**2.2.1 OXIDATION REACTIONS OF ALCOHOLS**

1. **Primary alcohols**

a) Write an equation to show the partial oxidation of ethanol. Name the organic product and state the reagents and conditions required for this reaction.

This reaction is known as the **partial oxidation of ethanol**.

b) Write an equation to show how the further oxidation of the product in 1 (a). Name the organic product and state the reagents and conditions required for this reaction.

c) Write an equation to show the reactions in 1 (a) and 1 (b) taking place in a single step.

This reaction is known as the **complete oxidation of ethanol**.

d) Draw and name the apparatus used for the partial oxidation of a primary alcohol. Explain how the apparatus used ensures that the alcohol is **partially** oxidized.

e) Draw and name the apparatus used for the complete oxidation of a primary alcohol. Explain how the apparatus used ensures that the alcohol is **completely** oxidized.

2. a) For the following primary alcohols:

i) Write equations to show the partial oxidation of the alcohol and the further oxidation of the product.

ii) Name the organic product of both reactions.

iii) Write an equation to show the complete oxidation of the alcohol in a single step.

Propan-1-ol

Methanol

Butan-1-ol

Methylpropan-1-ol

b) State the molecular formula of the first four members of the homologous series of aldehydes. Hence deduce the general formula of an aldehyde.

c) State the molecular formula of the first four members of the homologous series of carboxylic acids. Hence deduce the general formula of a carboxylic acid.