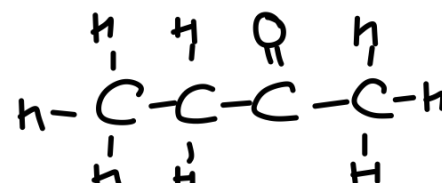
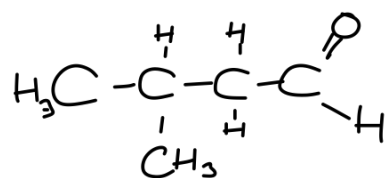
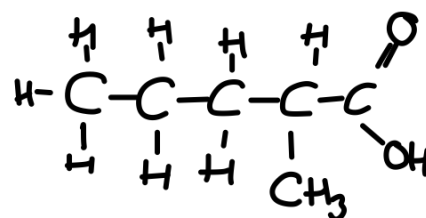
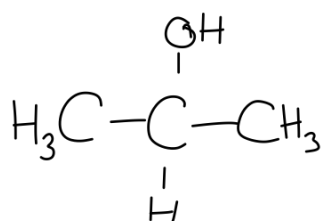


## Higher: Systematic Organic Chemistry

Number of carbons	Prefix
1	
2	
3	
4	
5	
6	
7	
8	

Family	Suffix	Functional group name	Functional group formula
Alcohols			
Carboxylic acids			
Esters			
Aldehydes			
Ketones			

Naming compounds





Drawing compounds

2-methylpropan-2-ol

3-methylbutanoic acid

Pentanal

4-methylhexan-2-one

Hexyl butanoate

methyl propanoate



Draw these compounds

- a) butan-2-ol
- b) 3-methylpentan-2-one
- c) 2,4-methylhexanal
- d) 3-methylpentan-1-ol
- e) Ethyl propanoate
- f) Butyl heptanoate

Esters are made by a condensation reaction between alcohols and carboxylic acids.

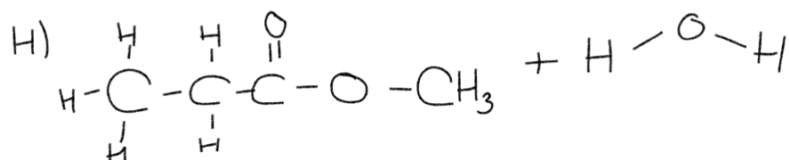
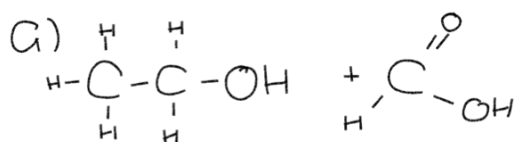
This reaction requires concentrated sulfuric acid as a catalyst, a water bath (reactants and products are flammable) and a condenser (to condense gases back into the reacting vessel).

This is a reversible reaction. The ester can be hydrolysed into alcohol and carboxylic acid.



## Complete the reaction equations

- A) ethanol + ethanoic acid
- B) Propanol + butanoic acid
- C) 2-methylbutanol + propanoic acid
- D) Ethyl pentanoate + water
- E) Pentyl hexanoate + water
- F) 3-methylhexyl methanoate + water



Alcohol types

Primary

Secondary

Tertiary

Oxidising alcohols

Primary

Secondary

Tertiary

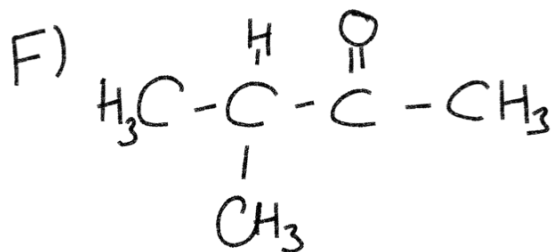
## Oxidising agents

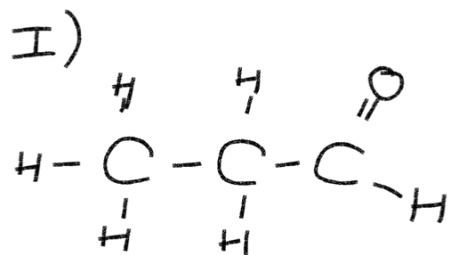
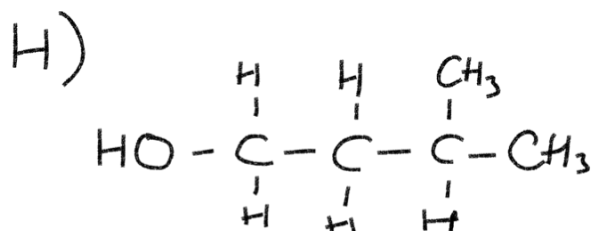
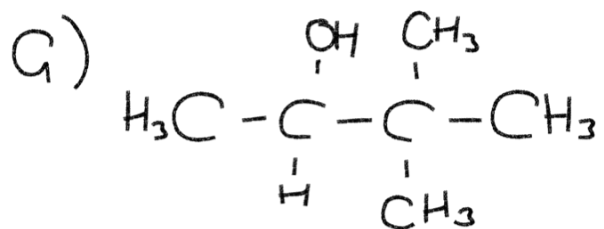
Oxidising agent	Colour change	Reduction equation
copper (II) oxide		
Acidified potassium dichromate		
Fehling's solution		
Tollen's reagent		

?

Name/draw the product(s) of oxidation

- A) ethanol
- B) Butanal
- C) 2-methylpropan-1-ol
- D) 3-methylpentan-3-ol
- E) 3-methylhexan-2-ol





Reduction is the opposite of oxidation.



?

Draw the reduction products

