

Question One- Complete the table

Name	Structure	Functional group(s)
2-methyl Pentane	$ \begin{array}{cccccc} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & & & \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{C}-\text{H} \\ & & & & & \\ & \text{H} & \text{H} & \text{H} & \text{CH}_3 & \text{H} \end{array} $	Alkane
Ethan-1,2-diol	$ \begin{array}{ccc} & \text{OH} & \text{OH} \\ & & \\ \text{H} & -\text{C} & -\text{C}-\text{H} \\ & & \\ & \text{H} & \text{H} \end{array} $	Alcohol
2-amino butane	$ \begin{array}{cccc} & \text{H} & \text{NH}_2 & \text{H} & \text{H} \\ & & & & \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{C}-\text{H} \\ & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} \end{array} $	amine
Propanoic acid	$ \begin{array}{ccc} & \text{H} & \text{H} & \text{O} \\ & & & // \\ \text{H} & -\text{C} & -\text{C} & -\text{C} \\ & & & \backslash \\ & \text{H} & \text{H} & \text{OH} \end{array} $	Carboxylic acid
1,1-dichloro ethane	$ \begin{array}{ccc} & \text{H} & \text{H} \\ & & \\ \text{H} & -\text{C} & -\text{C}-\text{Cl} \\ & & \\ & \text{H} & \text{Cl} \end{array} $	Chloro alkane
<i>Cis</i> but-2-ene	$ \begin{array}{ccc} & \text{H} & \text{H} \\ & & \\ \text{H}_3\text{C} & -\text{C} & =\text{C}-\text{CH}_3 \end{array} $	Alkene
Ethyne	$ \text{H}-\text{C}\equiv\text{C}-\text{H} $	Alkyne

Question Two- Complete the table

Reaction	Type of reaction	Reagents
Example: Ethene \rightarrow Ethanol	Addition	$\text{H}_2\text{O}/\text{H}^+$ (or H_2SO_4 (aq))
Ethanol \rightarrow Ethanoic acid	Oxidation	KMnO_4/H^+ or $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$
Ethene \rightarrow Ethan-1,2-diol	Oxidation	KMnO_4/H^+ or $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$
Ethene \rightarrow 1,2-dichloro ethane	Addition	Cl_2
Ethanol \rightarrow 1-chloro ethane	Substitution	PCl_5
1-chloroethane \rightarrow 1-amino ethane	Substitution	NH_3 (alcoholic)
1-chloroethane \rightarrow Ethene	Elimination	KOH (alcoholic)
1-chloroethane \rightarrow Ethanol	Substitution	KOH (aq)
Ethanol \rightarrow Ethene	Elimination	H_2SO_4 (conc.)
Ethanoic acid \rightarrow sodium ethanoate	Acid and Base (neutralisation)	NaOH
1-amino ethane \rightarrow ethyl ammonium chloride	Acid and Base (neutralisation)	HCl