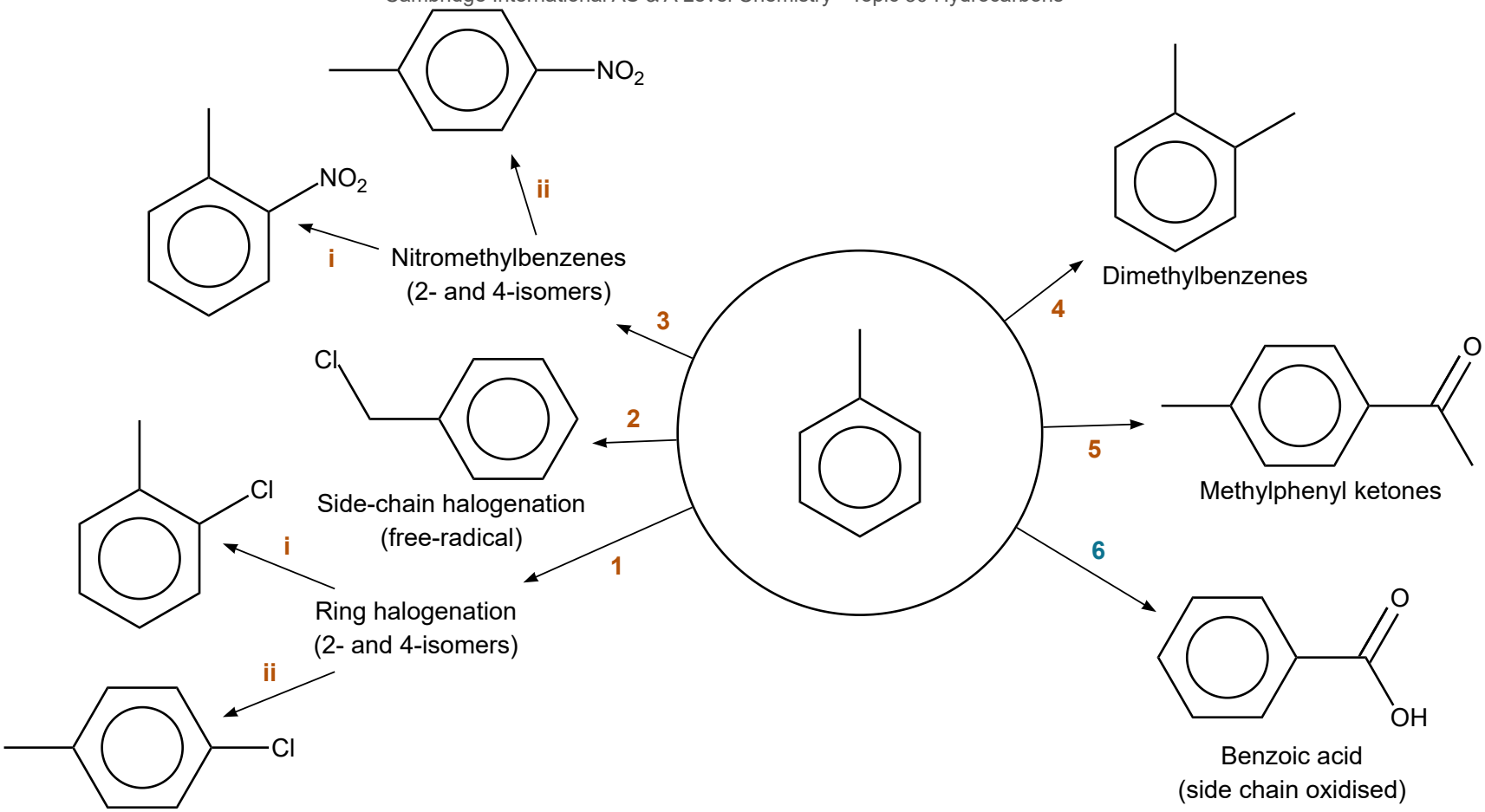
Methylbenzene Map

Cambridge International AS & A Level Chemistry · Topic 30 Hydrocarbons



1 substitution (electrophilic): Cl_2 ($AlCl_3$) or Br_2 ($AlBr_3$), room temperature, dark
i 2-chloromethylbenzene
ii 4-chloromethylbenzene

2 substitution (free-radical): Cl_2 or Br_2, UV light (or heat), no catalyst

3 substitution (electrophilic): conc. HNO_3 and conc. H_2SO_4, 25–60 °C
i 2-nitromethylbenzene
ii 4-nitromethylbenzene

4 substitution (electrophilic): CH_3Cl, $AlCl_3$, heat (Friedel–Crafts alkylation)

5 substitution (electrophilic): CH_3COCl, $AlCl_3$, heat (Friedel–Crafts acylation)

6 oxidation: [O]; hot alkaline $KMnO_4$, then dilute acid, heat under reflux

$-CH_3$ activates the ring and directs to the 2- and 4-positions.
Catalyst in the dark: ring substitution; UV light: side-chain substitution.

substitution oxidation

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