → methylbenzene)

Primary halogenoalkanes react by S_N2, tertiary by S_N1, secondary by both.
Halogenoarenes (e.g. chlorobenzene) do not undergo these substitutions: the C–Cl bond is strengthened by the ring.

substitution hydrolysis elimination

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