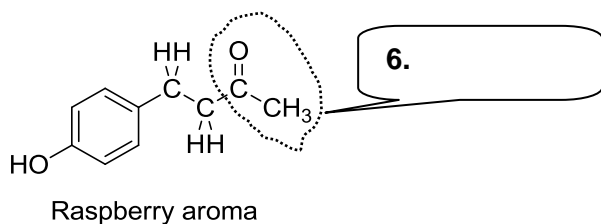
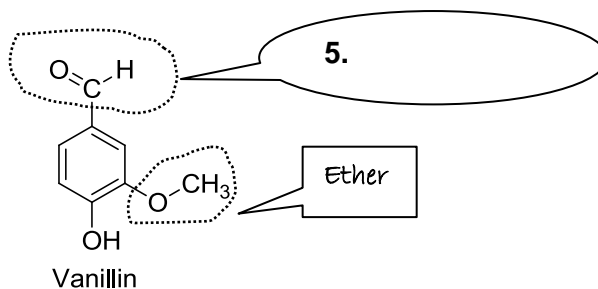
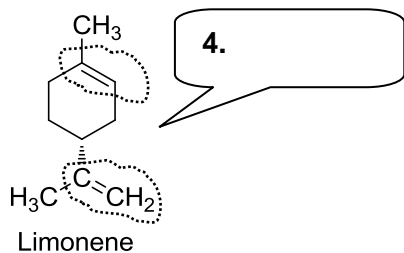
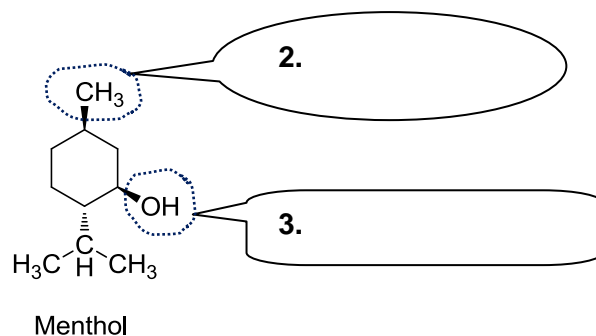
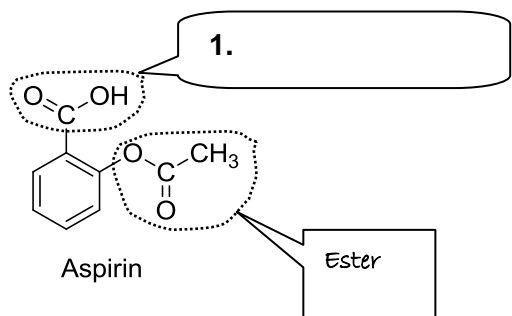


# STARTER FOR 10...

## 5.1.1 Functional groups

In each of the speech bubbles write the general name for the functional group ringed. (In the structures below the rings are shown in a 'skeletal' form. Where you can see a corner then there is a carbon with the appropriate number of hydrogens)



8. Considering the limonene molecule given above.

(a) Draw the displayed formula

(1 mark)

(b) Calculate the molecular formula

(1 mark)

(c) Deduce the empirical formula

(1 mark)

## Chapter 5 ANSWERS

### 5.1.1 Functional groups

1. Carboxylic acid
2. Methyl
3. Alcohol
4. Alkene
5. Aldehyde
6. Ketone
7. Halogen, or chlorine
8. (a) displayed formula should show all the bonds (look for all the C-H bonds on the methyl groups drawn out)  
(b)  $C_{10}H_{16}$   
(c)  $C_5H_8$

### 5.1.2 Nomenclature

1. **Prefixes** – OH, -Br,  $CH_3$ , **Suffixes** C=C, RCOR, RCHO, RCOOH, -OH ( ½ mark each)
2. 1-bromo-propan-2-ol (or numbers the other way around), 2-hydroxybut-2-ene (or but-2-en-2-ol), 3-methylpentan-3-ol  
*(2 marks each, one mark for getting the correct naming stems in there, the other for the correct order)*

### 5.1.3 Formulae

1. The simplest whole number ratio of elements in a substance
2. (a) General formula (b) (i)  $C_nH_{2n+2}$ , (ii)  $C_nH_{2n}$
3. (a)  $C_6H_{14}O_2$  (b)  $CH_3C(OH)_2CH(CH_3)CH_2CH_3$  (c) All bonds should be drawn out, look for –O-H bonds drawn.
4. (a) CH (b)  $C_6H_6$
5.  $C_6H_{12}$

### 5.1.4 Isomerism

#### Question 1

- |                          |                       |                |
|--------------------------|-----------------------|----------------|
| 1. 2,3-dimethylbut-2-ene | 3. Hex-2-ene          | 5. Cyclohexane |
| 2. –                     | 4. 3-methylpent-2-ene |                |

#### Question 2 $C_6H_{12}$

Question 3 Hex-3-ene  $CH_3CH_2CH=CHCH_2CH_3$

Question 4 Isomers 3, 4 and 6