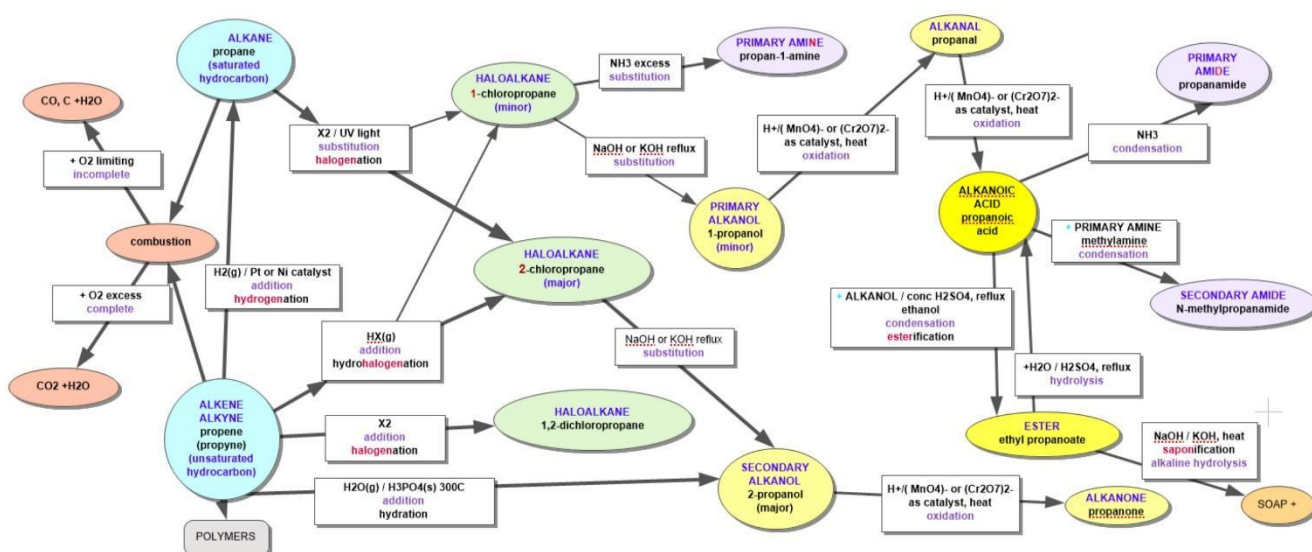


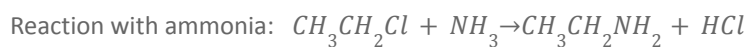
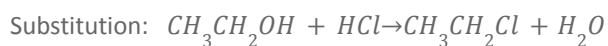
# REACTION PATHWAYS REVISION

## 1. Devise reaction pathways for the following reactions (Chan, et al., 2019, p. 370) (12 marks)

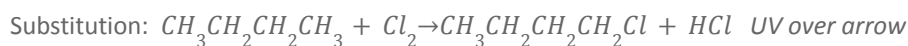
- Ethanamine from ethene
- Butan-1-ol from butane
- Pentanoic acid from 1-chloropentane
- Methanoic acid from methane
- Ethanol from ethene
- Propyl methanoate from propane and methane



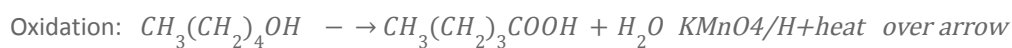
**a) Ethanamine from ethene**



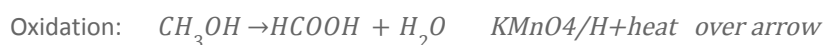
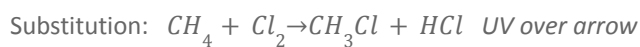
**b) Butan-1-ol from butane**



**c) Pentanoic acid from 1-chloropentane**



**d) Methanoic acid from methane**



**e) Ethanol from ethene**

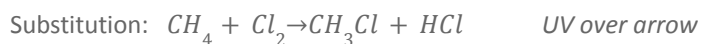


**f) Propyl methanoate from propane and methane**

**From propane to propan-1-ol:**



**From methane to methanoic acid:**



Oxidation:  $CH_3OH \rightarrow HCOOH$   $KMnO_4/H+heat$  over arrow

**Esterification:**  $HCOOH + CH_3CH_2CH_2OH \rightleftharpoons HCOOCH_2CH_2CH_3 + H_2O$